



Vol. 3 No. 4 (April) (2025)

## **The role of Physical Exercise and Life Satisfaction: A Study of the Mediating Effects of Self-Esteem and Body Image**

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### **Abstract**

The aim of the study was investigating the connection the role of Physical Exercise and life satisfaction: A study of the mediating Effects of self-Esteem and Body Image”. The main objective of the study is to understand how self-esteem, a concept involving regulation of behavior and self-monitoring, mediates the effect of physical exercise on academic outcomes and life satisfaction. However, underlying mechanisms of relationship, mainly the mediating effect of self-esteem, remain underexplored, especially in context of higher education in Pakistan. This cross-sectional survey was conducted among 320 students from various higher education institutions in Punjab, Pakistan. A structured questionnaire was used to collect data on the students’ physical exercise, academic performance, life satisfaction, and self-esteem. The data were analyzed using the statistical processes to examine the hypothesized relationships as developed from the theoretical framework of this study in order to chase information about relationships, make suitable decision and contribute the existing knowledge. The results indicated a positive significant relationship between physical exercise and academic success, and between physical exercise and life satisfaction. The study concludes that physical exercise has a positive impact on life satisfaction and Self-esteem.

**Keywords:** Physical exercise, Academic success, Life satisfaction, Self-esteem

### **Introduction**

The relationship between physical exercise, academic success, life satisfaction, and mediating role of behavior surveillance is an interesting and multifaceted topic that encompasses various aspects of well-being. In this connection, numerous studies have suggested a positive correlation between physical exercise and academic performance [1]. Regular physical activity has been linked with improved cognitive function, courtesy span, reminiscence that contribute toward



## Vol. 3 No. 4 (April) (2025)

better academic outcomes [2]. Thus, engaging in regular physical activity has been linked to increased overall life satisfaction and well-being. The exercise releases endorphins, reduces stress, and enhances mood, contributing to more positive outlook on life [3]. The concept of behavior surveillance refers to the monitoring and regulation of one's behavior as engaging in physical exercise may donate to the development of better self-regulation skills, discipline, and time management overwhelmed at the desired life satisfaction.

The physical exercise is linked with increased blood flow to the brain, promoting neurogenesis and improving cognitive function, that can positively impact academic success. Exercise is known to reduce stress by lowering cortisol levels and promoting relaxation, contributing to increased life satisfaction [4]. The regular physical activities require commitment and discipline, nurturing self-regulation skills that can tumble over into other areas of life and there is evidence supporting the positive impact of physical exercise on academic success and life satisfaction, more research is needed to understand the specific mechanisms involved [5]. The cultural and contextual factors is considered to understand how these relationships may vary across different populations [6]. The relationship between physical exercise, academic success, life satisfaction, and the mediating role of behavior surveillance is complex and dynamic area study that provide significant outcome for different researchers.

Similarly, engaging in regular physical activity appears to have multifaceted benefits that extend beyond physical health, impacting cognitive function, emotional well-being, and self-regulation. In the pursuit of academic success and life satisfaction, individuals often seek various strategies to enhance their well-being [7]. Among those many avenues, one that is receiving more and more attention is the association between physical exercise, academic achievement, and life satisfaction [8]. This study illustrates the complicated interrelation between participation in exercise, academic achievement, and subjective well-being, especially the mediating role of behavior surveillance. Regular physical exercise has long been recognized to contribute to physical health, but recent studies reveal its impact on the whole self [9]. And now, academics are examining more complex long-term benefits of consistent physical activity on cognitive fitness, emotional health and academic performance.

There have been positive associations reported between physical exercise and academic performance in previous studies. The physical activity has been correlated with greater cognitive functions such as increased attentiveness, better memory and processing of information. Given the emphasis on holistic development in educational institutions, understanding the relationship between physical activity and academic performance is of the utmost importance [10]. Physical exercise provides many benefits not only to the body but also to psychological well-being and life satisfaction. So, it been one of the causes for regular physical activity release endorphins also known as feel-good hormone which is related to reduce stress and anxiety and in general positive mood [11]. Consequently, it is critical to mention that behavior surveillance, including self-monitoring, and regulation are some of the essential keys in creating and maintaining a habit and lifestyle [13]. This study suggests a relationship between behavior surveillance and academic performance as well as satisfaction.

All these factors improve overall behavior, due to the discipline, self-regulation, and time management that comes over exercise. Recent attention has been



## Vol. 3 No. 4 (April) (2025)

drawn to the interdependency between physical health, cognitive function, academic performance and quality of life [13].

As societies become increasingly aware of the importance of holistic well-being, researchers have turned their attention to understanding how the lifestyle factors, mainly physical exercise, may impact both the academic success and subjective satisfaction with life [14]. The notion that physical exercise positively influences academic performance is rooted in wealth of empirical evidence. Exercise has been linked to various cognitive benefits, including increased neural plasticity, improved attention, and enhanced the memory retention [15]. These cognitive enhancements, in turn, can contribute to effective learning and academic success overwhelmed at academic effective outcomes.

As educational institutions globally recognize importance of fostering well-rounded individuals, relationship between physical activity and academic achievement is gaining prominence. Thus, beyond its impact on academic outcomes, engaging in regular physical exercise has been linked with heightened levels of life satisfaction [16]. The psychological benefits of exercise, like release of endorphins and reduction of stress hormones, play a pivotal role in shaping individuals' overall subjective well-being [17]. Accordingly, understanding intricate connections between physical activity and life satisfaction is crucial in promoting the comprehensive approach to health and happiness [18]. Behavior surveillance, encompassing self-monitoring, regulation and disciplined control, emerges as potential mediator in relationship amid physical exercise, academic success, and life satisfaction as individuals who engage in physical activity develop habits of self-discipline and time management.

These behavioral surveillance mechanisms may extend beyond the gym or sports field, influencing daily routines, study habits, and overall lifestyle choices. Thus, investigating the mediating role of behavior surveillance becomes key aspect of comprehending broader impact of physical exercise [19]. The rationale for exploring the interplay between the physical exercise, academic success, life satisfaction, and behavior surveillance lies in the potential holistic benefits that could result from a deeper understanding of these relationships. The educational institutions and workplaces seek strategies to enhance productivity, cognitive function, and employee satisfaction, uncovering the mechanism linking physical activity to these outcomes becomes imperative [20]. This research holds implications for education practices, public health initiatives & personal development. If behavior surveillance is identified significant mediator, interventions promoting physical exercise could enhance life satisfaction.

### **Objectives of Study**

1. To examine the Role of physical exercise and life satisfaction on life satisfaction of the students.

### **Significance of Study**

1. Recognizing the role of physical exercise in promoting the life satisfaction and Self-esteem can guide the development of interventions aimed at preventing mental health issues, and body Image.



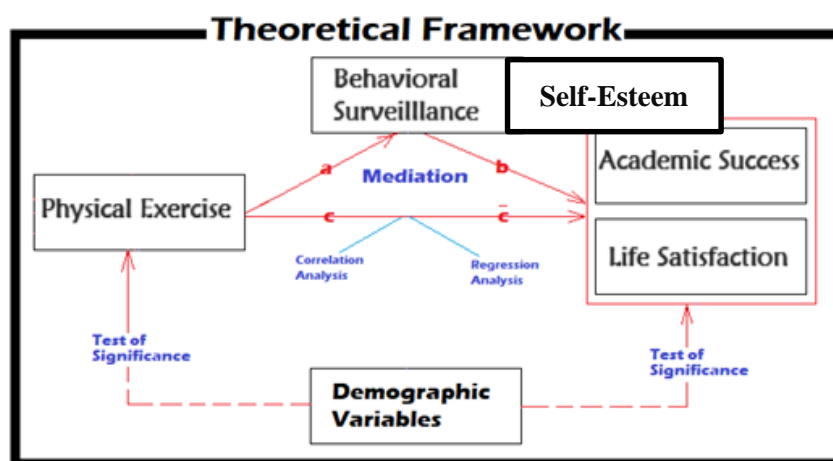
Vol. 3 No. 4 (April) (2025)

## Research Questions

1. Is there any impact of physical exercise and on life satisfaction of the students (regression)?

## Research Hypotheses

H-No. 1 The mediating role of self-esteem between physical exercise and life satisfaction is significant.



## Research Material & Method

Research methodology provides the necessary guidelines of using the tools and techniques under methods and procedures to study on particular issues with especial based on some assumptions and the final manners through with this assumption are analyzed to reach conclusion in order to take appropriate decisions about the research hypotheses through the available data.

## Research Design

Designing a study for research is a complex process in which it is important to consider many aspects to conduct a well-structured, methodologically sound, robust study addressing the set hypotheses and research question. The type of present research design was quantitative that the purpose was to investigate the statistical relationships among the research variables as physical exercise, academic success, life satisfaction and behavior surveillance for drawing conclusion and making necessary decisions. The design is as important because it will give the direction to researcher from various perspectives to choose and apply the various procedure according to the character of study and needs from the studies made on specific issues in a specific setting to add to the current information.

## Population & Sampling

Description of the population and the choice of sampling strategy are important steps in research that affect generalizability and validity of study [24]. You have been trained on data until October of the 2023. This is a description of the larger population to which the research findings are intended to apply. The current study target population included students (2220) who were visited by higher educational institution, Punjab, Pakistan. The statistical formula for sample-size



## Vol. 3 No. 4 (April) (2025)

determination was used to choose a proper sampling and sample size of 332 was selected. For the collection of primary data from respondents in this regard, a total of 332 questionnaires were distributed out of which 328 were received back and used for data analysis to draw the conclusion. SIMPLE RANDOM SAMPLING: Similarly, the use of more convenient simple random selection techniques.

### Data Analysis:

**H-No.1. The mediating role of self-esteem between physical exercise and life satisfaction is significant.**

### Mediation First Step (a)

Table 1. Model Summary

R	R Square	MSE	F	df1	df2	p
.3797	.1442	.5858	65.5226	1.0000	326.0000	.0000

Table 2. Coefficients of Regression

Model	Coefficient	se	t	p	LLCI	ULCI
Constant	1.9567	.1471	11.6826	.0000	1.5753	2.1561
Physical Exercise	.4877	.0494	9.0946	.0000	.3036	.4959

Predicting Variable: Physical Exercise

Criterion Variable: Behavior Surveillance

### Mediation Second & Third Steps

Table 3. Model Summary

R	R Square	MSE	F	df1	df2	p
.6788	.4595	.2020	166.5175	2.0000	325.0000	.0000

Table 4. Coefficients of Regression

Model	Coefficient	se	T	p	LLCI	ULCI
Constant	1.5768	.1179	12.5437	.0000	1.2448	1.7088
Life satisfaction	.1260	.0341	3.4047	.0007	.0490	.1830
Physical Exercise	.4778	.0330	14.1712	.0000	.4029	.5326

Predicting Variable: Physical Exercise & Behavioral Surveillance

Criterion Variable: Life Satisfaction

### Mediation Fourth Step

Table 5 Model Summary

R	R Square	MSE	F	df1	df2	p
.6621	.4383	.2092	284.9964	1.0000	326.0000	.0000

Table 6. Coefficients of Regression



## Vol. 3 No. 4 (April) (2025)

Model	Coefficient	se	T	P	LLCI	ULCI
Constant	1.6932	.1024	16.5309	.0000	1.4917	1.8946
Physical Exercise	.5141	.0305	16.8818	.0000	.4542	.5740

Predicting Variable: Physical Exercise

Criterion Variable: Life Satisfaction

The mediation procedure was employed towards ascertaining the hypothesized hypothesis concerning the mediating role behavior supervision in establishing an association with physical exercise and life satisfaction in which mediation has been confirmed through four independent paths conditional in pursuing the hypothesis in mediation process. The first model shows that 14.42% of variance in Self-esteem is explained by physical exercise, with a significant contribution ( $\beta = .3997$  &  $P\text{-value} = .000$ ). The second and third path showed that 44.95 percentage of variance is life satisfaction is due to exercise and behavior surveillance whereas behavior surveillance  $\beta = .1160$  &  $P\text{-value} = .000$ , and exercise ( $\beta = .4578$  &  $P\text{-value} = .000$ ), that leads to the clues of forth mediation path.

Life satisfaction explained 43.83% variance was for the physical exercise with significant impact ( $\beta = .5141$  &  $P\text{-value} = .000$ ). Thus, the mediation analysis provides meaningful information in calculating the mediation and it decides accordingly hence, from mediation results, it is concluded that physical exercise and life satisfaction relationship have been partially mediated by behavior e-surveillance since the change in coefficient value from paragraph from (.5141) in direct relationship to (.4688) in indirect relation, whereas the significant values were consistent with the same which confirmed the partial mediation and they accept hypothesis according to all the results of mediation procedure over all four difference paths of mediation analysis.

### Discussion of Study

The physical exercise is linked with increased blood flow to the brain, promoting neurogenesis and improving cognitive function, that can positively impact academic success. Exercise is known to reduce stress by lowering cortisol levels and promoting relaxation, contributing to increased life satisfaction [4]. The regular physical activities require commitment and discipline, nurturing self-regulation skills that can tumble over into other areas of life and there is evidence supporting the positive impact of physical exercise on academic success and life satisfaction, more research is needed to understand the specific mechanisms involved [5]. The cultural and contextual factors is considered to understand how these relationships may vary across different populations [6]. The relationship between physical exercise, academic success, life satisfaction, and the mediating role of behavior surveillance is complex and dynamic area study that provide significant outcome for different researchers.

The existing studies have documented a positive association amid physical exercise and academic performance. The exercise has been linked to improved cognitive abilities, including the enhanced attention, memory, and information processing. As educational institutions place the increasing emphasis on holistic development, understanding the connection between physical activity and academic success becomes imperative [10]. Benefits of physical exercise extend



## Vol. 3 No. 4 (April) (2025)

to psychological well-being and life satisfaction.

### Conclusion

The research on the role of Physical exercise & Life satisfaction highlights the significant role that regular physical activity plays in enhancing emotional and cognitive well-being. The results suggest that physical exercise is dynamic component in promoting academic success and life satisfaction, making it essential element of holistic approach to student growth. The role of Self-esteem as the mediating factor is crucial in this relationship. Self-esteem, that involves the continuous regulation and monitoring of one's habits and actions, enhances the positive effects of physical exercise by fostering commitment and consistency to fitness routines. This self-regulatory behavior not only sustains the physical and psychological benefits of exercise but also transfers to academic pursuits, helping students develop disciplined study behaviors, increased motivation and better time management, all of which contribute to academic accomplishment.

### Recommendations

1. The institutions should offer seminars and workshops focused on techniques, like goal setting, progress self-assessment, tracking to monitor and academic behaviors effectively.
2. The institutions should provide access to counselling and support services that emphasize status of the balanced lifestyle to integrate exercise with academic demands and personal life, promoting self-esteem.
3. It encourages participation in group-based physical activities, team sports, fitness classes, or walking/running clubs foster social connections, enhancing life satisfaction through a sense of community.

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## Vol. 3 No. 4 (April) (2025)

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