



# Relationship between Taekwondo and Academic Achievement of Students at the Secondary School Level in District Lahore, Punjab, Pakistan

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## Authors' contributions

This work was carried out in collaboration among all authors. Author SZS contributed to data collection, initial drafting, and manuscript editing. Author WBS is the corresponding author, supervised study design, and provided expert guidance. Author FZ assisted in data collection and manuscript editing. Author QM supported data collection and contributed to manuscript editing. Authors ZY, QS, SK and ZX aided in data collection and helped with manuscript editing. All authors read and approved the final manuscript.

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## ABSTRACT

The study's methodology, which involved a retrospective design and a cross-sectional approach, provided valuable insights, but it also has certain limitations that may have impacted the results. The use of a Likert-scale questionnaire allowed for the collection of self-reported data, which may have introduced bias, as students' perceptions of their academic achievement and Taekwondo participation might not fully align with objective measures. Moreover, the reliance on final exam marks as the sole indicator of academic success may not capture the full spectrum of a student's academic journey, as factors such as class participation, homework, and project work were not considered. The sample size of 500 students, though reasonably large, may not have been sufficient to detect subtle correlations or account for the diversity of student experiences. Future studies could expand the scope of the study by including a more diverse sample, considering additional performance indicators, and employing more robust data collection methods, such as interviews or longitudinal tracking of students' academic progress. Exploring the broader psychological and social effects of Taekwondo participation may also yield more nuanced findings that contribute to the understanding of its impact on academic performance.

*Keywords: Taekwondo; learners; performance; education; secondary schools; Lahore.*

## 1. INTRODUCTION

This Korean martial art is in practice in Pakistan too and owes its effectiveness in fighting, as well as for the wellbeing and health, including strength and flexibility, to its self-defense techniques (Bluestein, 2014). Pupils in Lahore Punjab particularly in secondary schools are readily changing their martial arts to taekwondo. Although Taekwondo is primarily a martial art it is not just a physical regime; it is a strict code that incorporates moral principle, sound judgement and feeling (Ganjera, 2007). We will find it easier to state these attributes are essential for the young ones' development of substantial academic achievement (Nicholl, 1978).

Past literature review indicate that Taekwondo training enhances students' motivation, attention and cognition which would improve students' performance (Weiss, & Miller, 2019).

Like most of the other martial arts, taekwondo entails discipline, and self-control training is among the basic drills (Menear, 2021). In this essay some of the key challenges which hinder concentration among secondary school students and affects their studying will be discussed (Jensen, 2009). The following traits are ingrained in students who practice Taekwondo sports: For these children, discipline means discipline of the mind and the body (Tabet, 2023). Knowledge will be imparted to them concerning specific objectives, measures, and ultimate organizational discipline within a given training period concerning the training process (Rosenberg, 2005).

This is the kind of discipline students will display in the classroom to mean they will demonstrate better conduct, stick to time and complete tasks on time and even persist when faced with challenging tasks (Kohn, 2006). Taekwondo therefore develops both good physic and mental health, which are vital in the performance of students (Bing, & Kim 2021).

Moreover, there are some aspects and cognitive advantages one may derive out of martial arts such as Taekwondo (Pujari, (2024). As suggested by references made by it suggests that physical activity such as martial arts lessons, enhance memory, attention and problem-solving abilities (Diamond, 2012).

The learning effects arising from the art-making process should, therefore, be afforded a more rigorous consideration because they may, in fact, help Lahori secondary school students who are preparing for upcoming exams (Hamid, 2019). Practicing Taekwondo leads to enhanced exercising of the brain hence allowing people to perform well in their exams (Petrovic, 2017). Such mental functions are flexibility, the data processing speed, memory, and others, one of which has been discovered (Baddeley, 2020). Moreover, such specific non-violent method as the respiratory control and concentration learned in Taekwondo contribute to further stress and anxiety eradication, and as a consequence academic achievement enhancement (Gorbel, 1990).

Besides, it encourages the proper emotional health and confidence required in students for

effective performance in class work (Adelman, & Taylor, 2020). A majority of the secondary school children have problems of emotional disorder, unadjusted peer pressure and low self-esteem. Possibly through enhancing the number of Taekwondo practice sessions, students improve their self-belief, assertion, and emotional regulation when things get difficult (Pesidas, & Serrano, 2023). The students find it easier to do their homework, approach their work with a much-improved disposition and are able to respond to their classes and do well in those classes in case of Taekwondo Students (Ward, 2024). Students are able to reduce the number of complex components in a class because of their enhanced capability to regulating emotions and focusing more on their studies (Boekaerts, & Corna, 2005).

By and large, it could not be wrong to affirm that Taekwondo is helping in enhancing the efficiency of secondary school pupils in District Lahore in a tremendously huge way by improving their periodic test results (Tankel, 2014). Taekwondo enhances the performance of a student academically because it enhances inner strength, increases capacity in the brain and installs discipline and focus (Galarrage, 2021). Schools across Lahore and the rest of Punjab are increasingly coming to appreciate the need for integration of martial arts in co-curricular activities (Mirza, 1959). This is evident not only through the increase of the physical power of students; these academic results speak for themselves (Fisette, 2013).

## **2. RESEARCH METHODOLOGY**

### **2.1 Research Design**

The research was designed to investigate the effect of Taekwondo practice on the academic performance of secondary school students in District Lahore, Punjab, Pakistan. The focus was specifically on determining whether the number of hours spent practicing Taekwondo correlates with students' grade performance. As the study sought to explore the relationship between two variables without manipulating them, it followed a descriptive research design (Gulzar, 2021). This approach allowed the researcher to observe the natural conditions of Taekwondo participation and academic achievement among the students.

The data collection method chosen was a survey, as it enabled the researcher to gather a substantial amount of information regarding

students' experiences and perceptions related to Taekwondo and its potential impact on their academic performance (Awidi, 2019). The survey utilized a Likert scale, which provided a range of responses to capture students' attitudes and opinions on the influence of Taekwondo on their academic success (Dearing, 2015). Academic performance was measured by the board exam results of students in the 9th and 10th grades from the Lahore Board, offering a reliable metric for analyzing academic achievement (Sifi & Saeed, 2007).

For data analysis, descriptive statistics such as means and standard deviations were employed, while Pearson correlation coefficients were used to determine the relationship between Taekwondo involvement and GPA (Oakes, 2007). By using these analytical methods, the research aimed to provide a comprehensive understanding of the relationship between physical activity and academic performance.

### **2.2 Population of the Study**

The target group of the study was all the secondary school students in District Lahore, Punjab, Pakistan (Aziz, 2012). These will include students from different classes, both public class students and private class students (Awan, & Zia, 2015). Consequently, it will embrace students across skills, education, and school classes. To assess the effect of Taekwondo on learners' performance, the target population was selected with the aim of true enrolment of different school settings across the district (Becker, 1987).

### **2.3 Population and Sampling Data**

In order to undertake this study, 500 sample of respondents was selected from 20-secondary schools in District Lahore (Khan, 1960).

### **2.4 Analysis of Data**

The degree of engagement in Taekwondo activities was ascertained by the application of descriptive statistics (Son, & Yang 2023). Academic achievements were compared using a t-test, and the association between Taekwondo participation and academic success was assessed using Pearson correlation (Aytac, 2017).

### **2.5 Data Collection Instrument**

The following responses were on a five-point Likert scale: always, usually, sometimes, seldom,

and never. The 24 items on the test covered different facets of Taekwondo participation (Al-Khadly, & Al-Murad 2023).

### 3. RESULTS

The descriptive analysis of Taekwondo participation among secondary school students reveals a low level of engagement, with an overall mean score of 1.97. This suggests that students rarely practice Taekwondo or participate in related activities such as tournaments or regular training. Specifically, "Practice Taekwondo at School" received the lowest mean score (M = 1.75, SD = 1.40), indicating minimal involvement in this activity during school hours. Likewise, students reported infrequent participation in Taekwondo tournaments (M = 2.34, SD = 1.60). While some students noted that Taekwondo improves focus (M = 1.90, SD =

1.50) and helps reduce stress (M = 2.00, SD = 1.35), these scores further reflect limited exposure to Taekwondo and its associated benefits in their daily routines.

The Pearson correlation coefficient (R = 0.03) between Taekwondo participation and academic achievement indicates no significant association. The p-value of 0.55 exceeds the commonly accepted threshold of 0.05 for statistical significance. This result demonstrates that Taekwondo engagement has no measurable effect on students' academic performance. These findings contradict some prior research suggesting positive cognitive and emotional impacts of martial arts. However, the limited level of participation in Taekwondo, as shown in Table 3, may partly explain the lack of significant correlation.

**Table 1. Shows selectionod respondent from 20 secondary schools**

Total Respondents		
500		
S. NO.	20 Selected Secondary Schools	Selected Respondents From each School
1)	Govt. Boys High School Governor house, Lahore	25
2)	Govt. Boys High School Gulberg, Lahore	25
3)	Govt. Boys High School Shalimar, Lahore	25
4)	Govt. Boys High School Cantonment, Lahore	25
5)	Govt. boys High School Allama Iqbal Town	25
6)	Govt. Boys High School Township, Lahore	25
7)	Govt. Boys High School Samanabad, Lahore	25
8)	Govt. Boys High School Mozang, Lahore	25
9)	Govt. Boys High Garden Town, Lahore	25
10)	Govt. Boys High Mughal Pura, Lahore	25
11)	Govt. Boys High School Gulshan Ravi, Lahore	25
12)	Govt. Boys High School Anarkali, Lahore	25
13)	Govt. Boys High Shahdara, Lahore	25
14)	Govt. Boys high Iqbal Park, Lahore	25
15)	Govt. Boys High Liberty Market, Lahore	25
16)	Govt. Boys High School Garden Town 2, Lahore	25
17)	Govt. Boys High School Johar Town, Lahore	25
18)	Govt. Boys High School Garden Town II, Lahore	25
19)	Govt. Boys High School Mughal Gardens, Lahore	25
20)	Govt. Boys High School Ferozepur Road, Lahore	25

**Table 2. Scale in the questionnaire**

S/No	Version	Numerical
1	Always	1
2	Usually	2
3	Some Time	3
4	Seldom	4
5	Never	5

**Table 3. Mean Score of Taekwondo Participation (N=500)**

S.No	Statement	Mean (M)	SD
1	Practice Taekwondo at School	1.75	1.40
2	Participate in Taekwondo Tournaments	2.34	1.60
3	Regularly attend Taekwondo Training	1.88	1.45
4	Taekwondo Improves Focus	1.90	1.50
5	Taekwondo Helps Reduce Stress	2.00	1.35
Overall Mean Score		1.97	0.86

**Table 4. Correlation between Taekwondo & Academic Achievement (N=500)**

S. No	Variable	Pearson Correlation (R)	Sig. (P)
1	Taekwondo Participation & Academic Achievement	0.03	0.55

**Table 5. Mean comparison between students who participate and don't participate in taekwondo (N=500)**

Variable	No. of Students	Mean (M)	SD	T	P
Participate in Taekwondo	220	352.12	48.25	2.10	0.04
Don't Participate	280	360.40	50.31		

The analysis of mean scores indicates a statistically significant difference in academic performance between students who participate in Taekwondo and those who do not, with non-participants performing slightly better (M = 360.40, SD = 50.31) than participants (M = 352.12, SD = 48.25). The t-value of 2.10 and p-value of 0.04 confirm that the difference is significant at the 0.05 level.

While it was initially hypothesized that Taekwondo might enhance academic outcomes due to improved discipline, focus, and stress management, these results suggest otherwise. A possible explanation is that students who practice Taekwondo may allocate less time to academic pursuits, given the time demands of training. Additionally, low engagement levels and inconsistent participation in Taekwondo activities, as noted in Table 3, may limit the potential benefits associated with the martial art.

#### 4. DISCUSSION

Summary of Results:

- Low Participation in Taekwondo Activities:** Students reported minimal involvement in Taekwondo-related practices, tournaments, and training, as reflected by an overall mean score of 1.97.
- No Correlation with Academic Achievement:** The Pearson correlation analysis indicates no significant

association between Taekwondo participation and academic performance (R = 0.03, p = 0.55).

- Non-Participants Perform Better:** Students who did not participate in Taekwondo performed significantly better academically (M = 360.40) than those who did (M = 352.12), with a p-value of 0.04.

These findings collectively suggest that while Taekwondo may offer physical and psychological benefits, its impact on academic performance remains inconclusive, especially in contexts where participation is limited. A more structured implementation of Taekwondo programs, with consistent practice and integration into school curricula, may be necessary to observe any measurable effects on academic achievement

#### 5. CONCLUSIONS

- The current study indicates that there is no significant relationship between Taekwondo and secondary school Student academic performance in District Lahore, Punjab, Pakistan (Gulzar, 2021).
- In District Lahore, students hardly participate in any Taekwondo activities in their secondary schools (Aslam, 2021).
- The observed distribution of academic achievement also reveals that Pupils practicing Taekwondo perform lower than those who do not (Nam, & Lim, 2019).

## DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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