

THE RELATIONSHIP OF SPORTS AND PHYSICAL ACTIVITY TO THE ACADEMIC ACHIEVEMENT: A CASE OF HEARING-IMPAIRED CHILDREN

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ABSTRACT

Sports and physical activity is not only important for normal children but it is equally essential for the children with physical disabilities. Effective sports participation of children with hearing deficits has physical, mental, intellectual as well as societal benefits. The aim of this study was to examine the impact of sports participation on academic achievement of hearing impaired children. For this purpose, a total of 140 children were selected, divided into 2 groups on the basis of comparative experimental design. Half of the sample ($n = 70$) was assigned to control group including those students who did not participate in sports whereas, other half ($n = 70$) was assigned to experimental group including those children who participated in sports activity including Badminton, Football and Volleyball. After pretest and post test data was collected with the help of Sports Participation Scale and Academic Performance rating scale. The overall reliability of the scale was found to be $\alpha = 0.85$. Results indicated that there was a significant positive impact of sports participation on the academic achievement from 2.96 ± 0.455 to 3.60 ± 0.455 ($p < 0.0005$) with betterment level of 0.64 ± 0.64 . According to these results we can conclude that sports participation creates a positive impact on academic achievement of Hearing-impaired students.

Key words: Sports participation, hearing impaired, academic achievement

Introduction

Sports is considered to be a vital element to pursue an energetic and healthy life style for healthy individuals as well as disable individuals. Likewise, sports participation and physical activity benefit the disable individuals in the similar manner as the healthy people. Active sports partici-

pation is an effective way to improve the communication and socializing skills of the children with disabilities (Baikoğlu & Yeşilkaya; 2020). It has been documented that physical activity and sports participation have constructive effects for both physical and mental health particularly among the age groups of child-

ren and adolescence. However, in the modern era physical inactivity is increasing day by day leading to sedentary life style among the children (Barbosa et al, 2020). It has been recommended by the World Health Organization (WHO) in 2010, that children and adolescents under the ages of 5 -17 years should be involved in the minimum 60 minutes of moderate to vigorous physical activity per day.

It used to be an assumed thought that participating in sports and physical activity influences (contrarily) the scholarly execution of the children. The Educationists and social researchers have been working since long to decide the connection between sports and educational performance. Reeves (2008) noticed that students who take part in three or four extracurricular sports amid the academic year had significantly preferable betterment over the individuals who take an interest in no extracurricular sports.

Darling *et al.* (2005) reveal a positive effect of physical activity on education and furthermore in the academic success of its representatives, indicating the potential nature of sports in the educational advancement of its respon-

dents. The researcher thinks about substantiate a positive connection between physical activity and psychological health. Sports participation has been found to be accompanied with positive academic results, less disciplinary referrals, lower non- attendance and dropout rates. Students were found to be going more full time school and graduating and further applying to more college and universities (Darling & Smith 2005). Sports and physical exercises raise the dimension of alertness (mental and physical) and improve educational achievement of the members. Simplified that few researchers explained that absorption and better school results are generally relative to time spent in games exercises (Miller *et al.* 2005).

The relations between sports participation and scholastic accomplishment have different hypothetical underpinnings. On a casual dimension, there are numerous people who guarantee to have accomplished different triumphs identified with scholarly accomplishment because of developmental games encounters. From an examination point of view, there is significant proof that sports interest emphatically

identifies with scholastic accomplishment among handicap youngsters (Stephens & Schaban, 2002). School age youngsters have turned out to be more put resources into innovation than that of sports action (Abadie & Brown, 2010).

Involvement in moderate to high power physical movement amid adolescence is upheld for in the advancement of ideal well-being results and may balance inclined hazard for the improvement of optional wellbeing conditions experienced by handicapped kids (Fowler, 2007). Involvement in physical movement openings is an essential youth experience that encourages the psychosocial improvement of relational abilities, fearlessness, and self-adequacy (Taub, & Greer, 2000). Expanded physical action investment is an essential objective communicated by guardians and experts for debilitated youngsters (Chiarello, 2010).

Among other physical disabilities hearing impairment or hearing loss is prominent in children characterized by inability to hear or with normal hearing – hearing thresholds of 25 dB or better in both ears – is said to have hearing loss. It has been estimated that Over 5% of the wo-

rld's population or 466 million people has disabling hearing loss or hearing impairment among which 432 million are adults and 34 million are children (World Health Organization, 2020). However, in Pakistan 7.9% of population estimated to have hearing impairment where about 1.6 per 1000 persons have bilateral hearing loss and 70% increase is due consanguineous families (Azfer, Khan, Qureshi, Zia & Abid; 2018).

In order to have adequate physical, mental, social development of children with hearing impairment parents and teachers want them to gain normal experiences to the greater extent. In this regard schools can play a crucial role as the socializing centers for these children. Especially at the time sports activities they can easily communicate with other children and hearing impairment is not creating a barrier in the socialization process which in turn saves them from depression and prejudice from the society. Sports and physical activity can act as a tool for communication as hearing impaired children can communicate through visual cues and in turn they can learn to cope with disability. Hence, sports participation can act as an

agent to instill joy, compassion and vigor in the children with hearing impairment consequently leaving better marks on their academic achievement (Baikoğlu & Yeşilkaya; 2020).

Effective engagement of sports among students with hearing impairment has physiological, psychological, intellectual and societal benefits (Ross, Case, & Leung, 2016; Smith, 2009). Although there has been great emphasis on sports and health related activities among students, there is a general concern that students with disabilities do not frequently participate in such activities.

In the perspective of children with hearing impairment there is no significant study about impact of sports participation on their academic achievement, especially in Pakistan. Current study will provide pioneering data regarding the impact of sports engagement among hearing impaired children with in District Multan and this study will leads to make policies and planning about to develop strategies that how to motivate children with hearing impairment to take part in sports and to enhance their academic achievement level. This is necessary in this regard that children

with hearing impairment as compare to other children with physical disability can do many tasks like normal individuals who help them get job and other make business easier for them as compare to other disable children. Therefore, this study will be significant for children with hearing impairment, special education department of Pakistan and as well as the knowledge. The operationalized meaning of this key develops and actualized estimation rehearses were assessed to help our comprehension of this wonder and illuminate future research efforts. To study the impact of sports participation on academic achievements of hearing-impaired students of secondary schools in district Multan.

Materials and Methods

Sample: In this study a sample of 140 hearing impaired students was selected with the help of random sampling from district of Multan. Students of Government schools and centers of special education sector that fulfill the criteria (hearing impaired students who actively participated / not participated in the Badminton, races and Table Tennis) were selected. In this research, experi-

mental randomized control group design was used which included two groups, one was experimental group and the other one was control group.

Inclusion Criteria: Hearing impaired students were included in the study.

Exclusion Criteria: Students with other disabilities like visual impairment, mental retardation and loco motor disability were excluded from the study.

Instruments: Academic Achievement was measured through the Academic Performance Rating scale by (Du Paul, *et al.* 1991). This scale includes 19 statements which were adapted to measure the academic achievement of participants. It is five point Likert scale ranging (1: 0-49-5: 90-100%) to which statement best describe the academic achievement in different subjects and (1: never to 5: very often) to which statements describe the frequency of participant's responses.

Sports participation was measured through the Sports participation scale by (NYPA and NS, 2010). This scale was adapted to assess the sports participation of participants which consists of 8 statements. This scale was

also 5-points Likert scale ranging (1: Never to 5: very often and sports name 1: badminton to 5: Basketball and practice during school hours and at home 1: 0-2 to 8-10 hours and wake up and go to bed ranging 1: 0-2 to 8-9 h and go to bed 1: 4-5 to 8-9 am/pm during week end and school days).

Demographic Sheet: Along with these scales a separately developed Demographic sheet (Name, Gender, Age and Class) was used.

Procedure: The participants were informed prior to the study and consent was taken from the schools. The higher authorities of the school were informed about the nature of the research and Privacy of the participants was ensured regarding the results and information they provided through an oral and written commitment that their information and responses would not be used for other purpose than the research. To begin the data gathering process, a covering letter explaining the purpose of the study along with the questionnaire was shared to higher authorities of the schools and teachers. The consent of approval and coopera-

tion in study was also taken from the respondents.

After approval, a total of 140 students were divided into two group portions one group was experimental group and other was control group. Control group included those students who did not participate in sports. Half population was assigned to this group. The experimental group included those students who participated in sports activity. After the division of students' pre-test was conducted. This test was conducted for both groups. Four subjects; English, Math, General knowledge and Islamic studies were selected for data collection. After eight weeks' sports activity post test was conducted for both experimental and control group and data was collected. Sports participation questionnaire was also filled by the sports participating students or experimental group with the help of teachers. Before and after the pre and post-test both the group were assigned to fill the academic performance rating scale questionnaire. After the initial data collection and screening statistical analysis was employed to draw results.

Data Analysis and Results

Data was analyzed using SPSS version 23. Reliability analysis and Regression analysis were used to draw results of the study.

**Table-1:
Alpha Reliability Coefficients
of Instrument (n=140)**

Scale	No. of items	Cronbach's alpha	
		Pre-test	Post-test
Academic Performance Rating Scale	19	0.878	0.913
Sports Participation Scale	8	0.783	0.821
Overall Reliability	27	0.810	0.85

Table 1 shows the value of alpha reliability, Cronbach's alpha was measured to access the reliability. Reliability of academic achievement scale was found to be 0.878 in pretest and 0.913 in posttest whereas, alpha reliability of sports participation scale was found to be 0.783 in pretest and 0.821 in posttest. Overall, reliability of the scale (Cronbach's alpha = 0.810 in pretest and 0.85 in posttest) indicated that the instrument could be considered reliable for the study and studies of similar nature.

Table-2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin Watson
Pre-test	0.014 ^a	0.000	-0.014	0.45817	1.812
Post-test	0.159 ^a	0.025	0.011	0.59105	1.023
a. Predictor: (Constant), Sports Participation					

Table 2 illustrate that the value of R is 0.014 which show the relationship among sports participation and academic achievement and R² is zero that showed that in pre-test Durbin Watson test value is also in between the range, and also explain the post-test that R value is 0.159 and the value of R² elaborate that sports participation activity enhance 2.5 percent the academic achievement. The values indicated that statistically good fit model.

Table-3: Analysis of Variance of the variables

Model		Sum of Squares	Df	Mean Square	F.	Sig.
Regression	<i>Pre-test</i>	0.003	1	0.003	0.014	0.906 ^b
	Post-test	0.615	1	0.615	1.759	0.189 ^b
Residual	<i>Pre-test</i>	14.275	68	0.210		
	Post-test	23.755	68	0.349		
Total	<i>Pre-test</i>	14.278	69			
	Post-test	24.370	69			
b. Predictor: (Constant), Sports Participation						

The following Tables 3 explain the analysis of variance of pretest and post-test. Analysis of variance tell us about the significance of our results, good prediction of output variables, contribution of variables and degree of good fit of the model. But did not tell us the individual contribution of variables. From the tables we can conclude that sorts participation is good predictor variable.

Table-4: Pretest and posttest coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
Pretest	(Constant)	2.908	0.463		6.282	0.000
	Mean Sport	0.020	0.170	0.014	0.119	0.906
Posttest	(Constant)	4.392	0.597		7.355	0.000
	Mean Sport	0.291	0.220	-0.159	-1.326	0.189

The Table 4 explain that in pre-test when there is no sports participation the value of b_0 is 2.908 when the value of $(X=0)$ meaning no sports activity. In the post test value of b_0 is 4.392 when the value of $(X=0)$ while the enhancement in academic achievement or b_1 is 29.1 percent recorded. The present data indicate that the value of B's are different from 0 so that we can conclude that sports participation contribute significantly ($p < 0.001$ %) on academic achievement.

Table-5 Paired Samples Statistics

Pair 1	Mean	N	Std. Deviation	Std. Error Mean
Pre academic achievement	2.9624	70	0.45489	0.05437
Post academic achievement	3.6053	70	0.59429	0.07103

Table-6: Paired Samples Test

Pair1	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% CI of Difference				
				Lower	Upper			
Pre academic achievement - Post academic achievement	-0.643	0.560	0.067	-0.776	-0.509	-9.601	69	0.000

The Table 5 and 6 describe that $t(69) = -9.601$, hence $p < 0.005$. Due to the means of pre and post-test and the value and direction of t (degree of freedom) we can conclude that there was a significant relationship between the impact of sports participation on the academic achievement from 2.96 ± 0.455 to 3.60 ± 0.455 ($p < 0.0005$) with betterment level of 0.64 ± 0.64 .

Discussion and Conclusion

The aim of this causal comparative study was to study the impact of sports participation on academic achievement of hearing impaired children. Review of research literature has generally reported positive results of sports participation on academic achievement of students (Fredricks & Eccles, 2006; Daniels & Leaper, 2006; Watt & Moore, 2001). However, a gap has been found in the field regarding the impact of athletic participation on academic performance with respect to children with disabilities.

The results of the study concluded that there was positive relation between the sports participation & academic achievement in a sample of children with hearing impairment. Pretest was conducted before the sports participation activity and post test was conducted after the sports activity and the results of both these tests were evaluated and then compared with each other. The reliability of scales was found to be statistically significant and results of the study were supported by international researcher Cornelißen and Christian (2007); Taras *et al.* (2005) and

explained that there is positive relation between sports participation & academic achievement.

A significant positive correlation has been found between the athletic involvement and academic performance; the reason could be that participation in sports activities of children instills their identification with the school and school related activities including well academic performance.

A study which investigated the linkage between sports participation, physical activity, and academic outcomes found that regardless of whether academic achievement connected to the physical activity itself or sports participation, there had been a positive relationship between physical activity and academic achievement among students (Fox *et al.*, 2010).

Nonetheless, Darling *et al.* (2005) reported that there were positive correlation between the sports participation & academic achievement and also enhancing the mental abilities of the participants which support our study. Taras *et al.* (2005) described that sport participation not only

enhance the mental alertness but also have positive effect on the educational outcomes. Cornelissen and Christian (2007) conducted study to evaluate the impact of sports participation on academic achievements in Germany and collected the data from sixty four percent male students and forty four percent female student and discovered that there was positive correlation between sports participation in higher secondary students and also explained that academic achievement was more enhanced in females than male participants.

The findings of this study have been supported by a number of theories, often linked with athletics, achievements and grades. The attribution theory is known as contemporary theory with implications for motivation in academics, it includes behavior adjustment and modification because it supports the idea that students are feeling self-motivated when they are able to think great about themselves. Positive feelings support the idea that athletes are seeking success in academics and athletics. Participation in sports also enhances self-esteem and in return high

self-esteem rises academic grades (Weiner, 1985).

Comparatively; meagre research has been done, there are found studies which suggest that excessive participation in various sports may hinder the achievement in academics. Children who have lesser experience involved in any activities, remain deprived to get the opportunities and benefits of sports participation. While many students are unable to get the idea of right choices and it affects their academic performance (LaFontana & Cillessen, 2010).

These results are not delineating that children who are participating in sports are successful to get improved grades and likely to be graduated sooner than those children who are not participating in sports. In fact there are found minor indications and evidences which signify that the participation in sports lessens academic achievement, and shows special effects that these physical activities have on children is noteworthy. Though this literature shows that most of the students has desire to play sports yet the chance and backing is required to do it. School districts are not

doing it due to the reduction in local and state funding, it forces supervisors and administrators to locate the targeted areas and to shut and open the door for adversaries who may have selected the extracurricular actions as easy choices (Lumpkin & Favor, 2012). The stakeholders of education should endure to promote all the extracurricular happenings, as athletics. Without having any academic gains the participation of athletes provides positive impact. Sports participation is mostly associated to higher levels of self-observation, skill development, regulation of emotions, goal attainment, teamwork, and problem-solving (Dworkin et al., 2003).

Recommendations:

The results of the current study opens the doors for further progression in the area of study.

- Innovative programs should be started in order to create awareness on the importance of physical activity along with the academic performance not just in students but in teachers and parents as well.
- The results may be valuable to support local and national government of Pakistan to

enterprise intersectoral collaborations, including health, sports, and education departments aiming to improve both physical and educational growth through the preferment of physical activity among students.

- Teachers and school staff should receive adequate and innovative trainings regarding the benefits and specialized physical activity programs for the children with specialized needs.
- It is the duty of the government to make sure that schools have ample open spaces to conduct the necessary physical activity programs for the children.

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