Prevalence of anxiety and depression, level of physical activity, and quality of life in physical education students from a university in northeastern Brazil

Prevalência de ansiedade e depressão, nível de atividade física e qualidade de vida em estudantes de educação física de uma universidade no nordeste do Brasil

Prevalencia de ansiedad y depresión, nivel de actividad física y calidad de vida en estudiantes de educación física de una universidad del nordeste de Brasil

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ABSTRACT
Introduction: Anxiety and depression are disorders that may arise when an individual enters higher education, a pivotal moment in their professional career, leading to various changes in behavior and lifestyle and potential consequences such as specific routine alterations, reduced levels of physical activity, and limited free time for social life and leisure. The psychological challenges manifest across various spheres of the student's life: physical, social, emotional, cognitive, and academic performance. Objective: To describe the prevalence of anxiety and depression, the level of physical activity, and the quality of life among undergraduate students in physical education from a university in northeastern Brazil. Methods: A descriptive, cross-sectional study was conducted with 120 (22.3±4.4 years) undergraduate (56) and bachelor (64) students in physical education. The International Physical Activity Questionnaire, the Hospital Anxiety and Depression Scale Questionnaire, and the WHOQOL-bref Questionnaire were administered to one hundred and twenty students enrolled in the Physical Education course at the State University of Paraíba. Results: There is a prevalence of anxiety and depression among the students. Highly active or active students showed lower prevalence of anxiety and depression compared to irregularly active and sedentary ones. Regarding the students' quality of life, the social relationship domain presented a higher score while the physical domain had the lowest, however, all above 50% of the total score. Conclusion: Higher education students in undergraduate and bachelor's programs in physical education from a northeastern Brazilian high school...
university exhibit few anxious and depressive symptoms, high levels of physical activity, and good quality of life.

Keywords: mental health, physical education, physical activity, depression, anxiety.

RESUMO
Introdução: Ansiedade e depressão são transtornos que podem surgir quando um indivíduo ingressa no ensino superior, um momento crucial em sua carreira profissional, levando a várias mudanças no comportamento e estilo de vida, com potenciais consequências como alterações específicas na rotina, níveis reduzidos de atividade física e tempo livre limitado para vida social e lazer. Os desafios psicológicos se manifestam em várias esferas da vida do estudante: física, social, emocional, cognitiva e desempenho acadêmico. Objetivo: Descrever a prevalência de ansiedade e depressão, o nível de atividade física e a qualidade de vida entre estudantes de graduação em educação física de uma universidade no nordeste do Brasil. Métodos: Um estudo descritivo, transversal, foi realizado com 120 (22,3±4,4 anos) estudantes de graduação (56) e bacharelado (64) em educação física. O Questionário Internacional de Atividade Física, o Questionário Hospitalar de Ansiedade e Depressão e o Questionário WHOQOL-brief foram administrados a cento e vinte estudantes matriculados no curso de Educação Física da Universidade Estadual da Paraíba. Resultados: Há prevalência de ansiedade e depressão entre os estudantes. Estudantes muito ativos ou ativos apresentaram menor prevalência de ansiedade e depressão em comparação com aqueles irregularmente ativos e sedentários. Em relação à qualidade de vida dos estudantes, o domínio das relações sociais apresentou uma pontuação mais alta, enquanto o domínio físico teve a mais baixa, no entanto, todos acima de 50% do total da pontuação. Conclusão: Estudantes de ensino superior em programas de graduação e bacharelado em educação física de uma universidade no nordeste do Brasil exibem poucos sintomas de ansiedade e depressão, altos níveis de atividade física e boa qualidade de vida.

Palavras-chave: saúde mental, educação física, atividade física, depressão, ansiedade.

RESUMEN
Introducción: La ansiedad y la depresión son trastornos que pueden surgir cuando un individuo ingresa en la educación superior, un momento crucial en su carrera profesional, lo que lleva a varios cambios en el comportamiento y el estilo de vida, con posibles consecuencias como alteraciones específicas en la rutina, niveles reducidos de actividad física y tiempo libre limitado para la vida social y el ocio. Los desafíos psicológicos se manifiestan en diversas esferas de la vida del estudiante: física, social, emocional, cognitiva y rendimiento académico. Objetivo: Describir la prevalencia de ansiedad y depresión, el nivel de actividad física y la calidad de vida entre los estudiantes de pregrado en educación física de una universidad del noreste de Brasil. Métodos: Se realizó un estudio descriptivo, transversal, con 120 (22,3±4,4 años) estudiantes de pregrado (56) y licenciatura (64) en educación física. Se administraron el Cuestionario Internacional de Actividad Física, el Cuestionario de Ansiedad y Depresión Hospitalaria y el Cuestionario WHOQOL-brief a ciento veinte estudiantes matriculados en el curso de Educación Física de la Universidad Estatal de Paraíba. Resultados: Hay prevalencia de ansiedad y depresión entre los estudiantes. Los estudiantes muy activos o activos mostraron menor prevalencia de ansiedad y depresión en comparación con los irregularmente activos y sedentarios. En cuanto a la calidad de vida de los estudiantes, el dominio de las relaciones sociales presentó una puntuación más alta, mientras que el dominio físico tuvo la más baja, sin embargo, todos por
encima del 50% del total de la puntuación. Conclusión: Los estudiantes de educación superior en programas de pregrado y licenciatura en educación física de una universidad del noreste de Brasil exhiben pocos síntomas de ansiedad y depresión, altos niveles de actividad física y buena calidad de vida.

**Palabras clave:** salud mental, educación física, actividad física, depresión, ansiedad.

## 1 INTRODUCTION

There are strong indications that from the time they enter universities until they complete their courses, many of these students end up developing some psychiatric disorders (Feliciano, 2019). The estimate is that at least 15% to 25% of university students experience some disorder during their education (Garbin et al., 2021).

Depression and anxiety disorders can be defined as a set of psychological conditions that result in significant ramifications, not only in the lives of the affected individuals but also for their loved ones, which is why they are recognized as public health issues (WHO, 2017) and begin to negatively interfere with the individual’s quality of life (Lelis et al., 2020).

Depression is a multifactorial disorder, manifesting through feelings such as sadness, irritability, apathy, low self-esteem, sleep or appetite disturbances, fatigue, cognitive difficulties, and habitual thoughts of death (WHO, 2017). On the other hand, anxiety is an inherent emotion in human existence, being a crucial natural reaction for self-preservation, despite generating unpleasant sensations and apprehension (WHO, 2017; Lelis et al., 2020; Rezende et al., 2022).

According to Garbin et al (2021), there are some motivations that lead students to acquire these disorders as being away from their families, in addition to the change in routine. Quality of life refers to various aspects related to people's daily lives, considered a complex concept with multiple influences, including physical and mental health (Pereira et al., 2012).

Studying the determinants of physical and mental health is crucial to better understand individual quality of life (Rezende et al., 2022), as lifestyle is among the determinants of quality of life, including habits and routines, with physical activity being considered one of the determinants of physical and mental health (Rodrigues et al., 2020). Physical activity is understood as any bodily movement resulting from skeletal muscle contraction, requiring energy expenditure (Shinn et al., 2020).
The increasing number of cases of anxiety and depression, along with the rise in physical inactivity, is a growing concern. University students, especially those preparing to enter the job market, face uncertainties that can lead to anxious and sad thoughts. The pressure and fear associated with career and the fulfillment of a double workload, between work and college, often result in decreased or lack of physical activity (Rezende et al., 2022). This study aimed to assess the prevalence of anxiety and depression, level of physical activity, and quality of life in university students, highlighting the importance of these aspects.

2 MATERIALS AND METHODS

2.1 STUDY TYPE

This study is characterized as a descriptive cross-sectional field research (Thomas, Nelson e Silverman, 2009), in which approximately 20% of the total students enrolled in the Physical Education course at the institution under study were included.

2.2 STUDY SAMPLE

A total of 120 (58 female and 62 male, 22.3 ± 4.4 years) undergraduate students voluntarily participated in the present study, all regularly enrolled in the 2023.2 semester in the undergraduate programs in physical education (bachelor's and teaching degree) at the State University of Paraíba, Campus I, located in the city of Campina Grande - Paraíba/Brazil. Of this total, 62 were male and 58 were female, with a mean age of.

2.3 DATA COLLECTION AND ANALYSIS PROCEDURE

Data collection occurred in two stages. In the first stage, a structured questionnaire was developed via Google Forms based on questionnaires about depression and anxiety, level of physical activity, and quality of life. Subsequently, students enrolled in the undergraduate programs in physical education at the State University of Paraíba, Campus I, who were interested and available to participate in this research, were sought out. All participants were informed
about the research procedures and invited to sign the Informed Consent Form (ICF), which was later sent by E-mail for the participant's signature. Shortly after signing, all participants received a signed copy of the ICF from the research team and the link to access the questionnaire to be answered.

In the second stage, the Hospital Anxiety and Depression Scale (HAD) questionnaire (Botega et al., 1995), the World Health Organization Quality of Life (WHOQOL - abbreviated) questionnaire (Fleck et al., 2000), and the International Physical Activity Questionnaire (IPAQ - short version) (Matsudo et al., 2001) were administered.

2.4 INCLUSION AND EXCLUSION CRITERIA

The inclusion criteria for participant selection in the research were defined as follows: being an adult aged between 18 to 59 years and being regularly enrolled in the 2023.2 semester in the undergraduate programs in physical education (bachelor's and teaching degree) at the State University of Paraíba. As for the exclusion criteria adopted, they were: students who refused to sign the Informed Consent Form (ICF), those who answered the questionnaires incompletely, and those whose enrollment was on hold during the 2023.2 semester.

2.5 ETHICAL PROCEDURES AND STATISTICAL ANALYSES

This study was conducted in accordance with Resolution No. 466/2012 of the National Health Council and was approved by the Research Ethics Committee of the State University of Paraíba, under protocol No. 6.781.918. All participants were informed about the data collection procedures and signed the ICF. Participant confidentiality and anonymity were ensured to the maximum extent, with the use of numerical codes to classify participants.

The data were tabulated and examined for normality, and then descriptive analyses of frequency, mean, and standard deviation were conducted using IBM SPSS Statistics version 21 software.
3 RESULTS

Table 1 presents the results of the IPAQ classification, where many students are highly active (75 participants) and active (35 participants), with only 10 being irregularly active or sedentary.

<table>
<thead>
<tr>
<th>IPAQ</th>
<th>Very active</th>
<th>Active</th>
<th>Irregularly active A</th>
<th>Irregularly active B</th>
<th>Sedentary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>40</td>
<td>18</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Women</td>
<td>35</td>
<td>17</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>75</strong></td>
<td><strong>35</strong></td>
<td><strong>2</strong></td>
<td><strong>4</strong></td>
<td><strong>4</strong></td>
</tr>
</tbody>
</table>

Source: Prepared by the author, 2024. IPAQ - International Physical Activity Questionnaire. n – number of participants.

The physical activity time of the students is presented in minutes, considering the entire week, where we identify highly active (947.5 minutes), active (555 minutes), irregularly active A (65 minutes), irregularly active B (60 minutes), sedentary (0 minutes). It was also possible to identify the weekly sedentary behavior (2100 minutes).

The Graph 1 presents the indicators of anxiety and depression according to the classification of the HAD scale, subdivided into unlikely, possible, and probable. Graph A refers to anxiety, and Graph B refers to depression.

No significant differences were observed in the prevalence of anxiety or depression according to the level of physical activity among students. However, it can be noted that among students who exhibited irregular levels of physical activity or sedentary behavior, the majority
displayed possible or probable symptoms of anxiety (10 participants) and depression (6 participants).

Table 2- Prevalence of anxiety and depression symptoms according to the level of physical activity.

<table>
<thead>
<tr>
<th></th>
<th>Very active</th>
<th>Active</th>
<th>Irregularly active</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anxiety</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unlikely</td>
<td>34</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Possible</td>
<td>20</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Likely</td>
<td>2</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td><strong>Depression</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unlikely</td>
<td>50</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>Possible</td>
<td>22</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Likely</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>75</strong></td>
<td><strong>35</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

Source: Prepared by the author, 2023. n - number of participants.

Table 3 presents the values obtained from the WHOQOL-bref quality of life questionnaire, across four domains: physical (50%), psychological (56.3%), social relationships (66.7%), and environment (56.3%).

5 DISCUSSION

The results of this study show that many students are highly active. Regarding the time spent on physical activity by the participants, the World Health Organization (WHO, 2020) recommends a dose (duration, frequency, and intensity) of physical activity for the adult population aged 18 to 64 years, which includes at least moderate-intensity physical activity or at least 75-150 minutes of vigorous-intensity physical activity per week. Thus, based on the recommendation, we can consider the highly active and active students as meeting the recommended levels.

Additionally, most participants exhibited probable and possible symptoms of anxiety. It was observed that among individuals who exhibited probable symptoms of anxiety, a total of 15 participants were classified as highly active or active. In contrast, among those who did not present symptoms, 34 were highly active and 12 were active. Those classified as irregularly active or sedentary showed a predominance of depression and anxiety. Among the 10 participants who displayed possible or probable symptoms of anxiety, all were irregularly active or sedentary, with 60% of them showing possible or probable symptoms of depression.
To assess the prevalence and factors associated with depression and anxiety, Leão et al. (2018) observed that students who engaged in physical activity frequently had a lower prevalence of anxiety, except for those in the medical course, where an excess of academic activities and lack of time for physical practice were identified.

Considering this, the study conducted by Da Silva Maximiano et al. (2020) investigated the relationship between levels of physical activity and depression and anxiety among 150 Physical Education students from a private institution. Approximately 76% had minimal symptoms of depression, and 65% had moderate levels of anxiety (no significant).

Upon analyzing the quality of life of the participants, it was observed that in the physical and social relationship domains, both men and women presented the same scores (50%). In the psychological and environmental domains, however, men had higher scores (58.3% and 59.4%, respectively) compared to women (54.2% and 56.3%, respectively).

Similarly, Rezende et al. (2022) evaluated the level of physical activity, anxiety/depression, and quality of life of students enrolled in the Physical Education program. They found quality of life parameters within regular scores, but with some dissatisfaction regarding their own health. Additionally, they observed a high prevalence of anxiety symptoms among students, with the majority not displaying depressive symptoms, and many being physically active. Consistent with these findings, the data from the present study indicate that students have a good quality of life, but with a high rate of anxiety symptoms, elevated levels of physical activity, and no symptoms of depression.

Thus, a study evaluated the quality of life, symptoms of anxiety, depression, and stress, as well as lifestyles and academic methods, among 238 students from two Portuguese universities and the results indicated good quality of life, but with gender differences: women had better sleep quality, interpersonal relationships, and academic motivation (Vizzotto, De Jesus e Martins, 2017).

Azevedo et al. (2020) investigated the mental health, level of physical activity, and quality of life among 288 evening health students and revealed a high level of anxiety (45%) and depression (23%) among the students, with 72% being physically active.

Studying the level of physical activity among university students is crucial for understanding aspects related to their physical, mental health, and quality of life, as such information can be useful in implementing preventive health strategies and programs at the
university level. This can promote healthy lifestyles and consequently improve the quality of life while reducing the incidence of anxiety and depression symptoms. The university, as a disseminator of knowledge, culture, and values, should include physical activities in this context.

Despite the significant relevance of the findings of the present study, it is necessary to consider some limitations. It is worth noting that the research was conducted at a single university in a single city. Additionally, the data were collected exclusively from the Physical Education course, resulting in a smaller sample size than expected. It is recommended to adopt qualitative methods and evaluate additional relevant variables for a more comprehensive understanding of the phenomenon.

6 CONCLUSION

The study revealed the prevalence of anxiety and depression among students in the Bachelor's and Teaching Degree programs in Physical Education at UEPB, noting a higher level of anxiety compared to depression among students. When considering students who are very active or active, they showed a lower prevalence of anxiety and depression compared to those irregularly active or sedentary. Regarding the students' quality of life, the social relationship domain had a better score while the physical domain had the lowest, yet all above 50% according to the total score, indicating that students have a good quality of life.

The conclusion of an article should summarize the main findings of the study succinctly, highlighting the significant contributions to the research field. It should reiterate the objectives of the study and summarize the most important findings, emphasizing their relevance and practical or theoretical implications.
REFERENCES


