Associations Among Athlete Mental Health, Performance Satisfaction, Challenge States, and Trait Mindfulness

Dallas Cressell, Luis De Luna, Erin DiSanti, and Dylan Johnson

Rockford University

Abstract

Mental health among collegiate level athletes is a widely studied topic today. Nevertheless, further research is still required to evaluate an athlete's mental health and its relation to other constructs that may play a role in their wellbeing. This study looks further into the constructs of an athlete's performance satisfaction, perceived challenge or threats, and trait mindfulness as it relates to their overall mental health. Four scales were used to assess the constructs of performance satisfaction (Athlete Performance Satisfaction Scale), perceived challenge or threat (CAT-Sport), trait mindfulness (MAAS-Short), and mental health symptoms (DASS-42), as they relate to a collegiate level athlete's mental wellbeing. Collegiate level athletes at a private midwestern university completed the DASS-42, CAT-Sport, Athlete Performance Satisfaction Scale, and the MAAS-short. Correlations were between the DASS-42 subscales and each of the other scales. There were no significant findings found between the DASS-42 subscales (depression, anxiety, and stress), and scores from the three other scales. Additional exploratory analyses found no significant associations between each scale (Athlete Performance Satisfaction Scale, CAT, and the MAAS-short).

Associations Among Athlete Mental Health, Performance Satisfaction, Challenge States, and Trait Mindfulness

Mental health in athletes is at a greater risk than we may realize. Puri and Sood (2018) define mental health as a state of well-being that makes individuals realize their potential and cope with everyday stressors and argue that. less attention in recent years has been paid towards the positive mental health of athletes. Based on a review of cross sectional study on 224 elite athletes, they further posit that athletes are at greater risk because of their expectation to perform to the best of their abilities and meet expectations which may lay lead to overtraining and burnout (Hedstrom & Gould, 2004,Kallus & Kellmann, 2000 Malina, 2010).

Puri and Sood (2018) found that mental health influences the performance athletes to a great extent. The presence of negative emotions may restrict athletes' cognitions and can diminish their mental health and their performance. Athletes with positive emotions can perceive their performance stress in a more challenging way and turn tasks coping which in return can positively impact their performance. On the other hand, negative emotions make athletes perceive their performance stress in more of a threatening way and encourage the use of more distraction coping skills which may have a negative impact on their performance. Positive thinking among athletes are related with greater positive affect and less mental distress (Puri & Sood, 2018).

Athletes themselves may be taught to be tough and to focus on physical performance, and thus, mental disorders may be especially stigmatized among athletes. In a literature review on the topic of sports psychiatry, Bär and Markser (2013) stated that the neglect of the mental symptoms of professional athletes and their need for specific treatment has led to consequences due to a delay in diagnosis and lack of proper therapy and knowledge. This study focused on

sports related issues of eating disorders, exercise addiction, dementia pugilistica and mood disorders. It was suggested that there was a psychiatric approach to athlete mental health, or sports psychiatry, a field dating back to the 1930s, Glick and Horsfall (2009) provide three main reasons for specific treatment of athletes: first, stated that a mind of an athlete has an impact on their performance; second, their participation in their sport can affect a person's mood, thinking, personality and health; and third, psychiatric care for the athlete needs to be adapted to athletes and to an athletic mind. In addition, the increasing media fixation and commercialization of ''success'' have led to time-pressure and reduced time for recreation and ultimately has dramatically increased the overall level of emotional stress that people experience in daily life (Bär & Marsker, 2013). Thus, we believe that the described mental disorders suffered by high performance athletes are brought about by sport-specific mental stress.

Depressive symptoms in athletes seems to be especially prevalent and uniquely related to psychosocial issues and burnout specific to sports, including greater physical overload or exhaustion compared to nonathletes that may require different treatment and attention (Mummery, 2005). Several professional issues affect the availability of depression treatment tailored to athletes, including that providers are often skilled in psychoeducation and do not often know the aspects of sports psychology and factors influencing athlete mental health and the notion that athletes' mental health needs can be addressed by clinical psychologists and psychiatrists without expertise in athletics; Mummery (2005) also argues that depression among athletes warrants further attention in research. The proposed study seeks to examine sport-specific and psychological correlates of athlete mental health across depression as well as general stress and anxiety, including evaluations of athletic performance, subjective interpretations of engaging in sports, and trait mindfulness.

Athlete Performance and Satisfaction

Given the competitive nature of sports involvement, inherently tied to athletic status is athletic performance, which may also be related to psychological and mental health constructs within athletes. Moreover, Nicholls, Taylor, Carroll, and Perry (2016) identify that athletic performance can be measured in two ways; objectively and subjectively. Where objective measurements for athletes are performance scores or player statistics for each sport (e.g. batting average, shooting percentage, and number of tackles), subjective measurements are self-reports about the athlete's satisfaction with their performance. Based on objective measurement, in an experimental study of elite-level shotgun shooters (n=16), Causer, Holmes, Smith, and Williams (2011) found that anxiety impaired the participants, which negatively affected their performance. Chelladurai and Reimer (1997) classified subjective components of athlete satisfaction for sport outcome to include personal performance, goal attainment, performance improvement, and personal growth.

Within performance satisfaction, previous literature suggests that there is a relationship between mental health and athletic performance satisfaction. Weiss and Ebbeck (1996), in a review of studies with adolescent athletes, found that an athlete's perception of physical competence, or a person's description and evaluation of their abilities within sports, may be related to experiences of affect. Specifically, Weiss and Ebbeck note that higher levels of positive self-perceptions of sport ability were associated with higher levels of positive affect, as well as higher levels of negative self-perceptions of sport ability were associated with higher levels of negative affect. Similarly, in a self-report research study of 557 athletes between ages 18-64, Nicholls, Pollman, and Levy (2012) found that athletes' appraisals were significantly strongly correlated with pleasant or unpleasant emotions, and that these emotions were also

strongly associated with performance satisfaction. In this case, appraisals were defined by the athlete perceiving an event as a challenge, associated with pleasant emotions, or as a threat, associated with unpleasant emotions. Furthermore, while this previous literature demonstrates the relationship between athlete performance, performance satisfaction, and mental health further research is needed to enhance understanding of the relation between athlete performance satisfaction and mental health, one purpose of the proposed study.

Challenge and Threat State

Challenge and threat (CAT) states represent two ways in which an athlete may perceive the pressures of a sports situation. According to Brimmell, Parker, Wilson, Vine, and Moore (2019) athletes who perceive the pressurized situation as a "challenge state" focus on their sufficient resources to cope with the demands of the situation. In contrast, athletes who believe that they lack necessary coping skills, evaluate the situation as a "threat." Challenge states are observed in individuals who contain motivation that is goal-directed and stimulus-driven and can effectively control their attentional focus on the task at hand. Threat states are seen in athletes who are less goal-directed and more-stimulus driven and more easily distracted. Studies show that perceiving sport situations as more of a challenge rather than a threat is positively correlated with the athletes' performance. Specifically, Oudejans, Kuijpers, Kooijman, and Baker (2011) conducted a study based on the verbal reports of 350 athletes' thoughts and attention when under pressure, focusing on anxiety, stress, and coping. Based on their findings, they explained that an elite athlete, in critical moments, either focuses on executing their skill sets or worrying about the outcome. They concluded that "choking under pressure," or worrying about the outcome, occurs because their attentional focus is directed towards the stressful circumstances.

Previous literature on challenge and threat states in sport situations suggests that there is a relationship between challenge and threat states in sport situations and mental health. Hase, O'Brien, Moore, and Freeman (2018) performed a systematic review which evaluated 38 studies on the relationship between challenge and threat states and performance. Their findings support the idea that challenge and threat states occur on both a cognitive (underlying demand/resource evaluations) and a physiological (cardiovascular responses) level. Cognitive measures of CAT states may consider situational demands, coping resources, mental health, perceived performance and satisfaction, as well as mindfulness. Physiological measures of CAT states are identified by an athlete's cardiovascular patterns. Hase et al. (2018) concluded that a threat state may lead to more negative emotions and unfavorable performances, whereas perceiving sport situations as a challenge state may promote an attentional focus directed towards individual skills and attributes. A further purpose of the proposed study is to test these associations among perceived challenge versus threat and mental health symptoms in a sample of college athletes.

Mindfulness

In addition to potential benefits associated with perceiving sports as a challenge rather than threat, trait mindfulness may be protective for athlete mental health. Sala (2019) states that mindfulness is focusing on one's present-moment involvement with acknowledgment and nonjudgment, and through meta-analysis Sala found evidence for the construct of "trait" mindfulness, a multi-dimensional characteristic that can be measured, and potentially modified or enhanced, in a person. In a study examining risk factors among elite level athletes, Hughes and Leavey (2012) found that athletes may be vulnerable to psychological instability for a few reasons. In the first place, the social universe of many organized elite sports requires ventures of time and vitality, frequently bringing about lost individual independence and debilitation for

athletes. The elite-sport environment can bring about “personality abandonment” leaving young athletes with a limited number of avenues through which to shape and express various aspects of their personality. This, combined with overtraining and competitor burnout, is associated with increased risk for mental health disorders, specifically depressive disorders, among athletes (Hughes and Leavey, 2012).

Mindfulness interventions may serve as a successful approach to enhancing athlete psychological stability and helping athletes improve in sports and in life (Vicdic, 2017). In a randomized experiment involving 27 cyclists were assigned to an eight-week mindfulness intervention compared to a control group, Scott, Schutte, and Brown (2016), found that mindfulness training increased flow and trait mindfulness and decreased sport-specific anxiety and stress, and baseline trait mindfulness is an important factor to consider before designing and applying interventions with athletes. Given that trait mindfulness may serve as a protective factor for mental health within the context of sport, the proposed study also seeks to examine the relations between trait mindfulness and mental health, specifically symptoms of depression and anxiety, in a sample of college student athletes.

Hypotheses

The purpose of the study is to examine mental health in a sample of college athletes and study the relationship between athletes’ mental health and their satisfaction of their performance, perceived challenge states, and mindfulness as a trait in athletes. Within this study we developed four hypotheses:

1. Athletes will self-report moderate to high levels of general stress, as well as symptoms of depression and anxiety.

2. Athlete performance satisfaction will be negatively associated with self-reported general stress, depression, and anxiety symptoms.
3. Perceived challenge in sport will be negatively associated with mental health symptoms, while perceived threat in sport will be positively associated with mental health symptoms
4. Trait mindfulness will be negatively associated with self-reported general stress, depression and anxiety symptoms.

Method

Participants

Participants included student athletes from a small, private Midwest University ($N = 60$). Due to the nature of the study, inclusion criterion was that each participant be a current college athlete. As a result, participants were asked to report years of experience within their sport(s), and participants reported a range of 1-22 years of experience ($M = 11.18$, $SD = 5.20$). In addition, participant's Social Economic Status (SES) was also calculated as income earned per family member with a mean of $17,174 ($SD = $9,664). Additional sample characteristics, such as race, grade level, and sport played are provided in Table 1.

Materials

Depression Anxiety Stress Scale: DASS-42 is a 42-item scale to measure symptoms of depression and anxiety as well as general stress (see Appendix A). This measure has demonstrated validity for evaluating the degree of convergence between the emotional states experienced by non-clinical and by depressed and anxious patients (Lovibond & Lovibond, 1995). Participants were asked to rate to the extent have they experienced the 42 items on a 4-point frequency scale. The measurement demonstrated high internal consistency (coefficient alpha) for each scale (Depression = 0.91, Anxiety = 0.84, Stress = 0.90).

Athlete Performance Satisfaction. To measure athlete satisfaction for their performances in their given sport, participants were asked to complete a self-report athlete performance satisfaction scale (see Appendix B). The scale was developed based on the scales used in two studies of athlete performance, Balaguer, Duda, Atienza, and Mayo (2002) and Dewar and Kavassanu (2012). Balaguer et al. (2002) sought to measure subjective improvement, satisfaction, and coach ratings for athletes; Dewar and Kavussanu (2012) later modified this scaled to assess athletes' evaluation of their performance after participating in a match, called the Perceived Sports Performance Measure. The measure asks athletes to evaluate their performance based on several categories, such as physical (e.g., strength, stamina, speed) and technical (e.g., skill, execution). The scale developed for the current study was meant to measure athlete satisfaction of their general performance within their sport, including physical and technical performance, similar to Dewar and Kavussanu (2012). Participants were asked to respond to items based on a 7-point scale ranging from "strongly disagree" (1) to "strongly agree" (7) about their performance. The scale demonstrated high internal consistency in the sample (Cronbach's $\alpha = .88$).

Challenge and Threat in Sport Scale. CAT-Sport is a two-component scale that consists of 12-items that assess how an athlete perceives and reacts to challenges and/or threats prior to competition (see Appendix D; Hase, O'Brien, Moore, & Freeman, 2018). Participants are asked to answer each item on a 6-point Likert scale that ranges from "totally disagree" (point = 1) to "totally agree" (point = 6), and to indicate to what extent they felt it aligns with their beliefs. Sample items include, "I am concerned that others will find fault with me" (threat item) and "I am looking forward to the opportunity to test my skills and abilities" (challenge item). This measurement showed good levels of internal consistency (threat, alpha = .90; challenge, alpha

= .83), which indicates it has a high reliability (Hase, O'Brien, Moore, & Freeman, 2018). In terms of construct validity, a positive association has been observed between the CAT-Sport Scale and trait mindfulness based on the Mindful Attention Awareness Scale—Short, suggesting that the construct of "challenge state" may also be related to mindfulness, an area of further exploration in this study.

Mindful Attention Awareness Scale-Short, a shorter version of the original Mindfulness Attention Awareness Scale (MAAS), is a 10-item scale utilized to measure an individual's trait mindfulness (Appendix D). Responses are made on a 6-point scale, ranging from 1 "almost always" to 6 "almost never." The resulting 10-item version of the MAAS (MAAS-Short) appeared to be a reliable measure for assessing mindfulness attention awareness with high internal consistency (Cronbach's alpha = .88; Höfling, Moosbrugger, Schermelleh-Engel, & Heidenreich, 2011) and was superior to the MAAS with regard to internal consistency. Furthermore, the MAAS-Short has also demonstrated convergent validity with strong correlations to other measures of mindfulness, such as the Acting with Awareness scale (Höfling, Moosbrugger, Schermelleh-Engel, & Heidenreich, 2011).

Demographic Form. This is a self-report form (See Appendix E) that asked participants about their age, class standing, gender, race, sport they play, family size, and family income.

Procedure

Students athletes were invited to participate in research studies being conducted in the Psychology Department during its bi-annual Research Days. Students taking psychology classes were offered course credit and/or extra credit for their participation commensurate with the time they spend in each study. Participants had to be current college-affiliated athletes and be able to read the materials in English, beginning with the Informed Consent form.

Following the Informed Consent process, participants were given a packet containing four measures and demographic questions at the end. The measures, in order, included the DASS-42, Athlete Performance Satisfaction Scale, CAT-sport, and MAAS-Short. After completing each measure and demographic questions, participants were given a Debriefing document that disclosed further information about the study, indicated additional references, and thanked the participants for their participation.

Results

All measures for the variables of interest were scored, and frequencies statistics were calculated using SPSS software, first, to determine group-level athlete mental health as outcome variables based on the means and standard deviations for each subscale of the DASS-42: depression (M = 5.07, SD = 6.06); anxiety (M = 6.88, SD = 5.53); and stress (M = 9.47, SD = 7.97). Although these scores demonstrated moderate to high skewness, based on interpretation guidelines for the DASS-42, these scores indicate that the sample was experiencing low levels of depression, stress and anxiety giving us more mild scores. The other continuous variable of interest demonstrated more normal distributions and low skewness in overall scores.

The athletic performance satisfaction scale showed an overall mean score of 4.17 (SD = 1.20). A series of Pearson correlations were conducted to examine associations among the three mental health subscales and athletic performance satisfaction, with no significant correlations detected: depression (r = -.13, p = .29); anxiety (r = -.15, p = .27); and stress (r = -.11, p = .38).

Regarding participants' self-reported perceptions prior to athletic competition, the mean score for challenge state was 3.92 (SD = .42), and the mean score for threat state was 3.10 (SD = .58). A series of Pearson correlations were conducted to examine relations between challenge and threat state and the three mental health subscales (depression, anxiety, and stress). Results

indicated that there were not significant correlations between challenge state and depression (r = .69, p =.60), anxiety (r = .80, p = .55), or stress (r = -.16, p = .22). Results also indicated that there were not significant correlations between threat state and depression (r = -.35, p = .79), anxiety (r = .19, p = .89), or stress (r = -.12, p = .37).

Regarding participants' trait mindfulness, the mean score on the MAAS-short scale was 3.23 (SD = .71). Pearson correlations were conducted to examine relations between scores on the mental health subscales and trait mindfulness. Results showed no significant correlations between mindfulness and mental health: depression (r = -.03, p = .83; anxiety (r = .04, p = .78); and stress (r = .03, p = .85).

An exploratory correlational analysis was conducted to measure the relations between athlete performance satisfaction, trait mindfulness, challenge states, and threat states. There were no significant results detected (see Table 2).

Discussion

It was hypothesized that athletes will self-report moderate to high levels of general stress, as well as symptoms of depression and anxiety. There were no significant correlations with levels of stress, depression and anxiety among the athletes. Results showed that there was a healthy "normal" group of athlete participants. Therefore, this hypothesis that athletes will self-report moderate to high levels of stress, depression and anxiety was not supported.

Congruent with the results for the first hypothesis, the results also did not support the second hypothesis: athlete performance satisfaction will be negatively associated with self-reported general stress, depression, and anxiety symptoms. For each of the DASS-42 subscales, they were negatively associated with athlete performance satisfaction; however, the values were not statistically significant. This suggest that the direction of the relationship between mental

health (depression, anxiety, and stress scores) and athlete performance satisfaction was correctly predicted from the hypothesis, yet the relationship between the two was weak from the data of the sample. A likely explanation for this is due to the sample's overall low scores for depression, anxiety, and stress. The low scores indicate that the sample potentially did not have negative mental health symptoms and had "normal" mental health.

Similarly, our third hypothesis was that perceived challenge in sport will be negatively associated with mental health symptoms, while perceived threat in sport will be positively associated with mental health symptoms. There were no significant correlations between challenge state and depression, anxiety, or stress, nor between threat state and depression, anxiety, or stress. However, the direction of relationship stated in our third hypothesis was correct. Perceived challenge in sport was negatively associated with mental health symptoms, while perceived threat in sport was positively associated with mental health symptoms. This finding indicates that depression, anxiety, or stress, are more common in athletes who perceive a difficult sport-related situation as a threat. Whereas athletes who perceive the situation as a challenge can combat the emerging depression, anxiety, or stress, with positive coping mechanisms and possess other protective factors such as trait mindfulness.

In the same way, the fourth hypothesis, trait mindfulness will be negatively associated with self-reported general stress, depression and anxiety symptoms, was supported by the results. Where the results did not show any significant associations among college athletes within our sample. It should be noted that this specific study may have weak external validity, as it had a small sample of 60 collegiate athletes and did not hold enough significant testing power. Results suggest that the college athletes within in this sample generally have good mental health well-being and did not report any significant symptoms of generalized stress, anxiety, or depression.

Additionally, the MAAS-short measure may have limited results regarding the association claim between trait mindfulness and mental health symptoms. For further research, this study should be replicated with a generally larger sample to acquire an increase in testing power within the study. Moreover, utilizing the original MAAS may serve as a better scale to measure trait mindfulness. Although there were no significant findings in this particular study, it does shed some light towards athletes and their mental wellbeing.

Furthermore, the exploratory analysis to measure the associations between the athlete performance satisfaction scale, CAT-Sport, and the MAAS-short indicated that there were no significant interrelations between the three scales. The results suggest that each scale was independently measuring each concept, in that the concepts of performance satisfaction, challenge states, and trait mindfulness are not related.

Limitations

This study failed to detect statistically significant associations between athlete mental health and variables that have been associated with either mental health or athlete performance in previous research. Additional limitations include the small sample size as well as concerns regarding the brief, limited MAAS-short measure for trait mindfulness. Explanations for the lack of findings could be attributed to the sample not demonstrating negative mental health symptoms, although it is also notable that, in exploratory analyses, no interrelations were found among performance satisfaction, challenge or threat state, and trait mindfulness.

Future Research

Many of our participants were not in their particular sport season, which may have impacted their current levels of depression, anxiety, or stress. Future research would benefit by implementing a longitudinal study design that measures athletes before, during, and after their

sport season. This would allow researchers to explore how mental health symptoms directly affect performance outcomes. Future research should have larger sample sizes that can be generalized for the entire population. Samples should gather University students across the nation and contain at least 200 participants for each study. In addition, researchers should use objective measures of performance instead of subjective athletic satisfaction, and alternative measures of mental health should also be considered. Specifically, for perceiving challenge and threat states, future research should study physiological responses for each perception of sport such as heart rate and blood pressure.

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Appendix A

DASS-42

Instructions: Please read each statement and circle the number that indicates how much the statement applied to you **over the past week**. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 =Did not apply to me at all

1 =Applied to me to some degree, or some of the time

2 =Applied to me to a considerable degree, or good part of time

3 =Applied to me very much, or most of the time

1. I felt downhearted and blue.	0	1	2	3
2. I felt sad and depressed.	0	1	2	3
3. I could see nothing in the future to be hopeful about.	0	1	2	3
4. I felt that I had nothing to look forward to.	0	1	2	3
5. I felt that life was meaningless.	0	1	2	3
6. I felt that life wasn't worthwhile.	0	1	2	3
7. I felt I was pretty worthless.	0	1	2	3
8. I felt I wasn't worth much as a person.	0	1	2	3
9. I felt that I had lost interest in just about everything.	0	1	2	3
10. I was unable to become enthusiastic about anything.	0	1	2	3
11. I couldn't seem to experience any positive feeling at all.	0	1	2	3
12. I couldn't seem to get any enjoyment out of the things I did.	0	1	2	3
13. I just couldn't seem to get going.	0	1	2	3
14. I found it difficult to work up the initiative to do things.	0	1	2	3
15. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat).	0	1	2	3

The rating scale is as follows:

0 =Did not apply to me at all

1 =Applied to me to some degree, or some of the time

2 =Applied to me to a considerable degree, or good part of time

3 =Applied to me very much, or most of the time

16. I perspired noticeably (e.g., hands sweaty) in the absence of high temperatures or physical exertion 0 1 2 3

17. I was aware of dryness of my mouth. 0 1 2 3

18. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion). 0 1 2 3

19. I had difficulty in swallowing. 0 1 2 3

20. I had a feeling of shakiness (e.g., legs going to give way). 0 1 3 3

21. I experienced trembling (e.g., in the hands). 0 1 2 3

22. I was worried about situations in which I might panic and make a fool of myself.

0 1 2 3

23. I found myself in situations which made me so anxious I was most relieved when they ended. 0 1 2 3

24. I feared that I would be “thrown” by some trivial but unfamiliar task. 0 1 2 3

25. I felt I was close to panic. 0 1 2 3

26. I felt terrified. 0 1 2 3

27. I felt scared without any good reason. 0 1 2 3

28. I had a feeling of faintness. 0 1 2 3

29. I found it hard to wind down. 0 1 2 3

30. I found it hard to calm down after something upset me. 0 1 2 3

The rating scale is as follows:

0 =Did not apply to me at all

1 =Applied to me to some degree, or some of the time

2 =Applied to me to a considerable degree, or good part of time

3 =Applied to me very much, or most of the time

31. I found it difficult to relax.	0	1	2	3
32. I felt that I was using a lot of nervous energy.	0	1	2	3
33. I was in a state of nervous tension.	0	1	2	3
34. I found myself getting upset rather easily.	0	1	2	3
35. I found myself getting upset by quite trivial things.	0	1	2	3
36. I found myself getting agitated.	0	1	2	3
37. I tended to over-react to situations.	0	1	2	3
38. I found that I was very irritable.	0	1	2	3
39. I felt that I was rather touchy.	0	1	2	3
40. I was intolerant of anything that kept me from getting on with what I was doing.	0	1	2	3
41. I found myself getting impatient when I was delayed in any way (e.g., lifts, traffic lights, being kept waiting).	0	1	2	3
42. I found it difficult to tolerate interruptions to what I was doing.	0	1	2	3

Appendix B

Athlete Performance

Instructions: Please rate each item on a 7-point Likert scale, for how you are agree/disagree with your athletic performance for your sport in general.
Response Key: 1 (strongly disagree), 2 (disagree), 3 (slightly disagree), 4 (neutral), 5 (slightly agree), 6 (agree), and 7 (strongly agree).

1). I am satisfied with how I perform in competitive games.

1 2 3 4 5 6 7

2). I feel that I do not perform to my full ability as an athlete

1 2 3 4 5 6 7

3). I am satisfied with my skills needed for my sport (shooting, tackling, setting, batting, etc.)

1 2 3 4 5 6 7

4). I feel that I should perform better during games.

1 2 3 4 5 6 7

5). I am satisfied with my physical ability (stamina, strength, speed) during games.

1 2 3 4 5 6 7

6). I feel that my physical abilities and skills allow me to perform well during games

1 2 3 4 5 6 7

7). I am satisfied with my performance compared to the performances of my teammates.

1 2 3 4 5 6 7

8). I am satisfied with my ability to execute plays/tasks within a game.

1 2 3 4 5 6 7

Appendix C

CAT-Sport

Instructions: Answer each of the following statements on a 6-point Likert scale for how it best describes you during stressful situations in sports. Responses range from "totally disagree" (point = 1) to "totally agree" (point = 6) for emotions generally experienced.

Items

---

1. I worry that I will say or do the wrong thing.

   1 2 3 4 5 6

2. I am worrying about the kind of impression I will make.

   1 2 3 4 5 6

3. I am concerned that others will find fault with me.

   1 2 3 4 5 6

4. I expect that I will achieve success rather than experience failure.

   1 2 3 4 5 6

5. I am looking forward to the rewards and benefits of success.

   1 2 3 4 5 6

6. I am concerned what other people will think of me.

   1 2 3 4 5 6

7. A challenging situation motivates me to increase my efforts.

   1 2 3 4 5 6

8. I am thinking about being successful in this task rather than expecting to fail.

   1 2 3 4 5 6

9. I worry what other people will think of me, even though it won't make a difference.

   1 2 3 4 5 6

10. I am looking forward to the opportunity to test my skills and abilities.

    1 2 3 4 5 6

11. I worry what other people are thinking of me.

    1 2 3 4 5 6

12. I feel like this task is a threat.

    1 2 3 4 5 6

Appendix D

MAAS-Short

Please rate the extent to which each item is appropriate to you.

Ratings range from: 1 (almost always) to 6 (almost never)

1.) Difficult to stay focused in the present.	1 2 3 4 5 6
2.) Being without much awareness of what is done.	1 2 3 4 5 6
3.) Doing jobs or tasks automatically.	1 2 3 4 5 6
4.) Listening to someone doing something else at the same time.	1 2 3 4 5 6
5.) Doing things without paying attention.	1 2 3 4 5 6
6.) Easy to stay focused in the present.	1 2 3 4 5 6
7.) Being aware of what is done.	1 2 3 4 5 6
8.) Doing jobs or tasks with awareness.	1 2 3 4 5 6
9.) Listening to someone without doing something else at the same time.	1 2 3 4 5 6
10.) Doing things with paying attention.	1 2 3 4 5 6

Appendix E

Demographics Form

Please respond to each question for how it applies to you. All responses will be anonymous and confidential.

What is your current **grade level** in college?

____ Freshman
____ Sophomore
____ Junior
____ Senior
____ Other

I Identify my **gender** as:

____ Female ____ Male ____Non-binary
____ Other (please specify): _____

What **sport** do you currently play? _____

How many years of **experience** do you have playing this sport? _____

I identify my **race** as (select all that apply):

____Asian ____ Black/African ____Caucasian/White
____ Hispanic/Latinx ____ Native American ____Pacific Islander
____ Other (Please specify): _____

Please mark the category that tells your approximate total **family income** for the year 2018.

____ Less than $25,000
____ $25,001 - $50,000
____ $50,001 - $90,000
____ $90,001 - $150,000
____ More than $150,000

Please circle your current household **family size.**

1 2 3 4 5 6 7 8 9 10 or more

Table 1

Sample Characteristics

Characteristics		*N*	%
Grade			
	Freshman	22	36.7
	Sophomore	11	18.3
	Junior	13	21.7
	Senior	14	23.3
Sport			
	Baseball	14	23.3
	Football	13	21.7
	Soccer	13	21.7
	Softball	7	11.7
	Basketball	5	8.3
	Volleyball	4	6.7
	Cross-country	2	3.3
	Other	1	1.7
	Missing	1	1.7
Race			
	Caucasian/White	37	61.7
	Hispanic/Latinx	10	16.7
	Black/African American	8	13.3
	Other	5	8.3
Gender			
	Male	38	63.3
	Female	22	36.7

Note. Sport Other was represented by two-sport athletes.

Table 2

Exploratory Correlations Among Continuous Variables

Variables	1	2	3	4
1. Athlete Satisfaction	-	-.04	.15	-.03
2. Trait Mindfulness		-	.002	.20
3. Challenge state			-	.13
4. Threat state				-

Note. No associations were statistically significant at the $p < .05$ level