The Association between Physical Activity Classes and Mental Health among Undergraduate Education Students at UiTM Puncak Alam

Siti Nor Salwani Binti Hussin., and *Muhammad Noor Hizami Bin Hamidi

Faculty of Education, Universiti Teknologi MARA (UiTM), Puncak Alam, Malaysia

***Corresponding Author**

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ABSTRACT

Background: Background: Mental health challenges, notably depression, anxiety, and stress, are increasingly prevalent among university students facing academic and transitional pressures. Structured physical activity is recognized as a potential strategy to mitigate these psychological burdens and enhance overall well-being.

Objective: Objective: This study aimed to determine the severity of depression, anxiety, and stress among undergraduate students, and to examine differences in these outcomes between students enrolled in academic programs with structured physical activity classes and those without.

Methods: Methods: A quantitative cross-sectional comparative design was employed at the Faculty of Education, Universiti Teknologi MARA (UiTM) Puncak Alam. A purposive sample of 234 undergraduate students participated, comprising 125 from physical and health education (structured physical activity group) and 109 from biology education (non-physical activity group). Participants completed the Rapid Assessment of Physical Activity (RAPA) and the 21-item Depression, Anxiety, and Stress Scale (DASS-21). Data were analyzed using descriptive statistics and independent samples t-tests.

Results: Results: The overall sample exhibited moderate mean scores for depression ($M = 15.71$, $SD = 9.98$), anxiety ($M = 15.80$, $SD = 9.15$), and stress ($M = 16.12$, $SD = 9.39$). The structured physical activity group demonstrated significantly higher aerobic activity levels (RAPA 1) compared to the non-physical activity group ($M = 4.95$ vs. $M = 4.66$; $t(232) = 4.44$, $p < .001$). Crucially, students in the structured physical activity group reported significantly lower levels of depression ($M = 13.65$ vs. 18.07; $t(232) = -3.46$, $p = .001$), anxiety ($M = 14.10$ vs. 17.76; $t(232) = -3.11$, $p = .002$), and stress ($M = 14.05$ vs. 18.50; $t(232) = -3.71$, $p < .001$).

Conclusion: Enrollment in structured physical activity classes is significantly associated with reduced symptom severity for depression, anxiety, and stress among undergraduate students. Integrating physical activity into university curricula may serve as a vital component of holistic student mental health support.

Keywords: Physical Activity, Mental Health, DASS-21, Undergraduate Students, Academic Stress.

INTRODUCTION

Mental health issues are rising among university students globally, driven by academic pressure, social adjustments, and the transitional challenges of young adulthood [1, 2]. Conditions such as depression, anxiety, and stress pose significant burdens, negatively impacting academic performance and overall quality of life [3]. Consequently, universities are increasingly seeking proactive measures to cultivate resilience and psychological well-being among students [4].

Physical activity has emerged as a well-documented approach to improving mental health, functioning through both physiological (e.g., endorphin release, cortisol reduction) and psychological (e.g., self-efficacy, social interaction) mechanisms [5, 6]. Systematic reviews and meta-analyses consistently highlight that physical activity effectively mitigates symptoms of anxiety and depression across diverse populations [7, 8]. Specifically,

structured physical activity classes provide routines, motivation, and social support networks that may yield superior psychological benefits compared to solitary exercise [9, 10].

Despite growing evidence, the precise association between mandated or structured university physical activity classes and student mental health remains under-researched, particularly within the Malaysian context. While some regional studies indicate high academic stress among students [2], few directly evaluate if embedding physical activity into academic curricula is associated with measurably lower psychiatric distress.

To address this gap, this study investigated the association between physical activity classes and mental health outcomes among undergraduate students at the Faculty of Education, Universiti Teknologi MARA (UiTM) Puncak Alam. The specific objectives were: (1) to determine the levels of depression, anxiety, and stress among the students using the DASS-21; and (2) to examine differences in these mental health levels between students enrolled in programs featuring structured physical activity classes versus those without.

METHODS

Research Design and Setting

A quantitative, cross-sectional comparative research design was employed. The study was conducted at the Faculty of Education, Universiti Teknologi MARA (UiTM) Puncak Alam, Malaysia.

Participants and Sampling

The target population comprised 596 undergraduate students. Utilizing a purposive sampling technique [11], participants were recruited and categorized into two comparison groups based on their academic curriculum: students in the Physical and Health Education program (ED246), whose curriculum mandates structured physical activity classes, and students in the Biology Education program (ED247), whose curriculum does not. The final sample consisted of 234 students (126 male, 108 female), providing adequate statistical power for comparative analysis.

Measures

Rapid Assessment of Physical Activity (RAPA): Physical activity levels were assessed using the RAPA [12]. RAPA 1 measures aerobic activity on a 5-point scale (1 = Sedentary to 5 = Active). RAPA 2 categorizes participation in strength and flexibility training (0 = None, 1 = Strength only, 2 = Flexibility only, 3 = Both).

Depression, Anxiety, and Stress Scale-21 (DASS-21): Mental health was evaluated using the 21-item DASS-21 [13]. It contains three 7-item subscales (Depression, Anxiety, Stress) rated on a 4-point Likert scale indicating frequency over the past week.

Procedure and Ethics

Data were collected via an online questionnaire distributed to the target groups. The study adhered to the ethical principles provided by Universiti Teknologi MARA. Informed consent was obtained digitally, emphasizing voluntary participation, anonymity, and confidentiality [14].

Statistical Analysis

Data were analyzed using SPSS. Descriptive statistics (frequencies, means & standard deviations) were computed to profile demographics, physical activity, and DASS-21 levels. Normality was assumed with skewness and kurtosis values between -2 and 2. Independent samples t-tests were executed to compare mean differences between the physical activity and non-physical activity groups. Statistical significance was set at $p < .05$.

RESULTS

Demographics and Descriptive Statistics

Of the 234 participants, 53.8% were male and 46.2% were female. Students from the physical activity program (ED246) constituted 53.4% (n = 125) of the sample, while students from the non-physical activity program (ED247) accounted for 46.6% (n = 109).

Most respondents self-reported high aerobic activity levels, with 86.3% classified as "Active" on the RAPA 1 scale. For RAPA 2, 64.1% engaged in both strength and flexibility exercises. Mentally, the cohort demonstrated moderate mean scores for depression (M = 15.71, SD = 9.98), anxiety (M = 15.80, SD = 9.15), and stress (M = 16.12, SD = 9.39) (Table 1).

Table 1: Descriptive Statistics for Physical Activity and Mental Health (N = 234)

Variable	Mean	SD
RAPA 1 Level	4.82	0.52
RAPA 2 Level	2.35	0.97
Depression	15.71	9.98
Anxiety	15.80	9.15
Stress	16.12	9.39

Differences Based on Enrollment in Physical Activity Classes

Independent-samples t-tests revealed significant differences in aerobic physical activity levels, with the physical activity group reporting higher RAPA 1 scores (M = 4.95, SD = 0.21) than the non-physical activity group (M = 4.66, SD = 0.70); $t(232) = 4.44$, $p < .001$. No significant difference was observed for RAPA 2 (strength/flexibility) scores ($p = .752$) (Table 2).

Table 2: Independent-Samples T-Test for Physical Activity Levels by Group

Measure	Group	N	Mean	SD	t	df	p-value
RAPA 1	ED246 (PA)	125	4.95	0.21	4.442	232	< .001
	ED247 (Non-PA)	109	4.66	0.70			
RAPA 2	ED246 (PA)	125	2.34	0.97	-0.316	232	.752
	ED247 (Non-PA)	109	2.38	0.97			

Regarding mental health outcomes, the physical activity group reported significantly lower levels of depression, anxiety, and stress compared to the non-physical activity cohort (Table 3). Students enrolled in physical activity classes had a mean depression score of 13.65 compared to 18.07 for those who did not ($t(232) = -3.46$, $p = .001$). Similarly, anxiety levels were significantly lower in the active group (M = 14.10) versus the non-active group (M = 17.76; $t(232) = -3.11$, $p = .002$). Stress scores followed the same pattern, with the physical activity group scoring lower (M = 14.05) than the comparison group (M = 18.50; $t(232) = -3.71$, $p < .001$).

Table 3: Independent-Samples T-Test for Mental Health Outcomes by Group

Measure	Group	N	Mean	SD	t	df	p-value
Depression	ED246 (PA)	125	13.65	10.63	-3.461	232	.001
	ED247 (Non-PA)	109	18.07	8.64			
Anxiety	ED246 (PA)	125	14.10	10.01	-3.114	232	.002
	ED247 (Non-PA)	109	17.76	7.64			
Stress	ED246 (PA)	125	14.05	10.37	-3.711	232	< .001
	ED247 (Non-PA)	109	18.50	7.50			

DISCUSSION

This study investigated the prevalence of mental health symptoms among undergraduate students and compared outcomes based on enrollment in academic physical activity classes. The findings reveal that the student population generally experiences moderate levels of depression, anxiety, and stress, corroborating prior literature documenting the psychological toll of university transitions and academic workloads [1, 2].

Crucially, the comparative analysis demonstrated that students engaged in structured physical activity classes exhibited significantly lower levels of depression, anxiety, and stress compared to their non-active peers. These findings align with robust international evidence indicating that exercise interventions serve as vital neuroprotective agents [7, 8]. The physiological release of endorphins and reduction of cortisol—combined with psychological factors such as improved self-efficacy and group social support—likely mediate these beneficial outcomes [6, 9]. By providing a structured, scheduled routine, physical activity classes may alleviate the isolation and emotional burnout often triggered by heavy academic demands.

The study has several limitations. First, the cross-sectional design precludes causal inferences; it is possible that students with naturally lower levels of distress are more likely to successfully participate in active programs. Second, the reliance on purposive sampling between two specific academic disciplines may introduce confounding variables, such as differing baseline workloads between physical education and biology curricula. Future longitudinal or randomized controlled studies are recommended to isolate the specific causal impact of physical activity volume, type, and intensity on youth mental health.

CONCLUSION

The results underscore a significant negative association between participation in structured physical activity classes and the severity of depression, anxiety, and stress among undergraduate students. While overall mental health distress remains a moderate concern within the student body, integrating mandated or easily accessible physical activity modules into university curricula appears to be a viable, non-stigmatizing strategy to promote emotional resilience and well-being.

Declarations

Ethical Considerations: This research followed ethical protocols specified by Universiti Teknologi MARA (UiTM).

Conflicts of Interest: The authors declare no conflicts of interest.

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REFERENCES

1. Herbert, C., Meixner, F., Wiebking, C., & Gilg, V. (2020). Regular physical activity, short-term exercise, mental health, and well-being among university students: The results of an online and a laboratory study. Frontiers in Psychology, 11, 509. https://doi.org/10.3389/fpsyg.2020.00509
2. Coakley, K. E., Lardier, D. T., Holladay, K. R., Amorim, F. T., & Zuhl, M. N. (2021). Physical activity behavior and mental health among university students during COVID-19 lockdown. Frontiers in Sports and Active Living, 3, 682175. https://doi.org/10.3389/fspor.2021.682175
3. O' Brien, N., Lawlor, M., Chambers, F., Breslin, G., & O' Brien, W. (2019). Levels of wellbeing, resilience, and physical activity amongst Irish pre-service teachers: A baseline study. Irish Educational Studies, 39(3), 389-406. https://doi.org/10.1080/03323315.2019.1697948
4. Kliziene, I., Cizauskas, G., Sipaviciene, S., Aleksandraviciene, R., & Zaicenkoviene, K. (2021). Effects of a physical education program on physical activity and emotional well-being among primary school children. International Journal of Environmental Research and Public Health, 18(14), 7536. https://doi.org/10.3390/ijerph18147536
5. Kim, S.-Y., Jeon, S.-W., Lee, M. Y., Shin, D.-W., Lim, W.-J., Shin, Y.-C., & Oh, K.-S. (2020). The association between physical activity and anxiety symptoms for general adult populations: An analysis of the dose-response relationship. Psychiatry Investigation, 17(1), 29-36. https://doi.org/10.30773/pi.2019.0078
6. Biddle, S. J. H., & Asare, M. (2011). Physical activity and mental health in children and adolescents: A review of reviews. British Journal of Sports Medicine, 45(11), 886-895. https://doi.org/10.1136/bjsports-2011-090185
7. Rebar, A. L., Stanton, R., Geard, D., Short, C., Duncan, M. J., & Vandelanotte, C. (2015). A meta-meta-analysis of the effect of physical activity on depression and anxiety in non-clinical adult adult populations. Health Psychology Review, 9(3), 366-378. https://doi.org/10.1080/17437199.2015.1022901
8. Pascoe, M., Bailey, A. P., Craike, M., Carter, T., Patten, R., Stepto, N., & Parker, A. (2020). Physical activity and exercise in youth mental health promotion: A scoping review. BMJ Open Sport & Exercise Medicine, 6(1), e000677. https://doi.org/10.1136/bmjsem-2019-000677
9. Firth, J., Firth, J. A., Stubbs, B., Vancampfort, D., Schuch, F. B., Hallgren, M., Veronese, N., Yung, A. R., & Sarris, J. (2018). Association between muscular strength and cognition in people with major depression or bipolar disorder and healthy controls. JAMA Psychiatry, 75(7), 740. https://doi.org/10.1001/jamapsychiatry.2018.0503
10. Blumenthal, J. A., Smith, P. J., & Hoffman, B. M. (2012). Is exercise a viable treatment for depression? ACSM's Health & Fitness Journal, 16(4), 14-21. https://doi.org/10.1249/01.fit.0000416000.09526.eb
11. Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. American Journal of Theoretical and Applied Statistics, 5(1), 1-4. https://doi.org/10.11648/j.ajtas.20160501.11
12. Topolski, T. D., LoGerfo, J., Patrick, D. L., Williams, B., Walwick, J., & Patrick, M. B. (2006). The Rapid Assessment of Physical Activity (RAPA) among older adults. Preventing Chronic Disease, 3(4), A118.
13. Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the Beck depression and anxiety inventories. Behaviour Research and Therapy, 33(3), 335-343. https://doi.org/10.1016/0005-7967(94)00075-u
14. American Psychological Association. (2020). Publication Manual of the American Psychological Association (7th ed.). https://doi.org/10.1037/0000165-000