

Competitive Anxiety In Athletes With Disabilities: A Systematic Review

Walailak Pumpuang¹, Chairat Chusakul², Arporn Popa³

{ { walailak.pum@mahidol.ac.th¹, chairat.c@msu.ac.th², arporn.p@msu.ac.th³ }

Department of Health and Sport science, Faculty of Education, Mahasarakham University, Thailand¹,
Department of Health and Sport science, Faculty of Education, Mahasarakham University, Thailand²,
Department of Health and Sport science, Faculty of Education, Mahasarakham University, Thailand³

Abstract. The aim of this systematic review was to identify personal profiles and type of sports associated with competitive anxiety in spots. For this purpose, a systematic review was carried out from database. The published articles between 2007 and 2022 were selected for analysis after applying the inclusion criteria. The results show that gender, age, competitive level and educational level are associated with competitive anxiety. The individual sports and team sports are different in competitive anxiety. This review can be great help for coaches to consider these factors to design individualized psychological intervention for eliminating anxiety of athletes with disabilities.

Keywords: Competitive anxiety, Disability, Sport, Systematic review

1 Introduction

Sport competition cause athlete's stress and anxiety in both individual and team sports. Especially, anxiety is one important factor in sport psychology area. It can effect on the results of sport competition. Many researchers have defined the definition of anxiety. Weinberg & Gould (2011)¹ had described anxiety as a negative psychological state associated with arousal of the body. Similarly, Cheng, Hardly, and Markland (2009)² and Cox (2007)³ had defined the anxiety in the same as a common unpleasant emotional state in response to stressful competitive situations, that athletes at all levels of performance experience. In sport, competition stimulate athletes to perform their very best, but there is under intense pressure, which cause elevated levels of anxiety, triggering athlete's physical and mental changes. For physical changes, athletes may experience tremors, muscles tension, increased heart rate, high blood pressure, sweating, rapid breathing, headaches, and disturbed sleep pattern and mental changes, athletes may show as nervous, negative self-talk, worried about performance, images of failure, inability to concentrate, and difficulty in making decision.⁴⁻⁵

According to the multidimensional theory of competitive anxiety⁶, competitive anxiety has several components, including cognitive anxiety, somatic anxiety, and self-confidence, and

these components affect performance. Cognitive anxiety represents the mental aspect of anxiety characterized by negative thoughts and expectations about a competitive event, and their performance and level of cognitive anxiety can predict performance. Somatic anxiety represents the physical aspects of anxiety characterized by nervousness and tension, and somatic anxiety is associated with inverted U-shaped functioning. In other words, the best performance could be achieved with an average level of somatic anxiety. When somatic anxiety levels were too low or too high, athletes experienced poor performance. Self-confidence refers to an individual's belief in their ability to control themselves and their environment, and self-confidence is positively related to performance. This theory has been used to measure multiple components of anxiety, helping researchers determine the directional effects of anxiety symptoms that increase or decrease athletic performance.

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However, most of the previous studies have emphasized on competitive anxiety of athletes without disabilities, while ignoring less athletes with disabilities. Nowadays, athletes with disabilities are divided into three groups including the deaf, people with physical disabilities and people with intellectual disabilities¹³ and involve in many kinds of disabled sports including racket sports, team sports, track and field sports, and scoring sports. Similar to able athletes, disabled athletes are prepared for the best performance in sport competition leading to increase in competitive anxiety. A study of Srinivasan (2013)¹⁴ compared psychological variables such as anxiety and self-confidence between athletes with and without disabilities and found that there was no significantly different between the two groups. Similar to results of Halawani (2012)¹⁵, athletes with disabilities had no differences in levels of competitive anxiety between athletes with and without disabilities in competition.

Anxiety in the competition of disabled athletes must be taken care of. Due to stressful competitive situations, disabled athletes may question their confidence to perform at a high level and achieve what disabled athletes are capable of. These doubts can affect their performance in sport.¹⁶ As for the sources of disabilities, they can be described as the consequences of congenital or congenital defect or disease. People with congenital disabilities feel little disability and get used to their limitations, which cause gradual stress, while people with disabilities due to accident, illness or medical error can endure more stress due to rapid life changes, fitness and developmental achievements¹⁷ People with sports disabilities. . seems to be a means to reduce disability-related stigma and discrimination, reduce gender stereotypes and negative perceptions of women with disabilities, and strengthen the rights of disabled people

to realize their full potential¹⁸. However, a study by Olive and others (2021)¹⁹ showed that the self-esteem of disabled athletes is weaker than that of non-disabled athletes due to the weakened factor. Therefore, it may be better to understand the barriers affecting athletes with disabilities to optimize their performance in sports and develop mental skills programs to reduce competitive anxiety in athletes.

Thus, the aims of this study was to perform a systematic review to investigate levels of competitive anxiety of athletes with disabilities and to determine possible associations between competitive anxiety, personal profiles and sports contexts between athletes with and without disabilities.

2 Method

2.1 Search Strategies

Electronic database comprising of PubMed and Google Scholar was searched from 2007-2022. Keywords searched included ‘competitive anxiety’ AND ‘athlete’ OR ‘para-athlete’ OR ‘disable athlete’ OR ‘athlete with disability’ AND ‘sports’.

2.2 Inclusion/Exclusion Criteria

For studies to be included In this review they were: a) Research articles that consists of research studies relevant to athletes with disabilities and compared between athletes with and without disabilities, b) Studies were between 2007 to 2022, published in English c) Studies aimed to investigate levels of competitive anxiety and studies related to personal profiles and sports context on anxiety in competition. Studies were excluded if there were a) review articles, book chapters, and conference abstract b) full text of the article was not available.

2.3 Instruments

The measures of competitive anxiety used in the studies in this review varied, including the Sports Anxiety Scale (SAS-2; Smith et al., 2006), the Competitive Anxiety Inventory-2 (CSAI-2; Martens et al. , 1990) , Ilions. Anxiety and Self-Confidence Questionnaire (Srinivasan, 2013), a modified version of the Flemish Sports Competition Anxiety Scale (SAS-2-FL-ID, Biesen et al., 2019)²⁰ and the most used or disabled athletes were the CSAI. -2 according to Table 1.

Table 1 Instruments included in this review

Author (Year) Country	Instruments	Details
Biesen et al (2019)	Revised version of the Flanders Sports Competition Anxiety Scale (SAS-2-FL-ID) (Ramis et al., 2015; Smith et al., 2006)	The SAS-S-FL-ID contains 15 SAS-2 items that have been slightly modified to increase feasibility, validity, and reliability when used with ID holders. Cronbach's alpha was acceptable (somatic anxiety = 0.68; anxiety = 0.76; attention deficit disorder = 0.75)

Srinivasan (2013)	Illions Anxiety and Self-Confidence Questionnaire	Not report
Baćanac (2014) ²¹	Sports Competition Anxiety Test (SCAT r) (Baćanac et al, 2011) Qualitative Questionnaire	SCATr is an extended version of Martens' SCAT. It contains 10 original Martens items and 20 new measures of somatic and cognitive stress. Reliability and concurrent validity of the SCATr have been accepted in several studies.
Halawani (2012)	Sport Anxiety Scale (SAS-2, Smith et al., 2006)	The SAS-2 consists of 15-items containing 3 subscales of somatic, worry, and concentration disruption. Total score alpha coefficients was .89
Ferreira & Chatzisarantis (2007)	Competitive Anxiety Inventory-2 (CSAI-2; Martens et al., 1990)	The CSAI-2 has 27 items measuring cognitive anxiety, somatic anxiety, and self-confidence. Cronbach's alpha for the CSAI-2 ranges from .76-.90.
Boesch (2010) ²²	Competitive State Anxiety Inventory-2 (CSAI-2; Martens et al., 1990)	The same
Jeong & Park (2013) ²³	Competitive State Anxiety Inventory II (CSAI-2; Martens et al., 1990), Korean version	The same
Paraabas et al (2019) ²⁴	Competitive State Anxiety Inventory-2 (CSAI-2; Martens et al., 1990)	The same
Marín-González (2022)	Competitive State Anxiety Inventory—2R (CSAI-2R), Spanish version	The same

2.4 Design & Sample

Most of research design of the studies were cross-sectional design. The participants were athletes with and without athletes from 9 countries from western countries including Columbia (n=1), Belgium (n=1), Portugal (n=1), USA (n=1), and from Asian countries such as Serbia (n=1) Malaysia (n=1), Saudi Arabian (n=1) and Korea (n=1). Athletes with disabilities included physical and intellectual disabilities. Various types of sports such as individual sports and team sports and sport modality such as nation, international, Olympic, and Paralympic were included.

Table 2 Design and Sample & Sports included in this review

Author (Year)	Country	Design	Sample & Sports
1. Biesen et al	(2019) Belgium	CS	303 athletes; 116 athletes with ID, 187 athletes without ID
2. Baćanac	(2014) Serbia	E	24 top athletes with and without disability; age athletes with disabilities (28.58±5.71 years), and athletes without disabilities (26.21±6.36)

3. Srinivasan (2013) India	E	40 normal athletes and 40 athletes with disabilities Aged 17-35 years
4. Halawani (2012) Saudi Arabian	CS	120 national team athletes with and without disabilities Ages ranged from 18-35 years.
5. Ferreira & Chatzisarantis (2007) Portugal	CS	42 athletes with disabilities; 20 at national level and 22 at the international level in 4 sports: swimming, wheelchair, marathon, track and field athletics, and indoor soccer. Aged 15-49 years.
6. Boeschon (2010) USA	CS	164 athletes from the Special Olympics programs
7. Jeong & Park (2013) Korea	CS	66 wheelchair tennis players; 44 Korean, 22 non-Korean
8. Parabas et al (2019) Malaysia	CS	166 Paralympic athletes classified into 12 disabled sports
9. Marín-González (2022) Columbia	CS	334 elite athletes; aged 27.10 ± 6.57 years; 178 women, 156 men; 284 Olympic athletes, 50 Paralympic athletes; 47 team athletes, 287 individual athletes

CS= cross-sectional design; Experimental design

3 Results

A total of 9 studies were included in this review. Most studies were cross-sectional and targeted. The studies varied in sample size from 2 to 33 participants, as shown in Table 2. In terms of methodology, most studies used multidimensional scales to assess competitive anxiety, as shown in Table 1. The CSAI-2 was frequently used in five of the nine studies to measure both disabled and disabled components of competitive anxiety. in athletes. Specifically for ID athletes, the SAS instrument was slightly modified to maintain reliability, validity, and feasibility. To measure anxiety, the athletes were asked to fill out a questionnaire before the start of the competition or to fill out the questionnaire independently online. Regarding personality, the assistants collected it through personal interviews. Most studies confirm approval by ethics committees. Two-way analysis of variance (ANCOVA), independent t-test, or non-parametric independent sample t-test was performed to compare disability and disability groups or individual and sports such as women and men or individual and team groups. The variables were categorized into a) level of anxiety, b) athlete profiles & sport context and c) comparison between groups. Full details of the studies are reported in Table 3.

a) Levels of anxiety

All studies presented levels of competitive anxiety among athletes with and without disabilities. Five studies investigated athletes with disabilities via the self-report or online questionnaire of Competitive State Anxiety Inventory which divided into three dimensions, namely cognitive anxiety, somatic anxiety, and self-confidence. The study of Parnabas et al, reported that swimming athletes had lower levels of cognitive anxiety, $F(3, 166) = 14.443, p < .01$. Another study used this questionnaire was a study of Fuentes-Garcia et al (2022) and found

that cognitive anxiety and self-confidence between the pre-and post-match of winners were different from losers.

The second measure was the SAS-2 (Sports Anxiety Scale) used in two studies. A modified version of the SAS-2 was used to assess competitive anxiety in athletes with developmental disabilities (ID) in a study by Bisen et al. (2019) and found that athletes with ID had higher levels of anxiety (9.36 x 2, 62) than. their companions. ID ((7.58 2.), F = 26.95, pandlt; 0.001). Athletes with ID had a significantly lower overall level of competitive anxiety compared to athletes without ID (F=27.10, pandlt;.001).

b) Personal profiles & Sports context

Many studies have examined the personal profiles of athletes with disabilities, including gender, age, educational level and other professional occupations, and the influence of personal characteristics on competition anxiety. A study by Marín-González et al (2022) found that males had higher self-esteem than females, and younger athletes had higher levels of cognitive and somatic anxiety.

Competitive anxiety was influenced by the athletic context of individual and team sports. Some studies report a higher prevalence of somatic anxiety in athletes with disabilities. A study by Marín-XGonzález et al (2022) showed that athletes in individual sports had higher somatic anxiety than those in team sports.

c) Comparison between groups

There were some studies compared between athletes with and without disabilities. The results found that there were no difference in components of competitive anxiety.

Table 3 Studies included in the systematic review

Author (year) Country	Purpose	Main findings
1. Biesen et al (2019) Belgium	Examining the level of competitive anxiety in Flemish young adults ID Compare with ID differences in sports anxiety profiles of Flemish athletes	The overall level of competitive anxiety in all subscales was significantly lower compared to athletes without ID.
2. Bačanac (2014) Serbia	Tests the positive effect of movement on the mental health of disabled people	Disabled athletes significantly differed from non-disabled athletes in only one psychological coping ability. There are significant differences in the competitive anxiety of young and older disabled athletes in sports
3. Srinivasan (2013) India	To investigate the analysis of selected psychological variables among athletes and athletes with disabilities.	Cognitive anxiety, somatic anxiety, self-confidence and motivation were non-significant between athletes and disabled athletes.
4. Halawani (2012) Saudi Arabian	To compare whether there were significant differences in competition levels of somatic anxiety, anxiety and attention deficit disorder between disabled and non-disabled Saudi Arabian national team players.	There are no statistically significant differences between disabled and non-disabled athletes or individual and team sports regarding somatic anxiety, restlessness and decreased concentration.
5. Ferreira & Chatzisarantis (2007) Portugal	Learn competitive anxiety and confidence.	national athletes had higher cognitive anxiety and somatic anxiety scores and lower self-esteem than international athletes at three different time points (1 week, 2 hours and 20 min). The analysis showed that

		athletes with disabilities showed pre-competition anxiety similar to non-disabled athletes in terms of cognitive and somatic dimensions.
6. Boeschen (2010) USA	Examining the competitive status of Paralympic athletes and their family members or significant others	Significant difference in mean score on the cognitive CSAI-2 subscore of Paralympic athletes compared to published scale norms such that the mean score of the Paralympic athlete was lower. If these norms are compared with the average of the somatic subscores of Paralympic athletes, no significant differences were found.
7. Jeong & Park (2013) Korea	to investigate the differences in participation motivation and competition anxiety between Korean and non-Korean wheelchair tennis players and to determine the relationship between participation motivation and competition anxiety in each group,	non-Korean players showed higher cognitive anxiety and self-confidence than Koreans. . . . players In addition, physical stress is negatively correlated with learning, health and pleasure motivation in Korean players. On the other hand, only self-confidence was significantly related to learning motivation and adjustment in non-Korean players.
8. Parnabas et al., (2019) Malaysia	To investigate levels of cognitive anxiety and its effects on psychological performance among athletes in 12 disability sports.	swimmers had lower cognitive anxiety, $F(3, 166) = 1.3, p \leq .01$. The result also showed that removing the negative correlation between cognitive anxiety and athletic performance among athletes ($r = -0.81; p \leq 0.05$).
9. Marín-González et al (2022) Columbia	To examine the effects of gender, age, sport, sport, other occupation, and level of competition on competitive anxiety symptoms and self-confidence in elite athletes,	men had higher levels of self-confidence than women. Younger athletes had higher cognitive and somatic anxiety. Individual athletes had higher somatic anxiety than team athletes. elite athletes had lower cognitive and somatic anxiety scores and higher self-esteem.

4 Discussion

This review included the 9 studies published between 2007 and 2022 from PubMed and Google scholar databases. This review found that levels of competitive anxiety of athletes with disabilities were inconsistent before or during competition. Based on the multidimensional theory of anxiety, three components including cognitive, somatic and self-esteem were assessed mainly by the CASI-2 and in some studies by the SAS-2. The competition in sports cause anxiety as noticed with the increase in the dimensions of anxiety. This psychological response may affect by the athletic characteristics including gender, age, educational level, competitive level, other professional occupation, and type of sport.

According to this study, female athletes tend to have higher competition anxiety scores than male athletes and lower self-confidence. This may be due to physical, sociocultural and psychological factors that contribute to gender differences in performance. Due to the physiological, anatomical, neuromuscular, biomechanical structure and opportunities of women, and their participation in sports, women can anticipate fewer opportunities, less acceptance and support, therefore they have less motivation to play sports.²⁶ These conditions can also to anticipate . affects a woman under pressure. in sports and increases competitive anxiety and weakens self-confidence. This is consistent with a previous review showing that women are more concerned than men as a coping strategy when they face stress, especially

expressiveness, commitment to sports and fear of failure instead of focusing on success¹¹ (Rocha et al, 2018).

Compared with age, younger athletes had higher levels of competitive anxiety, including higher levels of cognitive anxiety and somatic anxiety. Due to differences in growth and development, older athletes are more likely to experience maturation associated with improved speed, strength and muscular endurance, decision-making, motivation, stress management and emotional regulation compared to the younger group and peak age. For example, men tend to be older, with an average age of 27 and women with an average age of 26 (Chomik and Jacinto, 2021). This is explained as similar to Rocha et al (2018) ¹¹ about maturity in which young age may feel insecurity, be emotional dependency, and use inappropriate coping strategies to solve their stressful pressure.

As for education and other professional occupation, these characteristics were suggested in the study of Marin-Gonzalez (2022) in which athletes with disabilities who studied in university level and did other professional occupation had lower cognitive anxiety. This dimension of anxiety focuses on athletes' thought. If they think positively, they will perform well. Thus, education and life experience from doing occupation will increase this dimension.

In relation to sport, both individual and team sports can affect an athlete's competitive anxiety. Most of the studies that found individual athletes in the same row had significantly higher competitive anxiety than team athletes. This may be because individual sports require responsibility for their own performance, while team sports often share that responsibility with other team members.^{9,11} In addition, Kemarat et al. (2022)²⁷ found that individual players exhibited neuroticism, associated with low stress tolerance and more emotional responses to stress, whereas team players reported agreeable attitudes, which are generally warm, polite, gentle, trustworthy, and reliable. Personality differences between groups of athletes affect how they behave or react to stressors. In addition, comparing non-disabled and non-disabled athletes, Studies showed no difference in competitive anxiety on cognitive anxiety and somatic anxiety dimensions. However, the study of Marin-Gonzalez was inconsistent with the study of Ferreira and Chatzisarantis¹⁶ in the dimension of self-confidence. This difference may explain why elite Paralympic athletes may have experience of overcoming life's difficulties and great achievements at the international sports level, which would increase self-confidence. Thus, Paralympic athletes may have higher self-esteem than Olympic athletes or national athletes.⁹

This review found that most of the study design was quantitative design especially the cross-sectional design, not included qualitative study or experimental study. Thus, results from the studies may not in-depth in the causal reasons of competitive anxiety occurred among athletes with disabilities. In addition, the sample size of the studies included from 2007-2022 was not much for explanation. These may be the limitation of this review.

5 Conclusion and suggestion

This study analyzed competitive anxiety in athletes with disabilities as a function of personal profile and sport context. The personal profiles and sports context of athletes can be sources of evaluation. Some studies have shown that men had higher self-esteem than women, younger athletes had more somatic anxiety than older athletes, athletes participating in individual sports had more somatic anxiety than team sports, Paralympic athletes had more self-confidence than Olympic athletes. athletes and elementary-level athletes had higher levels of cognitive anxiety

than college-level athletes. There were no differences in competitive anxiety between disabled and non-disabled athletes. Specifically for athletes with ID, researchers can use feasibility, validity, and reliability instruments such as the SAS-S-ID.

This review suggests that a sport-specific feature be created for tracking that allows us to know athletes' strengths and weaknesses in relation to competitive anxiety and self-confidence. In addition, in order to reduce competition anxiety and promote the mental health of athletes, disabled athletes should be offered education, occupation and individual activities.

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