



# Effect of Sleep Quality and Physical Activity on Anxiety in Adults

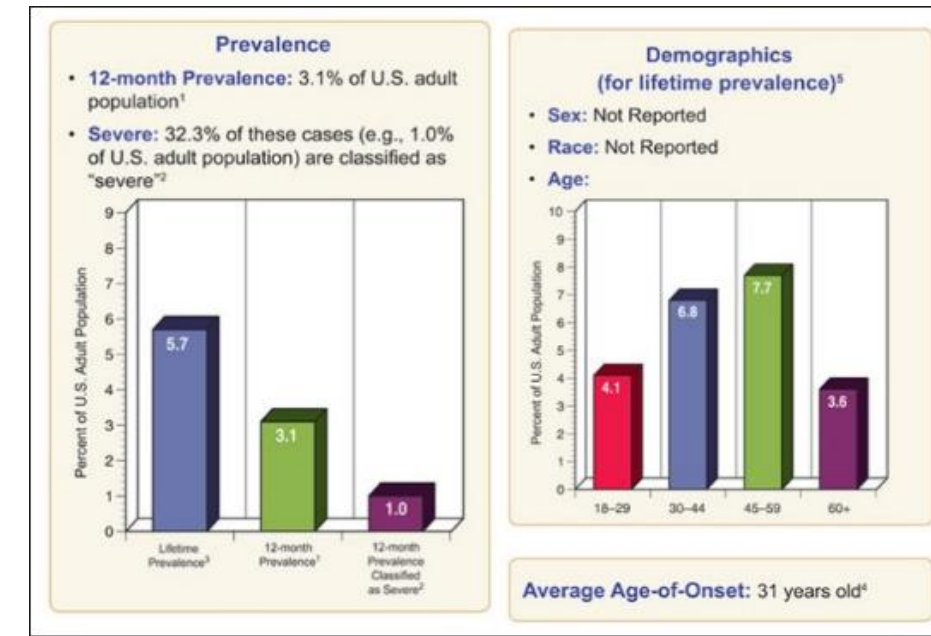
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## Introduction

- Anxiety: A state of being uneasy, apprehensive, or worried about what may happen; concern about a possible future event
- Anxiety affects 18.1% of adults in the United States annually
- Adults who engage in regular physical activity have reported fewer anxiety symptoms (Anderson & Shivakumar, 2013)
- There is a positive correlation between improvement in anxiety and sleep quality (Tekler & Luleci, 2018)



### HOW TO DEAL WITH STRESS AND ANXIETY



## Methods

### Procedure

- All participants were sent The Profile of Mood States Abridged Version, The Sleep Condition Indicator, and The Godin-Shepard Leisure-Time Physical Activity Questionnaire in a Word document to be filled out electronically.
- The questionnaires were estimated to take them 10-15 minutes to complete and before being sent back via email

### Participants

- A sample size of 24 participants was used, 14 (58%) men and 10 (42%) women.
- Inclusion criteria for the participants involved (a) age  $\geq 18$  and (b) attending university or employed.

### Measures

#### The Profile of Mood States

- The Total Mood Disturbance scale of the Profile of Mood States (POMS) Abbreviated Version (McNair & Heuchert, 2005) is used to measure negative mood.
- Participants responded to the items within each of the subscales of tension, depression, fatigue, confusion, anger, and esteem.

#### Godin Leisure-Time Exercise Questionnaire

- The Godin Leisure-Time Exercise Questionnaire (Godin, 2011) is an assessment of self-reported leisure-time physical activity.
- The first score was obtained from weekly frequencies of strenuous, moderate, mild activities which are then multiplied by 9, 5, and 3 respectively. The second score was qualitative and required participants to answer Often, Sometimes, or Never/Rarely based on how often they worked up a sweat doing regular activities within a week.

#### The Sleep Condition Indicator

- The Sleep Condition Indicator (Espie, Kyle, Hames, Gardani, Fleming, & Cape, 2014) is used commonly in the evaluation of insomnia disorders.
- The indicator is an eight-item scale that is made up of 2 quantitative questions on sleep continuity, 2 qualitative items on sleep satisfaction/dissatisfaction, 2 quantitative items on severity, and 2 qualitative items on attributed daytime consequences of poor sleep.

## Abstract

Anxiety disorders are the most common form of mental illness in the United States. 18.1% of individuals 18 and older are reported to have been affected by anxiety. An increase in physical activity and an improvement in sleep quality have been found to be effective in the management of anxiety. This study was conducted to find correlations between anxiety, sleep quality, and physical activity. Adults ( $n=24$ , male and female) were recruited for the study through convenience sampling. Participants completed a series of questionnaires that evaluated their mood, exercise-leisure habits, and sleep quality. Pearson Correlation Coefficients were performed to determine a correlation between the three variables. The correlation between anxiety and physical activity was statistically significant ( $r = -.42, p < .02, (r^2=0.18), df= 21$ ). The correlation found between and anxiety and sleep quality were also statistically significant ( $r = -.48, p < .02 (r^2=.24), df = 22$ ). The findings from both Pearson Correlation Coefficients indicated that there was a moderate association between anxiety, physical activity, and sleep quality. The results coincided with existing research on anxiety. Participants' physical activity habits and quality of sleep were reflective of adults who reported low to moderate levels of anxiety. Due to the limited nature of the study, further research and replication of the study may yield results that are more representative of the general public.

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## Results

### Anxiety and Physical Activity Correlation

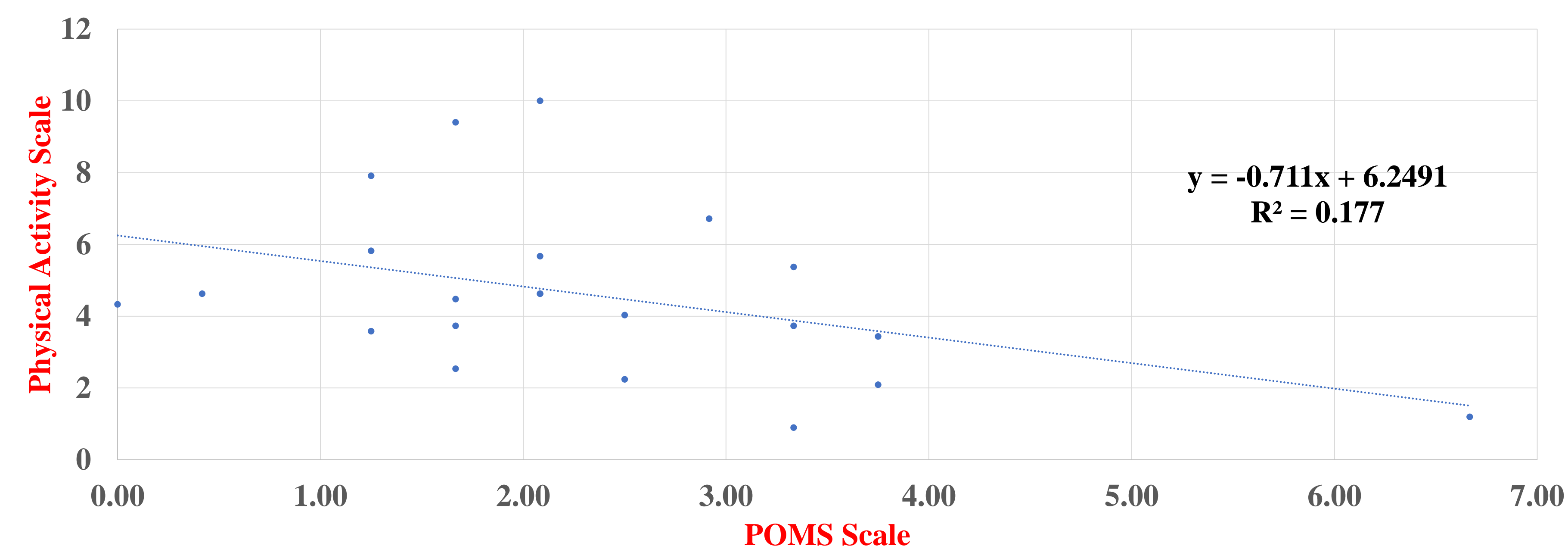


Figure 1. Correlation between Physical Activity and Anxiety, Pearson's  $r = -.42$

### Anxiety and Quality of Sleep Correlation

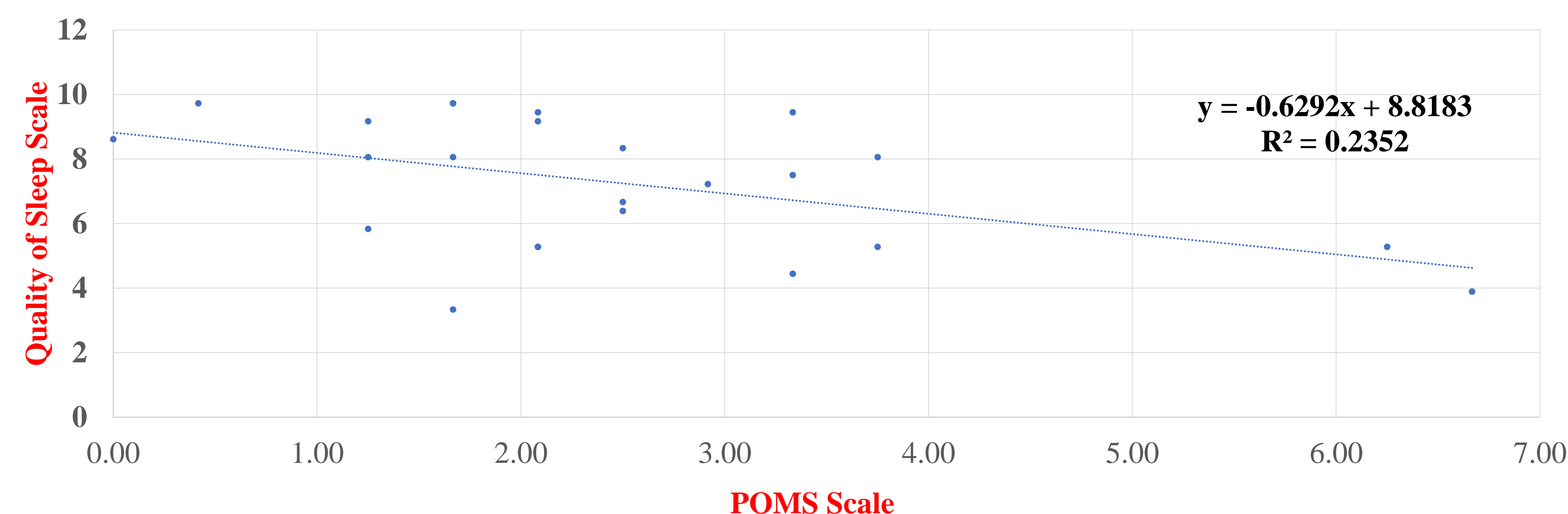


Figure 2. Correlation between Sleep Quality and Anxiety, Pearson's  $r = -.48$

## Discussion

- The findings suggested that sleep quality and physical activity had a moderately positive effect on anxiety levels
- Results showed a significant inverse relationship between anxiety and physical activity
- The  $r$  value ( $-.42$ ) for anxiety and exercise had a correlation of  $r = -.42, p < .02, (r^2=0.18), df= 19$ . The  $p$ -value ( $.02$ ) was less than  $.05$ , which indicates that it was significant
- The outcome of the correlation between anxiety and quality of sleep also yielded a significant inverse relationship between the two variables
- The  $r$  value ( $-.48$ ) for this pair of variables, resulted in a correlation of  $r = -.48, p < .02 (r^2=.24), df = 20$
- The relationship between anxiety and sleep quality has a weak positive correlation because the correlation coefficient ( $.24$ ) is far from  $+1$
- The  $p$ -value ( $.02$ ) was less than  $.05$ , which indicates that it was significant

## Conclusion

- The correlations found between anxiety, sleep quality, and physical activity supported the original hypotheses that a decrease in sleep quality is associated with higher anxiety levels and frequent exercise is associated with lower levels of anxiety. The results concurred with existing research on examining how anxiety is affected by physical activity and sleep quality.

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