

# Compilation of an Educational Program for Training Mental Skills and Its Effectiveness on the Psychological and Cognitive Characteristics of Teenage Soccer Players in the Competition Season: An Action Research Study

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## Original Article

### Abstract

**Introduction:** The mental skills of athletes are the factors that cause differences in the optimal level of performance of athletes during the competition season. The purpose of this research was to compile an educational program for training mental skills and assess its effectiveness on the psychological and cognitive characteristics of teenage football players in the competition season.

**Materials and Methods:** For this purpose, 21 male adolescent athletes with an age range of 11 to 13 years from a specialized football academy who participated in the Isfahan City premier league were selected as participants in this study. The study method used was action research and the data collection method was qualitative. For this purpose, data were collected by monitoring verbal and non-verbal behaviors of the players, and semi-structured interviews with the coaches and parents of the athletes to understand the thoughts, feelings, and attitudes of the participants. The collected data were carefully implemented and analyzed using the qualitative content analysis method.

**Results:** Research findings consisted of the 8 global themes of team cohesion, positive self-talk, self-care, low self-confidence, acceptance of football rules, concentration and recovery of concentration, performance under pressure (routine), and prevention of distractions.

**Conclusion:** The results showed that mental skills training differs based on the needs of athletes in the competition season. Since paying attention to identified needs and mental skill programs during the competition season is important for athletes, it is necessary that coaches, psychologists, and sports managers pay attention to environmental and individual factors to develop an effective mental skills program.

**Keywords:** Mental skill; Soccer; Teenager; Cognitive; Action research

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### Introduction

Sports events and competition success are integral components of today's societies at the national and international levels (1). Research in sports psychology has shown that athletes' mental abilities are vital in determining their optimal performance during the competition season. Despite high levels of physical training and abilities, the lack of mental skills training can lead to subpar performance or inability to perform (2, 3). Mental skills refer to intrinsic or acquired

characteristics that athletes can improve to enhance their sports performance (4). Practicing mental skills during the competition season has been a topic of interest for athletes, coaches, and sports psychologists for a long time (5). Improving mental skills should be combined with sports performance training to develop the necessary skills (6). Researchers have investigated the educational effect of mental skills training on the psychological characteristics and sports performance of young and adult athletes; training and practicing of

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mental skills improve sports performance (7-8), and cognitive and psychological factors such as motivation, precision in execution, cognitive flexibility, stress reduction, self-esteem, tenacity, self-awareness, and self-regulation (10-8). For example, mental skills training can increase golf players' self-efficacy beliefs and shooting accuracy and performance (11). Additionally, imagery training can improve the decision-making of young volleyball athletes (12).

Several studies have explored the impact of mental skills training on adolescents' mental skills and sports performance (15-13). A study (8) implemented a mental skills intervention program for student athletes in an elite sports school. The program utilized an approach based on acceptance, commitment, and mindfulness to select psychological, educational, and experimental exercises. The results showed that the mental skills intervention played a significant role in enhancing the athletes' flexibility, patience, continuous self-awareness, acceptance of diverse events, and ability to receive feedback, thus leading to effective sports performance in an elite sports school. However, not many studies have focused on the psychological needs of athletes when designing training protocols (16, 17). For instance, one of the challenges in football matches is the sudden change in behavioral or psychological patterns, which can lead to discomfort, inability, and negative emotions such as anxiety disorder, aggression, mood disorder, and lack of emotional control (18, 19).

Research has shown that mental skills training can effectively improve both psychological and psychomotor skills in adolescent athletes in planned and unplanned settings (8, 10). However, relatively few studies have used a qualitative data collection method to examine the biological experience of athletes and coaches while identifying and evaluating the need for mental skills training. Qualitative methods are particularly suited to evaluating mental skills training programs (16), and it is essential to consider the psychological needs of athletes when designing such protocols (20). Individual differences should also be considered to help young athletes reach their full potential (21). The present study was conducted with the aim to develop an educational program for mental skills training and assess its effectiveness on teenage football players' psychological and cognitive characteristics during the competition season. Action research is presently being used as a collaborative process to identify and meet participants' real-life needs and effect positive change in the real world (22-24).

### Materials and Methods

This study was an action research project that utilized

a qualitative data collection method. The research involved developing an educational program that aimed to train the mental skills of teenage football players during the competition season based on their needs and practical problems (25). Data collection began as soon as the identified needs were revealed, and additional information was gathered from participant evaluations throughout the study. In action research, multiple individuals usually work together to plan and execute the research process, which includes identifying a problem, developing an action plan to address or clarify the problem, and evaluating the intervention. This interactive process allows people to learn from one another and understand complex situations from different perspectives (26). This action research project was divided into four stages: pre-intervention, intervention, evaluation, and feedback (26).

**Participants:** For this study, a specialized soccer academy that trained teenage soccer players was chosen. The team, consisting of 21 male adolescent athletes aged 11 to 13 years and their head coach, who regularly trained and attended the football club, were selected to participate in the research. Based on the coach's opinion and considering the age group, the team was allowed to participate in competitions for the under 13's premier youth league of Isfahan Province, Iran.

### The background and role of the researcher and head coach of the team

Qualitative research is a subjective process conducted with the aim to immerse researchers in the research environment (27). The researchers analyze the values and views of their participants, and it is crucial for them to understand their own experiences and backgrounds. For instance, F.S., one of the researchers, was skilled in football as a teenager, but later switched to table tennis. He has won multiple national positions and has an international coaching degree in table tennis. Moreover, he holds the title of vice-champion of the Asian Games for the Disabled. As a master in sports psychology, he continued his studies in motor behavior. The 2 co-researchers R.B. and Z.M. conducted each data collection stage. R.B. has extensive experience in basketball and has conducted much research in championship sports and talent development. He is a consultant for the mental performance of athletes. Z.M. has worked professionally in volleyball and has researched the cultural intelligence, cognitive functions, and mental health of athletes.

The athletes were under the guidance of a 29-year-old coach from Isfahan who had 12 years of

coaching experience. He played a crucial role in introducing mental skills training to the team. He had earned a bachelor's degree in physical education and a master's degree in applied physiology. Throughout his coaching career, he had emphasized the importance of practical mental skill acquisition for his team.

The present study utilized qualitative data collection methods, such as observing participants' verbal and non-verbal behaviors during the competition season. Additionally, the researcher conducted semi-structured interviews with coaches and parents of the athletes to understand their thoughts, feelings, and attitudes. This collaborative and reflective approach provided an in-depth understanding of the psychological needs of the players.

**Pre-intervention:** The action research approach provides the researcher in the research field the possibility to achieve a correct understanding and recognition of the psychological needs of the players during the match season (28). The mental skills training program was conducted to meet the mental needs of the athletes during the competition season. The researchers were involved in immersion and training with the aim to practice the mental skills identified in the preseason for 4 and a half months. The action research method was implemented using the qualitative data collection method to achieve these goals. The collaborative interaction between the researcher and the participants in the preseason led to a change in the experiences gained and different learning during the research (29). Action research is a dynamic cycle of identification, implementation, evaluation, and feedback (28). The researcher identified the needs of young football athletes and implemented interventions, evaluation, and feedback. Finally, this cycle, repeatedly based on the lived experiences of people during the competition season through observations and sustained conversations (30), provided researchers with new knowledge and understanding of the needs of teenage football athletes.

The mental skills training program was designed based on the needs identified during the competition season. Previous studies (16, 31) helped the researcher determine the psychological needs of football players under 13 years of age and take necessary measures to provide a mental skills training program (31, 16). The program consisted of 20 to 30-minute interactive sessions, including lectures, debates, and practical tasks to teach and practice mental skills techniques. The mental skills training program was meticulously prepared due to the early start of the football matches in the teenage league of Isfahan City.

In a mental skills training program, researchers gave participants the freedom to express their needs

for training. This approach differs from traditional cognitive-behavioral training programs, where mental skills are taught in a specific order. In this study, the researchers used various sessions during the intervention period based on the perceived needs of the athletes in the competition season. They also considered individual characteristics in the implementation of the intervention (32, 33). The researchers observed and recorded their findings during the intervention period to understand the needs of the athletes and facilitate the training of the desired mental skills based on those needs.

During the competition season, the researchers provided mental skills training to help improve the players' performance. The training included techniques such as building team cohesion, positive self-talk, self-care, low self-confidence, acceptance of football rules, concentration and recovery of concentration, performance under pressure (routine), and prevention of distractions. The researchers attended all of the team's competitive matches to provide support to the players. After each match, the coaches who were involved in the mental skills training program also participated in a 1-hour group meeting to assess the players' needs and select the appropriate solutions. This approach helped the researchers identify any areas of improvement and provide personalized assistance to the players.

### **Intervention**

**Mental skills training program:** During this stage, athletes were trained to use the mental skills learned during the competition season to improve their psychological characteristics. The researchers observed verbal and non-verbal behaviors to identify psychological needs. This information was discussed in group meetings, after which a mental skills training program was presented to the athletes using an integrated counseling approach (34). The program helped athletes identify thoughts and feelings that positively and negatively affected their performance and taught them mental skills such as team cohesion, positive self-talk, self-care, and self-confidence, acceptance of rules, concentration, and recovery of concentration to manage interfering factors. As the athletes were participating in the competition for the first time, they were under high psychological pressure due to individual differences and subcultures. New needs were identified during the mental skills training phase of the competition season, and the chosen psychological skills were applied to both preseason and competition season goals. These skills were taught through data collection, face-to-face classes, educational clips, and images.

**Evaluation and feedback:** During this stage, both group and individual sessions were conducted to obtain feedback from the participants regarding the mental skills training program. In the dynamic cycle of action research, the researchers carried out the evaluation and feedback process using formal and informal reports from the instructor. The identified needs of each participant during the competition season were presented as fundamental data for the examination of the changes made based on the reflective diary, observations, and notes of the researcher, along with the official and informal reports of the coach (16, 35).

**Analysis:** The researchers carefully reviewed the participants' reflective diaries after each match in a group counseling session. They then held a 1-hour group meeting to analyze the observations and notes taken by the researchers and the official and unofficial reports of the coach. The main objective of this analysis was to identify the needs of the participants and extract global theme categories. Data analysis began after each match to determine whether emergent categories warranted further exploration during bouts or researcher observations. The primary focus of the analysis was to understand the extent to which the athletes could apply mental skills training. The researchers used the thematic content analysis approach to understand the mental skills training program's impact on athletes' mental skills and sports performance. This approach involved searching for common themes in all the collected data (36). The researchers used a data-based inductive approach and comparative analysis based on the 3 assessment

categories established by Clarke and Braun (28). These categories were used to classify the information obtained from the collected data (28).

The analytical procedures used in this research, which were open coding, coding line by line, constant comparison methods, and note writing until saturation was reached (that is when no new subcategories, categories, or topics appear), should not be considered structured, hard, or static (37). Qualitative analysis is a creative process in which analysts quickly and freely immerse themselves in the collected data for analysis between a variety of coding techniques and analytical procedures (37). Using the thematic analysis method, the obtained data were analyzed.

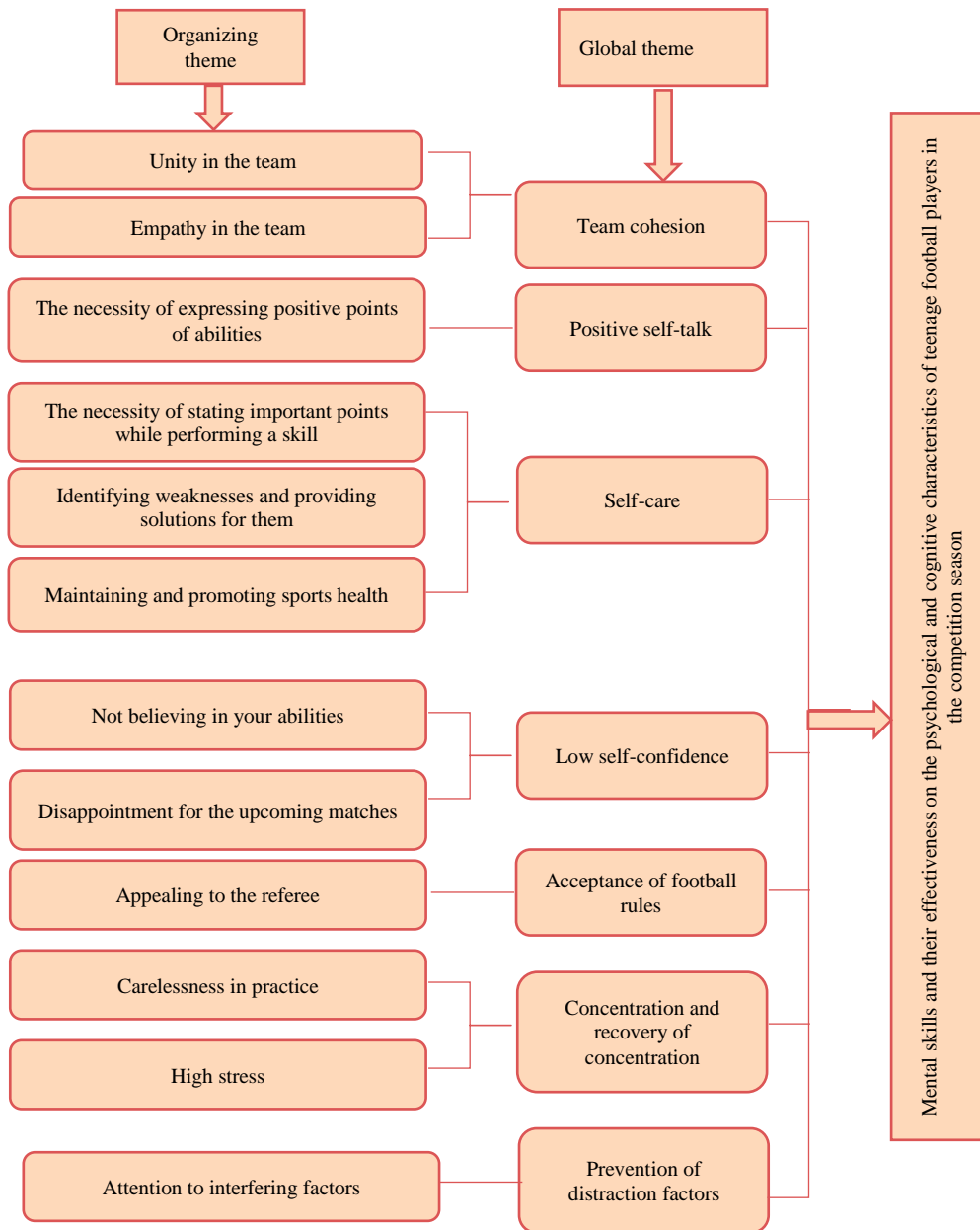
### Results

The research findings can be divided into two parts. The first part contains demographic information about the interviewees, which has been kept confidential. The second part includes data collected through observation reports, informal conversations, and semi-structured participant interviews. The study was conducted on 21 male teenage athletes of 11-13 years of age permitted to participate in the under-13 competitions of the premier league of Isfahan Province. The head coach of the team, who regularly trained in the football club, was also included in the study.

Table 1 presents the 7 identified global themes of team cohesion, positive self-talk, self-care, self-confidence, acceptance of football rules, concentration and recovery of concentration, performance under pressure (routine), and prevention of distractions (intervening factors).

**Table 1.** Seven overarching categories "team cohesion, positive self-talk, self-care, low self-confidence, acceptance of football rules, concentration and recovery of concentration, performance under pressure (routine), prevention of distraction factors (intervening factors)"

No.	Basic theme	Organizing theme	Global theme
1	Players fighting over sitting on the bench The players grumbling to each other during the game on the field	Unity in the team Empathy in the team	Team cohesion
2	The necessity of expressing the positive points of abilities The necessity of stating important points while performing a skill Identifying weaknesses and providing solutions for them	Avoid blaming yourself after every loss  The importance of the correct implementation of each skill Emphasis on increasing knowledge about the components of each skill and applying it	Positive self-talk
3	Maintaining and promoting sports health	Players getting sick the night before the match	Self-care
4	Not believing in your abilities Disappointment for the upcoming matches	Lack of motivation	Low self-confidence
5	Appealing to the referee	Players' objection to referee's decisions in games	Acceptance of football rules
6	Carelessness in practice High stress	Hasty execution of skills on the football pitch Failure to understand the coach's words due to stress and worry	Concentration and recovery of concentration
7	Attention to interfering factors	Paying attention to the spectators when cheering the players	Prevention of distraction factors



**Figure 1.** Mental skills and their effectiveness on the psychological and cognitive characteristics of teenage football players in the competition season

A diagram of categories from the qualitative data is presented in Figure 1.

**Team cohesion**

Cohesion refers to the solidarity and joining together of a group. On the other hand, team cohesion is the set of pressures that members exert on each other to remain in the group. A highly cohesive group is more likely to maintain its integrity and commit to group success, than a less cohesive group

(38). This global theme includes 2 organizing themes, namely unity in the team and empathy in the team. It also has 2 basic categories: players fighting and players grumbling.

As observed by the researchers, the players in the match were not coordinated from the moment they entered the field until the warm-up. Each player warmed up separately. Hence, the researchers asked the players to warm up with each other and in

harmony during the match. They also asked the team captain to call out each player's name during the warm-up and encourage the other players.

#### **Positive self-talk**

Self-talk refers to the spoken words and thoughts directed towards oneself, which can significantly impact an athlete's emotional state, attitude, confidence, focus, and performance. These thoughts can be random, conscious, or purposeful. Positive self-talk can be constructive and helps athletes focus on appropriate cues (39), which fall into 3 organizing themes: expressing the positive points of abilities, expressing important points while performing skills and identifying weaknesses and providing solutions for them, and preventing blaming while emphasizing correct skill performance and increasing knowledge about skill components.

Research observations show that players tend to blame themselves during training and matches, which can negatively affect their performance. For example, one of the participating players said: "When I want to take a penalty, I always tell myself that the ball will not go into the goal." To tackle this issue, the researchers suggested that the players stand in front of a mirror and say their strengths out loud before the match. Additionally, the players were asked to draw a small mark (circle or star) on their hand on the day of the match, which they could look at whenever they felt worried to remind themselves of their positive points.

#### **Self-care**

Self-care is a category that was first described in 2019, referring to the learned behaviors that an athlete performs to maintain or improve their standard of living, health, and well-being, prevent injury, and maintain their athletic performance. It is a relative process that involves purposeful behaviors and choices, reflecting the mindset and knowledge of each individual (40). This global theme includes an organizing theme for maintaining and promoting sports health and a basic theme for managing situations like players getting sick the night before a match.

Researcher's observations: The parent of participant code 21 said: "My child has caught a cold twice in the past few weeks. He does not listen to anything I say. This made him unable to join the team and compete today." The researchers explained self-care in the meetings they organized for the players. Among other things, they were asked to bring warm clothes when the weather is cold.

#### **Low self-confidence**

Low self-confidence can prevent a person from performing to their best ability due to pressure in

important competitions (41). This global theme includes an organizing theme of lack of motivation and a basic theme of not trying to get better.

Coach's informal conversation: "So far the guys have gone to every friendly game and lost the games. Somehow the motivation of the guys and mine too about winning has decreased". Researcher's observation: The teenagers were so disappointed that when the friendly game was mentioned, they said: "We are not going to win". The coach's negative statements about the possible outcome of the game had affected the players' beliefs in their own abilities.

The researchers organized a meeting for the players and divided them into two groups. They asked the defenders to join hands and not let the players come towards them as attackers pass between them. During the match, the researchers reminded the players

that they should always take the first shots on the field and they should always be the first ones to move towards the ball.

#### **Acceptance of football rules**

Acceptance means accepting, committing, and following (42). Acceptance has many implicit meanings, such as standing, surrendering, and self-reliance (43). This global theme includes an organizing theme of protesting to the referee and a basic theme where players protest against the referee's decisions.

Researcher's observation: During official and friendly matches, as soon as the players made a mistake and the referee whistled, the players protested. The coach's official report: "These kids still do not know anything about football and competition, but unfortunately they protest to the referee. Something must be done in this regard." The researchers explained to the players that during the game, everyone should respect the referee's decision, and no one can change the referee's decision. Therefore, it is necessary to observe ethics in sports and appreciate the referee, and the players must leave the decision-making in the face of the referee's opinion to the coach. Moreover, to raise the awareness of the players, clips were sent to them on the virtual page with the title of respecting the referee. Furthermore, on the virtual page, the researchers asked the players: "What action would you take if the referee whistled or gave you a card?" Everyone answered that they would respect the referee and leave the decision to the coach.

#### **Concentration and recovery of concentration**

Concentration is a crucial skill for athletes as it allows them to focus on relevant environmental cues,

even in the presence of distractions. This skill also includes expanding or limiting attention when needed and maintaining focus during an event, season, or game. Additionally, it involves an athlete's willingness to engage in activities that do not interfere with their responsibilities, even if it means sacrificing their social life (44). This global theme includes the 2 organizing themes of carelessness in practice and high stress, along with the 2 basic themes of hasty execution of skills during the game and stress and worry during the game, which may cause the players to lose focus and not pay attention to the coach's instructions. To improve the concentration of the players, the researchers taught them various breathing techniques and instructed them to practice implementing these techniques. Additionally, the researchers asked each player to kick a soccer ball and count backward while doing so.

#### **Prevention of distraction factors**

Intervening factors such as the presence of spectators during a match, snowfall, and other external factors can significantly affect the performance of athletes. These factors can either enhance social facilitation or disrupt the performance of athletes. It is important to note that athletes do not compete in a social vacuum. The presence of spectators inside the stadium can provide immediate social encouragement and reinforcement to the athletes, whether the feedback is positive or negative. In fact, it can be said that sports would not thrive without spectators and fans (45). This global theme includes the organizing theme of attention to interfering agents and the basic theme of the distraction of players by spectators during the game.

Based on informal conversations with the coach and observations made by the researcher, it was discovered that during elimination games and games with spectators, children expressed that their concentration was disturbed when the opposing team was cheered on by the spectators.

During a training session, researchers asked the father of one of the football players, who had played the sport himself, to come early and describe the football performance of each player during practice. However, after a few seconds, animal sounds were played through a speaker, distracting the players from concentrating on the football report. To help the players remain focused, the team coach played music during training and requested that players concentrate on critical technical aspects of the game, such as ball control. The coach emphasized that they should not let the distractions affect their concentration during practice.

#### **Discussion**

The current research was conducted to develop an educational program to train mental skills among teenage football players during the competition season and investigate its effectiveness on their psychological and cognitive characteristics. The researchers identified factors that affected the success and improvement of athlete's performance during the competition season and the need for such a program. The research showed that the program helped the players in various ways, such as improving team cohesion, positive self-talk, self-care, preventing low self-confidence, accepting football rules, concentration and recovery of concentration, and preventing distraction factors (interfering factors).

Team cohesion is a crucial psychological skill that significantly influences team performance (46). It plays a vital role in establishing and maintaining team structure, and ultimately leading to success. A team is not just a group of individuals; the camaraderie and solidarity among the members make all the difference. Even if all the players are talented, their performance may not be up to the mark if they lack group cohesion during the game. This highlights the significance of group solidarity in any team. The findings of this study are consistent with the results of previous research in this regard (46, 47).

Positive self-talk can positively impact a person's performance, self-confidence, and self-efficacy. Moreover, negative self-talk is linked to psychological issues such as anxiety and negative emotions (48). In light of recent research, it has been found that positive self-talk is an important psychological skill for athletes to reduce anxiety during training. This is because it helps individuals view themselves and others more positively, ultimately boosting self-confidence (49). The study also confirmed that competitive, cognitive, and physical anxiety can affect performance during training.

Athletes participating in various domestic and foreign competitions under different conditions gain numerous experiences regarding the maintenance of their health. Skilled athletes must actively participate in self-care activities to preserve their physical, social, emotional, and psychological well-being during their careers (50). Therefore, athletes are morally obligated to practice self-care by using self-evaluation, reflection, and self-care methods to protect themselves from negative consequences such as being removed from the team and avoiding sports competitions. The present study's findings are

consistent with that of the study by Mohsen and Seyed (51).

The way coaches behave can significantly impact athletes' performance, as well as their enjoyment of sports, perseverance, and self-confidence (50). When coaches use a supportive approach and help teenage athletes become more self-aware of their performance, it can increase their self-confidence. These behaviors are crucial in shaping and strengthening self-confidence, boosting internal motivation, creativity, and self-esteem, and helping teenagers understand their competence better. The findings of this study are consistent with the results of the studies by Murphy-Mills (52) and Uosefi et al. (53) in this field.

Athletes need to behave according to the rules and ethics in sports competitions. Although acceptance and change may seem like opposites, acceptance provides a foundation for athletes to change their behavior (43). When someone accepts unpleasant experiences on their way to achieving their goals, it indicates that acceptance has taken place (54). A study found that over time, people who go through the process of acceptance tend to exhibit behavior that aligns with their values, thus leading to a better overall quality of life (QOL).

Concentration and the ability to recover focus are crucial in sports performance. These psychological skills can also improve self-confidence, motivation, and attention. Uludag et al. investigated the impact of 10 weeks of visualization and concentration training on basketball players' free throw shots and visual concentration performance (55). The results were consistent with other research on the topic (55, 56). Recovering focus is one of the most essential skills for high performance in sports, as it leads to improved overall performance.

The impact of spectators on athletes cannot be underestimated, as their presence can alter the athlete's mental state by changing the game's natural conditions. Researchers have studied the effects of spectators' presence on athletes' motivation and performance (57). Studies have shown that spectators create a highly motivational environment, and the absence of spectators creates a low motivational environment for athletes. In a highly motivational environment, athletes may have difficulty estimating depth perception accurately. In addition, studies on the presence of interaction and people observing the performance of a movement have shown that people in the presence of spectators experience a higher stress level, which may lead to a decline in performance (57). In highly motivational environments, compared to low

motivational environments, novice athletes may pay attention to different information sources and cues, thus leading to incorrect judgments during performance. Therefore, adolescent athletes' sports performance may decrease in the presence of others (58). The present study's findings are consistent with this theory.

It is crucial to prioritize identified needs and mental skills programs for athletes during the competition season. This research suggests that coaches, psychologists, and sports managers should consider both environmental and individual factors in developing an effective mental skills program to help the team achieve success and their goals. The focus should be on creating a program that aligns with the specific needs of the athletes and the team to optimize performance and overall outcomes.

### Limitations

The present study showed that mental skills training had some practical benefits, but also some limitations. The research was conducted during the preseason, and the short duration of the intervention may have affected the results. Another limitation was that teachers and parents received no mental skills training.

### Recommendations

It is suggested that future studies investigate the quantitative and qualitative effects of mental skills training interventions during the competition season on coaches, parents, and athletes. Moreover, it is recommended that future studies focus on the effects of mental skills training on both team and individual sports across genders.

### Conclusion

During the competition season, it is crucial for coaches, psychologists, and sports managers to pay attention to athletes' identified needs and mental skill programs. To develop effective mental skill programs, these professionals must consider the environmental and individual factors that may impact an athlete's performance.

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### Authors' Contribution

Study design and ideation: Rokhsareh Badami and Fahimeh Sepehri



Getting financial resources for the study Fahimeh sepehri

Scientific and executive support of the study: Rokhsareh Badami, Fahimeh sepehri, and Zohreh Meshkati

Data collection: Fahimeh sepehri

Analysis and interpretation of the results: Rokhsareh Badami and Fahimeh sepehri

Specialized statistics services: Rokhsareh Badami and Fahimeh Sepehri

Manuscript preparation: Rokhsareh Badami, Fahimeh sepehri, and Zohreh Meshkati

Specialized scientific evaluation of the manuscript: Rokhsareh Badami, Fahimeh sepehri, and Zohreh Meshkati

Confirmation of the final manuscript for submission to the journal website: Rokhsareh Badami, Fahimeh sepehri, Zohreh Meshkati

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#### Conflict of Interest

The authors did not have a conflict of interest.

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