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## Examination of the Relationship Between Sport-Specific Thoughts and Emotions and Anxiety and Depression in College Athletes

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EXAMINATION OF THE RELATIONSHIP BETWEEN SPORT-SPECIFIC THOUGHTS  
AND EMOTIONS AND ANXIETY AND DEPRESSION IN COLLEGE ATHLETES

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## ABSTRACT

Examination of the relationship between sport-specific thoughts and emotions and anxiety and depression in college athletes

by

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Depression and anxiety are prevalent mental health difficulties affecting student athletes, who notoriously reject mental health interventions that are not sport-relevant. This study will assist in understanding the extent to which sport-relevant thoughts and emotions impact depression and anxiety in collegiate athletes. Two-hundred and twenty-five NCAA athletes competing at the Division, I, II, or III level were administered the Sport Interference Checklist (SIC), Test of Performance Strategies (TOPS), Generalized Anxiety Disorder-7 (GAD-7), and Patient Health Questionnaire (PHQ-9). Results of correlational analyses revealed a significant relationship between SIC Dysfunctional Thinking (in training and competition) and anxiety (GAD-7) and depressive (PHQ-9) symptoms, and a significant relationship between TOPS Emotional Control (in competition only) and anxiety and depressive symptoms. Regression analyses indicated that SIC Dysfunctional Thoughts and Stress in training and competition significantly predicted anxiety and depressive symptoms; TOPS Emotional Control and TOPS Self-talk did not. A mediational model tested the hypothesis that SIC Dysfunctional Thoughts and Stress in competition mediated the relationship between TOPS Emotional Control and anxiety/depressive symptoms. This hypothesis was supported in the mediational models. Both sport-relevant emotions and thoughts impact depressive and anxiety symptoms in student-

athletes, but dysfunctional thinking accounts for the majority of this relationship. These findings suggest targeting dysfunctional thoughts and emotions pertinent to sport may have far reaching positive effects in overall mental health, and future intervention studies should test this hypothesis. It is recommended that future studies be conducted to examine whether other sport-relevant constructs, such as environmental or relationship factors, impact the general mental health of student-athletes.

*Keywords:* athlete mental health, dysfunctional cognitions, emotion regulation, anxiety, depression

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## CHAPTER 1

### LITERATURE REVIEW

Collegiate athletes are uniquely susceptible to mental health difficulties and suffer from depression and anxiety at rates similar to, or higher than, the general population (Donohue, Gavrilova, Galante, Gavrilova et al., 2018; Gulliver, Griffiths, Mackinnon, Batterham, & Stanimirovic, 2015; Reardon & Factor, 2010; Schaal et al., 2011; Yang et al., 2007). Unfortunately, college athletes often do not receive the mental health care they require due to poor engagement in non-sport specific psychological interventions (Gulliver, Griffiths, & Christensen, 2012; López & Levy, 2013; Neal et al., 2013; J.C. Watson, 2005). However, some evidence suggests collegiate athletes may be interested in receiving sport-specific psychologically-based interventions (Donohue et al., 2016). Indeed, discussing thoughts and emotions that are specific to sport has been indicated to be less stigmatizing for collegiate athletes than discussing general mental health (Donohue et al., 2016). It has not been determined, however, if sport specific thoughts and emotions are relevant to general mental health. If so, this finding would support sport-specific programming due to its potential to engage collegiate athletes. The purpose of the current study will be to investigate the extent to which sport-relevant thoughts and emotions impact depression and anxiety in college athletes. It is hypothesized that sport-specific dysfunctional thoughts and stress, emotion regulation, positive thinking in practice and competition will predict anxiety and depressive symptoms.

#### **Depression and Anxiety**

Mood and anxiety disorders are the most common mental health disorders experienced in the United States (ADAA, 2016). Epidemiological studies indicate that 28% and 34% of the population experiences a depressive or anxiety disorder, respectively, at some point in their

lifetime (Bandelow & Michaelis, 2015; Vandeleur et al., 2017). Depressive symptoms commonly include (but are not limited to), low mood, lack of interest in/withdrawal from previously enjoyed activities, sleep and appetite disturbances, thoughts about death or dying, and a general sense of hopelessness or worthlessness (APA, 2013). Common symptoms of anxiety include worry about either a specific situation (e.g., flying, giving a speech) or general domains (i.e., worrying about a variety of different things), muscle tension, sleep disturbances or fatigue, difficulty concentrating, or indecisiveness (APA, 2013). Experiencing symptoms of either anxiety or depression commonly results in impairments across multiple domains of functioning, such as employment, academic, and relationship domains (APA, 2013).

Anxiety and depression have a high level of comorbidity (Galyamina, Kovalenko, Smagin, & Kudryavtseva, 2017). As many as 66% of individuals with depression also evidence an anxiety disorder (Judd & Burrows, 1992). Indeed, anxiety and depressive disorders have some of the highest rates of comorbidity across all psychiatric illnesses (Brown, Campbell, Lehman, Grisham, & Mancill, 2001). Researchers speculate that the lack of diagnostic specificity is due to the disorders' sharing of hallmark symptoms, namely cognitive and emotional disturbances (D. Watson, 2005). Given these similarities, disorders of anxiety and depression are sometimes referred to as "distress" disorders (D. Watson, 2005).

Distress disorders are considered extremely costly. The economic cost of depression in the United States was \$83.1 billion in 2000, and rose to \$210.5 billion in 2010 (Greenberg, Fournier, Sisitsky, Pike, & Kessler, 2015). Similarly, the estimated cost for anxiety disorders is as high as \$46.6 billion per year (DeVane, Chiao, Franklin, & Kruep, 2005). These cost estimates include non-psychiatric medical procedures, lost productivity, and mortality (including suicide; Greenberg et al., 1999; Greenberg et al., 2015). The actual burden of depression and

anxiety may be underestimated due to studies rarely taking into account additional factors like physical and psychological suffering, reduced quality of life, and familial suffering (Greenberg, Stiglin, Finkelstein, & Berndt, 1993; Wang, Simon, & Kessler, 2003).

The cost burden of distress disorders may be avoided with appropriate intervention (Greenberg et al., 1999). Unfortunately, very few of Americans who suffer from depression and anxiety receive therapeutic treatment for these conditions (APA, 2000; Gonzalez et al., 2010; Young, Klap, Sherbourne, & Wells, 2001; Young, Klap, Shoai, & Wells, 2008), despite the existence of efficacious treatments (Wang et al., 2003). More specifically, in a recent community-based cohort study, only 22% of adults with persistent anxiety and depression received appropriate treatment (including either medication or counseling; Young et al., 2008). Although mental health treatment can cause out-of-pocket expenses, researchers hypothesize the cost of treatment is overshadowed by long-term cost-saving benefits (see Wang et al., 2003). Despite this, there continues to be a lack of engagement in services that could help reduce the heavy burden of anxiety and depression (Gonzalez et al., 2010; Wang et al., 2003; Young et al., 2001; Young et al., 2008).

### **Athlete Susceptibility to Distress Disorders**

College student-athletes may be uniquely susceptible to experiencing depression and anxiety. Athletes experience stressors indicative of a typical college experience, and sport-specific stressors that may exacerbate their risk for experiencing mental health difficulties (Esfandiari, Broshek, & Freeman, 2011). For example, college athletes must balance aspects of academic study with rigorous training schedules (Esfandiari et al., 2011; Yang et al., 2007). These training schedules and time constraints often interfere with adequate sleep and force athletes to spend extended periods of time away from home (Schaal et al., 2011; Wilson &

Pritchard, 2005; Yang et al., 2007). Athletes also tend to lack social support systems and may experience pressure or interpersonal difficulties in various relationships with teammates, peers, coaches, and other athletic personnel (Donohue, Miller, Crammer, Cross, & Covassin, 2007; Esfandiari et al., 2011; Kimball & Freysinger, 2003; Rice et al., 2016).

In addition to the aforementioned demands, athletes experience pressure to consistently perform at a high level in their sport (Etzel & Watson, 2007; Etzel, Watson, Visek, & Maniar, 2006; Schaal et al., 2011; Yang et al., 2007). This pressure may be heightened by the pronounced visibility of college athletes, as well as the culture of college athletics. The culture of athletics emphasizes self-reliance and a view of mental illness as weakness, which may lead athletes to internalize their difficulties and be less willing to seek psychological assistance (D. Watson, 2005; Etzel & Watson, 2007; J.C. Watson, 2005; Parcover, Mettrick, Parcover, & Griffin-Smith, 2009; Watson, 2006). In high pressure environments such as college athletics, individuals are often more susceptible to internalizing criticism and having worrisome or distracting thoughts (Oudejans, Kuijpers, Kooijman, & Bakker, 2011). Although it is unlikely that any one of these factors alone cause mental health problems, a combination of both sport-specific and outside factors may leave athletes prone to experience distress disorders and other mental health difficulties (Esfandiari et al., 2011; Reardon & Factor, 2010; Rice et al., 2016).

Despite student-athletes experiencing general mental health concerns at similar rates of non-athlete peers, student-athletes are significantly underrepresented in campus counseling centers (Reetz, Bershad, LeViness, & Whitlock, 2016) and are difficult to engage in mental health treatment (Parcover et al., 2009; Watson & Kissinger, 2007). Athletes cite various barriers to pursuing mental health intervention including perceived stigma, scheduling difficulties, fear of negative perceptions from coaches or teammates, or poor access (Gulliver et al., 2012; López &

Levy, 2013; Moreland, Coxe, & Yang, 2018; Neal et al., 2013; Putukian, 2016; J.C. Watson, 2005). Athletes can, however, be engaged in sport psychology consultation services (see Donohue et al., 2016), and are significantly more likely to pursue these types of services as compared to traditional psychotherapies (Donohue, Gavrilova, Galante, Gavrilova et al., 2018). Although it is promising that athletes may be inclined to seek assistance related to sport performance, this may leave athlete mental health concerns relatively untreated.

### **Anxiety in Athletes**

Anxiety disorders are one of the most common psychological difficulties affecting athletes (Biggin, Burns, & Uphill, 2017; Schaal et al., 2011). Epidemiological studies indicate that approximately 9 to 19% of college student-athletes experience impairing anxiety symptoms that warrant follow-up evaluation (Gulliver et al., 2015; Schaal et al., 2011; Storch et al., 2005). Athletes may be particularly prone to experience general worry that permeates through several life areas, like relationships, school, and employment domains (Schaal et al., 2011). Athletes also experience anxiety in performance situations (Fisher & Zwart, 1982). Anxiety is considered crucial in athletic performance and can be detrimental if unmanaged (Halvari & Gjesme, 1995). As many as 50% of athletes have sought professional assistance for anxiety-related concerns regarding performance (Murphy, 1988). Despite high levels of impairment that result from anxiety, there are few empirical investigations regarding anxiety in athletes (Reardon & Factor, 2010).

### **Depression in Athletes**

Depressive symptoms in athletes occur at rates similar to or higher than the general population (Du Preez et al., 2017; Gulliver et al., 2015; Junge & Feddermann-Demont, 2017; Storch, Storch, Killiany, & Roberti, 2005; Wolanin et al., 2016). In fact, impairing depressive

symptoms affect anywhere from 15% to 34% of college student-athletes (Hammond, Gialloreto, Kubas, & Davis, 2013; Wolanin, Hong, Marks, Panchoo, & Gross, 2016; Yang et al., 2007). These rates may be underestimated due to athletes' likelihood to underreport these symptoms (Rao & Hong, 2016; Wolanin, Gross, & Hong, 2015). Various researchers cite that additional research examining depressive symptoms in athletes is warranted (Wolanin, Gross, & Hong, 2015; Wolanin, Hong, Marks, Panchoo, & Gross, 2016; Yang et al., 2007).

There are some sport-related factors that have been linked to depression. Physical factors such as injury are associated with depression, in that athletes who experience an injury are significantly more likely than other athletes to experience depressive symptoms (Wolanin et al., 2015). Similarly, as training load increases, mood disturbances in athletes also increase (Morgan et al., 1987). Certain cognitive factors have also been associated with incidence of depression. For example, athletes who reported higher perceptions of failure and low self-worth reported higher levels of depressive symptoms compared to athletes without these cognitive factors (Hammond et al., 2013; Rao & Hong, 2016). As such, there may be additional cognitive or emotional factors that relate to the incidence of depression in student-athletes that are worth exploring.

### **Factors that may Contribute to Depression and Anxiety**

The development and maintenance of distress disorders is often explained using a cognitive-behavioral framework. Originally discussed by Beck (1970) and Ellis (1962), this model postulates that thoughts (cognitions) influence emotions and behaviors. As such, when these cognitions become overly negative or dysfunctional, they can contribute to emotional distress and resulting behaviors that maintain the distress; these maladaptive emotions and behaviors further serve to reinforce the dysfunctional cognitions (Beck, 2011; Hofmann,

Asnaani, Vonk, Sawyer, & Fang, 2012). Thoughts, emotions, and behaviors also reciprocally influence each other; disturbances in any of these factors can maintain distress disorder symptomology (Hofmann, Asnaani et al., 2012; Gavrilova & Donohue, 2018). Therefore, cognitions and emotions are considered core features of pathology (Beck, 1997).

### **Dysfunctional Thinking**

As stated above, thinking patterns and appraisals of experience are considered a central component of distress (Beck, 1997). There are certain overly negative or unrealistic thinking styles that interfere with accurate appraisals of situations (Burns, 1999). These styles may include thinking in extremes (e.g., viewing things as either a success or a failure), discounting positive stimuli and solely attending to negative information, making unfair or unachievable comparisons to others (which interferes with motivation, commitment, and success), overconcern or worry, and catastrophizing (Burns, 1999). Research on unhelpful thinking styles has involved many different definitions, such as rumination, worry, or cognitive inflexibility. Regardless of definition, all of these thinking styles tend to be inflexible, negatively-valenced, and interfere with adaptive functioning (for a review, see Nolen-Hoeksema et al., 2008). Henceforth, unhelpful thinking styles will be referenced as dysfunctional thoughts, defined as thinking that is overly negative, worrisome, counterproductive, or self-critical (consistent with definitions by Hardy, 2006 and Theodorakis et al., 2000).

Much of the existing literature base has explored the empirical relationship between dysfunctional thoughts, depression, and anxiety. Dysfunctional thoughts are not only moderately associated with depression and anxiety (Harrington & Blankenship, 2002), but are predictive of anxiety and depressive symptoms above and beyond other factors, like age, gender, or dysfunctional attitudes (Tanaka et al., 2006). Authors of a recent meta-analysis (Hong &

Cheung, 2015) concluded that patterns of dysfunctional thinking predispose individuals to experiencing depressive and anxiety symptoms. These thinking patterns emerge as a core predictor of both depressive and anxiety pathology, suggesting that pervasive patterns of negative and distressing thoughts explain much of the symptomology experienced in disorders of anxiety and depression (Hong & Cheung, 2015).

In a recent modeling study, Bird, Mansell, Dickens, and Tai (2013) tested the idea of a core cognitive process in anxiety and depression. Authors compared two models; the first used several types of dysfunctional cognitive patterns (i.e., worry, thought suppression) to predict symptoms of anxiety and depression, and the second combined these factors into a latent factor. The single-factor model explained significantly more variance in anxiety and depressive symptoms. As such, authors conclude that pervasive and negative thinking (in general) should be considered a core process of distress disorders, as opposed to measuring each thinking style individually.

Scientists initially speculated that although depression and anxiety both share dysfunctional thoughts as core pathology, that the content of these cognitions may differ between the two disorders (cognitive content hypothesis; Beck, 1976; Clark, Beck, & Brown, 1989). Researchers originally hypothesized that depressive cognitions were pessimistic and hopeless, whereas anxious thoughts would be more closely related to perceiving threat or fear (Beck & Perkins, 2001; Clark, Beck, & Brown, 1989; Clark, Beck, & Stewart, 1990). When this model was tested in a recent meta-analysis (Beck & Perkins, 2001), the authors concluded that the cognitive content of depression and anxiety were not significantly different from one another. This finding suggests that these disorders share similar dysfunctional thought content, and it is

worthwhile to examine how the process of dysfunctional thinking (as a whole) relates to distress disorders.

### **Emotional Regulation.**

Experiencing emotions is a universal human experience, but emotion can become maladaptive if there is an unusual excess or deficit in intensity of emotions (Kring & Werner, 2004). Although experiencing intense emotions is not typically problematic in itself, difficulties can arise when attempts to regulate emotions are ineffective (Linehan, 1993; Lynch, Robins, Morse, & MorKrause, 2001).

Emotional regulation (also referred to as emotional control) refers to a process that allows individuals to modulate the intensity, duration, and expression of their emotions (Campbell-Sills & Barlow, 2007; Gross, Sheppes, & Urry, 2011). Emotional control occurs as a result of various cognitive and behavioral processes, as well as conscious effort, used to direct the intensity of emotional responses to better facilitate goal accomplishment (Gross, 2013; Gross, Sheppes, & Urry, 2011; Thompson, 1994). Emotional regulation has traditionally been conceptualized as an individual's ability to enhance emotions that are helpful (e.g., contentment), and decrease emotions that are detrimental to functioning (e.g., anxiety, fear; Gross, 2013).

Alternatively, emotional dysregulation, or the inability to successfully manage reactions to emotions, not only involves high emotional intensity, but also difficulty understanding or reacting to emotions (Mennin et al., 2007). This dysregulation becomes more vital in important situations and can ultimately lead to detriments in functioning (Gross, 2002). Difficulties with components of emotional regulation have been linked to distress disorders, such that reduced emotional control is associated with higher instances of anxiety and depression (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Mennin et al., 2007; Mennin & Fresco, 2009; Özlem Schäfer et

al., 2017). Experiencing high levels of negative affect and reduced positive emotions are considered hallmarks of both anxiety and depressive disorders (Hofmann, Sawyer, Fang, & Asnaani, 2012; D. Watson, 2005). This emotional imbalance may lead an individual to use maladaptive behaviors in an attempt to regulate when emotional regulatory skills are lacking (Campbell-Sills & Barlow, 2007). Alternatively, successful emotional control relates negatively with anxiety and depression, such that better emotional regulatory skills correlate with decreased symptoms of depression and anxiety (Özlem Schäfer, Naumann, Holmes, Tuschen-Caffier, & Samson, 2017).

Emotion regulation may not be adequately discussed without the role of cognition. As stated above, emotions are very contingent on cognitions and thinking patterns (Beck, 2011), and vice versa (Mineka, Rafaeli, & Yovel, 2003). Cognitive appraisals inherently influence the process of experiencing, interpreting, and acting on emotions (Hu, Zhang, & Wang, 2014). When examined together, emotions and cognitions better predict distress symptoms better than cognitions or emotions alone (Jolly, Dyck, Kramer, & Wherry, 1994). As such, both of these constructs should be examined to gain a full understanding of what contributes to distress disorder symptomology.

### **Buffer to Depression and Anxiety**

**Positive Thinking.** Literature focused on the role of cognition in pathology has traditionally focused on the dysfunctional aspects of cognition, behavior and emotion, rather than the positive aspects of these factors (MacLeod, 2012; MacLeod & Moore, 2000). Beck and colleagues (1979) believed that pathological symptoms would be remitted by correcting the dysfunctional thought patterns, rather than increasing positive thinking. Practicing therapists and researchers have continued this tradition (MacLeod, 2012). MacLeod and Moore (2000) suspect

that this view is spurred by the traditional psychotherapy focus on remitting pathology, rather than optimization of functioning (see similar assertions made by Gavrilova & Donohue, 2018). Examination of one end of the cognition spectrum limits our understanding of how distress disorders develop (Avey, Wernsing, & Mhatre, 2011). Indeed, a discussion of dysfunctional thoughts should be balanced by also examining the effect of positive thinking on pathology (MacLeod, 2012).

Although the cognitive models of distress disorders have significantly focused on dysfunctional thoughts, positive thinking should not be excluded from investigation of these disorders (Haaga, Dyck, & Ernst, 1991; Hogendoorn et al., 2012). Despite various definitions of what constitutes positive thinking, studies reviewed below define positive self-talk as a self-dialogue of reappraisal (which may involve generating positive interpretations of a situation), thoughts that are optimistic about the future, or thoughts that facilitate confidence or positive mood states. These definitions are consistent with self-talk literature reviewed by Hardy (2006).

Positive thinking has shown an inverse relationship with both depression (Ingram & Wisnicki, 1988; MacLeod & Salaminiou, 2001; Nixdorf, Frank, Hautzinger, & Beckmann, 2013) and anxiety (Kraaij et al., 2003), indicating that higher levels of positive thinking is associated with lower levels of depressive and anxious symptoms. In a sample of undergraduate students from Singapore, positive thoughts had an inverse relationship with both depression and anxiety (i.e., higher levels of positive thinking were associated with lower levels of depression and anxiety; Wong, 2010). Higher levels of positive thoughts were also associated with higher levels of life satisfaction and feelings of happiness (Wong, 2010). Individuals who experience anxiety and depressive disorders also evidence significantly fewer positive thoughts than those without these disorders (Hogendoorn et al., 2012; Nixdorf et al., 2013).

Cumulative evidence appears to suggest that both positive and negative thinking styles should be examined with regards to distress disorders. Although authors have proposed employing measures of both negative *and* positive cognition (see Joseph & Wood, 2010 for a review), a majority of research and practical application continues to focus on ameliorating negative thoughts (see MacLeod, 2012 and MacLeod & Moore, 2000 for a review). Given the aforementioned data, it may be helpful to examine *both* positive and negative cognitions in relation to distress disorder symptomology.

### **Thoughts and Emotions in Sport**

The study of athlete cognition has long been central to research on sport performance (Lane, Harwood, & Nevill, 2005). Cumulative sport psychology literature has indicated the facilitative nature of positive thinking, and the detrimental effects of dysfunctional thinking on sport performance (Lane et al., 2005; Van Dyke, Van Raalte, Mullin, & Brewer, 2018; Van Raalte & Vincent, 2017). Dysfunctional thinking can include negative, task-irrelevant, or worrisome thoughts (Hatzigeorgiadis & Biddle, 2000; Van Raalte, Brewer, Rivera, & Petitpas, 1994), whereas positive thinking may include instructional self-talk (relevant to performance tasks), or motivational statements (focus on positive mood and confidence building; Donohue et al., 2006; Hatzigeorgiadis, Zourbanos, Mpoumpaki, & Theodorakis, 2009). Positive thinking is associated with enhanced confidence, emotional control, focus, and problem-solving abilities (Williams & Leffingwell, 2002; Zinsser, Bunker, & Williams, 2006). Motivational self-talk has been found to increase confidence and decrease cognitive anxiety (Hatzigeorgiadis et al., 2009). Alternatively, dysfunctional self-talk is associated with debilitating anxiety and is detrimental to optimal sport performance (Hatzigeorgiadis & Biddle, 2008; Van Raalte & Vincent, 2017).

Unfortunately, a majority of athlete self-talk tends to be negative (Van Raalte, Brewer, Rivera, & Petitpas, 1994). Athletes commonly engage in dysfunctional thinking patterns, like overconcern/worry, being self-critical, or having task-unrelated thoughts (Hatzigeorgiadis & Biddle, 2000; Van Raalte et al., 1994). These cognitive appraisals influence a wide range of emotions in sport (Neil, Hanton, Mellalieu, & Fletcher, 2011; Uphill & Jones, 2007), and when dysfunctional, can negatively impact athletic performance and psychological functioning (Araki et al., 2006; Neil et al., 2011; Van Raalte et al., 1995; Van Raalte & Vincent, 2017). Neil and colleagues found that athletes' appraisals of situations led to emotions, and the way in which athletes interpreted these emotions determined whether or not the emotions were debilitating to performance (Neil et al., 2011). Other studies have found that when athletes perceive situations as more difficult, they experience higher levels of anxiety (Dias et al., 2014).

Sport participation is also closely tied to emotion (Crocker, Kowalski Hoar, & McDonough, 2004; Jones, 2003), but emotion in sport has been researched less frequently than other constructs, such as cognition (Hanin, 2007). Researchers acknowledge the ability to appropriately appraise and manage emotions in difficult or high pressure environments is a key skill vital to optimal sport performance (Gould, Dieffenbach, & Moffett, 2002; Neil et al., 2011; Thomas et al., 1999). The study of emotion in sport may also be crucial to understanding athlete well-being, in general (Lane, Thelwell, James, & Davonport, 2009).

Thus far, sport psychology has predominately remained focused on what impacts psychological functioning in the sporting context. There has been a conspicuous absence of studies assessing mental health difficulties in athletes (i.e., anxiety, depression; Reardon & Factor, 2010; Wolanin et al., 2015, 2016; Yang et al., 2007). Furthermore, there has been a paucity of research examining sport-related cognitive and emotional factors in the context of

athlete mental health. Understanding sport-relevant factors may aid practitioner understanding of athlete well-being (Lane et al., 2009) and additional research is needed in this area (Esfandiari et al., 2011).

### **Thoughts and emotions are state-dependent**

Thoughts and emotions can be difficult to measure in empirical research, given that cognitions can vary across both time and situations (Beazley, Glass, Chambless, & Arnkoff, 2001). Similarly, the process of regulating emotions involves several processes, including experiencing emotions, interpreting such emotions (which also involves cognition), and responding, all of which occur across time and different situations (Campbell-Sills & Barlow, 2007; Mennin et al., 2007).

Thoughts and emotions are both linked and dependent on each other moment to moment. For example, dysfunctional cognitions occur more commonly during negative mood states (Miranda & Persons, 1988), and negative mood states reduce the “accessibility” of positive cognitions (Teasdale, 1983). In conclusion, thoughts and emotions are state-dependent and the content of these processes may shift across different scenarios.

The sport environment involves situations in which athletes must be flexible and adaptive moment to moment. Two of the most notable environments in which athletes experience different performance demands are practice and competition. Although athletes spend up to 99% of their time in practice (McCann, 1995), athletes tend to view competition as more important (Munroe-Chandler, Hall, & Weinberg, 2004). Athletes use significantly more mental skills (defined as psychological skills that facilitate sport performance, such as self-talk or imagery), in competition compared to practice (Frey, Laguna, & Ravizza, 2003). This imbalance may be due to differences in athletes’ focus across practice and competition scenarios. For example, in

practice, athletes generally focus on learning skills without the pressure or fear of failure (Burton, Weinberg, Yukelson, & Weigand, 2001; Munroe-Chandler et al., 2004). Alternatively, competition is focused on performing at the optimal level of one's abilities. Because of this, there are potential differences in psychological demands across practice and competition scenarios. Unfortunately, current sport literature is lacking in its examination of psychological constructs across both practice *and* competition situations (Frey et al., 2003).

### **Measures**

There appear to be few measures capable of addressing positive and dysfunctional thinking, as well as emotions, in multiple sport-specific contexts. Two measures that appear to best capture these constructs are the Sport Interference Checklist (SIC; Donohue, Silver, Dickens, Covassin, & Lancer, 2007) and the Test of Performance Strategies (TOPS; Thomas, Murphy, & Hardy, 1999), and both measures assess sport-specific constructs across both practice and competition scenarios.

The Sport Interference Checklist (SIC; Donohue, Silver et al., 2007) was developed as a comprehensive assessment of cognitive and behavioral factors that interfere with an athlete's sport performance. The athlete indicates how often each item interferes with their sport performance in both training (Problems in Sports Training Scale; PSTS) and competition (Problems in Competition Scale (PSCS) on a 7-point Likert scale (1 = Never, 7 = Always). Lastly, the athlete indicates (on a yes/no scale) if they would seek professional assistance for each item from a sport psychologist, if one were available (Desire for Sport Psychology Scale (DSPS)). The PSTS is comprised of four factors that interfere with performance in training: Dysfunctional Thoughts and Stress, Academic Problems, Injury Concerns, Poor Team Relationships. The DSPS shares these same factors. Factor analysis revealed six factors in the

PSCS: Dysfunctional Thoughts and Stress, Academic and Adjustment Problems, Injury Concerns, Lack of Motivation, Overly Confident/Critical, and Pain Intolerance.

In the original psychometric validation, the three scales of the SIC yielded excellent internal consistency and strong convergent validity (Donohue, Silver et al., 2007). The subscales demonstrated adequate divergent validity, and there were no significant differences in responses across gender or athlete type (i.e., intramural, club, NCAA; Donohue, Silver et al., 2007). Since the original study, the SIC has continued to evidence strong reliability and validity (Donohue, Gavrilova, Galante, Gavrilova et al., 2018). In addition, the SIC has been indicated as a valid and reliable sport-relevant assessment of mental health concerns (Donohue et al., in press), and the SIC is sensitive to change when measuring treatment outcomes (Donohue, Gavrilova, Galante, Gavrilova et al., 2018; Galante, Donohue, & Gavrilova, in press; Gavrilova, Donohue, & Galante, 2017). The SIC has even been adapted for use in circus populations (Donohue, Gavrilova, Galante, Burnstein et al., 2018; Galante et al., 2017).

Donohue and colleagues (2007, in press) assert that the SIC represents the first comprehensive measure assessing both cognitive and behavioral factors that interfere with sport performance, as well as an athlete's desire to seek assistance for these sport-specific difficulties. Given that the SIC can be completed in under 10 minutes, it is a relatively quick and valid screening tool equipped for widespread use by sport psychologists (Donohue et al., in press; Donohue, Silver et al., 2007).

To capture athletes' use of psychological skills, Thomas and colleagues (1999) created the Test of Performance Strategies (TOPS). The TOPS assesses psychological skills utilized in practice and competition scenarios. The athlete rates how often each of the strategies are either utilized or not utilized on a 5-point Likert scale (1 = Never, 5 = Always). These strategies

include ability to set goals or desired objectives (goal setting), have positive or encouraging thoughts (self-talk) and avoid negative thoughts (negative thinking), visualize sport-related skills optimally (imagery), and perform skills automatically (automaticity). Likewise, the TOPS assesses skills related to relaxing (relaxation), maintaining an optimal arousal level (activation), and successfully managing emotions (emotional control).

The TOPS is unique in its ability to assess psychological skills in both practice and competition scenarios. The TOPS is considered a valid and internally consistent assessment of psychological skills (Taylor, Gould, & Rolo, 2008). Although there has been a more recent iteration of the TOPS, the authors indicate that the emotional control subscale in practice and the positive self-talk subscales were not problematic (Hardy et al., 2010), and although the emotional control subscales were revised, only one item was changed to purify the subscale (Hardy et al., 2010). Later studies have shown that the original emotion control subscale is a good measure of emotion regulation (Lane et al., 2009). Although there may be some benefits in using the revised subscales, the original subscales were used when collecting data in the proposed study. Because the newer version of the measure differs by one item (Hardy et al., 2010), we do not anticipate that using the newer version would result in a significant difference in findings.

Utilizing these measures in athletes to predict mental health may have several advantages. Measures related to sport are more relevant to athletes, and appeal more to sport culture. Athletes may be more likely to report accurate appraisals of psychological functioning when they perceive practitioners are sensitive to their sport environment (see Donohue et al., 2016). Athletes tend to hold high levels of stigma towards mental health (Gulliver et al., 2012) and may be more likely to accurately represent their functioning in a measure they perceive as less stigmatizing, such as a measure containing items related to sport. Lastly, utilizing sport-

focused measures may be ideal as opposed to traditional pathological measures, so as to not only focus on deficits, but also appeal to athletes' strengths or use of skills (see Donohue, Gavrilova, Galante, Gavrilova et al., 2018).

Given the advantages of using sport-specific measures capable of capturing sport-related factors in practice and competition contexts, the present study will examine how sport-relevant dysfunctional thoughts, positive thoughts, and emotions relate to general mental health in college-athletes. Research exploring potential risk and protective factors of mental health is warranted in athlete populations (Wolanin et al., 2016). Understanding how sport-specific factors relate to depressive and anxiety symptoms will not only aid professionals' understanding of athlete mental health but may also evaluate the extent to which general mental health may be influenced by addressing sport-related cognitions and emotions. Interventions focused on sport may promote increased engagement in services and positively influence the general well-being of college athletes.

## CHAPTER 2

### AIMS OF THE STUDY

The primary aim of the present study is to examine the ability of sport-relevant cognitive and emotional constructs to predict symptoms of depression and anxiety in a collegiate student-athlete population. The sport relevant factors include emotional control (ability to successfully regulate emotions), dysfunctional thoughts and stress (distressing, negative, or unhelpful thoughts), and positive thinking (having thoughts that are motivational or confidence-inducing in nature).

## CHAPTER 3

### METHOD

#### **Participants**

Participants were 225 NCAA student-athletes from various universities across the United States. Student-athletes' ages ranged from 18 to 24 years ( $M = 20$ ,  $SD = 1.40$ ), and the sample was predominantly Caucasian ( $n = 170$ , 76%) and female ( $n = 136$ , 60%). Participants encompassed all levels of academic year (freshman,  $n = 74$ , 33%; sophomore,  $n = 47$ , 21%; junior,  $n = 53$ , 24%; senior,  $n = 43$ , 19%; 5th year,  $n = 5$ , 2%; graduate student,  $n = 3$ , 1%) and an average grade point average (GPA) of 3.48 ( $SD = 1.40$ ). Participants encompassed all NCAA competition levels (Division I,  $n = 43$ , 19%; Division II,  $n = 110$ , 49%; Division III,  $n = 72$ , 32%), and participated in a variety of different sports (See Table 1).

#### **Inclusionary Criteria**

To participate in the study, college students were required to 1) be at least 18 years of age, 2) express voluntary interest in completing measures related to mental health and sport performance, and 3) participate in varsity athletics at the Division I, II, or III level. Only participants who completed each measure were included in study analyses.

#### **Procedures**

All study procedures were approved by the university's Institutional Review Board. Participants were recruited using a snowball method. The principal investigator (PI) sent an initial recruitment email to coaches assessing their willingness to distribute the survey to student-athletes on their respective teams. Approximately 5% ( $n = 101$ ) of coaches expressed interest, and 51% of those coaches distributed the survey to their team. Investigators attempted to solicit

all members from team rosters to reduce bias, consistent with recommendations from Storch and colleagues (2005).

When soliciting interest from both coaches and athletes, email invitations included a brief description of the study, indicating that the survey would assess mental health, sport-related psychological skills, and cognitive and behavioral factors that may interfere with sport performance. Email invitations stressed that participation was voluntary and all responses would be kept confidential. After viewing the brief description and a consent page, athletes were directed to the 25-30 minute survey. Of the 320 student-athletes who consented to the study, 225 (70%) completed the full assessment battery.

## **Measures**

**Demographic Questionnaire.** Participants completed a demographic questionnaire assessing their age, gender, ethnicity, year in school, primary sport, and Division level. Athletes were also asked if they had ever met with a sport psychology professional and/or a mental health professional before.

**Sport Interference Checklist.** The Sport Interference Checklist (SIC; Donohue, Silver, et al., 2007) is a 26-item inventory designed to assess various cognitive and behavioral factors that interfere with sport performance in training (Problems in Sport Training Scale; PSTS) and competition (Problems in Sport Competition Scale; PSCS). There are four subscales that comprise the PSTS: Thoughts and Stress, Academic Problems, Injury Concerns, and Poor Team Relationships. Six subscales comprise the PSCS: Dysfunctional Thoughts and Stress, Academic Adjustment Problems, Lack of Motivation, Critical/Cocky Thoughts, Injury Concerns, and Pain Tolerance. For each item, participants rank how often that problem interferes with their performance in each domain on a 7-point Likert Scale (1 = Never, 7 = Always). The SIC has

demonstrated good construct, convergent, and discriminant validity and adequate internal consistency in its initial validation (Donohue, Silver et al., 2007), and strong internal consistency and predictive validity in subsequent studies (Donohue, Gavrilova, Galante, Gavrilova et al., 2018; Donohue et al., in press). The SIC demonstrated excellent internal consistency in the present sample (PSTS  $\alpha = .90$ ; PSCS  $\alpha = .91$ ). Relevant to the current study, the Dysfunctional Thoughts and Distress subscales regarding training ( $\alpha = .88$ ) and competition ( $\alpha = .90$ ) also demonstrated strong reliability.

**Test of Performance Strategies.** The Test of Performance Strategies (TOPS; Thomas, Murphy, & Hardy, 1999) measures athletes' use of mental skills to enhance sport performance. Of the 64 total items, 32 items assess mental strategies used in practice (eight subscales; Goal Setting, Emotional Control, Automaticity, Relaxation, Self-Talk, Imagery, Attentional Control) and 32 items assess mental strategies used in competition (eight subscales; Goal Setting, Emotional Control, Automaticity, Relaxation, Self-Talk, Imagery, Negative Thinking). The TOPS demonstrated good psychometric properties in its initial validation (Thomas et al., 1999) and is regarded as a valid and internally consistent assessment of psychological skills (Taylor, Gould, & Rolo, 2008). The positive self-talk subscales evidence strong psychometric properties (Hardy et al., 2010), including factorial validity and reliability, and the Emotion Control subscale is a good measure of emotion regulation (Lane et al., 2009). Responses are coded on a 5-point Likert scale (1 = Never, 5 = Always). Relevant to the current study, subscales of Emotional Control in practice ( $\alpha = .81$ ) and competition ( $\alpha = .79$ ), and Self-Talk in practice ( $\alpha = .81$ ) and competition ( $\alpha = .80$ ) had adequate reliability.

**Generalized Anxiety Disorder 7-item Scale.** The Generalized Anxiety Disorder 7-item Scale (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006) is a brief, 7-item anxiety screening

tool commonly used in research and clinical health settings. Items assess the extent to which an individual has experienced symptoms consistent with generalized anxiety disorder over the past two weeks. Responses are rated on a 4-point Likert scale (0 = Not at all, 1 = Several days, 2 = More than half the days, 3 = Nearly every day). Although designed for generalized anxiety, the GAD-7 can identify other anxiety and related disorders like panic, social anxiety, and post-traumatic stress disorder (Kroenke, Spitzer, Williams, Monahan, & Löwe, B, 2007). Scores range from 0 to 21 (scores 0-4 = minimal anxiety, 5-9 = mild anxiety, 10-14 = moderate anxiety, 15-21 severe anxiety). The GAD-7 demonstrates good validity and reliability (Spitzer et al., 2006), and was consistent in the current sample (Cronbach's  $\alpha = .89$ ).

**Patient Health Questionnaire.** The Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001) is a brief, 9-item measure of depressive symptoms experienced over the past two weeks. Participants rate each item on a 4-point Likert Scale (0 = Not at all, 1 = Several days, 2 = More than half the days, 3 = Nearly every day), and indicate how any endorsed items have made functioning in work, home, or interpersonal domains difficult (Not difficult at all, somewhat difficult, very difficult, or extremely difficult). Scores range from 1-27 (scores 1-4 = minimal depressive symptoms, 5-9 = mild depressive symptoms, 10-14 moderate depressive symptoms, 15-19 moderate severe depressive symptoms, 20-27 severe depressive symptoms). The PHQ-9 is considered valid and reliable (Kroenke et al., 2001) and demonstrated adequate internal consistency in the present sample (Cronbach's  $\alpha = .86$ ).

## **Statistical Plan**

**Data Screening.** Preliminary data screening was conducted to ensure that data met assumptions required for analyses. All means, standard deviations, and range scores for regression variables (SIC Dysfunctional Thoughts and Stress, TOPS Emotional Control, TOPS

Self-Talk, GAD-7, PHQ-9) were calculated and inspected for normality. Data were considered normally distributed if skewness values were less than +/-1 and kurtosis values were less than +/- 1.5 (Tabachnick & Fidell, 2007). Variables that were not normally distributed were transformed using logarithmic transformations, based on recommendations by Tabachnick and Fidell (2007). Skewness and kurtosis values for transformed variables are shown in Table 2 and Table 3. Residuals were also examined for normality using a histogram with imposed normal curve and plot of studentized residuals.

The Mahalanobis Distance Test was used to determine the presence of outliers; when outliers were present, they were adjusted to one unit greater than the next most extreme outlier (Tabachnick & Fidell, 2007). A correlational matrix was utilized to determine the presence of multicollinearity across independent variables. Independent variables were considered multicollinear if correlated above a 0.7 value (George & Mallery, 2014). Lastly, examination of variable scatterplots and plot of studentized residuals versus unstandardized predicted values were used to assess linearity and homoscedasticity, respectively.

**Analyses.** Correlational analyses were performed to examine the relationship between independent variables (SIC Dysfunctional Thoughts and Stress in training and competition, TOPS Emotional Control in training and competition, TOPS Self-talk in training and competition) and dependent variables (PHQ-9 and GAD-7 scores).

Preliminary analyses were conducted to determine if study variables were significantly different across gender, ethnicity, or NCAA Division. Four multiple linear regression analyses were performed to examine the hypotheses that positive thinking, dysfunctional thinking, and emotional control in both training and competition contexts would predict depressive and anxiety symptoms in athletes. A standard entry method of linear regression was utilized, since it was not

hypothesized that any independent variables (SIC Dysfunctional Thoughts and Stress, TOPS Emotional Control, TOPS Self-talk) would have a stronger theoretical effect on the outcome variables (PHQ-9, GAD-7). In the first two regressions, *training* subscales of TOPS Emotional Control, TOPS Self-talk, and SIC Dysfunctional Thoughts and Stress were used as independent variables to determine their ability to predict GAD-7 and PHQ-9 scores (dependent variables). In the next two regression analyses, *competition* subscales of TOPS Emotional Control, TOPS Self-talk, and SIC Dysfunctional Thoughts and Stress were used as independent variables to predict GAD-7 and PHQ-9 scores (dependent variables).

Mediation analyses were also utilized to better understand the relationship between dysfunctional thinking, emotion regulation, and anxiety and depressive symptoms. Mediation analyses assessed the extent to which SIC Dysfunctional Thoughts and Stress served as a mediating variable in the relationship between TOPS Emotional Control and anxiety/depressive symptoms as per the GAD-7 and PHQ-9, respectively.

**Hypotheses.** It was hypothesized that 1) Training subscales of TOPS Emotional Control, TOPS Self-talk, and SIC Dysfunctional Thoughts and Stress would significantly predict anxiety (GAD-7 scores); 2) Training subscales of TOPS Emotional Control, TOPS Self-talk, and SIC Dysfunctional Thoughts and Stress would significantly predict depression (PHQ-9 scores); 3) Competition subscales of TOPS Emotional Control, TOPS Self-talk, and SIC Dysfunctional Thoughts and Stress would significantly predict anxiety (GAD-7 scores); 4) Competition subscales of TOPS Emotional Control, TOPS Self-talk, and SIC Dysfunctional Thoughts and Stress would significantly predict depression (PHQ-9 scores).

It was hypothesized that SIC Dysfunctional Thoughts and Stress would mediate the relationship between TOPS Emotional Control and PHQ-9 scores, and SIC Dysfunctional

Thoughts and Stress would mediate the relationship between TOPS Emotional Control and GAD-7 scores.

## CHAPTER 4

### RESULTS

#### **Preliminary Analyses**

Statistical Package for Social Sciences (SPSS) Version 24.0 was utilized in data analysis. Data screening revealed that variables were, in general, normally distributed. Additional details for each variable are outlined below.

**Dysfunctional Thoughts.** Descriptive statistics were calculated for the SIC Dysfunctional Thoughts and Stress subscales (in practice and competition). The subscales were approximately normally distributed, and no univariate outliers were identified.

**Emotional Control.** The TOPS Emotional Control subscales (in practice and competition) were approximately normally distributed, with no univariate outliers.

**Positive Thinking.** The TOPS Self-talk subscales (in practice and competition) were approximately normally distributed, with no univariate outliers.

**Depression.** Descriptive statistics calculated for the PHQ-9 and initial analysis revealed three univariate outliers. Outliers were adjusted to one unit greater than the next most extreme outlier. After adjusting outliers, a logarithmic transformation was conducted, which resulted in a more normal distribution. Means, standard deviations, and skewness and kurtosis values for original PHQ-9 variables, along with PHQ-9 variables with outliers adjusted and logarithmic transformation, are presented in Table 2.

**Anxiety.** Initial analysis of descriptive statistics of the GAD-7 revealed three univariate outliers. Data approximated a more normal distribution after adjusting outliers and conducting a logarithmic transformation. Means, standard deviations, and skewness and kurtosis values for

original GAD-7 variables, compared to transformed variables with outliers adjusted, are presented in Table 3.

**Singularity and multicollinearity.** A matrix of the variables used in all analyses was determined not to be singular. All variables were correlated  $< 0.80$ , and independent variables were correlated  $< 0.70$ , suggesting that multicollinearity is not present.

**Residuals.** Data demonstrate an independence of residuals, as indicated by Durbin-Watson statistics between 1.5 and 2.5. Residuals approximated a normal distribution as evidenced by a Normal P-P Plot of Regression Standardized Residuals.

**Linearity, homoscedasticity, and multivariate outliers.** The pair-wise relationships between all variables were linear and there was homoscedasticity. There were no multivariate outliers, high leverage points, or influential data points.

### **Preliminary Analysis with Demographic Variables**

A series of one-way Analysis of Variance (ANOVA) analyses were conducted to detect the presence of any demographic differences across study variables. Analyses revealed no differences across gender, ethnicity, or NCAA Division (DI, DII, or DIII) across any of the independent or dependent variables, with the exception of differences in TOPS Self-talk scores in competition across ethnic groups ( $F(5, 216) = 2.788, p = .02$ ). A Tukey's post-hoc test revealed that Hispanic participants had significantly higher self-talk in competition ( $M = 3.84, SD = .91$ ) compared to Caucasian participants ( $M = 3.24, SD = .77$ ). There were no other differences across ethnicity with regards to positive self-talk in competition.

Given that there were no significant differences across gender, ethnicity, or NCAA Division across emotion regulation, positive thinking, or dysfunctional thinking in practice or competition (with the exception of two ethnicities across self-talk in competition), nor with

regards to anxiety and depressive symptoms, primary analyses did not control for demographic variables.

### **Primary Analyses**

**Correlations.** A correlational matrix (see Table 4) was used to determine multicollinearity and to examine linear relationships between independent and dependent variables. Dysfunctional thinking was significantly positively associated with depressive symptoms in both training ( $r = .36, p < .01$ ) and competition ( $r = .40, p < .01$ ), and anxiety symptoms in both training ( $r = .37, p < .01$ ) and competition ( $r = .36, p < .01$ ). Emotion regulation in competition (but not in training) was significantly negatively associated with depressive symptoms ( $r = -.31, p < .01$ ) and anxiety symptoms ( $r = -.26, p < .01$ ). Positive thinking in both training and competition were not significantly associated with anxiety or depressive symptoms ( $ps > .05$ ).

**Depression.** Tests of the a priori hypotheses were conducted using Bonferroni adjusted alpha levels of .0167 per test (.05/3 predictor variables). Two linear multiple regression analyses were used to determine if dysfunctional thinking, emotion regulation, and positive thinking could predict depressive symptoms. The first regression examined if SIC Dysfunctional Thoughts and Stress, TOPS Emotional Control, and TOPS Self-talk in *training* predicted depressive symptoms. Dysfunctional Thoughts and Stress in training was the only significant predictor of depressive symptoms  $R^2 = .17 F(3,221) = 15.54, p < .001$ . Dysfunctional Thoughts and Stress in training predicted 17% of the variance in depressive symptoms. The second regression examined if SIC Dysfunctional Thoughts and Stress, TOPS Emotional Control, and TOPS Self-talk in *competition* predicted depressive symptoms. Similarly, Dysfunctional Thoughts and Stress in competition was the only significant predictor of depressive symptoms  $R^2 = .19 F(3,221) = 16.75 p$

< .001. Dysfunctional Thoughts and Stress in competition predicted 19% of the variance in depressive symptoms.

**Anxiety.** Tests of the a priori hypotheses were conducted using Bonferroni adjusted alpha levels of .0167 per test (.05/3 predictor variables). Two linear multiple regression analyses were used to determine if dysfunctional thinking, emotion regulation, and positive thinking could predict anxiety symptoms. The first regression examined if SIC Dysfunctional Thoughts and Stress, TOPS Emotional Control, and TOPS Self-talk in *training* predicted anxiety symptoms. Dysfunctional Thoughts and Stress in training emerged as the only significant predictor of the model ( $R^2=.18$   $F(3,221)=15.59$ ,  $p < .001$ ) and predicted 18% of the variance in anxiety symptoms. The second regression examined if SIC Dysfunctional Thoughts and Stress, TOPS Emotional Control, and TOPS Self-talk in *competition* predicted anxiety symptoms. Dysfunctional Thoughts and Stress in competition was the only significant predictor in the model ( $R^2=.13$   $F(3,221)=11.09$ ,  $p < .001$ ) and predicted 13% of the variance in anxiety symptoms.

**Mediation Analyses.** Mediation analyses were conducted to determine if dysfunctional thinking served as a mediator in the relationship between emotion regulation and anxiety/depressive symptoms. Consistent with Baron and Kenny (1986), a series of regressions were conducted to determine if assumptions were met for a mediation model.

With regards to practice subscales, the standardized regression coefficient between dysfunctional thinking and emotion regulation was not statistically significant, nor was the standardized regression coefficient between emotion regulation and anxiety/depression ( $ps > .05$ ). This does not suggest mediation. With regards to competition subscales, Figures 1 and 2 illustrate the statistically significant standardized regression coefficients between emotion regulation and dysfunctional thinking, dysfunctional thinking and anxiety/depressive symptoms,

as well as emotion regulation and anxiety/depressive symptoms. Thus, mediation of this model was tested.

*Competition: Dysfunctional Thinking as a Mediator between Emotion Regulation and Depression.* Figure 1 demonstrates the standardized regression coefficients in the model. Approximately 18% of the variance in depressive symptoms was accounted for by the predictors ( $R^2 = .18$ ). Emotion regulation was a significant predictor of dysfunctional thinking,  $b = -1.2$ ,  $SE = .10$ ,  $p < .001$ , and dysfunctional thinking was a significant predictor of depression,  $b = .10$ ,  $SE = .02$ ,  $p < .001$ , which supports the mediational hypothesis. Emotion regulation was no longer a significant predictor of depression after controlling for the mediator, dysfunctional thinking,  $b = -.03$ ,  $SE = .04$ ,  $p = .40$ , which is consistent with mediation. Bootstrapping procedures were used to test the significance of the indirect effect. Unstandardized indirect effects were computed for each of 5,000 bootstrapped samples, and the indirect effects at the 2.5<sup>th</sup> and 97<sup>th</sup> percentiles were used to compute a 95% confidence interval. These results indicated the indirect coefficient was significant,  $b = -.12$ ,  $SE = .03$ , 95% CI =  $-.17, -.07$ .

*Competition: Dysfunctional Thinking as a Mediator between Emotion Regulation and Anxiety.* Figure 2 demonstrates the standardized regression coefficients in the model. Approximately 13% of the variance in anxiety symptoms was accounted for by the predictors ( $R^2 = .13$ ). Emotion regulation was a significant predictor of dysfunctional thinking,  $b = -1.2$ ,  $SE = .10$ ,  $p < .001$ , and dysfunctional thinking was a significant predictor of anxiety,  $b = .09$ ,  $SE = .02$ ,  $p < .001$ , which supports the mediational hypothesis. Emotion regulation was no longer a significant predictor of anxiety after controlling for the mediator, dysfunctional thinking,  $b = -.03$ ,  $SE = .04$ ,  $p = .56$ , which is consistent with mediation. Utilizing the bootstrapping procedure

outlined above, results indicated the indirect coefficient was significant,  $b = -.11$ ,  $SE = .03$ , 95%  
CI =  $-.17, -.05$ .

## CHAPTER 5

### DISCUSSION

The purpose of the present study was to examine how dysfunctional thinking, positive thinking, and emotion regulation in sport-relevant contexts is associated with general anxiety and depressive symptoms in collegiate student-athletes. It was hypothesized that dysfunctional thinking, positive thinking, and emotion regulation in practice and competition contexts would significantly predict anxiety and depressive symptoms. These hypotheses were partially supported. Correlational analyses showed that dysfunctional thinking in both training and competition was significantly positively associated with anxiety and depressive symptoms, such that the more dysfunctional thinking, the greater the anxiety and depressive symptoms. Correlational analyses also indicated that emotion regulation in competition (but not practice) was significantly negatively associated with anxiety and depressive symptoms, such that the greater the emotion regulation, the fewer anxiety and depressive symptoms. In the regression models in which dysfunctional thinking, positive thinking, and emotion regulation were independent variables predicting anxiety and depressive symptoms, dysfunctional thoughts and stress (in both practice and competition) emerged as the only significant predictor of anxiety and depressive symptoms. Emotion regulation and positive thinking did not significantly predict anxiety and depression in the proposed models.

Because emotion regulation in competition was significantly associated with, but not predictive of, anxiety and depressive symptoms, mediational analyses were conducted to better understand the relationship between these constructs. It was hypothesized that dysfunctional thinking in competition mediated the relationship between emotion regulation in competition and anxiety/depressive symptoms. Mediation analyses demonstrated that dysfunctional thoughts in

competition significantly mediated the relationship between emotion regulation in competition and depressive symptoms. Dysfunctional thinking was also a significant mediator in the relationship between emotion regulation in competition and anxiety symptoms. These findings help explain why dysfunctional thinking was the only significant predictor of anxiety and depressive symptoms in the regression models. Although emotion regulation had a significant relationship with anxiety and depressive symptoms, these relationships became nonsignificant when dysfunctional thinking was added into the model. These findings demonstrate that there is a predictive relationship between emotion regulation in competition and anxiety/depressive symptoms of student-athletes, but it is contingent on, or better explained by, dysfunctional thinking.

Findings from the present study are consistent with cognitive theory. The cognitive model of pathology asserts that cognitions influence emotions and behaviors, and pathology is maintained when cognitions, emotions, and/or behaviors become dysfunctional (Beck, 1970). Although thoughts, emotions, and behaviors reciprocally influence each other, experience and interpretations of emotions are very contingent on thought processes (Beck, 2011; Hu, Zhang, & Wang, 2014; Hofmann et al., 2012). These findings are also consistent with previous research indicating that dysfunctional thinking is a core predictor of depressive and anxiety pathology (Hong & Cheung, 2015). The findings also show that although emotion regulation is related to and predictive of anxiety and depressive symptoms, dysfunctional thinking accounts for this relationship. Thus, it is likely that interventions targeting dysfunctional thinking and its influence on emotion regulation, rather than either construct alone, will be most effective in positively influencing mental health symptoms in student-athletes. Future studies should examine this hypothesis.

The findings from this study are also consistent with the cognitive model's traditional focus on ameliorating dysfunctional thinking, rather than facilitating positive thinking (see Beck, 1979; MacLeod, 2012; MacLeod & Moore, 2000). Positive thinking was not associated with, nor a significant predictor of, anxiety and depressive symptoms in correlation and regression analyses. Although increasing positive thinking is likely to be pleasant or perceived as helpful, the results of this study suggest that positive thinking alone is likely insufficient to improve athlete's mental health. Along this vein, the results suggest practitioners use evidence supported cognitive restructuring approaches (Butler, Chapman, Forman, & Beck, 2005; Hofmann & Smits, 2008; Tolin, 2010), and work to restructure dysfunctional cognitions to be more realistic or helpful, rather than more positive. Practitioners may also consider mindfulness-based cognitive techniques, such as cognitive defusion. Cognitive defusion effectively reduces anxiety and depressive symptoms by accepting thoughts and distancing self from thoughts, as opposed to changing the thoughts or increasing positive thinking (Arch, Wolkstein-Taylor, Eifert, & Craske, 2012; Hayes, Strosahl, & Wilson, 2011). Given the success of behavioral activation and exposure to conditioned stimuli to reduce depressive and anxiety symptoms respectively, we believe comprehensive skill-based interventions are also supported.

The present study supports the importance of measuring sport-relevant constructs across both practice and competition contexts. Although emotion regulation in competition was significantly associated with and predictive of anxiety and depressive symptoms in the mediation model, emotion regulation in practice was not associated with anxiety and depressive symptoms. Student-athletes experience different physical and psychological demands across practice and competition contexts (Burton et al., 2001), which may explain this finding. For instance, the focus in practice is on improvement without fear of failure, whereas competition is associated

with higher pressure to perform well, higher levels of anxiety, and is more outcome-oriented (Burton et al., 2001; Munroe-Chandler et al., 2004). Thus, athletes who are able to regulate their emotions when the stakes are high (such as in competition), may be better able to regulate their emotions outside of sport, which may explain the association with lower levels of anxiety and depressive symptoms.

### **Study Limitations**

The present study has several limitations. The data is cross-sectional, and no causal conclusions can be drawn about the relationships between dysfunctional thinking, emotion regulation, and anxiety and depressive symptoms. The study does provide better understanding of sport-specific cognitive and emotional mechanisms that influence anxiety and depressive symptoms. However, the study cannot distinguish whether or not interventions targeting dysfunctional thoughts and emotion regulation in sport-relevant contexts would be effective in reducing global anxiety and depressive symptoms.

Notably, positive thinking (in either training or competition contexts) was not related to anxiety or depressive symptoms. While this is consistent with cognitive theory and the tradition of focusing on remitting pathology rather than focusing exclusively on positive thinking, it is possible this finding is due to methodological limitations in this study. The Dysfunctional Thoughts and Stress subscale of the SIC captures specific types of dysfunctional or negatively-valenced thinking, such as “negative thoughts about personal performance,” “being too critical of myself,” and “difficulty thinking positively once negative thoughts have occurred.”

Alternatively, the Self-Talk subscale of the TOPS evaluates positive thinking more generally, such as “I talk positively to myself to get the most out of practice/competitions,” and “I say things to myself to help my practice/competitive performance.” Thus, it is possible that the lack

of specific measurement influenced the lack of association with anxiety and depressive symptoms in this study. Unfortunately, there are no other psychometrically validated measures available that are capable of evaluating these constructs within training and competition contexts. Thus, development of a measure or subscale to assess more specific types of positive thinking in practice and competition settings may aid in better understanding the extent to which these constructs relate to anxiety and depressive symptoms.

Improving generalizability of findings is always a goal in psychological research. In the current sample, there were some demographic differences in the study sample compared to the broader student-athlete population. For instance, according to the most recent student-athlete ethnicity data (NCAA, 2018), a majority of all college student-athletes are Caucasian (67%), which is consistent with the current study. Although Hispanic, Asian American, and participants of multiple ethnicities were adequately represented in the current study sample comparative to the population, the African American population was underrepresented in the current study (4%) compared to the population (17%). Additionally, a majority of student-athletes belong to Division III (39%) followed by Division I (37%), whereas the sample was primarily comprised of Division II athletes (49%), followed by Division III (32%). Preliminary analyses revealed that study variables did not significantly differ across ethnicity or Division level. Future studies should aim to recruit more diverse participants to obtain a sample representative of all student-athletes; however, the pattern of results would suggest that outcomes of the current study may not differ significantly in a representative sample.

### **Study Strengths and Future Directions**

Many studies hypothesize that athletes evidence high rates of mental health concerns due to sport-relevant demands (see Reardon & Factor, 2010; Rice et al., 2016), but few have

empirically tested these relationships. This study is one of the first to examine how sport-relevant cognitive and emotional constructs relate to college athletes' mental health, in general. This study is preliminary but could represent a strong first step in understanding how sport-relevant constructs influence athlete mental health for the purpose of creating culturally-adapted interventions for student-athletes.

Additional studies utilizing a structural equation modeling framework that examine each construct (dysfunctional thinking, emotion regulation, anxiety symptoms, and depressive symptoms) with multiple measures would be helpful to further tease out the relationship between sport-relevant cognitive and emotional factors and athlete mental health. These studies may also examine how cognitive and emotional constructs and their relationship with mental health differ in athletes who are high in mental health symptoms compared to athletes who experience low levels of mental health symptoms. Additionally, further studies are necessary to investigate what other sport-relevant factors above and beyond cognitive and emotional constructs influence athlete mental health. Other constructs such as environmental or systemic sport-related stressors may also influence athlete mental health, and it would be important to better understand these factors to inform future interventions.

The Dysfunctional Thoughts and Stress subscale could be used to screen athletes and determine risk for anxiety and mood disorders using appropriate cut-off scores determined by future studies. Similar evaluations have been conducted with the total scales of the Sport Interference Checklist. For instance, Donohue and colleagues (in press) developed cut-off scores for global scales (Problems in Sport Training Scale, PSTS and Problems in Sport Competition Scale, PSCS) that were predictive of global mental health concerns measured by the Symptom Checklist 90-item scale Revised (Derogatis, 1994; SCL-90-R). Based on Area Under the Curve

Analyses (AUC), if an athlete scored above 70 on the PSTS and 65 on the PSCS, authors suggested making a mental health referral. Cut-off scores for the SIC have also been developed in circus populations (Donohue, Gavrilova, Galante, Burnstein et al., 2018). Thus, this study adds to the growing body of literature that the SIC as a whole, and the Dysfunctional Thoughts and Stress subscale in particular, could represent an efficient and sport-relevant screening tool for anxiety and depression in athletes.

The present study is preliminary, but it may provide foundational evidence to support an intervention study. It would be helpful to assess the extent to which an intervention targeting dysfunctional thinking in sport contexts would be effective in reducing athletes' mental health symptoms outside of sport. Further, research may examine if an intervention focused on dysfunctional thinking and emotion regulation would be more effective in reducing anxiety and depressive symptoms than an intervention focused on each construct alone. Restructuring dysfunctional thinking is an evidence-supported intervention for reducing anxiety and depressive symptoms in non-athlete populations (Butler et al., 2005; Hofmann & Smits, 2008; Tolin, 2010), but athletes are less likely to engage in interventions that are not sport-specific (Gulliver et al., 2012; López & Levy, 2013). If a sport-specific intervention used to optimize thinking does improve anxiety and depressive symptoms, this could represent an intervention that may better engage student-athletes in mental health programming. Further, these interventions could be provided by master's-level sport psychology practitioners, which would represent a cost-efficient treatment option for universities. These interventions may also be helpful as a preventative measure or to facilitate the mental wellness of athletes. Future studies should explore this line of research.

## **Conclusion**

In conclusion, this investigation suggests that sport-relevant dysfunctional thinking in training and competition explains a significant amount of variance in anxiety and depressive symptoms experienced by college student-athletes. Although emotion regulation in competition does significantly predict anxiety and depressive symptoms, dysfunctional thinking mediates this relationship. Future studies should be conducted to better understand individual sport-relevant cognitive and emotional factors and how they relate to college athletes' mental health, and if this could form the basis of a culturally-informed intervention for athletes.

Table 1

*Frequencies of Athlete Sport Type (N=225)*

Sport Type	n	Percentage
Baseball	1	0.4%
Basketball	20	8.9%
Bowling	1	0.4%
Cross Country	24	10.7%
Football	6	2.7%
Golf	18	8.0%
Gymnastics	1	0.4%
Ice Hockey	28	12.4%
Lacrosse	2	0.9%
Soccer	4	1.8%
Softball	3	1.3%
Swimming & Diving	31	13.8%
Tennis	9	4.0%
Track & Field	64	28.5%
Volleyball	13	5.8%

Table 2

*Skewness and Kurtosis Values of Original and Adjusted PHQ-9 Variables (N=225)*

	Mean	SD	Skewness		Kurtosis	
			Statistic	SE	Statistic	SE
Total PHQ9	5.13	4.66	1.66	.16	3.51	.32
PHQ9_REV	5.09	4.50	1.42	.16	2.04	.32
PHQ9_Log	.67	.34	-.26	.16	-.36	.32
PHQ9_REV_Log	.67	.34	-.29	.16	-.40	.32

*Note.* Total PHQ9 = Total PHQ9 scores; PHQ9\_REV = PHQ9 scores with outliers managed; PHQ9\_Log = Logarithmic transformation of PHQ9 scores; PHQ9\_REV\_Log = PHQ9 scores transformed and with outliers managed

Table 3

*Skewness and Kurtosis Values of Original and Adjusted GAD-7 Variables (N=225)*

	Mean	SD	Skewness		Kurtosis	
			Statistic	SE	Statistic	SE
Total GAD7	4.39	4.38	1.35	.16	1.77	.32
GAD7_REV	4.35	4.24	1.17	.16	.780	.32
GAD7_Log	.58	.38	-.14	.16	-.98	.32
GAD7_Rev_Log	.58	.37	-.16	.16	-1.01	.32

*Note.* Total GAD7= Total GAD7 scores; GAD7\_REV = GAD7 scores with outliers managed; GAD7\_Log = Logarithmic transformation of GAD7 scores; GAD7\_REV\_Log = GAD7 scores transformed and with outliers managed

Table 4

*Correlations between dysfunctional thoughts, emotion regulation, and positive thinking in practice and competition, and depressive and anxiety symptoms (N=225)*

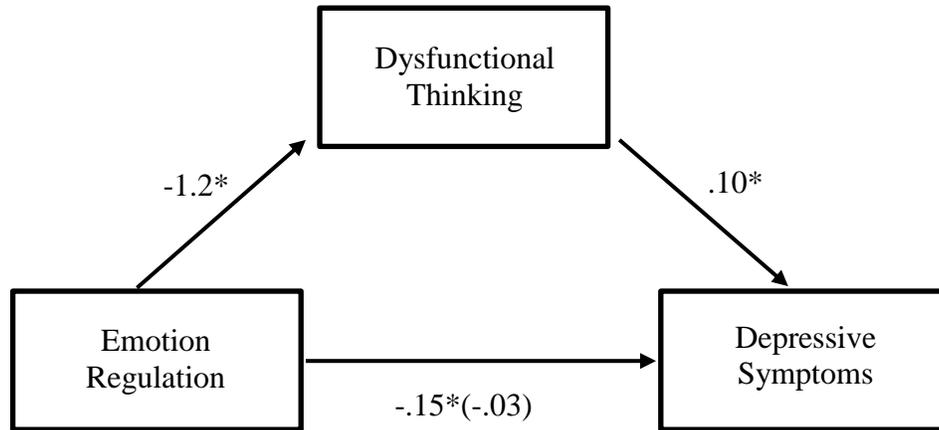
Measure	1	2	3	4	5	6	7	8
1 SIC_Thoughts_Training	-							
2 SIC_Thoughts_Competition	.73**	-						
3 TOPS_EC_Training	-.01	-.01	-					
4 TOPS_EC_Competition	-.57**	-.64**	.03	-				
5 TOPS_ST_Training	-.04	-.07	-.21**	.13	-			
6 TOPS_ST_Competition	-.01	-.09	-.15*	.21**	.73**	-		
7 PHQ9	.36**	.40**	-.07	-.31**	-.04	-.09	-	
8 GAD7	.37**	.36**	-.07	-.26**	-.07	-.09	.79**	-
<i>M</i>	3.51	3.41	2.81	3.38	3.34	3.29	5.09	4.35
<i>SD</i>	1.28	1.29	0.31	0.69	0.78	0.81	4.50	4.24
Alpha	.88	.90	.87	.79	.81	.80	.86	.89

*Note.* \* $p < .05$  ; \*\* $p < .01$ .

SIC\_Thoughts\_Training = Sport Interference Checklist (SIC) Dysfunctional Thoughts and Stress in Training; SIC\_Thoughts\_Competition = SIC Dysfunctional Thoughts and Stress in Competition; TOPS\_EC\_Training = Test of Performance Strategies (TOPS) Emotional Control in Training; TOPS\_EC\_Competition = TOPS Emotional Control in Competition; TOPS\_ST\_Training = TOPS Self-Talk in Training; TOPS\_ST\_Competition = TOPS Self-Talk in Competition; PHQ9 = Patient Health Questionnaire 9-item Scale; GAD7 = Generalized Anxiety Disorder 7-item Scale

Figure 1

*Mediation Model of Emotion Regulation, Dysfunctional Thinking, and Depressive Symptoms*

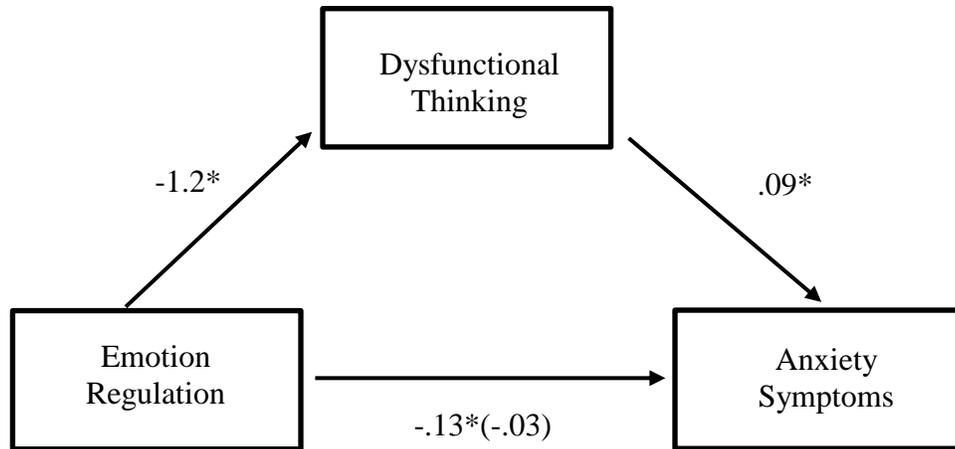


*Figure 1.* Standardized regression coefficients for the relationship between emotion regulation and depressive symptoms are mediated by dysfunctional thinking. The standardized regression coefficient between emotion regulation and depressive symptoms, controlling for dysfunctional thinking, is in parentheses.

\* $p < .05$

Figure 2

*Mediation Model of Emotion Regulation, Dysfunctional Thinking, and Anxiety Symptoms*



*Figure 2.* Standardized regression coefficients for the relationship between emotion regulation and anxiety symptoms are mediated by dysfunctional thinking. The standardized regression coefficient between emotion regulation and anxiety symptoms, controlling for dysfunctional thinking, is in parentheses.

\* $p < .05$

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## CURRICULUM VITAE

### MARINA HARRIS (GALANTE)

Department of Psychology, University of Nevada, Las Vegas  
4505 S. Maryland Parkway, Las Vegas, NV 89154  
Mgalante914@yahoo.com

### EDUCATION

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**Ph.D., Clinical Psychology**, University of Nevada, Las Vegas (UNLV; APA-Accredited) Expected 2020  
Dissertation: *Examination of the relationship between sport-specific thoughts and emotions and anxiety and depression in college athletes.*

Chair: Brad Donohue, Ph.D.

**M.S., Kinesiology and Health-Sport Leadership Concentration**, Miami University (MU) August 2015  
Thesis: *Comparing weight-conscious drinking among athletes and non-athletes.*

Chair: Rose Marie Ward, Ph.D.

**B.S., Sport and Exercise Psychology**, West Virginia University (WVU) August 2013  
Academic Adviser: Damien Clement, Ph.D.

### SCHOLARSHIPS, GRANTS, AND AWARDS

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- Patricia Sastaunik Scholarship, Graduate College, UNLV (2018-2019)	\$2500
- Summer Doctoral Research Fellowship, Graduate College, UNLV (2018)	\$7000
- Student Travel Award, American Psychological Association (2018)	\$300
- Outstanding Poster Presentation (2 <sup>nd</sup> place), GPSA Research Forum, UNLV (2018)	\$100
- Graduate College Top Tier Fellowship, UNLV (2017-2018)	\$15,500
- Rebel Research and Mentorship Program Awards, Graduate College, UNLV (2017-2018)	\$1500
- Student Organization Funding, CSUN, OUR, UNLV (2017, 2018)	\$5090
- Outstanding Poster Presentation (1 <sup>st</sup> place), GPSA Research Forum, UNLV (2017)	\$200
- Conference Travel Awards, GPSA, UNLV (2016-2018)	\$2875
- Graduate Funds Access Award, Psychology Department, UNLV (2015, 2018)	\$4000
- Thesis Research Grant, Kinesiology Department, MU (2014)	\$300
- Full Athletic Scholarship, WVU (2010-2013)	\$90,000

### RESEARCH EXPERIENCE

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**Family Research and Services** June 2015-August 2018  
Department of Psychology, UNLV, Las Vegas, NV Adviser: Brad Donohue, Ph.D.

Principal Investigator, Dissertation: Examination of the relationship between sport-specific thoughts and emotions and anxiety and depression in college athletes.

- Empirically evaluated the extent to which dysfunctional cognitions, emotion regulation, and positive thinking in sport-relevant contexts is predictive of athletes' general mental health, namely depression and anxiety.

Program Coordinator, May 2017-August 2018: Evaluation of Family Behavior Therapy in collegiate athletes (NIDA grant; 1R01DA031828).

- Clinical randomized controlled trial (RCT) focused on the development, controlled evaluation, and dissemination of Family Behavior Therapy (FBT) for substance use adapted for collegiate athletes.
- Responsibilities included immediate day-to-day oversight of all lab research projects, including data and clinic management, Institutional Review Board (IRB), quality assurance and outcomes assessment, research and staff meetings, program membership, and adherence to standardized administrative protocols.

Implementation and Dissemination Coordinator, June 2015-May 2017: Evaluation of Family Behavior Therapy in collegiate athletes (NIDA grant; 1R01DA031828).

- Oversaw all aspects of FBT dissemination, including recruitment of participants, therapy training film development, social media, and website development. Coordinated and disseminated all lab research projects (e.g., conference presentations and peer-reviewed publications). Developed and led a weekly meeting designed to improve student writing and publication efforts.
  - Sub-study: Recruitment methods to assist enrollment into treatment outcome research.
    - Oversaw implementation of RCT designed to evaluate different methods of recruiting underserved populations into treatment outcome research.
    - Implemented semi-structured interviews utilizing norming techniques and dialogues about participants' broad cultural experiences (ethnicity, religion, sport, etc.).
    - Developed promotional and recruitment materials to increase engagement, including protocols for classroom presentations and team workshops.
  - Sub-study: The Optimum Performance Program in Sports: A case example of Bulimia Nervosa in a lean sport athlete.
    - Implemented FBT intervention with an athlete who presented with Bulimia Nervosa; published book chapter outlining sport-relevant intervention adaptations and pre-, post-, and follow-up outcomes.

Graduate Research Assistant: The effects of reviewing positive consequences for goal achievement and negative consequences for undesired behavior on motivation, goal achievement, mood, and help-seeking in college students.

- Helped implement an RCT examining the efficacy of two brief interventions (positive and negative consequence review) to improve motivation for health behaviors (e.g., regular eating, sleep hygiene, exercise, avoiding tobacco or alcohol use, and thinking optimally).

Data Management Coordinator: Development of mental health programming for Cirque du Soleil and National Circus School (Cirque du Soleil and National Circus School-funded).

- Responsibilities included database setup and data management, development and implementation of outcomes assessment, and supervising an undergraduate research team.
- Project focused on evaluation of mental, social, and physical health factors in circus performers, as well as development and pilot evaluation of programming tailored for circus populations.
- Coordinated two peer-reviewed manuscripts and presented findings at national conferences.

Dissemination Coordinator: Concurrent drug abuse treatment and HIV prevention in child neglecting mothers (NIDA grant; 1R01DA020548).

- Assisted in dissemination of results and management of IRB modifications.

### **Ward Research Group**

Kinesiology and Health Department, MU, Oxford, OH

August 2013-May 2015

Adviser: Rose Marie Ward, Ph.D.

Principal Investigator, Thesis: Comparing weight-conscious drinking among athletes and non-athletes.

- Designed and coordinated study examining alcohol use, disordered eating behaviors, and weight-conscious drinking behaviors across athlete and non-athlete college students; examined behavioral patterns across groups.
- Created and managed IRB protocols, recruited participants, managed data, and disseminated research findings to a peer-reviewed journal.

Graduate Research Assistant: Field-based examination of alcohol use and blackouts in college students.

- Responsibilities included immediate oversight of an alcohol field-based study utilizing self-report questionnaires and breathalyzer data to capture “in-the-moment” drinking behaviors.
- Assisted in study recruitment, administration of questionnaires and breathalyzer data, data management, and dissemination of study results via peer-reviewed manuscripts and presentations at regional and national conferences.
  - Sub-study: Prescription stimulant misuse, alcohol abuse, and disordered eating behaviors among college students.
    - Evaluated the relationship (using a structural equation modeling framework) between prescription stimulant misuse and its prediction of alcohol problems and alcohol-event disordered eating.
  - Sub-study: An examination of drunkorexia, Greek affiliation, and alcohol consumption.
    - Examined the relationship between Greek affiliation, perceived salience of alcohol to the college experience, risky drinking behaviors, and disordered eating.

### **PEER-REVIEWED PUBLICATIONS**

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12. Donohue, B., **Galante, M.**, Hussey, J., Lee, B., Paul, N., Corey, A., & Allen, D. N. (In press). Empirical development of a screening method to assist mental health referrals in collegiate athletes. *Journal of Clinical Sport Psychology*
  11. Gavrilova, Y., Donohue, B., **Galante, M.**, & Gavrilova, E. (In press). A controlled examination of motivational strategies: Is it better to motivate by reviewing positive consequences for goal achievement or negative consequences of not accomplishing goals? *Motivation Science*.
  10. Donohue, B., Gavrilova, Y., **Galante, M.**, Burnstein, B., Aubertin, P., Benning, S. D., ... Light, A. (2018). Empirical development of a screening method for mental, social, and physical wellness in amateur and professional circus artists. *Psychology of Aesthetics, Creativity, and the Arts*.
  9. Donohue, B., Plant, C. P., Barchard, K. A., Scott, J., & **Galante, M.** (2018). Examination of the influence of court disposition status (under investigation, founded) on pre-intervention assessment results in Child Protective Services referrals. *Child Welfare, 96*(4), 73-86.

8. Donohue, B., Gavrilova, Y., **Galante, M.**, Gavrilova, E., Loughran, T., Scott, J., ... Allen, D. N. (2018). Controlled evaluation of an optimization approach to mental health and sport performance. *Journal of Clinical Sport Psychology, 12*(2), 234-267.
7. **Galante, M.**, Donohue, B., Gavrilova, Y., Phillips, C., Burnstein, B., Aubertin, P., & Corral, A. (2017). The relationship between problem-solving skills and factors that interfere with performance in the world's elite circus artists. *Journal of Performance Psychology, 11*, 1-17.
6. **Galante, M.**, Ward, R. M., & Weinberg, R. S. (2017). Comparing weight-conscious drinking among athletes and non-athletes. *Journal of Clinical Sport Psychology, 11*(4), 273-286.
5. Gavrilova, Y., Donohue, B., & **Galante, M.** (2017). Mental health and sport performance programming in athletes who present without pathology: A case examination supporting optimization. *Clinical Case Studies, 16*(3), 234-253.
4. **Galante, M.**, & Ward, R. M. (2016). Female student leaders: An examination of transformational leadership, athletics, and self-esteem. *Journal of Personality and Individual Differences, 106*(1), 157-162.
3. Ward, R. M., Oswald, B. B., & **Galante, M.** (2016). Prescription stimulant misuse, alcohol abuse, and disordered eating among college students. *Journal of Alcohol and Drug Education, 60*(2), 59-80.
2. Ward, R. M., **Galante, M.**, Trivedi, R., & Kahrs, J. (2015). An examination of drunkorexia, Greek affiliation, and alcohol consumption. *Journal of Alcohol and Drug Education, 59*(3), 48-66.
1. Ward, R. M., & **Galante, M.** (2015). Development and initial validation of the Drunkorexia Motives and Behaviors scales. *Eating Behaviors, 18*, 66-70.

## BOOK CHAPTERS

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1. **Galante, M.**, Donohue, B., & Gavrilova, Y. (In press). The Optimum Performance Program in Sports: A case example of Bulimia Nervosa in a lean sport athlete. In G. Breslin & G. Leavey (Eds.), *Mental health and well-being interventions in sport: A case study analysis*. Routledge.

## CONFERENCE PRESENTATIONS

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17. **Galante, M.**, Hussey, J., Corey, A., Donohue, B., & Allen, D. N. (2018, August). *Sport-specific problems and mental health in athletes: Screening for referral to treatment*. Poster session presented at the annual convention of the American Psychological Association, San Francisco, CA.
16. Gavrilova, Y., Stucki, K., **Galante, M.**, Gavrilova, E., Danlag, A., Bricker, M., & Donohue, B. (2018, April). *A controlled examination of motivational strategies: Reviewing positive consequences for goal accomplishment, negative consequences for undesired behavior, and a relaxation exercise*. Poster session presented at the annual convention of the Western Psychological Association, Portland, OR.
15. **Galante, M.**, Donohue, B., & Gavrilova, Y. (2018, April). *A culturally adapted optimization intervention for collegiate student-athletes: A case of Bulimia Nervosa in a lean sport athlete*. Poster session presented at the International Conference on Eating Disorders, Chicago, IL.

14. **Galante, M.**, Gavrilova, Y., Gavrilova, E., Bricker, M., Danlag, A., Stucki, K., & Donohue, B. (2017, November). *Effects of a culturally adapted intervention for student athletes on engagement in mental health services*. Poster session presented at the annual convention for the Association of Behavioral and Cognitive Therapies, San Diego, CA.
13. Gavrilova, Y., **Galante, M.**, Phillips, C., Gavrilova, E., & Donohue, B. (2017, January). *The semi-structured interviews for sport and ethnic culture in mental health and sport performance programming: A rapid method of enhancing athletes' engagement*. Workshop presented at the Performance Psychology Conference, La Jolla, CA.
12. Donohue, B., Gavrilova, Y., Plant, C. P., & **Galante, M.** (2016, October). *Managing the environment for adolescents evidenced to abuse drugs utilizing stimulus control strategies within the context of Family Behavior Therapy*. Workshop presented at the annual convention for the Association of Behavioral and Cognitive Therapies, New York, NY.
11. Plant, C. P., Gavrilova, Y., Pitts, M., **Galante, M.**, Andrewjeski, K., & Donohue, B. (2016, October). *Controlled evaluation of a method of recruiting participants into treatment outcome research*. Poster session presented at the annual convention for the Association for Behavior and Cognitive Therapies, New York City, NY.
10. Plant, C. P., Pitts, M., Gavrilova, Y., **Galante, M.**, Andrewjeski, K., & Donohue, B. (2016, October). *Family supported dynamic goal and contingency management intervention components within the context of evidence-supported treatment for mothers referred by Child Protective Services*. Poster session presented at the annual convention for the Association of Behavioral and Cognitive Therapies, New York, NY.
9. Donohue, B., Gavrilova, Y., **Galante, M.**, Phillips, C., & Burnstein, B. (2016, September). *Piloting The Optimum Performance Program in Circus: Exploration into an important domain of performance psychology*. Symposium presented at the Association of Applied Sport Psychology national conference, Phoenix, AZ.
8. **Galante, M.**, Gavrilova, Y., Phillips, C., Corral, A., Corey, A., Burnstein, B., & Donohue, B. (2016, September). *TOPP performance: Anxiety and problem-solving skills in circus artists*. Poster session presented at the Association of Applied Sport Psychology national conference, Phoenix, AZ.
7. Plant, C. P., Scott, J., **Galante, M.**, & Donohue, B. (2016, April). *Examination of the effects of child neglect type and case status on self-reporting of child maltreatment potential in substance abusing mothers referred by Child Protective Services*. Paper presented at the Western Psychological Association annual convention, Long Beach, CA.
6. **Galante, M.**, Andrewjeski, K., Plant, C. P., Scott, J., & Donohue, B. (2016, March). *Examination of the effects of child neglect type and case status on self-reporting of child maltreatment potential in substance abusing mothers referred by Child Protective Services*. Paper presented at the Graduate Research Forum, University of Nevada, Las Vegas.
5. Gavrilova, Y., Phillips, P., **Galante, M.**, & Donohue, B. (2016, January). *An evidence-supported timeline functional analysis method of performance optimization*. Workshop presented at the Performance Psychology Conference, La Jolla, CA.

4. **Galante, M., & Ward, R. M.** (2015, October). *Female athlete perceptions of gender identity and sexual victimization*. Oral presentation at the Association of Applied Sport Psychology national conference, Indianapolis, IN.
3. **Galante, M., & Ward, R. M.** (2015, June). *Blackouts, extreme drinking, and drunkorexia*. Poster session presented at the annual Research Society on Alcoholism scientific meeting, San Antonio, TX.
2. **Galante, M., & Ward, R. M.** (2014, October). *The association between NCAA athlete status, leadership, and self-esteem in collegiate females*. Poster session presented at the Association of Applied Sport Psychology national conference, Las Vegas, NV.
1. **Ward, R. M., & Galante, M.** (2014, June). *Drunkorexia motives: A measurement development study*. Poster session presented at the annual Research Society on Alcoholism scientific meeting, Bellevue, WA.

## PRE-DOCTORAL CLINICAL TRAINING

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<b>Doctoral Practicum Student</b>	July 2018-August 2018
Center for Hope of the Sierras	2 to 3 hours per week
Las Vegas, NV	Supervisor: Lindsey Ricciardi, Ph.D.

- Facilitated a weekly Dialectical Behavior Therapy (DBT) group for women with eating pathology and comorbid disorders in an integrated intensive outpatient/partial hospitalization program.
- Participated in weekly group supervision and coordinated patient care with marriage and family therapists and registered dietitians.

<b>Doctoral Practicum Student</b>	January 2018-May 2018
UNLV Child School Refusal and Anxiety Disorders Clinic	2 to 3 hours per week
Las Vegas, NV	Supervisor: Christopher Kearney, Ph.D.

- The School Refusal and Anxiety Disorders Clinic is a departmental outpatient clinic serving children and families with various school refusal behaviors and anxiety-related concerns.
- Co-facilitated a weekly family-based group comprised of evidence-supported behavioral interventions (exposure, problem-solving, school-based interventions) for children with Selective Mutism and their caregivers.

<b>Doctoral Practicum Student</b>	October 2017-August 2018
The PRACTICE Community Mental Health Clinic	5 to 10 hours per week
Psychology Department, UNLV	Supervisor: Michelle Paul, Ph.D.

- The PRACTICE is a departmental outpatient clinic serving community populations in Las Vegas.
- Worked as part of an integrated team with supervising psychologist, post-doctoral fellow, and another doctoral practicum student to provide intensive outpatient services (via Exposure and Response Prevention) to a patient with severe Obsessive-Compulsive Disorder.
- Attended weekly group supervision, involving in-vivo and digital video-tape review.

<b>Doctoral Practicum Student</b>	August 2017-December 2018
The PRACTICE Community Mental Health Clinic	3 to 5 hours per week
Psychology Department, UNLV	Supervisor: Noelle Lefforge, Ph.D.

- Co-facilitated a weekly Cognitive Behavioral Therapy (CBT) group for comorbid mood and anxiety disorders with post-doctoral fellow.
- Provided case management services to address individual needs with group clients.
- Attended weekly group supervision, involving in-vivo skills review.

**Doctoral Practicum Student**

Center for Emotional Health  
Las Vegas, NV

May 2017-Present  
12 to 15 hours per week  
Supervisor: Lindsey Ricciardi, Ph.D.

- Center for Emotional Health is a private practice providing sliding scale, evidence-based outpatient treatment to adolescents and adults with eating and anxiety-related concerns.
- Maintained caseload of six individual adolescent and adult clients with eating and comorbid concerns using evidence-supported modalities (e.g., Enhanced Cognitive Behavior Therapy for Eating Disorders; Family Based (Maudsley) Therapy; Exposure and Response Prevention).
- Co-facilitated several weekly Dialectical Behavior Therapy (DBT) groups for women with eating pathology and comorbid mood, anxiety, trauma-related, substance use, and personality disorders. Provided DBT skills coaching (in person and via telephone) to group members.
- Implemented clinical interviews, screening, and treatment monitoring assessments (e.g., EDE-Q, BDI-II, BES, GAD-7).
- Supervision consisted of weekly didactic training, in-vivo observation and digital video-tape review, detailed feedback on therapeutic skills and treatment adherence, and training in case conceptualization.

**Doctoral Practicum Student**

Surgical Weight Control Center  
Las Vegas, NV

May 2017-August 2018  
Up to 5 hours per week  
Supervisor: Lindsey Ricciardi, Ph.D.

- Conducted weekly pre-operative psychiatric evaluations for bariatric surgery candidates to assess psychological readiness for major surgery.
- Collaborated and coordinated patient care with patient advocates, registered dietitians, and surgeons in a primary care setting.
- Facilitated a monthly emotional support group for bariatric patients.

**Doctoral Practicum Student**

Psychological Assessment and Testing Clinic  
Psychology Department, UNLV

August 2016-December 2017  
5 to 10 hours per week  
Supervisors: Michelle Paul, Ph.D., Stephen Benning, Ph.D.

- Conducted psychodiagnostic and neuropsychological assessments in an outpatient department-sponsored mental health training clinic using a flexible battery of psychometrically validated tests for adults and adolescents referred from the community with a range of referral questions.
- Additional responsibilities included scoring, interpreting, writing integrated reports, and providing feedback to clients.
- Supervision consisted of weekly individual meetings with either in-vivo supervision or digital video review, reviewing cases, training in case conceptualization and differential diagnosis, revisions to integrated reports, and discussion of client feedback.

**Doctoral Practicum Student**

The PRACTICE Community Mental Health Clinic

August 2016-May 2017  
12 to 15 hours per week

Psychology Department, UNLV

Supervisor: Kristen Culbert, Ph.D.

- Maintained a caseload of five individual adolescent and adult clients treated using evidence-supported interventions (primarily cognitive-behavioral) for a variety of pathology (e.g., mood and anxiety disorders, trauma-related disorders, eating disorders, chronic illness, relationship distress).
- Developed individualized treatment plans, maintained case conceptualizations and progress notes, and implemented outcome and process tracking measures (e.g., ORS, SRS, DASS-21, PCL-5).
- Supervision consisted of weekly individual meetings with digital video review, review of case conceptualizations, and training in therapeutic techniques. Attended case conferences and didactic training in a group format.

**Cirque du Soleil and National Circus School Consultant**

September 2015-May 2016

Cirque du Soleil and the National Circus School

Up to 7 hours per week

Las Vegas, NV and Montreal, QC

Supervisor: Brad Donohue, Ph.D.

- Provided group workshops of up to 28 participants to circus artists, coaches, and teachers, targeting skills relevant to optimization of relationships, communication, and thought management.
- Conducted comprehensive wellness screening of psychological, emotional, and physical health in circus artists; provided individual assessment feedback to clients and summative feedback to agencies.
- Received weekly individual supervision, including audiotape review of intervention delivery.

**Doctoral Practicum Student**

June 2015-August 2017

The Optimum Performance Program in Sports

10 to 15 hours per week

Psychology Department, UNLV

Supervisor: Brad Donohue, Ph.D.

- Conducted manualized 12-session evidence-based treatment (Family Behavior Therapy) in the context of a clinical trial with Division I athletes with substance use and various comorbid disorders (mood, anxiety, obsessive-compulsive, and eating disorders). Engaged supportive others (family members, teammates, coaches, and peers) to help facilitate athlete goals.
- Interventions were skill-based, goal oriented, and prescribed with standardized protocol checklists. FBT components were designed to decrease substance use and risk of HIV/STIs, and to optimize mental health, relationships, and sport performance.
- Implemented skill-based group workshops (e.g., motivation, thought management, communication) with collegiate athletes and coaches aimed to optimize sport performance and team relationships.
- Received weekly individual and group supervision, consisting of in-vivo therapy observations, audiotape review and feedback, and protocol-prescribed role plays.

**Varsity Diving and Club Gymnastics Team Sport Consultant**

August 2014-May 2015

Athletics Department, MU

10 to 12 hours per week

Oxford, OH

Supervisor: Robert Weinberg, Ph.D.

- Implemented sport psychology interventions with collegiate varsity divers and club level gymnasts to optimize athletic performance. Facilitated athlete confidence and performance through cognitive-behavioral skills like goal-setting, thought management, and relaxation/arousal management.

- Attended practices and competitions, consulted with coaches, and developed and implemented team workshops of skill-based interventions targeting athletic performance.
- Developed individualized treatment plans for athletes, maintained athlete records, and evaluated progress towards programmatic goals.
- Attended weekly supervision meetings consisting of videotape review of intervention delivery and discussion of case conceptualization.

## **CLINICAL SUPERVISION TRAINING AND EXPERIENCE**

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**Supervisor-in-Training** August 2018-Present  
 Center for Emotional Health 2 to 5 hours per week  
 Las Vegas, NV Supervisor: Lindsey Ricciardi, Ph.D.

- Supervised an advanced clinical psychology doctoral student in provision of evidence-based modalities for eating and anxiety-related concerns, informed by an integration of cognitive-behavioral and developmental supervision models.
- Received individual supervision of supervision, including guided readings of supervision and treatment models.

**Supervisor-in-Training** May 2018-August 2018  
 The PRACTICE Community Mental Health Clinic 5 hours per week  
 Psychology Department, UNLV Supervisor: Michelle Paul, Ph.D.

- Co-supervised a junior clinical psychology doctoral student while concurrently enrolled in a clinical supervision course.
- Received weekly individual and group supervision of supervision, including digital video review, and review of supervision theories and intervention; participated in weekly case rounds.
- Emerging philosophy of supervision integrates a cognitive-behavioral orientation with developmental models.

## **TEACHING, LEADERSHIP, AND MENTORSHIP EXPERIENCE**

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**Division 47 (Sport, Exercise, & Performance Psychology) Student Representative** August 2017-Present

American Psychological Association

- Organized interprofessional trainings and webinars for division members on a variety of topics, such as performance psychology in diverse settings and treating diverse athlete populations. This included serving as a moderator for a webinar about treating athletes with eating disorders.
- Developed initiatives for recruitment and retention of student affiliates and young professionals; aided in planning and coordinating student events and programming at APA convention.
- Attended yearly board meeting to review division initiatives and relevant policies.

**Rebel Research and Mentorship Program (RAMP) Mentor**

August 2017- May 2018

Graduate College, UNLV

- Program designed to help undergraduate and graduate students build valuable scholarly skills; responsibilities included working closely with an undergraduate mentee on an original scholarly research project.
- Mentee learning objectives included developing research conceptualizations, conducting literature reviews, and learning institutional review board procedures.

**Graduate Student Mentor**

August 2016-Present

Outreach Undergraduate Mentorship Program (OUMP), UNLV

- OUMP is a mentorship program for undergraduate psychology students from under-represented backgrounds, such as ethnic minorities, LGBTQ+ students, and students with disabilities.
- Met monthly with undergraduate students, helped students identify goals and achievable steps for degree matriculation or graduate school admission, assisted with personal statements and CVs, and liaised with faculty to help place students in campus research lab positions.

**Guest Lecturer**

UNLV

PEX 201: Fundamentals of Coaching

April 2018

- Reviewed principles of skill development, shaping player habits, individualization of training, team roles, and athlete mental health from a mental skills training perspective.

PSY 451: Basic Principles of Psychotherapy

October 2017

- Lectured on the principles of person-centered therapy, characteristics of a person-centered therapist, and goals of this therapeutic approach.

PSY 101: General Psychology

October 2017

- Provided broad overview of applied sport psychology, including qualifications of various sport psychology practitioners, benefits of mental skills training for athletes and other performers, and commonly used evidence-supported interventions.

KIN 414: Enhancing Mental and Motor Abilities

April 2016

- Lectured on interprofessional collaboration across sport consultants and psychologists to optimize comprehensive care of student-athletes.

**Teaching Assistant**

January 2014-May 2014

Kinesiology and Health Department, MU

KNH 621: Research Methods

- Graded and provided individualized feedback on weekly annotated bibliographies, research questions, and research proposals. Helped first-year graduate students develop strong fundamental research and literature review skills.

**Instructor**

August 2013-May 2015

Kinesiology and Health Department, MU

KNH 120I: Power Walking for Fitness

KNH 120C: Individual Exercise

KNH 120L: Jogging for Health and Fitness

- Gave daily lectures on various fitness techniques and sociocultural aspects of exercise; provided feedback on individualized exercise programs.
- Created class syllabi and exams, graded assignments, and supervised daily fitness activities.

**Peer Adviser**

August 2012-May 2013

Sport and Exercise Psychology Department, WVU

- Advised and mentored undergraduates enrolled in the Sport and Exercise Psychology major curriculum.
- Assisted students in building various skills such as constructing resumes and cover letters, applying to graduate school, and using time management skills.

## PROFESSIONAL TRAINING

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- ACT I: An Introduction to Acceptance and Commitment Therapy (ACT)** October 2018  
Steven C. Hayes, Ph.D., Nevada Psychological Association 18 hours
- Training designed to establish a foundational understanding of ACT theories, case conceptualization, and treatment implementation. Discussion topics included flexible contact with the present moment, cognitive defusion, acceptance, self-as-context, values, and commitment-based action. Role plays utilized for skill acquisition.
- Fostering Cultural Humility: Expanding Perspectives about Self and Others** April 2018  
Miguel Gallardo, Psy.D., Nevada Psychological Association 8 hours
- Training designed to facilitate cultural humility among therapists. Discussions of various topics included cultural responsiveness, intersectionality, and color-blind ideology.
- Writing Workshop** August 2017-May 2018  
Kim Barchard, Ph.D., UNLV
- Semester-long workshop providing support and strength-based tools to enhance professional writing skills related to grants and manuscripts submitted to peer-reviewed academic journals.
- Integrated Behavioral Health in Primary Care Course** August 2017-December 2018  
Michelle Paul, Ph.D., UNLV
- Course developed based on recommendations from Interprofessional Education Collaborative for clinical professionals delivering integrated behavioral health services for populations presenting with complex needs in physical health, mental health, and substance use.
  - Areas of training included assessment, intervention, and consultation skills, and collaborating within interdisciplinary teams to develop treatment plans and establish appropriate referrals. Included specific training in Screening, Brief Intervention, Referral to Treatment (SBIRT), an approach to the early detection and intervention delivery to persons with/at risk for substance use disorders.
- Annual Interprofessional Education and Practice Day** March 2017, 2018  
UNLV 16 hours
- Participated among 200 students from UNLV's nursing, physical therapy, social work, dental, and psychology programs for an annual day-long event aimed at increasing interprofessional competencies. Workshops included interdisciplinary groups discussing complex clinical case vignettes.
- Statistical Regression Workshop** May 2017  
Andrew Freeman, Ph.D., UNLV 15 hours
- Comprehensive 5-day workshop designed to address the fundamentals of regression analyses, analysis of models using R technology, and accurate output interpretation.
  - Workshop included theoretical and practical introductions to topics like correlation coefficients, power, and simple, multiple, and hierarchical regression models.
- Doing Business as a Psychologist** September 2017  
Larry Waldman, Ph.D., Nevada Psychological Association 8 hours

- Workshop outlined business principles specific to private psychological practice, including strategies for effective referrals and marketing.

**Responsible Conduct of Research (RCR)** August 2016-December 2016  
Office of Research and Integrity, Division of Research and Graduate Studies, UNLV 7 hours

- In-person research conduct training on various ethical topics, including General Ethical Responsibilities in Research, Mentor/Trainee Responsibilities, Research Misconduct, Collaborative Research, Peer Review, Publication Practices and Responsible Authorship, and Conflicts of Interest and Commitment.

**Interpersonal and Social Rhythm Therapy (IPSRT)** January 2016  
Holly Frank, Ph.D., Holly Swartz, M.D., and Debra Frankel, LCSW 8 hours

- IPSRT is an evidence-based modality for the treatment of bipolar disorder and unipolar depression. Principles include stabilization of interpersonal relationships, establishment of daily routines (including eating and sleep hygiene), and adherence to mood-stabilizing medication.
- Learned to implement screening and outcome tracking measures, as well as regular mood monitors specific to the treatment of bipolar disorder.

**National Institute on Drug Abuse (NIDA) Annual Training** August 2015, 2016  
Family Research and Services, Department of Psychology, UNLV 4 hours

- Training on adverse events, child maltreatment reporting, suicidal ideation, and substance withdrawal.

Supervisor: Brad Donohue, Ph.D.

## **PROFESSIONAL MEMBERSHIPS**

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Academy for Eating Disorders	2017-Present
Association for Psychological Science	2017-Present
Association of Behavioral and Cognitive Therapies Student Ambassador	2016-Present
Nevada Psychological Association	2016-Present
American Psychological Association APA Graduate Student Member Division 12 Affiliate Division 47 Affiliate	2014-Present
Association for Applied Sport Psychology Eating Disorders in Sport Special Interest Group Member Women in Sport Special Interest Group Member	2013-2017

## **PROFESSIONAL SERVICE ACTIVITIES**

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- AASP Conference Abstract Reviewer** November 2016, 2017
- Reviewed conference abstracts; rated research methodology, interest to conference attendees, and innovation for the field of sport and exercise psychology; provided recommendations for approval.

**Diversity and Inclusion (D&I) Committee Member** August 2016-Present  
Psychology Department, UNLV

- Purpose of the D&I committee is to foster a respectful and collaborative work environment for all faculty and students.
- Collaborated with faculty to help create and distribute an organizational climate survey, organize a resource guide for faculty and students, update psychology website and handbook with inclusive language, and change application procedures to reduce ingroup bias.
- Helped develop D&I committee website, which included highlighting departmental and student contributions to diversity and inclusion. Created a recruitment flyer for students.

**AASP Student Volunteer** October 2014

- Presided over select presentations at the 2014 AASP National Conference.

**Oxford Women's Care Center (WCC) Intern** May 2014-August 2014  
Oxford, OH

- The WCC is a non-profit organization providing resources for low-income caregivers.
- Assessed client needs, provided clients with essential items for child-rearing, and offered resource counseling.

**Guest Journal Reviewer**

International Journal of Sport and Exercise Psychology June 2018  
Journal of Clinical Sport Psychology October 2017  
*Special Issue: Eating Disorders and Body Image in Sport and Exercise*  
Journal of Child and Adolescent Substance Use November 2016-Present  
Journal of Physical Activity & Health December 2013

**ADDITIONAL EXPERIENCE**

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**Varsity Gymnastics Student Assistant Coach** August 2011-May 2012  
Athletics Department, WVU

- Assisted gymnasts in optimizing performance through routine rehearsal, improving existing skills and technique, and learning new skills.
- Offered support in pressure-related contexts and traveled with varsity team to coach various competitions across the United States during the 2011-2012 competitive season.

**Varsity Gymnastics Team Member** August 2010-May 2011  
Athletics Department, WVU

- Attend practices and competitions, participate in community service activities.

**EMPLOYMENT EXPERIENCE**

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**Student-Athlete Academic Tutor** August 2012-August 2013  
Academic Success Center, WVU

- Tutored varsity student-athletes in the WVU Academic Performance Center in major-related and general education classes; taught students fundamental study and communication skills.

*References available upon request*