

Influence of Physical Activities on Aggression among Hearing Impaired Female Students of Elementary Schools of Punjab

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Abstract

The main aim of the current study was to examine the impact of physical and sports activities on aggression level of the female hearing impaired students from the elementary schools of Punjab province. Sixty six students of 6th, 7th and 8th grade classes were selected from the special children elementary schools of Punjab through simple random sampling. These participants were divided into two groups i.e. experimental (n=33) and control (n=33). The participants of experimental group were subjected to proper physical activities and guidelines to overcome aggression through sports for two months. For data collection an adopted scale on aggression was used. Descriptive statistics, t-test and regression analysis techniques were applied for data analysis. Cronbach's alpha reliability statistic was 0.98. The average age of the participants was 14.24 ± 1.34 years. The mean value (2.85 ± 1.81) of aggression scale showed that the aggression level of the female hearing impaired students was close to moderate level. The aggression level of the experimental group was significantly ($p < 0.05$) less than the aggression level of control group. The number of playing days per week had inverse and significant ($p < 0.05$) impact on aggression. It is concluded that physical activities significantly reduce the aggression of the special children.

Keywords: Aggression, Hearing Impaired, Elementary, Female Students.

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Introduction

Aggression among youth and children is a social issue that has seen increasing trend in recent times. Research showed that incidents of harassment, taunting and bullying at schools are almost 40% of the secondary and primary class students (Astor et al., 2002; Hoffman et al., 2011). Aggression is one of the common causes behind referrals to therapy among youth and children (Weisz & Kazdin, 2010). Aggression is a social behaviour that involve more than one person, in which physical and verbal activities are carried to some other ones with intentions to harm them immediately. According to Bushman & Huesmann (2014), aggression is not socially-learned behaviour but an internal disposition that children need to learn to manage and always will be part of human behaviour. Most of the people are able to control it most of the time. Hartup (2005) suggests a shift of focus from individual acts of aggression to aggressive behavioural traits as a whole among the child. Aggression among children and youth is seen as an attempt to achieve social goals such as to get recognition and acceptance from others (Ayduk et al., 2000; Denson et al., 2012). Trajkovic et al. (2020) determined the effects of volleyball program on aggression and physical fitness in 14–16 years old students. One hundred and seven participants were randomized to a small-sided volleyball (SSV) training group or a control group (CON). The study significantly contributes to the understanding of possible mechanisms for reducing aggression in adolescents, which include enjoyment, motivation, and self-control through sport intervention. Aggression is related to thinking and feeling of people but not just a simple behaviour.

The turn down of aggressive behaviour in early childhood coincides with the development of executive cognitive functions. Self-control skills (SCSs) help children manage emotions, opinions and actions (Ellis et al., 2009). Based on this premise, this study is aimed at examining whether improvement in SCS would help to decrease aggressive behaviour among children, and whether there is a significant role played by thoughts and emotions.

There is precedent of targeted SCS programs aimed at helping children control their anger and aggression (Dontoh et al., 2004; Ronen & Rosenbaum, 2010). However, such focused initiatives are often resource-intensive and beyond the reach of most general schools. Therefore, in this paper the authors have examined a more generalized approach towards developing SCS among children, through involving them in physical and sports activities that would increase their capability to overcome aggression and to increase positive emotions as well.

Sports is an influential tool that tears down all constraints and helps us in feeling good about our personality (mentally & physically). Therefore, it is quite useful for children in general and for special children in particular. Due to sports participation, children develop their physical and mental skills. They make new friends, have fun, learn as team members, and improve their self-confidence. They can reduce their stress, anxiety, anger, negative emotions and can increase their positive feelings (Admin, 2015).

Youth's aggressive behaviour can be affected significantly by several school activities (Walss-Bass et al., 2006), such as class room management for physical education and extracurricular sports activities (Smith, 2010). Students who participate in physical education classes and sports activities have more ability to control their aggressive behaviours (Paulus, 2016).

Anger is one of the emotional expressions in adolescence (Miller et al., 2005; Lerner et al., 2007) as compared to other age groups. If this anger cannot be expressed in a good way then it results in psychological, physical or social disorders in youth. Kaya et al., (2010) reported that children suffering from mental or physical disability become dependent on their parents/peers. Their social lives become complicated and limited which cause them to encounter feelings of frustration. These things produce negative feelings or emotions including anxiety and depression etc.

A modified physical education for special children is called Adapted Physical Education (APE) which is as appropriate for disabled person as it is for normal person (Lemmon et al., 2013). Quality of APE should be considered as a basic need for disabled persons. Sport has a different approach for disabled persons; it represents a new door for disabled persons who have faced already many hurdles in their lives. Several studies from different disciplines like that psychology, sociology, education and medicine confirmed that sports activities among youth have a positive and significant impact on mental and physical health (Gaya et al., 2011). Research has indicated that organized sports and physical activities are more effective to reduce aggressive behaviours (Fleming et al., 2008; Lufi & Parish-Plass, 2011). Regular physical or sports activity showed numerous benefits to mental and physical health (Setkowitz & Mazur, 2006). Sowa and Meulenbroek (2012) reported that sports activity has greatest impact on the quality of life of autistic children because it improves sensor motor ability, communication skills, self-esteem and socialization. The aim of this study was to investigate the impact of physical activities on aggression of hearing impaired female elementary students and to evaluate aggression among sports participant and non-sports participants.

Methodology

This study has been carried out on sixty-six (66) female hearing impaired students of elementary classes from five Government Special Education, Hearing Impaired Schools of Punjab, Pakistan. Before data collection, all principals or administrators of deaf schools and special education centers of Punjab were contacted through email, phone or personal meetings. Upon getting permission from the respective schools to conduct the study and to collect data with their help, the consent letters and the consent forms were sent home for approval of parents and children. The data was collected from Shiekhupura, Lahore, Rawalpindi, Faisal Abad, and Nankana districts.

To examine the impact of physical/sports activities on aggression the subjects are divided into two equal groups, control (n=33) and experimental (n=33) with equal number of participants. The participants of experimental group performed proper physical/sports activities and adhered to guidelines to overcome aggression for two months five days a week, while control group had no proper physical or sports activities. After this treatment, responses of the participants regarding their aggression and involvement level in sports were obtained through adopted questionnaire.

The questionnaire regarding aggression was filled through the language of signs with the help of class in-charges. The investigator did his best to ensure avoiding biasness while answering questions about the study. Descriptive statistics, the mean, the standard deviation, student t-test and regression techniques were applied for statistical analysis. IBM SPSS Statistics 21 software was used for data coding and analysis.

Results

Demographic Statistics

The age distribution of the participants is listed in Table 1, which shows that the students are 12 to 15 years old. The average age of the students is 14.24 years.

Table 1

Age Frequency Distribution of the Special Children (n=66).

Age in Years	Frequency	Percent
12	10	15.2
13	11	16.7
14	17	25.8
15	15	22.7

16	13	19.7
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Table 2
Class-Wise Distribution of the Participants (n=66).

Group	Classes	Frequency	Percent
Control	6 th Class	11	33.3
	7 th Class	12	36.4
	8 th Class	10	30.3
Experimental	6 th Class	10	30.3
	7 th Class	12	36.4
	8 th Class	11	33.3

The students of elementary classes, 6th, 7th and 8th are selected randomly for the study. Table 2 shows that almost equal number of students from each class has been selected. However, the ratio of the 7th class students is little bit higher than other classes.

Descriptive Statistics

The mean and standard deviation (SD) of the overall aggression scale of all the participants is presented in Table 3. The results of this table show that the aggression level of the female hearing impaired students for all variables is close to moderate level (average), which indicates that most of the students responded three (3) times in a week.

Table 3
Descriptive Statistics of the Aggression Scale (n=66).

Variables	Mean	SD
Aggression Scale	2.85	1.81

Independent Sample T-test

To establish the impact of the physical or sports activities on aggression of female hearing impaired students, independent t-test is applied to each variable separately. The overall aggression score variable is also generated to compare the control and experimental groups in relation to sports activities. The level of significance $\alpha=0.05$ is used. The results of aggression score variable and t-test are listed in Table 4& 5.

Table 4
Descriptive Statistics of the variables (n=66).

Variables	Group	n	Mean	SD
Over-all Aggression Score	Control	33	50.85	2.97
	Experimental	33	11.82	3.20

The Table 4 indicates the mean and standard deviation of each variable of aggression scale including overall aggression score variable. The same table also shows that the aggression level of control group is above moderate level while experimental group has below average level of aggression.

Table 5

Independent Sample T-test Statistics of the variables (n=66).

Variables	T	df	P	MD	SE	95% CI	
						Lower	Upper
Aggression	51.39	64	0.000	39.03	0.76	37.51	40.55

t=t-statistic, df=degree of freedom, p=p-value, MD=mean difference, SE=standard error, CI=confidence interval, level of significance $p < 0.05$

The values of t-test statistic, df, p, mean difference, standard error and upper lower values of 95% confidence interval are shown in Table 5. The results of the Table 5 show that the aggression levels of female hearing impaired participants of experimental group are significantly ($p < 0.05$) less than the aggression levels of control group. Therefore, it is concluded that the sports or physical activities have significant impact on the aggression level of the female hearing impaired students of elementary classes.

Regression Analysis

Regression analysis technique is employed to measure the empirical strength of sports or physical activities on aggression of female hearing impaired students. This technique also provides predictive measures of aggression on sports activities. For this purpose, all the participants were also asked about their weekly participation in sports or physical activities through a simple question "How many days do you participate in sports activities in a week" from 0 days to 6 (or more) days. Therefore, number of playing days is used as independent variable and aggression score is taken as dependent variable to measure the effect of sports activities on the aggression level of students. The results of simple regression analysis are discussed and listed in the following tables. The fitted model can be described as:-

$$\text{Aggression} = f(\text{no. of Playing Days}) + e$$

Or

$$\text{Aggression} = \beta_0 + \beta_1 (\text{Playing Days}) + e \dots\dots\dots \text{Eq-1}$$

Where β_0 is intercept of regression line, β_1 is slope of the line and e is random term.

Table 6

Descriptive Statistics of Aggression & Playing Days Variables (n=66).

	Minimum	Maximum	Mean	SD
Aggression	6	58	31.33	19.90
Playing Days	1	6	3.27	1.47

Table 6 shows the minimum, maximum, mean and standard deviation of the study variables aggression and playing days. The mean value of aggression is 31.33 ± 19.90 and playing days is 3.27 ± 1.47 which show that participants are below average in both variables.

Table 7

Model Summary of Regression Analysis (n=66).

R	R ²	Adjusted R ²	SE
0.73	0.53	0.53	13.68

*Predictors: (Constant), Playing Days***Dependent Variable: Aggression**

Table 7 shows the values of correlation (R), R-square, coefficient of determination (R²), adjusted R², and the standard error of estimate (SE) of the fitted regression model (Eq-1). The value of R =0.73 shows that the strength of the correlation between playing days and aggression is 0.73 which is a high correlation. The direction or impact of this correlation is measured in significance to regression coefficients in Table 7. The same table also shows that 53% (R² =0.53; adjusted R² =0.53) of the variability in aggression variable of female hearing impaired students can be explained by this regression model on the basis of their number of playing days in a week.

Table 8

ANOVA table for Regression Analysis (n=66).

	Sum of Squares	df	Mean Square	F	P
Regression	13773	1	13773	74	0.000
Residual	11972	64	187		

Predictors: (Constant), Playing Days; Dependent Variable: Aggression; p<0.05

Table 9

Significance of Regression Coefficients (n=66).

	B	SE	T	P
(Constant)	63.67	4.13	15.43	0.000
Playing Days	-9.88	1.15	-8.58	0.000

The values of intercept ($\beta_0=63.67$), slope ($\beta_1= - 9.88$), standard error of estimate (SE), t-statistic (t) and p-values for the significance of regression coefficients are listed in the Table 9. This table shows that both regression coefficients β_0 and β_1 are significant ($p<0.05$). The value of $\beta_1 = -9.88$ indicates that number of playing days has inverse impact on aggression which means that 1-day sports participation in a week can significantly reduce aggression in female hearing impaired students. The values of t and p are also illustrating the impact of physical/sports activities towards aggression. Therefore, it is concluded that increment in sports or physical activities will decrease aggression level of the students.

On the basis of Table 8 and 9, the regression model can be used to predict the aggression score of female hearing impaired students of elementary classes.

$$\text{Aggression} = 63.67 - 9.88(\text{Playing Days}) \dots \dots \dots \text{Eq-2}$$

Discussion

The aim of the study was to examine the impact of physical activities on aggression level of the hearing impaired female elementary level students. Sixty six students of 6th, 7th and 8th classes were divided into two groups i.e. experimental and control. The participants of experimental group were involved in proper physical activities and guidelines were provided to overcome aggression through sports participation for two months. The average age of the participants was 14.24 years. The mean of the over-all aggression scale is 2.85 ± 1.81 which shows that the aggression level of the female hearing impaired students for all variables is close to moderate level. Cronbach alpha test is applied for data consistency of sixty six participants (control group; $n=33$, and experimental group; $n=33$). The alpha statistics is 0.98 which is in excellent range ($\alpha \geq 0.70$). Independent t-test is applied to the each variable separately. The over-all aggression score variable is also generated to compare the control and experimental groups in relation to sports activities. The level of significance $\alpha=0.05$ is used.

Table 4 shows the mean and standard deviation of each variable of aggression scale including overall aggression score variable. The same table also shows that the aggression level of control group is above moderate level while level of aggression in experimental group is below average. Table 7 shows that the strength of the correlation between playing days and aggression is 0.73, which is a high correlation and 53% ($R^2 = 0.53$; adjusted $R^2 = 0.53$) variability in aggression variable of female hearing impaired students can be explained by playing days. Many previous studies support findings of this study. Bushman *et al.* (2014) concluded that adolescent aggressive behavior may be affected by several school activities. Similarly, Smith *et al.* (2010)

showed that classes of physical education (PE) and sports activities can play a significant role in aggression management. Research also indicated that organized sports & physical activities are more effective in reducing youth's destructive attitude (Lufi & Parish, 2011; Fleming et al., 2008).

Conclusion

It is concluded in the present study that there is a huge gap in the level of aggression between the children participating in physical activities and not taking part in physical activities. The present study "Influence of physical activity on aggression level of female hearing impaired students in elementary schools of Punjab" investigated the relationship of participation in physical activity and level of aggression. At the end of the study, researcher concluded that aggression levels of female hearing impaired participants of experimental group were significantly less than the aggression levels of control group. The number of playing days has inverse and significant impact on aggression of female hearing impaired students. This study will be helpful for the teachers, parents and sports coaches of special children to reduce their aggression levels through physical activities.

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