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The Relationship Between Athletes' Competitive State Anxiety and Self-Confidence and Coaches' Behaviors

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THE RELATIONSHIP BETWEEN ATHLETES' COMPETITIVE STATE ANXIETY AND SELF-CONFIDENCE AND COACHES' BEHAVIORS

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Abstract

Competitive state anxiety (CSA) and self-confidence are prominent issues in athletics and can cause detrimental effects on athletic performance. The purpose of this study is to analyze the effects of perceived coach anxiety and perceived coach self-confidence on athlete competitive state anxiety and self-confidence. It was predicted that as perceived coach anxiety increases, athlete competitive anxiety will increase. Furthermore, as perceived coach self-confidence decreases, athlete self-confidence will decrease. Ninety-six Division I athletes from three sports (men's/women's track and field, women's soccer, women's softball) were recruited. Participants ranged in age from 18 to 25 years of age (M = 20.33, SD = 1.43). Perceived coach anxiety emerged as a significant predictor of athlete cognitive anxiety, somatic anxiety, and self-confidence. Perceived coach self-confidence emerged as a significant predictor of athlete somatic anxiety and self-confidence. In conclusion, understanding the perceptions athletes have of coaching behaviors is of great importance in ensuring peak performance.

Keywords: Competitive State Anxiety, Coaching Behavior, Performance

Introduction

In athletics, the ultimate goal of every coach, trainer, manager, and the athlete themselves is to allow for the most optimal performance on gameday. A great deal of time is spent making sure the athlete is prepared both physically and mentally. Sport psychologists have investigated methods for improving the experience and preparation of the athlete (e.g., Munroe-Chandler & Guerrero, 2017). One aspect studied has been competitive anxiety due to the direct impact on athletic performance. Competitive anxiety is generally understood to be the feeling of tension and uneasiness an athlete feels as a result of not believing they are fully prepared or capable of a quality performance during a game or competition (Chun et al., 2023). This can be a part of their personality, such as competitive trait anxiety, or a reaction to a specific moment in time, such as in competitive state anxiety. Competitive state anxiety (CSA) is composed of somatic anxiety and cognitive anxiety (Martens et al., 1990). Both are believed to play a role in several aspects of an athlete's mental and physical state, although the relationship is believed to be different.

Multi-dimensional Anxiety Theory was developed to help explain the relationship between CSA and an athlete's performance (Martens et al., 1990). Multi-dimensional anxiety theory explains the relationship that cognitive anxiety and somatic anxiety have on performance into two separate dynamics (Martens et al., 1990). Cognitive anxiety generally refers to the negative thoughts that a person experiences within the brain, such as stress or worry because of self-doubt. Somatic anxiety refers more to the physiological effects, such as feeling tense or the feeling of "butterflies" in the stomach. Martens et al. (1990) claimed that cognitive state anxiety has a negative linear relationship with performance, whereas somatic state anxiety has an inverted-U shaped relationship with performance. This means that overly low or overly high levels of somatic anxiety lead to poor performance, while a middle ground between the two ends

of the spectrum allows for optimal performance. In contrast, cognitive anxiety has a linear negative relationship with performance, such that higher cognitive anxiety leads to poorer performance. This theory is important for measuring CSA in relation to performance, as it necessitates a distinction between the somatic anxiety levels and cognitive anxiety levels within an athlete.

In this paper, I will review the literature surrounding CSA, performance, and the impact of others' anxiety on one's own anxiety. I will also review the literature surrounding self-confidence and the impact of others' perceived self-confidence on one's own self-confidence. For both topics, I will connect literature to other studies that have worked directly with athletes in the competitive environment. Following this, I will describe the methodology for the study aimed at answering the question of the relationship between athletes' CSA and self-confidence and coaching behaviors. The statistical analysis and the results will be outlined, followed by the discussion of implications for future research and direct applications for both athletes and coaches. The findings of the current study play a major role in the sports psychology field, as it gives insights into the interactions between coaches and their athletes. Furthermore, the findings of the current study are of great importance for both athletes and coaches in order to achieve peak performance.

Literature Review

Impact of Competitive State Anxiety on Athletes

CSA can have a detrimental effect on athletic performance (e.g., Albenza et al., 2009). Athletic performance requires the ability to make controlled, fast-twitch movements with the body with rapid reaction times. This means that the body and mind must be able to perform in complete unison. When the cognitive abilities of an athlete are clouded by worries over the

ability to perform at a high level that comes from cognitive state anxiety, this unity is disrupted (Martens et al., 1990). Furthermore, CSA can create an immediate emotional reaction that leads an athlete to experience feelings of tension, worry, or stress in the mind that, in turn, leads to increased muscular tension (American Psychological Association, 2023). For example, Albenza et al. (2009) studied elite basketball players in the Spanish Amateur Basketball League. Using the State-Trait Anxiety Inventory-S to measure state anxiety, Albenza et al. (2009) was able to test the athletes' CSA levels prior to competitions. High levels of CSA were significantly and positively related to higher turnovers, and negatively related to lower two-point field goal percentage. This shows a direct link between CSA and two of the most important statistics in the game of basketball, illustrating the problematic nature of high CSA.

Studies have also examined other sports with a wide range of sample sizes and have found similar results (Burton, 1988; Chapman et al., 1997; Gould et al., 1984; Guest & Cox, 1999; Rodrigo et al., 1990; Terry & Slade, 1995; Williams & Krane, 1992). Somatic anxiety has had less conclusive results due to the wider range of theories on its' relationship to performance (Woodman & Hardy, 2003), but cognitive anxiety has numerous studies supporting its' negative linear relationship with performance. Burton (1988) found that higher levels of cognitive state anxiety led swimmers to swim slower times in a study with 98 collegiate participants. Rodrigo et al. (1990) studied 51 soccer players and found cognitive state anxiety led to poorer statistical performance. Even larger studies found a strong relationship between state anxiety and performance, as Terry and Slade (1995) found higher cognitive state anxiety and somatic state anxiety were both related to poor performance and losing with a sample of 208 Karate participants. Gould et al. (1984) found that higher cognitive state anxiety was related to poor performance with 37 elite wrestlers. Additionally, golf athletes who experienced higher levels of

CSA performed worse in tournaments in two different studies (Guest & Cox, 1999; Williams & Krane, 1992). Chapman et al. (1997) found that athletes who won in competition had lower levels of CSA, and CSA scores accurately predicted who would win or lose with 62.9% of the participants. These many studies show that performance was hindered greatly by CSA in athletes, but perhaps perceptions of CSA from important others could also play a role.

An athlete's perception of their own level of performance, despite the actual level of performance, could also be a hindrance or predictor of future performances (Almagro et al., 2020). This poses a problem when combined with CSA, as CSA can diminish the athlete's perception of performance. With 219 high school, college and pro basketball players, a strong relationship was found between cognitive and somatic state anxiety and the athlete's perception of their performance (Chun et al., 2023). Athletes' perceived level of performance was lower when they were experiencing higher levels of cognitive anxiety or higher levels of somatic anxiety. The relationship was also larger for those experiencing cognitive anxiety than those experiencing somatic anxiety. Athletes who continually perceived level of performance in a negative way were more likely to regress or play worse over time. As a result of the negative effects of CSA on performance and perceived level of performance, understanding the sources of CSA is important for coaches, athletes, and trainers.

Social Influence on Competitive State Anxiety

While competitive state anxiety is generally agreed to be detrimental to the athletes, what is not yet fully understood is the complex array of potential sources and influences on athletes' CSA. Gillham and Gillham (2014) studied athletes from several different sports to determine the major themes that athletes felt lead to their experiences of CSA. By creating voluntary focus groups, two dominant themes with 11 lower-level categories were found to contribute to the

experience of CSA. The dominant categories were internal and external sources: described as anxiety coming from the athlete themselves versus anxiety caused by an outside occurrence. Internal sources included: investment, uncertainty, self-confidence, and letting self or others down. External sources were spectators, time, competitive level, setting, and consequences. Only self and others' expectations were the two subcategories that emerged for both internal and external sources. Expectations create an interesting dynamic, as it refers to the athlete's expectations to perform well and the perception of others' expectations, such as coaches, for the athlete's level of performance. The impact that another individual, such as a coach, can have on an athlete's anxiety demonstrates how it is not always just the athlete who plays a role in the levels of CSA they feel prior to competition.

Anxiety, in general, has often been shown to be more than an emotion caused by the individual, with the potential for others' anxiety levels to affect another person (e.g., Van Kleef & Cote, 2022). One idea is that anxiety can be passed on from one individual to another subconsciously through the process of emotion contagion (Hatfield et al., 1994). This idea is centered around the way an individual's emotions can be affected by their perception of another person's emotions, as it is believed to be an automatic process that can occur through either implicit or explicit expressions. The process is not limited to the recognition of the observed person's facial expressions or based on the significance of that emotion to the observed person (Parkinson & Simmons, 2009). This process is especially strong for an individual who is engaging with someone they have a desire to have a working relationship with, such as an athlete with the coach (Van Kleef & Cote, 2022). With a sample of 30 college students, individuals experienced the same emotion (e.g., happiness, sadness etc.) that another individual projected, even when the emotions projected by that person were transferred through both intentional and

unintentional pathways (Neumann & Strack, 2000). Intentional pathways are when the observed individual tries to visibly show the emotion, whereas unintentional pathways are the subtle cues an observer notices when watching another individual. This research begins to shape the idea that state anxiety could also be shared from one individual to another.

Emotion contagion can be applied to other emotions, such as anxiety. Parkinson and Simmons (2009) used recording devices to track the decisions individuals (individual A) made throughout their daily lives, and the emotions of their peers within the situation (individual B). They asked individual A about their perceptions of individual B's anxiety, while also having individual B rate their own anxiety when possible. The results showed that individual A's perceptions of individual B's anxiety were similar to the actual anxiety of individual B during the process, thus demonstrating that people are accurate in their perceptions of another person's anxiety (Parkinson & Simmons, 2009). Furthermore, individual A's anxiety was strongly affected by the perceived and actual anxiety of individual B, even without intentional recognition by individual A of individual B's anxiety. These concepts could then be applied to athletics, where athletes are commonly receiving emotional feedback from their coaches.

Mottaghi et al. (2013) applied these concepts to examine the connection between the anxiety of an athlete and the anxiety of their coach. The study consisted of 60 coaches and 540 futsal athletes in Iran. Questionnaires were given to players and coaches before each game, three different times across the tournament. The SCAT (Martens et al., 1990) was used to measure competitive anxiety. Following data collection, data analysis compared the scores of the players' anxiety to the coaches' anxiety. Mottaghi et al. (2013) found significant correlations between the anxiety scores of the coach and the anxiety scores of the athletes. Higher amounts of anxiety from the coach were related to higher amounts of anxiety in the athlete. This relationship

illustrated a major problem, in that athletes were negatively affected by the anxiety levels of the coach. When athletes' anxiety is increased, in this case by their coach, then performance will decrease (Albenza et al., 2009). The findings of Mottaghi et al. (2013) leads to the question of whether this relationship remains the same between an athlete's experience of anxiety and perception of their coach's anxiety. No research has been conducted to answer that question. Nevertheless, these findings in previous research justify the study of this potential relationship.

Self-Confidence

Another factor that can play a major role in athletic performance is self-confidence. Self-confidence is defined as the "perceived ability to accomplish a certain level of performance" (Feltz, 2007). This internal feeling is present in every athlete regarding all kinds of competition, no matter the sport. Thorough research has been done on its impact on performance, with the general idea that self-confidence does have a positive impact on athletic performance (Lochbaum et al., 2022). Draper et al. (2011) studied rock climbers and found that higher levels of self-confidence correlated with higher levels of success on the climb. Hassmen et al. (2004) found a similar effect in golfers, where higher levels of self-confidence correlated with better scores. Self-confidence can even have more of an effect on performance than natural talent, as Dinata et al. (2020) found self-confidence showed a stronger effect on dribbling performance than the athlete's speed. With the way self-confidence plays a role in performance, it is important to understand the situations where self-confidence can play the greatest role.

Self-confidence may have a greater effect on certain types of athletes based on the sport. One theory is that athletes who participate in more individual sports, such as tennis or track and field, would have their performance impacted greater by their self-confidence than athletes who participate in a team sport (Terry, 1995). The idea is individual sports remove the team dynamic

that makes self-confidence less impactful. Terry et al. (1996) studied this further in tennis athletes, finding singles players showed a stronger relationship between self-confidence and performance than did doubles players. This suggests that the presence of another individual can have an impact on the self-confidence of an athlete and its effect on their performance. With that being said, the question then becomes, what kind of impact do other individuals have on self-confidence, such as a coach.

Based on these ideas, Rintaugu et al. (2018) studied the influence of several sources on an athlete's self-confidence levels. Rintaugu et al. (2018) studied 183 university athletes using the Sources of Sport Confidence Questionnaire described by the Vealey model, which identifies nine sources of sports confidence for athletes (Vealey, 1986). The nine sources described by the model are mastery, demonstration of ability, physical or mental preparation, physical self-presentation, social support, coaches' leadership, vicarious experience, environmental comfort, and situational favorableness. Among these categories, coaches' leadership was found to be the most common source of self-confidence among athletes (Rintaugu et al., 2018). Coaches have the ability to either increase or decrease the self-confidence an athlete experiences simply through their leadership. All of their actions, from the way they act at practice to their attitudes off the court, can contribute to the leadership they show towards the athlete. The question becomes how an athlete can be affected simply through their perceptions of coaching behavior, and what role their coaches' anxiety and self-confidence have in the CSA and self-confidence of the athlete regarding an upcoming competition.

Method

Participants

Participants were recruited from several sports from the University of Northern Iowa's Division I athletic department. Sports included: track and field (men's and women's), softball, and women's soccer. Only participants currently in their competition season were recruited. All participants were between the ages of 18 to 25 years (M = 20.33, SD = 1.43), with a majority ranging from true freshmen to true seniors (75%). More than half of the athletes were starters 100% of the time, and most of the athletes were in mid-season (93.7%). Training ranged from 5 to 22.5 hours/week (M = 13.72, SD = 5.07). Of the 97 participants, 69 identified as female and 27 as male. Participants were predominantly Caucasian (88.5%), with African American (4.2%), Hispanic/Latino (4.2%), Bi-racial (2.1%), and Pacific Islander (1.0%) also represented.

Procedure

Data was collected following a lifting session. Athletes were asked to voluntarily complete a questionnaire regarding their competitive state anxiety going into a competition and their perceptions of coach's anxiety. Athletes were assured that the form and their decision to participate would remain confidential and would not have any effect on playing time or status on their team. Athletes were also assured that they could stop at any time. Athletes who agreed to participate read and signed the consent form, and then received an explanation as to how to complete the survey. Participants were asked to complete the questionnaire at the site and place the questionnaire in the envelope provided. On average, participants completed the questionnaire in 10 minutes.

Measures

Competitive State Anxiety

Athletes' competitive state anxiety and confidence was assessed using the Revised Competitive State Anxiety Inventory-2 (Cox et al., 2003). Cox et al. (2003) developed the CSAI-2R as an improved version of the original CSAI-2 that Martens et al. (1990) first developed. The CSAI-2R is a 17-tem questionnaire that asks participants to answer questions to assess levels of somatic anxiety, cognitive anxiety, and self-confidence in the athlete. Participants were asked questions such as "I am concerned about performing poorly" or "I feel my stomach sinking" and then instructed to respond to each item on a four-point Likert scale ranging from 1 = "Not at all", to 4 = "Very much so". Subscale scores are evaluated by calculating the mean score for each creating a range of 10 to 40. The CSAI-2R shows strong internal validity, with Cronbach alpha scores greater than .8 for all subscales (Cox et al., 2003).

Athlete's Perception of Coach's Competitive State Anxiety

The athlete's perception of their coach's anxiety and confidence heading into the competition was also assessed. The scale used concepts from previous scales that asked athletes about the behaviors of their coach, the Coaching Behavior Scale for Sport (Cote et al., 1999), and the Perceived Motivational Climate in Sport Questionnaire-2 (Walling et al., 1993). Due to the measurement being an exploratory scale for the current study, no reliability or validity scores are available. The measurement is a 17-item questionnaire that asks participants to answer questions about the behaviors they have witnessed or experienced from their coach, measuring the perceived anxiety and confidence of their coach in regard to the upcoming competition. Participants are asked questions such as "My coach is concerned we will perform poorly" or "My coach has been more critical of mistakes recently" and respond using a four-point Likert

scale ranging from 1 = “Not at all” to 4 = “Very much so”. The measurement includes reverse-scored questions, allowing for a test of internal validity.

Demographics

Demographics included questions about which sport they participate in, the number of competitions coming up, the importance of the upcoming competitions, gender, age, and playing status. Lastly, athletes were asked an open-ended question “Is this upcoming competition very important? Why or what makes this one so important?”.

Data Analysis

Data was entered into the SPSS statistical package. Preliminary analyses included descriptives, frequencies, and reliabilities. To answer the first research question about the relationship between athletes’ CSA and perceived coaches’ CSA, a correlation analysis was conducted. The same process was repeated to answer the second research question about the relationship between athletes’ self-confidence and perceived coaches’ self-confidence. To answer the third research question about the influence of an athlete’s perception of their coach’s CSA on their own CSA, a multivariate multiple regression was conducted. The same process was repeated for the fourth research question about the influence of an athlete’s perception of their coach’s self-confidence on their own self-confidence.

Results

Scale Reliabilities

Alpha coefficients were computed to determine scale reliabilities for all constructs. All reliability values were acceptable, demonstrating alphas >.75. One item was dropped entirely ("My coach has spent more time in the office recently") due to a low response rate. For perceived coach self-confidence, one item ("My coach made practices more relaxed this week") was deemed unreliable based on item analysis (inter-item correlations, squared multiple correlation, item-total correlation). Similarly, from the perceived coaches' competitive anxiety scale, one item ("My coach has been scattered / unprepared at practice") was deemed unreliable.

Relationships between Athletes' Competitive Anxiety, Self-Confidence, and Perceived Coaches' Competitive Anxiety and Self-Confidence

Correlations between athletes' competitive state anxiety and perceptions of coach anxiety were analyzed. See Table 1 for all correlations, means, and alpha reliabilities. Somatic anxiety was significantly and moderately related to perceived coach anxiety (r = .38). Cognitive anxiety was also significantly and moderately related to perceived coach anxiety (r = .29). This means that higher levels of athletes' somatic anxiety were related to higher perceived coach anxiety, as well as higher levels of athletes' cognitive anxiety was related to higher perceived coach anxiety. In general, the more anxious an athlete perceived their coach to be, the more competitive state anxiety they experienced regarding their upcoming competition.

Correlations between athlete self-confidence and perceived coach self-confidence were then analyzed. Athlete self-confidence was significantly and moderately related to perceived

coach self-confidence (r = .44). This positive correlation suggests that higher levels of athlete self-confidence were related to higher perceptions of their coach's self-confidence.

The correlation between the athletes' competitive state anxiety and perceptions of coach self-confidence was also assessed. Neither somatic anxiety nor cognitive anxiety were statistically significant related to perceived coach self-confidence. The correlation between athletes' self-confidence and perceived coach anxiety was found to be both significant and moderately strong (r = -.41). A negative relationship indicates that as levels of perceived coach anxiety increased, the levels of self-confidence the athletes experienced decreased. As athletes perceived their coaches to be more anxious, they felt less self-confident in their abilities regarding the upcoming competition.

Table 1
Correlations, reliabilities, means, and standard deviations for all constructs

Variables	Cognitive Anxiety	Somatic Anxiety	Self-Confidence	Perceived Coach Anxiety	Perceived Coach Self-Confidence
Cognitive Anxiety	**.80**				
Somatic Anxiety	.54*	**.82**			
Self-Confidence	-.54*	-.22*	**.88**		
Perceived Coach Anxiety	-.13	-.03	.44*	**.81**	
Perceived Coach Self-Confidence	.29*	.38*	-.41*	.51*	**.75**
M	2.40	1.90	2.97	2.74	1.83
SD	.73	.63	.62	.72	.61

Note: * Indicates significant, $p \leq .05$; Cronbach alphas can be seen along the diagonal in bold

Predictors of Athlete Anxiety and Self-Confidence

A simultaneous multiple regression was conducted to analyze the predictors of athletes' cognitive anxiety. Perceived coach anxiety and perceived coach self-confidence were the predictor variables, and athlete self-confidence and athlete competitive anxiety were the outcome variables. The regression was significant: $F_{(2, 93)} = 4.38$, $p \leq .02$, $R = .29$, with 9% of the variance in athletes' cognitive anxiety accounted for by the predictor variables. Using standardized β weights, only perceived coach anxiety ($\beta = .31$) emerged as a significant predictor of athlete cognitive anxiety. For these participants, higher perceived coach anxiety predicted higher cognitive anxiety in the athlete.

A simultaneous multiple regression was also conducted to determine if perceived coach anxiety and perceived coach self-confidence were predictors of athletes' somatic anxiety. The regression was significant: $F_{(2, 93)} = 10.56$, $p \leq .001$, $R = .43$, with 18.5% of the variance in athletes' somatic anxiety accounted for by the predictor variables (perceived coach anxiety, perceived coach self-confidence). Using standardized β weights, both perceived coach anxiety ($\beta = .45$) and perceived coach self-confidence ($\beta = .23$) emerged as significant predictors of athlete somatic anxiety. Higher perceived coach anxiety and perceived coach self-confidence predicted higher somatic anxiety in the athletes.

A final simultaneous multiple regression was conducted to analyze which constructs were the significant predictors of athlete self-confidence. The regression was significant: $F_{(2, 93)} = 14.71$, $p \leq .001$, $R = .49$, with 24% of the variance in athletes' self-confidence accounted for by the predictor variables (perceived coach anxiety, perceived coach self-confidence). Using standardized β weights, both perceived coach anxiety ($\beta = -.25$) and perceived coach self-confidence ($\beta = .31$) emerged as significant predictors of athlete self-

confidence. Higher perceived coach self-confidence predicted higher self-confidence in the athletes. In contrast, higher coach anxiety predicted lower self-confidence in the athletes.

Discussion

Previous research has not explored the idea of the impact of the perception of coaching behaviors by the athletes on their own experiences of competitive state anxiety and self-confidence. The current study aimed to explore this concept, first by identifying the potential relationship between the experience of competitive state anxiety and the behaviors of their coach. The goal was to identify the potential predictors (i.e., perceived coach anxiety, perceived coach self-confidence) of competitive state anxiety and self-confidence. It was expected that athletes' competitive state anxiety would be related to perceived coach anxiety, as well as athletes' self-confidence related to perceived coach self-confidence. Additionally, higher levels of perceived coach anxiety would predict higher levels of athlete competitive state anxiety, and lower levels of perceived coach self-confidence would predict lower levels of athlete self-confidence. The data supports these hypotheses, as perceived coach anxiety predicted athlete cognitive anxiety, somatic anxiety, and self-confidence, and perceived coach self-confidence predicted athlete somatic anxiety and cognitive anxiety.

Several relationships were analyzed that give insight into the experience of competitive state anxiety in athletes. Competitive state anxiety reveals itself in many ways, such as cognitive and somatic anxiety, both of which have different impacts on performance in athletes (Martens et al., 1990). It was found that perceived coach anxiety was a significant predictor of athlete cognitive anxiety, and both perceived coach anxiety and perceived coach self-confidence were significant predictors of somatic anxiety in the athlete. While previous research has not directly analyzed this relationship, several studies suggested the relationship was possible (e.g., Mottaghi

et al., 2013). Mottaghi et al. (2013) asked athletes to rate their CSA and then asked coaches to rate their anxiety, and found a significant relationship between those two variables. Additionally, Parkinson and Simmons (2009) found that people can accurately detect another person's anxiety which resulted in changes to their own anxiety levels. These findings suggested the idea that coaches' anxiety could influence athletes' levels of anxiety.

The findings from the current study make intuitive sense. Athletes spend most of their preparation for a competition with their coach. This includes practices, lifting, film study, warm-up for competition, and in many sports, coaching during the competition. Furthermore, due to the amount of time a coach spends with an athlete in preparation, coaches' behaviors predict the preparedness and likelihood of success for that athlete. Coaches also have immense amounts of pressure on them to prepare athletes, and ultimately, lead their teams to accomplishments. Thus, coaches can develop intense levels of anxiety about upcoming competitions that in turn affect the interactions with athletes. For example, a coach who is feeling pressure to win a conference championship is likely to raise standards and be more critical of the athletes during that week. This increase in intensity and anxiety can be experienced by the players directly and could make athletes feel more anxious as a result (Van Kleef & Cote, 2022). This creates a dynamic that could adversely impact the performance of the athletes. As coaches are more critical of mistakes and show an increased concern of losing, athletes' perception of coach anxiety increases, which increases athletes' own anxiety. Athletes who experience an increase in competitive state anxiety tend to see a decrease in athletic performance (e.g., Albenza et al., 2009; Chapman et al., 1997; Guest & Cox, 1999). Future research should seek to clarify this relationship and find moderating variables for this relationship.

Furthermore, the explored relationship between perceived coach anxiety and perceived coach self-confidence on athlete self-confidence gave important insights. Perceived coach anxiety and perceived coach self-confidence were significant predictors of the self-confidence of the athletes. The more anxious a coach was perceived to be predicted lower self-confidence in the athlete. Additionally, the less self-confident the coach was perceived to be, the lower the self-confidence in the athletes themselves. This impact of coaching behavior and self-confidence on the athletes' self-confidence further strengthens the findings of Rintaugu et al. (2018), who found coaching leadership/behaviors were the most cited source of athletes' self-confidence. Athletes recognized the leadership behaviors of their coaches, such as being supportive and encouraging, as signals of high self-confidence. This in turn impacted their own self-confidence, following a similar relationship to the emotion contagion concept explained by Parkinson and Simmons (2009). As athletes witnessed low self-confidence and high anxiety in their coaches, it had an adverse effect on athletes' self-confidence.

This relationship can be understood when put into the context of the coach-athlete relationship. Coaches play a pivotal role in the performance and preparation of the athletes. In many sports, coaches have direct impacts on pieces of gameday performance, such as lineups, gameplans, substitutions, etc. Coaches have an even more impactful role in preparation, setting game plans, and practice schedules that give athletes an indicator of the attitudes of the coach towards the upcoming competition. This working relationship makes it more likely that athletes will recognize and be affected by the attitudes and emotions of their coach (Van Kleef & Cote, 2022). A coach who is preparing for a game against a superior opponent may lack confidence in the teams' preparedness or ability to win. This could cause coaches to be less encouraging, less supportive, and less easygoing during the practices preparing for the competition. Athletes then

recognize this lack of support and their coaches' lack of confidence in their abilities to win, which may cause athletes to have lower self-confidence. This is a detrimental situation, as the decrease in self-confidence will only decrease chances of success (e.g., Draper et al., 2011), and potentially increase competitive state anxiety.

Limitations and Future Research

The findings from the current study could be extended by research that clarifies moderating variables that increase the likelihood of athletes seeing increased competitive state anxiety from the behaviors of their coaches. One example would be finding the impact of the importance of the competition on the athletes' experiences. The question was asked in the current study "Is your upcoming competition very important? Why or what makes this one so important?" to attempt to address this idea. However, almost all the responses stated the competition was important. Many of the responses simply stated that "all competitions are important". For this reason, the results were not included as a part of the conclusion. However, future research could find a more accurate and reliable way to measure the importance of the competition. Analyzing the relationship that the importance of the competition has on the other variables in the current study would give insight for coaches as to which situations are more likely to affect coach behaviors, and ultimately, the athletes.

Further research could also explore the impact of perceived coach self-confidence in different situations. For example, perceived coach self-confidence may be lower when the competition is deemed to be more important to the athlete. An effective way to measure the importance of the competition to the athlete would allow for this relationship to be studied further. It is also suggested that future research explore potential differences related to individual and team sports. Terry (1995), found that athletes who competed in individual sports reported

that self-confidence influenced performance more so than athletes who competed in team sports. It is possible that a similar relationship exists between perceived coach self-confidence and athlete self-confidence and performance. Lastly, another future area of research would examine the impact of the type of relationship the coach has on the athletes' preparation and game plan. For example, track and field coaches have limited impact within the performance itself than do football coaches, as football coaches make the gameplan, call plays, determine time outs, and make substitutions that have a direct impact on the athletes' performance. With this being said, a stronger relationship between the perceived coach self-confidence and athlete self-confidence may exist when the coach plays a greater role in the competition itself.

Practical Implications

Based on these findings, several practical implications are suggested. The key importance of the findings of the current study is due to the impacts on the performance of the athlete. Everyone involved in athletics, from coaches, to administrators, to fans, to the athletes themselves, has a vested interest in ensuring every athlete the best opportunity for success. Consequently, administrations and coaching staffs need to have a clear understanding of the impact different coaching behaviors can have on athletes. Whether it be behaviors that athletes perceive as representing anxiety or self-confidence, these behaviors can directly impact the competitive mental state of athletes, and ultimately, hinder performance (e.g., Albenza et al., 2009; Draper et al., 2011). Athletes should also be aware of this effect, and may implement specific techniques. Athletes may also communicate with their coaches to prevent the adverse effects on performance.

Sport organizations should place a concerted effort on training coaches. While many coaches put in lots of extra hours researching the best strategies and physical training tips, few

are probably aware of the impact coaching behaviors have on competitive anxiety and self-confidence of their athletes. Coaches should use this information to guide the way they interact with their athletes and the feedback given. For example, it is important for coaches to maintain a steady level of feedback to athletes for physical mistakes. Often times, coaches become more critical of mistakes and are harsher when correcting errors, which creates a perception of coach anxiety that, in turn, increases the competitive anxiety of the athlete. Maintaining consistent levels of support and showing confidence in the teams' ability to win is also important. These behaviors make the coach appear more self-confident, thus ultimately increasing the self-confidence of the athletes. By providing important feedback, corrections, and encouragement, perceptions of coaching behavior would be more positive, leading to less competitive anxiety and more self-confidence in the athlete.

Athletes would also benefit from understanding the impact of coaching behaviors on their own mental status. In the end, athletes should recognize when coaching behaviors are affecting them. Athletes may be aware of whether a coaching behavior appears to be the result of coach anxiety or self-confidence. As a result, athletes play an important role in communicating those behaviors to their coaches. When coaches appear to be concerned about losing, are less easy-going, or less supportive, it is important for the athletes to convey those feelings to their coach. This may happen through direct communication with the coach by that athlete or by first communicating with a captain who brings concerns to the coach, depending on the relationship between the athlete and coach. By communicating, the coaches can engage in techniques to reassure the athlete of their confidence and reduce those behaviors in the future. At the same time, athletes can combat the effects of perceived coach anxiety and perceived coach self-confidence by engaging in anxiety-reducing techniques for themselves. For example, one

technique that can be implemented to reduce competitive anxiety is imagery, which has an increased positive effect on anxiety and self-confidence (Di Nota & Huhta, 2019; Lotze et al., 1999). Athletes could also implement positive self-talk in situations when they feel their competitive state anxiety increasing. Positive self-talk both decreases competitive anxiety and increases self-confidence, ultimately increasing performance (Walter et al., 2019). Athletes will make improvements in their performance if they can recognize and communicate the behaviors of their coaches that impact anxiety and self-confidence as well as implement strategies to decrease their competitive state anxiety.

Conclusion

While many studies have focused on the effects of an athlete's anxiety on performance, few studies have examined the impact an athlete's perception of their coach can have on their anxiety (Mottaghi et al., 2013). The current study aimed to answer this question by assessing the competitive state anxiety of an athlete and their perceptions of their coaches' anxiety and self-confidence. It was hypothesized that higher perceived coach anxiety would predict higher athlete anxiety, as well as lower perceived coach self-confidence predicting lower athlete self-confidence. These hypotheses were confirmed through simultaneous multiple regression analysis. Coaches and athletes alike can benefit from the findings of the current study in order to improve performance. Coaches should be aware of the way that certain behaviors can make athletes perceive coaches as more anxious and less self-confident. Athletes should communicate with coaches, and implement anxiety-reducing strategies in order to assist with coping and the effects of their coach being more anxious and less self-confident that week. Understanding the perception athletes have of their coaches' behaviors prior to competitions is of utmost importance in ensuring athletes have the best possible chance for a successful performance.

References

Albenza, L., Alarcon, F., Pinar, M. I., & Urena, N. (2009). Relationship between the anxiety and performance of a basketball team during competition. *Revista de Psicologia del Deporte, 18*(3), 409-413.

American Psychological Association. (2023, March 8). *Stress effects on the body*. APA.org. https://www.apa.org/topics/stress/body

Almagro, B. J., Sáenz-López, P., Fierro-Suero, S., & Conde, C. (2020). Perceived performance, intrinsic motivation and adherence in athletes. *International Journal of Environmental Research and Public Health, 17*(24), 9441. https://doi.org/10.3390/ijerph17249441

Chapman, C., Lane, A. M., Brierley, J. H., & Terry, P. C. (1997). Anxiety, self-confidence and performance in tae kwon-do. *Perceptual and Motor Skills, 85*(3), 1275-1278. https://doi.org/10.2466/pms.1997.85.3f.1275

Chun, D. R., Lee, M. Y., Kim, S. W., Cho, E. Y., & Lee, B. H. (2023). The mediated effect of sports confidence on competitive state anxiety and perceived performance of basketball game. *International Journal of Environmental Research and Public Health, 20*(1), 334. https://doi.org/10.3390/ijerph20010334

Cote, J., Yardley, J., Hay, J., Sedgwick, W., & Baker, J. (1999). An exploratory examination of the Coaching Behavior Scale for Sport, *AVANTE, 5,* 82-92.

Cox, R. H., Martens, M. P., & Russell, W. D. (2003). Measuring anxiety in athletics: The Revised Competitive State Anxiety Inventory-2. *Journal of Sport and Exercise Psychology, 25*(4), 519-533. https://doi.org/10.1123/jsep.25.4.519

Dinata, E. P, Umar, & Argantos. (2020). The effect of agility, speed, and self-confidence towards dribbling agility in football game. *Advances in Social Science, Education, and Humanities Research, 464*, 741-745. https://doi.org/10.2991/assehr.k.200824.165

Di Nota, P. M. & Huhta, J. M. (2019). Complex motor learning and police training: Applied, cognitive, and clinical perspectives. *Frontiers in Psychology, 10*, 1797. https://doi.org/10.3389/fpsyg.2019.01797

Draper, N., Dickson, T., Fryer S., & Blackwell, G. (2011). Performance differences for intermediate rock climbers who successfully and unsuccessfully attempted an indoor sport climbing route. *International Journal of Performance Analysis in Sport, 11*, 450-463. https://doi.org/10.1080/24748668.2011.11868564

Feltz, D. L. (2007). Self-confidence and sports performance. *Essential Readings in Sport and Exercise Psychology,* 278-294. https://doi.org/10.1249/00003677-198800160-00016

Gillham, E., & Gillham, A. D. (2014). Identifying athletes' sources of competitive state anxiety. *Journal of Sport Behavior, 37*(1), 37-55.

Gould, D., Petlichkoff, L., & Weinberg, R. S. (1984). Antecedents of, temporal changes in, and relationships between CSAI-2 subcomponents. *Journal of Sport Psychology, 6*(3), 289-304. https://doi.org/10.1123/jsp.6.3.289

Guest, J. Z., & Cox, R. H. (1999). Golf performance and individual zone of optimal functioning. *Applied Research in Coaching and Athletics Annual, 14*, 130-149.

Hassmen, P., Raglin, J. S., & Lundqvist, C. (2004). Intra-reliability variability in state anxiety and self-confidence in elite golfers. *Journal of Sport Behavior, 27*(3), 277-290.

Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1994). Emotional contagion. *Cambridge University Press, 2*(3). https://doi.org/10.1111/1467-8721.ep10770953

Lochbaum, M., Sherburn, M., Sisneros, C., Cooper, S., Lane, A. M., & Terry, P. C. (2022). Revisiting the self-confidence and sport performance relationship: A systematic review with meta-analysis. *International Journal of Environmental Research and Public Health, 19*(11), 1631. https://doi.org/10.3390/ijerph19116381

Lotze, M., Montoya, P., Erb, M., Hulsman, E., Flor, H., Klose, U., Birbaumer, N., & Grodd, W. (1999). Activation of cortical and cerebellar motor areas during executed and imagined hand movements: An fMRI study. *Journal of Cognitive Neuroscience, 11*(5), 491-501. https://doi.org/10.1162/089892999563553

Martens, R., Vealey, R. S., & Burton, D. (1990). *Competitive anxiety in sport.* Human Kinetics Publishers.

Mottaghi, M., Atarodi, A., & Rohani, Z. (2013). The relationship between coaches' and athletes' competitive anxiety and their performance. *Iran J Psychiatry Behav Sci, 7*(2), 68-76.

Munroe-Chandler, K. J., & Guerrero, M. D. (2017). Psychological Imagery in Sport and Performance. *Oxford Research encyclopedia of Psychology*. https://doi.org/10.1093/acrefore/9780190236557.013.228

Neumann, R., & Strack, F. (2000). "Mood contagion": The automatic transfer of mood between persons. *Journal of Personality and Social Psychology*,*79*(2), 211-223. https://doi/10.1037/0022-3514.79.2.211

Parkinson, B., & Simons, G. (2009). Affecting others: Social appraisal and emotion contagion in everyday decision making. *Personality and Social Psychology Bulletin, 35*(8), 1071-1084. https://doi.org/10.1177/0146167209336611

Rintaugu, E., Mwangi, F. M., & Toriola, A. (2018). Sources of sports confidence and contextual factors among university athletes. *Journal of Physical Education and Sport, 18*(2), 889-895. http://dx.doi.org/10.7752/jpes.2018.02132

Rodrigo, G., Lusiardo, M., & Pereira, G. (1990). Relationship between anxiety and performance in soccer players. *International Journal of Sport Psychology, 21*(2), 112-120.

Terry, P. C. (1995). The efficacy of mood state profiling with elite performers: A review and synthesis. *Sport Psychology, 9*(3), 309-324. https://doi.org/10.1123/tsp.9.3.309

Terry, P. C., & Slade, A. (1995). Discriminant effectiveness of psychological state measures in predicting performance outcome in karate competition. *Perceptual and Motor Skills, 81*(1), 275-286. https://doi.org/10.2466/pms.1995.81.1.275

Terry, P. C., Cox, J. A., Lane, A. M., & Karageorghis, C. I. (1996). Measures of anxiety among tennis payers in singles and doubles matches. *Perceptual Motor Skills, 3*(2), 595-603. https://doi.org/10.2466/pms.1996.83.2.595

Van Kleef, G. A., & Cote, S. (2022). The social effects of emotions. *Annual Review of Psychology, 73*(1), 629-658. https://doi.org/10.1146/annurev-psych-020821-010855

Vealey, R. S. (1986). Conceptualization of sport-confidence and competitive orientation: Preliminary investigations and instrument development. *Journal of Sport Psychology, 8*(3), 221-246. https://doi.org/10.1123/jsp.8.3.221

Walling, M. D., Duda, J. L., & Chi, L. (1993). The Perceived Motivational Climate in Sport Questionnaire: Construct and predictive validity. *Journal of Sport & Exercise Psychology, 15*(2), 172-183. https://doi.org/10.1123/jsep.15.2.172

Walter, N., Nikoleizig, L., & Alfermann, D. (2019). Effects of self-talk training on competitive anxiety, self-efficacy, volitional skills, and performance: An intervention study with junior sub-elite athletes. *Sports, 7*(6), 148. https://doi.org/10.3390/sports7060148

Williams, J. M., & Krane, V. (1992). Coping styles and self-reported measures on state anxiety and self-confidence. *Journal of Applied Sport Psychology, 4*(2), 134-143. https://doi.org/10.1080/10413209208406457

Woodman, T., & Hardy, L. (2003). The relative impact of cognitive anxiety and self-confidence upon sport performance: A meta-analysis. *Journal of Sports Sciences*, *21*(6), 443-457. https://doi.org/10.1080/0264041031000101809