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The Effect of Physical Activity at Home on Reducing Stress and Anxiety Levels in Remote Workers

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Abstract

In the era of remote work, workers often experience mental challenges due to social isolation and difficulty separating work time from personal time, which can increase the risk of stress and anxiety. Physical activity is believed to have a positive effect on mental health, but most studies have focused on activities outside the home, such as exercising at the gym or group activities. This study aims to fill this gap by examining the effect of frequency and duration of physical activity at home on stress and anxiety in remote workers. A total of 180 remote workers from various professions participated in this survey, where data were collected using the Perceived Stress Scale (PSS) and Generalized Anxiety Disorder Scale (GAD-7), as well as a physical activity questionnaire. The analysis was carried out using Pearson correlation tests and multiple linear regression. The results showed that the frequency and duration of physical activity at home had a significant negative relationship with stress and anxiety scores, where a one-day increase in physical activity frequency was associated with a decrease in stress and anxiety scores. The coefficient of determination (R^2) showed that the frequency and duration of activity together explained about 20% of the variation in stress and anxiety scores. These findings suggest that physical activity at home may be an effective strategy for managing stress and anxiety in remote workers, and provide practical implications for companies looking to support their employees' mental health in a remote work context.

Keywords: Remote work, mental health, physical activity at home, stress, anxiety

1. Introduction

With the development of technology and changes in global work practices, remote work is becoming increasingly common in a variety of fields (Donnelly and Johns, 2021). Companies are now operating more flexibly in their operations and allowing employees to work from home or other locations away from the office. For companies, this flexibility reduces operating costs and increases productivity. For employees, telecommuting also offers advantages over office work, such as more flexible hours and greater convenience (Parker, 2021). However, telecommuting also poses challenges, especially in terms of mental health. Without clear boundaries between work and personal life, remote workers are at risk for burnout, stress, and anxiety, which can negatively impact productivity and health (Singh et al., 2022).

Social isolation is another major issue for remote workers. In a traditional work environment, employees have opportunities to interact directly with colleagues, engage in discussions, and engage in casual conversation during work breaks. These interactions help reduce stress and build social support, which is important for mental health (Oakman et al., 2020). However, remote workers often lack such social support. Without face-to-face interaction, they may feel isolated and lack emotional support. This can increase the risk of anxiety and depression, especially for those who work in less favorable home environments or who lack family support. Remote workers also have difficulty separating work and personal time, and often feel "always on" even outside of work hours (Şentürk et al., 2021).

Chronic stress and intense anxiety in remote workers can have a negative impact on their physical and mental health. Prolonged stress can lead to a variety of health problems, including sleep disturbances, high blood pressure, cardiovascular problems, and compromised immune systems. In addition, deteriorating mental health can affect a person's cognitive abilities, impairing concentration and memory and ultimately reducing work productivity. Given the prevalence of remote work, it is important to develop effective approaches to maintain the mental and physical

health of telecommuters. One of the most frequently recommended approaches is physical activity (Shimura et al., 2021).

Physical activity has long been recognized as an effective intervention to reduce stress and anxiety. Physical activity increases the production of endorphins, which act as natural stress relievers and help improve overall mood and energy. In addition to endorphins, physical activity can increase the production of neurotransmitters such as dopamine and serotonin, which can enhance well-being and reduce anxiety (Xiao et al., 2021). Regular physical activity, even simple exercise, is believed to significantly reduce symptoms of stress and anxiety in individuals. However, most existing research focuses on physical activity outside the home, such as gym workouts or group sports activities (Barone Gibbs et al., 2021).

In the context of remote work, physical activity performed at home is becoming increasingly important. Due to time and access constraints, remote workers are often unable to engage in physical activity outside the home. However, physical activity at home, such as yoga, strength training, and aerobics, may have similar effects on mental health. This study aims to fill this gap by investigating the effects of frequency and duration of home physical activity on stress and anxiety levels among remote workers (Chirico et al., 2021). This study seeks to understand whether physical activity at home has a significant effect on reducing stress and anxiety among remote workers. This study addresses two primary issues: first, whether there is a relationship between the frequency of physical activity at home and stress levels among remote workers; and second, whether the duration of physical activity at home affects anxiety levels among remote workers. Given the importance of mental health in maintaining personal productivity and well-being, this study is expected to increase understanding of the effectiveness of physical activity at home as one strategy for managing stress and anxiety in the remote work environment (Limbers et al., 2020).

In this study, data on physical activity habits, stress and anxiety levels were collected from remote workers using survey methods. The main variables measured included frequency of physical activity (days per week), duration of activity (minutes per session), and stress and anxiety scores measured using validated scales such as the Perceived Stress Scale (PSS) and the Generalized Anxiety Disorder Scale (GAD-7). The data obtained were analyzed using correlation and regression methods to determine if there was a significant relationship between physical activity and stress and anxiety levels (Lange and Kayser, 2022).

In addition, the study also considered demographic variables such as age, gender, and duration of remote work that might affect the results. For example, younger workers may be more prone to anxiety due to their lack of work experience, while workers with a longer history of remote work may have developed more effective coping skills. It is hoped that analyzing these factors will make the results of this study more relevant and allow for a more comprehensive interpretation.

The results of this study are expected to provide insight into the importance of physical activity at home as part of mental health management strategies for remote workers. The results of this study may have practical implications for companies wishing to support the mental wellbeing of their employees, especially in remote work situations. Companies can encourage employees to engage in regular physical activity or provide wellness programs that support physical and mental fitness.

This study aims to contribute to the literature on the mental health of remote workers and focuses on physical activity as one intervention that can be done at home. It is hoped that the results of this study will guide workers, employers, and health care providers in developing wellness programs that support employee wellbeing in the remote work era.

2. Methods

2.1. Participants.

A total of 180 remote workers from a variety of occupations participated in the study. All participants telecommuted at least 80% of the time and engaged in physical activity at home at least twice a week.

2.2. Scale

- Perceived Stress Scale (PSS): Measures stress levels on a scale of 0 to 40, with higher scores indicating higher stress:
- Generalized Anxiety Disorder Scale (GAD-7): Measures anxiety on a scale of 0 to 21, with higher scores indicating more anxiety.
- Physical Activity Questionnaire: Collects information on frequency (days per week) and duration (minutes per session) of physical activity.

2.3. Data collection and statistical analysis

Data were collected through an online survey. Statistical analysis was conducted using SPSS with the following analytical steps:

- Statistical description: Means, standard deviations, and distributions of the variables under study.
- Pearson Correlation: Measures the relationship between the variables of frequency and duration of physical activity and stress and anxiety levels.
- Linear regression analysis: To assess the influence of activity frequency and duration on stress and anxiety scores.

3. Results and Discussion

3.1. Statistical description

The following statistical descriptions were obtained from the data obtained.

Table 1: Statistical description of the data

Variables	Mean	Standard Deviation
Activity Frequency (days/week)	3.2	1.2
Activity Duration (minutes/session)	35.7	12.8
Stress Score (PSS)	18.5	6.3
Anxiety Score (GAD-7)	12.4	4.7

3.2. Pearson correlation test

Correlation between variables is determined using the Pearson correlation coefficient formula:

$$r = \frac{\sum(X-Mean_X)(Y-Mean_Y)}{\sqrt{\sum(X-Mean_X)^2}.\sqrt{\sum(Y-Mean_Y)^2}} \quad (1)$$

The results are as follows:

Table 2: Pearson correlation test results

Independent Variables	Stress Score (PSS)	Anxiety Score (GAD-7)
Activity Frequency	-0.45 ($p < 0.05$)	-0.38 ($p < 0.05$)
Activity Duration	-0.39 ($p < 0.05$)	-0.33 ($p < 0.05$)

The correlation showed that the frequency and duration of physical activity had a significant negative relationship with stress and anxiety scores, meaning that increased physical activity was associated with decreased stress and anxiety.

3.3. Linear regression analysis

Regression analysis was conducted to determine the effect of frequency and duration of physical activity on stress and anxiety. The regression equation used is:

$$Y = a + bX \quad (2)$$

Where Y is the dependent variable (stress or anxiety score), X is the independent variable (frequency or duration of activity), *a* is the intercept, and *b* is the regression coefficient.

The formula for the regression coefficient *b*:

$$b = \frac{\sum(X-Mean_X)(Y-Mean_Y)}{\sum(X-Mean_X)^2} \quad (3)$$

and for constant a:

$$a = Mean_Y - b \cdot Mean_X \quad (4)$$

From the regression results, it was found that the frequency of activity has a negative coefficient on stress and anxiety scores, meaning that every one-day increase in the frequency of physical activity is associated with a significant decrease in stress and anxiety scores.

Table 3: Linear regression coefficients

Independent Variables	Stress Score (PSS)	Anxiety Score (GAD-7)
Activity Frequency	$\beta = -0.42$ ($p < 0.01$)	$\beta = -0.33$ ($p < 0.05$)
Activity Duration	$\beta = -0.39$ ($p < 0.05$)	$\beta = -0.27$ ($p < 0.05$)

The coefficient of determination (R^2) shows that the frequency and duration of activity variables together explain about 20% of the variation in stress and anxiety scores.

The results of this study indicate that physical activity at home is significantly associated with reduced stress and anxiety in remote workers. Correlation and regression analyses indicated that increasing the frequency and duration of physical activity has a positive impact on mental health, particularly in reducing stress and anxiety.

4. Conclusion

The study shows that physical activity at home has an important relationship in reducing levels of stress and anxiety in remote workers, both in terms of frequency and duration. Remote workers who engaged in regular physical activity showed lower stress and anxiety scores than those who engaged little in physical activity. A significant negative correlation between the frequency and duration of physical activity between stress and anxiety scores showed that people engaged in physical activity more often and longer, and that the levels of stress and anxiety they experienced were lower.

In regression analysis, physical activity frequency showed a stronger effect than duration, and each daily increase in physical activity frequency was associated with a significant decrease in stress and anxiety scores. The coefficient of determination (R^2) shows that the frequency of the variables and the duration of activity together can account for about 20% of the variation in the stress and anxiety scores of remote workers. This suggests that other factors, such as social support and the conditions of the working environment, may also play a role in the mental health of remote workers.

The findings have practical implications for remote workers and businesses. For remote workers, a routine of physical activity at home is an effective way to reduce stress and anxiety. For companies, these results demonstrate the importance of supporting their employees' mental health by encouraging physical activities such as health and fitness programs. Corporate support for physical activity helps to create a mentally healthy work environment, especially in the increasingly common context of remote work.

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