Weights and Wellness:
Observing the impacts of physical exercise on psychological well-being

PRESENTER:
Aprille Tejada
mtejada5@terpmail.umd.edu

BACKGROUND

- Over one million young adults have increasingly shown signs of depression over the past decade (Fernandez-Rio et al., 2021).
  - Mental disorders that go untreated have been associated with feelings of hopelessness and suicidal ideation which affect psychological well-being in the long term (Battaglia et al., 2015).
- Previous evidence found that those who were physically active at least one hour a week significantly reduced their risk of mental illness and disorders (Zhao 2020).

Does physical exercise have an impact on a person's psychological well-being?

Hypothesis: Participants who are engaging in a higher level of physical exercise will have a higher frequency of smiles.

METHODS

This study follows a naturalistic observational study design that examines the relationship between physical exercise to psychological well-being.

Sample

- This study was interested in studying the students at the University of Maryland.

Measures

- Physical exercise was coded on a dichotomous scale:
  - 1= Not engaging in physical exercise
    - Includes sitting, standing, laying down
  - 2= Engaging in physical exercise
    - Includes running, weightlifting, playing a sport
- Psychological well-being was coded on a continuous scale:
  - Frequency of smiles with teeth

Procedures

- Participants (*N=60*) were collected via convenience sampling based on who was present at Adele H. Stamp Student Union (*n=30*) and Eppley Recreation Center (*n=30*).
- The duration of this study took 60 minutes; each participant was observed for a minute each.

1) Went to each of the locations listed

3) Recorded participant frequency of smiles in excel

2) Observed participants at each location for a minute

4)Found the means of each group and used RStudio to run an independent samples t-test

There is no relationship between physical exercise and psychological well-being

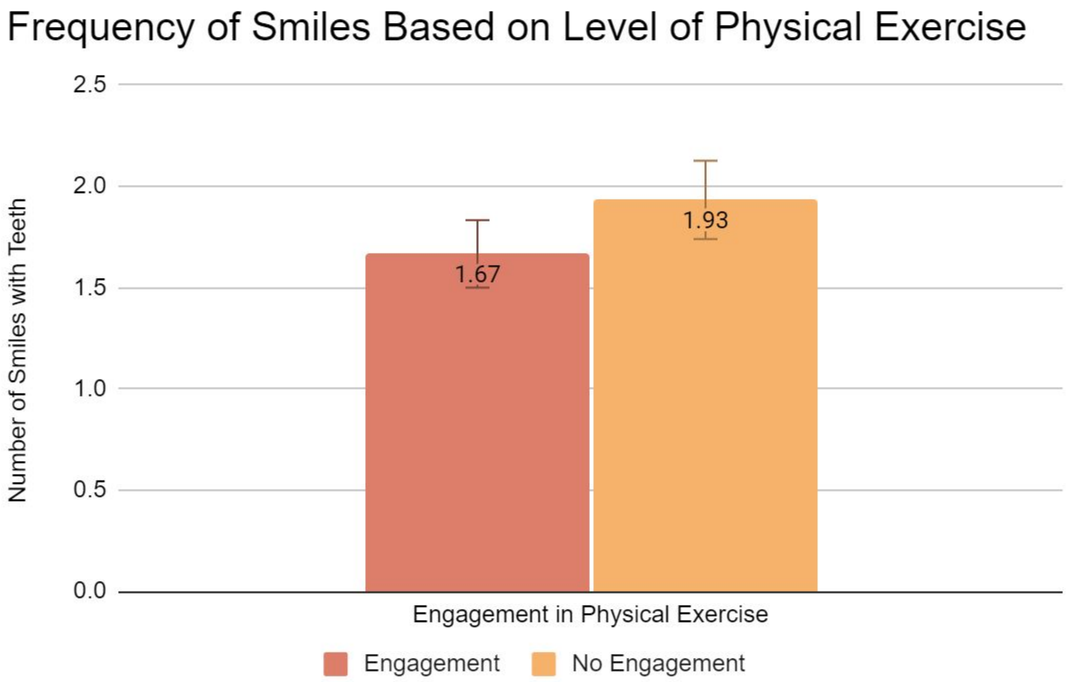

Figure 1: The bar chart above depicts the mean scores of frequency of smiles among the two groups studied. Group 1 did not engage in physical exercise and Group 2 did engage in physical exercise. The error bars represent the standard error of the mean.

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RESULTS

- The collected data was analyzed in RStudio by using an independent samples t-test to test the significance in the hypothesized relationship between engagement in physical exercise and frequency of smiles with teeth.
- All data from the observed participants were used in the computations.
- $t(58) = 0.53$, $p>0.05$, $d'=.14$
- Participants who did not engage in physical exercise ($M=1.93$) had a similar frequency in smiles than those who engaged in physical exercise ($M=1.67$).

DISCUSSION

- There was not a significant effect (p=0.07) of engagement in physical activity and its relationship to frequency of smiles.
  - Results may not have been significant due to the lack of control in extraneous variables. It was noted that participants who were in the presence of others were more likely to smile compared to if they were alone, implying a potential relationship between social engagement and psychological well-being.
- The findings of this research has found no support between the hypothesized relationship of physical exercise and psychological well-being.
- **Strengths:**
  - Observing in the naturalistic world allowed for more genuine responses due to no participant reactivity
- **Limitations:**
  - Lack of control in confounding variables makes it hard to determine causality.

FUTURE DIRECTIONS

- This study may be rerun again using the same coding sheet, but potentially different locations to see if results are consistent
- The original theory can be further tested for future experimental research to test causality between physical exercise and psychological well-being.

REFERENCES

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Aprille Tejada, Dr. Tracy Tomlinson, Riki Engling