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# Prevalence Of Depression And Anxiety In Physical Inactivity Among School Students

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## ABSTRACT

**Background:** Physical activity has many positive effects on mental health, such as lowering anxiety and depressive symptoms, elevating mood, and fostering general well-being. However, a significant portion of schoolchildren lead sedentary lives as a result of a variety of circumstances, including a lack of access to sports facilities, increasing screen time, and academic workload. Physical inactivity is a serious problem as it has a significant impact on mental health in addition to physical health.

**Aim:** The study is to determine the prevalence of depression and anxiety in physical inactivity among school students.

**Material:** Study (Patient Health Questionnaire (PHQ-9)- depression and GAD-7 Anxiety Questionnaire.

**Conclusion: B**ased on the current study, it was concluded that female students without physical activity were undergoing severe depression and anxiety. Female students without physical activity are considered as a significant risk factor for causing depression and anxiety.

**Result:** The findings of the study reveal a significant correlation between physical inactivity and heightened levels of depression and anxiety among students. A substantial proportion of those affected, specifically 83.33% for depression and 81.63% for anxiety, are within the 15–17 age range, underscoring the susceptibility of adolescents. Furthermore, female students demonstrated a notably higher incidence of anxiety and depression at 73.3%, in contrast to 40% among their male counterparts, highlighting the gender disparities in mental health outcomes. These results emphasize the critical necessity for initiatives promoting physical activity and mental health support within educational environments to address the increasing rates of psychological distress among students.

***Keywords:*** *Depression, anxiety, physical inactivity, school students*

## 1. INTRODUCTION

Students frequently exhibit a high rate of sedentary behaviour, which has been associated with mental health issues including anxiety and depression. Negative emotions, a prevalent and significant issue among school students, can adversely affect their mental and physical well-being, academic performance, and overall quality of life. The etiology of negative emotions in school students is multifaceted and complex, encompassing academic pressures, competitive environments, social stressors, emotional challenges, and financial constraints. These stressors have the potential to elicit negative emotional responses and impair cognitive functions, including attention, memory, and decision-making processes [1]. The heavy academic workload and resulting stress experienced by students may lead to reduced physical activity, potentially increasing their risk of developing depression and anxiety [2].

According to the World Health Organization (WHO), individuals should engage in at least 150 minutes of moderate-to-vigorous physical activity (MVPA) weekly to reap health benefits. Research indicates that adhering to these guidelines is associated with reduced symptoms of depression and anxiety. Nevertheless, a significant portion of the population fails to meet these physical activity recommendations, particularly undergraduate students facing intense academic pressures. This observation has led to the hypothesis that students who are physically inactive may be more susceptible to mental health issues and a diminished quality of life [3].

Many individuals, particularly undergraduate students, do not fulfill these physical activity guidelines due to the pressures of their academic work. This has raised concerns that students who do not engage in physical activity might be more susceptible to mental health issues and experience a lower quality of life [4].

Research shows that consistent physical activity is linked to better mental health, which includes fewer symptoms of depression and anxiety. However, many students in schools do not achieve the recommended levels of exercise, often because of academic stress, lack of access to facilities for recreation, or choices that lead to inactivity. This situation raises worries about the possible mental health impacts on this group, as students who do not engage in physical activity may be more likely to experience depression and anxiety [5].

Mental health literacy (MHL) is defined as the "knowledge and beliefs regarding mental disorders that help in their identification, management, or prevention." This definition encompasses the ability to identify specific mental disorders, understand the risk factors and causes associated with these disorders, and know how to find information about a mental health issue. It includes the knowledge to manage one's own symptoms and the ability to seek professional assistance, as well as fostering attitudes that encourage the recognition of mental health issues and the pursuit of appropriate support. Lack of understanding about mental health is linked to various mental health issues, including symptoms of depression and anxiety among college students [6].

Physical inactivity is an escalating issue among students, as sedentary lifestyles are associated with several adverse health effects. Studies show that insufficient physical activity can lead to the onset and worsening of mental health problems, such as depression and anxiety. This connection is especially alarming given the rising levels of inactivity noted in younger age groups [7].

Recent studies have indicated that depression, previously thought to be absent in adolescents, actually affects 2% to 8% of young people by the age of 16 (10-12,1). Additionally, a report from the American surgeon general's assembly in 1999 revealed that 74 percent of teenagers experience mental health issues . Despite the growing prevalence of common mental disorders like anxiety and depression, there is limited information about the connection between physical activity and mental well-being [8].

## 2. METHODOLOGY

The methodology for research utilizing the Patient Health Questionnaire (PHQ-9) to assess depression and the GAD-7 Anxiety Questionnaire generally includes several essential elements, such as the study design, the selection of participants, the process of collecting data, and the analysis of that data. Moreover, ethical considerations include obtaining informed consent and ensuring data privacy.

## 3. STUDY DESIGN

A typical method used is a cross-sectional study, in which data on PHQ-9 and GAD-7 scores is gathered at one specific moment to evaluate how widespread and serious depression and anxiety symptoms are within a particular group. Longitudinal studies can also be utilized to track changes in PHQ-9 and GAD-7 scores over time, aiding in the assessment of how effective treatments or interventions are. Additionally, researchers might adopt experimental designs to examine various treatment methods, employing PHQ-9 and GAD-7 to gauge the results**.**

## 4. PARTICIPANT SELECTION

Using sampling technique 50 students were chosen from Cuddalore private schools. Participants are typically chosen from a variety of schools, such as higher secondary schools in Cuddalore. The criteria for inclusion generally include age (for example, individuals aged 15- 18) and the capacity to comprehend and complete the questionnaires. Exclusion criteria might consist of significant cognitive impairments, acute suicidal thoughts, or other issues that could impact participation or the interpretation of data. Calculations for sample size should be conducted to guarantee sufficient statistical power to identify significant associations or differences..

## 5. DATA COLLECTION

The PHQ-9 and GAD-7 are questionnaires that individuals can fill out on their own, but trained personnel can also read them to participants. The PHQ-9 questionnaire is designed to evaluate depression. Scores of 5, 10, 15, and 20 indicate levels of mild, moderate, moderately severe, and severe depression, respectively. Question 9 serves as a screening query for suicide

risk. If a patient responds affirmatively to question 9, they require additional evaluation for suicide risk by someone qualified to conduct this assessment. Refer to the table below for guidance on interpreting the PHQ-9 score:

| PHQ-9 Score | Depression Severity |
|---|---|
| 0-4 | None |
| 5-9 | Mild |
| 10-14 | Moderate |
| 15-19 | Moderately severe |
| **20 or higher** | **Severe** |

Respondents are requested to evaluate how often they have experienced certain symptoms in the last two weeks using a Likert scale. The PHQ-9 has nine questions, each relating to a criterion from the DSM-IV for major depressive disorder, while the GAD-7 includes seven questions focused on generalized anxiety symptoms. The scores are tallied by adding up the responses to each question, resulting in a total score that reflects the level of depression or anxiety. The GAD-7 is a tool for assessing the intensity of anxiety symptoms. The overall score can be between 0 and 21, where higher scores reflect more severe anxiety symptoms. A score of 8 or above is typically viewed as a valid threshold for recognizing potential cases of generalized anxiety disorder. Scores of 5, 10, and 15 are indicative of mild, moderate, and severe anxiety, respectively. If the score is 10 or higher, further assessment is advised.

## 6. ETHICAL CONSIDERATIONS

Before collecting any data, it is essential to obtain informed consent from all participants. This ensures they understand the study's goals, processes, and their right to withdraw at any moment. Protecting confidentiality and privacy is crucial; data should be securely stored and only accessible to authorized individuals. Additionally, researchers need to be prepared to assist participants who show signs of depression or anxiety, including referring them to suitable mental health services. It is important to use the PHQ-9 and GAD-7 wisely, recognizing their limitations and ensuring that they contribute to a thorough diagnostic approach.

## 7. STATISTICAL AND RESULT ANALYSIS

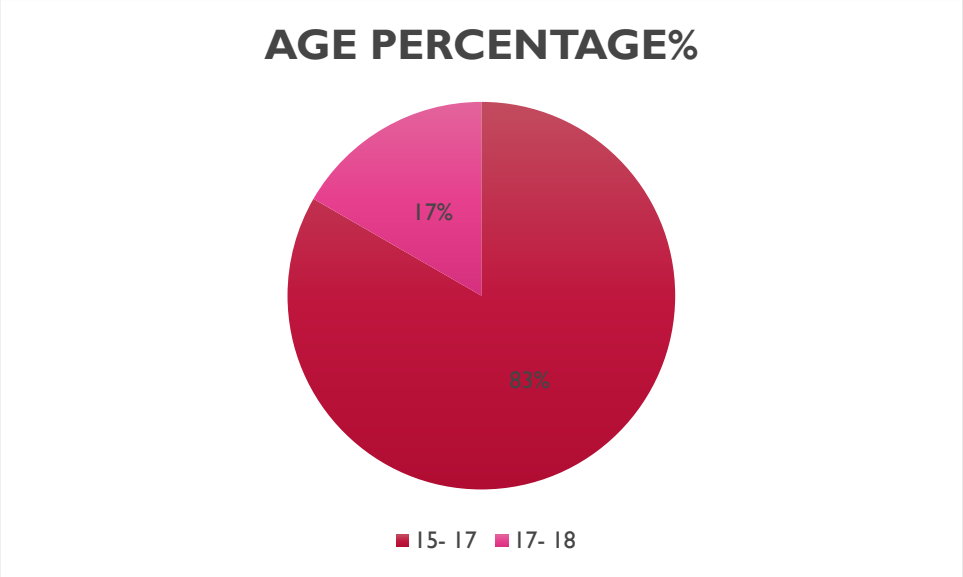
Statistical analysis usually includes the computation of descriptive statistics (such as means and standard deviations) for scores on the PHQ-9 and GAD-7. Researchers can use correlation analysis to explore the connections between the scores of PHQ-9 and GAD-7, along with their links to other relevant variables, like demographic traits or clinical details. Depending on the research inquiries, researchers might also utilize regression analysis, t-tests, ANOVA, and meta-analysis. Item response theory (IRT) can be applied to assess the measurement qualities of the scales and pinpoint possible areas for enhancement.

**TABLE 1: AGE DISTRIBUTION OF STUDENTS ( PHQ)**

| Age Group | Percentage (%) |
|---|---|
| 15 to 17 | 83.33 |
| 17 to 18 | 16.67 |

The age distribution analysis reveals that the majority of individuals fall within the **15 to 17** age group, accounting for **83.33%** of the total population. The remaining **16.67%** belong to the **17 to 18** age group.

**FIG 1: AGE DISTRIBUTION OF DEPRESSION STUDENTS**



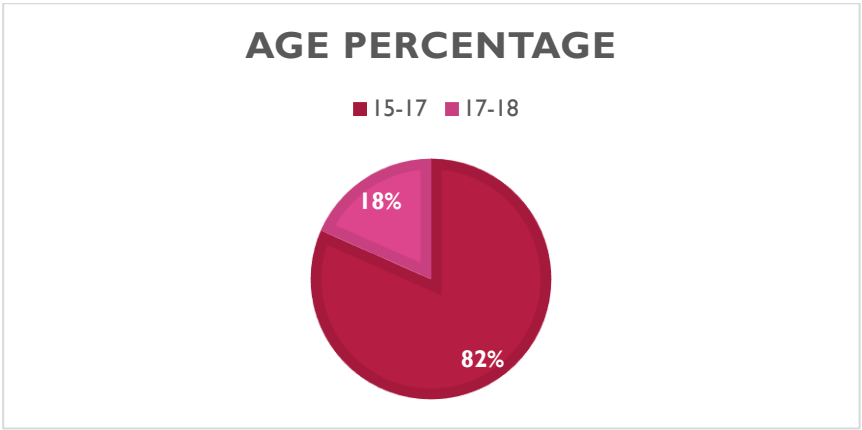

**A pie chart shows that 81% of students fall under the 15- 17 age criteria.**

**TABLE 2: AGE DISTRIBUTION OF STUDENTS ( GAD)**

| **Age Group** | **Percentage (%)** |
|---|---|
| 15 to 17 | 81.63 |
| 17 to 18 | 18.37 |

The age distribution analysis shows that the majority of individuals fall within the **15 to 17** age group, making up **81.63%** of the total population. The remaining **18.37%** belong to the **17 to 18** age group.

**FIG 2: AGE DISTRIBUTION OF ANXIETY STUDENTS**




A pie chart shows that 81% of students fall under the 15- 17 age criteria.

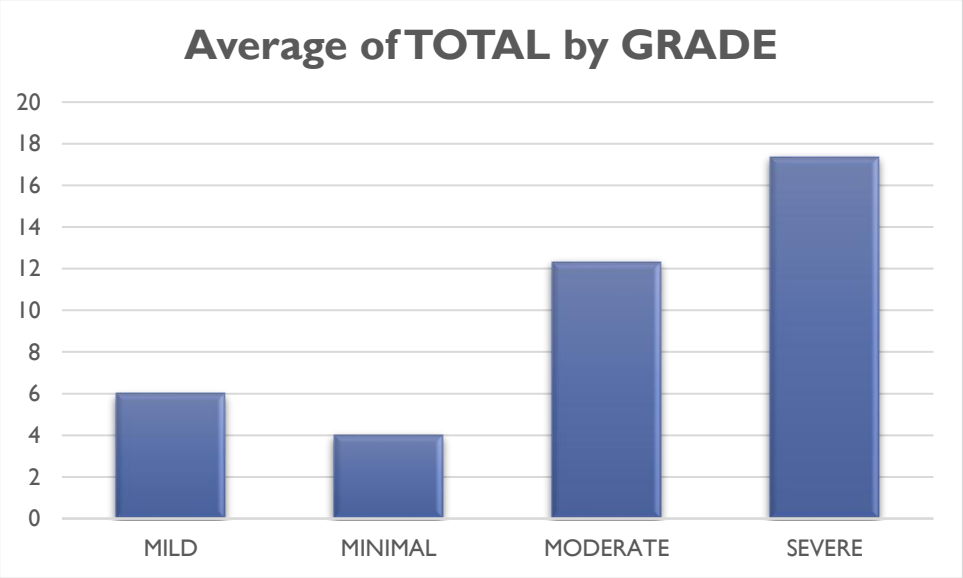
**TABLE 3 : GENDER DISTRIBUTION OF STUDENTS**

| GENDER | SAMPLE SIZE | PERCENTAGE | ANXIETY AND DEPRESSION CASES | ANXIETY AND DEPRESSION PERCENTAGE |
|---|---|---|---|---|
| FEMALE | 30 | 60% | 22 | 73.3% |
| MALE | 20 | 40% | 8 | 40.0% |
| TOTAL | 50 | 100% | 30 | 60.0% |

Females (60%) are more represented in the sample and have a higher proportion (73.3%) of anxiety and depression cases. Males (40%) make up a smaller portion, with only 40% of them experiencing anxiety and depression. Overall, 60% of the total sample shows signs of anxiety and depression**.**

## 8. STATISTICAL ANALYSIS

**FIG 3: PHO- 9**

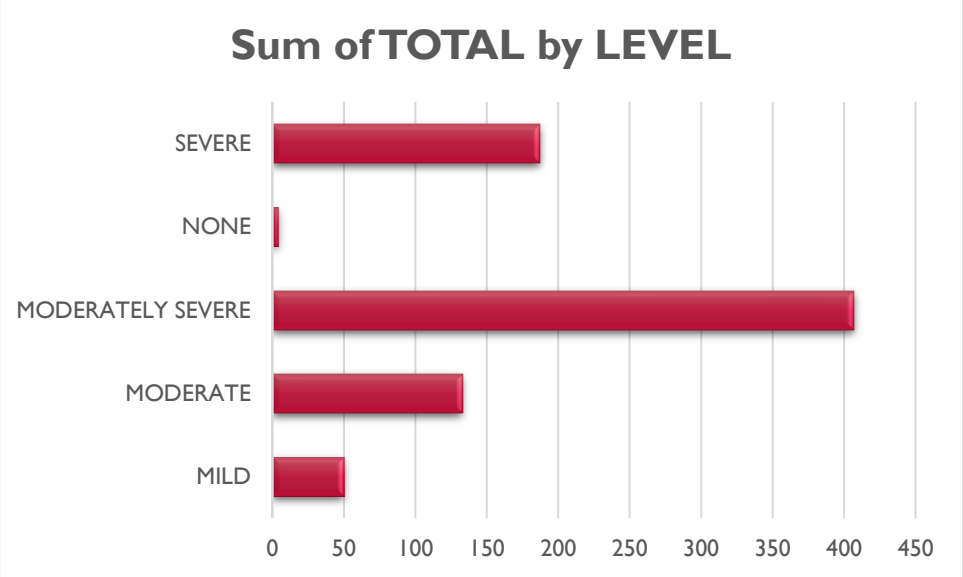



The bar chart illustrates the distribution of depression severity levels based on PHQ scores. The x-axis represents different severity grades—Mild, Moderate, and Moderately Severe—while the y-axis represents the total count of individuals in each category.

- The Mild category has the lowest count.
- The Moderate category has a significantly higher count.
- The Moderately Severe category has the highest count, indicating a higher prevalence of more severe depressive symptoms.

This visualization highlights the need for targeted mental health interventions, particularly for individuals in the Moderate and Moderately Severe categories

**FIG: 4 GAD- 7**




The bar chart presents the distribution of anxiety severity levels based on GAD-7 scores. The x-axis represents different levels of anxiety—Mild, Moderate, and Moderately Severe—while the y-axis indicates the total count of individuals in each category.

- The Mild anxiety category has the lowest count.
- The Moderate anxiety category has a significantly higher count.
- The Moderately Severe anxiety category has the highest count, suggesting a greater prevalence of severe anxiety symptoms.

This visualization highlights the need for mental health support, particularly for individuals in the Moderate and Moderately Severe groups.

## 9. DISCUSSION

The increasing incidence of depression and anxiety among students who engage in little to no physical activity is an alarming issue, particularly in light of the detrimental effects that physical inactivity can have on mental well-being. Research employing instruments such as the Physical Activity Questionnaire (PAQ) and the Generalized Anxiety Disorder 7-item (GAD-7) scale has proven essential in evaluating the correlation between levels of physical activity and mental health results within student demographics [9, 10]. Physical inactivity is recognized as a considerable risk factor for mental health challenges among students. The aforementioned Turkish study indicated that female students who were physically inactive exhibited elevated levels on the Perceived Stress Scale (PSS-10). Furthermore, it demonstrated that physical inactivity was a significant predictor of heightened perceived stress, even when accounting for gender and adverse perceptions regarding the effects of COVID-19. These findings are consistent with extensive research indicating that poor lifestyle choices, such as physical inactivity, can lead to chronic non-communicable diseases and mental health disorders [11, 12, 13]. Gender differences frequently influence the prevalence of anxiety and depression among students. In the Turkish study, female students had greater felt stress levels [14]. Similarly, during the COVID-19 pandemic, studies among high school instructors revealed that female teachers had greater rates of generalized anxiety disorder than male teachers. Furthermore, a research of nursing students discovered that women consumed more full-fat milk, but males consumed more soft beverages and fattier meat, indicating gender-specific lifestyle patterns that may have an impact on mental health. These gendered differences highlight the need for specialized interventions that address the individual requirements of male and female students [15]. The prevalence of depression and anxiety among physically inactive students is an increasing problem as inactivity has a significant impact on mental health. Research suggests inadequate physical activity for increased stress, depression and anxiety in students, particularly women who are more sensitive to these conditions. The findings of this study agree with a global study showing that students who do not meet the recommended physical activity experience a high percentage of mental stress. This data demonstrates that students have a significantly higher rate of fear and depression cases (73.3%) compared to men, which increases gender differences in psychological health outcomes. This trend is consistent with previous research linking gender-specific differences between fear and depression with biological, social and psychological factors. Furthermore, academic pressure and sit-in lifestyle tighten the prevalence of mental illness among students. The World Health Organization (WHO) recommends moderate physical activity for at least 150 minutes a week to reduce symptoms of anxiety and depression, but many students find it difficult to meet these guidelines. Lack of physical activity not only affects mental health, but also

contributes to poor academic achievement and general wells. Previous studies highlighted that students with low physical activity are more valuable for depression and anxiety measures such as PHQ-9 and GAD-7, confirming a strong correlation between inactivity and psychological health problems.

## 10. IMPLICATIONS AND RECOMMENDATIONS

To address the high rates of sadness and anxiety among physically inactive students, schools and universities should priorit ize mental health assistance and promote physical activity[16].
Regular mental health exams, counseling services, and incorporating mental health education into daily activities are all im portant aspects.

Furthermore, developing time
efficient physical activity programs that meet students' hectic schedules might assist boost physical activity levels and pro mote mental well-being. Addressing these difficulties involves a multifaceted approach that includes educators, legislators, and healthcare professionals working together to create supportive environments that promote both physical and mental health.

## 11. CONCLUSION

This study emphasizes the important connection between a lack of physical activity and the occurrence of depression and anxiety among students in schools. The results reveal that female students who are inactive are at a considerably greater risk of suffering from severe anxiety and depression than their male peers**. B**ased on the current study, it was concluded that female students without physical activity were undergoing severe depression and anxiety. Among female students without physical activity is considered as the significant risk factor for causing depression and anxiety.

## AUTHOR CONTRIBUTION

The author provided data conducted the patient interview and conducted all statistical analyses. All authors reviewed the final manuscript.

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**CONFLICT OF INTEREST**: I have no conflicts to disclose.

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