

Adolescent Athletes' Stress and Coping Strategies: A Study of Dual Pathway Challenges in Academics and Sport

Ziqian Ma¹

¹ School of Health and Wellbeing, University of Glasgow, Scotland, UK

Correspondence: Ziqian Ma, School of Health and Wellbeing, University of Glasgow, Scotland, UK.

doi:10.56397/SPS.2024.12.05

Abstract

This study aims to explore the stressors encountered by adolescent athletes and their coping strategies in response to these stressors. Ten adolescent athletes, aged 13–18, from municipal or provincial teams who had participated in provincial-level competitions and higher, were selected for semi-structured interviews based on a self-drafted interview outline. The transcribed data from audio recordings were coded, thematically searched, reviewed, and labelled using thematic analysis. Identified stressors among adolescent athletes included academic-sport dual pathway stress, training and competition stress, growth-related stress, and peer comparison stress. Coping strategies encompassed pre-competition preparation, training enhancement, self-adjustment, avoidance and diversion, confiding, and going with the flow. The most common coping method reported by adolescent athletes was confiding, which is aligned with an avoidance coping orientation, whereas fostering a positive relationship with the coach was associated with the most positive sports experience.

Keywords: adolescent athletes, stressors, coping strategies, thematic analysis

1. Background

In recent years, particularly in the past two Olympic Games, the trend toward “rejuvenation” in large-scale sports events has become increasingly prominent. With the concept of “focusing on the needs of young people” gaining widespread attention and support, the inclusion of popular youth sports in the Olympic program has not only addressed the interests and needs of younger audiences but also promoted the diversification and modernization of the Olympic Games. This initiative has invigorated the sports industry,

introducing new energy and driving forward diversification and modernization. Aligning with the “rejuvenation” trend in sports, the rejuvenation of the Olympic Games is essential not only to develop athletic talent for emerging sports but also as a strategic path for China to progress from being a large sports nation to a strong one (Ren & Bu, 2022).

In discussions of “rejuvenation,” adolescent athletes emerge as central figures, as their competitive abilities are crucial to the landscape of competitive sports and reflect a country's progress and strength in this field. At the 2021

Tokyo Olympics, the Chinese delegation included 431 athletes with an average age of 25.4 years, and 67.98% of them were first-time Olympians. Among these, athletes under 21 years of age won 15 gold medals and 28 medals in total, accounting for 26.79% and 20.29% of the team's medals, respectively—a historic high for China in the Olympics. Notably, athletes born after 2000 excelled, securing 14 gold medals and 17 medals overall. This lowered average age among medalists reflects the growing trend of rejuvenation in Chinese competitive sports (Yang & Wang, 2022).

Competitiveness and confrontation are defining characteristics of competitive sports, where the capacity to unlock athletes' physical, intellectual, and psychological potential is crucial for elite performance. As sports science and technology have advanced, skill-based differences among athletes have narrowed, placing a heightened emphasis on psychological resilience as a decisive factor in performance and game outcomes. Coaches and athletes alike acknowledge that psychological factors are among the most unpredictable and challenging to control. Under intense psychological and physical demands, without strong psychological resilience, an athlete's other abilities may not be fully realized (Ding, 2007).

Adolescence marks a transitional period from childhood to adulthood, during which individuals undergo significant physical and psychological changes. Due to the limited psychological maturity in this stage, adolescents often set high expectations they may struggle to meet, leading to frequent frustration (Lin, 2018). Given the developmental imbalance in this period, adolescents face unique challenges and crises, and as a specialized subgroup, adolescent athletes encounter even greater pressure and frustration than their non-athlete peers. Thus, a deeper understanding of the psychological characteristics of adolescent athletes at these critical stages, combined with targeted interventions for managing psychological stress and thoughtfully designed training programs, can help unleash their potential and enhance their competitive abilities.

2. Literature Review

2.1 Stressors

Stress refers to the special relationship between a person and an environment that is evaluated as overwhelming, overloading coping resources

and harming their health (Lazarus & Folkman, 1984). A stressor, or stressful event, is a specific situation or event in which an individual feels stressed. Athletes are often in stressful situations due to the demands of competition.

In competitive sports, acute stressors and chronic stressors are two types of stressors that athletes face. According to Anshel (2001), some events and situations that occur suddenly during competitive sports and have a negative impact on the athlete's psychological well-being are called acute stressors; while situations that are stressful for a substantial period of time are called chronic stressors. According to Lazarus and Folkman (1984), they called the situations or events that occur suddenly to the athletes and make them feel upset as acute stressors, including mistakes, being punished by the referees, negative comments from others (which may come from coaches, spectators, and other aspects), and successes of the opponents. And there are also different stressful events in training or daily life that affect the mental status of athletes.

In China, there are fewer studies on athletes' competition stressors, and they are mainly based on single sport athletes, and athletes are generally at a high level of sport and lack of generality, and the research in this area is mainly conducted abroad. Research has shown that most of the stressors felt by athletes in competitive sports are in fact very similar, including fear of injury, lack of self-confidence, psychological needs, coaching pressure, competitive demands, unfair refereeing, bad weather, etc. (Dale, 2000; Gould & Jackson, 1993; Holt & Hogg, 2002; Holt & Polman, 2005). In contrast, in different sports, there are stressors specific to that sport (Madden & Brown, 1990) that are unique to that sport.

In addition, stressors are also related to the age, gender, and sport level or grade of the athlete, with differences between different levels of different factors. In the area of age, Gaudreau and Blondin's (2002) study showed that adolescent athletes place more importance than adult athletes on others' evaluations of themselves and the performance of their opponents. Compared to adult athletes, adolescent athletes are less prepared to cope with adversity and control negative emotions after experiencing stressful events (Bebetsos & Antoniou, 2003). In gender, female athletes are more likely to feel stressed by comments from

others, whereas male athletes are more likely to feel stressed by events related to opponents. This is supported by Goyen and Anshel's (1998) study on stressors in adolescent athletes, where parental criticism, coaches and spectators' verbal abuse make female athletes more likely to feel stressed, and mistakes and refereeing miscues can make male athletes more stressed.

In a study of stressors in adolescent athletes, Gould et al. (1983) found that the main stressors for adolescent wrestlers in competition were 'performing at their level of competition,' 'improving on their last performance,' 'competing in finals,' 'playing badly,' and so on. 'Participating in the finals', "Playing badly" and so on. There are also related studies in China. In the study on the stressors of young athletes, it was found that sports injuries, accidental losses in competitions, interpersonal relationships in the social environment, pressure to study and go to higher education, personal prospects and life changes were the main stressors experienced by young people (Hu & Xu, 2006).

2.2 Stress Coping

2.2.1 Coping

Stress coping is complex and has been defined in many ways, with definitions differing from one psychologist to another. Currently, the widely recognized and influential perspective on stress coping is the explanation of event solution, which explains coping as the ongoing cognitive and behavioural efforts an individual makes to manage internal and external stimuli that are perceived as stressful or beyond their available resources (Lazarus & Folkman, 1984). In other words, coping is a process that includes cognitive as well as behavioural efforts that are used to manage psychological stress. Research has shown that whether or not a person is in a state of chronic stress has a profound effect on an individual's health. Therefore, how psychological stress is managed affects an individual's health experience to some extent. Coping in the field of sport refers to the cognitive and behavioural efforts of athletes to manage stressful stimuli and the emotions they induce during training and competition (Li et al., 2005).

There are two research orientations to coping — trait orientation and process orientation. The trait oriented views coping as a personality factor, characterized by stability and consistency (Penley et al., 2002). It suggests that individuals

do not select different coping strategies for each specific situation but instead rely on their preferred coping strategies in any given situation, and these strategies are relatively fixed. In contrast, the process orientation views coping as a cognitive-behavioural process that begins with the situation and emphasises human initiative. The process orientation views coping as a human endeavour in response to information from the environment, which occurs when an individual's need exceeds his ability and capacity to adapt or tolerate, and this endeavour serves to control and regulate that need or expectation (Lazarus & Folkman, 1984). Coping comes from cognitive appraisal, a strategy or means adopted after evaluation, where a person needs to keep evaluating the stakes of the stimulus event in relation to him or her. Coping, changes or adjusts both behaviour and emotions.

2.2.2 Coping Strategies

Coping strategies are specific ways to reduce stress responses. Stressful events in athletic training and competition are stimuli that elicit complex physiological and psychological changes in the individual, and coping styles are a kind of mediating variable connecting training and competition outcomes with psychophysiological responses to stress. Coping styles act in a cycle of recurring processes that continually influence the direction and intensity of psychological change. Thus, coping style is both an important competitive psychological mediating variable and an important mental health factor in sport (Li et al., 2005). Since stress is not an all-or-nothing phenomenon, and stress coping styles are not particularly different in nature from other behaviours, we can analyse them from multiple perspectives.

The classification of coping strategies is mainly based on two approaches: problem-focused coping and emotion-focused coping, as well as approach coping and avoidance coping.

According to Lazarus and Folkman's (1984) theory, problem-focused coping refers to a variety of strategies used to change the stressful situation, including information seeking, planning and goal setting, and facing with determination; emotion-focused coping refers to the use of a variety of approaches or strategies used to help improve or control the emotional response resulting from the stressor, including seeking emotional support, relaxation

meditation, and fantasy. People tend to adopt emotion-focused coping when they believe, for some reason, that there is nothing they can do to change a stressful situation. Problem-focused coping puts the focus on solving the problem, whereas emotion-focused coping puts the focus on regulating the emotion.

According to Ebata and Moos (1991), coping can be categorised into approach coping and avoidance coping. Approach coping is the positive direction towards the stressful event and includes cognitive and behavioural responses directed towards the stressful situation, by making efforts to try to resolve or deal with the stressor. While avoidance coping is the direction of turning back towards the stressful event and includes cognitive or avoidance behaviours that disregard the stressor or make efforts to avoid facing the stressful situation.

Coping can also be categorized in other ways: self-oriented coping and externally-oriented coping, cognitive coping and behavioural coping, active coping and passive coping, preventive coping and combative coping, as well as effective coping and ineffective coping, among others.

In the contemporary socio-cultural mainstream, there seems to be a greater promotion of the use of active coping and a rejection of avoidant coping, but there is no clear advantage or disadvantage in actual competitive play. Madden et al. (1990) found that basketball players who used a focused problem-solving strategy produced higher levels of cognitive tension. Krohne and Hindel's (1988) study showed that successful table tennis players used more avoidance coping strategies during competition, resulting in lower cognitive anxiety. When upset occurs during training, high distance running level athletes primarily use associated coping, whereas average distance runners primarily use avoidance coping (Bianco et al., 1999). In a study of athletes in track and field, it was found that high level athletes continuously used avoidance strategies to cope with stressful situations (Yoo, 2001). According to Li et al. (2005), the different coping styles are interdependent and complementary to each other.

In summary, the choice and effectiveness of coping strategies for stress is related to the athlete's age, sport, level, etc., and the specific

coping strategies used to be more effective need to be based on the athlete's situation.

2.3 Problem Statement

A large number of studies as well as practice have shown that too much stress can lead to athletes' game performance failure. In recent years, athletes' coping with competition stress has been an important topic in sport psychology research. Athletes of all ages and levels are faced with the problem of coping with competition stress, and paying attention to stress and its effects can help athletes to perform stably under extreme high-pressure situations.

Young athletes are the reserve force for the development of competitive sports in China and take on the important tasks of achieving the goals of China's competitive sports strategy, and it is of great significance to develop them to obtain good psychological quality to improve the level of competition. In recent years, attention has been paid to adolescent athletes to cope with competitive pressure. However, there are fewer studies on athletes' stressors and their coping strategies in China, especially on adolescent athletes. Adolescent athletes are at the stage of physical and psychological development, which makes it difficult to extend the results of some studies focusing on adult athletes to this group due to the special characteristics of the period they are in. Therefore, how adolescent athletes cope with stress is still a problem to be studied. This study takes adolescent athletes as the research object and aims to obtain the sources of competition stress and coping strategies of adolescent athletes.

However, there are fewer studies on athletes' stressors and their coping strategies in China, especially on adolescent athletes. Adolescent athletes are at the stage of physical and psychological development, which makes it difficult to extend the results of some studies focusing on adult athletes to this group due to the special characteristics of the period they are in. Therefore, how adolescent athletes cope with stress is still a problem to be studied. This study takes adolescent athletes as the research object and aims to obtain the sources of competition stress and coping strategies of adolescent athletes.

3. Methodology

3.1 Research Subjects

A total of 10 adolescent athletes aged 13-18 years old from municipal or provincial teams who had played in provincial and above competitions were selected for this study through convenience sampling. 7 of them are male and 3 are female.

3.2 Research Method

The study used semi-structured interviews to collect data and thematic analysis was used to analyse the data.

3.2.1 Semi-Structured Interview

This study used semi-structured interview method, with a self-drafted interview outline. The interview included 12 questions, 9 of which focused on the stressors faced by adolescent athletes and their coping strategies. For example: Have you experienced significant physical and psychological changes during adolescence, do these changes affect you, and how do you cope with them? What different feelings of stress do you experience during different stages of competition, and how do you manage them? (One expert was consulted for guidance and suggestions to ensure that the content and questions of the interview had expert validity).

This study used a pre-planned outline and questions as the basis for the questioning, using open-ended questions and answers, with the order of the questions and the way they were presented depending on the subject's situation, in order to gather information about the stressors encountered by young athletes and their coping styles in their daily lives, training and competitions. The interviews were conducted online using Tencent Meeting, in the form of one-on-one interviews. After explaining the interviews to the subjects, the interviews were audio-recorded with their consent, and the audio-recorded materials were converted into text materials after the interviews were completed. They were also told to be interviewed in a quiet, private setting for a duration ranging from 40 to 70 minutes.

3.2.2 Thematic Analysis

Thematic analysis is a method of identifying, analysing and reporting patterns (themes) in data, which organises and describes the data in minimum (rich) detail (Boyatzis, 1998). Thematic analysis is used to create a data analysis structure by reading the interview data repeatedly, tracking the thematic concepts then

looking for themes in the data that are relevant to the purpose of the study, the themes presented are continually checked against the data, and then relevant concepts are developed to draw the findings and conclusions of this study.

The conversion of the audio recordings of the interviews into text form resulted in a total of 10 copies, which together amounted to over 120,000 words of textual material, which was transcribed and analysed following Braun and Clarke's methodology.

Firstly, all the textual data were read initially to have a preliminary understanding of the content of the materials, to clarify the direction of the study, to form an overall impression, and to clarify the problem to be solved. And each subject was numbered (e.g., D1, F2, etc.) to prevent confusion in the subject data during the later analysis. Second, the data were preliminarily coded. Content related to stressors and coping strategies was highlighted based on the research questions, and meaningful units that appeared repeatedly were identified. The parts relevant to the research questions were coded, with codes assigned to each. There are some examples in Table 1. In the process of coding the textual data, manual coding was mainly used for coding. Thirdly, the codes were organised and summarised to extract themes from the relevant coded data. Fourthly, the themes extracted were refined to express and cover them in reverse. Fifth, the themes were reviewed by discussing with experts and repeatedly comparing each theme, generating representative themes, naming and defining the themes that have been clarified. Finally, 3 themes and 15 sub-themes are generated. Sixth, the report was generated.

Table 1. Examples of coded text

Summary of quotations from the text of the interviews	Code
"Normally, during regular competitions, I don't worry about failing or anything like that, but during the National Games, I fear what might happen if I fail, which leads to psychological issues." (L4)	Expecting and afraid of the big game at the same time
"My failure might result in a low group score. Might not	Working hard for the needs of

make the top 8." (Y8)

the team

3.2.3 Quality Assessment

The member-checking method was used in this study, where the coded results and summarized themes were fed back to the participants for review. This involved revisiting the interviewees to view the analysis from both the researcher's and the participants' perspectives, ensuring that the participants' views were fully expressed, reducing researcher bias, and enhancing the credibility of the findings. Initially, the study was discussed within a small group (consisting

of five undergraduate students majoring in sports psychology and one sports psychology teacher). Three participants were revisited, all of whom agreed with the analysis results.

4. Thematic Analysis Results and Discussion

4.1 Stressors in Adolescent Athletes

Thematic analysis method was used to find out the stressors of adolescent athletes including academic-sport dual pathway stress, training and competition stress, growth stress, and peer comparison stress, and the coding results are shown in Table 2.

Table 2. Results of Stressors

Theme	Sub-theme	
Stressors	Academic-sport dual pathway stress (29)	Requires a lot of energy to cope with high-intensity training (10)
		Lacks extra energy for academic subjects (4)
		Working hard to have better educational opportunities (4)
	Training and competition stress (56)	Expecting and afraid of the big game at the same time (11)
		Working hard for the needs of the team (6)
		High standards and demands from the coach (12)
		Dwelling on a past failure (8)
		Closed-off training environment (5)
		Coping with intense, monotonous, repetitive training (14)
	Growth stress (16)	Growth and development limitations hindering performance improvement (7)
		High expectations of oneself (4)
		Decision-making primarily controlled by the coach, low autonomy (5)
	Peer comparison stress (10)	Easily influenced by high-achieving peers (10)

4.1.1 Academic-Sport Dual Pathway Stress

Academic-sport dual pathway stress included requires a lot of energy to cope with high-intensity training, lacks extra energy for academic subjects and working hard to have better educational opportunities. Typically, young athletes need not only to improve their competitive performance through extensive training, but also need to accept cultural studies in their development path.

Both physical and mental resources are limited, and how to allocate and prioritize them is a challenge that adolescents must face. For

example, *"Sometimes after training, I'm so exhausted that I can't even hold my phone, and then I'm expected to attend classes. It's actually a kind of frustration."* (Y8)

Most adolescent athletes are also faced with the problem of choosing whether to continue on a competitive path or to enter university studies through exams. And even if they decide to enter university through exams, there are different feelings of pressure in treating different competition programmes.

"In competitions, because the quadathlon is not a my is a main event for university entrance, it's just to

help the school get points, it's only after it really involves what I'm going to get into university that I just think a lot about it and pay a lot of attention to it, so there's going to be a lot more questions on it than there would have been if I'd been in a competition in high school." (S5)

4.1.2 Training and Competition Stress

Training and competition stress can be divided into six categories: expecting and afraid of the big game at the same time, working hard for the needs of the team, high standards and demands from the coach, dwelling on a past failure, closed-off training environment and coping with intense, monotonous, repetitive training. Training and competing in sports are the main tasks of athletes, and the stressors derived from them are the main, direct, and obvious ones that athletes need to face.

Pressure from competition is a common stressor for athletes, especially at high levels. For adolescent athletes, competing in a large competition for the first time, such as the 'National Games', is of great significance. In addition, competitions involving further education or future development, such as sports exams, are also of great significance. On the other hand, Provincial Games and Provincial Championships are generally practice competitions, and adolescent athletes are not easily able to feel the pressure. With competitions of great significance, coaches often have high demands on athletes, and this demand is a kind of pressure from outside. Due to their age, adolescent athletes may be playing in high-level competitions for the first time and lack of relevant participation experience, which makes them easily to experience extremely stressful emotions. The emotional performance of adolescents is two-sided, sometimes intense and wild, and the same stimulus causes a much greater relative intensity of emotional response in them (Lin, 2018). Under the influence of multiple factors, adolescent athletes' attitudes towards big competitions are both expected and show a very afraid emotional experience.

The competition itself often triggers a sense of "responsibility" in athletes, especially in team events, where adolescent athletes tend to put pressure on themselves. For example, in trampoline team competitions, the order in which athletes compete can have varying effects on them, and a teammate's failure earlier in front of them can increase the level of pressure. This

pressure typically does not come from external sources but stems from the athlete's internal sense of collective responsibility. One athlete mentioned:

"My teammate and I, when he failed, then that pressure definitely falls on me. If I fail too, then our team will fail." (Y8)

The conflicting nature of psychological development in adolescence is also reflected in the inability to accurately evaluate one's own potential and character traits, making it difficult to make a comprehensive assessment. Therefore, after an experience of failure in a competition, adolescent athletes may think that they are totally useless and give themselves a very low evaluation, thus losing their self-confidence. In subsequent training or competitions, they are afraid to train or repeat movements that they have failed because of the fear of another failure experience. There were athletic references to related failure experiences:

"It affects me quite a lot because I think about failing a competition and then I get weak. In the end I was supposed to do five sets and then when I did the last set I just thought I can't do it." (L4)

In addition to the pressure arising from competitions, because the adolescent athletes are in the rising period of development, they usually have a large number of training tasks. Athletes' training environments are usually closed, which, combined with high-intensity and repetitive training, can bring psychological depression to young athletes.

Sports training is an essential part of adolescent athletes' sporting career. High-intensity training is a test of the athletes' will, so in the process of experiencing the test, they will have negative emotions of fear and dislike, and feel that it is "a very torturous thing", and even appear to avoid the behaviour. The lack of good recovery after training will also have an impact on subsequent training. In addition to spending a lot of time and energy on training, you also need to pay attention to the results of training. Good training results are an inspiration for adolescents athletes, but at the same time, there is pressure to keep up the good results and to maintain the level of performance in competitions. The mental stability of young athletes can be undermined by good and bad results in training.

"Sometimes because the body's reaction and condition is not so good, that is, after the physical training one day, and then the next day the reaction

is higher, the success rate of the movement and the quality of the movement are lower.” (F2)

4.1.3 Growth Stress

Growth stress included growth and development limitations hindering performance improvement, high expectations of oneself, decision-making primarily controlled by the coach, low autonomy.

Adolescence is the second peak of an individuals’ growth and development, during which the three main aspects are changes in physical appearance, changes in physical functioning, and sexual maturation and development. The effects caused by growth and development vary in different items.

“That length of the legs is a lot longer, and the height, to later practice sparring may help a little bit, because it is that you are necessarily long below the same weight class, in fact, it is still more advantageous, you can hit others, others do not necessarily hit you. I feel okay myself, but actually a lot of people around me are taller than me.” (L3)

In strength-based competition, the increase in height and weight with age is an advantage, but in skill-based programmes such as gymnastics and trampolining, the increase in fitness means having more stable lower body strength with a decrease in flexibility. From time to time, growth and development that does not meet the requirements of the sport causes problems for the adolescent athlete.

Adolescents psychologically divide their selves into ‘ideal self’ and ‘real self’ (Zhu Beili, 2016), which leads adolescent athletes to have too high demands on themselves. They often demand that they can perform normally or even beyond the normal performance in training and competitions, but the gap between the ideal self and the real self makes them feel great pressure from the inside.

Adolescence is also a key period for the development of self-awareness and thinking, and adolescents develop many autonomous ideas. This period is also a period of strong resistance, but as an athlete, the coach mainly arranges everything, which makes the autonomy of adolescent athletes limited, out of respect and fear, they generally do not show resistance to the coach, so this emotion is suppressed in the heart without venting.

4.1.4 Peer Comparison Stress

Peer comparison pressure refers to the easy

influence of good peers around you. Whether in daily training or in the competition, the excellent peers will cause a lot of pressure on the youth. *‘The same start, but I feel he will be a bit better than me, he is a bit better than me, I will be nervous naturally, and after I am nervous, it is easy to affect my play.’ (F2)* They often ask for advice from outstanding peers with outstanding results, but while learning, *‘there is a presence of excellence and it can be an invisible pressure.’ (Y8)* If they find that they are not up to the level of their opponent, it invariably adds to the psychological pressure. An athlete mentioned that,

‘Actually, I think this thing is really quite stressful, he comes over to teach you, and if you can’t do what the other person wants, you will feel very difficult because after all, I’m not at the same level as the other person.’ (Y8)

4.2 Stress Response in Adolescent Athletes

The clearly perceived stress response of adolescent athletes, which is mainly caused by competition stress, is characterised by the three stress responses of pre-competition insomnia, extreme nervousness and afraid before competition, and repeated visions of a failure scenario. And after the competition, if there is a failure experience, there will be fear of the same exercise. In daily training, the reaction of negative approach to training occurs in response to the stress of intense and boring training. The coding results are shown in Table 3.

Table 3. Coding results for stress response

Theme	Sub-theme
Stress response	Pre-competition insomnia (4)
	Extreme nervousness and afraid before competition (7)
	Repeated visions of a failure scenario (8)
	Fear of the same exercise after failure (8)
	Negative approach to training (7)

4.3 Coping Strategies for Adolescent Athletes

Coping styles included pre-competition preparation, training enhancement, self-adjustment, avoidance diversion, confiding and going with the flow. The coding results are shown in Table 4.

Table 4. Coding results for coping strategies

Theme	Sub-theme
Coping strategies	Pre-competition preparation (18)
	Learn about the opponents (8)
	Envisioning the flow of the game (3)
	Anticipating possible mistakes or outcomes during the competition (7)
	Training enhancement (9)
	Targeted training to maintain condition (4)
	Repetitive training to deepen impressions (5)
	Self-adjustment (7)
	Self-reassurance (3)
	Self-encouragement (4)
	Avoidance diversion (13)
	Leisure and entertainment (4)
	Relaxation exercises (5)
	Meditation (3)
	Religious belief (1)
	confiding (16)
	Seeking support from coaches, teammates, or family (16)
	going with the flow (3)
	going with the flow (3)

4.3.1 Pre-Competition Preparation

Pre-competition preparation included learning about the opponents, envisioning the flow of the game and anticipating possible mistakes or outcomes during the competition.

Understanding the opponent before the game is a preparation that most adolescent athletes will carry out, whether it is in the competitive events or in the performance events, the strength and performance of the opponent always affects their mind. When an athlete participated in the National Games for the first time, *'the competition was just completely unknown to the opponent, not knowing the level of the opponent, no confidence in the heart, very nervous.'* (Z9) Therefore, basically, young athletes will know their opponents in advance and best target preparation.

In order to reduce the pressure of the competition, they would pre-vision the competition process in their mind and achieve the effect of desensitisation by repeatedly rehearsing the process of the competition to reduce their anxiety when they actually face the competition. Due to the fear of failure or the concern about the result of the competition, they will also anticipate the possible mistakes in advance in order to find the suitable measures to cope with them. And they also anticipate the possible outcome of the game, reducing the strong sense of shock that the outcome of the

game can have on one's self. Sometimes, however, the process of envisioning mistakes and the outcome of a game can also be quite counter-productive, as being overly concerned with the outcome of a game increases the experience of game stress.

4.3.2 Training Enhancement

Training enhancement includes targeted training to maintain condition and Repetitive training to deepen impressions.

Training enhancement is essential before a race. However, as daily high-intensity training consumes a lot of energy, in order to preserve energy and maintain a good mental state, the amount of training will usually be reduced and targeted training done before the competition. However, for young athletes who have failed before, in order to overcome the fear of failure, *'the solution is to do it over and over and over again, and then dare yourself to do it'* (Z10), so that the movement becomes *'muscle memory'*. Even in a *'blank state of mind, I can do it'* (Z10).

4.3.3 Self-Adjustment

Self-adjustment included self-reassurance and self-encouragement. Self-adjustment includes various forms, such as self-suggestion, self-reassurance, and self-encouragement. However, in this study, only the forms of self-reassurance and self-encouragement were observed.

Adolescent athletes' self-reassurance primarily comes from comparing themselves with others and finding positive meaning in failure. When comparing themselves to others, comparing themselves to those who are better than them may lead to negative emotions but can be motivating; comparing themselves to those who are worse than them can lead to the idea that they are not so bad, which can lead to self-improvement.

"At that time, I had a friend who had been practicing shot put from the beginning, and he was in the same year as me. Whenever I competed against him, I never thought about winning the championship because he was really good. But compared to others, I wasn't too bad, so I wasn't particularly nervous." (L3)

Self-adjustment can also be achieved through a change in the way of thinking and a change in the response to the pressure of an impossible opponent or a failed outcome.

Self-encouragement is a more common form of self-adjustment. In addition to looking for their own strengths, young athletes will set themselves up with some self-rewards for self-satisfaction.

"Set up something better for myself, if I'm going to stick with it this week, I'm going to give myself a reward. I think the stage rewards are more useful for me." (S6)

4.3.4 Avoidance Diversion

Avoidance and diversion include leisure and entertainment, relaxation exercises, meditation, and religious belief.

The main method of relaxation is listening to music, both in the period close to the competition and during daily training, adolescent athletes tend to listen to music to relax their minds and distract their attention. Doing relaxation exercises is both a physical and mental adjustment. Meditation before a game is also a common means of distraction. Rather than meditation, it is better described as 'letting go', which is an effective way of coping with extreme tension and inability to think. In addition, one religious athlete, *'would pray to God very religiously and then I think I can definitely do it, it's a bit funny but it's true.'* (S5)

Avoidance shifting strategies are usually spontaneous and athletes who use them end up referring to 'focusing on themselves', so avoidance shifting is essentially about shifting

attention to the athlete themselves rather than focusing excessively on the event or thing that is stressing them out.

4.3.5 Confiding

Confiding is the most commonly used coping strategy among adolescent athletes, with 16 reference points. The main targets of confiding are coaches, family members and teammates, which are separated by seniors and peers.

During adolescence, the psychological level is half-mature and half-naïve, and it is not common for adolescent athletes to communicate with their coaches on their own initiative out of eagerness to get away from the help of adults and fear of coaching status, but the communication with the coaches has the best results after that. Particularly as competitions approach, a coach's encouragement can have a significant impact: *"A bit of encouragement from the coach was the most effective at that moment, and it made me much less afraid"* (F2). Adolescent athletes rarely talked to their families when dealing with the stress of competition, but they were more likely to choose to talk to their families when faced with training or environmental problems. Confiding with teammates was the most used form of confiding by adolescent athletes, but it was not as effective as it should have been. Communication with peers generally has a comforting effect, and 'empathy' can to some extent alleviate the pressure of young athletes in daily training. A highlight is the communication with seniors, a first-time participant in the National Games in the evening of the preliminaries failed to seek help from his seniors, after talking to him, he felt:

"I was still nervous, but I knew what I had to do, so I had a purpose. When your mind is unclear, it's easy to fail, but when you know what you need to do, your chances of success are much higher" (D1).

Seniors on the same team with similar experiences are a relatively large selection of young athletes to confide in and get relatively good results.

4.3.6 Going with the Flow

Among adolescent athletes, there is a special situation in which they are not sensitive to the perception of stress and do not make clear coping measures. That is, when they experience a stressful situation, they go with the flow, do not make any coping treatment, and complete

the training or competition as usual.

4.4 Discussion

4.4.1 Discussion

Based on the research results, the stressors for adolescent athletes can be categorized into four types: academic-sport dual pathway stress, training and competition stress, growth stress, and peer comparison stress. These stressors influence and interact with each other, and under certain conditions, they may transform. For example, the pressure of high standards and demands from coaches in training and competition stress may cause adolescent athletes to spend more time and energy on training, thus creating problems on how to divide their energy, which in turn transforms into academic-sport dual pathway stress. The stress response of adolescent athletes is basically related to competition stress, and the stressors derived from competition are what they mainly need to cope with and alleviate. In Kristiansen and Roberts' (2010) study, the stressors faced by elite adolescent athletes during the Olympic Games were categorised into competition stressors and organisational stressors (e.g., housing, transport, etc.), with the stressors from competition affecting them more. However, in this study, adolescent athletes were generally not affected by organizational stressors, with competition-related stressors being the primary influence. In studies of adult athletes' stressors, one significant stressor is "sports injuries" (Zhang, 2011). However, in this study, adolescent athletes were largely unaffected by sports injuries, likely due to their relatively shorter training history and better recovery ability. Nonetheless, the psychological and physiological development during adolescence can have a dual impact, often leaving young athletes struggling. According to Zhang's (2019) research on adolescent stress coping, academic pressure and peer pressure are significant sources of stress for adolescents. Although training and competition tasks occupy much of their time, completing academic tasks remains a crucial aspect during adolescence, leading to academic-sport dual pathway pressure. Meanwhile, peer or classmate pressure is a significant factor at any stage of adolescence (Zhang, 2019), and this is even more pronounced in the relatively closed environment of sports teams compared to schools.

Adolescent athletes' coping strategies can be

categorized into six types: pre-competition preparation, training enhancement, self-adjustment, avoidance diversion, confiding and going with the flow. The strategies of pre-competition preparation, training enhancement, self-adjustment, avoidance diversion, and confiding are consistent with those observed in studies of adult athletes (Liu, 2013), but there are differences in sub-themes. For example, under the theme of "self-adjustment", adult athletes may use strategies such as self-suggestion and self-criticism, but these are not clearly reflected in adolescent athletes. This may be due to their limited competition experience and lack of systematic psychological training. The appearance of the unique theme of "going with the flow" could be attributed to the lower level of stress perception among some adolescent athletes, who do not experience strong stress reactions. For them, the existence of stressors is not significant enough to impact their performance. In coping strategies, adolescent athletes prefer confiding as their main approach, though they do not always choose the most appropriate person to confide in. When under stress, they tend to seek out someone willing to listen, even if the effectiveness of this approach may be limited. In most cases, adolescent athletes tend to use avoidance coping strategies, which similar with Zhang's (2011) findings. Compared to directly confronting stress, choosing avoidance coping strategies can effectively reduce the intensity of stress reactions, helping to maintain a relatively stable emotional state. However, this can also lead to issues. Failure to confront competition failures may result in fear or dislike during subsequent training, which can negatively affect performance, creating a vicious cycle. Erikson's psychosocial development theory suggests that adolescence is an important period for the formation of identity, during which individuals face psychological conflicts between identity and role confusion. Therefore, adolescents need to achieve a sense of self-identity during this period by integrating different aspects of their self-perception. If they consistently rely on avoidance coping strategies, it could hinder the development of their self-identity.

It is worth mentioning the huge impact that coaches have in terms of stress and coping strategies. As an extremely specific and important role in an athlete's sport career, the

coach not only puts pressure on the athlete in terms of success criteria and intensity of training, but also imposes academic demands on the athlete, and is the biggest influence on the athlete's decision-making. In the coping styles confabulation theme, more than one subject mentioned that maintaining a positive relationship with a coach helps to cope with stress, which is consistent with the findings of Kristiansen and Roberts (2010) in their study of adolescent athletes. In a study by Duvinya et al. (2021) with adolescent athletes in winter sports, coach support had the greatest impact effect on the professional development of adolescent athletes. This suggests that maintaining a positive coach-athlete relationship can help to help athletes have the best possible sporting experience.

4.4.2 Significance and Innovation of the Study

In previous studies in China, quantitative research methods have been predominantly used to explore stress sources and coping strategies among adolescent athletes, while qualitative research in this area is relatively rare and is mainly seen in foreign studies. The differences in athletes' developmental experiences between countries, as well as cultural variations, may limit the applicability of these research findings domestically. This study adopts a qualitative research approach, focusing primarily on exploring from the perspective of adolescent athletes themselves rather than from the researchers' perspective, making the results more closely aligned with the actual experiences of the research subjects.

4.4.3 Limitations and Future Prospects

This study has some limitations in terms of data selection and analysis. Due to practical constraints, the study employed convenience sampling and conducted online interviews with only 10 adolescent athletes, resulting in a lack of comprehensiveness in data collection and limiting deeper analysis. Additionally, the study lacks participants in the mid-adolescence stage, which reduces the representativeness of the data. The gender ratio of participants is also imbalanced, with a 7:3 male-to-female ratio, making it difficult to determine whether there are differences between male and female athletes based on the available data. Furthermore, due to the impact of the pandemic, the interviews were conducted online, which may have caused trust issues among

participants. Considerable time was needed to build a sense of security at the beginning of the interviews, adding a burden to the later data screening process. The limited number of interviewees also makes it difficult to ensure data saturation, and the study primarily used thematic analysis for manual coding, which may introduce subjectivity.

In future research, conditions permitting, the number of participants could be increased, with a balanced gender ratio, and more comprehensive data could be collected and analysed using appropriate coding tools. Additionally, combining quantitative research methods could enhance the comprehensiveness of the research findings.

5. Conclusion

In conclusion, this study identified four main categories of stressors affecting adolescent athletes: academic-sport dual pathway stress, training and competition stress, growth stress, and peer comparison stress. These stressors reflect the unique pressures faced by young athletes balancing academic demands and high-level sports competition. Additionally, six coping strategies were identified: pre-competition preparation, training enhancement, self-adjustment, avoidance and diversion, confiding, and going with the flow. Among these, confiding was the most commonly adopted strategy, indicating a tendency towards avoidance-based coping. This study underscores the complexity of stress experienced by adolescent athletes and highlights the importance of positive relationships with coaches, which are associated with improved sports experiences.

For future research, it is recommended to expand the participant base to improve data saturation and diversity, especially considering the gender balance and inclusion of mid-adolescents. Employing a mixed-methods approach that combines quantitative and qualitative data could provide a more comprehensive understanding of stress and coping in this demographic. Further research could also explore the long-term effects of reliance on avoidance coping strategies, especially concerning identity development in adolescent athletes.

References

Anshel, M. H. (2001). Qualitative validation of a model for coping with acute stress in sport.

- Journal of Sport Behavior*, 24(3), 223-223.
- Bianco, T., Malo, S., & Orlick, T. (1999). Sport Injury and Illness: Elite Skiers Describe Their Experiences. *Research Quarterly for Exercise and Sport*, 70(2), 157-169. <https://doi.org/10.1080/02701367.1999.10608033>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Chen, J., & Wen, H. (2007). The qualitative research on the perceptions of stress of excellent ping-pong players. *Journal of Guangdong Polytechnic Normal University*, (07), 49-55. <https://doi.org/CNKI:SUN:GDMZ.0.2007-07-013>
- Ding, X. (2007). The main psychological abilities that elite athletes should possess. *China Sports Coaches*, (03).
- Dugdale, J. R., Eklund, R. C., & Gordon, S. (2002). Expected and unexpected stressors in major international competition: Appraisal, coping, and performance. *The Sport Psychologist*, 16(1), 20-33. <https://doi.org/10.1123/tsp.16.1.20>
- Du, W., Shen, Y., & Qiu, J. (2021). Social support for youth athletes in winter sports. *Journal of Beijing Sport University*, (12), 135-146. <https://doi.org/10.19582/j.cnki.11-3785/g8.2021.12.012>
- Ebata, A. T., & Moos, R. H. (1991). Coping and adjustment in distressed and healthy adolescents. *Journal of Applied Developmental Psychology*, 12(1), 33-54. [https://doi.org/10.1016/0193-3973\(91\)90029-4](https://doi.org/10.1016/0193-3973(91)90029-4)
- Gaudreau, P., & Blondin, J. (2002). Development of a questionnaire for the assessment of coping strategies employed by athletes in competitive sport settings. *Psychology of Sport and Exercise*, 3(1), 1-34. [https://doi.org/10.1016/S1469-0292\(01\)00017-6](https://doi.org/10.1016/S1469-0292(01)00017-6)
- Gaudreau, P., Blondin, J., & Lapierre, A. (2002). Athletes' coping during a competition: Relationship of coping strategies with positive affect, negative affect, and performance-goal discrepancy. *Psychology of Sport and Exercise*, 3(2), 125-150. [https://doi.org/10.1016/S1469-0292\(01\)00015-2](https://doi.org/10.1016/S1469-0292(01)00015-2)
- Gould, D., Dieffenbach, K., & Moffett, A. (2002). Psychological Characteristics and Their Development in Olympic Champions. *Journal of Applied Sport Psychology*, 14(3), 172-204. <https://doi.org/10.1080/10413200290103482>
- Gould, D., Jackson, S., & Finch, L. (1993). Sources of stress in national champion figure skaters. *Journal of Sport & Exercise Psychology*, 15(2), 134-159. <https://doi.org/10.1123/jsep.15.2.134>
- He, W. (2010). The research on college athletes' competitive stress coping processes (Master's thesis, Beijing Sport University). CNKI. <https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD2010&filename=2010123348.nh>
- Holt, N. L., & Hogg, J. M. (2002). Perceptions of stress and coping during preparations for the 1999 Women's soccer world cup finals. *The Sport Psychologist*, 16(3), 251-271. <https://doi.org/10.1123/tsp.16.3.251>
- Huang, X. (2006). Stress, coping and happy enterprising individual. *Journal of Southwest China Normal University (Humanities and Social Sciences Edition)*, (03), 1-6. <https://doi.org/10.13718/j.cnki.xdsk.2006.03.002>
- Krohne, H. W., & Hindel, C. (1988). Trait anxiety, state anxiety, and coping behavior as predictors of athletic performance. *Anxiety Research*, 1(3), 225-234. <https://doi.org/10.1080/08917778808248721>
- Lazarus, R., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Li, W., Mao, Z., & Zhou, Z. (2005). Prospective and condition of coping in sports field in China. *China Sport Science*, (02), 82-85, 94. <https://doi.org/10.16469/j.css.2005.02.023>
- Lin, C. (2018). *Developmental psychology*. People's Education Press.
- Liu, L. (2013). Qualitative research on sources of stress and coping strategies of national badminton players in games (Master's thesis, Capital University of Physical Education and Sports). CNKI. <https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD201302&filename=1013208133.nh>
- Madden, C. C., Summers, J. J., & Brown, D. F.

- (1990). The influence of perceived stress on coping with competitive basketball. *International Journal of Sport Psychology*, 21(1), 21-35.
- PENLEY, J. A., TOMAKA, J., & WIEBE, J. S. (2002). The association of coping to physical and psychological health outcomes: A meta-analytic review. *Journal of Behavioral Medicine*, 25(6), 551-603. <https://doi.org/10.1023/a:1020641400589>
- Ren, S., & Bu, Y. (2022, March 25). Research on the driving mechanism and promotion path of the “youth-oriented” trend in Olympic sports. In Proceedings of the 12th National Sports Science Conference — Special Report (Sports Information Section). Chinese Society of Sports Science, Rizhao, Shandong, China. <https://doi.org/10.26914/c.cnkihy.2022.004907>
- Yang, K., & Wang, T. (2022). Analysis of the medal characteristics of Chinese delegation in Tokyo Olympic Games. *Liaoning Sport Science and Technology*, (01), 7-13. <https://doi.org/10.13940/j.cnki.lntykj.2022.01.002>
- Yoo, J. (2000). Factorial validity of the coping scale for Korean athletes. *International Journal of Sport Psychology*, 31, 391-404.
- Zhang, F. (2013). Comparative study of adolescent athletes and adult athletes' stressors and coping style (Master's thesis, Hebei Normal University). CNKI. <https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD201402&filename=1013261518.nh>
- Zhang, L. (2019). A study on stress coping and social support among adolescents aged 13-22. *Education Modernization*, (83). <https://doi.org/10.16541/j.cnki.2095-8420.2019.83.124>
- Zhu, B. (2016). *Psychology*. East China Normal University Press.