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Print ISSN: [3006-2497](#) Online ISSN: [3006-2500](#)Platform & Workflow by: [Open Journal Systems](#)<https://doi.org/10.5281/zenodo.17011730>**Physical Activity and Mental Well-being: The Mediating Effect of Emotional Commitment****Mubashar Turab**Ph.D. Scholar, Department Sports Science & Physical Education, Muslim Youth University,  
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Islamabad[sairaawan546@gmail.com](mailto:sairaawan546@gmail.com)**ABSTRACT**

*The physical activity is widely recognized for its benefits on physical health, but its influence on emotional and cognitive aspects, particularly in higher education settings, is less explored. This study aims to investigate the role of physical activity in enhancing thinking skills and emotional behavior amid university students in Punjab, Pakistan, and examines mediating role of affective commitment in this relationship. The objectives of study include to assess the impact of physical activity on thinking skills and emotional behavior amid university students, to explore mediating role of affective commitment in relationship amid physical activity and cognitive and emotional outcomes. The findings revealed significant positive correlation amid physical activity and both thinking skills and emotional behavior. Students who engaged in regular physical activity exhibited better cognitive functions and more positive emotional behaviors. These findings suggest that the higher education institutions should encourage physical activity not only for its physical health benefits but also for its positive impact on students' cognitive and emotional well-being. Thus, the strategies to enhance affective commitment, such as fostering a supportive and engaging campus environment, could further amplify these benefits.*

**Keywords:** Physical Activity, Thinking Skills, Emotional Behavior, Affective Commitment**Introduction**

The regular exercise is also associated with improved self-esteem and self-confidence as exercise has a profound impact on emotional well-being by reducing stress, anxiety, and depression. Many forms of physical activity involve social interaction, whether it's team sports, group fitness classes, or simply walking with a friend. Social engagement has been shown to have positive effects on mental health and emotional resilience as engaging in regular physical activity is often associated with other healthy lifestyle habits, such as nutritious eating and adequate sleep.

These factors contribute to overall well-being and cognitive function as exercise promotes neuroplasticity, the brain's ability to adapt and reorganize in response to experience. This allows individuals to learn new skills, adapt to challenges, and recover from brain injuries more effectively towards the desired leading outcomes.

The research suggests that physically active individuals are less likely to experience the cognitive decline as they age as regular exercise help protect against age-related conditions. The physical activity plays the crucial role in promoting thinking skills and emotional behavior by enhancing cognitive function, supporting brain health, regulating emotions, fostering the social connections, and promoting overall well-being. Thus, incorporating regular exercise into daily routines is essential for maintaining optimal cognitive and emotional functioning across the lifespan. The impact of physical activity on thinking skills and emotional behavior has been extensively studied across various fields, including neuroscience, psychology, and exercise science. The research consistently demonstrates the profound effects of exercise upon cognitive function and emotional well-being of students.

The physical activity influences brain structure and function through the various neurobiological mechanisms as exercise increases cerebral blood flow, oxygenation, and glucose metabolism in the brain that support neuronal activity and synaptic plasticity. The exercise stimulates the production of the neurotrophic factors, such as brain-derived neurotrophic factor which promote neurogenesis, synaptogenesis, and neuronal survival. These processes are crucial for learning, memory, and overall cognitive function as numerous studies have shown that the regular physical activity is associated with improved cognitive performance across multiple domains, including attention, memory, executive function, and processing speed. Exercise has been particularly effective in enhancing tasks that require complex cognitive processes, such as task-switching and the problem-solving.

The physical activity enhances brain plasticity, allowing brain to adapt and reorganize in response to experience. This plasticity underlies the brain's ability to learn new skills, recover from injury, and compensate for age-related decline. The exercise promotes the formation of new neural pathways and strengthens existing connections, leading to enhanced cognitive abilities. Exercise has profound effects on emotional well-being and mental health. Physical activity triggers the release of endorphins, serotonin, and other neurotransmitters that promote feelings of happiness, relaxation, and stress reduction. The regular exercise is associated with lower rates of anxiety, depression, and mood disorders, improved self-esteem and self-efficacy as engaging in activities, team sports, exercise classes foster social connections, promotes a sense of belonging, and reduces feelings of loneliness.

The literature revealed that many forms of physical activity involve the social interaction, which contributes to emotional resilience and psychological well-being. The physical activity is part of a broader healthy lifestyle that includes nutritious eating, adequate sleep, and stress management. These lifestyle factors collectively support cognitive function and emotional well-being, creating a positive feedback loop of health and resilience. The evidence suggests that physical activity plays a crucial role in promoting thinking skills and emotional behavior by enhancing brain function, supporting emotional regulation, fostering the social connections, and promoting overall well-being. Thus, incorporating regular exercise into daily routines is essential for maintaining optimal cognitive and emotional health across the lifespan as desired for attaining the desired outcomes.



**Research Hypothesis:**

H-No. 1: There is significant mediating role of effective commitment in linking physical activity and thinking skills.

H-No. 2: There is significant mediating role of effective commitment in linking physical activity and emotional behavior.

**Research Methodology**

The research methodology provides the suitable guidelines regarding the techniques and tools under methods and procedures as writing research involves outlining strategies and techniques used to conduct research. These tools and related techniques are thus support through methods and leading procedures.

**Research Design**

The research design of current study is quantitative wherein main aim is to examine the statistical relationships among the research variables (physical activity, effective commitment, thinking skills & emotional behavior) in order to reach the conclusion and making desired decisions. In research, designing the study for research involves careful consideration of various elements to ensure study is well-structured, methodologically sound, and capable of addressing the research questions and related hypotheses [31]. The research design consequently helps in determining the researchers' attitudes towards outcomes that are desired from the study from different dimension to contribute the knowledge thereby implementations of diverse leading techniques for attaining the desired outcomes.

**Population & Sampling:**

It represents the larger group to which the research findings are intended to be applied. The population of interest in this study consists of college students (2754) hailing from different districts of Punjab, Pakistan. A sample of 332 was selected by using statistical formula for sample-size determination to select suitable sampling. In this linking, 332 questionnaires were distributed for data collection from the study respondents and 226 were recollected through simple random sampling to access the sample and to extract desired information.

Table: 1 Sample-Size Determination

Formula	E	N = 2754	Sample = 349
$n = N / (1 + Ne^2)$	0.05	$n = 2754 / (1 + 2754 (0.0025))$ , n = 349.27	Sample = 349

**Results & Discussion**

H-No. 1: There is significant mediating role of effective commitment in linking physical activity and thinking skills.

**Mediation First Step (a)**

Table 2: Model Summary

R	R Square	MSE	F	df1	df2	p
.3777	.1426	.6064	65.6193	1.0000	324.0000	.0000

Table 3: Coefficients of Regression

Model	Coefficient	se	t	p	LLCI	ULCI
Constant	1.8585	.1548	12.0068	.0000	1.5540	2.1630
Physical Activity	.4097	.0506	8.1006	.0000	.3102	.5092

Predicting Variable: Physical Activity

Criterion Variable: Effective Commitment

**Mediation Second & Third Steps (b & c)**

Table 4: Model Summary

<i>R</i>	<i>R Square</i>	<i>MSE</i>	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>p</i>
.6446	.4155	.2069	126.7603	2.0000	323.0000	.0000

Table 5: Coefficients of Regression

<i>Model</i>	<i>Coefficient</i>	<i>se</i>	<i>T</i>	<i>p</i>	<i>LLCI</i>	<i>ULCI</i>
<i>Constant</i>	1.6726	.1191	14.0477	.0000	1.4384	1.9068
<i>Effective Commitment</i>	.1396	.0354	3.9477	.0000	.0700	.2092
<i>Physical Activity</i>	.4165	.0366	11.3652	.0000	.3444	.4886

Predicting Variable: Physical Activity & Effective Commitment

Criterion Variable: Thinking Skills

**Mediation Fourth Step (c)**

Table 6: Model Summary

<i>R</i>	<i>R Square</i>	<i>MSE</i>	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>p</i>
.6181	.3820	.2181	209.2458	1.0000	324.0000	.0000

Table 7: Coefficients of Regression

<i>Model</i>	<i>Coefficient</i>	<i>se</i>	<i>T</i>	<i>p</i>	<i>LLCI</i>	<i>ULCI</i>
<i>Constant</i>	1.9321	.1111	17.3915	.0000	1.7135	2.1506
<i>Physical Activity</i>	.4737	.0327	14.4653	.0000	.4092	.5381

Predicting Variable: Physical Activity

Criterion Variable: Thinking Skills

The mediating role of affective commitment in connecting the physical activity and thinking skills was examined over mediation procedure over four diverse conditional paths while determining the direct and indirect relationships. The results of first path revealed that there is 14.26% change in affective commitment is due to physical activity with significant impact ( $\beta = .4097$  &  $P\text{-value} = .0000$ ). The results of second and third paths revealed the prediction of thinking skills through physical activity and affective commitment wherein 41.55% change is evident in thinking skills is because of these two predictors with significant impact like physical activity ( $\beta = .4165$  &  $P\text{-value} = .0000$ ), and affective commitment ( $\beta = .1396$  &  $P\text{-value} = .0000$ ), and provide clue toward fourth path of the mediation.

The fourth path revealed the important information while determining the direct relationships between physical activity and thinking skills by showing 38.20% variance in thinking skills over physical activity with the significant impact ( $\beta = .4737$  &  $P\text{-value} = .0000$ ). Thus, the mediation results confirmed the partial mediating role of affect commitment in linking the physical activity and thinking skills due to decrease in coefficient value from (.4737) in direct relationship to the (.4165) in indirect relationship while significant values remained unchanged and thus hypothesis about the mediation is confirmed based upon the outcomes from all the four paths of mediation significant procedures.

H-No. 2: There is significant mediating role of effective commitment in linking physical activity and emotional behavior.

**Mediation First Step (a)**

Table 8: Model Summary

<b>R</b>	<b>R Square</b>	<b>MSE</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>p</b>
.3777	.1426	.6064	65.6193	1.0000	324.0000	.0000

Table 9: Coefficients of Regression

<b>Model</b>	<b>Coefficient</b>	<b>se</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
<i>Constant</i>	1.8585	.1548	12.0068	.0000	1.5540	2.1630
<i>Physical Activity</i>	.4097	.0506	8.1006	.0000	.3102	.5092

Predicting Variable: Physical Activity

Criterion Variable: Effective Commitment

#### Mediation Second & Third Steps (b & c)

Table 10: Model Summary

<b>R</b>	<b>R Square</b>	<b>MSE</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>p</b>
.6620	.4383	.2079	140.1455	2.0000	323.0000	.0000

Table 11: Coefficients of Regression

<b>Model</b>	<b>Coefficient</b>	<b>se</b>	<b>T</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
<i>Constant</i>	1.5029	.1229	12.2261	.0000	1.2611	1.7448
<i>Effective Commitment</i>	.1269	.0338	3.7564	.0002	.0604	.1934
<i>Physical Activity</i>	.4509	.0343	13.1454	.0000	.3834	.5183

Predicting Variable: Physical Activity & Effective Commitment

Criterion Variable: Emotional Behaviour

#### Mediation Fourth Step (c)

Table 12 Model Summary

<b>R</b>	<b>R Square</b>	<b>MSE</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>p</b>
.6417	.4118	.2171	248.5536	1.0000	324.0000	.0000

Table 13: Coefficients of Regression

<b>Model</b>	<b>Coefficient</b>	<b>se</b>	<b>T</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
<i>Constant</i>	1.7388	.1098	15.8370	.0000	1.5228	1.9548
<i>Physical Activity</i>	.5029	.0319	15.7656	.0000	.4401	.5656

Predicting Variable: Physical Activity

Criterion Variable: Emotional Behaviour

The mediating role of affective commitment in linking physical activity and emotional behavior was examined over mediation procedure over four diverse conditional paths while determining the direct and indirect relationships. The results of first path revealed that there is 14.26% change in affective commitment is due to physical activity with significant impact ( $\beta = .4097$  & P-value = .0000). The results of second and third paths revealed prediction of emotional behavior through physical activity and affective commitment wherein 43.83% change is evident in thinking skills is because of these two predictors with significant impact like physical activity ( $\beta = .4509$  & P-value = .0000), and affective commitment ( $\beta = .1269$  & P-value = .0000), and provide clue toward fourth path of the mediation.

The fourth path revealed the important information while determining the direct relationships between physical activity and emotional behavior by showing 41.18% variance in thinking skills over physical activity with the significant impact ( $\beta = .5029$  & P-value = .0000). Thus, mediation

results confirmed the partial mediating role of affect commitment in linking the physical activity and emotional behavior due to decrease in coefficient value from (.5029) in direct relationship to (.4509) in indirect relationship while significant values remained unchanged and thus hypothesis about the mediation is confirmed based upon the outcomes from all the four paths of mediation significant procedures.

### **Discussion of Study**

The students who are engaged in regular physical activity tend to have higher levels of affective commitment to their tasks. As physical activity triggers release of endorphins, which are natural mood cranks. The higher cognitive skills give better emotional intelligence, as individuals with strong at managing and recognizing their own emotions and influencing and understanding emotions of others. Participation in team sports foster a sense of camaraderie and belonging, which boosts affective commitment towards tasks. This is partly as exercise can reduce stress and improve well-being, leading to greater satisfaction and loyalty. When student feel competent and capable, their commitment is stronger. The active problem-solving skills and decision-making that are components of strong cognitive function, can boost an individual's commitment towards their leading objectives.

These changes contribute to better thinking skills and cognitive functioning. There is a positive correlation between academic performance and physical fitness. This leads to reduced instances and improved emotional regulation of emotional explosions. Regular physical activity augments an individuals' resilience to pressure. The regular exercise is connected to improved overall mental health and lower levels of stress as exercise helps individuals manage their emotions better by providing a healthy outlet for negative emotions and stress. This means they are better equipped to handle stressful situations from emotional setbacks. The social positive interactions contribute to emotional stability. Thus, participating in group physical activities and team sports fosters social support and interaction, which can enhance emotional well-being from the different perspectives.

The physical activities help reduce pressure and apprehension levels by triggering the release of endorphins, that are natural mood enhancers. It provides a constructive outlet for releasing stress and hindrance that improves emotional resilience and regulation against regular challenges. The experiencing physical improvements and achieving fitness goals donate to positive self-image and emotive well-being. Physical activity led to affective commitment and higher satisfaction to tasks and institution. This can enhance an individual's emotional attachment to their team as regular physical activity can improve confidence and self-esteem. Employees who exercise regularly tend to experience reduced burnout and stress, leading to better satisfaction and loyalty. Engaging in group physical activities, like fitness classes or team sports, fosters social interaction and team bonding.

### **Conclusion**

This study underlines the significant role of physical activity in endorsing emotional behavior and thinking skills amid students in higher institutions in Punjab, Pakistan. Thus, through inclusive analysis, it was recognized that students who engage in regular physical activities show enhanced positive emotional behaviors and cognitive functions. The study identified affective commitment as a key mediating factor in linking the predicting and criterion variables of study. Students with higher affective commitments to their tasks and institutions are likely to benefit from emotional and cognitive developments linked with physical activity. This suggests that sense of belonging

and emotional attachment that student feel towards their institutions can amplify the positive effects of physical activity on their emotional and mental well-being that are required to attain the desired outcomes.

These findings have imperative implications for higher institutions, to exploit the emotional and cognitive reimbursements of physical activity, the institutions should not only promote regular physical exercise but foster also an environment that augments students' affective commitment. This can be realized by creating kind, engaging, and inclusive campus atmosphere where students feel connected and valued. The physical activity should be an integral part of university life, not only for its physical health benefits but for its role in enhancing emotional and cognitive outcomes. By fostering affective commitment and helping physical activity, higher institution can contribute knowingly to academic and well-being success of their students. Future research should continue to explore these relationships in different populations and contexts to further expand and validate upon these findings.

This study offers robust evidence for beneficial effects of physical activity on thinking skills and emotional behavior amid university students, with affective commitment playing a mediating role. The regular physical activity was found to promote the positive emotional behaviors and enhance cognitive functions, highlighting its position beyond physical health. The affective commitment emerged as vital mediator, signifying that student who feel attached emotionally and committed to their institutions are likely to experience emotional and cognitive benefits of physical activity. This suggests that emotional connection and sense of belonging to the educational environment influences significantly how physical activity impacts students' emotional and mental well-being in diverse circumstances. In this regard, these findings have significant implications for the higher education institutions.

To maximize the emotional and cognitive benefits of physical activity, it is vital for institutions to execute initiatives and programs that promote physical exercise as part of university culture. To create an engaging and supportive campus situation that enhances students' emotional belonging and attachment. Thus, by addressing affective commitment and physical activity, institutions can enhance holistically students' emotional and cognitive outcomes, contributing to their well-being along with academic success. The future research should endure to explore these dynamics across diverse populations and contexts to validate further and expand towards desired outcomes. The study examined the impact of physical activity on emotional behavior and thinking skills among university students, with the focus on the mediating role of affective commitment to produce the new leading knowledge.

### **Recommendations**

1. To conduct awareness campaigns highlighting emotional and cognitive reimbursements of physical activity, social media, using posters, and workshops to nurture the students' behaviors towards sports.
2. To invite experts to speak about standing of physical activity for academic performance and mental health to create campus culture that fosters a sense of belonging and emotional attachment towards objectives.
3. To implement mentorship program where senior students, support new students, helping them feel committed to the institution, through the inclusive events, community-building activities, and support services.

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