ORIGINAL ARTICLE

Psychological characteristics of pre-match competitive Tai Chi athletes

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ABSTRACT

Background: The aims were to investigate and compare the pre-match psychological characteristics in both genders and three levels of competitive Tai Chi athletes. Methods: They were 40 competitive Tai Chi athletes (20 males and 20 Females), aged 19-24 years old at the school of physical education of Zhengzhou university, China. Results: There was no significant difference in the pre- match psychological characteristics between genders. The study found that the high-level competitive Tai Chi athletes were better than the low level of Tai Chi athletes in each dimension of the questionnaire, and there were significant differences in the five-factor mindfulness questionnaire, contest anxiety questionnaire and trait motor self-confidence scale. There was no significant difference in the positive mood between different sports levels in the mood measurement scale, but there was a significant difference between the national and the second level athletes in the negative mood dimension. There was a significant difference in the total score of mood disturbance between first and second level. Conclusions: there was no significant between males and females in each level. The five-factor mindfulness questionnaire mood measurement scale, contest anxiety questionnaire and trait motor self-confidence scale of national level athletes were significantly higher than other levels.
Keywords: Psychological quality, Competitive Tai Chi athletes, Pre-Match psychological characteristics.

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INTRODUCTION

The importance of pre-match psychological preparation for competitive Tai Chi athletes has been emphasized in multiple studies. The content and principles of pre-match preparation for Tai Chi athletes were discussed, including pre-match psychological preparation and preparation procedures. The importance of psychological preparation was emphasized (Qiu, 2001), and it was pointed out that the characteristics of Tai Chi and the requirements of the competition make psychological factors have a significant impact on athletes' performance (Li et al., 2024; He, 2016). This indicates that athletes of different sports will experience certain psychological tension and state adjustment before the competition (He, 2016). Further emphasis was placed on the impact of psychological state on athletes' performance, and relevant suggestions were proposed. (Yao, 2001) emphasized the importance of psychological characteristics of excellent athletes, pre competition psychological preparation, and how to improve athletes' competitive level through psychological regulation (Ge et al.,2019; Lu, 2014; Zhang, 2013). In summary, the psychological characteristics of competitive Tai Chi athletes before the competition are crucial for their performance in the competition. Through psychological training and preparation, athletes can maintain a good competitive state in high-pressure competition environments and fully unleash their technical and skill potential.

Pre-match psychological characteristics refer to the mental state and characteristics of athletes before the start of a competition or competitive activity. These characteristics directly affect the athlete's performance in the competition, ability to cope with pressure, and final competitive results (Qu et al., 2023). The innate unconditioned reflex instinct in psychological characteristics can provide physiological driving force or the formation of mental state. The acquired conditioned reflex instinct, skills, physical fitness and other abilities can provide the potential possibility of completing tasks for the mental state, while personality can provide the potential for completing tasks. Accomplishing group and long-term goals provides individuals with unique habitual attitudes and behavioural responses (Erin et al., 2022). The pre-match psychological characteristics in this article refer to the emotional experience of athletes caused by various internal and external stimuli and the athletes' cognition of various stimuli before participating in the competition. Psychological adjustment ability refers to the ability of athletes to adjust their mental state in a timely manner according to the situation during the competition. Good mental adjustment ability can help athletes maintain a positive and optimistic attitude when encountering difficulties and setbacks, so as to perform at their best level. Questionnaire measurement revealed that athletes often face tremendous pressure during competitions, which may come from winning the competition, not wanting to lose the competition, or fear of expectations and pressure. This pressure can lead to anxiety and tension, affecting athlete performance (Tan, 2023).

Previous research using the Eysenck Personality Scale found that competition anxiety can manifest as nervousness, worry, restlessness, and even nausea. This emotional state may affect athletes' attention and execution abilities (Peter et al., 2023). Previous research has found through interviews and observations that competitive athletes' confidence levels are critical to their performance. Under confidence may lead to poor performance, while overconfidence may also lead to problems (Huang et al., 2023). Previous studies combined qualitative and quantitative research methods, from in-depth interviews to biofeedback to psychological tests, to gain a more comprehensive understanding of athletes' pre-match psychological characteristics and use multi-level and multi-angle research methods to reveal the psychological pressure athletes may face before competition. and challenges (Wang, 2010; Xuemaleg, 2023). Other studies have shown that social and emotional factors play a key role in psychological problems. By understanding the social support system and emotional state of athletes, factors related to

psychological problems can be accurately identified. Multidisciplinary research provides a more comprehensive perspective, combined with the knowledge of sports psychology, neuroscience and biology can help to deeply understand the psychological mechanism of athletes. (Emily et al., 2023; Yu et al., 2023; Katherine et al., 2022; Kearnan et al., 2022; M.SC et al., 2022).

Meta-analysis has been found that mindfulness can effectively improve sports performance, reduce sports anxiety, and enhance self-efficacy. Mindfulness emphasizes comprehensive awareness and acceptance of the current situation, which can be seen as a mindset of facing challenges and overcoming difficulties. Explored the potential role of mindfulness in improving athletic performance. Introduce the principles and contents of mindfulness training, review the research progress of mindfulness training at home and abroad, especially the practical application and achievements of mindfulness training in the field of competitive sports (Zhang, 2017). Mindfulness training can not only alleviate athletes' psychological pressure, but also help athletes maintain their best state during training (Wang, 2019). Mindfulness training has a positive effect on systematically cultivating and improving the competition focus ability of excellent athletes (Zhang, 2017). Mindfulness training can improve the attention and emotional regulation ability of young athletes (Guo et al., 2021). Mindfulness training, as an emerging psychological intervention method, is widely used in various fields (Jie, 2024). Mindfulness also has different levels of intervention effect in sports competition.

According to the current situation and trend of Wushu competition, combined with the characteristics of Tai Chi, this study starts from the personality and psychological characteristics of competitive Tai Chi athletes, and measures the emotional experience of athletes caused by internal and external stimuli and athletes' cognition of various stimuli before participating in the competition through five-factor mindfulness questionnaire (Si et al., 2014), mood measurement scale (Zhang , 2013), contest anxiety questionnaire (Martens, 1977) and trait motor self-confidence scale (Yuan , 2005). Objectives of the research were to investigate and compare the pre-match psychological characteristics between both genders and three levels in competitive Tai Chi athletes.

MATERIAL AND METHODS

This study was observational and Quasi-Experimental Designs, Athletes from Zhengzhou University in Zhengzhou, China, who would participate in the "*2024 National Wushu Taolu Championships*" from 22 to 29 June, 40 competitive Tai Chi athletes.

Participants

This study selected 40 competitive Tai Chi athletes who met the inclusion criteria, including 20 females and 20 males, to ensure the gender balance. Athletes from Zhengzhou University in Zhengzhou, China, who would participate in the "*2024 National Wushu Taolu Championships*" from 22 to 29 June. There were differences in the competitive level of Tai Chi athletes; National, first and second level.

Data collection procedure

The research of this study was to measure the psychological characteristics of competitive Tai Chi athletes through the five-factor mindfulness questionnaire, the contest anxiety questionnaire, the mood measurement scale and the trait motor self-confidence scale and evaluate the psychological characteristics of different competitive Tai Chi athletes before the competition. The collected data was prior to the collection date, before collecting the date, all were tested reliability by test-retest.

Instruments

There were 4 questionnaires in this study including. The Five-Factor Mindfulness Questionnaire, Mood Measurement Scale, Contest Anxiety Questionnaire, Trait Motor Self-Confidence Scale. The details are as follows.

Five-Factor Mindfulness Questionnaire

The five-factor mindfulness questionnaire has a total of 39 questions, using a five-point Richter score, (from match to non-compliance with the score of 1-5 points), some questions are positive scores, some questions are reverse scores, the higher the score, the more obvious the effect of mindfulness training, and vice versa. In this study, the reliability of the mood measurement scale was 0.93.

Mood Measurement Scale

The study used the Chinese Mood Measurement Scale revised by Zhu Beili (1995) to evaluate the changes in the mood state of the test athletes before and after the intervention. The mood measurement scale uses a 5-point Richter score, but the corresponding score is from 0 to 4, and the sum of the seven dimensions plus 100 is the sum of the individual's mood states. In this study, the reliability of the mood measurement scale was 0.92.

Contest Anxiety Questionnaire

The study employed the contest anxiety questionnaire, which divides anxiety into three components: cognitive anxiety, somatic anxiety, and a "*related component*" – self-confidence. Self-confidence, which is often the opposite of cognitive anxiety, was another important factor in managing stress. To score CSLA-2, all points for each item except item 14 were calculated as indicative value, as item 14 was where you "*reverse*" the score. In this study, the reliability of the contest anxiety questionnaire was 0.91.

Trait Motor Self-Confidence Scale

The trait motor self-confidence scale was used to measure athletes' confidence level. Participants answer the questions on a 3-scale scale, with a minimum score of 10 points and a maximum score of 40 points. In this study, the reliability of the Trait Motor Confidence Scale was 0.91.

Data analysis

The demographics of the participants were presented as mean and standard deviation including age, weight, height, training duration, sports training duration, frequency of Sport training. Frequencies or numbers described the sports level and gender of the participants. Five-Factor Mindfulness Questionnaire, the contest anxiety questionnaire, the trait motor self-confidence scale, and the mood measurement scale were also expressed as mean and standard deviation. Multivariate ANOVA was used to compare athletes of different genders and levels. Evaluate the normal distribution of all variables by Shapiro-Wilk test, a statistical analysis at .05.

RESULTS

The baseline of characteristics showed that there were no significant differences between the participants in the two groups of competitive Tai Chi athletes including age, weight, height, training experience, training period, training frequency. Only weight and height were significant differences. Table 1.

As can be seen from Table 2, the higher the score of the five-factor mindfulness questionnaire, the more obvious the effect of mindfulness training, and the lower the negative it was. A higher score on the mood

measurement scale indicates a negative state of mind for the athlete and vice versa. Higher scores on the contest anxiety questionnaire indicate higher cognitive and somatic anxiety and state self-confidence. The higher the exercise self-confidence score, the more confident the subject was.

Table 1. Characteristics of competitive Tai Chi athletes.

Characteristics	**Male Number**	**Female Number**	**Total**
National athlete	4	4	8
First level athlete	6	6	12
Second level athlete	10	10	20
	Male Mean (SD) (n = 20)	**Female Mean (SD) (n = 20)**	***p* - value**
Age (year)	20.55 (0.92)	20.32 (0.99)	.22
Weight (Kg)	71.22 (5.24)	55.21 (2.33)	.002**
Height (cm)	171.22 (2.44)	160.55 (2.32)	.002**
Training duration (years)	4.55 (0.98)	4.63 (0.77)	.12
Sports training duration (hours/day)	6.21 (1.11)	6.11 (1.22)	.72
Frequency of Sport training (days/week)	5.11 (1.75)	5.27 (1.55)	.77

*Note. **p < .05, significant at .01.*

Table 2. Comparison of the outcome measurements of competitive Tai Chi athlete between gender.

Outcome measurements	**Mean (SD)**		***p* - value**	**Total (n = 40)**
	Male (n = 20)	**Female (n = 20)**		
Five-Factor Mindfulness Questionnaire				
Observe	23.67(4.33)	23.83(4.32)	.471	23.72(4.10)
Description	21.58(4.03)	21.57(4.36)	.486	21.57(4.11)
Act consciously	22.42(3.75)	22.17(3.54)	.504	22.24(3.63)
non-judgment	21.42(5.09)	21.33(4.16)	.571	21.37(4.77)
Not reacting	21.83(3.19)	21.91(3.06)	.719	21.87(3.10)
Total	110.92(4.23)	110.81(4.26)	.882	110.85(4.24)
Mood Measurement Scale				
Positive mood	21.50(8.02)	21.47(8.83)	.607	21.48(8.07)
Negative mood	29.96(8.82)	29.53(8.61)	.283	29.72(8.77)
Total mood disturbance total score	108.46(20.43)	108.06(22.63)	.564	108.33(21.57)
Contest Anxiety Questionnaire				
Cognitive status anxiety	22.83(1.15)	22.83(1.12)	.627	22.83(1.14)
Somatic state anxiety	22.41(1.77)	22.48(1.34)	.695	22.45(1.55)
State self-confidence	23.83(1.62)	23.87(1.55)	.566	23.85(1.57)
Total	23.02(1.24)	23.06(1.22)	.605	23.04(1.22)
Trait Motor Self-Confidence Scale				
Trait motor task confidence	17.68(5.83)	17.83(5.18)	.921	17.75(5.46)
Trait sports coping with self- confidence	21.13(8.80)	21.63(8.57)	.655	21.44(8.66)
Total sports self-confidence score	29.81(13. 40)	28.93(12.33)	.847	29.85(12.99)

*Note. *p < .05, significant at .05.*

As can be seen from Table 3, there was no significant difference in the four scales between athletes of different genders and different sports levels. ($p > .05$)

As can be seen from Table 4, competitive Tai Chi athletes at different levels of exercise showed significant differences in the following items. In each dimension of the five-factor mindfulness questionnaire, national level athletes scored significantly higher than first and second level athletes. In terms of mood level, there was a significant difference between the national athletes and the second level athletes in terms of negative mood. There was a significant difference between first level and second level athletes in total mood disturbance total score. There were significant differences in competition anxiety level and the trait motor self-confidence scale.

Table 3. Comparison of the outcome measurements of competitive Tai Chi athlete between gender in each level.

Variable	Athletic ratings	Segment items	Male Mean (SD)	Female Mean (SD)	*p* - value
Five-Factor Mindfulness Questionnaire	National (n = 4)	Observe	23.53(0.32)	23.23(1.12)	.712
		Description	22.57(0.36)	22.32(1.33)	.532
		Act consciously	23.37(0.54)	23.28(1.33)	.529
		non-judgment	22.63(0.16)	22.42(1.22)	.424
		Not reacting	22.71(0.06)	22.42(0.06)	.450
		Total	114.81(0.33)	113.67(1.02)	.277
	1st level (n = 6)	Observe	23.03(1.12)	22.93(1.12)	.612
		Description	22.12(1.33)	21.92(1.33)	.514
		Act consciously	23.08(1.33)	22.88(1.33)	.536
		non-judgment	22.02(1.22)	21.82(1.22)	.416
		Not reacting	22.32(0.06)	22.12(0.06)	.422
		Total	112.57(0.32)	111.67(0.88)	.371
	2nd level (n = 10)	Observe	22.02(3.32)	21.73(3.32)	.633
		Description	21.27(3.36)	21.07(3.36)	.627
		Act consciously	21.77(2.54)	21.77(3.54)	.622
		non-judgment	21.23(3.16)	21.03(3.16)	.548
		Not reacting	21.01(2.06)	20.81(3.06)	.427
		Total	107.3(2.02)	106.41(2.02)	.408
Mood Measurement Scale	National (n = 4)	Positive mood	22.42(5.33)	22.41(5.83)	.764
		Negative mood	23.22(15.0)	22.53(15.04)	.780
		Total	109.86(12.63)	109.33(11.63)	.889
	1st level (n = 6)	Positive mood	21.31(7.83)	21.21(8.83)	.550
		Negative mood	29.47(19.04)	29.07(15.04)	.609
		Total	108.16(21.63)	108.06(20.63)	.429
	2nd level (n = 10)	Positive mood	21.01(8.83)	21.01(4.43)	.337
		Negative mood	28.77(20.04)	28.77(21.04)	.350
		Total	105.26(22.63)	105.26(27.63)	.429
Contest Anxiety Questionnaire	National (n = 4)	Cognitive status anxiety	19.83(1.12)	19.73(1.12)	.345
		Anxiety about physical status	19.45(1.34)	19.55(1.34)	.237
		State self-confidence	24.84(1.55)	24.54(1.55)	.267
		Total	21.37(1.02)	21.27(1.55)	.117
	1st level (n = 6)	Cognitive status anxiety	22.15(1.12)	22.35(1.12)	.345
		Somatic state anxiety	22.23(1.34)	22.35(1.34)	.237
		State self-confidence	21.24(1.55)	21.44(1.55)	.267
		Total	21.87(1.42)	22.04(1.33)	.128
	2nd level (n = 10)	Cognitive status anxiety	24.33(1.12)	24.53(1.12)	.325
		Anxiety about physical status	24.25(1.34)	24.45(1.34)	.227
		State self-confidence	19.22(1.55)	19.27(1.55)	.227
		Total	22.6(1.33)	22.75(1.43)	.177
Trait Motor Self-Confidence Scale	National (n = 4)	Trait motor task confidence	21.63(4.18)	21.73(3.19)	.361
		Trait sports coping with self-confidence	33.73(5.52)	33.73(3.52)	.515
		Total	31.73(11.32)	31.73(12.32)	.401
	1st level (n = 6)	Trait motor task confidence	17.33(2.19)	17.23(2.39)	.361
		Trait sports coping with self-confidence	31.23(2.52)	31.33(2.32)	.615
		Total	29.23(2.32)	29.43(2.42)	.601
	2nd level (n = 10)	Trait motor task confidence	15.73(5.19)	14.73(5.19)	.515
		Trait sports coping with self-confidence	28.43(8.52)	28.43(8.52)	.401
		Total	22.53(12.32)	23.53(12.32)	.361

*Note. *p < .05, significant at .05.*

Table 4 Comparison of the outcome measurements of competitive Tai Chi athlete between levels

Variable	Dimension	Mean (SD)			*p* - value		
		National (n = 8)	1st level (n = 12)	2nd level (n = 20)	National vs. 1st level	National vs. 2nd level	1st level vs. 2nd level
Five-Factor Mindfulness Questionnaire	Observe	23.38 (0.72)	22.98 (0.62)	21.88 (3.32)	.002**	.002**	.002**
	Description	22.45 (0.87)	22.02 (0.93)	21.17 (3.36)	.007**	.002**	.007**
	Act consciously	23.33 (0.94)	22.98 (0.93)	21.77 (2.54)	.008**	.002**	.002**
	Non-judgment	22.53 (0.77)	21.92 (0.87)	21.13 (3.16)	.002**	.002**	.080
	Not reacting	22.57 (0.06)	22.22 (0.06)	20.91 (2.56)	.002**	.002**	.002**
	Total	114.26 (0.08)	112.12 (0.05)	106.86 (2.33)	.002**	.002**	.002**
Mood Measurement Scale	Positive mood	22.42 (5.58)	21.26 (8.33)	21.01 (6.63)	.596	.153	.358
	Negative mood	22.88 (15.04)	24.27 (17.04)	28.77 (20.54)	.304	.002**	.454
	Total mood disturbance total score	109.60 (12.13)	108.11 (21.13)	105.26 (25.13)	.384	.051	.046*
Contest Anxiety Questionnaire	Cognitive status anxiety	19.78 (1.12)	22.25 (1.12)	24.43 (1.12)	.002**	.002**	.002**
	Somatic state anxiety	19.50 (1.34)	22.29 (1.34)	24.35 (1.34)	.002**	.002**	.002**
	State self-confidence	24.69 (1.55)	21.35 (1.55)	19.23 (1.55)	.002**	.002**	.002**
	Total	21.32 (1.05)	21.96(0.88)	22.67 (0.72)	.002**	.002**	.002**
Trait Motor Self-Confidence Scale	Trait motor task confidence	21.68 (3.69)	17.28 (2.13)	15.23 (5.18)	.002**	.002**	.002**
	Trait sports coping with self-confidence	33.73 (4.57)	31.28 (2.52)	28.43 (8.57)	.002**	.002**	.019*
	Total sports self-confidence score	21.73 (11.33)	29.33 (2.33)	22.53 (12.33)	.020*	.002**	.002**

*Note. *p < .05, significant at .05. ** p < .05, significant at .01.*

DISCUSSION

In the five-factor mindfulness questionnaire, the mood measurement scale, the contest anxiety questionnaire and trait motor self-confidence scale, the results showed that there was no significant difference in mindfulness level between genders and three levels of athletic Tai Chi athletes (Cai, 2023).

There were significant differences in the pre-match psychological characteristics of competitive Tai Chi athletes with different sports levels in the five-factor mindfulness questionnaire, mood measurement scale, contest anxiety questionnaire and trait motor self-confidence scale. In the five-factor mindfulness questionnaire, the national athletes were significantly better than the first and second level athletes in five dimensions and total scores and can maintain concentration and calm in the competition. However, due to the high training intensity and lack of experience, the observation ability of first and second level athletes was relatively weak (Zhao, 2022). There were also significant differences in the total score dimension among national, first and second level athletes (Qu et al., 2023). In the mood measurement scale, the negative emotions of national athletes were significantly lower than those of other athletes, indicating that the higher the sports level, the better the athletes can control the negative emotions in the competition. This kind of emotion control ability may come from their rich experience and psychological training in high-intensity competitions, while secondary athletes were more likely to have negative emotions under competition pressure due to lack of experience (Zhang, 2022). Generally speaking, high level athletes are higher than low level athletes. This may be related to the emphasis on psychological regulation and emotional management in Tai Chi training, so that athletes can maintain a relatively stable state of mind during the competition (Emily, 2022). The national athletes' cognitive state anxiety and physical state anxiety were significantly lower than those of the first and second level athletes, and their trait motor self-confidence scale were the highest. Because the first and second level athletes lack experience, they have more anxiety before the competition, which affects their performance (Baoyan, 2022). There were also significant differences in the total score dimension between national athletes and first and second level athletes (Li et al., 2022). The self-confidence level of national athletes was significantly higher than that of athletes of other levels, which

may be related to their rich competition experience and strong psychological quality, which enables them to maintain self-confidence and calm in the face of complex competition situations (Bu, 2022).

CONCLUSIONS

This study revealed the significant differences in the five-factor mindfulness questionnaire mood measurement scale contest anxiety questionnaire and trait motor self-confidence scale among competitive Tai Chi athletes of different sports levels. National level athletes, with their rich experience and high-intensity psychological training, perform well in these dimensions, while first and second level athletes perform poorly in some dimensions. There was no significant difference between male and female competitive Tai Chi athletes. These findings provide an important reference for the research of sports psychology and provide a basis for the intervention measures to improve the psychological quality of athletes. For athletes of different competitive levels, the development of personalized psychological training programs, especially mindfulness training, may help to improve their psychological state and self-confidence, and then improve their competitive performance.

AUTHOR CONTRIBUTIONS

All authors contributed significantly to the final version of this manuscript and to the interpretation of the results. Study design: Ruiting Su and Dr.Wannaporn Sumranpat Brady. Data collection: Ruiting Su. Statistical analysis: Ruiting Su. Data interpretation: Ruiting Su and Dr.Wannaporn Sumranpat Brady. Literature search: Ruiting Su. Writing original draft preparation: Ruiting Su. Writing review and editing: All authors. Supervision: Dr.Wannaporn Sumranpat Brady. Project administration: Dr.Wannaporn Sumranpat Brady. All authors have read and agreed to the published version of the manuscript.

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REFERENCES

Baoyan F, XinXin F. (2022).Distributed Simulation System for Athletes, mental Health in the Internet of Things environment . Computation all intelligence and Neuroscience. https://doi.org/10.1155/2022/9186656

Bu, D.R, Zhong, B.G, Zhang, C.Q, et al. (2020). Effect of mindfulness training on the mental health of elite Chinese badminton players: a randomized controlled experimental study. Chinese Journal of Sports Medicine,39(12):944-952.

Cao, X, Li, H.X, Li, Z.G. (2024). Conducted a study on the psychological state and emotional journey of Tai Chi athletes on the field from the perspective of psychological cognition. The 2nd Shaanxi Provincial Sports Science Conference.

Emily K, Stephany C, Darryl C, et al. (2023). Addressing mental health needs of NCAA student-athletes of colour: found a national concepts from the NCAA Summit on Diverse Student-Athlete mental Health and Well- Being . British journal of sports medicine,57(3). https://doi.org/10.1136/bjsports-2022-105891

Emily W, Miller EO, Shayna M, et al. (2022). The Association Between the Female Athlete Triad and mental Health in High School Athletes. Orthopaedic Journal of Sports Medicine,10(5). https://doi.org/10.1177/2325967121S00485

Erin A, Laina N, Matthew B, et al. (2022).A conceptual model for mental health and performance of North American athletes: A mixed methods study . Psychology of Sport and Exercise, (publishable). https://doi.org/10.1016/J.PSYCHSPORT.2022.102176

Ge, P, Zhang, X.(2019). On Psychological Adjustment Before Taekwondo Competitions, Fujian Tea. (09): 161.

Guo, X.K .(2012). A review of the current research status of competitive Tai Chi in China, Young Literature (03): 231.

Guo, Y.J, Song, Y.Y, Yan ,B.B .(2021). Research on the Application Value of Mindfulness Training in Youth Ice and Snow Sports. Youth sports. (02) 68-69.

Huang, Y.J, Dong, R, Yang, Z, et al. (2023).Trait Mindfulness and Mental Health of Professional Athletes: Chain Mediating Effects and Gender Differences . Psychological and Behavioral Research,21(02):273-279.

He, J.L. (2016). Investigation and Analysis of Pre Competition Psychological States of All Athletes from Jilin Sport University, Contemporary Sports Technology, 6 (29), 197-198.

Jie, X.E .(2024). Research on the Application of Mindfulness Training in Junior High School Sports Basketball Training. 2024 Cultural Information Development Forum.

Katherine A, Clea T, Katherine R, et al. (2022). Athlete Identity and mental Health of Student Athletes during COVI D-19 . International Journal of environment mental Research and Public Health,19(24). https://doi.org/10.3390/ijerph192417062

Kearnan M, Jesus M, Paul G, et al. (2022).Effect of mindfulness-based programme one lite athlete mental health: a system attic review and meta-analysis . British journal of sports medicine.

Li, J, Pang, Y, Liu, S.J, et al. (2024). Research on the influence of competition state anxiety on psychological fatigue of young wushu athletes: A case study of the 8th World Youth Wushu Championships in 2022. Journal of Henan Normal University (Natural Science Edition),52(02): 139-145.

Lu, P. (2014). A Study on the Pre Competition Psychological State of Taekwondo Athletes, Contemporary Sports Technology, 4 (26).

Ma, L.J, Ma, Q, Luan, G.J, (2021). Differences and Training Strategies between Competitive Tai Chi and Traditional Tai Chi. Sports supplies and technology. (24) 3-5.

M.SC, Shona C,G.DM, et al. (2022).Constructions of athlete mental health post-retire mallets : a discursive analysis of stigmatization and legitimizing versions of transition distress in the Australian broadcast media. Qualitative Research in Sport, Exercise and Health, 14(7). https://doi.org/10.1080/2159676X.2022.2086165

Peter K, ETM. (2023).The Impact of COVID-19 Restrictions on Youth Athlete mental Health: A Narrative Review . Current psychiatry reports,25(5). https://doi.org/10.1007/s11920-023-01422-y

Qiu, F.B. (2001). Pre competition preparation for Tai Chi athletes. Hubei Sports Technology, 20 (01): 40-41.

Qu, P, Wen, J.S, Kang ,Z.Y, et al. (2023). Examination and enlighten mallets of Tai Chi culture based on psychological mindfulness . Journal of Physical Education,39(02): 84-94.

Si, G.Y. (2014). Athletes' Mindfulness Training under the Eastern Culture . 17th Asian Games Incheon, Gyeong in National University of Education, Kidnapper. Proceedings of 2014 Inch eon Asian Games International Sport Science Congress,109.

Tan, Y.B. (2023).Discussion on the mental Health Education Mode of high level Athletes[C]//Sports Psychology Branch of Chinese Society of Sports Science, Professional Committee of Sports Psychology of Chinese Psychological Society, Tianjin Society of Sports Science, Tianjin

Psychological Society. The Twelfth National Sports Collection of abstracts of academic conferences on psychology. Collection of abstracts from the12th National Sports Psychology Conference,27- 28.

Wang, Q.L. (2010). Investigation and analysis of the influence of pre-match bad psychology on the competitive level of wushu taolu athletes . Occupation Time and Space,6(07):167-168.

Wang, Q.W. (2019). Exploration of the Application Value and Methods of Mindfulness Training in the Training System of High level Athletes, Journal of Huang gang Vocational and Technical College, 21 (04): 62-64.

Yao, F. (2001). A Study on the Factors Influencing the Pre match Psychological State of Boxing Athletes, China Sports Science and Technology, 37 (4): 46-48.

Yuan, L. (2005). Analysis of competition psychology and tactics of the world's outstanding middle-distance runners . Sports and Science, (02):68-70.

Yu, X.Y, Li, M, Song, X.Q. (2023). Hot research trends of international athletes' mental health since the 21st century: visual analysis based on Cite Space. Psychology Monthly,18(05):1-5.

Zhang, J.J. (2022). Investigation and analysis of the current learning status of "Wudang 28Tai Chi " in college physical education - Taking the physical education course of Hanjiang Normal University as an example . Journal of Hanjiang Normal University, 42(03):94- 98.

Zhang, T.T. (2013). Analysis of psychological characteristics of outstanding Tai Chi athletes before competition and research on psychological regulation strategies. Xi'an Institute of Physical Education.

Zhang, Z.Q. (2017). The Value and Application Methods of Mindfulness Training in Expanding the Competitive Psychological Potential of Excellent Athletes in China, Chinese Sports Coaches, 25 (01) 12-15.

Zhang, Z.Q. (2017). The Application Value and Methods of Mindfulness Training in Systematic Scientific Training of High level Athletes, Chinese Sports Coaches, 25 (04): 11-12.

Zhao, Z.J, Xu, S.S. (2022). Meta study on the Effects of Tai Chi on Athletes' Performance, 24th National Conference on Psychology, (11).