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Research Article

The Relation between Sports Participation and Academic Achievement: The Mediating Role of Parental Support and Self-Esteem

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Abstract

Sports participation reported in a positive relationship with health and academic achievement. Sports participation may improve cognitive health leading to improved academic achievement. Some other factors may also be involved in this regard including parental support and self-esteem. In this study, we examined the relationship between sports participation, parental support, self-esteem and academic achievement due to concern about reduced education level of students and serious lack of research regarding this issue in Pakistan. We hypothesized that sports participation would influence students' academic achievement. We further conceptualized a mediation model in which sports participation enhanced academic achievement through enhancing parental support and self-esteem. 248 students from three universities of Pakistan (male = 188; mean age = 17.5, SD = 1.15; female = 60; mean age =17.3, SD = 1.18) participated in the study, in which questionnaires were used to measure parental support, sports participation, and self-esteem. Two scales were used to measure parental support (school based parental support and sports participation based parental support). Sports participation level was measured using an adapted version of The Physical Activity Index (PAI) Scale consisting of 3 items. Rosenberg self-esteem scale assessed self-esteem. Data analysis was performed using the structural equation modelling. We found no direct relationship between sports participation and academic achievement. We found parental support and self-esteem as mediators in the relationship between sports participation and academic achievement. The mediational models suggested focus on vital role of parental support and self-esteem to have better academic performance.

Keywords:
Sports participation; Parental support; Self-esteem; Academic achievement

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Introduction

In every society, one of the main aim of parents and teachers for the students is to succeed better academically. The factors that affect academic achievement are complex, including intra-personal, inter-personal, organizational, community, and environmental variables. For this reason it is important to know the factors that are likely to have an influence on the students' academic achievement. Self-esteem is a key intra-personal variable and parental support is a key inter personal variable that affect academic achievement. Many earlier researches have suggested that sports participation improves mental health which in turn results improved academic achievement. With growing research on the positive relationship between sports participation and academic achievement, more focus on the students' sports participation is needed. Several studies have suggested that sports participation, parental support [1], [2] and self-esteem [3], [4] play a crucial role in determining academic achievement. However, researchers have studied these factors independently, which is insufficient to make it clear that how sports participation, parental support, self-esteem and academic achievement interact with each other. The main aim of research in this field is to understand the mechanisms through which sports participation influences academic achievement by analyzing the relationship between all of these factors in a single study. Before this the studies about sports participation and academic achievement [5], parental support and sports participation [6], self-esteem and sports participation [7], were carried out in other countries but this is the first study conducted in Pakistan, where the standards of sports are not appropriate according to the requirements [8] and parental role, educational environment, students sports participation is different from those countries in which already conducted research. We consider that a difference may exist between Pakistan and other countries in terms of student's sports participation, parental support for student's sports participation and academics so that the already established theory may not fit the Pakistani situation. Pakistan is a developing country facing many challenges, where parental support, students' self-esteem, infrastructure for sports participation and academic performance is different from other countries, so the already established theory regarding sports participation and academic achievement cannot be generalized to Pakistan.

1.1 Sports participation and academic achievement

Previous studies have provided evidence that sports participation has a positive association with cognitive and physical health. These findings also support that children and adolescents who are more involved in motor abilities or physical activities are more physically and mentally active than those

with less involvement in motor skills [9]. For this association, school environment plays a significant role [10]. Sports participation can be helpful to increase student's motivation, teamwork, and will power leading to improved educational outcomes. There has been an increase in research about the factors having relationship with sports participation and academic achievement of students. A correlation has been found between sports participation and academic achievement of the students [5]. Results of numerous studies show that sports participation contributes to better academic achievement and educational aspirations [11], [12], [5].

1.2 Role of Parental support as a mediator in relationship between sports participation and academic achievement

Social influence defined as the force exerted by parents, friends, teachers, and relatives is one of the factors associated with adolescent's sports participation and academic achievement [13], [14]. Social support is positively linked with physical activity [15]. Adolescents' physical activity is also associated with demographic psychological, social and physical environmental variables [16]. The most often studied form of social impact on adolescents is the support from their parents [17], [18]. Parental support is any action taken by a parent that can theoretically be expected to improve student performance or behavior [19]. Parental support is a multidimensional construct consisting of parent–teacher contact, school-based support, and home-based support as evidenced by Bakker et al, (2007) [20]. In current study parental support means parents, knowingly influence the activity behaviors of their children either through school based support or sports participation based support. Furthermore, parental supportive responses may consist of both tangible and intangible. Tangible support involves instrumental and conditional support. Intangible support includes motivational and informational support. Parents may influence their children's participation in physical activities by providing different types of social support [21]. Parents also play a key role in determining student's physical activity levels [22]. Positive associations of a medium effect size [23], [24] have been consistently reported between parental support and leisure-time physical activity through the provision of both direct, tangible support (e.g., providing transport, enrolling children in sports clubs, watching children take part), and intangible support (e.g., through verbal encouragement, and attitudes towards physical activity) [17]. School based parental support has been defined as "parents' efforts to take an active role in their children's education" [25]. In this study, school based parental support included parents' values and attitudes regarding the importance of academic achievement, parental expectations for the student's academic performance and parents being well-informed about grades and related learning situations. Researchers hypothesize that parents' school-based support can enhance student's academic motivation and skills, resulting in better academic achievement. Parental involvement with student's schooling gives them knowledge about school goals and procedures [26]. They also communicate the importance of education and help students learn strategies to enhance their achievement outcomes [27]. While much research supports the claim that school based parent support leads to improved academic achievement [13], [28], other research indicates that parent support is associated with lower levels of achievement [29] or has no effect on achievement [30]. Researchers have proposed a number of reasons for the inconsistent findings on the benefits of parental support. One important explanation is the use of varying definitions that have been applied to parental involvement, with different researchers focusing on different aspects of parental involvement [25]. Additionally, parental support's effect on academic achievement has been found to vary by the minority and/or social status of the student [28], by gender [31].

Social Learning, Theory [32] explains human behavior in terms of continuous reciprocal interaction between cognitive, behavioral, and environmental influences. The modeling of human behavior is one of the constructs of the theory of social learning and assumes that human behavior is acquired from the observation of the behavior of and learning experiences from socially important people, such as parents [18]. Incorporating principles of Bronfenbrenner's (1977-2001) ecological approach, proximal influences include peer group and Family influences [33]. Concerning these theories adolescent's sports participation and academic achievement is affected by their parental support. This control may occur either directly -through social support, and indirectly -through behavior modeling [34]. The direct involvement of parents in activities with their children is related to increased levels of physical activity [6], [35].

In conclusion, previous researchers also found that students who have high sports participation are those who received greater support from their parents. Greater parental support will result in enhancing students' academic motivation, skills and knowledge about school goals, thereby resulting in better academic achievement.

1.3 Role of Self-esteem as a mediator in the relationship between sports participation and academic achievement

Self-esteem is an internal belief system that an individual possesses about one's self. Self-esteem has become an everyday discussion term. The concept of self-esteem has been researched by several social scientists. High self-esteem has been linked to many positive behaviors and outcomes. Brown 1998 [36] reported that individuals with high self-esteem were happier in life which resulted in a higher consistency of achievements. High self-esteem has been found to be correlated with positive outcomes and low self-esteem has been found to be correlated with negative life outcomes.

Sports participation effects Self-esteem. The researchers have reached the conclusion that the reason for why self-esteem is positively correlated with sports participation is that sports participation increases feelings of competence, satisfaction with physical appearance which can result in a rise of self-esteem [37], [38]. The relationship between self-esteem and sports participation has been well documented in the literature. Different studies have reached the conclusion that self-esteem and sports participation are positively correlated [39]. Although there appears to be a relationship between sports participation and general self-esteem, it is less clear. Some studies [40] have shown that individuals who participate in sports have higher self-esteem than nonparticipants [7]. However, other researchers [41] have reported a weak link between sports participation and self-esteem or even a negative relationship [38]. Gibbons and Lynn (1997) argued that "there is little and conflicting evidence that participation in sports has a relationship with self-esteem" (p. 56) [42].

There are several factors that contribute to academic achievement. In a school setting, self-esteem is vital because it is an important underlying factor in promoting student motivation, persistence and academic success [43]. Self-esteem has long been considered an essential component of good mental health. It includes beliefs as to whether an individual can expect success or failure, how much effort should be put forth, whether failure at a task will "hurt," and whether he or she will become more capable as a result of difficult experiences [44]. The relationship between self-esteem and academic achievement has been well documented in the literature. Different studies have reached the conclusion that academic achievement and self-esteem are positively correlated [45], [46]. Purky (1970) found that self-esteem is related to some components of success, either academic or verbal [47]. He concluded that there is continuous interaction between self-esteem and academic achievement.

In conclusion, students who have greater sports participation will have high level of self-esteem. The resulting high level self-esteem will result in promoting student motivation, persistence, thereby increasing their academic achievement. Thus, in this study, we aim to examine the role of parental support and self-esteem as mediating variables between academic achievement and sports participation. Therefore, we formed the following hypothesis:

Hypothesis 1: sports participation will directly affect academic achievement of the students.

Hypothesis 2: parental support will mediate the relationship between Sports participation and academic achievement.

Hypothesis 3: self-esteem will mediate the relationship between Sports participation and academic achievement.

2 Method

2.1 Participants

We obtained ethics approval for the standardized data collection from a University institutional review board. We collected data from the three universities of Pakistan (Mirpur University of science and technology, Azad Kashmir medical college Muzaffarabad and Benazir Bhutto medical college Mirpur).Participants were 248 Pakistani students (male = 188; mean age = 17.5, SD = 1.15; female

= 60; mean age =17.3, SD = 1.18)). The first step was to inform teachers at the selected universities about our research and its objective. We then asked teachers of different classes to explain the research to students and invite the students to participate. We recruited the sample of students aged 16 to 18 years from each university. We approached 250 students from three universities (almost 84 students from each university) to participate in this study. We received positive responses from 248 students, so the response rate was 99%. We sampled almost similar numbers of students from each university. Teachers provided us with a list of names and contact addresses of students who agreed to participate in the research. We sent an online survey link to each student's email address. The students completed their questionnaire. After completing the questionnaires, students sent them back online. Data collection took place between February and August 2016. All data treated confidentially.

2.2 Approval status of study by the Institutional Review Board of institution

This study got approved by the institutional review board.

2.3 Measures

2.3.1 Students' demographic information.

Students were asked about their age and gender.

2.3.1 Academic achievement

Current GPA used for measuring student academic performance. GPA Scale is how your school calculates your GPA. A majority of schools use the 4.0 scale to report GPA. In this study also we used the 4.0 scale. A "4.0" score on the 4.0 GPA scale is the highest possible grade one could achieve. One may achieve this score if one get perfect scores all through the academic year. If a school uses a 4 point scale, then an A would be 4.0, a B would get 3.0, a C, 2.0 and so on.

2.3.2 Sports participation

In this study we included sport as a physical activity that has a sport governing body and, is competitive by its nature and organization and is generally accepted as being a sport e.g., basketball, tennis, badminton, cricket and football (http://www.ausport.gov.au/supporting/nso/asc_recognition). We used an adapted version of The Physical Activity Index (PAI) Scale [48] in the present study. The PAI was developed to assess the nature and level of sports participation in individuals. We have adapted the PAI to measure the two categories of activity on the PAI a 5-point Likert scales, namely; frequency (i.e., how many times during the week they participated? a. One time, b. Two times, c. three times, d. Four times, more than four times); and duration of participation (i.e., time spent on sporting activities during the week? a. less than 30 minutes, b. 30 minutes, c. less than 60 minutes, d. 60 minutes, e. more than 60 minutes). Level of participation (a. local, b. university level, c. national level, d. international, e. if any other please mention) was also assessed. Higher scores indicated higher levels of sports participation. Frequency and duration of participation were combined to calculate the Cronbach alpha. Cronbach alpha of 0.74 was obtained on this scale in the present study.

2.3.3 Parental support

Parental support scale consisted of school based parental support and sports participation based parental support. A total of 10 items (with a five-point Likert scale) taken from three different scales constituted the school-based Parental Involvement scale. Three items from Paulson's (1994) Parental Values Subscale from the Parental Involvement Measure assessed students' as well as parent's perception of parents' values and attitudes regarding the importance of academic achievement. A sample item is: ''my parents think that succeeding in life is very important. Two items from Paulson's (1994) Parents' Interests in Schoolwork Subscale from the Parental Involvement Measure assessed students' perceptions of the degree to which parents are well-informed about their grades, homework, and related learning situations. A sample item is: ''my parents usually know the grades I get. Five items from Wang and Heppner's (2002) Living up to Parental Expectation Inventory (LPEI) measured students' perceptions of parental expectations for the child's academic performance. A sample item is: ''My parents expect me to perform better than others academically."

Sports participation based Parental support was measured by using total of 6 items measuring tangible and intangible support. Scale consisted of 3 items for tangible support and 3 items for intangible support. Sample question of tangible support was: 1. how often your parents designed practice sessions for your sports. Sample question of intangible support was: 1. how often your parents discuss sports and tactics with you. Estimate of an overall reliability using Cronbach's alpha for parental support (including school based and sports participation based) was 0.75.The measurement model of Parental support yielded a good fit, with an overall χ 2 (62) value of 140.07, with CFI = 0.96, TLI = 0.95, and RMSEA = 0.05.

2.3.4 Self-Esteem Scale

Rosenberg Self-Esteem Scale (Rosenberg, 1965), consisting of 8 items was used to measure self-esteem of adolescents. Five items were selected for this study to measure self-esteem. Participants used a five-point Likert scale to respond. For example, Item 1 in the scale we used was, "On the whole, I am satisfied with myself". Item 2 we used was, "I am able to do things as well as most other people". Item 3 was, "I feel that I have a number of good qualities". Item 4 we used was, "I take a positive attitude toward myself". Item 5 we used was, "I am able to do things as well as most other people". In the present study a Cronbach alpha of 0.747 was obtained on this scale.

2.3.5 Socioeconomic status

This Study examined the parent's educational background of the adolescents by using five categories ranging from 1(primary school certificate), 2(secondary school certificate), 3(ordinary national diploma), 4(higher national diploma) to 5(university degree).

The financial status of the adolescents was assessed by using 5 categories in accordance with monthly income ranging from1 (lower class with income less than 150 USD), 2 (lower middle class with income between 200-300 USD), 3 (middle class with income between 350-600 USD), 4(upper middle class with income between 700-900 USD) to 5 (upper class with income more than 1000 USD).

3 Statistical analysis

The online survey programme automatically prompted participants when they skipped an item, so there were no missing data. We screened the data set for multivariate outliers and examined the degree of univariate and multivariate normality. We also used confirmatory factor analysis to test the measurement models associated with the scores derived from each of the questionnaires and examined the internal consistency of each subscale score. We examined the bivariate correlations among parents' education, financial status, parental support, self-esteem and sports participation. We then used structural equation modelling to test the hypothesis that parental support and self-esteem would mediate the relationship between sports participation and academic achievement. Separate model sequences were fit, allowing the hypotheses to be tested. According to Holmbeck (1997), for mediation to be possible, two sets of relationships must first be observed. First, sports participation should predict academic achievement; these relationships are termed the ''direct effects'' [49] . Second, sports participation should predict parental support and self-esteem and then parental support and self-esteem should predict academic achievement; these relationships are indicated in Figure 1 are termed the ''mediation'' model. Finally, a third model in which all paths are freely estimated; this latter model is termed the ''combined effects''model. Furthermore, when mediation exists, the significant relationships between sports participation and academic achievement from the direct effects model should be reduced (indicating partial mediation) or nullified (indicating complete mediation) in the combined effects model. In all structural equation modeling analyses identification was achieved by fixing one item factor loading per latent variable to 1.0. In order to test the hypothesized mediation effects, bias-corrected bootstrap analyses (95% BC confidence level) were performed, to reveal the indirect effects as significantly different from zero [50]. There were no missing data as bootstrap procedures require complete data sets. To assess model-data fit, standard indices were calculated and compared with the criteria for acceptable fit recommended by (Hooper et al, 2008), the chi-square statistic; Comparative Fit Index (CFI, with values greater than .95); the Root Mean Square Error of Approximation (RMSEA, which should be less than .08); and the Standardized Root Mean Square Residual (SRMR, less than 0.07) [51]. All data analyses were conducted using the SPSS and AMOS version 21.

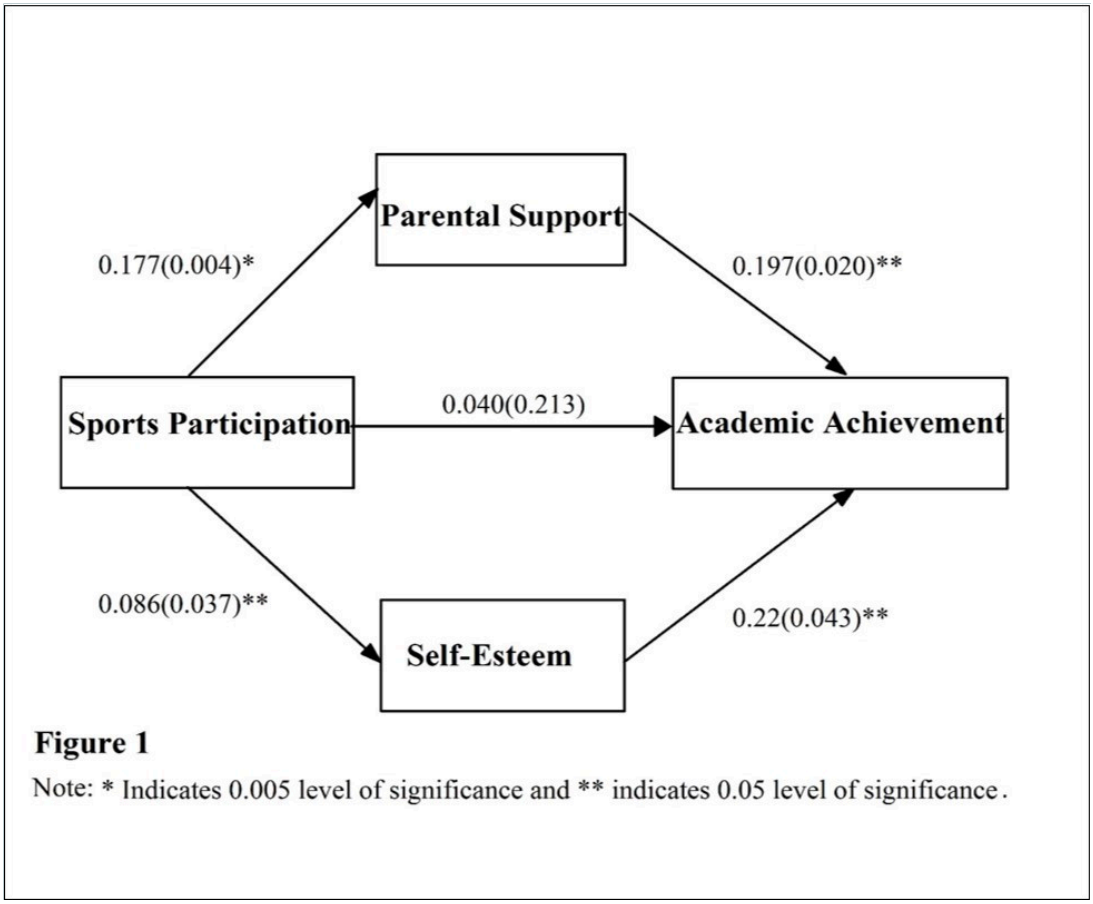

Figure 1. Path coefficients of hypothesized model

4 Results

4.1 Preliminary analysis

4.1.1 Exploratory factor analyses (EFA)

First, Exploratory factor analyses (EFA) by selecting principal component analysis with Varimax rotation were run with random half of the sample. It revealed that physical activity, self-esteem and depression measures constituted three interpretable separate factors with an Eigen value greater than one. These factors accounted for 61.180% of the total variance. The loading on self-esteem ranged from 0.782 to 0.888, the loading on depression ranged from 0.686 to 0.853 while the loading on physical activity ranged from 0.738 to 0.879. It can be concluded that all tools used in the study under consideration are all valid.

Table 1. information on demographic properties, student's sports frequency per week and students sports duration per week.

Parental education %(n)	Monthly income %(n)	Sports frequency weekly %(n)	Sports duration weekly %(n)
Not educated 7.4% (19)	Less than 2000 yuan 4.1% (11)	One time 29%(74)	Less than 30 minutes 59.4% (151)
Primary certificate 27.6% (70)	2000-3999 yuan 18.7% (48)	Two time 44.5%(113)	30 minutes 15.3%(39)
Secondary certificate 31.5% (80)	4000-5999 yuan 29.5% (75)	Three time 13.4% (34)	Less than 60 minutes 15.9% (41)
Diploma 16.8% (43)	6000-7999 yuan 27.6% (70)	Four time 9.7%(25)	60 minutes 6.5% (17)
University degree 16.7% (43)	More than 8000 yuan 20.1% (51)	More than four times 3.4% (9)	More than 60 minutes 2.9% (7)

The mean scores for parental support, sports participation, self-esteem, parental education and financial status are given in table 2. No significant outliers ($p<0.001$) were identified. The study also found no evidence of multivariate nonmorality in the data. Findings showed that all variables were relatively normally distributed (skewness =1.50 and Kurtosis=2.60).

4.1.2 The relation among sports participation, parental support, self-esteem, academic achievement and socioeconomic status (financial status & parental education)

Socioeconomic status (including gender, parental education, and financial background) was assessed as background variable. Using Pearson correlation, we analyzed the relationship between all study variables and these relationships provided us the statistic basis to examine our hypothesized mediating model using structural equation modeling. An independent samples t-test showed there was no significant effect of gender on students' sports participation ($t = -1.46$, $p > 0.05$), parental support ($t = -1.65$, $p > 0.05$), self-esteem ($t = -1.46$, $p > 0.05$), and academic achievement ($t = 0.941$, $p > 0.05$).This indicates that male and female students did not have significantly different levels of sports participation, parental support, self-esteem, and academic achievement. Although there were more males than females in the sample, the numbers of participants of each gender are more than adequate for independent samples t-tests, so we consider that the gender imbalance did not affect the t-test and had no meaningful impact on the results.

Information on demographic properties, students sports frequency per week and students' sports duration per week is presented in table 1. The mean value of Financial status (M=3.11) representing that majority of the sample belongs to middle class showed the positive relationship with all other study variables except self-esteem. Parental education (M=3.6) representing the majority of parents with ordinary national diploma showed positive correlation only with the parental support but not with any other variable of the study. (See table 2).

4.2 Mediation analysis

4.2.1 Testing the measurement model

The study employed Maximum likelihood estimation for all structural equation modeling analyses. Measurement models for the parental support, sports participation, self-esteem and academic achievement were tested, and the data fit the hypothesized structures well (RMSEA<0.05, SRMR<0.05 TLI>0.95, CFI>0.95).

Mediation analyses were conducted in two phases. In the first phase, measurement model was performed to examine the association between latent structures in the study; then the structural models were tested to analyze the role of the mediators (parental support and self-esteem) in the relation of sports participation and academic achievement. Findings of the measurement model, which was performed to investigate the association between latent variables of sports participation, academic achievement and mediator variables, provided a good data-model fit statistics ($\chi 2 = 198.76$, $df = 190$, RMSEA =

Table 2. Correlation matrix among all the study variables

Variable	Range	Mean(S)	1	2	3	4	5
Finance	1-5	3.11(0.88)	1	0.397**	0.261**	0.067	0.237**
Education	1-5	3.6(1.21)		1	0.248**	-0.39	0.090
Parental. Sup	1-5	3.5(0.82)			1	0.045	0.236**
SE	1-5	3.8(0.78)				1	0.205**
Sports part	1-5	2.9(1.09)					1

** Note: Parental. Sup indicates parental support, SE indicated self-esteem and sports part indicates sports participation. indicates correlation at 0.05 level of significance.

0.035, CFI = 0.96, and SRMR = 0.05). Following testing of the measurement model, proposed structural equation models were tested to analyze the role of the mediator variables.

4.2.2 Testing the structural model

Findings of the structural model, which was performed to examine the mediating role of parental support and self-esteem in the relationship between sports participation and academic achievement yielded an adequate data-model fit ($\chi 2 = 304.07$, df = 192, RMSEA = .045, CFI = 0.956, and SRMR = 0.05).

Furthermore, standardized regression estimates (β) showed that sports participation significantly predicted the self-esteem ($\beta = 0.086$, $p < 0.05$), and parental support ($\beta = 0.177$, $p < .005$), however it was a non-significant predictor of academic achievement ($\beta = 0.040$, $p > 0.05$). Moreover, academic achievement was significantly predicted by self-esteem ($\beta = 0.22$, $p < 0.05$) and parental support ($\beta = 0.197$, $p < 0.05$) in this association. As hypothesized, sports participation is positively connected both with parental support and self-esteem. The direct effect of sports participation on parental support appears to be greater than its direct effect on self-esteem. The two variables, parental support and self-esteem, are in turn significantly related to academic achievement whereby parental support has a distinctly stronger effect on academic achievement. Findings from the structural equational models indicated that parental support and self-esteem fully mediated the relationship between sports participation and academic achievement, see Fig. 1.

5 Discussion

In the current study we examined the relationship between parental support, sports participation, self-esteem and academic achievement. Unfortunately, Students in Pakistan are facing many problems in educational institutes due to several factors. A key, original aspect of the present study was that it was conducted in Pakistan, where parental role and sports participation of students is different from other countries. Many studies related to relationship between parental roles, students sports participation, self-esteem and academic achievement have been conducted in other countries, but not in Pakistan. An important question for education stakeholders in developing Countries like Pakistan is, "How do these mediated relationships among sports participation and student academic achievement work in non-Western setting?" Because most of the research has been western based, it is unclear whether the hypothesized mediated pathway holds in Resource-limited settings given the differences in educational infrastructure and resources such as, parental support, and economic conditions. For example, in resource-limited settings such as Pakistan, student academic achievement and sports participation is not satisfactory. This study tried to explore these unanswered questions about the potential pathways by which self-esteem, parental support, and sports participation affect student academic achievement. Due to concern about reduced education level of students, the current study focused on major factors that can be related with students' academic achievement.

In the present study, we aimed to explore the relationship between parental support, self-esteem, sports participation and academic achievement. Until now, the effect of parental support on sports participation and academic achievement has focused on the parental support in general. But this study tried to examine the effects of two major types of parental support (school based parental support and sports participation based parental support) on academic achievement and sports participation. Besides our results support previous studies in which academic achievement was positively correlated with parental support and self-esteem [52].

Addressing the first hypothesis of the current study, the results found that sports participation was not directly correlated with academic achievement of the students rejecting the first hypothesis of the study and the previous studies showing that students who are involved in sports tend to have better academic achievement [5], [11], [12]. Our results are supported by a previous research that sports participation has no direct relationship with academic achievement of the students [53].

In line with the second hypothesis of the study, our results showed that sports participation was directly correlated with parental support and parental support was directly correlated with academic achievement of the students thus verifying the mediating role of parental support in the relationship between sports participation and academic achievement. Our results showed that students who received greater parental support had higher levels of academic achievement. In this study, we applied SLT [32]

in understanding the pivotal role of parents in providing support to participate in sports. Results of the present study supported previous research [6], [17], [35] that also showed that parental support is positively related to sports participation of adolescents. However, previous studies were conducted on samples from western countries. Thus, it was important to examine whether the role of parental support for sports participation also applies to Pakistani students. Sports participation is related to better mental and physical health. We also found that students who had higher levels of sports participation had greater parental support. To conclude, this study provides empirical support for the relationship between sports participation and academic achievement [15] mediated through parental support.

Our results found that sports participation was directly associated with self-esteem. Previous researchers also found positive relationship between sports participation and self-esteem [37], [38]. Before this many types of research have focused on the association between self-esteem and academic achievement [52]. As many previous pieces of research have yielded ambiguous results about a relationship between self-esteem and academic achievement [5], [54]. Our results showed that students with high level self-esteem had high academic achievement. Self-esteem can be useful for academic achievement also as indicated by the results of this study. Our results provide evidence of relationship between sports participation and academic achievement mediated through self-esteem.

Bivariate correlation showed that parental education, in which majority of parents were having ordinary diploma, was correlated with only one variable parental support. Which means that educated parents were more supportive for their children also evidenced by previous research [55]. Thus, children of educated parents were more likely to receive support from their parents. In the present study, parental education was not directly correlated with other study variables. Financial status was positively correlated with all study variables (sports participation, academic achievement, and parental support) except self-esteem. Previous researchers also found that high financial status has a positive influence on sports participation [56] and academic achievement [57].

We also examined whether the pattern of correlations was different for males and females. Results showed that male and female students did not have significantly different levels of self-esteem, parental support, sports participation and academic achievement which is similar to the results of previous studies [2], [53]. Many previous studies have provided evidence that self-esteem and sports participation was higher in males than females [58].

We invited 250 students to participate in the study. But we got data from 248 students. To some extent, the sample was not large, and respondents may be those students who were more active in competitive sports, so they were more likely to participate in the study, which may lead to some bias. Given that the sample comprised university students, it is not clear whether the present results can be generalized to those sections of the population who are not attending universities. We propose to conduct a more extensive study in future, involving longitudinal research with a large sample of different age groups and diverse backgrounds to test the parental support hypothesis further

6 Conclusion

Improving academic achievement in adolescents is an important goal for the educationists. This study examined some factors that can be helpful for improving the academic achievement of the adolescents keeping in mind the role of sports participation, self-esteem and parental support. But in current study, sports participation is showing no direct relationship with academic achievement. There may be some reasons due to which sports participation seems to be having no direct connection with academic achievement such as lack of proper guidance about time management for academics and sports, selection of appropriate activities suitable for the individuals and availability of necessary facilities. Further research is needed to address these issues in depth and provide suggestions to improve academic achievement through sports participation. Further research is required to verify the nature of this relationship using other measures e.g. physical self-concept by taking into consideration the factors that can lead to improvement of adolescents' academic achievement through sports participation, and across other nations and different aged students other than adolescents, in order to establish if similar findings hold in other settings and contexts.

In the current study, while assessing the role of parental educational background, a majority of the parents had a national level diploma, it is also suggested to examine the role of highly educated or very less educated parents.

It is strongly recommended to conduct this research on a broader level and in different developing countries to understand the nature of the relationship between these variables. Due to the cross-sectional design of the study, it is not possible to establish causality between variables. Although the cross-sectional study cannot be used to determine causal relationships a cross-sectional study can provide clues that will serve as a useful tool to guide further experimental studies. Performing such a study might give researchers clues about the types of parental support that might be the most beneficial directly or indirectly to sports participation and inspire further experimental research on the subject.

In sum, the central findings of our study using Structural equation modelling to perform a multiple mediation model revealed that, both parental support and self-esteem are mediators between sports participation and academic achievement, where parental support was having stronger relationship with predictor (sports participation) and outcome (academic achievement) than self-esteem.

Competing Interests

The authors have declared that no competing interests exist.

7 Compliance with Ethical Standards

7.1 Funding

This study does not contain any external funding sources.

7.2 Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

7.3 Informed consent

Informed consent was obtained from all individual participants included in the study.

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