

Perfectionism, anxiety and achievement academic in medical students

Perfeccionismo, ansiedad y rendimiento académico en estudiantes de medicina

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Abstract

Objective: to analyze the relationship between perfectionism, anxiety and academic performance in medical students. Methodology: non-experimental research with a quantitative and correlational approach. The sample was non-probabilistic of the intentional type and included 363 medical students from universities in Mexico; 29.2% men and 70.8% women, with an age of 20.87 years. Two instruments were applied: the Multifactorial Perfectionism Scale and the Trait and State Anxiety Inventory. To obtain information on the academic performance of the students, they were asked their cumulative general average up to now. Data collection was carried out using a Google form and the collected data was analyzed in the SPSS version 23.0 program. Contribution: A significant difference was found in general anxiety, women presented higher levels of anxiety. compared to men (2.62 vs 2.37 p=0.00). Likewise, a significant negative relationship was found between state anxiety and trait anxiety and academic performance (-.191 -.199 p<0.01) and a significant negative relationship between maladaptive perfectionism and academic performance (-.182 p <0.01).

Resumen

Objetivo: analizar la relación entre el perfeccionismo, la ansiedad y el rendimiento académico en estudiantes de medicina. Metodología: investigación no experimental con enfoque cuantitativo y de tipo correlacional. La muestra fue no probabilística de tipo intencional e incluyó a 363 estudiantes de medicina de universidades de México; 29.2% hombres y 70.8% mujeres, con una edad de 20,87 años. Se aplicaron 2 instrumentos, la Escala Multifactorial de Perfeccionismo y el Inventario de Ansiedad de Rasgo y Estado. Para obtener la información sobre el rendimiento académico de los estudiantes, se les preguntó su promedio general acumulado hasta el momento. La recolección de datos se llevó a cabo por un formulario de Google y los datos recabados fueron analizados en el programa SPSS versión 23.0. Contribución: Se encontró una diferencia significativa en la ansiedad general, las mujeres presentaron niveles más altos de ansiedad. en comparación con los hombres (2,62 vs 2,37 p=0,00). Así mismo, se encontró una relación negativa significativa entre ansiedad estado y ansiedad rasgo y el rendimiento académico (-,191 -,199 p<0,01) y una relación negativa significativa entre el perfeccionismo desadaptativo y el rendimiento académico (-,182 p<0,01).

Medical Students, Anxiety, Perfectionism

Universitarios de medicina, Ansiedad, Perfeccionismo

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Introduction

Several studies have pointed to university students as a population vulnerable to developing mental health problems such as anxiety, stress and others. Anxiety was seen to be on the rise in times of pandemic, so Cortina (2022) conducted a systematic investigation of scientific materials published in different countries on the subject through different databases and found a high prevalence of anxiety in young students.

The possible explanations for the high rates of anxiety found in these students vary from one study to another, among those mentioned were having a chronic illness, using permanent medication, having previous consultation with psychology or psychiatry, being female, being overweight or underweight, living alone, having less than 5 hours of leisure time per week, lack of time to eat, sleeping less than 5 hours per day, not having a restful sleep, feeling discriminated against and the commute to the university being longer than 90 minutes. On the other hand, those significantly associated with less anxiety were attending religious events, going to discos or restaurants, playing sports, being in a union or married, having children, having had sexual activity, being of African descent and coming from rural areas (Monterrosa-Castro et al., 2020; Pinilla et al., 2020). Another factor associated with anxiety has been perfectionism (Pineda-Espejel et al., 2018), which has also been linked to the development of eating disorders (Scappatura et al., 2017). A definition of perfectionism that has been widely disseminated and taken up in various studies on the subject is that of Frost, Marten, Lahart and Roseblate (1990), who conceive of perfectionism as the inclination to set high performance expectations combined with a critical evaluation of these expectations and an excessive preoccupation with making mistakes. Perfectionism has negative consequences for learning, caused by constant effort, negative self-criticism and also has an impact on health, so it is important that this information reaches educational institutions and teachers (McKay & Stewart 2023).

In recent years, this relationship between anxiety and perfectionism has been found in students at previous educational levels, such as the study by Álvarez et al. (2021) with 1588 students between 12 and 18 years of age in Ecuador, where it was observed that the greater the perfectionism, the greater the school anxiety. Similar results were found by Ceccon and Jorge (2019), who observed a relationship between state anxiety and the discrepancy subscale of perfectionism in 27 middle school student tutors in Córdoba, Argentina. However, further research is needed on the relationship between these variables at the university level, since, although there is research on this topic, such as that carried out by Aragón and Riveros (2021) with 558 university students at UNAM, where a significant relationship between anxiety and maladaptive perfectionism was found, there is very little current literature on the subject in this population.

There is a study on temperament profiles and perfectionism in high-ability university students, which showed that temperament may be another factor that is closely related to perfectionists (Fletcher et al., 2023).

In 2019, the World Health Organization (WHO, 2022) mentioned that 301 million people suffered from an anxiety disorder, including 58 million children and adolescents. However, it later reported that in the first year of the COVID-19 pandemic alone this figure increased by more than 25%. This worsening of the public health problem due to the pandemic was also observed in the Mexican population in a study by Gaitán-Rossi et al. (2021). Given these statistics, it is important to take into account what the WHO Director-General, Dr. Tedros Adhanom Ghebreyesus, added in the previously cited report that "the information we now have on the impact of COVID-19 on the world's mental health is only the tip of the iceberg", as a way of drawing the attention of all countries to give greater importance to mental health and to remember that there were many more factors that were provoking anxiety.

The journal issued by the Universidad Iberoamericana [IBERO] (2017) mentioned that the teacher responsible for the emotional skills development and prevention programme at the Universidad Iberoamericana, at the fifth RIECA CDMX symposium, pointed out that university students in Mexico City have a higher rate of anxiety compared to the general population because they are continuously subjected to a high load of academic demands, adapting to a new social environment, experiencing economic and family problems and even leaving their place of origin to continue studying. While anxiety is related to various disorders and constructs, one of them is perfectionism (Pineda-Espejel et al., 2018; Álvarez et al., 2021; Cecon and Jorge, 2019; Aragón and Riberos, 2021). The latter construct has been defined in various ways. One of them is given by Frost, Maretn, Lahart and Rosenblate (1990), who define it as the tendency to set high performance expectations in combination with an overly critical evaluation of them and a growing concern about making mistakes. From Hamachek's theoretical work, two types of perfectionism began to be differentiated: normal and neurotic perfectionism, in order to differentiate the positive and negative characteristics of the construct. Although different ways of calling and conceiving this positive and negative side of perfectionism have emerged, we will use those proposed by Slaney, Rice, Mobley, Trippi and Ashby (2001): Adaptive and maladaptive perfectionism. Referring to the presence of high expectations which, on the one hand, in adaptive perfectionism have low discrepancy, and in maladaptive perfectionism have high discrepancy, i.e. the perception of not meeting one's own expectations.

The university environment, as an area where the high competitiveness and personal demands of its students stand out, in addition to the possibility of a concern for obtaining high levels of performance and not failing in terms of academics, has become a place of interest for various research on perfectionism (Fernán et al., 2010).

Although mental health is essential in all people, we will focus on medical students, since as health professionals they are among the main people who need to set an example of the importance of self-care, not only in the physical but also in the mental sphere. Moreover, it is well known that the level of demand of their profession is very high and a relationship between their performance in their profession and the level of anxiety and the type of perfectionism they display has been reported (Lagos et al., 2017; Trunce et al., 2020).

The importance of studying anxiety lies in the fact that it has been classified by the WHO and the Pan American Health Organization (PAHO), in most countries in the Region of the Americas, as the second most disabling mental disorder (World Health Organization & Pan American Health Organization, 2018). Moreover, this problem affects mental, psychological and social health; it compromises attention, concentration and decision-making skills; and it also leads to unsatisfactory academic performance and school dropout (Bohórquez, 2007; Agudelo et al., 2008; Carrillo, 2008; Moreno et al., 2009; Celis et al., 2001). Several studies have found that early identification of this disorder not only minimises the possibility of academic failure, but also greatly reduces other health risk behaviours, such as smoking, alcohol consumption or maladaptive eating behaviours (Agudelo et al., 2008; Campo et al., 2005). For the above reasons, we consider it essential to know the factors that influence the development of this pathology with current, local and scientifically relevant information. Despite the fact that anxiety has been related to perfectionism, there is not much literature on the subject, and therefore in this study we will seek to find out whether perfectionism influences the development of this mental health problem and these, in turn, in the academic performance of students, complementing the previous information in order to determine what would be the practical utility of developing prevention and/or intervention programmes with more precision in these factors and thus improve the quality of life of future professionals who will later be responsible for taking care of the health of the community in the same way.

Thus, it is of vital importance to find one of the possible causes of anxiety in these university students and develop prevention and intervention plans to improve the students' quality of life and combat the presence of mental disorders that may worsen over time. Due to previous links between academic performance, perfectionism and anxiety and the presence of the latter two in university students, this paper asks the following question: Is there any relationship between anxiety, academic performance and perfectionism in university medical students?

Objective: to find out if there is a relationship between perfectionism, anxiety and academic performance through measurement instruments in university medical students.

Methodology

The research design is non-experimental with a quantitative, cross-sectional and correlational approach.

Participants

A non-probabilistic purposive sample of 363 undergraduate medical students, 29.2% male and 70.8% female. Their age ranged from 17 to 48 years ($M=20.87$ years, $SD=2.79$). The students belonged to different educational institutions, 51% were from the Universidad Autónoma de Nuevo León; 10.7% from the Universidad de Sonora, Hermosillo campus; 9.1% from the Universidad Estatal de Sonora, Benito Juárez unit; 7.7% from the Universidad Autónoma de Durango; 6.1% from the Universidad Autónoma de Baja California, Mexicali campus; and 15.6% from other universities. 30.6% were in their fifth semester, 14.6% in their third semester, 12.9% in their seventh semester, 11.8% in their fourth semester and 7.2% in their eighth semester, 9.1% in their first semester, 5% in their second semester, 3.3% in their sixth semester and 5.6% in more advanced semesters. 53.7% of the participants are studying in universities located in the state of Nuevo León, 29.2% in the state of Sonora, and the remaining 17.2% in other Mexican states.

Instruments

Two instruments were applied, the first one was the Multifactor Perfectionism Scale (Frost, et al., 1990), which contains six subscales corresponding to the dimensions of perfectionism: personal standards, comprising items 4, 6, 12, 16, 19, 24 and 30; concern about mistakes, comprising items 9, 10, 13, 14, 18, 21, 23, 25 and 34; doubts about actions, dimension assessed with items 1, 11, 15, 20 and 26; parental expectations, comprising items 3, 5, 22 and 35; parental criticism, comprising items 17, 28, 32 and 33; and organisation, which is assessed with items 2, 7, 8, 27, 29 and 31. The questionnaire is made up of 35 items with a Likert scale of response between 1 (strongly disagree) and 5 (strongly agree). The second instrument was the Inventory of State and Trait Anxiety (IDARE) (Spielberger et al., 1966) which measures two dimensions of anxiety: state (refers to how the subject feels at the moment) and trait (how the subject generally feels, regardless of specific situations). The trait anxiety section contains 20 items with a response scale ranging from 1 to 4 points (1=not at all, 2=a little, 3=quite a lot and 4=a lot). While the trait anxiety dimension is made up of 20 items with a Likert scale of response between 1 (almost never) and 4 (almost always). According to the manual and instructions created by Spielberger, & Díaz-Guerrero, (1975), the higher the scores, the higher the anxiety. However, there are items that should be scored in reverse, i.e., scores of 1, 2, 3 and 4 will be transformed, respectively, into scores of 4, 3, 2 and 1. The reverse items on the state anxiety scale are the following: 1, 2, 5, 8, 10, 11, 15, 16, 19 and 20. While the reverse items on the trait anxiety scale are the numbers: 1, 6, 7, 10, 13, 16 and 19. To obtain information about the students' academic performance, each participant was asked their cumulative GPA up to the time the research was being conducted.

Procedure and statistical analysis

All questionnaires were uploaded to the Google Forms digital platform. The link for university students to answer the questionnaire was provided by the authors of the research. By accessing the link, interested students could read the informed consent to be aware of the objective of the research, as well as the benefits and risks of participating. Those who accepted, proceeded to answer all the measurement instruments. Descriptive and inferential statistics were used in SPSS software version 23.0.

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Results

The mean for perfectionism was 3.06. In adaptive perfectionism, the mean was 3.54 and in maladaptive perfectionism, 2.82. On the other hand, for general anxiety the mean was 2.55. For state anxiety the mean was 2.56 and for trait anxiety 2.53. Finally, the mean academic performance of the students was 86.87 (see table 1).

(n=363)	
State anxiety	2,56 ± 0,62
Trait anxiety	2,53 ± 0,50
General anxiety	2,55 ± 0,52
Adaptive perfectionism	3,54 ± 0,92
Maladaptive perfectionism	2,82 ± 0,85
General perfectionism	3,06 ± 0,79
Academic performance	85,87 ± 6,67
Mean ± Standard deviation	

Table 1 Descriptive statistics of variables of interest

Comparison tests were conducted to examine whether the variables of interest of perfectionism and anxiety were different between males and females. No statistically significant differences were found between the means for perfectionism in both sexes. Differences were found between males and females in state anxiety (2.38 vs. 2.63 p=0.00), the same in trait anxiety (2.36 vs. 2.60 p=0.00) between males and females respectively. Finally, statistically significant differences were also found between men and women in general anxiety (2.37 vs. 2.62 p=0.00) (see table 2).

	Mens (n=102)	Women (n=249)	p*
Academic performance	85,13 ± 5,61	86,17 ± 7,04	0,18
State anxiety	2,38 ± 0,65	2,63 ± 0,59	0,00
Trait anxiety	2,36 ± 0,51	2,60 ± 0,48	0,00
adaptive perfectionism	3,41 ± 1,01	3,60 ± 0,88	0,07
Maladaptive perfectionism	2,69 ± 0,79	2,87 ± 0,87	0,08
General perfectionism	2,93 ± 0,79	3,11 ± 0,78	0,05
General anxiety	2,37 ± 0,54	2,62 ± 0,49	0,00
* t-Student test p<0.05 is statistically significant			
Mean and standard deviation			

Table 2 Comparison analysis of perfectionism and anxiety between genders

Regarding the relationship between variables, a significant negative relationship was found between anxiety and academic performance, both general, as well as state and trait dimensions. Other variables with which academic performance had a significant negative relationship were maladaptive perfectionism and general perfectionism. Finally, a significant positive relationship was observed between maladaptive perfectionism and anxiety, both with its state and trait dimensions and with general anxiety. On the other hand, no significant relationship was found between adaptive perfectionism and the academic performance and anxiety variables (see Table 3).

	RA	AR	AE	PD	PA	PG	AG
Academic performance	1						
Trait anxiety	-,199**	1					
State anxiety	-,191**	,730**	1				
Maladaptive perfectionism	-,182**	,391**	,386**	1			
Adaptive perfectionism	0,017	0,015	0,036	,602**	1		
General perfectionism	-,125*	,286**	,291**	,951**	,820**	1	
General anxiety	-,209**	,914**	,945**	,417**	0,028	,310**	1
** Correlation is significant at the 0.01 level (bilateral).							
* Correlation is significant at the 0.05 level (bilateral).							

Table 3 Correlation matrix between the study variables

Conclusions

According to the information obtained in the study, there is a significant positive relationship between general perfectionism and anxiety, as well as between the latter and maladaptive perfectionism. This is consistent with the findings of Aragón and Riveros (2021) after a study involving 558 university students from UNAM where a significant relationship was observed between anxiety and maladaptive perfectionism. It was also found that those who experienced greater anxiety and perfectionism had lower academic performance.

Díaz and Castro (2020) mention that the anxiety present in various aspects of student life such as exams, overload of academic and practical activities of their career generate a significant impact that translates into alterations at the cognitive, physical and perceptual levels that prevent students from responding correctly to school demands. In relation to this, in the present study the students stated that they did not feel rested at all and were quite worried about any possible setbacks.

Tamannaefar & Hadadi (2023) correlated the mediating role of maladaptive cognitive emotion and regulation strategies in the relationship between negative perfectionism and adolescent social anxiety, obtaining a significant relationship, which is a contribution to the field of prevention, diagnosis and treatment of anxiety disorder.

Likewise, in another study, Trunce et al. (2020) found that, compared to other conditions such as stress or depression, anxiety has the most significant relationship in the average student. However, there is also evidence that anxiety is not always related to GPA or academic performance. In this regard, Reyes et al. (2017) surveyed students at a medical school in Mexico prior to their internship process and found that there was no significant relationship between anxiety and academic performance. Díaz and Castro (2020) offer an explanation for this by stating that "there are many factors that actively influence academic performance, these factors can be directly related to the academic context or be external to it". In other important results, it was found that, among the surveyed population, females had a higher prevalence of anxiety. In this regard (González-Jaimes et al., 2020; cited in Cortina, 2022) mentions that there are few exceptions where the prevalence of anxiety is observed in the male population. In another study Monterrosa-Castro et al. (2020) mention that some factors that make women more prone to anxiety are: genetics, sex hormones, the capacity for chemical and endocrine reaction to stress, greater presence of some neurotransmitters and the existence of related neuropsychological determinants. Fekih-Romdhane et al., (2023) report that self-critical perfectionism may mediate between self-esteem and life satisfaction, suggesting the roles of self-esteem and perfectionism as key areas that help improve students' life satisfaction.

In conclusion, this study aimed to find out whether there is a relationship between perfectionism and anxiety in medical students through measurement instruments and whether perfectionism and anxiety influence the academic performance of medical students. The results obtained confirm that there is a negative relationship between academic performance and anxiety, as well as a negative relationship between academic performance and perfectionism. In addition, a positive relationship was found between anxiety and perfectionism.

These findings suggest that both anxiety and perfectionism are important factors to consider when investigating the academic performance of undergraduate medical students.

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