THE IMPACT OF PHYSICAL ACTIVITY ON STUDENTS' ACADEMIC PERFORMANCE AND STRESS LEVELS

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1 Executive summary

This report investigates the relationship between physical activity, academic performance (GPA), and stress levels among 2,000 students. Physical activity duration was categorized into four groups to examine patterns and trade-offs. The analysis finds that students engaging in higher levels of daily physical activity tend to report lower stress but also slightly lower GPA. These findings support promoting balanced physical activity to enhance well-being without compromising academic success.

2 Introduction

Student well-being is increasingly recognized as a key component of academic success and overall academic experience. Physical activity is widely acknowledged to reduce stress, yet its relationship with academic performance remains less clear. This report addresses the question: **How does the**

amount of daily physical activity relate to students' GPA and perceived stress levels? The data analyzed comes from a Google Form survey completed by 2,000 students, capturing self-reported lifestyle habits, GPA, and stress levels.

Students were categorized by their average daily exercise duration, as described in Methodology section (**?@sec-report-methodology**). And the Results section (**?@sec-report-results**) presents the observed trends. The aim of this report is to assess whether more physically active students experience better mental well-being and how this may relate to academic performance. Understanding these patterns can help inform strategies for promoting a balanced and productive student lifestyle.

3 Methodology

The data set consists of responses from 2,000 students collected through a standardized questionnaire. It includes data on self-reported academic performance (GPA), stress levels, and various lifestyle habits.

In this report, we focus on three key variables: Grade point average (GPA), which reflects students' academic performance on a 4.0 scale; stress levels, categorized as Low, Moderate, or High; and daily physical activity duration, measured in hours.

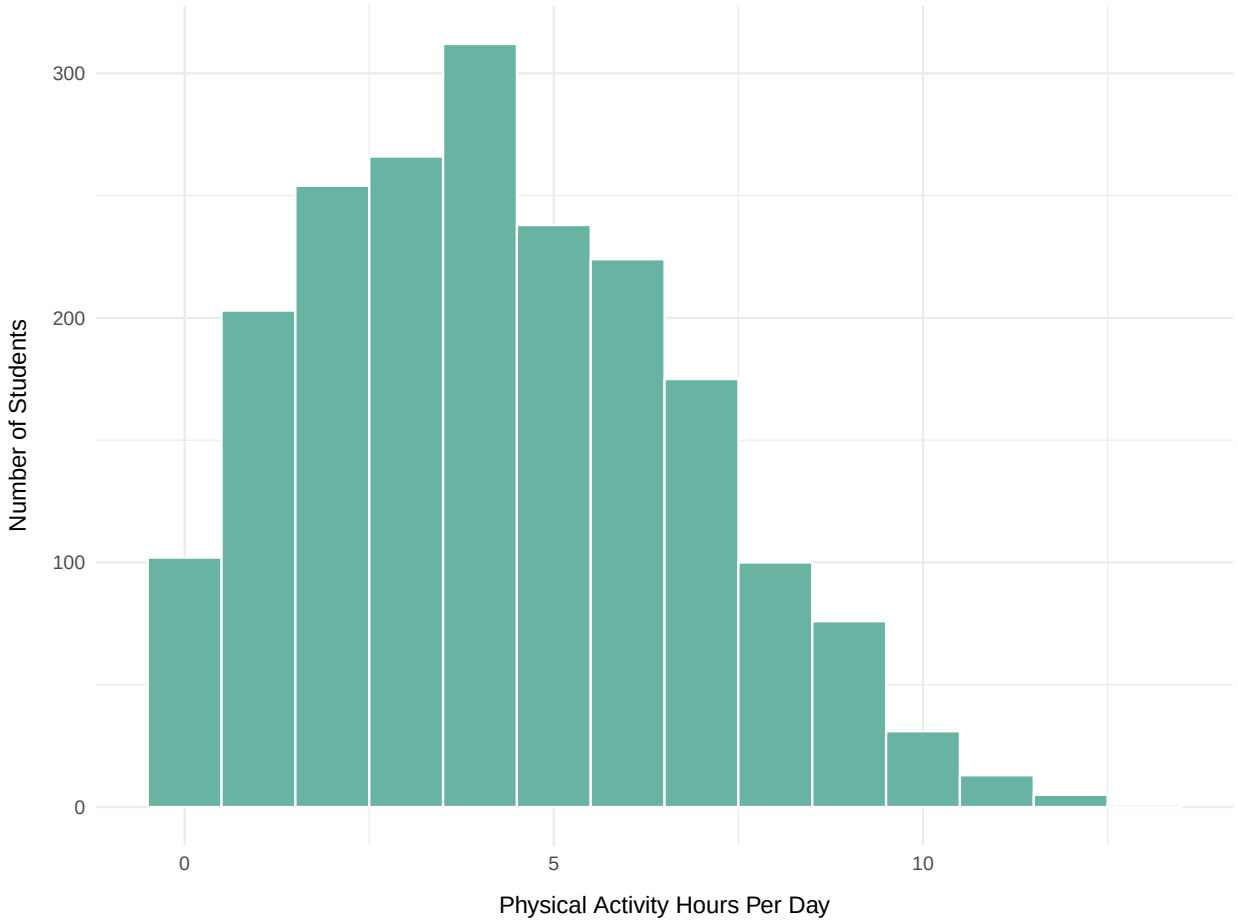

Figure 1: Distribution of physical activity hours per day

Figure 1 presents the distribution of physical activity hours per day among participants. The data show a unimodal and right-skewed pattern, indicating that most students engaged in moderate physical activity. The majority reported exercising between 2 and 6 hours daily, with a concentration around 3-5 hours. Very few students reported extremely low (0-1 hours) or extremely high (above 9 hours) activity levels. Based on this distribution, physical activity duration was grouped into four categories to facilitate comparison:

- Under 2 hours
- 2-3 hours
- 4-5 hours
- More than 6 hours

This grouping aims to balance sample size across categories while maintaining behavioral and

health-related distinctions.

The summary statistics for each group are presented in Table 1. Stress level was numerically re-coded for analysis purposes: Low = 1, Moderate = 2, High = 3, such that a lower mean value represents lower average stress.

Table 1: Summary of GPA and stress level by physical activity group

Physical activity group	Number of students	Average GPA	Average stress level
Under 2 hours	394	3.26	2.64
2-3 hours	550	3.17	2.45
4-5 hours	526	3.09	2.25
More than 6 hours	530	2.98	2.19

The results show a gradual decrease in both GPA and perceived stress level with increasing physical activity. Students in the under-2-hour group reported the highest GPA but also the highest average stress level. Conversely, those in the more-than-6-hour group had the lowest GPA and the lowest stress level.

These patterns provide the foundation for further analysis in the Results section, where the impact of physical activity on academic performance and stress levels is examined using visualizations such as a jitter plot and a stacked bar chart.