The Association Between the use of Fitness and Health Tracker Apps and General Physical Health

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Introduction

- In a select sample, the use of wearable trackers is associated with an increase of 1800 steps a day, 40 minutes per day walking, and 6 minute increase in exercise, however it is important to take into consideration the consistency of use long-term (Ferguson, 2022; Sullivan, 2016)
- The use of nutrition and diet tracking apps allows for individuals to set goals regarding food habits and that the use of these apps changed the individuals behaviours (West, 2017)
- Higher levels of physical activity tracking phone apps and physical activity was found during the COVID-19 pandemic, with individuals who were regular users of these apps reporting higher percentages of meeting the World Health Organization's minimum standard for exercise (Tong, 2022)

Research Questions

- Do using fitness or nutrition tracking apps have an association with better self-reported general health among U.S. adults aged 33–43?

Methods

Sample

- The sample studied was composed of 4,016 individuals taken from the 5th wave of survey data from The U.S. National Longitudinal Survey of Adolescent Health of adults aged 33-43, collected in 2016-2018.
- The NESARC sample intends to accurately represent the diversity exhibited in the population of the US.

Measures

- To investigate the association between apps and general health, app use and the general health were compared using chi squared and bivariate regression tests
- Program use was a binary variable, either representing the use or lack therof of phone tracking apps.
- General health was constructed using two variables, being nutrition habits and exercise habits, into a scale of 0-6, a higher value being associated with better health habits.
- Both nutrition and exercise habits were constructed using a variety of questions, including 10 different types of exercise and fast food and fizzy soda tracking.

Results

Bivariate Analysis: Chi Square:

- Chi-squared analysis revealed that there was a significant association between phone use and higher measured health, with a significant p-value of 1.49e-11
- The analysis found that the individuals studied whoused phone apps to track their health had increased levels of measured general health

Bivariate Linear Regression:

- Further linear regression analysis revealed that the prediction model only accounted for around 2% of the difference between the measured general health of health tracking app users (adjusted r-squared value = 0.0232)
- While there is no overlap in the error bars, accounting for the significant difference, the average health for non-app users being 2.1 and the average health for app users being 2.5, reinforcing the effect is not very large
- A small association was found, however not one that is likely practical for real world analysis

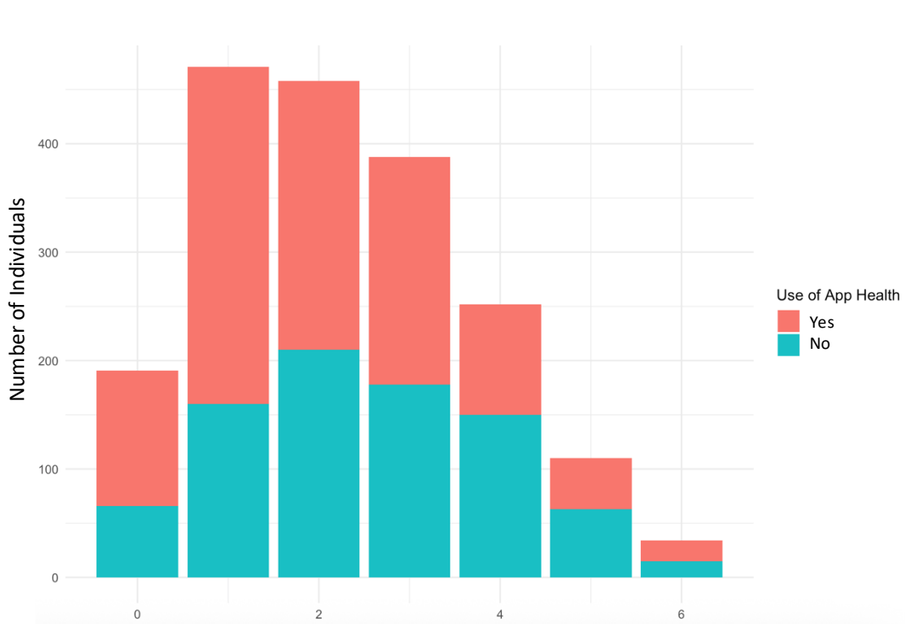

Figure 1: Comparison of the distribution of general health scores for app users vs. non-users (N=4,016).

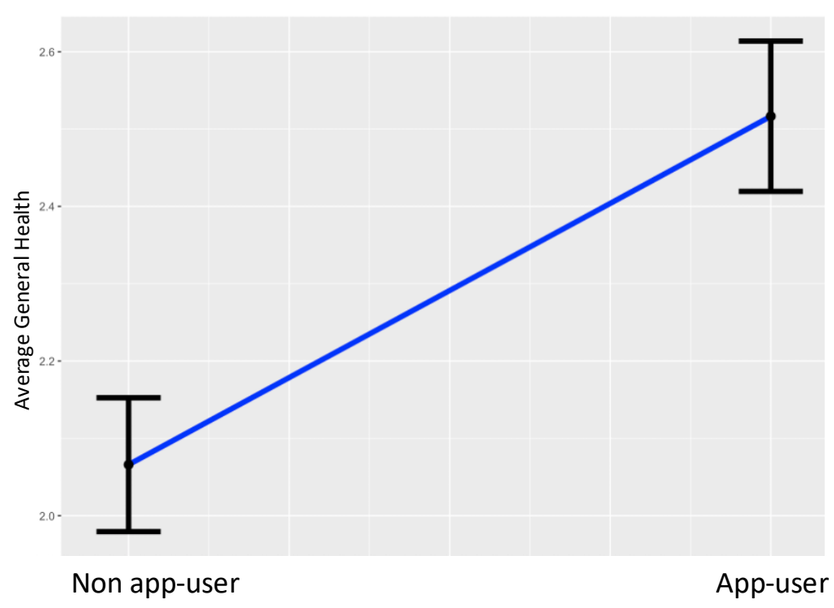

***Figure 2:* The average measured general health difference between app users**

Discussion

- The weak ability of the model to predict the measured general health of the individuals based on app use could be due to a variety of other factors that were not taken into account
- Some of these other variables involved in the relationship may include socioeconomic variation, access to healthcare, and types of exercise not included in the model that could account for this association
- The model is constructed off of observational data, increasing the possibility of bias in self-reporting

References

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