



THE EFFECTS OF ANXIETY ON SPORTS PERFORMANCE

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Abstract

This study investigates, from a cognitive-behavioural standpoint, the connection between anxiety and performance. Previous studies in this field show that anxiety is the main cause of consultations with sports psychologists. An examination of the theoretical foundations of anxiety and its relationship to performance is included. There is also discussion of research on the connection between anxiety and performance. There is also an exploration of the cognitive-behavioural therapies that have been applied in the field of athletics to improve performance and reduce anxiety. The conclusion includes a number of recommendations for further research as well as useful suggestions.

Keywords: *Performance, Anxiety, Athletics, Cognitive-Behavioural*

Introduction

Sportsmanship requires the capacity to handle stress and anxiety, especially for top athletes. According to research, more than half of athlete consultations during the Olympics concerned issues with stress or anxiety. A significant amount of research has been done to investigate the connection between anxiety and sports performance. The pertinent studies will be reviewed in this study from a cognitive-behavioural standpoint. A discussion of the study's conclusions about the connection between the two concepts is also included. Furthermore, the literature review that has investigated the effectiveness of cognitive-behavioural therapies is also included. Even though a lot of data has been produced, the results are restricted because of issues with the nomenclature that the researchers have employed. As such, it is crucial to look at how anxiety is conceptualised initially.

Conceptual Frameworks of Anxiety



It has been challenging to sum up earlier studies on anxiety and athletic performance due to a number of issues, including methodological problems such as a lack of precise operational definitions and a well-defined theoretical construct. The terminology that will be applied during the remainder of this article will have operational meanings established in this section. It will also give a summary of the hypotheses that researchers have employed in an effort to shed light on the connection between anxiety and sports performance. The primary issue with research is that the concept of anxiety with respect to sports performance has not been sufficiently operationalized by scholars. Rather, phrases like arousal, activation, stress, and anxiety have been used synonymously. A person has anxiety when they are unsure about their capacity to handle the stressful scenario. The distinction between trait and state worry is another critical concern that has to be made clear. Trait anxiety may be conceptualised as a worldview that a person employs to deal with problems in his or her environment, whereas state anxiety is assumed to be more specific in character and is frequently linked to autonomic nervous system activation. Performances are influenced by trait anxiety as individuals with elevated levels of trait anxiety tend to allocate more attention towards specific elements related to state anxiety. Prior studies conducted outside of the domain of sport and exercise psychology have shown that people who exhibit high trait anxiety also exhibit state anxiety. Those who exhibit low trait anxiety also exhibit state anxiety and will prefer to ignore information linked to threats. In the context of sports, those with low trait anxiety and high state anxiety would find it helpful to perform at their best; on the other hand, people with high trait anxiety and state anxiety would find it detrimental to their athletic performance. The inverted-U hypothesis was one of the first theories to try and explain how arousal and performance are related to one another. It was said that performance would enhance in tandem with an increase in arousal, but that performance would decline in the event of an excessive increase in arousal. Put another way, as stress started to develop, a person still felt assured of their capacity to manage it, and their performance would become better. Performance started to suffer, though, if a stressor got to the point where the person began to doubt their capacity to handle it. This concept explained why people's performances declined when they experienced stress, but it was unable to explain why athletes who were subjected to the same trigger would perform differently from one another. Individualised zones of maximum efficiency is a notion that researchers try to use to explain individual variances in performance.

This hypothesis states that every person has a pre-performance anxiety threshold that works best for them, leading to peak performances. Performance will suffer, though, if the pre-performance anxiety is beyond the IZOF's range—that is, if it is too high or too low. An athlete's memory of their anxiety levels before their best performances may be used to calculate their IZOFs. Anxiety and performance can be measured repeatedly. In fact, researchers discovered that IZOFs outperform the inverted U- theory as performance predictors. Even



though this model outperforms the inverted-U hypothesis, it is still unable to explain the variables that lead to individual performance variations across athletes. It's possible that the ways in which successful and unsuccessful athletes understand their anxiety states cognitively account for the observed discrepancies between them. Reversal theory states that an individual's interpretation of arousal varies based on their current situation. Athletes who are in telic states see their arousal as worry because they are goal-focused. But in para telic states, athletes read their arousal as enthusiasm because they are preoccupied with their actions. People are able to shift between states rapidly, which causes them to interpret arousal differently, having an impact on their performance. Though it falls short of providing a satisfactory explanation for their association with performance, this theory makes an attempt to include both physiological and cognitive elements in its explanation of the relationship between anxiety and performance.

The incorporation of cognitive and physiological aspects in reversal theory was elaborated upon through multidimensional anxiety theory. It has been discovered that performance and cognitive anxiety (anxiety regarding the repercussions of failing) are negatively correlated. It has been discovered that performance and self-confidence (a different cognitive component) have a positive linear connection. Finally, it has been discovered that there is an inverted-U-shaped association between performance and somatic anxiety, or bodily symptoms. Despite the fact that this model includes a lot of anxiety-related components, it nonetheless handles them separately. The interaction between two of these three parameters was examined in the following model that emerged. The interaction between physiological arousal, cognitive anxiety, and performance is examined using the catastrophic model of anxiety and performance. Performance may be impacted by physiological arousal because of the way a person interprets its physiological symptoms. The model predicts that when cognitive anxiety rises, performance will benefit at low physiological arousal levels but suffer at high physiological arousal levels. In addition, differences in physiological arousal have minimal influence on performance when cognitive stress is relatively low.

Yet, depending on the level of arousal, cognitive anxiety can either positively or negatively impact performance as physiological arousal builds slowly. Performance experiences a significant decrease when adrenaline levels are achieved, and this decrease can only be stopped by reducing physiological arousal. The interactive approach of the model appears to be the most effective way to explain observed behaviour, even if it does not incorporate a self-confidence component. Even though we now know how these variables interact, the question of how to operationalize these structures still has to be answered. Two different scales have been created specifically for this use. It appears that the Competitive State Anxiety Inventory-2 (CSAI-2) is the most extensively utilised. It is divided into three segments: somatic anxiety (perceptions of bodily arousal), cognitive anxiety (fear of worry and negative expectancies), and self-confidence. Even though the catastrophic model does not contain self-confidence,



research has shown that it exists independently of cognitive worry and will be covered in more detail later in this work.

The creators of the Sport Anxiety Scale (SAS) are Smith, Smoll, and Schutz. The scale assesses bodily anxiety, disturbance of focus, and trait cognitive anxiety. It is a trustworthy tool that falls within the catastrophic model of anxiety and performance, although it is less often employed. Researchers would be well on their way to developing adequate operational definitions if they used any of these scales. Now let's focus on the studies that have been done on the connection between performance and anxiety.

Anxiety's Impact on Athletics

Research on the impact of anxiety on athletic performance has been extensive. Researchers have shown that amateur athletes participating in solo sports experience more anxiety during intense competition than athletes participating in team sports. Furthermore, compared to those in individual contact sports, players in solo non-contact sports have been observed to exhibit decreased levels of state anxiety. This part will examine the study from the standpoint of the previously described theoretical models. It has been discovered that cognitive anxiety significantly affects performance. This is true irrespective of the person's ability level. There were two requirements for participants in a collegiate softball tournament: high and low scenario criticality. The athletes in the high urgency condition showed noticeably greater levels of cognitive-anxiety, while physical anxiety was the same in all scenarios. It is obvious that a person's cognitive perception of a circumstance has an impact. Successful athletes perceive arousal as a facilitator, according to research. Anxiety severity scores were greater in participants who saw their anxiety as debilitating than in those who perceived it as facilitative, according to research done with a select sample of swimmers. It has been discovered that this applies to both basketball players (Jones, Swain, & Hardy, 1993) and gymnasts (Swain & Jones, 1996). Years of experience was found to be the most accurate indicator of cognitive anxiety by Gould, Petrichkoff, and Weinberg (1984), with the more experience a person had, the lower their degree of cognitive anxiety.

Research done with a team of tennis players backed this viewpoint. Compared to beginners, advanced subjects—those who had played the sport for a longer time—reported greater facilitative assessments of their fear (Perry & Williams, 1998). Comparable outcomes have been noted in a cohort of proficient swimmers. Maybe because they have dealt with arousal and coping mechanisms before. The study by Jones, Swain, and Cale (1990), which discovered



that goal-setting, an individual's sense of readiness, and an assessment of prior performances were the best indicators of cognitive anxiety, lends credence to this claim. It has been shown that the levels of self-confidence possessed by novice and expert athletes vary (Perry & Williams, 1998). The experienced players in a tennis study exhibited noticeably greater levels of self-confidence than the novices. It has been discovered that this applies to both swimmers and gymnasts (Bejek & Hagyet, 1996). Perception of readiness and environmental factors are the research-identified determinants of self-confidence (Jones, Swain & Cale, 1990). It has been discovered by other researches that the degree of skill a person felt they have is the best indicator of self-confidence. It makes sense considering a person's prior encounters with a certain circumstance. Research indicates that self-assurance explains a higher percentage of performance variation than either physical or cognitive worry. This shows that a high degree of self-confidence, which may serve as a buffer against cognitive discomfort, is the most potent attribute held by great performers.

The interplay of these factors with somatic anxiety offers a better understanding of the real impacts, even if research on cognitive anxiety and self-confidence has shed some light on their impact on athletic performance. In a sample of ninety-one athletes, ages 14 to 36, who competed in track and field, swimming, and soccer, those who had greater self-confidence scores and lower somatic and cognitive anxiety scores thought their overall levels of anxiety helped them perform better on the field (Wiggins & Brustad, 1996). Researchers comparing athletes in solo sports (track and field) and team sports (basketball) have shown that individuals in individual sports report far greater levels of somatic anxiety and much lower levels of self-confidence than team athletes (Kirby and Liu, 1999). Studies that have been done with figure skaters also corroborate this. Skaters had more physical and cognitive anxiety before an individual professional event than before a team competition, according to research by Martin and Hall (1997). Maybe this is because there is a dispersion of responsibility in a team context that doesn't happen in an individual one.

Researchers who have concentrated on the connection between physical anxiety, cognitive stress, and self-confidence have also discovered significant gender differences. On the CSAI-2, women scored higher on somatic anxiety and had lower levels of self-confidence than men (Thuot, Kavouras, & Kenefick., 1998). This study also examined the venue of a sporting event, discovering that away games were associated with higher levels of physical anxiety and decreased levels of self-assurance. Lastly, Thuot et al. (1998) discovered that when opponents' abilities rose, teenagers of all genders showed noticeably higher degrees of somatic and cognitive anxiety as well as decreased level of self-confidence. Research that has looked at both gender and anxiety factors provides some support for this. The skill and likelihood of victory seen by males had a greater impact on both physical and cognitive anxiousness. The degree of cognitive anxiety and self-confidence in females is influenced by their performance preparation and the value they personally attach to attaining success. These gender variations



highlight the necessity of creating treatments that are specific to each person's requirements and the significance of taking all relevant elements into account when creating an intervention. It is evident that anxiety affects sports performance in a number of ways. The impacts differ according to gender, sport, and experience level. Sports psychologists must take into account the three distinct aspects of anxiety—cognitive, somatic, and self-confidence—in order to support athletes to achieve their best results. Sports psychologists should strive to help their clients reach this ideal condition given the research showing that successful athletes who view their anxiety as a facilitator are characterised by high self-confidence ratings and low somatic and cognitive anxiety scores. This brings us to our next topic: the range of therapies available for treating anxiety in the setting of sports.

Cognitive-Behavioural Interventions in Athletics

According to the studies that have been included in this paper so far, athletes must be able to manage their anxiety in order to perform at their best during crucial periods. A significant difference in an athlete's performance between training and competition may indicate that they are overly stimulated or struggling to reach the proper degree of arousal. Athletics has benefited from developments in the realm of anxiety reduction in general. The following anxiety-control techniques are employed by top achievers and researchers: goal-setting, cognitive restructuring, diaphragmatic breathing, progressive muscular relaxation, visualisation, and positive thinking. The studies on practical strategies for reducing anxiety in the setting of sports will be reviewed in this part. This section will also include specific treatments and therapeutic concerns. Researchers have previously looked at a range of sports to see if cognitive-behavioural therapies are beneficial. The substance and manner of the therapeutic techniques that have been adopted have varied greatly. Early studies in the field relied on interventions for reducing anxiety in therapeutic environments. Two female collegiate basketball players' attention issues and in-game anxiousness significantly improved after receiving instruction in relaxation, visualisation, and cognitive restructuring (Meyers, Schleser, & Okwumabua, 1982). The therapies, enhanced performances by lowering anxiety and boosting self-esteem.

Subsequent studies continue to support the effectiveness of cognitive-behavioural therapies in enhancing sports performance. One study included seven weekly; two-hour group sessions utilising the cognitive-behavioural therapies previously discussed. According to the findings, the treatment group's anxiety levels were lower than those of the no treatment control group (Holm, Beckwith, Ehde, & Tinius, 1996). After a cognitive-behavioural intervention, there was a substantial decrease in cognitive and somatic stress as well as an improvement in self-confidence, according to another study that used a multiple baseline design (Savoy, 1997).



Nonetheless, the customised nature of the care could have contributed to the rise in self-assurance. Additional study with collegiate basketball players treated in either a group or a hybrid group/individualised programme provides credibility to this. All athletes had a reduction in cognitive and somatic anxiety, but only those who took part in the customised programme saw improvements in their self-confidence levels (Savoy & Beitel, 1997). It implies that while treatment for cognitive and somatic anxiety can occur in a group setting, athletes experiencing issues with self-confidence may benefit best from an individualised treatment plan. Tennis players who participated in one of four interventions—imagery, relaxation, cognitive, or restructuring—showed improvement in their self-confidence as well as a substantial decrease in both physical and cognitive anxiety. Although the results of this study may have revealed some differences between the groups if the researchers had incorporated a no-treatment control group. The research nonetheless suggests that cognitive-behavioural therapies are useful for improving performance. However, studies on hockey players have shown that it is more helpful to use anxiety reduction strategies that target the person's primary anxiety type—cognitive or somatic. Thus, evaluating the demands of the athlete is essential prior to implementing solutions. Now, we focus on the particular methods that often make up these procedures: cognitive, imagery, restructuring, and relaxation.

Relaxation: One technique that has been covered in the literature to lessen physical and cognitive stress is relaxation. Clinical populations have been effectively treated using these two approaches. Even if a discussion of the techniques employed in these two therapies is outside the purview of this manuscript, they remain a crucial element of any intervention aimed at reducing anxiety and improving performance. Athletes occasionally struggle to lower their arousal levels after a competition, according to Butler (1996). For this reason, using progressive muscle relaxation is advised. It could help athletes who struggle to go to sleep the night before a big tournament. While prior research suggests that both of these strategies are helpful for reducing anxiety, it appears their initial effectiveness is best achieved when combined with imagery that emphasises relaxation. The athlete can stop using the calming visualisation when they get the hang of these approaches.

Athletes who want to enhance their performance might also benefit from mental practice and imagery. It gives them a sense of familiarity with the work at hand and positive reinforcement for their anticipated performance. It has been demonstrated that this strategy works with collegiate players in every sport. According to the findings, those who received the imagery intervention considerably outperformed the delayed-training control group in terms of both athletic performance and sport competition anxiety. The internal functioning of images remains unknown. However, studies have discovered that the ability to mentally imagine and the presence of stimulating visuals may accurately predict the level of anxiety related to cognitive function. The capacity to visualise was also associated with physical state anxiety, while the



ability to visualise motivational mastery was associated with self-confidence. The researchers also discovered a strong correlation between imagery usage and ability, indicating that as usage expanded, so did ability. Butler (1996) noted that the following elements are crucial to an effective visualisation routine:

- The choice of an assumed expertise. Relaxation should come before visualisation. Along with using all of the senses, a realistic visualisation should also include the location of the sporting event itself.
- It is necessary to focus on the envisaged technique. It requires an internal viewpoint, as if they are seeing it with their own eyes rather than the eyes of a camera focused on them while they execute the skill. Furthermore, attempting to sense the movement helps to improve the visualisation exercise.
- The skill should be practiced in "real time," without adjusting for speed or slowness. It is crucial to involve coaches in the creation of an imagery exercise because it leverages their technical expertise and lessens the coaches' impression that psychologists pose a danger.

Cognitive: In order to help patient lower cognitive anxiety, cognitive restructuring is a crucial part of treatment since it enables them to interpret their activation states differently. It may be advantageous to downplay the significance of contests, allowing an athlete's actual potential to be shown. The multidimensional anxiety hypothesis states that as cognitive anxiety declines and self-confidence rises, exceptional performers will perform at their best. This shows that reducing the significance of challenges and aiming for an intermediate degree of bodily anxiety might be appropriate interventions. Another crucial component of cognitive reorganisation is goal setting. It's crucial to avoid setting objectives that are excessively demanding for people since this might lead to high anxiety levels, which could then impede performance. Rather, it is advised that people define a number of more manageable objectives that breakdown the work into its constituent pieces (Orlick, 1986). While individual techniques such as relaxation, visualisation, and cognitive treatments can help reduce anxiety in athletes, their combined effects are much more potent. Butler (1996) proposes a mnemonic device called **PRESSURE** that integrates all three phases of intervention for those who struggle to cope in competitive settings. Below is an analysis of the word:

- **Prepare:** Athletes need to mentally get ready for the challenges they will encounter throughout the tournament.



- **Relax:** Before a competition, diaphragmatic breathing techniques could be required to avoid over-arousal, which could lead to a decline in performance.
- **Externalise:** This is the idea that you are not the source of your own difficulties. When sportsmen feel that there are way too many expectations being made of them, this will help.
- **Stay Positive:** The recognition of the significance of people maintaining self-confidence in their abilities is essential.
- **Single Minded:** Maintain your attention on the current work. This is applicable to both competition and training.
- **Unite:** This aspect is especially helpful in team sports situations as it prompts athletes to think about the responsibilities that others will play and the value of cooperating as a team during the competition.
- **Re-evaluate:** How significant is this occurrence in the actual world?
- **Express Yourself:** Always give your best effort, regardless of how significant or insignificant the competition may be.

It is recommended to use this memory aid with those who struggle with the cognitive, physical, and self-confidence aspects of sports anxiety. Even the degree to which a person must exert cognitive effort in order to apply these tactics has an impact on the performance. According to Gould et al. (1993), the degree to which the participants applied these treatments automatically determined whether they were Olympic wrestling medal winners or non-winners. This means that winners were more likely to apply the interventions automatically. The majority of top performers have already figured out to some extent on how to reach the activation state required for their sport. The variety of demands that are placed on an athlete throughout a competition is one of the things that makes sports so exciting. Because of this, it is doubtful that any one approach could ever be able to help everyone. It is thus advised to do an accurate evaluation of the athlete's requirements.

Conclusion:

According to the outcomes mentioned above, anxiety significantly affects performance. The absence of precise operational definitions for the concept of anxiety hindered early research. Future researchers now have an analytical structure for comprehending the link between somatic and cognitive anxiety, and how they affect performance, thanks to the invention of the catastrophe model. Additionally, we now possess the means to comprehend anxiety's individual components within the confines of sports. Researchers can now assess the following



dimensions with reliability thanks to the creation of the CSAI-2 and the SAS: cognitive anxiety, physical anxiety, self-confidence, and disruption of focus. Additionally, the emergence and growing acceptance of multiple baseline study designs offer a way to investigate cognitive-behavioural therapies with small sample numbers that aim to reduce anxiety. Many anxiety disorders in clinical settings now have manual therapies for providing better care in the sports environment. If sports psychologists want to have the biggest impact with their treatments, they must take into account other aspects of an athlete's performance as well. The profile of mood states is used in the mental health model of performance (Morgan, 1985). The concept suggests that people who exhibit psychological states with high levels of optimism and low degrees of stress, despair, anger, exhaustion, and bewilderment are able to function at their level best. This is sometimes referred to as the "iceberg profile" and is one way to distinguish between performers who are highly successful and those who are not. Evidence suggests that this profile may have some relevance if the sample is homogeneous in terms of ability and the sport they play. Although, some researchers also claim that it cannot be used to distinguish between highly successful and less successful athletes. Therefore, in order for sports psychology therapies to have the greatest possible impact, it is imperative that all facets of a person's psychological functioning be taken into account.

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