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Relationship of Competitive Anxiety and Mindfulness with Sports Self-Efficacy of Male Athletes Mediated by Family Cohesion

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ABSTRACT

Sports are generally competitive and stressful. Competitive sport anxiety in athletes affects sports self-efficacy. The present study aimed to investigate the relationship of competitive anxiety and mindfulness with sports self-efficacy of male athletes mediated by family cohesion. The statistical population of this descriptive-correlational study covered all male athletes in Masjed Soleyman, Iran in 2021, and a sample of 258 athletes was selected using convenience sampling. The research tools included the Sports Self-Efficacy Questionnaire, Competitive Sports Anxiety Questionnaire, and 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. The results suggested that all direct paths to sport self-efficacy were significant except athletic mindfulness ($p<0.01$), and indirect paths to sports self-efficacy became significant through family cohesion ($p<0.01$). According to the results of this study, the proposed model had good fitness and was a major step toward recognizing the factors affecting sports self-efficacy in male athletes as it can be helpful in designing effective plans to reduce males' experienced tension and improve their sports self-efficacy.

Introduction

There are several reasons for the sustainable development of the sport. On the one hand, sport is an important part of social life that develops leadership skills and opportunities for creativity and helps

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friendship and closeness of society, and on the other hand, participation in sports activities increases the level of public health and prevention of diseases and involvement (Ghildiyal, 2015). National sports development is an essential part of economic, social, and national development. The prevalence of sports in all sectors increases social vitality and national productivity, and the promotion of championship sports leads to the reputation of nations around the world. National pride is one of the motivating factors among nations; Therefore, the achievements and consequences of national sports development have a wide range and lead to economic prosperity and social prosperity (Barbu, Bogdan, Roxana, & Popescu, 2020). In Iran, championship sports have always been of interest to people and officials. For this reason, a large amount of material and spiritual resources is spent annually on this matter (Tabesh, shahryari, & Nazari, 2021).

Investigating the psychological characteristics of male athletes and their relationship with each other plays an important role in promoting sports success (Rintaugu et al., 2022). Various indicators such as depression, anxiety, aggression, and self-confidence are among the most important factors that are of particular importance for male athletes to know and analyze (Piepiora & Piepiora, 2021). Physical activities and sports in male athletes are mixed with mental education and every movement or physical experience brings a transformation or psychological experience in them (Malm, Jakobsson, & Isaksson, 2019). Therefore, participation in physical activities is one of the most important methods of physical and mental development in male athletes. Male athletes have a weaker performance than female athletes in controlling their emotions and taking advantage of their emotional aspects (Dumciene & Sipaviciene, 2021). While male athletes have better performance in goal selection, visualization and attention control during sports training (Peluso, Ross, Gfeller, & Lavoie, 2005). Also, according to the results of past studies, it seems that male athletes have more self-confidence (Šagát et al., 2021).

Awareness of the importance of psychology in helping athletes perform sports skills is increasing day by day; therefore, paying attention to sports psychology and variables related to athletes' performance can have beneficial results (Röthlin, Horvath, Trösch, Holtforth, & Birrer, 2020). Athletes are placed in special situations in terms of psychological characteristics when trying to achieve team goals, which take on a special nature in the field of sports, especially in international competitions where winning and losing are desirable goals and results (Purcell, Gwyther, & Rice, 2019). Paying attention to athletes 'emotional experiences as well as their ability to control them is a major part of athletes' training programs (Hut, Glass, Degnan, & Minkler, 2021). Therefore, coaches are trying to obtain information about the emotional characteristics of athletes in order to improve performance and increase the efficiency of athletes in different situations.

In recent decades, the psychological aspects of physical education have become a very intriguing subject in sports psychology that can help coaches and athletes address their mental and spiritual health alongside their physical activities (Akinci, 2020). Need for affiliation (N-Affil) is a psychological health issue that should be considered in sports competitions (Krause & Benavidez, 2014). In today’s age of communication, people are persistently trying to verbally express their inner emotions to others using various terms, such as premonition, anxiety, aggression, and confidence (Foley, Santarossa, Tindall, & Lieberman, 2020). Along with these terms, sports self-efficacy, defined as a performer’s belief that they can successfully execute a certain behavior, has a special place. It gives them confidence in their abilities and control over their emotions and behavior and can influence outcomes (Walter, Nikoleizig, & Alfermann, 2019). Bandura believes that self-efficacy is a greater contributor to motivation and behavior than other traits. Those who strongly believe in their abilities put more effort into achieving their targets and show more perseverance, whereas those who doubt their abilities abandon their actions and duties (Bandura, 2011). Thus, self-efficacy functions as a driving force for individuals.

Competitive sports anxiety in athletes is among the factors that affect sports self-efficacy. Sports are generally competitive, stressful, and highly-demanding for athletes, which can cause competitive anxiety. The emotional reaction to such stressors, especially competitive anxiety, is a field of research in sports psychology that covers anxiety, an important psychological factor that affects athletic performance particularly in critical circumstances (Bawa, 2010). Different studies have confirmed

the relationship between competitive sports anxiety and sports self-efficacy (Ivaskevych et al., 2020; Porjavid, Zeidabadi, Stiri, & Askari Tabar, 2020; Reigal, Vázquez-Diz, Morillo-Baro, Hernández-Mendo, & Morales-Sánchez, 2019).

Athletic mindfulness seems to contribute to sports self-efficacy (Lo et al., 2022). As a lifestyle, mindfulness enters the daily life through meditation exercises that introduce individuals to dual states of the mind to be consciously used as an organized mind, helping them to realize they can not only think but also observe their thinking (Creswell, 2017). As a concept, mindfulness is rooted in Buddhist tradition and represents awareness of all external and internal experiences in the moment (Anheyer, Leach, Klose, Dobos, & Cramer, 2019). Kabat-Zinn believes mindfulness is "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003). Lu found a significant correlation between adolescents' self-efficacy and mindfulness in Hong Kong (Lo et al., 2022).

Although most studies suggest that competitive sports anxiety and athletic mindfulness influence sports self-efficacy, some evidence indicates that the effects on sports self-efficacy may not be direct and rather mediated by certain factors including family cohesion. Family is a fundamental pillar and social institution, and social norms and abnormalities depend on the general conditions of families (Dina & Aaron, 2017). No social harm can occur without the influence of family and no society can claim to be healthy without healthy families (Cano et al., 2020). As a system, family has the primary influence on its members and shapes their behaviors. Many psychological and behavioral abnormalities of family members are rooted in the family itself as are many human breakthroughs, on which many recent studies on family have focused (Taylor et al., 2017). Ryu and Park showed that family cohesion and self-efficacy have a significant correlation with the health promotion behavior of university students (Ryu & Park, 2017).

Nowadays, practice and physical training is not the only means of reaching peak performance in sports since capability and personal traits affect progress in addition to physical and tactical abilities and skills. Athletes are required to engage in stressful competitions and react emotionally to these situations (Myers & Feltz, 2007). Since mental fitness can significantly improve performance in professional sports or competitions, research on sports psychology can answer certain questions regarding individual and team behaviors in sports and motor activities (Zardoshtian, Gholami, & Farzi, 2017).

Athletes who experience anxiety in the sports environment experience negative reactions such as anxiety, worry, and restlessness. One of the most important factors in the development of sports in any society is the arrival of experienced sports psychologists, who are familiar with the psychological problems of athletes. Addressing such issues is fundamentally important. Such research can pave the way for applied studies and lead to positive results in sports fields. Given the importance of athletes' sports self-efficacy and their various problems, proper planning seems necessary to resolve the issues they may face. Accordingly, the present study aimed to investigate the relationship between competitive anxiety and mindfulness and the sports self-efficacy of male athletes through the mediating role of family cohesion.

Methodology

The research method was descriptive-correlational using structural equation modeling (SEM). The statistical population comprised all male athletes in Masjed Soleyman, Iran in 2021. A sample consisting of 258 athletes was selected from the statistical population using convenience sampling. The inclusion criteria for the athletes were consenting to participate in the study, being in the 16–35 age range, having two years of professional sports experience, and competing in a county, provincial, or national level league. To conduct the research, a total of 276 questionnaires were distributed among male athletes. After reviewing the collected questionnaires, 18 questionnaires were removed due to incompleteness, and a total of 258 questionnaires were analyzed. The link of the research questionnaires was provided online to the participants and they had 60 minutes to answer the

questions. In order to comply with ethical considerations in this research, a signed written consent form was received from the participants. Participants were also assured that their information would remain confidential. The Pearson correlation coefficient and path analysis were used in AMOS-25 and SPSS-27 to analyze the correlation between variables. The following instruments were used to collect data.

The Sport Self-efficacy Scale (SSES): SSES was designed by Besharat with 10 items to measure sports self-efficacy on a score range of 0–100 with higher scores representing higher levels of sports self-efficacy and relevant skills (Besharat, 2008). Author reported the reliability of this questionnaire equal to 0.93 based on Cronbach's alpha coefficient (Besharat, 2008). Based on the results of Besharat's (2008) study, the SSES had acceptable validity. In the present study, Cronbach's alpha coefficient was 0.85 for the questionnaire.

The Revised Competitive State Anxiety Inventory-2 (CSAI-2R): Developed by Cox et al. (2003), the CSAI-2R has 17 items for measuring cognitive anxiety, physical anxiety, and confidence. Each dimension covers 9 items scored based on a 4-point Likert scale with 1 representing never and 4 representing very much (Cox, Martens, & Russell, 2003). Author reported a Cronbach's alpha of 0.85 for the questionnaire (Mostafayi Far, 2016). Mostafayi Far (2016) confirmed the validity of the questionnaire in their research. In this study, Cronbach's alpha coefficient was 0.80 for the questionnaire.

The Mindfulness Inventory for Sport (MIS): This 15-item inventory was developed by Thienot et al. (2014) and has three subscales of awareness, non-judgement, and refocusing attention. The MIS is scored on a 6-point Likert scale from 1 (not at all) to 6 (very much), where the sum of all scores represents the total score (Thienot et al., 2014). Authors reported a Cronbach's alpha of 0.75 for the questionnaire (Hemayat Talab, Khabiri, & Zare, 2016). Hemayat Talab et al. (2016) investigated the validity of MIS using confirmatory factor analysis and reported that MIS has good validity and is a suitable tool for measuring sports mindfulness in Iranian athletes. In this study, Cronbach's alpha coefficient was 0.83 for the questionnaire.

The Family Cohesion Questionnaire: Razavieh and Samani's Family Cohesion Questionnaire consists of 28 questions and was developed by a review of literature on solidarity, inspired by Olson's hybrid model (1999). It is scored on a 5-point Likert scale (completely disagree, disagree, neutral, agree, and completely agree from 1 to 5, respectively). Items 1, 2, 7, 13, 14, 15, 16, 23, 25, and 26 are score inversely. The maximum and minimum of the sum of scores are 140 and 28 in this questionnaire. Authors reported a Cronbach's alpha of 0.81 for the questionnaire (Mirsadegh, Hooman, & Homaei, 2021). Based on the results of Mirsadegh's (2021) study, the Family Cohesion Questionnaire had acceptable validity. In our study, Cronbach's alpha coefficient reported 0.85.

Results

The mean and standard deviation of participants' age were 24.15 and 3.07, respectively. First, the data were monitored for outliers, normality, and path analysis assumptions, and collinearity and variance inflation factors were controlled. Given the greater than 0.10 tolerance index for competitive sports anxiety (0.89), athletic mindfulness (0.91), and family cohesion (0.89), and the sub-10 variance inflation factor for competitive sports anxiety (1.13), athletic mindfulness (1.10), and family cohesion (1.12), the assumption was confirmed. The Durbin-Watson test was used to check the independence of errors, and the assumption was also confirmed as it assumed a value of 1.98 within 1.5–2.5. Table 1 presents the descriptive statistics including the mean and standard deviation of variables.

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

Variables	Mean± SD	1	2	3	4
1- Sports self-efficacy	55.56 ± 10.13	1			
2- Competitive sports anxiety	64.26 ± 15.16	-0.32**	1		
3- Sports mindfulness	54.47 ± 12.94	0.23**	-0.25**	1	
4- Family cohesion	84.21 ± 16.31	0.51**	-0.26**	0.24**	1

p<0.01

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. Figure 1 shows the initial model proposed for explaining sports self-efficacy based on competitive sports anxiety, athletic mindfulness, and family cohesion.

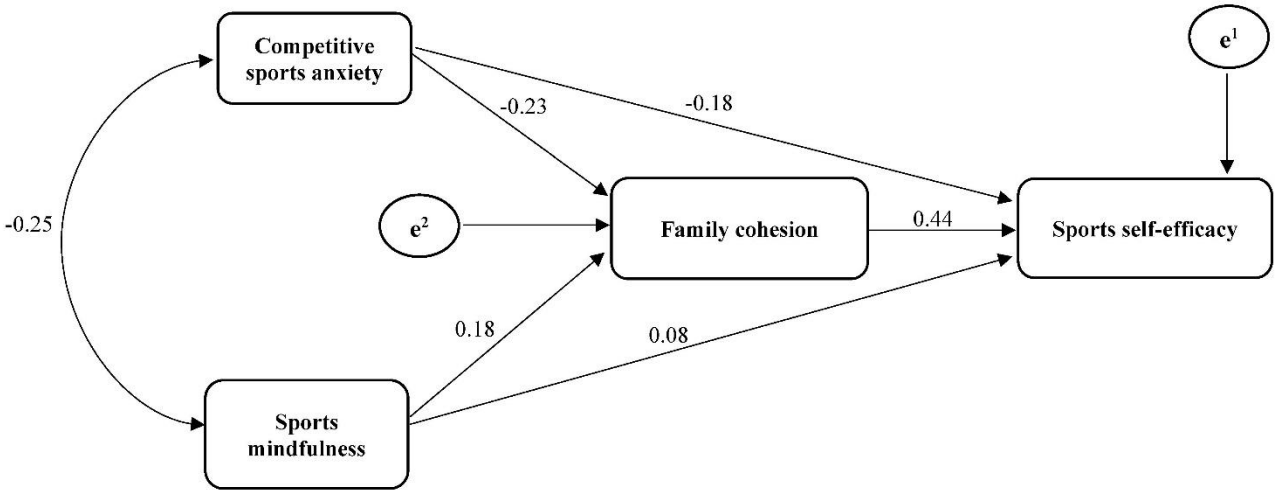

Figure 1. Initial model pertaining to the mediating role of family cohesion in the relationship of competitive sports anxiety and sports mindfulness with sports self-efficacy

According to Table 2, the root mean square error of approximation (RMSEA) of 0.291 suggested that the initial model required modification. Since the chi-square and other indices could not be calculated in the initial saturated model (i.e., all possible paths were specified), one path (athletic mindfulness to sports self-efficacy) was removed to desaturate the model and calculate the chi-square and other variables in the software. Figure 2 shows the final model and it's RMSEA of 0.067, which indicates that the final model had good fit.

Table 2. Fit indicators of the initial and final model

Fit indicators	χ^2	df	(χ^2/df)	RFI	IFI	TLI	CFI	NFI	RMSEA
Initial model	-	-	-	-	-	-	-	-	0.291
Final model	2.14	1	2.14	090	0.99	0.94	0.99	0.98	0.067

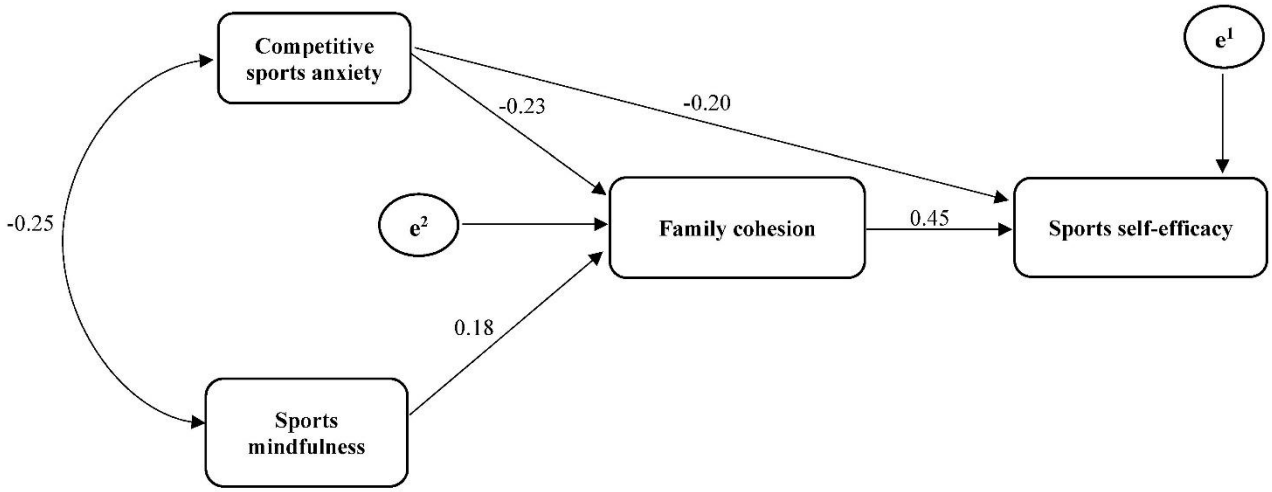

Figure 2. The modified final model pertaining to the mediating role of family cohesion in the relationship of competitive sports anxiety and sports mindfulness with sports self-efficacy

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 (β= 0.18; p<0.01), and between family cohesion and sports self-efficacy in the athletes (β= 0.44; p< 0.01). Moreover, there was a negative relationship between competitive sports anxiety and sports self-efficacy (β= -0.18; p<0.01), and between competitive sports anxiety and family cohesion in the athletes (β= -0.23; p<0.01). There was no significant relationship between sports mindfulness and sports self-efficacy in the athletes (p>0.05).

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

Path	Initial model		Final modified model	
	β	p	β	p
Competitive sports anxiety to sports self-efficacy	-0.18	0.001	-0.20	0.001
Sports mindfulness to sports self-efficacy	0.08	0.143	-	-
Competitive sports anxiety to family cohesion	-0.23	0.001	-0.23	0.001
Sports mindfulness to family cohesion	0.18	0.001	0.18	0.001
Family cohesion to sports self-efficacy	0.44	0.001	0.45	0.001

Table 4 shows the paths of competitive sports anxiety to sports self-efficacy and athletic mindfulness to sports self-efficacy were indirectly significant with the mediation of family cohesion (p<0.05) (Table 4).

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
Competitive sports anxiety	Family cohesion	Sports self-efficacy	-0.07	0.001	0.07	0.001
Sports mindfulness	Family cohesion	Sports self-efficacy	0.06	0.020	0.06	0.020

Discussion and Conclusion

This study aimed to investigate the relationship between competitive anxiety and mindfulness and the sports self-efficacy of male athletes through the mediating role of family cohesion. Overall, the results suggested that all direct paths to sport self-efficacy, except athletic mindfulness, were significant, and the indirect paths to sports self-efficacy were significant mediated by family cohesion. Based on the results of this study, the proposed model had a good fit, and is 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 finding showed a direct correlation between competitive sports anxiety and sports self-efficacy, which arguably helps athletes to manage and reduce negative emotions, such as competitive anxiety, in sports competitions. This finding is consistent with the research results of previous studies (Ivaskevych et al., 2020; Porjavid et al., 2020; Reigal et al., 2019; Zardoshtian et al., 2017). Sports self-efficacy is an important modifying variable of many psychological factors, including competitive anxiety among athletes. Athletes with strong self-efficacy outperformed their competitors by controlling and reducing competitive anxiety (Zardoshtian et al., 2017). Bandura's basic cognitive social theory suggests that highly self-efficacious people are less prone to intense emotional stimulation and anxiety. Therefore, sports self-efficacy could help athletes use their emotions to improve their capacities and athletic skills in competitions, consequently increasing self-confidence and reducing competitive anxiety (Porjavid et al., 2020).

Another finding indicated there was no significant correlation between athletic mindfulness and self-efficacy. This finding is inconsistent to the findings of previous studies (Lo et al., 2022). A cursory glance at the literature suggests that the relationship between competitive anxiety and sports self-efficacy tested with correlation coefficient and regression was significant, whereas due to its mediating variable, this study used path analysis where the direct correlation between competitive anxiety and sports self-efficacy was not significant. However, the indirection correlation between athletic mindfulness and self-efficacy was significant with the mediation of family cohesion. In other words, competitive sports anxiety indirectly affected sports self-efficacy through family cohesion. Nevertheless, mindfulness can arguably affect capability, competence, and self-efficacy of athletes, and extensive practice of explanation and conversation, conscious action, and non-judgment can increase self-efficacy. To become mindful requires developing three qualities: avoiding judgment, intentional awareness, and focusing on the present moment, which leads to processing all aspects of experience (including cognitive, physiological, and behavioral activities). Mindfulness provides an awareness of one’s routine activities and the automatic cognitive function in the past and future, control over thoughts, emotions, and physical states through awareness, and liberation from the automated and routine mind focused on the past and the future (Lo et al., 2022).

There was also a direct relationship between family cohesion and sports self-efficacy, which means boosting family cohesion is expected to improve children's sports self-efficacy. This finding is consistent with the research results of previous studies (Ryu & Park, 2017). To explain this finding, family cohesion, interactions between members, and communication within the family can affect different aspects of children's personality and their attitude towards sports. Bandura (2011) considers family the cradle of children's self-efficacy and experience, an important construct covering all developmental behaviors and providing a sense of competence and psychological well-being (Bandura, 2011). Therefore, cohesive families have greater self-confidence and problem-solving, adapt to sports challenges, and favor different sports. Mutual parent-child understanding seems to be transferred to the environment outside the family, including sports arenas, giving athletes accepted by their parent’s better self-acceptance and belief in their abilities. Families can improve children's self-efficacy by facilitating open and extensive communication with children, encouraging them to express their feelings and involving them in decisions.

The results of indirect paths showed indirect relationships of competitive sports anxiety and athletic mindfulness with sports self-efficacy with the mediation of family cohesion. No study was found in the literature to compare the findings, indicating the novelty of this study. Generally, mindful people are constantly aware of their thinking and learn to move their minds using their awareness of two states of the mind, i.e., doing and being, which can influence their self-efficacy. Mindfulness

changes how individuals evaluate different events while putting aside negative self-judgments to effectively deal with people, events, and environmental stressors. Therefore, putting aside negative judgments when effectively dealing with problems and improving self-control and family cohesion can enhance self-efficacy. However, competitive sports anxiety that reduces family cohesion can reduce sports self-efficacy. These two findings showed that family cohesion mediates the relationship of competitive sports anxiety and mindfulness with sports self-efficacy.

Limitation of causal explanation in correlational studies and cross-sectional design were among the limitations of this study. Since the sample covered the male athletes of Masjed Soleyman, Iran, generalization of results to other groups and populations requires caution, and extensive research on other samples is recommended to generalize the results.

Given the effect of competitive anxiety and family cohesion on sports self-efficacy, it is recommended to hold workshops on athletic mindfulness and family cohesion to reduce competitive anxiety and increase self-efficacy and performance in sports. It is suggested that special attention be paid to sports self-efficacy and the use of psychological techniques and the design of appropriate exercises to increase the self-efficacy of athletes. This is because not only directly but also indirectly and by increasing family cohesion as a mediating variable, will reduce athletes' competitive anxiety. It is also suggested that in training and education, attention be paid to other psychological components and mental skills that are related to sports performance and self-efficacy.

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