

ORIGINAL RESEARCH

Relationship between Sports Aggression and Sports Mindfulness with Sports Self-efficacy in Male Athletes; the Mediating Role of Family Cohesion

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Abstract: **Introduction:** Self-efficacy is a construct that can greatly influence sports development. Individuals with a high self-efficacy level are more likely to set tougher goals and work harder to achieve them. We aimed to investigate the relationship between sports aggression and sports mindfulness with sports self-efficacy in male athletes through the mediating role of family cohesion. **Material and Methods:** The statistical population of this descriptive-correlational study covered all male athletes who are members of the youth and adult male football teams in Masjed Soleyman (Iran) in 2021. The 258 athletes were selected using convenience sampling. The research tools included the Sports Self-Efficacy Questionnaire, the Buss-Perry Aggression Questionnaire, the Mindfulness Inventory for Sport, and the Family Cohesion Questionnaire. The proposed model was evaluated using path analysis and indirect correlations were tested with bootstrapping. **Results:** The results suggested that all direct paths to sport self-efficacy were significant except sports mindfulness ($P < 0.01$), and indirect paths to sports self-efficacy became significant through family cohesion ($P < 0.01$). **Conclusions:** The proposed model had a good fit, and was a major step toward recognizing the factors affecting sports self-efficacy in male athletes, and can help in designing programs to reduce their experienced tension and improve their sports self-efficacy.

Keywords: Athletes; Sports self-efficacy; Sports aggression; Mindfulness; Family cohesion

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1. Introduction

A variety of abilities and talents in physical, physiological, and psychological dimensions can influence the victory of athletes in sports competitions. When psychological dimensions are less taken into account, athletes may experience consecutive failures that can cause irreparable damage to themselves and their teams (1). Since physical and sports activities involve mental training, and any motor or physical experience is followed by a psychological transformation, physical activity is considered one of the most important methods of physical and mental development. Moreover, participation in sports competitions is correlated with talents, training, motivations, and personality and psychological characteristics. It is hence necessary and beneficial to address sports psychology and variables related to the per-

formance of athletes (2).

Self-efficacy is a construct that can greatly influence sports development. Individuals with high self-efficacy level are more likely to set tougher goals and work harder to achieve them (3). Those with a sense of self-worth can more easily deal with threats and stressful life events. Sports self-efficacy refers to one's belief in one's capacity to successfully execute a behavior, control one's emotions and behaviors, and affect the consequences (4). Individuals who strongly believe in their abilities are more likely to make more efforts and persevere in their tasks, whereas those who doubt their capabilities may easily give up completing a task. As a result, self-efficacy can be viewed as a driving force for individuals, and it is of special importance to investigate the factors affecting the sports self-efficacy of athletes (5).

Another factor that can influence the performance of athletes is sports aggression. Considering the tensions and conditions of competitions and also expectations to win, athletes may exhibit aggressive behaviors during competitions because they withstand high stress and pressure (6). Aggres-

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sive behaviors of athletes during a sports competition can be fined with a yellow or red card (expulsion from the match) or suspension (from a few sessions to several months) (7). Athletes are usually encouraged to avoid sports aggression that involves intentional and illegal behaviors against opponents, officials, teammates, and spectators (8). Aggression increases one's level of arousal and induces athletes to focus on side issues such as hurting the opponent (9).

Sports mindfulness may also be associated with sports self-efficacy in athletes. Studies have shown that there are a variety of mental training and exercises that can affect physiological and psychological functions and improve the performance of athletes. As the most important part of mental training, mindfulness exercises have increasingly attracted the attention of athletes (10). As a latent and effective third-generation technique, sports mindfulness refers to a structural mindset closely related to desirable experiences or mental performance in sports that can be taken as a feature or mode (11). Mindfulness is defined as a mental state achieved by focusing one's awareness on the present moment, as opposed to the usual state of mind that is often occupied with thoughts about the past and future or the present experiences in a judgmental and impatient state (12). Aherne et al. (13) showed that high mindfulness enables athletes to focus more on the competition and have a greater sense of control, which results in a higher level of sports performance and self-efficacy. Lo (10) reported a significant relationship between self-efficacy and mindfulness in adolescents in Hong Kong. Moreover, Roychowdhury (14) stated that higher levels of mindfulness increase self-efficacy and positive emotions, reduce the risk of fatigue, and encourage participation in physical activity.

Family cohesion is a factor that mediates the direct effects of sports aggression and sports mindfulness on sports self-efficacy in athletes. Studies have shown that the family system is among the main pillars of development and health in any society. Accordingly, no society can claim health without having healthy families (15). In other words, family conditions can determine the normal or abnormal state of the society and also influence the occurrence of any social harm (16). Family cohesion comprises the emotional bonding between family members and the degree of autonomy experienced by individuals within the family system. Many family problems arise from the lack of cohesion. Such families are constantly involved in fights and tensions and their members cannot communicate effectively, do not help each other with their problems, and are not allowed to engage in decision-making (17). When families encourage their children to engage in conversations and decision-making and also flexibly define roles, rules, positions in the face of problems, children will enjoy better problem-solving skills, trust others and their own abilities more, and have a greater sense of autonomy.

In fact, the quality of family cohesion can affect the mental health, adaptability, and vitality of children and family members (18). Ryu and Park (19) showed that family cohesion is significantly related to self-efficacy and health-promoting behaviors among university students. The psychological aspects of physical education, which are dealt with in a science called sports psychology, have become an interesting area of study for sports researchers in recent decades (20). In today's world, which is known as the Communication Age, humans always try to express their inner emotions in different ways to communicate with others; emotions such as anxiety, worry, aggression, and self-confidence (21). Since mental fitness can play an important role in the performance of athletes during competitions, studies on sports psychology can help us find answers to the questions about individual and team behaviors in sports and physical activities (22). Considering the important role of sports self-efficacy in the performance of athletes and also the various problems and issues that athletes face, it is necessary to plan to solve such problems of athletes. Accordingly, we aimed to investigate the mediating role of family cohesion in the relationship between sports aggression and sports mindfulness with sports self-efficacy in male athletes.

2. Material and Methods

This descriptive-correlational study comprised the statistical population of all male athletes who were members of the youth and adult male football teams in Masjed Soleyman (Iran) in 2021. The correlation between variables was analyzed through path analysis. Athletes between the ages of 16-35 who consented to participate, had 2 years of championship sports activity and had competed in county, provincial, or national leagues. Participants were excluded for failure to answer questions and unwillingness to participate, and 258 male athletes, who were given a link to participate in the questionnaire, were selected through convenience sampling.

2.1. Measurement tool

2.1.1. The Sports Self-Efficacy Questionnaire

Besharat's questionnaire was designed with 10 questions to measure sports self-efficacy on a scale of 0-100 with a minimum score of 0 and a maximum of 100, with high scores representing higher levels of sports self-efficacy and relevant skills (23). Besharat (23) reported the reliability of this questionnaire to be 0.93 based on Cronbach's alpha coefficient. In this study, Cronbach's alpha coefficient was 0.85 for the questionnaire.

2.1.2. Buss-Perry Aggression Questionnaire (BPAQ)

This 29-item questionnaire was developed by Buss and Perry in 1992 to measure aggression in people of different ages. The

four subscales of this tool are physical aggression, verbal aggression, anger, and hostility. The items are scored based on a 4-point Likert scale (0: never, 1: rarely, 2: sometimes, and 3: always). The score on this questionnaire ranges from 0 to 87, and lower scores indicate lower levels of aggression. Samani (24) reported a reliability of 0.75 based on Cronbach's alpha coefficient. In the present study, Cronbach's alpha coefficient was 0.82 for the questionnaire.

2.1.3. The Mindfulness Inventory for Sport

Thienot, et al. (25) Mindfulness Inventory for Sport has 15 questions and three subscales of awareness, lack of judgment, and concentration retrieval scored on a 6-point Likert scale of 1 (never) to 6 (completely), where the sum of all scores represents the total score (25). Hemayat Talab et al. (26) reported a Cronbach's alpha of 0.75 for the questionnaire. In this study, Cronbach's alpha coefficient was 0.83 for the questionnaire.

2.1.4. The Family Cohesion Questionnaire

Razavieh and Samani's Family Cohesion Questionnaire consists of 28 questions and was developed by a review of literature on correlation, inspired by Olson's hybrid model, and scored on a Likert scale ranging respectively from completely disagree, disagree, neutral, agree, and completely agree from 1-5, and conversely from 5-1 for questions 1, 2, 7, 13, 14, 15, 16, 23, 25, and 26. The highest and lowest possible scores of this test are 140 and 28. Mirsadegh et al (27) reported a Cronbach's alpha of 0.81 for the questionnaire. In our study, Cronbach's alpha coefficient reported 0.85.

2.2. Statistical analyses

The Pearson correlation coefficient and path analysis were used in Amos-25 and SPSS-27 to analyze the correlation between variables. To evaluate the fitness of the model, the indices including Chi-square (χ^2), the ratio of chi-square to degree of freedom (χ^2/df), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Normed Fit Index (NFI), Incremental Fit Index (IFI), Tucker-Lewis index (TLI), and Root Mean Square Error of Approximation (RMSEA) were used.

3. Results

The mean age of the participants was 24.15 ± 3.07 years. First of all, the data were examined for outliers, normal distribution, path analysis assumptions, collinearity, and the variance inflation factor. These assumptions were established because the tolerance index for sports aggression (0.73), sports mindfulness (0.73), and family cohesion (0.88) was greater than 0.10 and the variance inflation factor for sports aggression (1.36), sports mindfulness (1.36), and family cohesion (1.132) was smaller than 10. The Durbin Watson (DW) statistic was employed to check the independence of errors; since the DW statistic (2.02) was in the range between 1.5

and 2.5, it can be concluded that the independence of errors was also established. Table 1 presents the data on descriptive statistics (mean and standard deviation) of the research variables.

Table 1 shows the correlation coefficients of variables, where the Pearson correlation coefficient showed a significant correlation between all research variables. The path analysis method was used to evaluate the proposed model, and Figure 1 shows the initial model proposed for explaining sports self-efficacy according to sports aggression, sports mindfulness, and family cohesion. In this Figure, e1 and e2 are the first and second errors.

According to Table 2, the root means square error of approximation (RMSEA) of 0.353 suggests that the initial model requires modification. Since the Chi-square and other indices could not be calculated in the initial saturation model (i.e., all the possible paths were drawn), one path (sports mindfulness to sports self-efficacy) was removed to desaturate the model and calculate the Chi-square and other variables in software. Figure 2 shows the final model and its RMSEA of 0.064, which suggests that the final model has good fit.

Table 3 shows the estimated path coefficients for testing direct hypotheses. The results showed there was a positive relationship between sports mindfulness and family cohesion ($\beta=0.20$; $P<0.01$), and between family cohesion and sports self-efficacy in the athletes ($\beta=0.44$; $P<0.01$). Moreover, there was a negative relationship between sports aggression and sports self-efficacy ($\beta=-0.23$; $P<0.01$), and between sports aggression and family cohesion in the athletes ($\beta=-0.20$; $P<0.01$). There was no significant relationship between sports mindfulness and sports self-efficacy in the athletes ($P>0.05$).

Table 4 suggests that the indirect paths of sports aggression to sports self-efficacy and sports mindfulness to sports self-efficacy were significant with the mediating role of family cohesion ($P<0.05$) (Table 4).

4. Discussion and Conclusion

The present study aimed to investigate the relationship between sports aggression and sports mindfulness with sports self-efficacy in male athletes through the mediating role of family cohesion. The results showed that there was a statistically significant and direct relationship between the research variables, except for the relationship between sports mindfulness and sports self-efficacy. There was also a significant and indirect relationship between research variables and sports self-efficacy, mediated by family cohesion. Based on the results of this study, the proposed model had a good fit, and this was a major step toward recognizing the factors affecting sports self-efficacy in male athletes, and can help in designing programs to reduce their experienced tension and



improve their sports self-efficacy.

The first study finding revealed a direct relationship between sports aggression and sports self-efficacy. There was no similar study to compare its results with the findings of this study, indicating the novelty of this study. To explain this finding, it can be stated that any person may show aggressive behaviors. Considering the tensions and conditions of competitions and also the victory expectations, athletes may exhibit aggressive behaviors during competitions because they withstand high stress and pressure. Aggressive behaviors of athletes during a sports competition can be fined with a yellow or red card (expulsion from the match) or suspension (from a few sessions to several months), which can reduce the self-efficacy of athletes.

Another study showed that there was no significant relationship between sports mindfulness and sports self-efficacy. This finding is inconsistent with the findings of previous studies (10). Previous studies have found a significant relationship between these two variables through correlation coefficient and regression tests. However, path analysis in this study could not establish the significance of the direct relationship between sports mindfulness and sports self-efficacy, but a significant and indirect relationship was found between them, mediated by family cohesion. In other words, sports mindfulness indirectly affects sports self-efficacy through the mediating role of family cohesion. Nevertheless, it can be concluded that mindfulness can affect the adequacy, competence, and self-efficacy of athletes. The three main components of mindfulness are intention to cultivate awareness, attention to what is occurring in the present moment, and non-judgmental, curious, and kind attitudes; the second one facilitates the processing of all aspects of experience (including cognitive, physiological, or behavioral activities). Researchers have concluded that athletes do not need to change or control their inner cognitive and emotional levels to improve athletic performance, but they need to develop mindful thoughts, accept the present inner experiences, clarify their goals, and pay more attention to possible cues and responses. Mindfulness allows individuals to accept their experiences, rather than judging them, and learn moment-by-moment awareness and new ways of responding to situations (12).

Another study revealed the direct relationship between family cohesion and sports self-efficacy. This means that higher levels of family cohesion can increase the sports self-efficacy of children. This finding is consistent with the research results of a previous study (19). To explain this finding, it can be stated that family cohesion and the way family members interact with each other can affect different aspects of children's personality as well as their sports policy. According to Bandura (5), the family is the first place where children experience self-efficacy and productivity, and self-efficacy is

an important construct related to all types of developmental behaviors that leads to a sense of competence and psychological wellbeing. Therefore, high family cohesion can increase self-confidence and improve the abilities of children to solve problems and adapt to challenges in sports activities. It seems that the mutual understanding between parents and children can be transferred to other environments, including sports ones. Accordingly, individuals who are accepted by their parents can easier achieve a positive sense of self-acceptance and believe more in their abilities. This finding also indicates that families can improve the sports self-efficacy of their children by providing conditions for open and extensive communication, encouraging them to express their emotions, and welcoming their engagement in decisions.

The results demonstrated that there was an indirect relationship between sports aggression and sports self-efficacy and also between sports mindfulness and sports self-efficacy, mediated by family cohesion. There was no similar study available to compare its results with this finding. This hypothesis indicates that sports mindfulness can influence the sports self-efficacy of athletes when it is accompanied by family cohesion. Mindful individuals are generally aware of their mental modes in every moment and know how to mobilize their mind after choosing one of the two states of mind, i.e., being or doing. Mindfulness changes one's evaluation of different events, makes them avoid negative judgments about themselves, and enables them to effectively deal with others, events, and stressful environmental conditions. This increases self-control and family cohesion and, finally, improves one's self-efficacy. Mindfulness also increases one's awareness of their daily activities as well as the automatic functioning of the mind in the past and future world and help one better control their present thoughts, emotions, and physical states and easily get rid of the everyday and automatic state of the mind focused on the past and the future (10). On the other hand, sports mindfulness can improve the self-efficacy of athletes if it succeeds in increasing family cohesion. These two findings suggest that family cohesion can well mediate the relationship of sports aggression and sports mindfulness with sports self-efficacy.

One of this study's limitations which is also a limitation of causal explanation in correlational studies is its cross-sectional nature. Since the sample covered the male footballers of Masjed Soleyman, generalization of results to other groups and populations requires caution, and extensive research on other samples is recommended to generalize results. Given the effect of competitive anxiety and family cohesion on sports self-efficacy, it is recommended to hold workshops on sports mindfulness and family cohesion to reduce aggression and increase sports self-efficacy and performance. To eliminate the cultural confounding factor, it is

suggested that similar studies be conducted in a metropolis such as Tehran, which has ethnic diversity and does not have a dominant and upstream culture.

5. Appendix

5.1. Acknowledgment

This article was extracted from a part of the PhD dissertation of Aryan Hatami Gharibvand in the Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran. The study was approved by the Ethical Committee of Islamic Azad University-Ahvaz Branch (code: IR.IAU.AHVAZ.REC.1401.041). The researchers wish to thank all the individuals who participated in the study.

5.2. Conflict of interest

No conflict of interest to declare.

5.3. Funding support

None.

5.4. Author's contributions

All the authors have the same contribution.

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Table 1: Mean, standard deviation (SD), and Pearson correlation coefficients of the studied variables.

Variables	Mean± SD	Sports self-efficacy	Sports aggression	Sports mindfulness	Family cohesion
Sports self-efficacy	55.56 ± 10.13	1			
Sports aggression	45.22 ± 11.08	-0.36**	1		
Sports mindfulness	54.47 ± 12.94	0.31**	-0.49**	1	
Family cohesion	84.21 ± 16.31	0.51**	-0.30**	0.29**	1

** : p<0.01.

Table 2: Fit indicators of the initial and final model.

Fit indicators	χ^2	df	(χ^2/df)	GFI	IFI	TLI	CFI	NFI	RMSEA
Initial model	-	-	-	-	-	-	-	-	0.353
Final model	2.04	1	2.04	0.93	0.99	0.96	0.99	0.99	0.064

CFI: Comparative Fit Index; GFI: Goodness of Fit Index; NFI: Normed Fit Index, IFI: Incremental Fit Index; TLI: Tucker–Lewis index; RMSEA: Root Mean Square Error of Approximation.

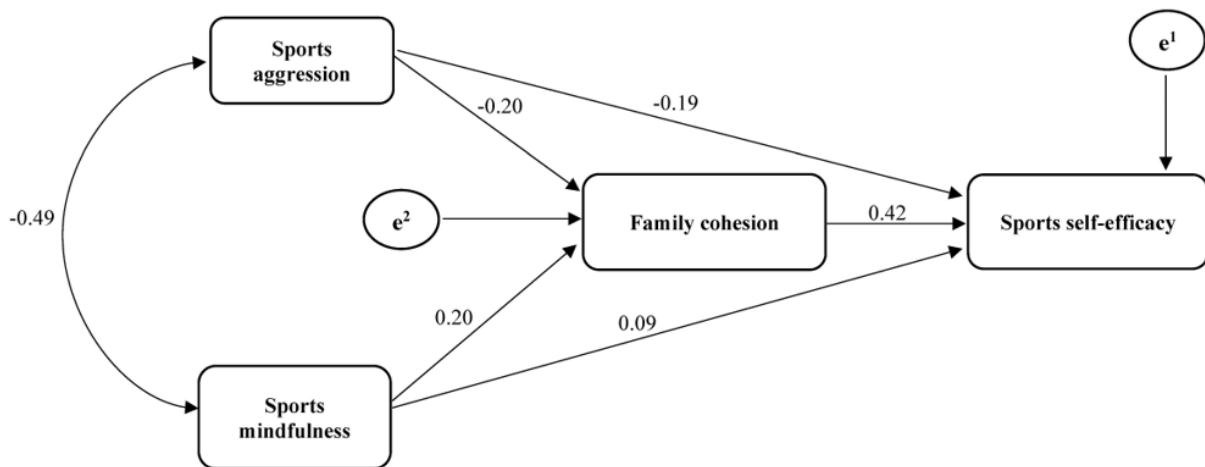


Figure 1: Initial model pertaining to the mediating role of family cohesion in the relationship of sports aggression and sports mindfulness with sports self-efficacy.

Table 3: Direct effects between research variables in the initial and final modified model.

Total	Initial model		Final modified model	
	β	P	β	P
Sports aggression to sports self-efficacy	-0.19	0.002	-0.23	0.001
Sports mindfulness to sports self-efficacy	0.09	0.152	-	-
Sports aggression to family cohesion	-0.20	0.003	-0.20	0.003
Sports mindfulness to family cohesion	0.20	0.004	0.20	0.004
Family cohesion to sports self-efficacy	0.42	0.001	0.44	0.001

β : Standardized regression coefficient.



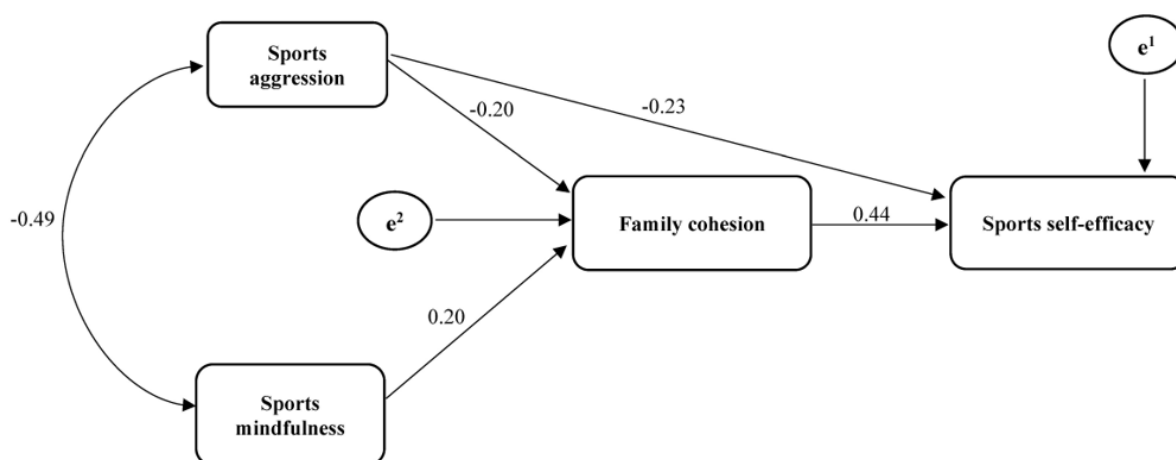


Figure 2: The modified final model pertaining to the mediating role of family cohesion in the relationship of sports aggression and sports mindfulness with sports self-efficacy.

Table 4: Results of analysis of indirect and intermediary paths in the final modified model.

Predictor variable	Mediator Variable	Criterion variable	Initial model		Final modified model	
			β	P	β	P
Sports aggression	Family cohesion	Sports self-efficacy	-0.08	0.016	-0.08	0.016
Sports mindfulness	Family cohesion	Sports self-efficacy	0.06	0.010	0.07	0.010

β : Standardized regression coefficient.