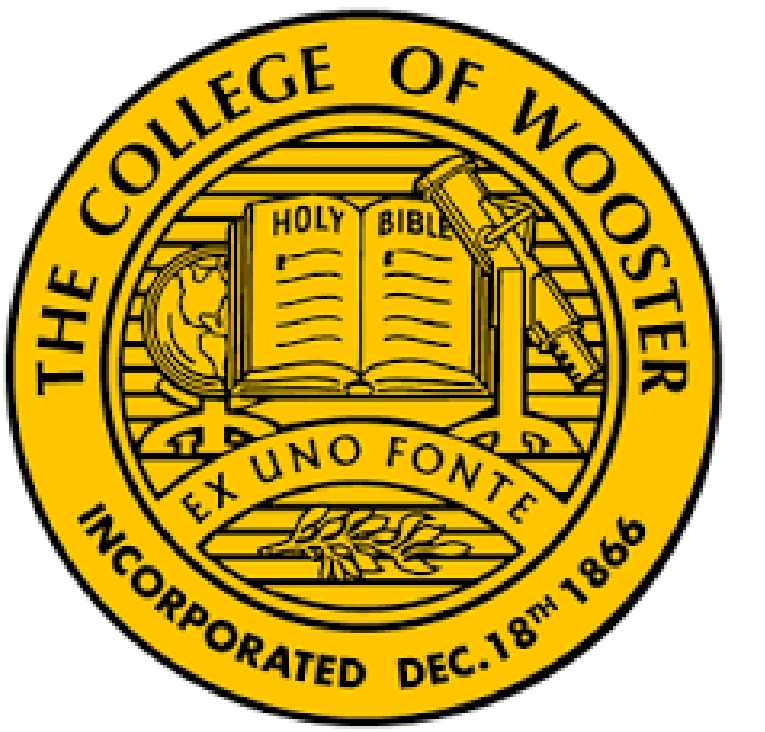


THE RELATIONSHIP BETWEEN SLEEP DURATION AND PHYSICAL ACTIVITY IN STUDENTS AT THE COLLEGE OF WOOSTER



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BACKGROUND

- Sedentary lifestyles are becoming increasingly common as 37% of adults do not get the recommended guidelines for sleep or physical activity in the United States [1]
- Guidelines recommend adults get 7-9 hours of sleep per night, and 150 minutes of physical activity per week [2,3]
- Many factors however affect how much students get. These can range anywhere from weather, to one's social life to one's physical health [4,5]
- Most studies have been done at large institutions or in international schools
- The purpose of this study was to see how College of Wooster students compared to national guidelines, as well as to see if there was a relationship between physical activity and sleep within our students

METHODS

- A total of 28 College of Wooster Students' data was taken for one academic week during the 24-25 academic year
- Students wore a Fitbit Inspire 2 for 24 hours a day during their assigned week
- Six different data points were collected from the week: Steps, Distance (miles walked), Active Zone Minutes, Hourly Activity (hrs.), Heart Rate Range (bpm), and Sleep Duration (min).
- Two surveys were also used to compare data. The first was a demographics survey, and the second was a sleep and stress survey the participants filled out over the week.
- Data collected was then compared and analyzed using 2-tailed t-tests and linear regression tests



n = 28

RESULTS

Variables tested	Mean \pm SD
<i>Variables from Fitbit Inspire 2 tracking</i>	
Steps taken per day	12,218 \pm 3,838
Distance walked per day (miles)	5.34 \pm 1.68
Zone minutes per day (minutes)	40.02 \pm 24.1
Minimum heart rate (bpm)	54.06 \pm 5.38
Maximum heart rate (bpm)	141.82 \pm 12.68
Minutes spent asleep (minutes) (n=15)	412.53 \pm 44.4
<i>Variables taken from Survey</i>	
Credits taken (1 standard class = 1 credit)	4.31 \pm 0.67
Perceived sleep quality (scale 1-5)	3.3 \pm 1.1
Perceived stress level (scale 1-5)	3.0 \pm 1.1
Hours spent working per week (n=17)	10.4 \pm 7.3
Hours spent on extracurricular activities per week	8.77 \pm 6.8

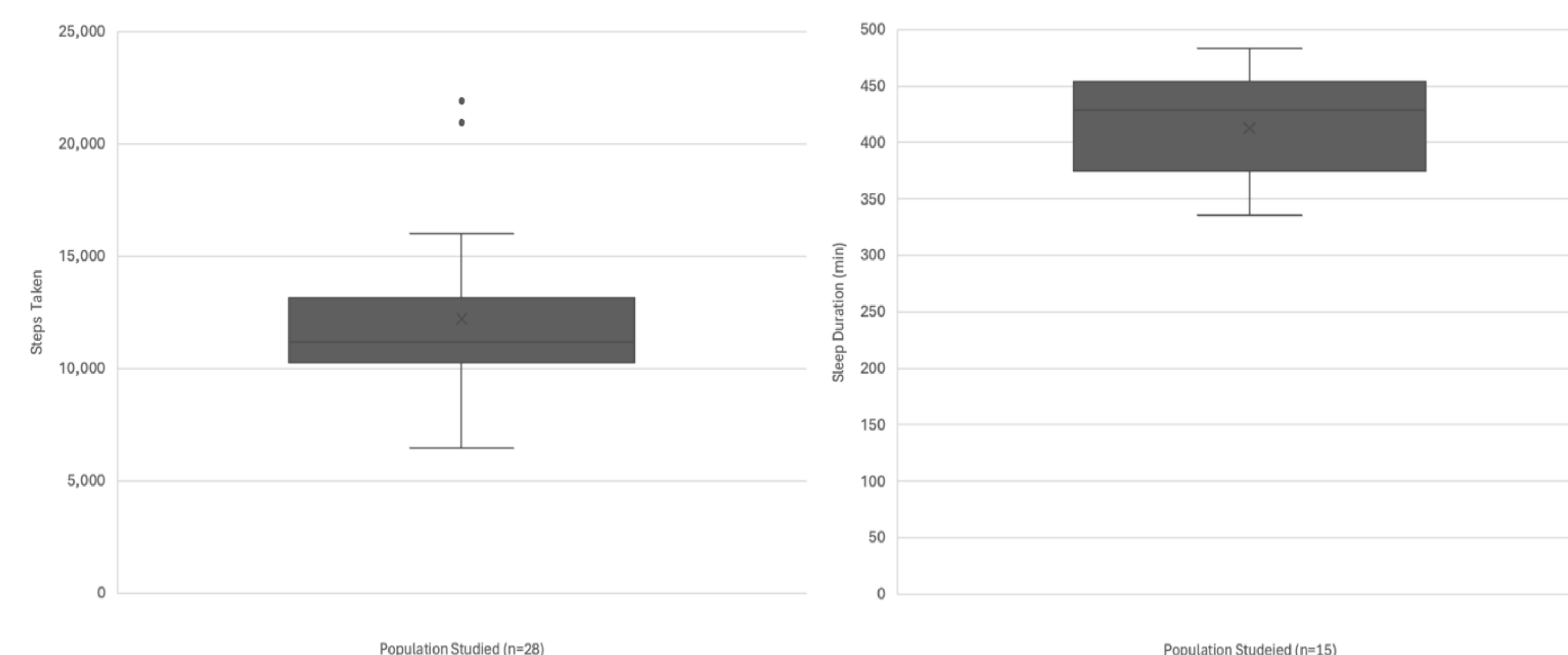


Figure 1: Average step count and sleep duration from students at The College of Wooster (n=28, 15). The left panel shows the mean steps per day which recorded as 12,218 \pm 3838 steps. The bars on either side show the interquartile range. There were two outliers which recorded an average of over 20,000 steps per day. The right panel shows the average sleep duration which was recorded as 412.53 \pm 44.4 minutes. The bars show the interquartile range and there were no outliers.

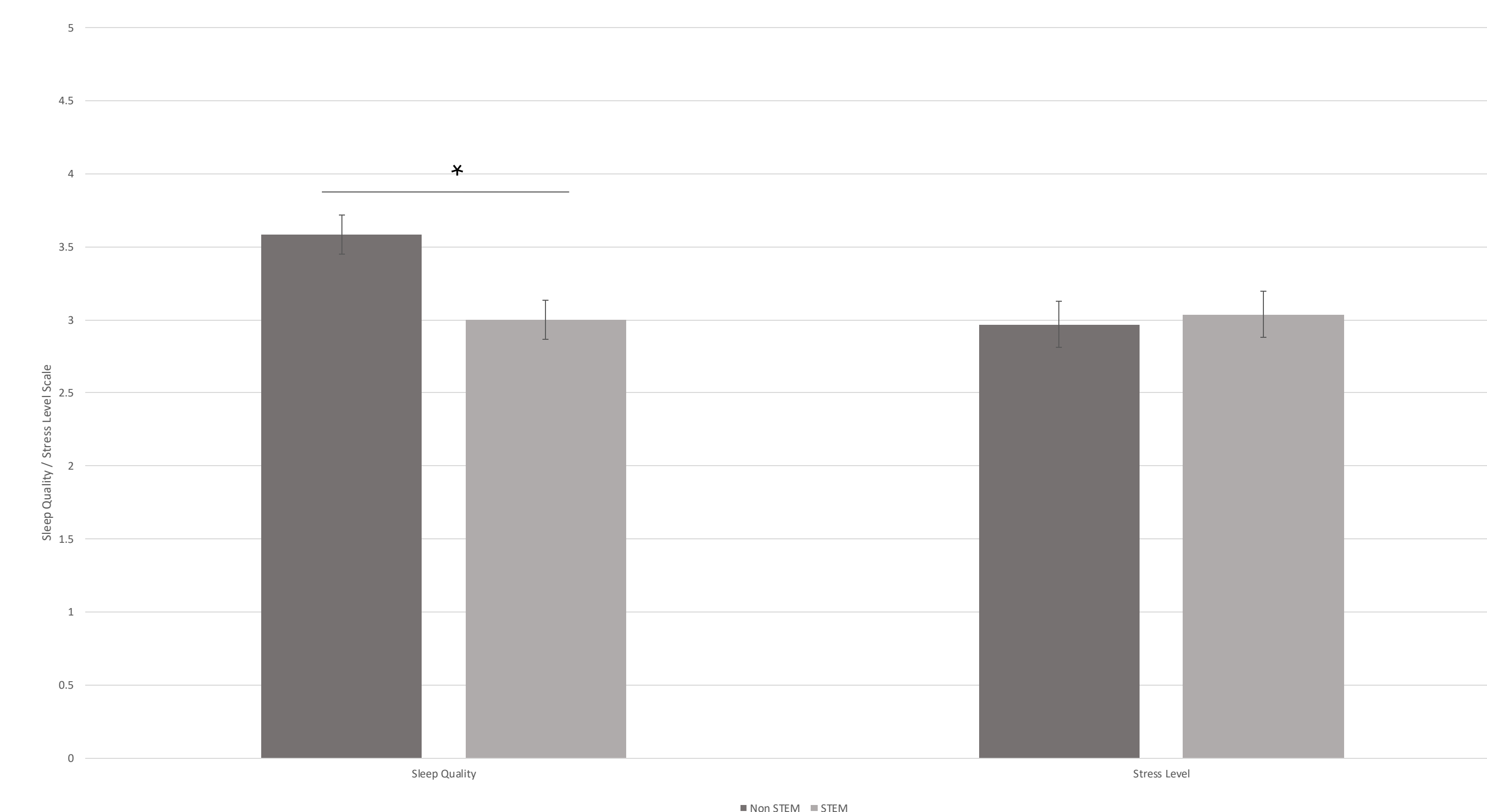


Figure 2: Sleep Quality and Stress level in STEM vs non-STEM majors at The College of Wooster (n = 12, 16). Average sleep quality and stress levels were recorded through a survey that was filled out daily on the week of participation. Non-STEM majors recorded a significantly higher sleep quality than STEM majors (p = 0.02, t-test). There was no significant difference found between the stress levels of the two groups (p = 0.78, t-test). Error bars show one standard error of the mean.

DISCUSSION

- 47% of participants did not reach the recommended sleep guidelines, which agrees with other studies.
- 14% of participants did not reach the recommended step count of 10,000 steps per day
- Significant findings showed that STEM students got a significantly lower quality of sleep than non-STEM students, however, there were no differences in the reported amount of stress or sleep duration between the two groups.
- This most likely relates to how someone handles emotions as the surveys measured what people personally thought [6]
- There was no relationship found between sleep and physical activity in students at Wooster, however, students at Wooster did get above the recommended 10,000 steps per day averaging at 12,218 steps. This agreed with other studies done on college campuses [4]

FUTURE WORK

- Having a larger sample size to collect data from would also work to make the study more significantly important.
- Use a more reliable watch to collect data and make sure to sync data after each day of use
- Testing the relationship between more variables could also bring new results
- Studies could include a longitudinal study with the same participants over a longer span than just a week. With having the same participants for multiple weeks, data could then be compared the entire timeframe of the study and not just data points throughout the semester.

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