



Evaluation of Anxiety among the First Year Undergraduate Physiotherapy Students Playing Sports- A Cross-Sectional Study

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Abstract :

Background: Recent years have seen a dramatic increase in scholarly and public awareness of the symbiotic relationship between participating in sports and psychological health. Sport is a subset of physical activity that can be particularly beneficial for short-and-long-term physical and mental health, and social outcomes in adults. Individuals who suffer from anxiety symptoms frequently also have sleep disturbances and depressive symptoms. Undergraduate medical studies are generally perceived to be more stressful for the students as compared to other undergraduate programs as students have to undergo strenuous curriculum and evaluation which may lead to many emotional stresses that may end with psychiatric disorders. This study is going to conduct to find out the level of anxiety among first year physiotherapy students who plays sports.

Aim: To evaluate Anxiety among first-year physiotherapy students who engage in sports activities.

Objectives:

1. To find out the anxiety levels in first year physiotherapy students.
2. To find out the severity of anxiety among the first-year physiotherapy students playing sports and co-relation between students who plays sports and who did not play sports.

Methods: A cross-sectional pilot study was conducted among 31 first-year physiotherapy students enrolled in sports activities had recruited from a College of Physiotherapy located at Ahmednagar in Maharashtra state. Participants was assessed using the Beck Anxiety Inventory (BAI) questionnaire to measure anxiety levels. Additionally, demographic data including age, gender, and sports was collected. Descriptive statistics was used to analyze demographic characteristics, while BAI scores were analyze to assess anxiety levels.

Result: The anxiety levels of students participating in sports were found to be mild in 87%, moderate in 13%, and severe in 0%. In contrast, the anxiety levels of students not participating in sports were mild in 80%, moderate in 13%, and severe in 7%.

Conclusion: The students who engaged in sports reported lower anxiety levels overall compared to those who did not participate.

Keywords: Physiotherapy students, Anxiety, Beck Anxiety Inventory, Physical Activity, mental health.

INTRODUCTION

Globally, undergraduate students' mental health is a major public health concern. Anxiety and depression are prevalent mental health issues that affect millions of people worldwide each year.³

Anxiety is defined as a feeling of unease that is brought on by one's thoughts, beliefs, and feelings and is a physical reaction to a perceived threat that may be real or imagined.⁴The most prevalent psychiatric condition, anxiety disorders are more prevalent in adults. Individuals who suffer from anxiety symptoms frequently also have sleep disturbances and depressive symptoms. While

medications, cognitive-behavioral therapy (CBT), and other forms of treatment are frequently used, some anxiety patients object to medication therapy due to its negative side effects.⁵

High levels of psychological stress are frequently experienced by university students as a result of the significant demands placed on them by their families and academic obligations. Their well-being and academic performance may suffer significantly as a result of major mental health problems brought on by this stress, such as anxiety and depression. Resolving these issues is essential to promoting students' mental health and guaranteeing their success both within and outside of the classroom.²

Fitness and physical activity are well known to improve cognitive function in a variety of age groups. According to research by Aberg et al., 18-year-old teenagers' cognitive performance and cardiorespiratory fitness are positively correlated. This is consistent with meta-analytical findings suggesting children and adolescents who are more physically active and fit do better academically and cognitively. For cognitive abilities like executive functioning, cognitive flexibility, language skills, attention, working memory, and processing speed, regular exercise and physical activity are particularly advantageous.¹

It is widely recognized that physical activity plays a vital role in enhancing general health and wellbeing.¹⁰ The World Health Organization defines physical activity as any movement of the body that requires energy expenditure and is triggered by the skeletal muscles. Guidelines for physical activity at the national and international levels are essential parts of a comprehensive and well-coordinated governance and policy framework for public health interventions.⁷

In the present study, we are going to evaluate anxiety level among the first-year physiotherapy students playing sports.

MATERIAL AND METHODS

This is a cross-sectional pilot study conducted among the undergraduate physiotherapy students studying in First year at DVVPF's College of Physiotherapy located at Ahmednagar in state of Maharashtra in India. The sample size estimated for this study is 31. The duration of the study was 3 months from the month of July to September 2024.

The sample technique used in this study was convenient sampling technique. The sample was calculated utilizing the standard formula:

$$n = \frac{Z^2 1-\alpha/2 \times p \times (1-p)}{d^2}$$

where, p= proportion, d= absolute precision and $Z_{1-\alpha/2} = 1.96$ for 95%.

Participants assessed using the Beck Anxiety Inventory (BAI) questionnaire to measure anxiety levels. Additionally, demographic data including age, gender, and sports was collected. Descriptive statistics was used to analyze demographic characteristics, while by Beck Anxiety Inventory scores analyzed anxiety levels.

The Inclusion criteria for this study was first year undergraduate physiotherapy students who gave the consent. The students who play any kind of sports since 6 months for more than one hour/day are included in the study. The students who are taking any kind of psychological treatment in the last 6 months, students who has undergone any surgery 3 months back, students having any history of trauma or fracture a 1 month back and who did not give consent was excluded from this study. This study was carried out by Beck Anxiety Inventory (BAI) [$r = 0.84$]⁸ which is a 21-item self-report questionnaire was originally developed to assess clinical anxiety.

STATISTICAL ANALYSIS

In this study, the collected data were statistically analyzed using Statistical software STATA version 14.0. Quantitative data were expressed as mean and standard deviation, while frequencies and percentages were used to express the qualitative data.

RESULTS AND DISCUSSION

This study was conducted for the evaluation of anxiety among the first-year physiotherapy students playing sports has yielded following results. The total number of 31 first year physiotherapy students participated in this study from which 16 students involved in various sports and 15 students did not involve in sports. Mean age of participants was 19.5 ± 4 (18 – 21) years in students playing sports and 19.5 ± 3.75 (18 – 21) years in the students who don't play sports. Around 28 (90%) students were female and 3 (10%) were male (Table no. 1) from which 14 (88%) students were female and 2 (12%) were male playing sports (Table no. 2) and 14 (93%) students were female and 1 (7%) were male who don't play sports (Table no. 3).

Table no. 1: Gender wise distribution of study population

Gender	No. of subjects	Percentage
Male	3	9.67%
Female	28	90.32%

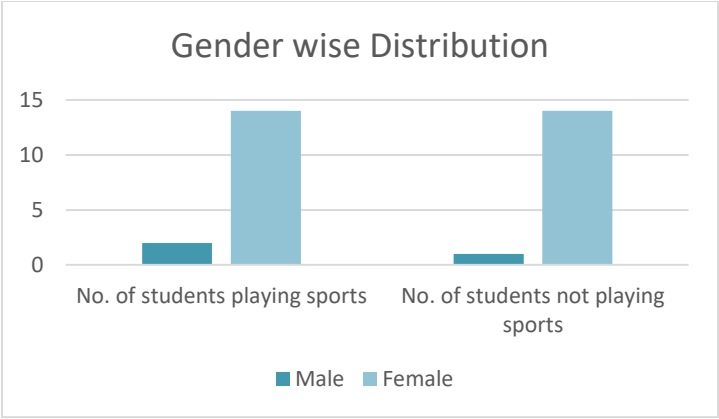
Table no. 2: Gender wise distribution of study population who play sports

Gender	No. of students playing sports	Percentage
Male	2	12.5%
Female	14	87.5%

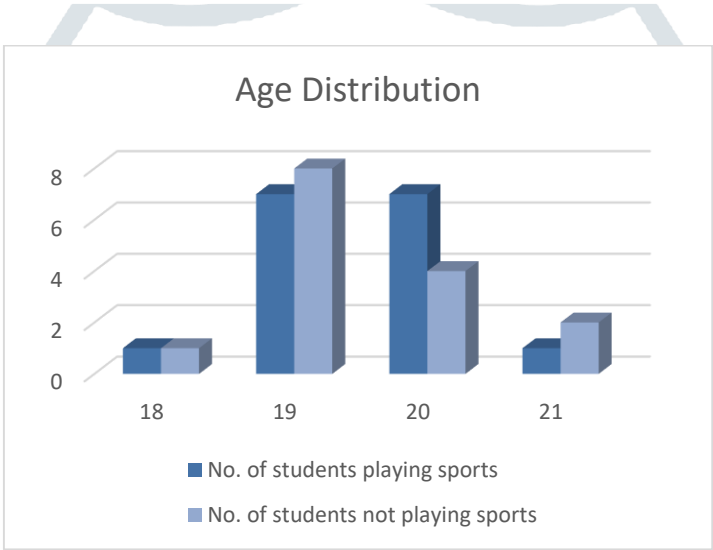
Table no. 3: Gender wise distribution of study population doesn't play sports

Gender	No. of students not playing sports	Percentage
Male	1	6.66%
Female	14	93.33%

Graph 1: Gender wise distribution of study comparing students playing sports and who doesn't play sports



Graph 2: Age wise distribution of study comparing students playing sports and who doesn’t play sports



Anxiety levels among 31 first-year undergraduate physiotherapy students from which 26 (84%) were mild level, 4 (13%) were moderate level, and 1 (3%) found to be severe level of anxiety, respectively (Table no. 4). Sixteen of the thirty-one first-year undergraduate physiotherapy students who participated in athletics reported lower levels of anxiety than the fifteen who did not. The anxiety levels of students participating in sports were mild in 14 cases (87%), moderate in 2 cases (13%), and severe in 0%. In contrast, the anxiety levels of students not participating in sports were mild in 12 cases (80%), moderate in 2 cases (13%), and severe in 1 case (7%).

Table no. 4: Distribution of study population according to severity

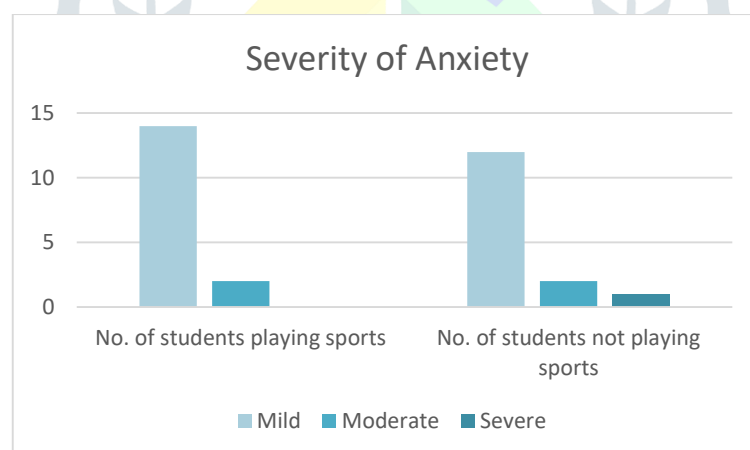
Severity of Anxiety	No. of subjects	Percentage
Mild	26	84%
Moderate	4	13%
Severe	1	3%

Table no. 5: Distribution of sports playing students according to severity

Severity of Anxiety	No. of students playing sports	Percentage
Mild	14	87%
Moderate	2	13%
Severe	0	0%

Table no. 6: Distribution of students not playing sports according to severity

Severity of Anxiety	No. of students not playing sports	Percentage
Mild	12	80%
Moderate	2	13%
Severe	1	7%

Graph 3: Severity of Anxiety comparing students playing sports and who doesn't play sports

The present study evaluated the anxiety levels among the first year undergraduate students. Anxiety is a common symptom experienced by the students and health sciences students cannot be spared, including those pursuing physiotherapy. Previous studies have consistently shown that a significant proportion of undergraduate medical and health sciences students experience anxiety, with levels often exacerbated by the demands of their academic programs. This was also observed in the present study, which highlights the potential role of sports participation in mitigating anxiety among physiotherapy students.¹¹

The total number of 31 first year physiotherapy students participated in this study. Around 28 (90%) students were female and 3 (10%) were male (Table no. 1) from which 14 (88%) students were female and 2 (12%) were male playing sports (Table no. 2) and 14 (93%) students were female and 1 (7%) were male who don't play sports. This aligns with existing research conducted by Junaid

MA, et.al. indicating that females report higher anxiety levels than males in academic settings. Indeed, studies have consistently shown that anxiety symptoms tend to be more prevalent among female students, which mirrors the findings of the present study.

Mean age of participants was 19.5 ± 4 (18 – 21) years in students playing sports and 19.5 ± 3.75 (18 – 21) years in the students who don't play sports. Both groups, students who played sports and those who did not, had a similar age distribution (18-21 years), ensuring that age did not serve as a confounding factor in the evaluation of anxiety levels. This homogeneity in age strengthens the findings, suggesting that the differences in anxiety levels are likely due to sports participation rather than age-related factors.

According to World health Organization the Physical activity defines as, any bodily movement produced by skeletal muscles that requires energy expenditure. It is well-documented that physical activity, including participation in sports, contributes to better mental health by reducing stress and anxiety. The current study, which compares anxiety levels between students who engage in sports and those who do not, reinforces this notion. The findings suggest that students who participate in sports report significantly lower anxiety levels than those who do not engage in physical activity.

In the current study Anxiety levels among 31 first-year undergraduate physiotherapy students were evaluated as mild, moderate, and severe. The majority of students in the study had mild anxiety levels (84%), with a smaller percentage experiencing moderate (13%) or severe anxiety (3%). This distribution suggests that anxiety is a common experience among first-year physiotherapy students, which is consistent with other studies that highlight the high stress levels in healthcare education.

When comparing anxiety levels between the two groups, notable differences were observed. Among students who participated in sports, 87% reported mild anxiety, 13% reported moderate anxiety, and none reported severe anxiety. In contrast, among students who did not participate in sports, 80% reported mild anxiety, 13% reported moderate anxiety, and 7% reported severe anxiety. These results suggest that sports participation may have a protective effect against severe anxiety. This is consistent with existing literature that suggests regular physical activity can alleviate symptoms of anxiety by promoting endorphin release, improving sleep quality, and providing social support through group activities. The findings align with studies such as those by Moss-Morris and Petrie, who found that first-year medical students exhibited higher emotional distress compared to later-year students. Similarly, a study conducted by Ebrahim et al. in 2024 found that medical students, experience significant anxiety, which can be alleviated through physical activities. The present study supports these findings and underscores the potential mental health benefits of engaging in physical exercise, particularly in the context of high-stress academic environments like physiotherapy programs.

While the present study provides valuable insights into the relationship between sports participation and anxiety levels, there are several limitations that need to be considered. One major limitation is the small sample size (31 students), which restricts the generalizability of the findings. Future studies should aim to include larger and more diverse sample populations to improve the robustness of the results. Additionally, this study did not account for the intensity or frequency of sports participation, which could have a more significant impact on anxiety levels. Future research should explore how different levels of physical activity (e.g., frequency, duration, and intensity of exercise) affect anxiety levels among health sciences students.

Moreover, the type of sports or physical activities (e.g., team sports vs. individual sports) could also influence anxiety outcomes. Further research could investigate whether certain types of sports, such as team-based activities that provide a sense of social connection, might have a more pronounced impact on reducing anxiety.

CONCLUSION

This study suggests that participation in sports may play a beneficial role in reducing anxiety levels among first-year physiotherapy students. The students who engaged in sports reported lower anxiety levels overall compared to those who did not participate. Further studies that explore the long-term effects of sports participation on anxiety, is needed to deepen our understanding of the relationship between physical activity and mental health in academic settings.

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