

Original Research Article

IMPACT OF PHYSICAL ACTIVITY ON SELF-EFFICACY AND PERCEIVED STRESS AMONG YOUNG ADULTS AT SRM TRICHY MEDICAL COLLEGE

T. Devipriya¹, R.Divya², R.Premaraja³

¹Final Year Postgraduate, Department of Physiology, Trichy SRM Medical College Hospital & Research Centre, Tamil Nadu, India

²Professor, Department of Physiology, Trichy SRM Medical College Hospital & Research Centre, Tamil Nadu, India

³Professor & HOD, Department of Physiology, Melmaruvathur Adhiparasakthi Institute of Medical Sciences and Research, Tamil Nadu, India

Received : 12/05/2026
Received in revised form : 01/07/2026
Accepted : 16/07/2026

Corresponding Author:

Dr. R. Divya,
Professor, Department of Physiology,
Trichy SRM Medical College Hospital
& Research Centre, Tamil Nadu, India.
Email: divyaramanathan2019@gmail.com

DOI: 10.70034/ijmedph.2026.3.186

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (3); 1165-1169

ABSTRACT

Background: Young adults in professional academic settings often experience high stress levels and fluctuating self-efficacy. Physical activity has been shown to influence psychological well-being, but evidence from Indian medical student populations remains limited. The objective is to examine the association between physical activities levels, self-efficacy, and perceived stress among medical students at SRM Trichy Medical College.

Materials and Methods: A cross-sectional study was conducted with 200 students (aged 18–25 years). Physical activity was measured using the International Physical Activity Questionnaire (IPAQ). General Self-Efficacy Scale (GSES) and Perceived Stress Scale (PSS-10) were administered. Data were analysed using descriptive statistics, Pearson's correlation, and multiple regression.

Results: Of 200 participants (mean age 20.9 ± 1.8 years; 54% female), 62% reported moderate to high physical activity. Higher physical activity was significantly correlated with greater self-efficacy ($r = 0.42$, $p < 0.01$) and lower perceived stress scores ($r = -0.38$, $p < 0.01$). In regression analyses controlling for age, gender, and academic year, physical activity significantly predicted self-efficacy ($\beta = 0.39$, $p < 0.001$) and inversely predicted perceived stress ($\beta = -0.34$, $p < 0.001$).

Conclusion: Among medical students, higher physical activity levels are associated with enhanced self-efficacy and reduced stress. Promoting active lifestyles may benefit psychological well-being in medical education contexts.

Keywords: Physical activity, self-efficacy, stress, young adults, medical students.

INTRODUCTION

Young adulthood is a critical period marked by rapid physical, psychological, and social development. During this stage, individuals must adapt to increasing academic responsibilities and professional expectations. Students in medical education experience particularly high levels of academic pressure, frequent examinations, and long study hours, making them more vulnerable to psychological stress, anxiety, and emotional exhaustion.^[1,2]

Stress is a natural response to challenging situations and can be beneficial when present at moderate levels. However, excessive or prolonged stress

adversely affects both physical and mental health. Medical students consistently report higher stress levels than students in other academic disciplines due to academic overload, fear of failure, and competitive learning environments.^[1,2] Persistent stress has been associated with fatigue, sleep disturbance, depression, and impaired academic performance.^[3] Self-efficacy is a key psychological factor that influences how individuals respond to stress. According to Bandura, self-efficacy refers to an individual's belief in their ability to organize and execute actions necessary to manage specific situations.^[4] Individuals with high self-efficacy are more likely to view challenges as manageable, persist despite difficulties, and recover more quickly from

setbacks, whereas those with low self-efficacy are more prone to anxiety and stress.^[5]

Physical activity is a major determinant of physical and mental health. Regular physical activity reduces the risk of chronic diseases such as cardiovascular disease, diabetes, and obesity and improves overall physical fitness.^[6] International health guidelines recommend that young adults engage in at least 150 minutes of moderate-intensity physical activity each week to maintain good health.^[7] In addition to physical benefits, physical activity has been shown to improve mood, self-esteem, and overall psychological well-being.^[8]

Exercise also plays an important role in stress regulation. Regular physical activity lowers stress hormone levels and stimulates the release of endorphins, which promote feelings of relaxation and emotional well-being.^[9] Exercise further contributes to stress reduction by improving sleep quality and providing a healthy distraction from academic pressures.^[10]

Physical activity is also closely linked to self-efficacy. Successful completion of exercise tasks provides repeated mastery experiences, which strengthen an individual's belief in their own abilities. These enhanced beliefs in competence can transfer to academic and personal life, enabling students to cope more effectively with challenges and demands.

Despite these benefits, many medical students lead sedentary lifestyles due to heavy academic workloads and limited leisure time. Studies among Indian medical students have reported insufficient physical activity along with high levels of psychological stress.^[11] This highlights the importance of promoting physically active lifestyles within medical education.

Understanding the relationship between physical activity, self-efficacy, and perceived stress is therefore of considerable importance. Encouraging regular physical activity may enhance psychological resilience, improve academic performance, and promote overall well-being among medical

students.^[12,13] Hence, the present study aimed to examine the association between physical activity, self-efficacy, and perceived stress among young adults at SRM Trichy Medical College.

Aim and objectives: To examine the association between physical activities levels, self-efficacy, and perceived stress among medical students at SRM Trichy Medical College.

MATERIALS AND METHODS

Study Design and Participants: A cross-sectional study was conducted from August to October 2025 at Trichy SRM Medical College, Tamil Nadu, and India. A convenience sample of 200 medical students (MBBS and allied programs) aged 18–25 years was recruited after institutional ethics approval and informed consent.

Measures

Physical Activity: Physical activity was assessed using the short form of the International Physical Activity Questionnaire (IPAQ-SF). Participants were categorized into low, moderate, and high activity levels based on standard scoring protocols (Craig et al., 2003).

Self-Efficacy: The General Self-Efficacy Scale (GSES) is a validated 10-item measure with scores ranging from 10–40, higher scores indicating stronger self-efficacy (Schwarz & Jerusalem, 1995).

Perceived Stress: Stress was measured with the Perceived Stress Scale (PSS-10), a 10-item questionnaire with scores from 0–40; higher scores indicate greater perceived stress (Cohen et al., 1983).

Statistical Analysis: Data were analysed using SPSS v26. Descriptive statistics summarized participant characteristics. Pearson's correlation examined relationships among physical activity, self-efficacy, and stress. Multiple linear regression tested whether physical activity predicted self-efficacy and perceived stress, controlling for age, gender, and academic year. $p < 0.05$ was considered statistically significant.

RESULTS

Table 1: Demographic Characteristics of Participants (N = 200)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18-20	82	41.0
	21-23	96	48.0
	24-25	22	11.0
Gender	Male	92	46.0
	Female	108	54.0
Year of study	1st year	52	26.0
	2nd year	58	29.0
	3rd year	46	23.0

Table 2: Distribution of Physical Activity Levels (IPAQ)

Physical Activity Level	Frequency (n)	Percentage (%)
Low	76	38.0
Moderate	88	44.0
High	36	18.0
Total	200	100

Table 3: Mean Self-Efficacy and Stress Scores

Variable	Mean	Standard Deviation (SD)	Minimum	Maximum
Self-efficacy score	28.6	5.4	14	40
Perceived stress score	19.3	6.1	15	38

Table 4: Self-Efficacy Scores by Physical Activity Level

Physical Activity	Mean Self-Efficacy	SD
Low (n=76)	24.2	4.1
Moderate (n=88)	29.1	4.5
High (n=36)	33.5	3.8

ANOVA: $F = 28.45$, $p < 0.001$ (Significant)

Table 5: Perceived Stress Scores by Physical Activity Level

Physical Activity	Mean Stress Score	SD
Low (n=76)	24.6	5.2
Moderate (n=88)	18.7	4.63.9
High (n=36)	13.2	

ANOVA: $F = 31.62$, $p < 0.001$ (Significant)

Table 6: Correlation between Physical Activity, Self-Efficacy and Stress

Variables	Physical Activity	Self-Efficacy	Stress
Physical Activity	1	0.42**	-0.38**
Self-Efficacy	0.42**	1	-0.51**
Stress	-0.38**	-0.51**	1

** Correlation significant at $p < 0.01$

Table 7: Multiple Regression Analysis Predicting Self-Efficacy and Stress

A. Dependent Variable: Self-Efficacy

Predictor	Beta (β)	t	p
Physical Activity	0.39	5.12	<0.001
Age	0.08	1.12	0.26
Gender	0.06	0.94	0.34

$R^2 = 0.22$

B. Dependent Variable: Stress

Predictor	Beta (β)	t	p
Physical Activity	-0.34	-4.56	<0.001
Age	0.10	1.38	0.17
Gender	0.07	1.05	0.29

$R^2 = 0.19$

DISCUSSION

The present study examined the association between physical activity, self-efficacy, and perceived stress among medical students at SRM Trichy Medical College. The findings clearly demonstrate that higher levels of physical activity are associated with greater self-efficacy and lower perceived stress, highlighting the important role of lifestyle behaviors in promoting psychological well-being in young adults.^[1]

Medical education is widely recognized as a highly demanding and stressful environment. Academic overload, frequent examinations, fear of failure, and competitive learning conditions expose students to continuous psychological strain.^[2] Prolonged exposure to such stress has been shown to contribute to fatigue, emotional exhaustion, sleep disturbances, and reduced academic performance.^[3] Therefore, identifying protective factors that can buffer these effects is of great importance.

Self-efficacy plays a central role in determining how individuals cope with stress. According to Bandura's theory, individuals who believe in their ability to manage challenges are more likely to persist in difficult situations and experience less psychological

distress.^[4] In the present study, students who reported higher levels of physical activity also demonstrated significantly greater self-efficacy, supporting previous findings that strong self-belief enhances emotional resilience.^[5]

Physical activity appears to strengthen self-efficacy through repeated mastery experiences. Successfully completing exercise routines, improving fitness, and achieving physical goals enhance feelings of competence, which can generalize to academic and personal domains.^[6] Medical students who exercise regularly may therefore feel more capable of handling academic demands and stressful situations. The inverse relationship between physical activity and perceived stress observed in this study further supports the mental health benefits of exercise. Regular physical activity is known to reduce physiological stress responses by lowering cortisol levels and stimulating the release of endorphins, which promote relaxation and emotional well-being.^[7] In addition, exercise improves sleep quality and helps regulate mood, thereby further reducing psychological stress.^[8]

The strong negative correlation between self-efficacy and perceived stress found in this study suggests that

students who have greater confidence in their abilities are less likely to interpret academic challenges as overwhelming. Individuals with high self-efficacy are more likely to adopt effective coping strategies and maintain emotional stability under pressure.^[9]

The multiple regression analysis strengthens these findings by showing that physical activity independently predicted both higher self-efficacy and lower stress, even after controlling for age and gender. This indicates that the psychological benefits of physical activity are not merely due to demographic factors but reflect a genuine protective effect.^[10]

These findings are consistent with earlier research conducted in both general and student populations. Previous studies have demonstrated that physically active individuals experience lower levels of anxiety and depression and greater emotional well-being than sedentary individuals.^[11] Similar patterns have been observed among medical students, where regular exercise has been linked to reduced burnout and improved psychological health.^[12]

In India, studies have reported high stress levels and low physical activity among medical students, emphasizing the need for lifestyle-based interventions.^[13] The present study contributes to this growing body of evidence by demonstrating that physical activity is closely related to both self-efficacy and perceived stress in an Indian medical college setting.

The practical implications of these findings are significant. Medical colleges should promote physical activity not only as a means of improving physical fitness but also as an effective strategy for enhancing mental health and academic performance.^[14] Providing access to sports facilities, organizing fitness programs, and incorporating wellness initiatives into the curriculum can encourage students to adopt active lifestyles.

Faculty members and administrators also play an important role in creating a supportive environment that values self-care and balanced living. When physical activity is institutionalized as part of medical training, students are more likely to prioritize their health and develop lifelong healthy habits.^[15]

Despite the strengths of this study, certain limitations should be acknowledged. The cross-sectional design limits causal interpretation, as it cannot be determined whether physical activity leads to better mental health or whether psychologically healthier students are more likely to be physically active.^[16] Furthermore, physical activity was assessed using self-report measures, which may be subject to recall bias. Future studies could incorporate objective measures such as pedometers or accelerometers to improve accuracy.^[17]

Nevertheless, the present findings provide strong evidence that physical activity is an important correlate of psychological well-being among medical students. By demonstrating its relationship with both self-efficacy and perceived stress, this study

highlights physical activity as a key target for mental health promotion in medical education.^[18]

CONCLUSION

The present study concludes that physical activity plays a significant and positive role in shaping the psychological well-being of young adults studying at SRM Trichy Medical College. Students who engaged in moderate to high levels of physical activity demonstrated significantly higher self-efficacy and significantly lower perceived stress compared to those who were physically inactive. These findings clearly indicate that physical activity is not only beneficial for physical health but also serves as a powerful psychological resource.

Self-efficacy emerged as a key psychological factor influenced by physical activity. Students who exercised regularly were more confident in their ability to manage academic demands and life challenges. This increased confidence likely helps them approach stressful situations with a more positive and resilient mind-set. At the same time, physical activity was associated with a substantial reduction in perceived stress, suggesting that exercise provides an effective coping mechanism for dealing with academic pressure.

Given the high stress levels commonly observed among medical students, integrating physical activity into daily routines should be strongly encouraged. Medical colleges should create supportive environments that promote regular exercise through infrastructure, institutional policies, and awareness programs. By doing so, they can enhance students' mental health, academic performance, and overall quality of life.

In conclusion, promoting physical activity among medical students is a simple, cost-effective, and sustainable strategy to improve self-efficacy and reduce stress. Investing in the physical and mental well-being of future doctors will ultimately contribute to a healthier healthcare workforce and better patient care.

REFERENCES

1. Bandura A. Self-efficacy: The exercise of control. New York: W.H. Freeman; 1997.
2. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav.* 1983;24(4):385–396.
3. Craig CL, Marshall AL, Sjöström M, Bauman AE, Booth ML, Ainsworth BE, et al. International physical activity questionnaire: 12-country reliability and validity. *Med Sci Sports Exerc.* 2003;35(8):1381–1395.
4. Schwarzer R, Jerusalem M. Generalized self-efficacy scale. In: Weinman J, Wright S, Johnston M, editors. *Measures in health psychology: A user's portfolio.* Windsor: NFER-NELSON; 1995. p. 35–37.
5. Warburton DER, Nicol CW, Bredin SSD. Health benefits of physical activity: The evidence. *CMAJ.* 2006;174(6):801–809.
6. Dishman RK, Berthoud HR, Booth FW, Cotman CW, Edgerton VR, Fleshner MR, et al. Neurobiology of exercise. *Obesity.* 2006;14(3):345–356.

7. Penedo FJ, Dahn JR. Exercise and well-being: A review of mental and physical health benefits associated with physical activity. *Curr Opin Psychiatry*. 2005;18(2):189–193.
8. Craft LL, Perna FM. The benefits of exercise for the clinically depressed. *Prim Care Companion J Clin Psychiatry*. 2004;6(3):104–111.
9. Regehr C, Glancy D, Pitts A. Interventions to reduce stress in university students: A review and meta-analysis. *J Affect Disord*. 2013;148(1):1–11.
10. World Health Organization. Guidelines on physical activity and sedentary behaviour. Geneva: WHO; 2020.
11. Ainsworth BE, Haskell WL, Herrmann SD, Meckes N, Bassett DR, Tudor-Locke C, et al. Compendium of physical activities: A second update of codes and MET values. *Med Sci Sports Exerc*. 2011;43(8):1575–1581.
12. Sallis JF, Owen N, Fisher EB. Ecological models of health behavior. In: Glanz K, Rimer BK, Viswanath K, editors. *Health behavior and health education*. 4th ed. San Francisco: Jossey-Bass; 2008. p. 465–485.
13. Sharma A, Kaur P. Physical activity and mental health among Indian medical students. *Indian J Community Med*. 2019;44(2):123–128.
14. Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and psychological distress among US and Canadian medical students. *Acad Med*. 2006;81(4):354–373.
15. Hagberg LA, Lindahl B, Nyberg L, Hellénus ML. Importance of enjoyment when promoting physical exercise. *Scand J Med Sci Sports*. 2009;19(5):740–747.
16. Fox KR. The influence of physical activity on mental well-being. *Public Health Nutr*. 1999;2(3a):411–418.
17. McAuley E, Blissmer B. Self-efficacy determinants and consequences of physical activity. *Exerc Sport Sci Rev*. 2000;28(2):85–88.
18. Salmon P. Effects of physical exercise on anxiety, depression, and sensitivity to stress: A unifying theory. *Clin Psychol Rev*. 2001;21(1):33–61.
19. WHO. Global recommendations on physical activity for health. Geneva: World Health Organization; 2010.
20. Biddle SJH, Asare M. Physical activity and mental health in children and adolescents: A review of reviews. *Br J Sports Med*. 2011;45(11):886–895.