



The effect of physical activity on mental health in university students, faculty, and staff and how the COVID-19 pandemic affected these variables

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INTRODUCTION

- Physical activity has been shown in both college aged and broader aged sample sizes as providing health benefits in different areas from mental functioning to increasing VO2 max.
- Students who meet the recommendations for vigorous physical activity were less likely to report poor mental health and perceived stress when compared to other students who did not meet those recommendations.¹
- Within 10 days of COVID-19 being declared a pandemic, there was a 5.5% decrease in mean steps, and within 30 days there was a 27.3% decrease in mean steps.²

OBJECTIVES

- Examine how the COVID-19 pandemic has affected physical activity, sleep and mental health in university students, faculty and staff and to examine the relationship between these variables.

METHODS

- 38 participants: 23 faculty/staff, 8 graduate students, 7 undergraduate students
- Participants were recruited through their past participation in Exercise is medicine as we compared previous year's data to this year's data
- Participants completed an online questionnaire on the Qualtrics platform
- Questionnaire comprised of:
 - International Physical Activity Questionnaire (IPAQ)
 - Pittsburgh Sleep Quality Instrument (PSQI)
 - Depression, Anxiety, and Stress Scale-21 (DASS-21)
- Self reported physical activity and sleep will be compared with Actigraph GT9X accelerometers worn 24 hours a day for 7 days
- Paired T-tests were used to compare sleep, the normally distributed variable between pre-COVID and post-COVID
- Wilcoxon signed rank tests were used to compare the non normal outcome variables of physical activity and mental health

RESULTS

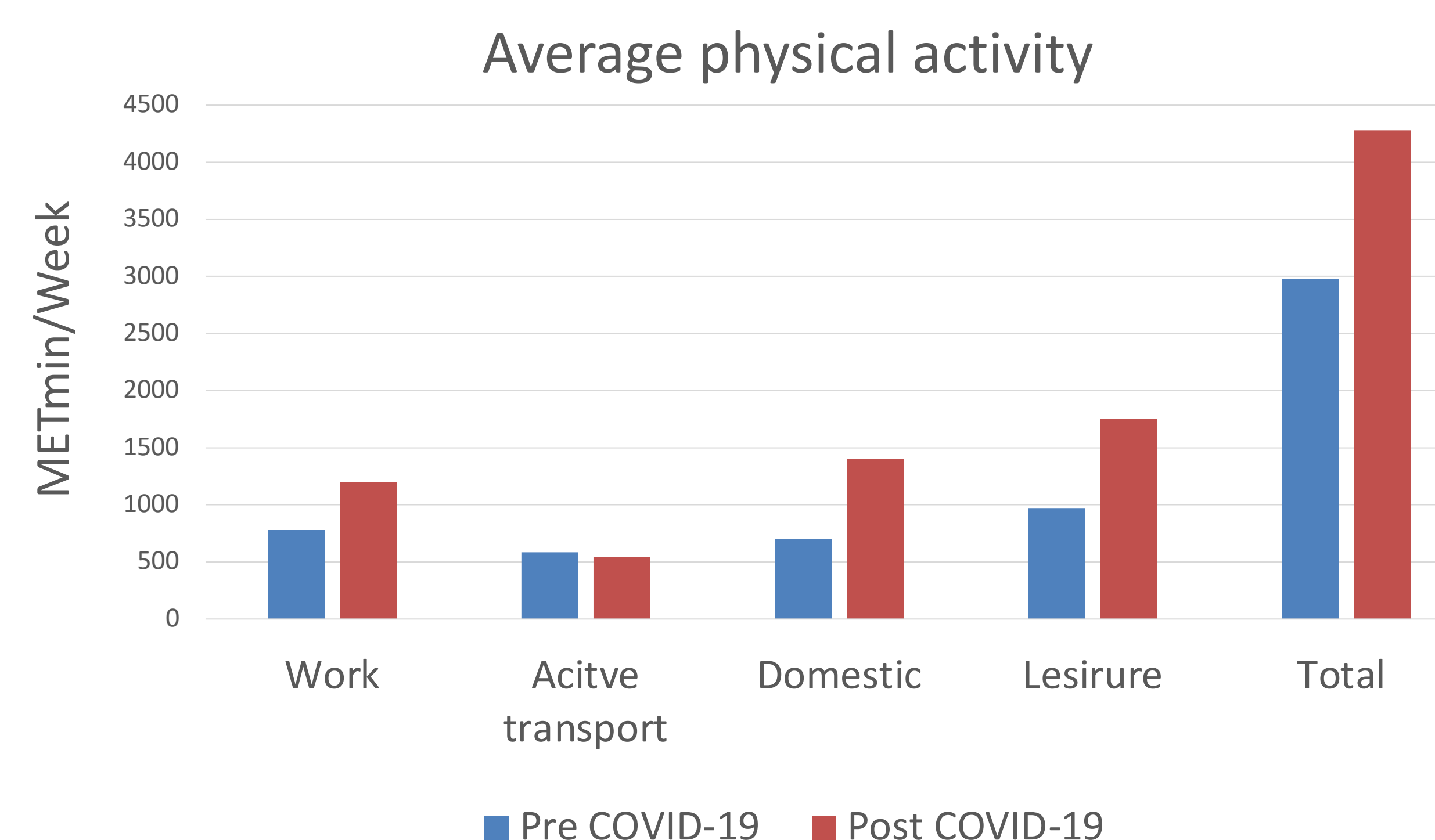
Table 1: Average Physical activity levels pre and post COVID-19, mean(SD)

Measure	Pre-COVID (METmin/week)	Post-COVID (METmin/week)
Total physical activity	2,978.9 (3,334.3)	4, 281.2 (4,758.3)
Work PA	779.9 (1,509.1)	1,200.4 (2,520.6)
Active transport PA	584.1 (824.3)	545.5 (509.7)
Domestic PA	701.5 (1,049.5)	1,399.2 (2,061.4)
Leisure PA	972.7 (1,673)	1,753.8(1,504.6)

Table 2: Pittsburgh Sleep Quality Index pre and post COVID-19 (SD)

Measure	Pre-COVID	Post-COVID
PSQI	5.3(3.1)	5.6(3.0)

- There was a statistical difference and an increase in overall physical activity (p=.01), domestic physical activity (p=.01), and leisure physical activity (p=.03)
- There was no statistical difference in work (p=.32) or active transport(p=.27) physical activity
- There was no statistical difference in sleep quality (p=.33)
- Due to changes in the questionnaire only 9 participants had pre and post COVID-19 mental health measures
- Of the 9 responses there was no statistical difference in mental health pre and post COVID-19



DISCUSSION

- Statistically different increases in the areas of domestic, leisure, and total physical activity
- Increases possibly due to more time at home and less commitments
- Changes in DASS-21 made it difficult to have a large enough sample size
- Advantages: using accelerometers to provide objective, device-based data
- Limitations: having small sample sizes due to COVID-19 restrictions, lack of control over accelerometer wearing adherence, and participant bias on surveys
- Accelerometer data is still being collected
- The literature of physical activity levels due to COVID-19 is very new, some literature found that activity levels increased, and other literature found activity levels decreased.^{2,3}

CONCLUSIONS

- At this time in the study we can not draw any conclusions about the relationship between physical activity and mental health
- Physical activity as a whole as increased and it is worth studying this increase to see if it can be maintained after the COVID-19 pandemic

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