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Comparative Analysis of Aggression among Adolescent Sports Players and Non-Sports Students at the Higher Secondary School Level: A Cross-Sectional Study from Durg District, Chhattisgarh

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ABSTRACT

Aggression during adolescence is an important behavioural and psychosocial concern that may influence peer relationships, school adjustment, and social development. Participation in organized sport has been proposed as one context that may influence behavioural regulation and aggression; however, existing evidence is not entirely consistent and may vary according to the type and context of sport participation. The present study was designed to compare the overall aggression level of adolescent sports players and non-sports students at the higher secondary school level in Durg District, Chhattisgarh, India. A cross-sectional comparative design was employed. The study included 100 students aged 14–19 years, comprising 50 sports players and 50 non-sports students. Aggression was assessed using the 29-item Buss–Perry Aggression Questionnaire, and the total aggression score was used as the primary outcome measure. Descriptive statistics and an independent-samples *t*-test were used for analysis, with Cohen's *d* reported as an estimate of effect size. Sports players obtained a mean aggression score of 89.06 (SD = 10.69), whereas non-sports students obtained a mean score of 90.82 (SD = 10.77). The mean difference was −1.76 points. The independent-samples *t*-test indicated that the difference was not statistically significant, $t(98) = -0.82$, $p = .414$, with a small effect size (Cohen's $d = -0.164$, 95% CI [−0.556, 0.229]). The findings suggest that the two groups demonstrated broadly comparable levels of overall self-reported aggression. The results contribute to the growing literature examining the relationship between adolescent sport participation and aggression and highlight the importance of considering sport type, participation context, and other psychosocial factors in future research.

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Introduction:

Adolescence is a critical developmental period characterized by rapid physical, psychological, emotional, and social changes. During this stage, young people experience increasing independence, changing peer relationships, academic demands, identity development, and greater exposure to social and competitive environments. These developmental transitions may influence emotional regulation and behavioral functioning and make adolescence an important period for understanding behavioral characteristics such as aggression (Steinberg, 2005). emphasized that adolescence represents a distinct developmental stage involving substantial changes in psychological and social functioning.Aggression is a complex behavioral phenomenon that may be expressed through physical actions, verbal behaviors, emotional responses, and hostile thoughts. It is therefore more appropriately understood as a multidimensional construct rather than as a single form of behavior(Anderson and Bushman, 2002). proposed the General Aggression Model, which explains aggressive behavior as the result of interactions between personal and situational factors that influence cognition, affect, and physiological arousal.Aggressive behavior during adolescence has important implications for social and educational adjustment. Persistent aggression may be associated with difficulties in peer relationships, behavioral problems, school adjustment, and other forms of psychosocial maladjustment (Loeber and Hay, 1997). highlighted the developmental significance of aggression and suggested that aggressive behavior during childhood and adolescence may form part of behavioral trajectories extending into later development.

The measurement of aggression is consequently an important component of adolescent behavioural research. Buss and Perry developed the 29-item Aggression Questionnaire to assess aggression through four related dimensions: Physical Aggression, Verbal Aggression, Anger, and Hostility (Buss and Perry, 1992). demonstrated that the questionnaire possessed acceptable psychometric properties and supported a multidimensional approach to the assessment of aggression.Subsequent research has examined the factor structure and psychometric characteristics of the Buss–Perry Aggression Questionnaire in different populations. The instrument has generally demonstrated a multidimensional structure, although the strength of the dimensions may vary across samples and cultural contexts (Harris, 1995). provided further

evidence concerning the factor structure of the Aggression Questionnaire using confirmatory factor analysis. Adolescence is also a period during which participation in organized physical and sporting activities may provide important developmental experiences. Organized sport commonly involves rules, structured goals, social interaction, cooperation, competition, and opportunities to develop behavioral regulation (Eime et al., 2013). reported that participation in sport was associated with several psychological and social benefits among children and adolescents, including improved self-esteem and social interaction.Sport participation may theoretically influence aggression because sporting environments expose adolescents to situations involving competition, frustration, emotional arousal, cooperation, rule adherence, and conflict management. Such experiences may encourage self-control and socially appropriate behavior when supported by positive coaching and appropriate sporting environments (Fraser-Thomas et al., 2005). emphasized that organized youth sport can provide developmental opportunities when the sporting environment promotes positive social experiences and appropriate adult support.The relationship between sport and aggression, however, cannot necessarily be considered uniformly positive. Competitive sport may involve physical contact, frustration, performance pressure, interpersonal conflict, and strong emotional responses. The behavioral consequences of participation may therefore depend upon the characteristics of the sporting environment. (Sønderlund et al., 2014) demonstrated that the relationship between sports participation, aggression, violence, and related behaviors is complex and varies across sporting contexts.

Several empirical investigations have reported reductions in aggression following structured sports participation. In particular, interventions involving regular and supervised sports programmes have suggested that sport may contribute to improvements in behavioral outcomes (Yang et al., 2023) reported through a systematic review and meta-analysis that sports interventions were associated with an overall reduction in aggression among children and adolescents, although substantial heterogeneity was present across the included studies.The characteristics of the exercise programme may be important in determining its effect on aggressive behavior. Physical exercise interventions can differ in duration, intensity, frequency, type, and social context, and these differences may influence behavioral outcomes. Zhao and (Wang ,2025) reported significant reductions in overall aggressive behavior, physical aggression, anger, and hostility following physical exercise interventions among children and

adolescents.Research involving specific sports has also provided evidence of possible behavioral benefits. Structured programmes involving soccer and volleyball have been investigated among school-aged and adolescent populations, with findings suggesting reductions in selected aggression-related outcomes following sustained participation (Trajković et al. 2020) reported that an eight-month school-based soccer programme was associated with reduced aggression among high-school students.

Similarly, after-school sports programmes may provide adolescents with opportunities for structured social interaction and behavioral development. Participation in organized extracurricular sport differs from compulsory physical education because students may have greater voluntary involvement and repeated interaction with teammates and coaches (Park et al., 2017) found that extracurricular sports activities and leisure satisfaction were associated with changes in aggressive behavior among adolescents, whereas physical education classes did not demonstrate the same longitudinal influence.The relationship between physical activity and aggression may also be influenced by the type and frequency of sports participation. Adolescents participating in different sports may experience substantially different levels of physical contact, competitive pressure, social interaction, and emotional arousal (Rotter et al., 2015) examined physical activity and aggressive behavior among adolescents and reported that patterns of participation were relevant to differences in aggressive behavior.Despite these findings, the evidence concerning sports participation and aggression remains inconsistent. Some studies have reported reductions in aggression following structured exercise or sport interventions, whereas other investigations have failed to identify significant overall effects. (Wade et al., 2026) emphasized that although organized sport participation is generally associated with positive psychological and social outcomes, observational evidence remains subject to limitations such as confounding and self-report bias.

Another important issue is the distinction between naturally occurring sports participation and experimentally structured interventions. Intervention studies typically control the duration, frequency, intensity, and content of physical activity, whereas naturally participating sports students may differ considerably in their training patterns and sporting environments (Panza et al. 2020). noted that observational evidence concerning adolescent sport participation and psychological outcomes should be interpreted cautiously because associations do not necessarily

establish causal relationships.The existing literature therefore indicates a need for further research examining aggression among adolescent sports players and non-sports students in specific educational and cultural contexts. Much of the available evidence has originated from countries outside India, while comparatively limited research has focused on adolescents in Chhattisgarh (Eime et al., 2013). highlighted the importance of considering the social and developmental context when interpreting the psychological and social outcomes associated with youth sport participation.

The present study was therefore designed to compare overall aggression between adolescent sports players and non-sports students at the higher secondary school level in Durg District, Chhattisgarh, India. The study used the Buss–Perry Aggression Questionnaire and focused specifically on the total aggression score. This approach permits a direct comparison of overall self-reported aggression between adolescents who participate in organized sport and those who do not.

Objective of the Study

The objective of the present study was to compare the total aggression level of adolescent sports players and non-sports students at the higher secondary school level in Durg District, Chhattisgarh.

Hypothesis of the Study

There would be no significant difference in the total aggression scores of adolescent sports players and non-sports students at the higher secondary school level.

The present investigation employed a cross-sectional comparative research design. The design was selected because the purpose of the study was to compare the total aggression scores of two independent groups at a particular point in time. The study did not involve experimental manipulation, intervention, or random assignment; therefore, the findings are interpreted as group differences rather than causal effects.

Subjects:

The sample consisted of 100 higher-secondary students aged 14–19 years from Durg District, Chhattisgarh, India. Participants were divided equally into two groups: 50 sports players and 50 non-sports students. Thus, each group represented 50% of the total sample.

Table: 1Distribution of Participants According to Sports Participation Status

Group	**Sports Players**	**Non-Sports Students**
N	50	50
Total	100	

The study population was restricted to higher-secondary students within the specified age range. Participants were classified according to their sports participation status based on the criteria adopted by the researcher.

Variables

The independent variable was sports participation status, consisting of two categories: sports players and non-sports students. The dependent variable was total aggression score measured through the Buss–Perry Aggression Questionnaire.

Criterion Measure

Aggression was assessed using the 29-item Buss–Perry Aggression Questionnaire. The instrument measures four related components: Physical Aggression, Verbal Aggression, Anger, and Hostility. Buss and Perry (1992) originally developed the questionnaire as a multidimensional measure of aggression.

For the present investigation, the total aggression score was used as the primary outcome because the objective was to compare overall aggression between the two groups. A higher total score represents a higher level of self-reported aggression.

Data Collection Procedure

Data were collected from eligible higher-secondary students in Durg District. Participants were informed about the general purpose of the investigation and were instructed to respond honestly to each questionnaire item. The questionnaire was administered under suitable conditions intended to minimize distractions and external influence. Individual responses were treated confidentially and were used only for research purposes.

The final version of the manuscript should report the actual institutional permission and ethical approval procedure followed by the researcher. Any approval number should be included only if an authentic approval was obtained.

Statistical Analysis

Descriptive statistics including N, mean, standard deviation, and standard error were calculated for each group. An independent-samples t-test was used to determine whether the mean aggression scores of sports players and non-sports students differed significantly. The level of statistical significance was set at $p < .05$.

Cohen's d was calculated to estimate the magnitude of the observed difference between the groups. The 95% confidence interval for Cohen's d was also reported to provide information concerning the precision of the estimated effect.

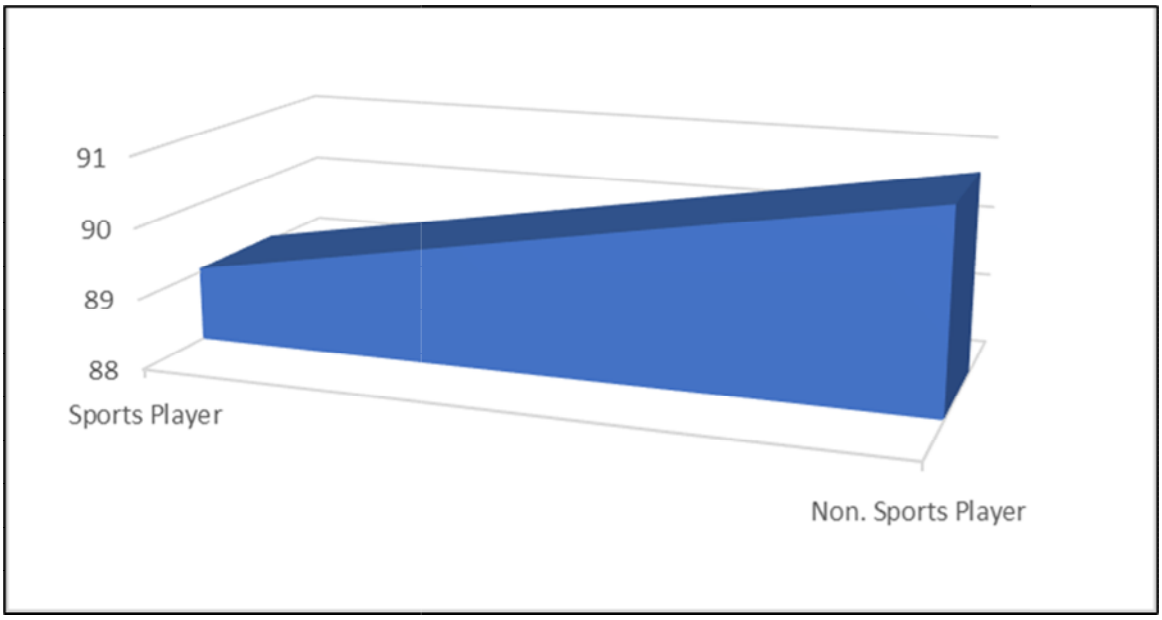


Figure: 1 Comparison of Mean Total Aggression Scores between Sports Players and Non-Sports Students

Figure 1 illustrates the difference in mean total aggression scores between sports players and non-sports students. The mean aggression score was 89.06 among sports players and 90.82 among non-sports students. Thus, non-sports students showed a slightly higher mean aggression score than sports players, with a mean difference of 1.76 points. However, this difference was small and was not statistically significant, $t(98) = -0.82$, $p = .414$. The figure therefore provides a visual representation of the descriptive difference between the two groups rather than evidence of a statistically significant group effect.

The descriptive statistics for total aggression scores are presented in Table 2.

Table: 2 Descriptive Statistics of Total Aggression Scores among Sports Players and Non-Sports Students

Group	N	Mean	SD	SE
Sports Players	50	89.06	10.69	1.51
Non-Sports Students	50	90.82	10.77	1.52

The sports players obtained a mean total aggression score of 89.06 (SD = 10.69), whereas non-sports students obtained a mean score of 90.82 (SD = 10.77). Thus, the sports-player group showed a slightly lower mean aggression score than the non-sports group. The observed mean difference was −1.76 points.

Table: 3Independent-Samples t-Test and Effect Size for Comparison of Total Aggression between Sports Players and Non-Sports Students

Variable	Mean Difference	t	df	p	Cohen's *d*	95% CI	
						Lower	Upper
Aggression Level	−1.76	−0.82	98	.414	−0.164	−0.556	0.229

The independent-samples t-test showed that the difference between sports players and non-sports students was not statistically significant, t(98) = −0.82, p = .414. Therefore, the null hypothesis was not rejected.The effect size was small, with Cohen's d = −0.164. The 95% confidence interval ranged from −0.556 to 0.229 and included zero. The result therefore indicates only a small observed difference and does not provide strong evidence of a systematic population-level difference in overall aggression between the two groups.

Discussion of findings

The present study examined the difference in overall aggression between adolescent sports players and non-sports students. Sports players showed a slightly lower mean aggression score (M = 89.06, SD = 10.69) than non-sports students (M = 90.82, SD = 10.77); however, the difference was not statistically significant, t(98) = −0.82, p = .414. The small effect size (Cohen's d = −0.164, 95% CI [−0.556, 0.229]) further indicates that the observed difference was limited. Thus, the present findings suggest that the two groups had broadly comparable levels of overall self-reported aggression.

The non-significant finding is consistent with the mixed evidence regarding sport participation and adolescent aggression. Although Yang et al. (2023) reported an overall reduction in aggression following sports interventions, their meta-analysis also demonstrated substantial heterogeneity and differences according to sport characteristics. The present study differed from such intervention-based research because it compared naturally occurring sports participation rather than a structured sports programme, which may partly explain the absence of a significant group difference.

Similarly, Zhao and Wang (2025) reported significant reductions in overall aggressive behaviour following physical exercise interventions among children and adolescents. However, their findings were based primarily on structured exercise interventions, whereas the present study classified participants according to their existing sports participation status. This distinction suggests that the behavioural effects of a planned exercise programme may not necessarily be observed when sports participation is examined as a broad categorical characteristic.The present finding is also comparable with research indicating that the effects of physical activity may depend upon the context of participation. Park et al. (2017) reported that extracurricular sports activities were associated with changes in adolescent aggressive behaviour, whereas regular physical education classes did not demonstrate the same longitudinal influence. This supports the possibility that the quality, structure, duration, and context of participation may be more important than participation status alone.

The multidimensional nature of aggression may also be relevant to interpreting the present result. Buss and Perry (1992) conceptualized aggression in terms of Physical Aggression, Verbal Aggression, Anger, and Hostility. Since the present study examined only the total aggression score, possible differences in individual dimensions may have been obscured when the four components were combined into a single overall score.The small effect size observed in the present study indicates that sports participation was associated with only a limited difference in overall aggression within this sample. Moreover, because the study employed a cross-sectional design, no causal conclusion can be drawn regarding whether sports participation influences aggression. Individual characteristics, family environment, peer relationships, emotional regulation, coaching environment, and type of sport may also contribute to aggression among adolescents (Anderson & Bushman, 2002).

Overall, the findings indicate that adolescent sports players and non-sports students in the present sample did not differ significantly in overall aggression. The results add context-specific evidence from Durg District, Chhattisgarh, and support the view that the relationship between sport participation and adolescent aggression is complex. Future research should consider larger samples and examine sport type, training duration, competitive level, gender, and psychosocial factors to better understand this relationship.

Limitations of the Study

The present study has several limitations.

1. The cross-sectional design prevents causal conclusions regarding the relationship between sports participation and aggression.
2. The sample consisted of only 100 students from Durg District, which may limit the generalizability of the findings to other regions and adolescent populations.
3. Sports players were considered as a single group without detailed differentiation according to sport type, contact level, training frequency, training duration, competitive level, or years of participation.
4. Aggression was assessed through self-report, which may be influenced by social desirability and participants' willingness to disclose aggressive thoughts or behaviours.

5. Potentially relevant variables such as gender, socioeconomic background, family environment, academic stress, personality, emotional regulation, self-control, peer relationships, and coaching environment were not included in the present analysis.
6. Future studies should consider these factors when examining adolescent aggression.

Implications and Recommendations

1. The findings have several implications for physical education and sports professionals. Schools and coaches should recognize that sports participation alone may not guarantee lower aggression. Instead, sporting environments should emphasize fair play, respect, cooperation, emotional regulation, conflict resolution, and responsible competition.
2. Future studies should examine aggression separately across different sports, particularly contact and non-contact sports. Researchers should also investigate the influence of training duration, training frequency, competitive level, coaching style, team climate, and motivation.
3. Longitudinal research is recommended to determine whether changes in sports participation are associated with subsequent changes in aggression. Experimental studies involving structured sports programmes may also provide stronger evidence concerning causal effects.
4. Future research in India should include larger samples from different states and educational settings. Multivariate and longitudinal approaches incorporating psychological and social variables may provide a more comprehensive explanation of adolescent aggression.

Conclusion

The present study compared overall aggression among 100 higher-secondary students comprising 50 sports players and 50 non-sports students from Durg District, Chhattisgarh. Sports players showed a slightly lower mean aggression score ($M = 89.06$, $SD = 10.69$) than non-sports students ($M = 90.82$, $SD = 10.77$); however, the difference was not statistically significant, $t(98) = -0.82$, $p = .414$.The observed effect size was small (Cohen's $d = -0.164$, 95% CI [−0.556, 0.229]), indicating that the magnitude of the difference between the groups was limited. Therefore, the null hypothesis was not rejected.The findings suggest that sports players and non-

sports students demonstrated broadly comparable levels of overall self-reported aggression in the present sample. The result should not be interpreted as evidence that sport participation has no behavioural or psychological benefits. Rather, it indicates that sports participation status alone may not be sufficient to explain differences in overall adolescent aggression.

The findings also support the need to move beyond a simple sports-versus-non-sports comparison. Sport type, contact level, training characteristics, competitive environment, coaching practices, emotional regulation, peer relationships, and other psychosocial factors may influence the relationship between sport participation and aggression. Future longitudinal and intervention-based studies with larger and more diverse samples are therefore recommended.

References

1. Anderson, C. A., & Bushman, B. J. (2002). Human aggression. Annual Review of Psychology, 53, 27–51.
2. Ang, R. P. (2007). Factor structure of the 12-item aggression questionnaire: Further evidence from Asian adolescent samples. Journal of Adolescence, 30(4), 671–685.
3. Bernstein, I. H., &Gesn, P. R. (1997). On the dimensionality of the Buss/Perry Aggression Questionnaire. Behaviour Research and Therapy, 35(6), 563–568.
4. Buss, A. H., & Perry, M. (1992). The aggression questionnaire. Journal of Personality and Social Psychology, 63(3), 452–459.
5. Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013). A systematic review of the psychological and social benefits of participation in sport for children and adolescents: Informing development of a conceptual model of health through sport. International Journal of Behavioral Nutrition and Physical Activity, 10, 98.
6. Fraser-Thomas, J., Côté, J., & Deakin, J. (2005). Youth sport programs: An avenue to foster positive youth development. Physical Education and Sport Pedagogy, 10(1), 19–40.
7. Harris, J. A. (1995). Confirmatory factor analysis of The Aggression Questionnaire. Behaviour Research and Therapy, 33(8), 991–993.
8. Loeber, R., & Hay, D. (1997). Key issues in the development of aggression and violence from childhood to early adulthood. Annual Review of Psychology, 48, 371–410.

9. Panza, M. J., Graupensperger, S., Agans, J. P., Doré, I., Vella, S. A., & Evans, M. B. (2020). Adolescent sport participation and symptoms of anxiety and depression: A systematic review and meta-analysis. Journal of Sport & Exercise Psychology, 42(3), 201–218.
10. Park, S., Chiu, W., & Won, D. (2017). Effects of physical education, extracurricular sports activities, and leisure satisfaction on adolescent aggressive behavior: A latent growth modeling approach. PLOS ONE, 12(4), e0174674.
11. Sønderlund, A. L., O'Brien, K., Kremer, P., Rowland, B., De Groot, F., Staiger, P., Zinkiewicz, L., & Miller, P. (2014). The association between sports participation, alcohol use and aggression and violence: A systematic review. Journal of Science and Medicine in Sport, 17(1), 2–7.
12. Steinberg, L. (2005). Cognitive and affective development in adolescence. Trends in Cognitive Sciences, 9(2), 69–74.
13. Trajković, N., Pajek, M., Sporiš, G., Petrinović, L., &Bogataj, Š. (2020). Reducing aggression and improving physical fitness in adolescents through an after-school volleyball program. Frontiers in Psychology, 11, 2081.
14. Trajković, N., Madić, D. M., Milanović, Z., Mačak, D., Padulo, J., Krustrup, P., &Chamari, K. (2020). Eight months of school-based soccer improves physical fitness and reduces aggression in high-school children. Biology of Sport, 37(2), 185–193.
15. Wade, L., Eime, R., Pankowiak, A., Vella, S., Robinson, K., Kennedy, S., Parkes, R., &Eather, N. (2026). The impact of sports participation on psychological health and social outcomes in children and adolescents: A systematic review and update to the “Mental Health through Sport” conceptual model. Systematic Reviews, 15, 121.
16. Yang, Y., Zhu, H., Chu, K., Zheng, Y., & Zhu, F. (2023). Effects of sports intervention on aggression in children and adolescents: A systematic review and meta-analysis. PeerJ, 11, e15504.
17. Zhao, H., & Wang, Y. (2025). Effects of physical exercise on aggressive behavior in children and adolescents: A systematic review and meta-analysis. BMC Public Health, 25, 3977.