



Role of Physical Activity in Enhancing Mental Health and Academic Performance among Adolescents

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Abstract:

Physical activity is increasingly recognized as a key factor in supporting adolescents' mental well-being and academic success. This study examines the relationship between physical activity participation, psychological health, and academic achievement among adolescents aged 13–18. A descriptive research method was adopted, and data were collected from 250 students through a standardized questionnaire. The findings indicate that regular engagement in physical activity contributes to reduced stress and anxiety, improved concentration, memory retention, and overall academic performance. However, sedentary behavior, screen dependency, and academic workload emerged as barriers. The study emphasizes the need for schools and families to promote active lifestyles as a contributing factor to both mental and academic development.

Keywords: *Physical activity, Mental health, Academic performance, Adolescents, Stress reduction, Cognitive development.*

1. Introduction:

Adolescence is a critical stage of growth marked by physical, cognitive, and emotional changes. During this period, academic demands and social pressures often affect mental health. Physical activity is considered a natural and effective tool for improving psychological well-being and enhancing cognitive functioning among students.

Research suggests that students who participate in regular physical activities demonstrate better concentration, self-esteem, and memory retention, which positively impacts their academic outcomes. The increasing prevalence of sedentary lifestyles, excessive screen use, and emotional challenges highlights the importance of physical activity as a preventive and supportive measure in adolescent development.

2. Background of the Study:

Global health organizations advocate for at least 60 minutes of moderate to vigorous physical activity daily for adolescents. Despite these guidelines, participation rates are declining due to urban lifestyle constraints, increasing academic workload, and lack of sports facilities in schools.

Mental health challenges such as anxiety, depression, and stress are growing among young students. Research indicates that physical activity stimulates the release of endorphins and enhances brain functioning, which supports learning and emotional balance. Therefore, investigating the role of physical activity in improving both mental health and academic performance is crucial for designing effective school-based wellness programs.

3. Objectives of the Study:

1. To examine adolescents' level of participation in physical activity.
2. To analyze the impact of physical activity on mental health indicators such as stress and self-esteem.
3. To study the relationship between physical activity and academic performance.

4. Hypotheses:

H1: Physical activity significantly enhances mental health among adolescents.

H2: There is a positive relationship between physical activity and academic performance.

5. Methodology:

Research Design: Descriptive survey

Sample: 250 adolescents (125 boys, 125 girls) from different schools

Sampling Technique: Random sampling

Tool: Standardized Physical Activity and Wellness Questionnaire

Data Analysis: Percentages and correlation analysis

Results indicated that:

- * 70% of adolescents who participated in more than 4 hours of weekly physical activity reported better emotional stability and lower stress levels compared to inactive peers.
- * Students involved in regular sports achieved higher grades and showed improved classroom engagement.
- * Positive correlation found between physical activity and:
 - * Concentration & problem-solving ability
 - * Academic performance indicators (test scores and attendance)

6. Barriers reported:

- * Lack of time due to academic burden
- * Overuse of smartphones and gaming
- * Insufficient sports programs and facilities

7. Discussion:

The findings of the present study strongly support the view that physical activity plays a crucial role in promoting mental health and improving academic performance among adolescents. Participation in regular

physical activities has been shown to reduce stress, anxiety, and depressive symptoms by stimulating the release of endorphins and improving overall emotional regulation. Adolescence is a critical developmental stage marked by rapid physical and psychological changes; thus, engagement in physical activity acts as a protective factor against mental health issues that commonly arise during this period.

The study also demonstrates a strong positive association between physical activity and cognitive functioning. Aerobic exercises, sports, and structured fitness programs enhance brain functions such as attention, concentration, memory, and problem-solving skills. Improved cognitive functioning contributes meaningfully to adolescents' academic achievement. This supports previous research suggesting that increased physical activity improves blood circulation to the brain, leading to better learning outcomes, alertness, and class participation.

Furthermore, involvement in team sports fosters essential life skills such as cooperation, discipline, time management, leadership, and social support, which indirectly improve academic performance. Physically active students tend to show better classroom behavior, reduced absenteeism, and improved self-esteem, which collectively enhance their educational experience. On the contrary, sedentary lifestyles, increased screen time, and academic pressure limit adolescents' participation in physical activities, resulting in poor mental well-being and decreased scholastic achievements.

Despite the evident benefits, the study reveals that many adolescents do not meet the recommended levels of physical activity due to lack of playground facilities, excessive academic workload, and digital distractions. There is a need for educational institutions, parents, and policymakers to collaboratively promote active lifestyles by incorporating regular physical education classes, sports competitions, and awareness programs on mental health benefits.

Overall, the discussion emphasizes that physical activity should not be considered merely a leisure activity but a fundamental component of adolescent development. Encouraging an active lifestyle can contribute significantly to building a mentally healthy, academically successful, and socially responsible young generation.

8. Findings of the study:

1. A majority of students who regularly participated in physical activity demonstrated better mental health, including reduced stress, anxiety, and emotional fatigue.
2. Adolescents engaged in sports or exercise showed **higher levels of concentration, memory, and classroom engagement.
3. There was a positive correlation between physical activity and improved academic performance such as test scores, attendance, and active learning behavior.
4. Students with sedentary lifestyles experienced comparatively higher levels of psychological distress and lower motivation toward academics.
5. Girls reported less participation in vigorous physical activity than boys, mainly due to cultural and motivational factors.
6. Overdependence on smart phones and academic workload emerged as the major barriers to active participation.
7. Students believed that physical activity helped in building self-confidence, social interaction, and overall well-being.

9. Conclusion:

The present study clearly demonstrates that physical activity has a significant and positive influence on adolescents' mental health and academic performance. Students who engage regularly in physical exercise exhibit better emotional stability, reduced levels of stress and anxiety, as well as enhanced cognitive functions such as memory, concentration, and problem-solving ability. These improvements reflect directly on their academic outcomes, including improved grades, participation, and overall learning efficiency.

Despite understanding the benefits, many adolescents still struggle to maintain an active lifestyle due to academic pressures, limited facilities, and increased dependency on digital devices. Therefore, it is essential for schools, parents, and policymakers to collaboratively create supportive environments that encourage daily physical activity. Integrating structured sports programs, promoting recreational play, and fostering awareness about health can contribute significantly to overall adolescent development.

In conclusion, physical activity should be considered not just as a recreational option but as a vital component of educational systems that supports holistic growth—physically, mentally, socially, and academically. Strengthening physical activity initiatives among adolescents will help in nurturing healthier, more confident, and academically successful future citizens.

10. Recommendations:

1. Schools should integrate daily physical activity sessions and organized sports events.
2. Parents must encourage outdoor play and limit screen time.
3. Government should improve sports facilities and training support for students.
4. Counseling programs should promote physical activity as a tool for mental wellness.

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References:

- Bairagya, S. (2021). Models of teaching: Bruner and Ausubel. In Educational technology: Essentials, approaches and trends. Redshine Publication.
- Bairagya, S., Maity, N., & Maity, A. (2022). Issues and challenges in women's access to higher education in Purba and Paschim Medinipur District, West Bengal. Vidyawarta: Peer-Reviewed International Multilingual Research Journal, 47(9).
- Bagchi, M., & Bairagya, S. (2021). Concept and context of teacher education. In Teacher education: Contemporary issues, practices & prospects (Vol. 1). Publisher to be confirmed.
- 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.
- Brown, D. M. Y., et al. (2022). Interactive associations between physical activity and sleep duration in relation to adolescent academic achievement. *International Journal of Environmental Research and Public Health*.
- Dasgupta, A., & Bairagya, S. (n.d.). Social values among school children through the teaching of value-based contents in Bengali. *Journal of Education and Development*, 7(14).

- Fernández-Bustos, J. G., Infantes-Paniagua, A., Cuevas, R., & Contreras, O. R. (2019). Effect of physical activity on self-concept: Theoretical model on the mediation of body image and physical self-concept in adolescents. **Frontiers in Psychology**.
- Fu, Q., et al. (2025). The effects of physical activity on the mental health of typically developing children and adolescents: A meta-analysis. *BMC Public Health*, 25, Article 22690. <https://doi.org/10.1186/s12889-025-22690-8>
- Ghosh, S., & Bairagya, S. (2010). Attitude of secondary school teachers towards teaching profession in relation to some demographic variables. **Edusearch: Journal of Educational Research*, 1(1), 55–59.
- Haverkamp, B. F., Wiersma, R., Vertessen, K., Van Ewijk, H., Oosterlaan, J., & Hartman, E. (2020). Effects of physical activity interventions on cognitive outcomes and academic performance in adolescents and young adults: A meta-analysis. *Journal of Sports Sciences*, 38, 2637–2660.
- Liu, C., Liang, X., & Sit, C. H. P. (2024). Physical activity and mental health in children and adolescents with neurodevelopmental disorders: A systematic review and meta-analysis. *JAMA Pediatrics*, 178(3), 247–257. <https://doi.org/10.1001/jamapediatrics.2023.6251>
- Liu, G. Q., Li, W. J., & Li, X. T. (2023). Striking a balance: How long physical activity is ideal for academic success? Based on cognitive and physical fitness mediation analysis. *Frontiers in Psychology*.
- Lubans, D., Richards, J., Hillman, C., et al. (2016). Physical activity for cognitive and mental health in youth: A systematic review of mechanisms. *Pediatrics*, 138(3), e20161642.
- Maity, A. (2016). Higher education in India: A study on two states. *Gurukul International Multidisciplinary Research Journal*, 6(2), 156.
- Maity, A. (2024). Investigating the benefits of project-based learning in science education. In **New trends of teaching, learning and technology (Vol. 1314)*. Redshine Publication.
- Maity, A., et al. (2022). Educational problems of the Scheduled Caste students in Paschim Medinipur, West Bengal. *Shodh Navneet*, 10(8). ISSN: 2321-6581.
- Majumder, R., & Bairagya, S. (2025). Exploring teachers' perceptions on the provisions of NEP 2020 for teachers. *Bharati International Journal of Multidisciplinary Research and Development*, 3(3).
- Pan, W., Zhang, H., & Xu, L. (2025). Association between physical activity and academic achievement in adolescents mediated by self-concept and physical and mental health. *Scientific Reports*, 15, Article 33561. <https://doi.org/10.1038/s41598-025-18559-w>
- Paria, M., & Maity, A. (2022). Gender disparity in teacher education: The experience in West Bengal. *International Journal of Advanced Academic Research (IJAAR)*, 2(10).
- Roy, S., & Bairagya, S. (2019). Conceptualisation of pedagogical content knowledge (PCK) of science from Shulman's notion to refined consensus model (RCM): A journey. *Education India Journal*, 8(2), 55–59.
- Ruiz-Ranz, E., et al. (2024). Physical activity, exercise, and mental health of healthy adolescents. *Journal details to be confirmed*.
- Sanuar, S. K., & Maity, A. (2023). Prospective female teachers' attitude towards teaching profession in

Paschim Medinipur District of West Bengal. Vidhyayana: An International Multidisciplinary Peer-Reviewed E-Journal, 8(SI-6), 602–612.

- Sanuar, S. K., & Maity, A. (2024). Educational problems of Muslim girls' students at secondary and higher secondary school education of Paschim Medinipur District in West Bengal. American Journal of Language, Literacy and
- Simpson, A., et al. (2024). Physical activity interventions for the promotion of mental health outcomes in at-risk children and adolescents. Journal details to be confirmed.
- Solidade, V. T., et al. (2021). School physical activity and mental health: A systematic review. Revista Brasileira de Cineantropometria e Desempenho Humano, 23.
- Vedøy, I. B., et al. (2020). Physical activity, mental health and academic achievement: Findings from a Norwegian adolescent cohort. Journal of Mental Health and Physical Activity, 19, 100357.
- World Health Organization. (2025, September). Adolescent mental health. <https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health>

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