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THE EFFECTIVENESS OF POUNDFIT EXERCISE AS HIGH-INTENSITY INTERVAL (HIIT) TRAINING ON STRESS AND ANXIETY LEVELS AMONG YOUNG ADULTS WITH A SEDENTARY LIFESTYLE

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ABSTRACT
Stress and anxiety are common mental health problems among young adults, particularly those with a sedentary lifestyle. Regular physical activity, especially high-intensity interval training (HIIT), has been suggested as a non-pharmacological approach to improve mental health outcomes. Poundfit is a music-based HIIT exercise that combines rhythmic movements and high-intensity activity, which may provide psychological benefits. This study aimed to examine the effectiveness of Poundfit exercise as a HIIT program on stress and anxiety levels among young adults with a sedentary lifestyle. A quasi-experimental study with a pretest–posttest control group design was conducted involving 40 young adults with high sedentary behavior, divided into an intervention group (n = 20) and a control group (n = 20). The intervention group participated in a Poundfit exercise program for four weeks (12 sessions), conducted three times per week with a duration of 45 minutes per session and led by a certified instructor. Stress and anxiety levels were measured using the Depression Anxiety Stress Scale-21 (DASS-21). Data were analyzed using paired samples t-tests and independent samples t-tests. The results showed a significant reduction in stress and anxiety levels in the intervention group compared to baseline, while no significant changes were observed in the control group. Posttest comparisons indicated significantly lower stress and anxiety levels in the intervention group than in the control group. Poundfit exercise may be considered an effective and enjoyable physical activity to support mental health among sedentary young adults.

Keywords: anxiety; high-intensity interval training; poundfit; stress; young adults

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INTRODUCTION

Stress and anxiety are increasingly prevalent mental health problems among young adults, particularly those with a sedentary lifestyle. During their productive years, young adults often face multiple demands, including academic pressure, occupational responsibilities, and complex social roles, which may increase vulnerability to chronic stress and anxiety. When not adequately managed, these conditions can negatively affect both physical and psychological health, leading to sleep disturbances, impaired concentration, emotional dysregulation, and a reduced quality of life (World Health Organization, 2022). The global burden of stress- and anxiety-related disorders among young adults continues to rise, highlighting the urgent need for effective and accessible mental health interventions.

Regular physical activity is widely recognized as an effective non-pharmacological strategy for reducing stress and anxiety. Exercise influences mental health through various neurobiological mechanisms, including increased release of endorphins, serotonin, and dopamine, modulation of the hypothalamic–pituitary–adrenal axis, and reduction of cortisol levels (Schuch et al., 2020). In recent years, high-intensity interval training (HIIT) has gained considerable attention due to its time efficiency and its potential to provide both physical and psychological benefits. Evidence suggests that HIIT is effective in reducing symptoms of stress and anxiety and may produce comparable or greater mental health benefits than moderate-intensity continuous exercise, particularly among

young adults with limited time and sedentary behavior (Martland et al., 2020; LeBouthillier & Asmundson, 2023).

Poundfit exercise is a HIIT-based workout that integrates aerobic movements, strength training, and rhythmic music using specially designed sticks, creating a dynamic and enjoyable exercise experience. Music-based and rhythm-driven physical activity has been shown to enhance enjoyment, motivation, and adherence to exercise, which are important determinants of sustained participation and psychological well-being (Terry et al., 2020; Karageorghis et al., 2021). In addition, group-based physical activity may promote social interaction and perceived social support, both of which play protective roles against stress and anxiety (Eime et al., 2022). Despite these potential benefits, empirical studies examining the effects of Poundfit exercise on stress and anxiety among young adults with a sedentary lifestyle remain limited, particularly in the Indonesian context. Therefore, this study aimed to examine the effectiveness of Poundfit exercise as a high-intensity interval training intervention in reducing stress and anxiety levels among young adults with a sedentary lifestyle.

METHOD

This study employed a quantitative approach using a quasi-experimental design with a pretest–posttest control group design. This design was selected to evaluate the effectiveness of the Poundfit exercise intervention as a high-intensity interval training program on changes in stress and anxiety levels by comparing outcomes before and after the intervention between the intervention and control groups without randomization. A total of 40 young adults with a sedentary lifestyle who met the inclusion criteria and voluntarily agreed to participate were included in the study. Participant recruitment was conducted through online dissemination of study information to students at Universitas Pendidikan Indonesia from several academic cohorts. All registered participants underwent an initial screening process based on the study criteria, resulting in 40 eligible participants. All participants were classified as having high sedentary behavior based on their self-reported daily physical activity prior to the study.

Participants were assigned into two groups: an intervention group (n = 20) and a control group (n = 20). Group allocation was conducted using a non-random assignment based on participant availability and baseline assessment results to ensure balanced group sizes. All participants in this study were female; however, gender-based analysis was not performed. The intervention group participated in a Poundfit exercise program conducted over a four-week period with a total of 12 sessions. The intervention was performed three times per week, with each session lasting approximately 45 minutes, and was conducted at Universitas Pendidikan Indonesia (UPI). All exercise sessions were led by a certified Poundfit instructor to ensure participant safety and standardized implementation. The Poundfit program was designed based on high-intensity interval training (HIIT) principles, combining high-intensity cardiovascular movements, muscle-strengthening exercises, and rhythmic movements using Poundfit sticks accompanied by high-energy music. An illustration of the implementation of the Poundfit exercise intervention is presented in Figure 1.

The control group did not receive any structured exercise intervention during the study period and continued their usual daily activities without additional physical training programs. Data collection was conducted at two time points: before the intervention (pretest) and after completion of the intervention (posttest). Stress and anxiety levels were measured using the Depression Anxiety Stress Scale-21 (DASS-21), specifically the stress and anxiety subscales. Higher scores indicated higher levels of stress and anxiety. Prior to hypothesis testing, data were assessed to meet the assumptions of normality and homogeneity. The results indicated that the data satisfied the assumptions required for parametric statistical analysis. Statistical analyses were performed using paired samples t-tests to examine within-group changes and independent samples t-tests to compare

posttest outcomes between the intervention and control groups, with a significance level set at $p < 0.05$.

RESULT

Figure 1. Implementation of the Poundfit exercise intervention led by a certified instructor at Universitas Pendidikan Indonesia (UPI). Participants performed high-intensity interval movements using Poundfit sticks during a 45-minute session.

Table 1.
Characteristics of Study Participants (n = 40)

Characteristics	Category	Total	Percentage
Team	2022	29	72.5 %
	2023	6	15.0 %
	2024	5	12.5 %
Sedentary Group	High Sedentary	40	100 %
	Low Sedentary	0	0 %

Based on participant characteristics, the majority of participants were from the 2022 cohort, accounting for 29 individuals (72.5%). Participants from the 2023 cohort comprised 6 individuals (15.0%), while those from the 2024 cohort totaled 5 individuals (12.5%). Regarding sedentary behavior classification, all participants were categorized as having high sedentary behavior, with 40 participants (100%), and none were classified as having low sedentary behavior.

Prior to hypothesis testing, assumption testing was conducted. Normality testing using the Shapiro–Wilk test indicated that all stress and anxiety variables at both pretest and posttest in the control and intervention groups had p-values greater than 0.05, confirming that the data were normally distributed. In addition, homogeneity of variances assessed using Levene's test showed that posttest stress and anxiety variables had p-values greater than 0.05, indicating homogeneous variances between the control and intervention groups. Therefore, the assumptions required for parametric statistical analysis were satisfied.

Table 2.
Independent Samples t-Test Results for Posttest Stress and Anxiety Scores

Variable	Comparison	t	df	Sig. (2-tailed)	Mean Difference	95% CI
Stress posttest	Intervention vs Control	7.063	38	0.001	6.950	4.958 – 8.942
Anxiety posttest	Intervention vs Control	2.190	38	0.035	3.300	0.249 – 6.351

Independent samples t-test results revealed significant differences between the intervention and control groups for both stress and anxiety posttest scores. Stress levels differed significantly between groups ($t = 7.063$, $df = 38$, $p < 0.001$), with a mean difference of 6.95 (95% CI: 4.958–8.942). Anxiety posttest scores also showed a significant difference ($t = 2.190$, $df = 38$, $p = 0.035$),

with a mean difference of 3.30 (95% CI: 0.249–6.351).

Table 3.
Paired Samples t-Test Results in the Control Group

Variable	Comparison	t	df	Sig. (2-tailed)	Mean Difference	95% CI
Stress	Pretest vs Posttest	0.261	19	0.797	0.250	− 1.758 – 2.258
Anxiety	Pretest vs Posttest	2.025	19	0.057	1.750	– 0.059 – 3.559

In the control group, paired samples t-test results showed no significant differences between pretest and posttest scores for stress ($t = 0.261$, $p = 0.797$) or anxiety ($t = 2.025$, $p = 0.057$), indicating no meaningful change over time.

Table 4.
Paired Samples t-Test Results in the Intervention Group

Variable	Comparison	t	df	Sig. (2-tailed)	Mean Difference	95% CI
Stress	Pretest vs Posttest	10.047	19	0.001	5.250	4.156 – 6.344
Anxiety	Pretest vs Posttest	5.141	19	0.001	4.800	2.846 – 6.754

In contrast, the intervention group demonstrated significant reductions in both stress and anxiety levels. Stress scores decreased significantly from pretest to posttest ($t = 10.047$, $p < 0.001$), with a mean difference of 5.25 (95% CI: 4.156–6.344). Anxiety scores also showed a significant reduction ($t = 5.141$, $p < 0.001$), with a mean difference of 4.80 (95% CI: 2.846–6.754)

DISCUSSION

The results of this study demonstrated that the Poundfit exercise intervention as a high-intensity interval training (HIIT) program significantly reduced stress and anxiety levels in the intervention group compared to the control group. This finding is supported by statistical analyses indicating that stress and anxiety data met the assumptions of normality and homogeneity, allowing the use of parametric tests. Similar findings have been reported in recent studies showing that structured HIIT programs are effective in reducing psychological distress, particularly among young adults with sedentary behavior (Schuch et al., 2020; Martland et al., 2020; LeBouthillier & Asmundson, 2023).

The observed reductions in stress and anxiety may be explained by the physiological and psychological responses elicited by HIIT. High-intensity physical activity has been shown to stimulate the release of endorphins, serotonin, and dopamine, which play a crucial role in mood regulation and emotional stability (Schuch et al., 2020; Anderson & Shivakumar, 2021). Furthermore, HIIT can modulate the hypothalamic–pituitary–adrenal (HPA) axis, leading to decreased cortisol secretion and improved stress responses (Foley et al., 2022; Huang et al., 2024). These mechanisms are particularly relevant for individuals with a sedentary lifestyle, who often exhibit heightened stress reactivity and limited exposure to the mental health benefits of regular physical activity (WHO, 2022; Tremblay et al., 2023).

Poundfit exercise may provide additional psychological benefits beyond those of conventional HIIT due to its integration of rhythmic music and coordinated movements. Music-based exercise has been associated with increased enjoyment, motivation, and exercise adherence, which are important determinants of sustained physical activity participation (Terry et al., 2020; Karageorghis et al., 2021). Moreover, rhythmic and coordinated movements may promote mindfulness and attentional focus, thereby reducing rumination and perceived stress during exercise (Bernardi et al., 2022; Zhang et al., 2024). The group-based nature of Poundfit sessions may also enhance social interaction and perceived social support, both of which have been identified as protective factors against stress and anxiety (Eime et al., 2022; Lim et al., 2025).

The effectiveness of Poundfit exercise observed in this study is consistent with recent evidence indicating that HIIT-based interventions can produce comparable or greater reductions in stress and anxiety symptoms than moderate-intensity continuous exercise, particularly among time-constrained and sedentary populations (Martland et al., 2020; LeBouthillier & Asmundson, 2023; Rodriguez-Ayllon et al., 2024). Individuals with a sedentary lifestyle may also demonstrate greater

psychological adaptation when exposed to structured high-intensity exercise, resulting in more pronounced improvements in mental health outcomes (Farrukh et al., 2023; Chen et al., 2026).

Several limitations should be acknowledged. The use of a quasi-experimental design without randomization may limit the generalizability of the findings. In addition, all participants in this study were female, although gender-based analysis was not conducted. Future research is recommended to employ randomized controlled designs, include more diverse populations, and explore the long-term effects of Poundfit exercise on stress and anxiety. Despite these limitations, the findings of this study provide evidence that Poundfit exercise is a practical, enjoyable, and effective HIIT-based intervention for reducing stress and anxiety among young adults with a sedentary lifestyle.

CONCLUSION

This study concludes that Poundfit exercise performed as a high-intensity interval training (HIIT) program is effective in reducing stress and anxiety levels among young adults with a sedentary lifestyle. Participants who engaged in the four-week Poundfit exercise intervention demonstrated significant improvements in mental health outcomes compared to those who did not receive a structured exercise program.

The findings suggest that Poundfit exercise may serve as a practical, enjoyable, and non-pharmacological strategy to support mental health, particularly for young adults with limited physical activity and sedentary behavior. The combination of high-intensity movements, rhythmic music, and group-based exercise may contribute to enhanced psychological well-being and improved stress regulation. Although the results are promising, further research using randomized controlled designs, larger sample sizes, and more diverse participant characteristics is recommended to strengthen the evidence and explore the long-term effects of Poundfit exercise on mental health outcomes. Nevertheless, this study provides preliminary evidence supporting the potential role of Poundfit exercise as an accessible physical activity intervention to reduce stress and anxiety among sedentary young adults.

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