



The Relationship With Physical Activity and Perceived Stress Levels in Young Adults

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Introduction

The Covid-19 pandemic had placed enormous amounts of stress on many individuals this past year; for this specific study we examine the stress of college students. Many of these young adults had experienced major changes in their day-to-day lifestyle. Along with the many other stressors college students face, there were drastic changes in physical activity due to pandemic restrictions and lockdowns. Mental health has become a concern among the college population especially in a pandemic. "Nearly 60 percent of college students reported they had high levels of stress, anxiety, and depression" (Kim & McKenzie, 2014). The purpose of this study is to examine if different levels and durations of physical activity had any effect on perceived stress scores in young adults ranging from ages 18 to 28. Various levels of physical activity (low, moderate, vigorous) including the duration of each were noted to find out if there is any correlation with perceived stress. According to a study done on university students, exercise was more combative in fighting against stress than healthy eating itself. The positive effects of physical activity then suggested an increase in more physical activity in participants. Those who regularly exercised had lower stress levels which also made them less likely to engage in unhealthy stress-eating habits (Schultchen et al., 2019). Those who had a higher stress tolerance were significantly more likely to engage in vigorous exercise. Those who used other coping mechanisms were not to have shown a long-term alleviation in stress (Bland et al., 2014). Our results were obtained using multiple regression, in which we displayed our data in one final table including information from our model summary, ANOVA, and coefficients tables.

Hypotheses

We hypothesized that there was a relationship between physical activity and perceived stress levels in young adults.

Method

Participants

Our participants were young adults in college and university that ranged from ages 18-28 ($M = 21.15$, $SD = 2.57$). This study had majority females ($N = 69$) participants at 75.8% and males at 24.2% ($N = 22$). Participants were obtained by advertisements through college and social media platforms. Participants identified themselves in this study as follows: Hispanic/Latino: 33.0%, Asian: 45.1%, White or Caucasian: 18.7%, Black/African American: 1.1%, Native American: 1.1%, and Multiracial or Biracial: 1.1%.

Measures

International Physical Activity Questionnaire (Craig et al., 2003) is a short-length, self-reported questionnaire to determine the amount and level of physical activity done in the last 7 days. The IPAQ shows high reliability and validity as it has been tested and used worldwide in studies to demonstrate the participation of physical activity among populations (Craig et al., 2003). There are four categories of the intensity of physical activity: vigorous, moderate, walking, and sitting. Each category respectively scored: sitting = 0, walking = 3.3, moderate = 4, vigorous = 8 and then multiplied by the minutes per week (MET). The MET minutes achieved per category would give the MET minutes of physical activity a week. For our research, we eliminated the sitting category of physical activity and utilized scores only for the walking, moderate, and vigorous activity. *The Perceived Stress Scale* (Cohen S, Kamarck T, Mermelstein R, 1983) is a fourteen item questionnaire that measures the level of stress an individual is experiencing based upon events that are unpredictable, uncontrollable, or overwhelming within the last month of their lives. Participants are asked to rate the extent to which they felt or thought a particular way in the previous month on a 5-point Likert scale ranging from 0 ("never") to 4 ("very often"), (Puterman et al., 2010). Our study used the original 14-item scale, which included 7 positive and negative items based on a 5 point Likert scale (Lee, 2012).

Procedure

Our questionnaire and survey results were obtained completely online with anonymity due to COVID-19. Participants had to be over the age of 18 before they could take in any part of the research. Also before they presented with any questions, they had to fill out the consent form. Participants were not compensated for this study and it was completely voluntary.

Results

Table 2

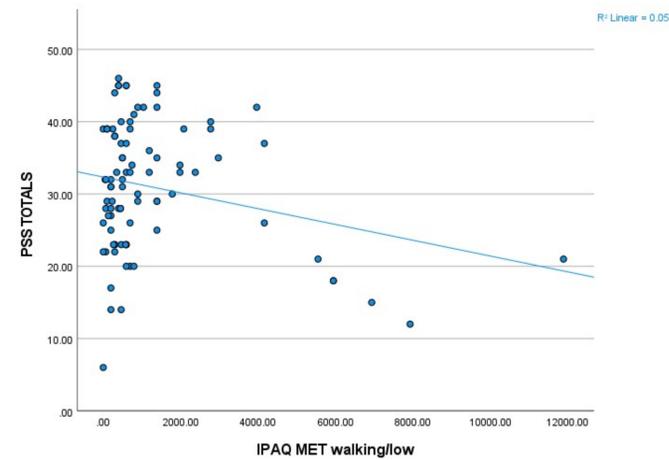
Regression coefficients, correlations, and significance test of regression for independent variables on perceived stress scales.

Independent Variables	β	t	p	R	R ²	R ² adj	SE	F	df
IPAQ MET vigorous	.18	1.72	.09	.33	.11	.07	8.53	3.4	3,87
IPAQ MET moderate	.11	1.11	.27						
IPAQ MET walk/low	-.25	-2.46	.02						

Note. Based on the standardized regression coefficients, β , IPAQ MET walking/low was a strong significant predictor of total perceived stress. MET walking/low activity level was the stronger predictor of perceived stress. The significance of the regression was measured with F, $p=.02$. All independent variables explained 7% of R²adj of the variance in perceived stress.

Figure 1

Scatterplot for the association between MET walking/low and perceived stress total.



Note. There is significance between MET walking/low activity level and perceived stress total. The graph shows a low correlation between both the variable and dependent variable. MET walking/low has the strongest relation to the dependent variable. independent

Discussion

We examined the relationship between exercise and stress levels in young adults. We assumed that with longer duration of different levels of physical activity it would have shown a significant decrease in stress levels. Although, according to the data we have collected, we were unable to establish such correlation despite past research with vigorous and moderate physical activity. This study does not support our overall hypothesis, but there was support in regards to low correlation with walking/low physical activity and perceived stress(Fig 1). The average PSS score of 91 participants was 30.99 out of 56 which indicated high perceived stress levels. We believe we could not completely replicate results from previous research because our research was in the midst of COVID-19 and many people had drastic changes in their lifestyle and livelihood. Despite our results, we believe our study is still relevant and can apply to the college students whose lives have been impacted.

Limitations

Our sample had contained a majority of female participants. Our sample contained 75.8% female and 24.2% male. This may have biased the measurements based on the distribution of participants. Also, we were not able to verify answers with participants and because of that, impossible scores were entered that skewed the results(Ex: On a question regarding "how many hours on one day.?" – people put more than 24 hours). To resolve this, next time we would like to include further explanation of the questions and provide help to the participants with any confusion. We would administer the questionnaire in person to avoid inaccurate data. Another limitation for our research was that the PSS-14 only addressed perceived stress in the past month, so that could have resulted in stress scores being significantly high because it was taken during the pandemic. Moving forward continuing qualitative research with low/walking physical activity and its effects on stress directly may be something to examine further.

Implications

Our findings can encourage further research on the effects of low/walking physical activity on perceived stress or mental health. From this point, it can be generalized to examine the effects in different age groups or populations. Our research can be used for millions of college students across the world to take control of their stress levels and manage them just by simply taking a walk. Incorporating different independent variables for future examination will change the way college students manage stress and overall live better lives. For future research, we recommend obtaining a sample size that is larger with a more even distribution of genders.

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