Indonesian Journal of Global Health Research
Volume 8 Number 3, June 2026
e-ISSN 2715-1972; p-ISSN 2714-9749
http://jurnal.globalhealthsciencegroup.com/index.php/IJGHR

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

Dina P. Sari*, Upik Rahmi, Lina Anisa Nasution, Suci Tuty Putri
Nursing Study Program, Faculty of Sports and Health Education, Universitas Pendidikan Indonesia, Jl. Dr. Setiabudi No.229, Isola, Sukasari, Bandung, Jawa Barat 40154, Indonesia
*dinap.sari@upi.edu

ABSTRACT
Stress and anxiety are increasingly prevalent mental health problems among young adults, particularly those with sedentary lifestyles. High-Intensity Interval Training (HIIT) is recognized as an effective non-pharmacological approach to improve mental health outcomes. Poundfit is a music-based HIIT exercise that combines rhythmic movements and high-intensity physical activity, which may provide optimal psychological benefits. This study aimed to analyze the effectiveness of Poundfit exercise in reducing stress and anxiety levels among young adults with sedentary lifestyles. This study used a randomized controlled trial (RCT) design with a pretest–posttest control group model. A total of 40 young adults with high sedentary behavior were randomly assigned to an intervention group (n = 20) and a control group (n = 20). The intervention group participated in a four-week Poundfit program (12 sessions), conducted three times per week for approximately 45 minutes per session. Stress and anxiety were measured using the Depression Anxiety Stress Scale-21 (DASS-21). Data were analyzed using paired samples t-tests and independent samples t-tests, with statistical significance set at $p < 0.05$. The intervention group showed a significant reduction in stress and anxiety levels after completing the Poundfit program, whereas the control group did not demonstrate significant changes. Independent samples t-test results also indicated that posttest stress and anxiety scores in the intervention group were significantly lower than those in the control group. These findings suggest that Poundfit exercise is an effective HIIT-based intervention that can improve mental health outcomes among sedentary young adults. Poundfit exercise is effective as a practical and enjoyable HIIT intervention for reducing stress and anxiety among young adults with sedentary lifestyles. Further studies with larger and more diverse samples are recommended to confirm these findings and examine long-term effects.

Keywords: Anxiety; High-Intensity Interval Training; Poundfit; Stress; Young Adult Women

How to cite (in APA style)
Sari, D. P., Rahmi, U., Nasution, L. A., & Putri, S. T. (2026). The Effectiveness of Poundfit Exercise as High-Intensity Interval Training (HIIT) on Stress And Anxiety Levels among Young Adult Women with A Sedentary Lifestyle. Indonesian Journal of Global Health Research, 8(3), 773–778. https://doi.org/10.37287/ijghr.v8i3.1350.

INTRODUCTION

Stress and anxiety have become increasingly prevalent mental health concerns among young adults, particularly those with sedentary lifestyles. During this productive stage of life, young adults are frequently exposed to various demands, including academic pressures, occupational responsibilities, and complex social roles, which increase their vulnerability to chronic stress and anxiety. If left unmanaged, these conditions may negatively affect both physical and psychological health, leading to sleep disturbances, reduced concentration, emotional dysregulation, and a decreased quality of life (World Health Organization, 2022). The growing global burden of stress- and anxiety-related disorders among young adults highlights the urgent need for effective and accessible mental health interventions.

Regular physical activity has been widely recognized as an effective non-pharmacological strategy for reducing stress and anxiety levels. Physical activity influences mental health through several neurobiological mechanisms, including increased release of endorphins, serotonin, and dopamine, modulation of the hypothalamic–pituitary–adrenal (HPA) axis, and reduction of cortisol levels (Schuch et al., 2020). In recent years, High-Intensity Interval Training (HIIT) has received considerable attention due to its time efficiency and its ability to provide both physical and psychological benefits simultaneously. Scientific evidence suggests that HIIT is effective in reducing symptoms of stress and anxiety and may offer mental health benefits comparable to, or even greater than, those achieved through

moderate-intensity continuous training, particularly among young adults with limited time and sedentary behaviors (Martland et al., 2020; LeBouthillier & Asmundson, 2023).

Poundfit is a form of HIIT-based exercise that combines aerobic movements, strength training, and rhythmic music accompanied by specially designed drumsticks, creating a dynamic and enjoyable workout experience. Music- and rhythm-based physical activities have been shown to enhance enjoyment, motivation, and exercise adherence, all of which are important factors for sustaining long-term participation and promoting psychological well-being (Terry et al., 2020; Karageorghis et al., 2021). Furthermore, group-based physical activities can foster social interaction and strengthen perceptions of social support, both of which serve as protective factors against stress and anxiety (Eime et al., 2022). Despite these potential benefits, empirical research specifically examining the effectiveness of Poundfit in reducing stress and anxiety among sedentary young adults remains limited, particularly in Indonesia. Therefore, this study aims to analyze the effectiveness of Poundfit as a HIIT-based intervention for reducing stress and anxiety levels among young adults with sedentary lifestyles.

METHOD

This study employed a quantitative approach using a Randomized Controlled Trial (RCT) design with a pretest–posttest control group model. This design was selected to evaluate the effectiveness of the Poundfit exercise intervention in reducing stress and anxiety levels among young adults with sedentary lifestyles. The study participants were female nursing students enrolled in the Nursing Study Program at a university in Bandung, Indonesia, from the 2022, 2023, and 2024 cohorts. Participant recruitment was conducted online through Google Forms, resulting in 59 volunteers who agreed to participate in the study. The required sample size was determined using the Federer formula, namely $(t-1)(n-1) \geq 15$. Since the study consisted of two groups, the minimum sample size required was 16 participants per group. To account for potential dropouts or absences during the study period, the sample size was increased to 20 participants per group, resulting in a total analyzed sample of 40 respondents.

Before being enrolled as study participants, prospective respondents underwent initial screening using the Sedentary Behaviour Questionnaire (SBQ) to ensure that they met the criteria for a high level of sedentary behavior (Rosenberg et al., 2010). The SBQ was used to assess the duration of various sedentary activities, including electronic device use, television viewing, reading, typing or writing, sitting in a vehicle, and eating while seated. Total weekly sedentary time was calculated using the formula: (weekday duration $\times$ 5) + (weekend duration $\times$ 2) (Rosenberg et al., 2010). Participants were classified as having a sedentary lifestyle if their sedentary activity duration reached ≥6 hours per day or ≥42 hours per week (Tremblay et al., 2017). Respondents who met the inclusion criteria—aged 18–25 years, classified as highly sedentary according to the SBQ, and willing to participate through informed consent—were subsequently allocated into either the intervention group or the control group in a 1:1 ratio. Group allocation was performed through randomization using a digital spin wheel, ensuring that each participant had an equal probability of being assigned to either group. The exclusion criteria included a history of severe illness, physical limitations that prevented participation in high-intensity activities, antidepressant use, ongoing psychological therapy, and inability to complete the intervention program.

The variables examined in this study were stress and anxiety, which were measured using the Depression Anxiety Stress Scale-21 (DASS-21) (Lovibond & Lovibond, 1995). Assessments were conducted twice, before the intervention (pretest) and after completion of the intervention (posttest), with analysis focused on the stress and anxiety subscales in accordance with the study objectives. Prior to the intervention, participants underwent vital sign assessments, including blood pressure, heart rate, respiratory rate, and body temperature measurements, as well as height and weight measurements for body mass index (BMI) calculation. These assessments were performed to evaluate participants' physical readiness for exercise but were not included as primary study variables.

The intervention group participated in High-Intensity Interval Training (HIIT) in the form of Poundfit exercise for four weeks, with a frequency of three sessions per week and a duration of approximately 45 minutes per session, resulting in a total of 12 exercise sessions. The intervention was conducted at the university fitness facility and supervised by a certified instructor. Each exercise session consisted of three phases: a 5–7 minute warm-up, a 30–35 minute main workout, and a 5–10 minute cool-down period. During the main workout, the exercise routine was structured around approximately 12 dynamic and rhythmic songs to maintain a consistent exercise intensity. The movements included a combination of characteristic Poundfit exercises, such as drumming squats, lunges with drum hits, and overhead pounds, combined with cardiovascular movements such as jumping jacks and side steps using Ripstix. Exercise intensity was maintained at approximately 80–95% of maximum heart rate, following recommendations from the World Health Organization and the American College of Sports Medicine (World Health Organization, 2020; American College of Sports Medicine, 2021). Meanwhile, the control group did not receive any structured exercise program and continued their usual daily physical activities throughout the study period. The collected data were analyzed using the Shapiro–Wilk normality test and Levene's test for homogeneity as prerequisites for parametric statistical testing. Differences between pretest and posttest scores within each group were analyzed using paired-samples t-tests, whereas differences between the intervention and control groups were analyzed using independent-samples t-tests. All statistical analyses were conducted using a significance level of $p < 0.05$.

Figure 1. Documentation of the Poundfit exercise intervention conducted under the guidance of a certified instructor. Participants engaged in high-intensity interval training (HIIT) using Ripstix during exercise sessions lasting approximately 45 minutes

All research procedures adhered to ethical principles, including data confidentiality, voluntary participation, protection against the risk of injury, and participants' right to withdraw from the study at any time. This study received ethical approval from the Ethics Committee of the Faculty of Nursing and Health Sciences, Jenderal Achmad Yani University, under approval number 014/KEPK/FITKes–Unjani/IX/2025, and was conducted in accordance with Good Clinical Practice (GCP) standards.

RESULT

This section presents the characteristics of the participants and the results of the comparative analyses of stress and anxiety levels between the intervention and control groups. The analyses were conducted to evaluate changes in stress and anxiety levels before and after the Poundfit exercise intervention, as well as to compare posttest outcomes between the two groups. All findings are presented in the form of tables accompanied by narrative descriptions.

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. The results of the normality test using the Shapiro–Wilk test indicated that all stress and anxiety variables measured at both pretest and posttest, in both the intervention and control groups, had p-values greater than 0.05. These findings suggest that the data were normally distributed. Furthermore, Levene's test for homogeneity of variance showed that the posttest stress and posttest anxiety variables had p-values greater than 0.05, indicating that the variances between groups were homogeneous. Therefore, the assumptions required for conducting parametric statistical analyses were satisfied.

Table 2.
Independent Samples t-Test Results

Variable	Measurement Time	Comparison	t	df	Sig. (2-tailed)	Mean Difference	95% CI
Stress	Pretest	Intervention vs Control	1.656	38	0.106	1.950	–0.434 – 4.334
	Posttest	Intervention vs Control	7.063	38	0.001	6.950	4.958 – 8.942
Anxiety	Pretest	Intervention vs Control	0.165	38	0.870	0.250	–2.821– 3.321
	Posttest	Intervention vs Control	2.190	38	0.035	3.300	0.249 – 6.351

The results of the independent-samples t-test indicated that there were no significant differences between the intervention and control groups in stress and anxiety scores prior to the intervention (pretest) ($p > 0.05$). This finding suggests that the baseline conditions of the two groups were relatively comparable. However, significant differences were observed between the groups following the intervention (posttest). Posttest stress scores differed significantly between the intervention and control groups ($t = 7.063$, $p = 0.001$), as did posttest anxiety scores ($t = 2.190$, $p = 0.035$). For both variables, participants in the intervention group demonstrated lower stress and anxiety scores compared with those in the control group.

Table 3.
Paired Samples t-Test Results

Group	Variable	Comparison	t	df	Sig. (2-tailed)	Mean Difference	95% CI
Control	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
Intervention	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 the control group, the results of the paired-samples t-test showed no significant differences between pretest and posttest scores for either stress ($t = 0.261$, $p = 0.797$) or anxiety ($t = 2.025$, $p = 0.057$). These findings indicate that there were no meaningful changes in stress and anxiety levels throughout the study period among participants in the control group. In contrast, the intervention group demonstrated significant reductions in both stress and anxiety levels following participation in the Poundfit exercise program. 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). Similarly, anxiety scores showed a significant reduction ($t = 5.141$, $p = 0.001$), with a mean difference of 4.80 (95% CI: 2.846–6.754). These results suggest that the Poundfit intervention was effective in reducing stress and anxiety among young adults with sedentary lifestyles.

DISCUSSION

The findings of this study demonstrated significant differences in stress and anxiety levels between the intervention group and the control group following the implementation of the Poundfit exercise program. Participants in the intervention group experienced significant reductions in both stress and anxiety after completing four weeks of Poundfit training, whereas no significant changes were observed in the control group. These findings indicate that Poundfit, as a form of High-Intensity Interval Training (HIIT), is

effective in reducing stress and anxiety among young adults with sedentary lifestyles. The results are consistent with previous studies reporting that structured HIIT programs can significantly reduce psychological distress, particularly among young adults with low levels of physical activity (Schuch et al., 2020; Martland et al., 2020; LeBouthillier & Asmundson, 2023). The reduction in stress and anxiety observed in the intervention group may be explained by the neurobiological mechanisms triggered by high-intensity physical activity. HIIT has been shown to increase the release of neurotransmitters such as dopamine and serotonin, which play essential roles in mood regulation, motivation, and emotional stability. Dopamine contributes to enhanced feelings of pleasure and improved focus, while serotonin helps reduce anxiety, stabilize emotions, and improve sleep quality. Among individuals with sedentary lifestyles, insufficient physical activity may lead to imbalances in these neurotransmitters, thereby increasing the risk of stress and anxiety. Consequently, HIIT-based interventions such as Poundfit may help restore neurochemical balance and support the mental health of young adults (Schuch et al., 2020).

In addition, HIIT contributes to the modulation of stress responses through its effects on the hypothalamic–pituitary–adrenal (HPA) axis. Chronic stress can lead to excessive activation of the HPA axis, resulting in elevated cortisol secretion. Regular high-intensity exercise has been shown to attenuate excessive cortisol responses and enhance physiological adaptation to stress. Physiologically, increased endorphin release and reduced cortisol levels may begin to occur after approximately 10–20 minutes of moderate- to high-intensity physical activity, producing relaxation effects and reducing emotional tension during and after exercise (Boecker et al., 2008; Dishman et al., 2006; World Health Organization, 2022). In the present study, the approximately 45-minute Poundfit sessions, consisting of around 12 songs, likely provided sufficient duration to optimize these physiological responses. Although HIIT is often perceived as potentially risky for individuals with sedentary lifestyles, the findings of this study suggest that Poundfit can be implemented safely through careful participant screening and continuous monitoring of physical condition. Individuals with a history of severe illness, physical limitations that restricted high-intensity activity, antidepressant use, or ongoing psychological therapy were excluded during the screening process. Furthermore, vital signs and body mass index (BMI) assessments were conducted prior to each exercise session to ensure that participants were in a stable physiological condition. This approach supports previous evidence indicating that HIIT can be safely applied among sedentary young adults when appropriate screening and monitoring procedures are in place (American College of Sports Medicine [ACSM], 2021).

Compared with moderate-intensity continuous training, HIIT has been reported to produce greater reductions in stress and anxiety among young adults due to the optimal physiological and neuropsychological adaptability characteristic of this age group. University students, as part of the young adult population, face substantial academic demands and social role adjustments, making them particularly vulnerable to stress and anxiety when these challenges are not adequately managed. Therefore, Poundfit, as a HIIT-based exercise modality, appears to be an appropriate and effective non-pharmacological strategy for reducing stress and anxiety among sedentary young adults (Martland et al., 2020; LeBouthillier & Asmundson, 2023). In addition to its physiological benefits, Poundfit may also provide psychosocial advantages through the integration of rhythmic music and group-based exercise sessions. High-energy music can enhance motivation and engagement during exercise, while group participation promotes social interaction and emotional support. Together, these elements may improve exercise adherence and generate sustained positive psychological effects, both of which are important for supporting the mental well-being of young adults (Terry et al., 2020; Karageorghis et al., 2021; Eime et al., 2022).

CONCLUSION

This study concludes that Poundfit exercise, implemented as a High-Intensity Interval Training (HIIT) program, is effective in reducing stress and anxiety levels among young adult women with a sedentary lifestyle. Participants who completed the four-week Poundfit intervention, conducted three times per week, demonstrated significant reductions in stress and anxiety scores compared with participants in the control group who did not receive a structured exercise program. These findings suggest that Poundfit may serve as a practical, enjoyable, and accessible non-pharmacological intervention to support mental

health among young adult women with sedentary lifestyles. The combination of high-intensity physical activity, rhythmic music, and group-based exercise may contribute to improved psychological well-being and better stress regulation. Future studies are recommended to involve larger sample sizes, more diverse participant characteristics, and longer follow-up periods to further evaluate the long-term effectiveness of Poundfit exercise on mental health outcomes. Nevertheless, the present study provides evidence supporting the potential role of Poundfit as an effective physical activity intervention for reducing stress and anxiety among young adult women with a sedentary lifestyle.

REFERENCES

American College of Sports Medicine. (2021). ACSM's guidelines for exercise testing and prescription (11th ed.). Wolters Kluwer.

Boecker, H., Sprenger, T., Spilker, M. E., Henriksen, G., Koppenhoefer, M., Wagner, K. J., Valet, M., Berthele, A., & Tolle, T. R. (2008). The runner's high: Opioidergic mechanisms in the human brain. Cerebral Cortex, 18(11), 2523–2531. https://doi.org/10.1093/cercor/bhn013

Dishman, R. K., Berthoud, H. R., Booth, F. W., Cotman, C. W., Edgerton, V. R., Fleshner, M. R., Gandevia, S. C., Gomez-Pinilla, F., Greenwood, B. N., Hillman, C. H., Kramer, A. F., Levin, B. E., Moran, T. H., Russo-Neustadt, A. A., Salamone, J. D., Van Hoomissen, J. D., Wade, C. E., York, D. A., & Zigmond, M. J. (2006). Neurobiology of exercise. Obesity, 14(3), 345–356. https://doi.org/10.1038/oby.2006.46

Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2022). A systematic review of the psychological and social benefits of participation in sport for adults. International Journal of Behavioral Nutrition and Physical Activity, 19(1), 1–18. https://doi.org/10.1186/s12966-022-01253-6

Karageorghis, C. I., Terry, P. C., Lane, A. M., Bishop, D. T., & Priest, D. L. (2021). The BASES expert statement on use of music in exercise. Journal of Sports Sciences, 39(7), 1–16. https://doi.org/10.1080/02640414.2020.1842037

LeBouthillier, D. M., & Asmundson, G. J. G. (2023). The efficacy of aerobic exercise and High-Intensity Interval Training for anxiety-related disorders. Journal of Anxiety Disorders, 93, 102646. https://doi.org/10.1016/j.janxdis.2023.102646

Lovibond, S. H., & Lovibond, P. F. (1995). Manual for the Depression Anxiety Stress Scales (2nd ed.). Psychology Foundation.

Martland, R., Mondelli, V., Gaughran, F., & Stubbs, B. (2020). Can High-Intensity Interval Training improve mental health outcomes in adults? A systematic review. Journal of Affective Disorders, 263, 475–486. https://doi.org/10.1016/j.jad.2019.11.139

Rosenberg, D. E., Norman, G. J., Wagner, N., Patrick, K., Calfas, K. J., & Sallis, J. F. (2010). Reliability and validity of the Sedentary Behavior Questionnaire (SBQ) for adults. Journal of Physical Activity and Health, 7(6), 697–705. https://doi.org/10.1123/jpah.7.6.697

Schuch, F. B., Stubbs, B., Meyer, J., Heissel, A., Zech, P., Vancampfort, D., & Hiles, S. A. (2020). Physical activity protects from incident anxiety: A meta-analysis of prospective cohort studies. Depression and Anxiety, 37(9), 846–858. https://doi.org/10.1002/da.23015

Terry, P. C., Karageorghis, C. I., Curran, M. L., Martin, O. V., & Parsons-Smith, R. L. (2020). Effects of music in exercise and sport: A meta-analytic review. Psychological Bulletin, 146(2), 91–117. https://doi.org/10.1037/bul0000216

Tremblay, M. S., Aubert, S., Barnes, J. D., Saunders, T. J., Carson, V., Latimer-Cheung, A. E., Chastin, S. F. M., Altenburg, T. M., & Chinapaw, M. J. M. (2017). Sedentary Behavior Research Network (SBRN) – terminology consensus project process and outcome. International Journal of Behavioral Nutrition and Physical Activity, 14(1), 75. https://doi.org/10.1186/s12966-017-0525-8

World Health Organization. (2022). World mental health report: Transforming mental health for all. World Health Organization.

World Health Organization. (2020). WHO guidelines on physical activity and sedentary behaviour. World Health Organization.