

THE RELATIONSHIP BETWEEN DEPRESSION, ANXIETY, AND
RESILIENCE IN COLLEGE STUDENT ATHLETES

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ABSTRACT

Anxiety disorder is becoming increasingly prevalent across college campuses, particularly amongst student athletes who face additional stressors and challenges than their peers. Given the well-documented correlation between anxiety and depression, the number of collegiate athletes suffering from depression is unsurprisingly growing as well. Psychologists have recently begun to take a more prophylactic approach to treating these disorders through resilience training. Resilience training focuses on developing greater mental fortitude and confidence to better cope with mental and emotional challenges. The purpose of this study was to analyze the association between resilience, depression, and anxiety for college student athletes. It sought to contribute to the development of an effective resilience educational modules that collegiate sports programs across the country can readily employ. **Research Design:** The proposed project employed a survey research design to explore the complex relationship between depression, anxiety, and resilience for college student athletes. **Data Analysis Strategy:** A Structure Equation Modeling (“SEM”) was employed to account for any measurement error between the observed items (responses on the instruments) and the latent variables (anxiety, resilience, and depression). More importantly, SEM examined whether the collected data supported the theoretical model proposed in this research.

Key Measures: levels of anxiety, depression, and resilience in current collegiate athletes at the University of Hawai‘i at Mānoa.

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INTRODUCTION

Background

Years ago, when I played tennis professionally, the pressure to do well in important tournaments often tormented me psychologically and physically. I struggled to fall asleep many nights before a match because I was worried about how I would perform. I frequently needed to go to the bathroom right before I played. After tough losses, I would regularly feel a sense of despair accompanied by a persistent doubt that I was capable of success. My experience closely resembles the symptoms of anxiety and depression (American Psychiatric Association, 2013). Over the years, many of my tennis peers have confided in me that they too have experienced feelings of anxiety and depression while they were competing. These experiences, along with my current responsibilities as a tennis coach for the University of Hawai'i's women's tennis team, inspired me to research on anxiety and depression amongst collegiate athletes. Particularly, I was interested in understanding the relationship between depression and anxiety in a competitive environment and in identifying the factors that cause or exacerbate these symptoms.

A recent survey indicated that over 300 million people around the world currently suffer from depression, and that this number increased by 18% between 2005 and 2015 (World Health Organization, 2017). Anxiety disorders are the most common mental affliction in the United States, affecting 40 million adults or 18.1% of the population (Anxiety and Depression Association of America, 2018). Anxiety often co-exists with depression, as half of individuals diagnosed with depression also suffer from an anxiety disorder (Andrew, Cohen, Salgaonkar, & Patel, 2012; Anxiety and Depression Association of America, 2018; Moffitt, Harrington, Caspi, Kim-Cohen, Goldberg, Gregory, & Poulton, 2007; Naragon-Gainey, Prenoveau, Brown, & Zinbarg, 2016).

Symptoms of depression represent the most prevalent afflictions in mental health that many individuals may develop at some point during their lives (World Health Organization, 2017). An affected person can experience various levels of depression from a short-term mood fluctuation, or emotional response, to struggling in daily life. An intense and long-lasting sign of depression can drastically influence individuals' demeanors and behaviors in the school, work place, and at home with their families. In the worst-case scenario, of course, depression can lead people to major depression, which may cause people to commit suicide. Globally, about 800,000 people die every year from suicide, and at least 50% of people who committed suicide were experiencing symptoms of depression (World Health Organization, 2017; Mackenzie, Wiegel, Mundt, Brown, Saewyc, Heiligenstein, & Fleming, 2011). In the United States, suicide ranks the second leading cause of death for age between 15-34 years old population (American Association of Suicidology, 2020).

A recent report sponsored by the American College Health Association ("ACHA") and the National College Health Assessment ("NCHA") indicated that nearly 36%, or one third, of the 95,761 college students who took the survey in the United States expressed experiencing some level of depression in the last 12 months (American College Health Association-National College Health Assessment II, 2016). Depression is the most prevalent and growing psychological disorder among college students (American College Health Association-National College Health Assessment II, 2009; Buchanan, 2012; Mackenzie et al., 2011). In fact, in 2017, the University of California at Los Angeles ("UCLA") started offering depression screenings for new students and other professional mental health options for the entire UCLA student body as result of the increasing frequency of depression amongst UCLA students. (Rinker, 2017). Furthermore, several studies suggest that anxious feelings and stressful events are inevitable on a

day-to-day basis; anxiety and stress are becoming more prevalent among college students (Blanco, Okuda, Wright, Hasin, Grant, Liu, & Olfson, 2008; Gallagher, 2012; Mackenzie et al., 2011; Beiter, Nash, McCrady, Rhoades, Linscomb, Clarahan, & Sammut, 2015). Consequently, symptoms of depression and anxiety also affect college student athletes across different sports (Rao & Hong, 2015).

My current role as a women's tennis coach for the University of Hawai'i at Mānoa ("UHM") inspired me to do more research on anxiety and depression topic in athletes because many student athletes I have worked with have confided in me that they have experienced many symptoms of depression and anxiety at some point in their athletic careers. Hence, these conversations piqued my curiosity and I decided to study how these symptoms originate and what the risk factors are.

Depressed and Anxious Symptoms among Collegiate Athletes

Every year more than 460,000 athletes from 1,150 universities compete in 24 sports in the National Collegiate Athletic Association (NCAA) (National Collegiate Athletic Association, n.d.). The NCAA listed the requirement for a collegiate athlete as "student first, athlete second" (National Collegiate Athletic Association, n.d.). That means these student athletes must maintain a full-time course load equivalent to other college students. Additionally, these collegiate athletes are required to maintain a certain level of academic performance, such as earning at least a grade point average (GPA) 2.0 (in NCAA division 2 competition) or 2.3 (in NCAA division 1 competition) to be eligible to compete for an intercollegiate varsity team (National Collegiate Athletic Association, 2017). These student-athletes are expected to succeed in both academics and athletics. The NCAA assumed this pressure contributed to student-athletes experiencing a

higher risk of different forms of mental illnesses such as depression and anxiety (Davoren & Hwang, 2014).

Student athletes are susceptible to depression and anxiety because their college experiences bring on additional stressors. For example, student athletes are expected to juggle practice times and academic work with the challenge of a time-consuming schedule compounded by the expectation of performance in the student athletes' sport (Yang, Peek-Asa, Corlette, Cheng, Foster, & Albright, 2007). Close to 50% of student athletes suffer at least one athletic injury during their collegiate career. An injury can significantly affect their training progressions and their competitive performances (Yang et al., 2007). Many athletes have difficulties coping emotionally and behaviorally due to injuries or physical limitations (Yang et al., 2007). The aforementioned difficulties, or stressors, can cause a collegiate athlete to experience psychological disturbance, anxiety, depression, resentment, guilt, and low self-esteem (Yang et al., 2007). Hence, many sports psychologists in the past two decades have focused on constructing an effective psychological mindset, such as resilience, to help athletes in general or student athletes who experience stressful situations or depression (Sarkar & Fletcher, 2013).

The fields of neuroscience and psychology have found that people who develop a strong sense of resilience, emotionally and mentally, can cope with depression and anxiety much more effectively (Charney & Nemeroff, 2004; Everly, Strouse & McCormack, 2015; Kent, 2014). The basic definition of resilience comes from mammalian adaptation literature, and refers to “the intrinsically endowed capacities of an organism to manage challenges in a life-preserving manner” (Kent, 2014, p. 3). For humans, resilience is:

The ability to maintain composure and equanimity along with creative and productive life problem solving in the face of repeated vicissitudes. Resilience refers to basic flexible life

preserving behavior patterns that are promoted by mammalian affective systems of the brain and organism's interaction with the environment (Kent, p. 3, 2014).

Resilience is the mental capability that helps individuals withstand any difficulties, whether physical or emotional. Resilience serves as a strong psychological armor that helps individuals alleviate or eliminate the symptoms of depression. It also helps transform the feeling of depression into a meaningful experience in which individuals can acquire potential positive benefits from the trauma and adversity, in order to achieve greater success, happiness, and personal strength (Charney & Nemeroff, 2004; Everly et al., 2015; Hjemdal, Vogel, Solem, Hagen, & Stiles, 2011; Kent, 2014). Over the last several decades, substantial research in mental health has shifted the focal point away from pathology and problem-orientation in order to emphasize the role of resilience in health (Connor & Davidson, 2003). In fact, because resilience is relevant to the therapeutic outcome in treating depression, anxiety, and stress reactions, several psychological scales have been constructed exclusively to measure the aspects, or traits of resilience manifested in individuals. (Bartone, Ursano, Wright, & Ingraham, 1989; Cohen, Kamarck, & Mermelstein, 1983; Wagnild, & Young, 1993).

Statement of the Purpose

Based on the value of resilience in terms of coping with depression, the purpose of this present study was to investigate the relationship between resilience and levels of depression and anxiety among current college student athletes in Hawai'i. Specially, research questions are:

1. What are the relationships between depression, anxiety, and resilience among collegiate athletes from the University of Hawai'i at Mānoa?
2. How does gender affect the relationship between anxiety, depression, and resilience?
3. How do recent injuries affect student athletes' mental state, anxiety and/or depression levels?

LITERATURE REVIEW

The following chapter has several purposes. First, the chapter reviews the origin, similarities, characteristics, and comorbidity of anxiety and depression in order to provide background information for the study. Second, it explores research relating to the specific causes of depression. Third, it reviews research regarding common risk factors and vulnerability of college athletes experiencing depression. Finally, and most importantly, the chapter includes research into the role of resilience in helping collegiate athletes cope with anxiety and depression.

Background Information regarding Depression and Anxiety

There are many types of anxiety in psychopathology and sport psychology, such as general anxiety disorder, competitive anxiety, and social anxiety (American Psychiatric Association, 2013; Castonguay & Oltmanns, 2013; Cowden, Fuller & Anshel, 2014; Craske & Waters, 2005). The literature defines anxiety or general anxiety disorder (“GAD”) as a distinctive and subjective feeling that derives from an individual’s cognitive, emotional, and conscious response to threat-relevant events or unpleasant memories (Chorpita, Barlow, Eisenberg, & Nancy, 1998; Fanselow, & Pennington, 2018; Ledux & Pine, 2016; Ledux & Brown, 2017). Additionally, Dr. Fanselow and his colleague have shown that anxiety originates from the threat-related response. Therefore, in order to conceptualize the definition of anxiety, it is useful to compare anxiety across different threat-relevant cognitive responses, such as “fear.” (Fanselow & Pennington, 2018; Ledux & Pine, 2016; Ledux & Brown, 2017; Ruscio & Ruscio, 2004).

Human and animal responses to threats of danger are often divided into mental stages (Fanselow & Pennington, 2018; Ledux & Pine, 2016; Ledux & Brown, 2017). These mental

stages correspond to the imminence and proximity of the threat. These stages are decided as anxiety, versus fear, versus panic (Fanselow & Pennington, 2018; Ledoux & Pine, 2016; Ledoux & Brown, 2017). For example, the term fear can be depicted as the feeling when the individual perceives the threat or harm is going to happen immediately or imminently. The term of panic is used to describe the feeling that occurs in high imminent threatening or harmful situation; or even perception that the threat that is happening (Barlow & Cerny, 1988). For example, most people display a panic reaction on CO₂ inhalation during physiology laboratory experiments (Fanselow & Pennington, 2018; Ledoux & Pine, 2016; Ledoux, & Brown, 2017). In addition, the term anxiety describes the feelings that arise when the origin of threat and harm is uncertain, multidimensional, and is distal in time and space (American Psychiatric Association, 2013; Fanselow, & Pennington, 2018; Ledoux & Pine, 2016; Ledoux & Brown, 2017; Zoellner et al., 2014).

Another way of understanding the meaning of anxiety can be found from the Diagnosis Statistical Manual of Mental Disorders 5th edition (DSM-5) and American Psychiatric Association (APA), DSM-5 and APA define anxiety as an excessive worry and fear about a plethora of life events and negative memories that also are accompanied with physical tension and vigilance (American Psychiatric Association, 2013; Craske & Waters, 2005; Ruscio & Ruscio, 2004). Therefore, the relationship between fear and anxiety and the definition from the APA, suggest that anxiety is coming from excessive fear and uncontrolled worry in different life settings or events (Craske & Waters, 2005; Ruscio & Ruscio, 2004). College athletes can often experience anxiety because Fullerton (2018) found that an imaginal stress or a negative anticipation such as college athletes may imagine they loss an important match before they are actually going in to the match, or athletes imagine they may get injure during the competitions

are the common imaginal stress that generate the anxious and threatening feeling in athletes. In addition, Cowden and his colleagues (2014) argue that the various stresses coming from high expectation in athletic performance causes many athletes to have the tendency to perceive competitive situations as threatening, and to respond to these situations with feelings of apprehension and tension.

Previous research indicate collegiate student athletes very often experienced both anxiety and depression at the same time, since anxiety can cause depression and depression can also induce anxiety (Fullerton, 2018; Moffitt et al., 2007; Weber, Put, Lesinski, Gabriel, Steidten, Bär, Herbsleb, Granacher, & Gabriel, 2018; Yang et al., 2007). Psychologist Rawson and his colleagues (1994) posited that people who suffer from depression also experience increased levels of anxiety. The APA and previous substantial research indicate that anxiety and depression are remarkably linked together (Castonguay & Oltmanns, 2013; Naragon-Gainey, Prenoveau, Brown, & Zinbarg, 2016; Naragon-Gainy & Watson, 2011; Zoellner, Pruitt, Farach & Jun, 2014). In fact, Moffitt and his colleagues (2007) in their study indicated the concurrence or comorbidity between anxiety and depression could literately classify both disorders as one category of mental distress because both disorders strongly connect to worry and negative emotions (Moffitt et al., 2007; Weber et al., 2018). However, despite the strong similarity and comorbidity within anxiety and depression, over the past decades, researchers strive for accurately classifying and understanding both disorders (American Psychiatric Association, 2013; Castonguay & Oltmanns, 2013).

Undoubtedly, people may question the importance to the extent of identifying the traits of anxiety, depression, and other mental disorders because the effort on classifying different disorder may bring up greater controversy in defining each disorder (Castonguay & Oltmanns,

2013; Clark, Watson, & Clark, 1991; Watson & Kendall, 1989). For instance, even the two foremost well-recognized mental diagnostic criteria in the world, Diagnostic and Statistical Manual of Mental Disorder (American Psychiatric Association, 2013) and International Classification of Diseases (Invented from the World Health Organization) both indicate that most mental disorders share similar symptoms, and it is common that an individual suffers from one type of disorder and his/her symptoms also can qualify for another type of disorder (Castonguay & Oltmanns, 2013).

Despite the controversy and setback in relation to classification in psychopathology, the process in identifying each disorder serves a few vital purposes: 1) a classification structure assists clinicians to comprehend and understand precisely as much as possible about their patient's difficulties, 2) helps clinicians to prepare a plan of intervention that is most likely to be effective to these problems, 3) most importantly, a classification system is a step stone or a reference point that helps scholars or professional to search new knowledge or to develop a better classification and intervention system in treating mental difficulties (Castonguay & Oltmanns, 2013; Kendell & Jablensky, 2003; Zachar, 2007). The medical history also can identify many untreatable symptoms and diseases first long before the field can actually invent the medication or the treatment for these medical diseases (Castonguay & Oltmanns, 2013). Therefore, the effort in classifying various mental disorders is the foundation for further research that ultimately may benefit in intervention and prevention for those disorders (Zachar, 2007).

Because of the significance of identifying different mental and emotional difficulties, the field of psychopathology has conducted research to classify anxiety and depressed syndromes. One of the theories, the Tri-level model (Prenoveau, Zinbarg, Craske, Mineka, Griffith, & Epstein, 2010) combined previous research to layout a thorough structure for people to

understand the definition and relationship between anxiety, depression, and other specific mental distresses. The Tri-level breaks down into three stages: Broad, Intermediate, and Narrow. Broad is understanding accounts all the general distress. Intermediate features correspond to anxious misery and fear. Narrow is specific symptom dimensions (Prenoveau et al., 2010).

The relationship and comorbidity between many specific anxieties and depression can both belong to a general distress domain (broad). Then the middle aspects to categorize various distresses, for example, social anxiety, specific fear, anxious arousal/somatic sensation corresponds to fear, but anxiety and depression fall to anxious-misery category (intermediate). Finally, Prenoveau and his colleagues (2016) illustrate the specific definition between anxiety and depression are: Anxiety comes from excessive and uncontrollable worry that can also be accompanied with physical symptoms such as sleep disturbance, restlessness, muscle tension, fatigue. On the other hand, depression consists of physical symptoms similar to anxiety, for instance, sleep disturbance, agitation, and fatigue (American Psychiatry Association, 2013; Castonguay & Oltmanns, 2013). However, depression is more likely to have the following symptoms: dysphoria or prolonged sadness, anhedonia or loss of the ability to feel pleasure, easy to get angry or hostile, feelings of guilt and worthlessness (Prenoveau et al., 2010). Depression can be described as involuntarily processing or perceiving information in a negative way that also accompanies a strong biological response to stress, depression can induce self-devaluation, hopeless, and negative beliefs toward world and future. A prolonged depressive disposition can change the neuron network in the brain that affects emotional and cognitive modulation (American Psychiatry Association, 2013; Beck & Bredemeier, 2016; Castonguay & Oltmanns, 2013). Depression is developed from depressed mood and the worst stage in depression is major

depression (“MDD”). People who are suffering from MDD may also entertain thoughts of committing suicide (American Psychiatry Association, 2013; Castonguay & Oltmanns, 2013).

Tragically, due to the complexity of anxiety and depression, many people may not recognize their symptoms. And, if they do, they may still suppress their feelings for a number of reasons such as not wanting admit they are having a psychological condition (Wolanin, Gross, & Hong, 2015). This paper focused on exploring the characteristic of anxiety and depression because several reasons: 1) both anxiety and depression combine the fear, worry feeling about the intangible, negative events take place (anxiety), and excessive subjective feeling that confers the negative outcome, a sense of loss, hopeless, and dysphoria (depression) (American Psychiatry Association, 2013; Prenoveau et al., 2010). 2) Many people who fall into major depression go through the stage in manifesting different symptoms in anxiety and depression (Beck & Bredemeier, 2016; Moffitt et al., 2007). 3) Plus, previous research concluded that depression and anxiety are prevalence psychological challenge in college student athletes (Behzadi et al., 2011; Davoren & Hwang, 2014; Fullerton, 2018; Yang et al., 2007). 4) Despite anxiety and depression are both negative emotions and having strong co-existing phenomena (American Psychiatry Association, 2013; Marano, 2004; Moffitt et al., 2007), depressed emotion can do a lot of damage to the individual, Dr. David Barlow expressed his perception about the relationship between anxiety and depression, “Anxiety is a kind of looking to the future, seeing dangerous things that might happen in the next few hours, days or weeks. Depression is all that the addition of ‘I really don’t think I’m going to be able to cope with this, maybe I ‘ll just give up....’” (Marano, 2004). The sense of hopelessness to deal with stressors is trademark of depression and this detrimental mindset would negatively influence any individual including college athletes’ performance in their schools, sports, or at work (American Psychiatry

Association, 2013; Yang et al., 2007). An optimal treatment for depression is the consideration of the interrelation of anxiety and depression (Charney & Nemeroff, 2004; Zoellner et al., 2014). Treating depression effectively will also mitigate or extinct the symptoms of anxiety (Everly et al., 2015; Kent, 2014).

Treating depression requires a thorough understanding the characteristics of depression, for example, depressed mood, depression, and major depression (Beck & Bredemeier, 2016). Many challenges and stressors can contribute to a depressed mood or depressed experience, such as loss of loved one, trauma, sexual abuse, and so forth (Wolanin et al., 2015). The Diagnostic and Statistical Manual of Mental Disorders 5 (DSM V) illustrated that there are various types of depressions. However, all of these disorders have the common features such as the presence of sad, empty, or irritable mood, accompanied by somatic and cognitive changes that significantly affect the individual's capacity to function. What distinguishes different types of depressions are issues of duration, timing or presumed etiology (American Psychiatry Association, 2013). For instance, depressed mood is the symptom of depression triggered within 3 months of onset of stressor but a persistent depressive disorder can have depressed symptoms that last one or two years, and major depression is severe form of depression that causes an individual to develop a suicidal thought (Anxiety and Depression Association of America, 2018). Charney and Nemeroff (2004) publication, *The peace of mind prescription: an authoritative guide to finding the most effective treatment for anxiety and depression*, claims the label of *depression* is often too simple to describe the real feeling and the severity of different individuals, but I will use this medical term *depression* to describe the sadness, negativity of mental process in this study. A study on dealing depression mentions that identifying the problem is the first step to learn how to solve

the problem (Jorm, 2000). Hence, I began with an investigation on why depressed mood exists in the first place.

Natural Selection and the Experience of Pain

In 1957, a Canadian medical archive reported a young lady and her tragic life story (The hospital coded the girl's name as Miss C. to protect her privacy). The girl was born with a malfunction on her physical pain-sensing system. Because she could not feel pain, she would walk with sprained ankles, bite her tongue until it bled, and ignore serious burns on her skin until deadly infection set in. Miss C. unfortunately died in her late twenties due to severe infections and bone deformations brought on by years of punishment to her body (McMurray, 1950).

Miss C.'s story teaches an important message: pain is essential to human survival. Pain forces us to learn from experiences so that we can avoid dangerous situations in the future. Similarly, certain emotional pain such as a depressed mood can also provide a useful signal that increases our chances of survival (Kent, 2015).

Please notice that I used “depressed mood” in the previous paragraph, not “depression,” because a depressed mood is a natural and adaptive response to a tangible and devastating loss (Charney & Nemeroff, 2004; Beck & Bredemeier, 2016). Depressed moods appear when we recognize somebody or something that is threatening our chance for survival, reproduction, happiness, and well-being—for example, loss of a loved one, loss of job, financial insecurity. Although a depressed mood is an unpleasant feeling, it can generate an optimistic outlook on life (Charney & Nemeroff, 2004). For example, people who have lost loved ones may learn greater appreciation for their relationships with family members or friends who are still alive. A depressed mood is a normal feedback from our emotional pain-sensing system. It immediately signals to us that something is wrong and that we need to find a way to reduce the stress or alter

our perspective in a positive way so that a depressed mood does not escalate to depression (Charney & Nemeroff, 2004).

Depression is developed from depressed mood if people keep thinking of negative thoughts or outcomes when they encounter undesirable situations (Grothberg, 2003). Depression also represents the perception in losing important resources in life are too overwhelming that exceeds the individuals' ability or competencies to adapt such emotional trauma (Beck & Bredemeier, 2016). For instance, people need emotional and substantial supports from their resources such as close families or close friends, romantic partners, identify groups to satisfy spiritual, mental, and biological necessities (Beck & Bredemeier, 2016). People with depression emphasize the belief of losing their resources that they have no hope to alleviate the effect of lose (Beck & Bredemeier, 2016).

Hence, depression is not adaptive and it is excessive emotional pain. Indeed, depression contributes no valuable gain to people and this severe disorder may elicit life-threatening consequences (Charney & Nemeroff, 2004). For example, an affected individual suffering from depression begins to possess an extreme pessimism: a twisted and negative view about the world and a decrease desire to engage with community that eventually proceed to major depression stage (Charney & Nemeroff, 2004; Beck & Bredemeier, 2016).

Depression is chronic psychic pain that damages our pain-sensing system and threatens our holistic well-being (Charney & Nemeroff, 2004; Everly et al., 2015; Kent, 2014). Panksp (2011), a neuroscientist and a psychobiologist indicates some people have a hard time mitigating the symptoms of depression because these affected individuals are being too negative on themselves (Panksp, 2011; Panksp, Fuchs, & Iacobucci, 2011). Panksp, also states that people's emotional system consists of "seven networks: seeking, rage, fear, sexual lust, maternal

care, separation-distress panic/grief, and joyful play” (Panksp, 2011; Panksp et al., 2011). Individuals increase their depressed experiences because they overactive on separation-distress panic/grief in the emotional system. For example, if an athlete keeps ruminating the disappointed experience for a long time after a tough loss in a competition (grief), the athlete may start developing symptoms of depression. Another reason that people be trapped in depression is decreasing seeking network in emotional system such as losing desire to engage with social network or community. The definition of seeking in emotional structure is to reestablish social reunion. For us human being, individuals initiatively isolate themselves from the world reflects the trait of diminished seeking network that can generate depression. For the purpose of this study, I am drawing from previous research and define anxiety is often conceptualized as excessive worry or fear, whereas depression is characterized as persistent depressed mood or showing prolong sign of sadness or irritableness (American Psychiatric Association, 2013).

Secades and his colleagues claim the frequent occurrences of stressful situations in competition cause many athletes to experience high tension in anxiety, disappointment, depression, and withdrawal from sports (Secades, Molinero, Salguero, Barquín, Vega, & Márquez, 2016). The authors Rao and Hong (2015) also indicate depression and suicidal thoughts are tangible concerns for current college student athletes. Rao and Hong further state that a better understanding of risk factors of depression is the prerequisite for management on such psychological despondency (Rao & Hong, 2015). Hence, mental health staff, sport psychologists, and coaches must help collegiate athletes to understand the prevalence and risk factors associated with depression among athletes before any integrated psychological intervention takes place.

Recognizing the Risk Factors of Depression among Collegiate Athletes

Many risk factors can cause a collegiate athlete suffering from depression due to unique and different reasons. This study discusses the most common risk factors from previous literature reviews that can easily influence an athlete to experience the symptoms of depression.

Athletic Injuries link to Depression

Collegiate athletes need to understand that a sport injury is the most prevalent risk factor for mental distress (Liberal, Escudero, Cantalops, & Ponseti, 2014; Smith & Smith, 1996). Mann, Grana, Indelicato, Oneill, and George (2007) reported that 80% of injured athletes (combine competitive athletes in general and college student athletes) express their concern in psychological matters while they are getting treatment for physical injuries (Mann et al., 2007). In fact, the Centers for Disease Control and Prevention and NCAA document that in academic year between 2009 and 2014, there was an average of 210,674 athletic injuries occurred in collegiate athletes annually across the United States (Kerr, Marchall, Dompier, Corlette, Klossner, & Gilchrist, 2015). The researchers further stated that fears of reinjury, fear of surgery, lack of patience with the rehabilitation/recovery process, and concerns about the consequences after the injury were the primary psychological issues that caused athletes feelings of anxiety, depression, and disappointment (Mann et al., 2007).

In another study, Leddy, Lambert, and Ogles (1994) examined the psychological reactions in depression, anxiety, and self-esteem of more than 340 injured collegiate athletes from 10 different sports, and found that athlete may experience mild to severe depression and anxiety after facing physical injury (Leddy, et al., 1994). In addition, recent evidence indicates that athletes who experience sport concussions or anterior cruciate ligament injury (ACL) have

higher rate of suffering a long-lasting emotional impact (Mainwaring, Hutchison, Bisschop, Comper, & Richards, 2010).

Performance associated with Depression

The essence of sports competition may result in many defeats throughout the year and the reality is only one athlete or one team can accomplish the year-end victory while all others lose, at some point, to end their seasons (Wolanin et al., 2015). It is easy, and common, for most athletes to consider their losses linked to their declined athletic performance or even a devastating (choking) athletic performance (Wolanin et al., 2015). From a psychological standpoint, athletes may undergo negative self-perceptions, feelings of despondency or uselessness equivalent to depression symptoms if the athletes perceive that they performed incompetently in the contests, or that the outcome of the competitions did not match their expectations. Hammond, Gialloredo, Kubas, and Davis (2013) conducted a research study on the prevalence of depression symptoms in collegiate swimmers in Canada and how losing or a failed sport performance influenced these athletes' emotional status. Hammond et al. (2013) disclosed that the 68% of athletes from the study had major depressive symptom history and female athletes notably felt more depressed than male athletes. The authors also found that after competition, 34% of athletes had elevated the depression scores on the Beck Depression Inventory (BDI-II) questionnaire and, significantly, elite athletes from the study (for those whose times qualify for World Championship game or the Olympics) reported 2 times higher in depression scores than other swimmer who could not qualify for World Championship game or the Olympics (Hammond et al., 2013). The study concludes that athletes and especially, for some high-performance athletes, are far from immune to depression if the performance results are below their expectations at that sport (Hammond et al., 2013; Carter & Weissbrod, 2011).

“Tough it out” or Underreporting the Syndrome of Depression

Many athletes believe that they have to be mentally and emotionally strong in order to compete at the highest levels in different sports (Hammond et al., 2013). Based on this assumption, a lot of athletes think that psychological disorders should not happen to them (Hammond et al., 2013). Unfortunately, a great number of athletes refuse to seek mental health assistance even though they may start experiencing some depressive symptoms. To these athletes, seeking help for mental health issues equals being "weak" mentally, a detrimental characteristic in athletes. Therefore, we find that some of the athletes put great effort into pretending they are “okay” and tend to stay away from sharing their mental difficulties to others (Yang et al. 2007).

In addition, Wolanin et al. (2015) found that female athletes are more willing to report their experience in depression than male athletes. A lot of male athletes restrain themselves from expressing their emotions because they need to inherit the culture of “tough it out” when facing psychological disorders and do not want to admit being depressed. Consequently, the tendency of underreporting the syndrome of depression in male athletes may result in severe tragedy (Smith & Millner, 1994).

Baum (2005) reviewed the journal literature over 20 years period and medical literature over 35 years period and found that in a total 66 cases of athlete committed suicide in the USA, 61 out of 66 cases were male athletes with an average age of 22 years old. Gulliver, Griffiths, and Christensen (2012) found that young male athletes as well as other male adolescents (age between 16-35 years old) have high rates of mental disorder, and male athletes are less likely seek for help due to several negative attitudes and beliefs: (1) Belief that the mental distress would subside without any help after a period of time, (2) negative attitude toward professional

help such as belief that mental health staff or psychologists could not really solve the problem, (3) lack of confidence in mental health staff or psychologists, (4) believe seeking help will make the psychological issue becoming “tangible” problem, (5) the culture of being tough or being independent” (Gulliver et al., 2012). Therefore, we must help all the collegiate athletes especially male athletes, make some minor adjustment on their perception regarding “being mentally tough” in facing depression because research indicates that managing academics and sport performance, recovering from injuries, and all other potential stressors in life may often lead a collegiate athlete to become vulnerable to depression (Wolanin et al., 2015). It is not an athletes’ fault for being anxious and depressed. An athlete can apply many tools to get better from depression after they understand the risk factors of depression and the proper paths to recover (Gulliver et al., 2012).

Apply Resilience to Combat with Depression and Anxiety

Hjemdal, Vogel, Solem, Hagen, and Stiles (2011) found that when a person is constantly exposed to the increased severity of stressful events; the individual increases the probability for escalating mental health stigmas such as depression and anxiety (Hjemdal et al., 2011). A different research approach from biological, social and psychological processes emphasize that people should build their resilience from personal, interpersonal, and environmental to combat with depression and other stressors (Luthar, Cicchetti & Becker, 2000; Masten & Reed, 2002; Rutter, 2000). The present of resilience is a protective immune system that may minimize the effects of depression, in addition, resilience helps an individual to prevent the development of psychological distresses despite the person is being exposed to the stressful events (Luthar et al., 2000; Masten & Reed, 2002; Rutter, 2000).

Since 1970s, resilience has become an important research theme especially in psychology field, and the construct of resilience just started to be explored in a sports domain (Peng, Li, Zuo, Miao, Chen, Yu, & Wang, 2014; Secades et al., 2016). For instance, Fletcher and Sarkar (2012) indicate that athletes with high level of resilience can successfully manage stressors and withstand any difficulties, or even, thrive from pressure and stressful environment.

Secades et al (2016) define resilience as the “capacity to maintain stable functioning and to undergo adaptation in the face of significant adversity” (Secades et al., 2016 p.337). Resilience is our ability to recognize ourselves in deep trouble, or in the worst moment of defeat, embarrassment, depression, and still fight back, not only back to where we were before, but achieve a greater success, happiness and mental strength (Everly et al., 2015; Grotberg, 2003; Fletcher & Sarkar, 2013). An old Chinese idiom “Failure is the mother of success” (Bossman, 2015, p.130), reveals a doctrine that people may have to learn from the experiences from the defeat then get better of themselves in order to reach success as parallel as mother (Failure) gives birth to the son (success). The old Chinese idiom have the similar concept or attitude as the meaning of resilience: we should not afraid of being upset and defeated, but focusing on what lesson can we learn from the unpleasant and despondent experiences, then we will have greater potential to be successful along the way if we have a positive mindset to learn from our failures and worst experiences (Charney & Nemeroff, 2004; Shi, Sun, Wei, & Qiu, 2019).

Researchers have found that resilience has a biological foundation in our brain (Shi et al., 2019), Charney and Nemeroff (2004), and Everly et al. (2015) both illustrate resilience strongly connects to the emotional control center of human brain: the hippocampus and amygdala in our limbic system. A person’s resilience can be improved with intentional effort because the structure of human brain is never the same in any moment. A person keeps thinking positively

will result more healthy, new neurons grow in the hippocampus and amygdala that can shape the brains in positive ways that helps us becoming less vulnerable to depression and anxiety (Charney & Nemeroff, 2004; Everly et al., 2015).

College student athletes should focus on strengthening their resilience to compete with the risk factors of anxiety and depression because if depression is a physic pain, then resilience is a good pain management that could help college athletes grow stronger mentally and attain potential benefit from the stressful experiences (Charney & Nemeroff, 2004; Fletcher & Sarkar, 2012). Seligman and colleagues (1999) at Pennsylvania University developed the Penn Resilience Program (“PRP”) that helps college students, young adults, and teenage to improve their resilience skills. The PRP program is a training process based on the cognitive behavioral theory (“CBT”) that emphasizes on improving students’ cognitive behavior and skills. Previous have been evaluated the effect of PRP program and found that students displayed less depressive symptom after the PRP training (Kumpfer, 1999; Peng et al., 2014).

Furthermore, recent sports psychological studied have been recognized resilience, or the capacity to adapt positively while facing stressful, and difficult situation as a desirable attribute for athletes in different sports (Fletcher & Sarkar 2013; Galli & Vealey, 2008; Gucciard, Jackson, Coulter & Mallett, 2011; Hosseini & Besharat, 2010). Hence, the goals of present study are using quantitative research method to examine the relation between resilience and level of anxiety and depression among current college student athletes in UHM.

Summary of Literature Review

According to the plethora literatures regarding to the topic in collegiate athletes’ mental health, this study understands that current many college athletes have high risk to experience anxious and depressed symptoms in their daily lives. Therefore, the aforementioned section of

literature review first investigates the similarity, origin, and distinctive meaning of anxiety and depression. Through reviewing and collecting previous studies, this study concludes that anxiety is excessive worry something unpleasant may happen or fear about a variety of life events and negative memories that are often accompanied by physical tension and vigilance like an athlete has some sort of concerns about a big competition is coming up next week. Depression is developed from depressed mood that is experiencing negative feeling from the actual, and tangible outcome, as involuntarily processing or perceiving information in a negative way that is often accompanied by a strong biological response to stress. Depression can cause self-devaluation, hopelessness, and a negative outlook on life and the future. Anxiety is negative thought before the threaten events, and depression is excessive, and negative rumination that confers a misery result is happening (American Psychiatric Association, 2013; Castonguay & Oltmanns, 2013; Marano, 2004; Prenoveau et al., 2010).

In addition, this study also discovers that an outstanding mental strength: resilience, which has a strong, and positive influence for individual to cope with psychological difficulties such as anxiety and depression. The meaning of resilience in mental strength can be defined as a person seeing any adversaries as the better opportunities to grow, to get better, to thrive as a whole person and eventually achieve a greater success in any aspect later in life.

Screening for depression and anxiety as well as understanding the reasons that impact the onset of depression and anxiety can be important in addressing the mental and physical well-being of student athletes (Behzadi et al., 2011; Trojjan, 2014; Trojjan, 2016; Hill, Yaroslavsky, & Pettit, 2015; Weber et al., 2018). The USA Preventive Service Task Force (“USPSTF”) in 2016 suggested that screening adults for depression is an important process to assure precise diagnosis, efficient treatment and follow-up. Several studies found that the rate of depression

among student athletes in university settings range from 15.6% to as high as 21% (Trojian, 2016; Wolanin et al., 2015). Furthermore, the NCAA in recent years has indicated that many college student athletes have had anxiety negatively affect their academic endeavor, athletics performance, and their personal lives. NCAA research also suggests that nearly 85 percent of certified athletic trainers believe anxiety disorder is most-treated issue with student-athletes on their campuses (Goldman, 2020).

Building on previous research, this study investigates the depression and anxiety levels in college student athletes at the UHM. In addition, the study will explore the role of resilience. Research has found that building up, or cultivating, resilience can positively alleviate the symptoms of anxiety and depression (Cooper, 2010; Charney & Nemeroff, 2004; Everly et al., 2015; Kent, 2014; Grotberg, 2003).

Hence, this study attempted to narrow down the examination in anxious and depressed symptoms in collegiate athletes, and introduce the concept of resilience to most collegiate athletes. Hopefully many athletes can employ the idea of being resilience to counter any anxious or depressed experiences.

METHOD

This study explored how resilience in college student-athletes affect symptoms of depression and anxiety. Because the experiences of the student-athletes at University of Hawai'i at Mānoa ("UHM") formed the basis for this study, I utilized quantitative assessments to measure the correlation between depression, anxiety, and resilience. This chapter highlights the research design to be employed, participant selection, instrumentation, data collection procedures and data analysis.

Research Design

This study utilized a survey methodology to explore the complex relationship between depression, anxiety, and resilience (Clark & Creswell, 2009; Mertens, 2005). This study was performed by asking specific questions to participants and then statistically analyzing those responses to find a general pattern based on their experiences. The survey relied on demographic and Likert-style questionnaires to determine the relationship among anxiety, depression, and resilience. The researcher first sought and gained permission from the Athletic Department at UHM, as a whole, and from the head coaches from each individual and team sport programs prior to sending out a survey package to each potential athlete (respondent). The survey package included the title, brief description of the study, and instructions for anonymous online survey completion and return. Follow-up procedures were employed for increasing the number and quality of the surveys returned. Included in the package, with the survey, was a personal thank you card to each athlete acknowledging the sacrifice of valuable personal time to benefit future mental health research in student athletes. After the initial survey package reached out to each athlete a follow-up email was sent containing a reminder of the online survey with instructions for completion and a similar thank you message. A second follow-up reminder would be e-

mailed after three weeks, again containing instructions and an appropriate thank you (Dillman & Dillman, 1978).

Research questions are summarized as below:

1. What are the relationships between depression, anxiety, and resilience among college athletes from the University of Hawai'i at Mānoa?
2. How does gender affect the relationship between anxiety, depression, and resilience?
3. How does recent injuries affect student athletes' mental state, anxiety and/or depression levels?

Research Null Hypothesis include:

1. There is no significant relationship between anxiety and resilience.
2. There is no significant relationship between depression and resilience.
3. Participants with recent injuries do not experience symptoms of anxiety and depression as much as their non-injured peers.

Participants

Participants were all UHM student athletes age eighteen or older. The study was specific to the 576 eligible student athletes from both individual and team sports enrolled during Spring Semester 2020. The preferred sample size of 200 respondents was selected given the number of variables to be analyzed, their statistical power (the likelihood the study would identify an effect when there was an effect to be identified) and to assist in improving the generalizability of results.

Instrumentation

The researcher provided participants with survey packets that included the following: (1) cover letter, (2) informed consent document, (3) demographic questionnaire, (4) Beck's Depression inventory (Beck & Steer, 1996), (5) Beck's Anxiety inventory (Beck & Steer, 1993), (6) State Trait Anxiety Inventory (Spielberger, 1972), and (7) Connor-Davidson Resilience scale (Connor & Davidson, 2003).

I selected the *CD-RISC resilience scale*, *BDI-II Depression Inventory*, *BAI Anxiety Inventory*, and *State-Trait Anxiety Inventory* to measure the symptom of collegiate athletes' anxiety and depression, as well as their levels of resilience since these instruments have demonstrated high internal validity and reliability based on data analysis results in previous research of athletes (Olmo, Olmedo, Cepero, Zurita, & Padial, 2017; Covassin, Crutcher, Bleecker, Heiden, Dailey, & Yang, 2014; Wilson, Raglin, & Pritchard, 2002).

Informed Consent

The informed consent form summarized the study's procedures, explained the activities required of the participants, and described how the results of the study would be reported and interpreted. In addition, the form advised the participants of the risks of the study and advised participants of their right to withdraw from the study at any time. The participants were required to voluntarily sign "I agree" on the consent form before they could continue with the survey. As a preventive measure in case the completion of the instruments led any of the participants to experience a crisis, hotline contacts for the National Suicide Prevention Lifeline and local crisis center were included in this document. Participants were instructed to contact the hotline if suicidal thoughts or other negative feelings arose during the survey.

Demographic Questionnaire

A demographic questionnaire was used to collect the following specific information about the participants: (1) gender, (2) age, (3) sport, (4) whether they incurred an injury in the past three weeks that could hinder their athletic performance, and (5) ethnicity. All demographical variables were dummy coded.

Connor-Davidson Resilience Scale (CD-RISC 25)

The Connor-Davidson Resilience Scale 25 (Campbell-Sills & Stein, 2007) included 25-item questions to measure the extent to which individuals are able to recover from, or adapt positively to, the following: personal problems, illness, pressure, failure, and painful feelings (Campbell-Sills & Stein, 2007). Each question measured responses on a five-point scale from 0 (not true at all) to 4 (true nearly all the time). Higher scores indicated greater levels of perceived resilience. A sample statement was “I tend to bounce back after illness, injury, or other hardships” (Campbell-Sills & Stein, 2007; Coates, Phares, & Dedrick, 2013; Gonzalez, Moore, Newton & Galli, 2016). The CD-RISC 25 was considered one of the most validated assessments of resilience in the psychological research field (Campbell-Sills & Stein, 2007; Zurita-Ortega, Chacón-Cuberos, Cofre-Bolados, Knox, & Muros, 2018). This original version of CD-RISC, the 25 items resilience questionnaire (CD-RISC 25) was developed specifically to assist in the clinical treatment for anxiety, depression, and various mental stresses (Connor & Davidson, 2003).

The CD-RISC 25 demonstrated reasonable test-retest reliability with Chronbach’s alpha correlation coefficient .87 (Connor & Davidson, 2003). An Iranian study (Khoshouei, 2009) showed good internal consistency for the CD-RISC 25 (alpha coefficients ranging from .78-.91), and good test-retest reliability ($r = .78-.88$). Another resilience and CD-RISC 25 study in

Japanese students by Ito et al (2009) found good internal consistency (Cronbach's $\alpha = .94$ and $.90$ for two samples), and good test-retest reliability of $.94$ and $.83$. Baek et al (2010) reported a test-retest reliability coefficient of $r = .70$ in Korean subjects. Giesbrecht et al (2009) reported the four-month test-retest reliability of CD-RISC 25 (who noted mean scores of 66.4 at time 1, and 66.3 at time 2) was acceptable. In Steinhardt's study (2009), the wait-list control group exhibited no significant difference in the CD-RISC 25 over a four-week period of study. White, Driver, and Warren (2010) indicated that patients undergoing rehabilitation after spinal cord injury showed consistent scores in the CD-RISC 25 (82.2 , 81.9 and 82.6) across the three-month research period. The CD-RISC 25 was currently employed to measure resilience in a wide variety of social and professional groups (e.g. trauma survivors, Alzheimer's caregivers, adolescents, elders, university students, nurses, social workers, athletes, medical students, military personnel) (Connor & Davidson, 2003).

The CD-RISC 25 resilience scale was used due to the internal validity of CD-RISC 25 in sport related areas when examining the resilient characteristics in athletes (Campbell-Sills & Stein, 2007; Gonzalez et al., 2016; Carter & Weissbrod, 2011; Olmo et al., 2017; Kendell & Jablensky, 2003). For instance, similar sport-related research has shown that the CD-RISC 25 was internally reliable, demonstrates a strong element structure, and gender invariance when examining characteristics of resilience in athletes (Campbell-Sills & Stein, 2007; Gonzalez et al., 2016).

Beck's Depression Inventory-II (BDI-II)

Beck and colleagues developed the Beck Depression Inventory-II ("BDI-II") based on the theoretical conception that negative cognitive deformity was a major cause of depression (Jackson-Koku, 2016). The BDI-II consists of a 21-item self-reported questionnaire that analyzes

the depression levels in general and psychiatric populations. The BDI-II was selected for this study because of its relatively short administration time and strong psychometric support (Beck & Steer, 1996).

Reliability of the BDI-II was established through internal consistency and test-retest analyses. Internal consistency analysis of the scores from a sample of 500 outpatients yielded a Chronbach's alpha correlation coefficient of .92 (Beck & Steer, 1996). Analysis of the scores from a sample of 120 college students yielded a Chronbach's alpha correlation coefficient of .93 (Beck & Steer, 1996). These estimates indicated that the items are highly inter-related. Test-retest reliability in a sample of 26 outpatients over a one-week interval had a correlation of .93 (Beck & Steer, 1996), suggesting the scores are stable across seven days. Construct validity was documented through factor analysis of the scores from a sample of 500 outpatients. The analysis yielded the two factors of somatic and cognitive symptoms (Beck & Steer, 1996).

The questionnaire BDI-II was modified several times throughout the years. The 21 questions were established from clinical observation of demeanors and manifestations happening frequently in depressed clinical patients and infrequently in non-depressed patients (Jackson-Koku, 2016). Each item from the questionnaires had a 4-point scale from 0 (no depressed symptom) to 3 (severe symptoms). The score was calculated by adding the reported scores from each questionnaire, where the maximum score was 63 and the minimum score of 0. Higher scores indicated more severe symptoms. In non-psychiatric populations, scores over 20 suggested an individual was suffering from depression (Kendall, Hollon, Beck, Hammen, & Ingram., 1987). A score of 0-13 indicated minor depression or a depressed mood, 14-19 (mild depression), 20-28 (moderate depression) and 29-63 (severe depression) (Beck & Steer, 1996; Jackson-Koku, 2016). The BDI-II was one of most widely accepted instruments for assessing the

severity of depression in diagnosed patients, as well as for detecting possible depressive symptoms in the general population (Beck, 1984; Zhu, 2018).

Beck Anxiety Inventory (BAI)

The level of anxiety symptoms among participants was measured by the Beck Anxiety Inventory (“BAI”) (Beck & Steer, 1993). The BAI was a self-report instrument containing 21 items rated on a scale from zero to three with a minimum score of zero and a maximum score of 63. Higher scores reflected a greater likelihood that an individual is experiencing anxiety symptoms. Recommended cutoff scores were created to identify varying degrees of anxiety, with 0-7 indicating minimal anxiety, 8-15 indicating mild anxiety, 16-25 indicating moderate anxiety, and 26-63 indicating severe anxiety (Beck & Steer, 1993). The BAI was selected for this study because of its relatively short administration time and strong psychometric support (Beck & Steer, 1993).

Reliability of the BAI was established through internal consistency and test-retest analyses. Internal consistency analysis of scores on the BAI in adult samples yielded Chronbach’s alpha correlation coefficients ranging from .92 to .94, indicating high interrelatedness of the items (Beck & Steer, 1993). Test-retest reliability during a one-week interval was .75, indicating stability of scores over a seven-day period (Beck & Steer, 1993). Criterion validity was established through correlations with two scales designed to measure anxiety. The BAI was significantly correlated with the Hamilton Anxiety Rating Scale ($r = .51$; Hamilton, 1959), the mean anxiety ratings over a seven-day period in the Weekly Record of Anxiety and Depression ($r = .54$; Barlow & Cerny, 1988), and both the Trait ($r = .47$) and State ($r = .58$) subscales of the State-Trait Anxiety Inventory (Beck & Steer, 1993; Spielberger, Gorsuch, & Lushene, 1970). Additionally, BAI research suggested that on average,

female participants tend to report 4 points higher than their male counterparts in anxiety disorder (Beck & Steer, 1993). Therefore, I revealed this information in the result and discussion section of the dissertation. I also followed the manual instructions and scoring guidelines from each instrument to collect and interpret the data.

State-Trait Anxiety Inventory (STAI)

The research indicated that although anxiety can be explained by many phenomena, such as fear, worry, memories, or arousal, anxiety can be conceptualized into two type of anxiety characteristics; state and trait anxiety theories respectively (Spielberger, 1972). State anxiety is a temporary emotional response produced by discrete situations or conditions (Spielberger, 1972). An example of state anxiety would be the anxiety a surfer might experience as a result of fear of a poor performance in an upcoming surf competition. The period prior to the surf contest is the anxiety-inducing trigger that results in state anxiety. In contrast, trait anxiety is a permanent condition associated with an individual's personality (Spielberger, 1972). Different backgrounds or biological mechanisms such as unbalanced brain neurotransmitters may significantly influence the level of trait anxiety a person experience (Hill & Gorzalka, 2009). Generally, a high trait-anxiety person has a greater degree of sensitivity in perceiving any potential threatening situations (Spielberger, 1972; Hill & Gorzalka, 2009).

Dr. Spielberger developed the State-Trait Anxiety Inventory ("STAI") to measure whether an individual's feelings of anxiety derive from a state anxiety condition or a trait anxiety personality. Total two sections of STAI inventory to assess the degree of anxiety at a specific moment as a situation-dependent state (STAI-state) or the general tendency to be anxious as a personality trait (STAI-trait) (Eckhardi-Henn, Breuer, Thomalske, Hoffmann, Hopf, & Eckhardi-Henn, 2003). The scales of both STAI-state and STAI-trait consist of 20 self-report items with

each item running from 1 to 4, for a full score of 80 and a lower score reflecting a better psychological status. This study planned to use the STAI to identify and differentiate between the temporary condition of state anxiety or the longstanding quality of trait anxiety in each participant. By examining whether participants' anxiety is a result of state or trait anxiety, this study could provide more specific advice or resources to participants seeking to overcome anxiety negative consequences.

The reliability and validity of the STAI to measure anxiety levels from different individuals have been well documented (Spielberger, 1983). The STAI's reliability, in two to four-week tests and retests, for state anxiety were .62-.96 and .84-.98 for trait anxiety among American and Greek students, healthy adults, and individuals with anxiety disorders. Studies have further shown that STAI is appropriate for use across different ethnic groups (Fountoulakis, Papadopoulou, & Kleanthous, 2016). In fact, the STAI showed a good internal consistency with alpha coefficients ranging from .86 to .95 for state anxiety and from .89 to .92 for trait anxiety among college students, patients with mental disorders, and working adults (Spielberger 1983; Kvaal, Ulstein, & Nordhus, 2005; Fountoulakis et al., 2006).

Data Collection

Institutional Review Board approval was received prior to any data collection. I met with the target student athletes to briefly explain the study's purpose, its anonymous data collection procedure, and the participants' right to not answer any questions and withdraw at any time from the study. After student athletes agreed to participate, they signed an informed consent document. Student athletes were encouraged to answer as honestly as they could and to feel free to seek clarification if they were confused concerning the instructions and/or the items in the

questionnaires. Copies of the consent forms were removed from completed surveys and given to the participants to keep.

Potential participants were offered a brief description of the study and asked to complete a total of five surveys, which took approximately 15 to 25 minutes to finish. Participants were offered a choice to complete the study questionnaires online or on paper. If participants opted to take the questionnaire online, I sent them an email that contained a link and instructions to access the online questionnaires.

Participants who chose to take the survey on paper were gathered in a classroom or a large auditorium, where they received a survey package that included; an informed consent form, a demographic questionnaire, the Connor-Davidson Resilience Scale (Connor & Davidson, 2003), the Beck Depression Inventory-II (Beck & Steer, 1996), State-Trait Anxiety Inventory (Spielberger, 1972) and the Beck Anxiety Inventory (Beck & Steer, 1993). The informed consent document was placed first in the survey package, followed by the demographic questionnaire with the four survey questionnaires in no specific order.

Data Analysis and Data Limitation

In order to address research questions in the current study, I utilized Structural Equation Modeling (“SEM”). SEM can accommodate measurement error directly between the observed items (responses on the instruments) and the latent variables (anxiety, resilience, and depression). SEM is a statistical technique, commonly applied in the behavioral sciences, that combines confirmatory factor analysis models, regression models, and complex path models using observed and latent variables (Hox & Bechger, 1998; Martens & Haase, 2006). In SEM, path coefficients illustrate the relationships between latent variables and/or observed variables in a path diagram.

Therefore, I used this method to examine whether the data from this study supported the theoretical model. Research has established that individuals with high levels of resilience are able to cope more effectively with depression and anxiety (Everly et al., 2015). Moreover, research suggested a different relationship and mediation effect exist between these constructs (Everly et al., 2015). For instance, high levels of anxiety may induce severe depression, and depression may in turn yield a lower level of resilience. On the other hand, individuals with a strong sense of resilience may be able to mitigate the symptoms of depression and anxiety. Several possible theoretical models could be proposed and compared to accommodate these constructs' non-recursive and mediated relationship, but the hypothesized model for the study is described in Figure 3.1.

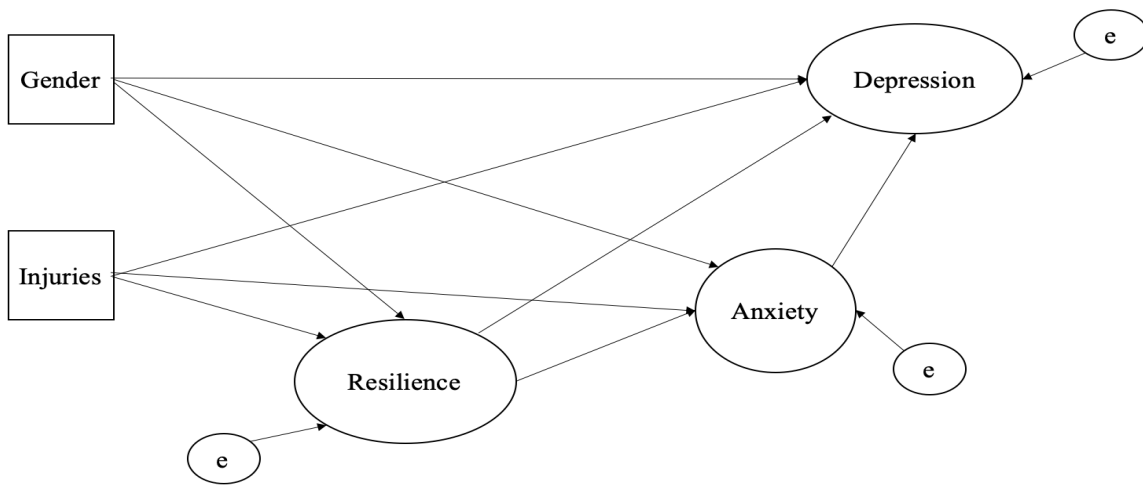


Figure 3.1 *Proposed structural model between resilience, anxiety, and depression.*
 Note: Injuries include recently reported injured male and female athletes

Model Estimation:

In this step, my goal was to use appropriate estimation algorithms to find out the optimal parameter estimates that could minimize the difference between the model-implied variance-covariance matrix and the sample variance-covariance matrix. More specifically, if the estimation could match the specific model I planned out earlier, then the previous correlation

between the variables could be reproduced (Schumacker & Lomax, 2012). The maximum likelihood estimation requires the assumption of the multivariate normality of the data.

Model fit assessment:

In the step of model fit assessment, I used model fit indices to test the sample variances and covariance to check how well the data fit the model. If the data did not fit the model sufficiently well and I may make adjustments to ensure the model fit better with the sample data. But if the sample data fit with the model, then it suggested that the data from the study supported the theoretical model (Schumacker & Lomax, 2012). Fit statistics assessment primarily included the model chi-square, with p -value over 0.05 an indication of a good model fit. Root Mean Square Error of Approximation (RMSEA), with an RMSEA of 0.05-0.08 statistic or less an indication of better model fit. Comparative Fit index (CFI), with cut off statistic 0.95 or above indicating a good model fit. Tucker-Lewis Index (TLI), with cut off statistic 0.95 or above to indicate a good model fit. SRMR. Standardized Root Mean Square Residual (SRMR), with cut off statistic 0.08 or less an indication of a good model fit (Hooper, Coughlan, & Mullen, 2008).

This study examined the variables from the resilience survey, depression questionnaire, and anxiety questionnaire to determine the correlation, if any, between levels of depression, anxiety, and resilience in student athletes at UHM. This proposed study intended to use the IBM Statistical Package for the Social Sciences (“SPSS”) and M-Plus (Muthén & Muthén, 2017) statistic software package to describe the data and conduct confirmatory factor analysis and structural equation modeling analysis.

Study limitations

This study focused solely on the relationship between depression, anxiety, and resilience in collegiate athletes. The correlation of other variables to anxiety and depression, such as

substance use or other psychological distresses were not the focus of the current study. Data were gathered primarily through self-reporting and were subject to participants' decision to respond truthfully. Moreover, some of the data collected in this study was retrospective, which raised potential concerns regarding the accuracy of the data due to participants' capacity to recall experiences and events. Additionally, the data for this research was collected during the Novel Coronavirus 19 ("COVID-19") pandemic outbreak, hence, all the prospective participants were only able to complete the questionnaires online through the Qualtrics online survey platform. This limit on the means of collecting data could have resulted in a smaller sample size, which in turn could affect the accuracy of the SEM analysis.

Insider-researcher

My current role as one of the women's tennis coaches for the University of Hawai'i encouraged me to conduct this study. In addition, my previous background as a competitive collegiate athlete helped me connect better with the athletes and build their trust. I hoped that my study will be able to positively influence athletes' collegiate experiences. However, while it may be easier for me to conduct the data collection process and communicate with athletes, there were many disadvantages that could have surfaced as an insider. For example, because I was a tennis coach and a researcher for this project, and some of the participants were members of the tennis team, they may not have responded completely truthfully to the survey questions. Additionally, the participants may have answered the questions in a way that coaches in general would like to hear, such as underemphasizing their symptoms of depression or anxiety or overemphasizing their resilience and mental toughness. Consequently, this study ensured all the questionnaires were collected using an anonymous data collection procedure so the participants

would not worry if anyone could identify their responses (Herrmann, 1989; Sikes & Potts, 2008; Smyth & Holian, 2008).

Although there were disadvantages that existed as an insider-researcher for this study, I was aware of the possible conflicts and did not allow my biases to interfere with the rigor of my research. For instance, I did not hesitate to request help from my committee members in establishing an ethics and standards group to supervise the data collection process. I actively shared my interpretations of the data with my ethics and standards group and sought their verification.

RESULTS

Descriptive Statistics

First, I utilized the IBM Statistical Package for the Social Science SPSS 26.0 to compute the descriptive statistics and the correlation matrix featured in Table 4.1 and Table 4.2 for the categorical variables, which included the athlete's gender and whether or not they were injured. As noted later in this chapter, these statistics were then paired up with SEM results in order to understand how gender difference and injuries affected the relationship between anxiety, depression, and resilience in the studied sample of the UHM collegiate athletes.

Table 4.1
Descriptive statistics for all the variables
Sample participants=107

		Mean	S.D.	N
Trait Anxiety	Female/no injured	19.43	12.961	54
	Female/injured	19.81	14.307	27
	Male/no injured	12.45	8.894	20
	Male/injured	13.17	14.006	6
Depression	Female/no injured	11.70	9.648	54
	Female/injured	13.81	12.128	27
	Male/no injured	7.35	7.095	20
	Male/injured	9.50	8.712	6
State Anxiety	Female/no injured	19.35	13.260	54
	Female/injured	19.52	13.372	27
	Male/no injured	12.55	10.395	20
	Male/injured	13.33	12.372	6
Anxiety	Female/no injured	7.39	7.104	54
	Female/injured	9.67	10.407	27
	Male/no injured	4.25	4.8333	20
	Male/injured	6.00	7.772	6
Resilience	Female/no injured	70.52	16.555	54
	Female/injured	74.56	17.138	27
	Male/no injured	79.85	8.893	20

Male/injured	78.50	19.552	6
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Note: N=sample size S.D.= standard deviation

Table 4.2
Correlation Matrix between measured variables

		Gender	Injuries	Resilience	BAI	BDI	Trait Anxiety
Gender	Pearson Correlation						
	Sig. (2-tailed)						
	N	107					
Injuries	Pearson Correlation	-.095					
	Sig. (2-tailed)	.329					
	N	107	107				
Resilience	Pearson Correlation	.214*	.050				
	Sig. (2-tailed)	.027	.606				
	N	107	107	107			
BAI	Pearson Correlation	-.185	.153	-.676**			
	Sig. (2-tailed)	.056	.115	.000			
	N	107	107	107	107		
BDI	Pearson Correlation	-.197*	.116	-.744**	.769**		
	Sig. (2-tailed)	.042	.234	.000	.000		
	N	107	107	107	107	107	
Trait Anxiety	Pearson Correlation	-.222*	.048	-.842**	.737**	.841**	
	Sig. (2-tailed)	.022	.624	.000	.000	.000	
	N	107	107	107	107	107	107

Note: N: Sample Participants

*Correlation is significant at the .05 level (two-tailed)

**Correlation is significant at the .01 level (two-tailed)

A total of 129 UHM collegiate athletes from different sports joined the study, but 22 of those 129 participants filled out only an average of less than 5 survey items in the questionnaires. Because these 22 participants failed to fill out sufficient items on the questionnaires, they were not included in the study. The final dataset for this study consisted of 107 participants (81 female, 26 male). From these participants, Caucasian (53%), East Asian (17%), Pacific Islander (10%), Hispanic or Latino (7%), African American (7%), Native American or American Indian (4%), and other ethnicities (2%). The 107 participants represent 16 different sports at UHM (Women's Tennis, Men's Tennis, Track and Field, Football, Men and Women's Swimming,

Men and Women's Diving, Men's Volleyball, Women's Volleyball, Men's Basketball, Softball, Water polo, Sailing, Beach Volleyball, and Women's Volleyball).

Factor Analysis for Questionnaires

Although all four measurements used in this study (Beck Anxiety Inventory BAI, Beck Depression Inventory BDI-II, State Trait Anxiety Y inventory STAI-Y, and Connor Davidson Resilience Scale CD-RISC 25) are highly valid, reliable, and commonly used in clinical and non-clinical research settings, a confirmatory factor analysis (CFA) was conducted for each one of them to determine if each of the scales showed a good psychometric properties based on the current sample from this study (Connor & Davidson, 2003; Beck & Steer, 1996; Beck & Steer, 1993; Sacco, Santangelo, Stamenova, Bisecco, Bonavita, Lavorgna, Trojano, D'Ambrosio, Tedeschi, & Gallo, 2016; Spielberger, 1983; Fountoulakis et al., 2006; Zurita-Ortega, et al., 2018). Additionally, given that none of these measures were ever examined in the UHM collegiate athletes, it was necessary to test whether the previously established factor structure was valid for the current sample. I accordingly began by running the CFA for the CD-RISC 25.

The results from the original CD-RISC 25 factors analysis indicated that five factors could be derived from CD-RISC 25 scale. The first factor, which had the strongest factor loading, related to the participants' sense of self-efficacy and certain aspects of persistence/tenacity. Other factors with weaker factor loadings, corresponded to emotional aspect of tolerance of negative affect (factor 2); capability/adaptability to bounce back (factor 3); Control/meaning (factor 4); Meaning (factor 5) (Connor & Davidson, 2003; Yu, Lau, Mak, Zhang, & Lui, 2011). Factors 4 and 5 were respectively composed of only 2 items each from CD-RISC and they were less robust in factor loadings throughout the questionnaire. Later research on this scale proposed a three-factors model of the CD-RISC 25 based on the

modifications from the original five factor model. This revised model combined the original factor 1 self-efficacy and tenacity with the original factor 3 adaptability to bounce back together as one factor (which included 15 items). Factor 2 is the tolerance of negative affect that is comprised of 6 items. Factor 3 is the spiritual meaning that made up the original factor 4 and factor 5 (which consisted of 4 items from the CD-RISC 25) (Connor & Davidson, 2003; Gillespie, 2007). This study chose the three-factors model instead of the five-factors model because the founders of CD-RISC 25 Dr. Connor and Dr. Davidson in their CD-RISC 25 manual stated that factor 4 and factor 5 in the five-factors model were very weak in factor loadings and only demonstrated minimal eigenvalue (Connor & Davidson, 2003). Additionally, various CD-RISC 25 factor analysis literature discovered that the three-factors model or one-factor model of CD-RISC 10 items (CD-RISC 10 is a recently developed, abbreviated version of the original full CD-RISC 25 scale that consists of only 10 items) better account for resilience than the five-factors model amongst various populations (Karairmak, 2010; Youssef, Green, Beckham, & Elbogen, 2013; Jørgensen & Seedat, 2008; Yu & Zhang, 2007; Campbell-Sills & Stein, 2007; Smith, Emerson, & Schuldt, 2018).

A recent CD-RISC 25 factor analysis in Sweden validated the one-factor model of the CD-RISC 25 scale consisting of 22 items. Based on this study and my preliminary results, I omitted item 3¹, item 9², and item 20³ of the CD-RISC 25 due to their extremely low factor loadings (Velicjovic, Rahm Hallberg, Axelsson, Borrebaeck, Rydén, Johnsson, & Månsson, 2020). The CFA results from the CD-RISC 25 indicated 8 items have strong factor loadings

-
1. Item 3 in CD-RISC 25: Sometimes fate or God can help.
 2. Item 9 in CD-RISC 25: Good or bad, most things happen for a reason.
 3. Item 20 in CD-RISC 25: In dealing with life's problems, sometimes you have to act on a hunch without knowing why.

(above .7 loading) on factor 1 but moderate loadings on factor 2 and factor 3. (Factor pattern of UHM collegiate athletes' participants for the CD-RISC with three factors present at appendix A table 6.1). Previous research pointed out that factor 3 (spiritual meaning) may not contribute to a trait of resiliency in the general population due to low factor loading (Karairmak,2010; Jørgensen & Seedat, 2008). Connor Davidson and other researchers have also refined the CD-RISC 25 to validated a ten-items version of CD-RISC (CD-RISC 10) which combined factor 1 and factor 2 to an unifactorial measurement to capture the latent variable of resilience (Connor & Davidson, 2003; Campbell-Sills & Stein, 2007; Smith et al., 2018; Cheng, Dong, He, Zhong, & Yao, 2020). The CFA resulted from the current study discovered that the one-factor model with 8 items resulted in the model with the best fit compared to the three-factors model and five-factors model of CD-RISC 25.

Hence, this study I used the eight items that manifested a strong factor loading on factor 1 self-efficacy and tenacity for the latent variable resilience. I used these eight items to measure the resilience construct for two reasons: 1) these items had above .7 factor loadings based on the current sample, and 2) previous research had also deleted or extracted certain items with strong factor loadings from CD-RISC 25 to modify their resilience scale in data analysis processes (Stoner, Orrell, & Spector, 2018; Connor & Davidson, 2003; Laff, 2008; Velicjovic et al., 2020).

Table 4.3

Factors that manifested loading greater than .7 in UHM collegiate athletes' participants for the CD-RISC 25

Item number	Factor Loading	S.E.	Est./S.E.	Two-Tailed P-Value	Factor
10. Best effort no matter what	.713	.051	14.028	.000	1
11. I believe I can achieve my goals even if there are obstacles	.787	.040	19.770	.000	1
12. When things look hopeless, I don't give up	.776	.042	18.556	.000	1
14. Under pressure, focus and think clearly	.735	.048	15.175	.000	1
16. Not easily discouraged by failure	.747	.046	16.269	.000	1
22. In control of my life	.743	.047	15.911	.000	1
23. I like challenge	.798	.038	20.803	.000	1
24. I work to attain my goals	.770	.042	18.154	.000	1

Note: Factor 1 Self-Efficacy and Tenacity

After I extracted the observed items that significantly explained the latent variable resilience from CD-RISC 25, I did a similar analysis for the BAI questionnaire. Results from the BAI factor analysis indicated that a two-factors BAI model (cognitive and somatic) was more popular than the one-factor model (cognitive) and the four-factors model (cognitive, somatic, panic, and automatic) across different datasets (Bardhoshi, Duncan, & Erford, 2016; Sanford, Bush, Stone, Lichstein, & Aguillard, 2008; Beck & Steer, 1993). More importantly, the two-factors BAI model showed better validity, reliability, and internal consistency for both genders male and female in an ethnically diverse data compared to the other BAI factor models (Bardhoshi et al., 2016). Additionally, research indicates that with regard to anxiety there is a logical association between cognitive functioning and somatic response factors in anxiety because individuals may misinterpret their physical feelings in a way that exacerbates any negative thinking. Conversely, pessimistic thoughts could aggravate physical symptoms (Chambless, Beck, Gracely, Grisham, & Chambless, 2000).

The CFA result shown in Table 4.4 indicated there were seven items with loadings of .7 or above for the two factors that were extracted from the current sample data. I preserved these items for later SEM analysis. Appendix A presents all the tables and details for each questionnaire factor analysis.

Table 4.4
Factors that manifested loading greater than .7 for the Beck Anxiety Inventory

Item number	Factor Loading	S.E.	Est./S.E.	Two-Tailed P-Value	Factor
4.Unable to relax	.772	.055	13.097	.000	1
5.Fear of the worst happening	.770	.047	16.234	.000	1
9.Terrified	.746	.051	14.678	.000	1
17.Scared	.701	.057	12.278	.000	1
6.Dizzy or lightheaded	.777	.053	14.543	.000	2
7.Heart pounding or racing	.784	.047	16.831	.000	2
10.Nervous	.705	.056	12.498	.000	2

Note: Factor 1: Cognitive
 Factor 2: Somatic

Two more CFA analyses were conducted for the STAI-Y trait anxiety and BDI-II questionnaires (See Tables 4.5 and Table 4.6). There were nine items with loadings of .7 or above for the two-factors model of the trait anxiety scale (Roberts, Hart, & Eastwood, 2016; Spielberger, 1983). For BDI-II, there were eight items with loadings of .7 or greater in the two-factors model (Beck & Steer, 1993; Sacco et al., 2016).

Table 4.5

Factors that manifested loading greater than .7 for the STAT-Y Trait Anxiety Scale

Item number	Factor Loading	S.E.	Est./S.E.	Two-Tailed P-Value	Factor
4.I wish I could be as happy as others	.762	.045	17.070	.000	1
15.I feel inadequate	.760	.044	17.152	.000	1
9.I worry too much over something that really doesn't matter	.734	.049	15.093	.000	1
18. I take disappointments so keenly that I can't let them go	.746	.046	16.114	.000	1
1.I feel pleasant	.799	.038	20.857	.000	2
3.I feel satisfied with myself	.844	.031	26.937	.000	2
13.I feel secure	.815	.036	22.710	.000	2
16.I am content	.805	.037	21.549	.000	2

Note: Factor 1: Anxiety Present

Factor 2: Anxiety Absent

Table 4.6

Factors that manifested loading greater than .7 for the Beck Depression Inventory-II

Item number	Factor Loading	S.E.	Est./S.E.	Two-Tailed P-Value	Factor
10.Crying	.789	.040	19.544	.000	1
11.Agitation	.731	.049	14.717	.000	1
15.Loss of energy	.814	.037	22.134	.000	1
19.Concentration difficulty	.793	.040	19.865	.000	1
1.Sadness	.762	.045	17.024	.000	2
2.Pessimism	.815	.037	22.134	.000	2
6.Punishment feelings	.797	.040	20.010	.000	2
14.Worthlessness	.808	.038	21.174	.000	2

Note: Factor 1: Somatic

Factor 2: Cognitive

After the individual questionnaire CFA data analysis, I extracted eight items that with strong factor loadings (i.e., factor loadings of .7 or greater) from CD-RISC 25, STAI-Y, and BDI-II along with 7 items from BAI respectively for the SEM analysis. I only extracted strong loading items for SEM because it is difficult to obtain reliable results in a SEM analysis when there are more than three latent variables in the model and too many observed items with low factor loadings (i.e., factor loading below .6), as well as the sample size is small (under 200

sample size) (Marsh, Hau, Balla, & Grayson, 1998; Hoyle & Gottfredson, 2015). These and other adjustments are necessary to conduct a SEM analysis with good model convergence and stability in sample size between 50-100. First, researchers must use highly reliable observed variables or indicators (e.g., factor loading at least over .6) for the data analysis (Gagne & Hancock, 2006; Hoyle & Gottfredson, 2015). Second, for sample size of 50 to 100, there should be no fewer than three observed indicators (with loading greater than .6) per each factor in order to achieve acceptable measurement requirements in CFA (Gagne & Hancock, 2006).

I thus extracted all the observed indicators that contained factor loadings greater than .7 for each latent variable so that the sample satisfied the recommendations in the SEM literature (Gagne & Hancock, 2006). This resulted in 8 indicators for the one-factor CD-RISC 25, 7 items for the two-factors BAI model (4 items for the cognitive factor and 3 items for the somatic factor), 8 items for the two-factors BDI-II model (4 items each for the cognitive and somatic factors), and 8 items for the two-factors STAI-Y trait anxiety scale (4 items each for anxiety present and anxiety absent factors). The study also exceeded the recommended minimum sample size for an appropriate SEM data analysis (sample size N=107) (Marsh et al., 1998; Gagne & Hancock, 2006). Hence, I gathered these survey items or indicators with strong loadings as observed variables to conduct the final CFA measurement in SEM analysis (Marsh et al., 1998; Gagne & Hancock, 2006).

Measurement Models

Confirmatory Factor Analysis for Anxiety, Resilience, and Depression

The initial measurement model specified the 3 latent variables of anxiety, resilience, and depression. First, I set each indicator to load only its specific latent variable and entered no indicator correlations into the initial model. For each latent variable, I set the first indicator factor

loading to 1.0 and permitted the remainders to vary. The initial measurement model did not fit the sample data well (see Table 4.7).

The chi-square was significant (not a preferable outcome in measurement model), the *root mean square error of approximation* (RMSEA), which assesses the amount of model misfit (Steiger, 1990), was .063. This suggested that there was still error left unexplained by the model because the RMSEA statistic must lower than .06 in order to indicate a good model fit. *The Standardized root mean square residual* (SRMR), which is the average discrepancy between the hypothesized and observed variances and covariances in the model was .053. The comparative fit index (CFI) was .939, and the Non-normed Fit Index (NNFI) or the Tucker-Lewis index (TLI) was .929.

Because the initial CFA measurement did not have a satisfactory model fit, I made several modifications in an attempt to improve the model fit indices. Modification indices from Mplus suggested the addition of error covariances between items that measured the same latent variables. It made logical and theoretical sense that items measuring the same latent variable covary, as they should be tapping into the same latent construct. The modification indices further recommended that items relating to anxiety (e.g., item 4 in BAI: inability to relax) correlated with other items for measuring depression (e.g., item 11 in BDI-II: agitation). The “unable to relax” item was the cognitive factor in BAI (Clark, Marszalek, Bennett, Harry, Howarter, Eways, & Reed, 2016; Zhou, An, Cheng, Sheng, Rui, Mahefuzha, & Yao, 2018; Subica, Fowler, Elbai, Frueh, Sharp, Kelly, & Allen, 2014), and the agitation item was a somatic response factor in BDI-II (Beck & Steer 1996). Permitting error covariance between the cognitive functioning factor and the somatic response factor made theoretical and logical sense because, as noted above, individuals’ cognitive functioning may dramatically influence their somatic and

physiological responses. Conversely, how people feel (somatic response) may also affect their thought processes (cognitive functioning) (American Psychiatric Association, 2013; Choudhry, Mani, Ming, & Khan, 2016; Leventhal, Leventhal, & Contrada, 1998). Additionally, the modification indices suggested adding covariances between the “fear of the worst happening” cognitive item (anxiety) with the “worthlessness” cognitive item (depression). That these items or variables correlated made theoretical sense due to the fact that cognitive functioning may be used to describe individuals’ subjective perception about their psychological adjustment, quality of lives, and their thinking abilities (Allott, Gao, Hetrick, Fila, Mensink, Fisher, Hickie, Herrman, Rickwood, Parker, McGorry, & Cotton, 2020; Wu, Austin, Hamilton, Valdimarsdottir, Isola, Rowley, Warbet, Winkel, Redd, & Rini, 2012). The individuals’ negative thought in “fear of the worst happening” may yield another pessimistic feeling “worthlessness” in themselves. Hence, adding error covariances between these items was reasonable to improve the measurement model.

I started with the variables that exhibited the greatest change magnitude and, one at a time, retained those that improved the model fit significantly. Each modification added a new error covariance to those entered in the previous model (see Table 4.7).

Table 4.7

Fit Indices for Resilience, Anxiety, and Depression Measurement Models

Model	Description	χ^2	df	SRMR	RMSEA	CFI	TLI	X^2 <i>diff</i>
Initial model	Initial measurement model	314.170***	220	.053	.063	.939	.929	
Modification1 V19: V18	Added covariances between V19 with V18	293.006***	219	.051	.056	.952	.944	21.164***
Modification2 V25:V18	Added covariances between V25 with V18	277.792***	218	.051	.051	.961	.955	15.214***
Modification3 V11:V3	Added covariances between V11 with V3	262.421*	217	.048	.044	.97	.965	15.371***
Final Measurement Model	Added covariances between V15 on V4	251.172*	216	.046	.039	.977	.973	11.249***

Note: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$ X^2 *diff*: Chi-square difference

The final CFA on resilience, anxiety, and depression indicate much better measurement model fits results for this study. The chi-square of the measurement model was not significant, $\chi^2(216) = 251.172$, $P = .0505$ (P value $> .05$). The *root mean square error of approximation* (RMESA) was .039, RMESA values of .06 or less delineated a good fitting model (Steiger, 1990). The *Standardized root mean square residual* (SRMR) was .046, SRMR values of .08 or less indicated a good model fit (Hu and Bentler, 1999). The comparative fit index (CFI), compares the hypothesized model against an independence model and is ranged between 0 and 1; values above .95 indicate a model that fits the data well (Bentler, 1990). The CFI of .977 from this study was satisfactory for the model fitting results. The TLI or the NNFI analyzes the discrepancy between the chi-square value of the null model and the chi-square value of the hypothesized model, with a cutoff of .95 or greater demonstrating a good model fit (Tucker &

Lewis, 1973). The TLI of .973 from this study was acceptable for the measurement model fit result.

In the final measurement model, one of the observed variables from BAI, item 6, (“dizzy or lightheaded”), exhibited a relatively weak factor loading of 0.53 (see figure 4.1), even though it demonstrated a stronger factor loading of 0.777 (see table 4.4) in the study’s previous BAI factor analysis. Research indicates that a variety of defects—such as unclear wording of the items, insufficient sample size, and the presence of a cross-loading factor—may cause some observed variables to exhibit weaker factor loadings in the measurement model. Indeed, prior studies suggest that researchers should consider eliminating variables with an insignificant or weak factor loading (defined as a factor loading less than .5) (Hair, Black, Babin, & Anderson, 2008; Smith, Woodman, Drummond, & Battersby, 2016). I decided to keep this variable, however, because its factor loading was greater than 0.5. I based my decision, in part, on the *Multivariate Data Analysis* textbook, which asserts that observed variable with a 0.5-0.55 factor loading are adequate to demonstrate a significant factor loading across data sets with a sample size of 100-120 participants (Hair et al., 2008). Thus, even though the item 6 variable from BAI exhibited a weaker factor loading compared to other variables in the final measurement model of resilience, anxiety, and depression, I elected to retain it for further SEM analysis.

Figure 4.1 illustrates the final measurement model in resilience, anxiety, and depression.

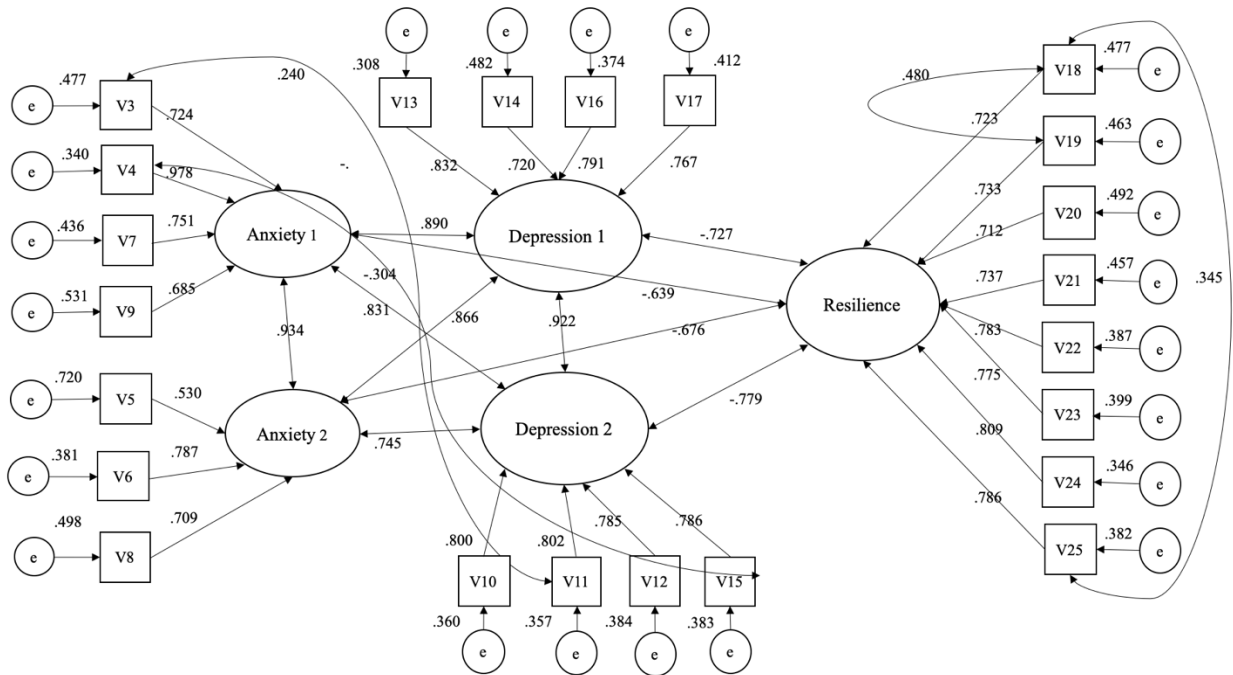


Figure 4.1 *Final CFA measurement model in resilience, anxiety, and depression*

Note: Anxiety 1: Cognitive factor, Anxiety 2: Somatic factor, Depression 1: Somatic factor, Depression 2: Cognitive factor.

Confirmatory Factor Analysis for Trait Anxiety, Resilience, and Depression

Using a different scale for trait anxiety, another CFA model between trait anxiety, resilience, and depression was created that was initially not a good fit. For instance, the chi-square of the measurement model was significant, $\chi^2(242) = 400.213$, $P = .000$ (P value $< .05$). The RMSEA value was .078. The SRMR was .058, The CFI of .914 and the TLI or NNFI was .902. The critical model fit values in chi-square, RMSEA, CFI, and TLI from the initial CFA model did not meet the cut off values for the ideal model fit indices.

Therefore, seven separate modifications were needed to improve the model's fit. The first four modified steps were based on recommendations from Mplus modification indices to add the new error covariance between items that measured the same latent variable: resilience. The items that paired together were item 10 (best effort no matter what) with item 12 (when things look

hopeless, I don't give up), item 12 (when things look hopeless, I don't give up) with item 11 (I can achieve my goal), item 11 (I can achieve my goal) with item 10 (best effort no matter what), as well as item 24 (I will work to attain my goal) with item 11 (I can achieve my goal).

Added error covariances between items 10 with item 12, and item 12 with item 11 made theoretical sense because the research indicates that a person who has a strong belief that they will achieve their goals and give his/her best effort in everything, then they will not give up as easily when things are not looking positive (Everly et al., 2015; Shi et al., 2019).

After that Mplus modification indices suggested item 10 (best effort no matter what) with item 11 (I can achieve my goals) in resilience latent variable. The relationship between these two items made logical sense because both items were indicators for the salient factor (self-efficacy and tenacity) in resilience. Self-efficacy refers to one's belief in their capabilities to manage or perform the actions that are necessary to attain special outcomes under adverse circumstances (Bandura, 1995). In other words, when we believe we can achieve our dreams, we will have the drive or motivation to exert maximum effort to actually achieve them (Sheldon & Schuler, 2011).

The error covariance between items 11 and item 24 also made theoretical sense since individuals have a strong determination to achieve their dreams, they are more likely to work harder for their goals (Ciani, Sheldon, Hilpert, & Easter, 2011). I subsequently conducted these four modification steps that made theoretical sense and enhanced the model fit index.

The modification indices also suggested adding covariances relationship between item 3 (I feel pleasant) from the trait anxiety scale with item 22 (I'm in control of my life) from the CD-RISC 25 resilience questionnaire. Added association in this pair of items made logical sense because when the individuals feel good about themselves, they are more likely to exercise

greater control over their lives. Hence the relationships between these items or indicators has intuitive appeal because participants' results in item 1 (I feel pleasant) may strongly impacted their responses to item 22 (I'm in control of my life).

Afterward, the modification indices suggested permitting item 16 (Not easily discouraged by failure) from the CD-RISC 25 resilience scale to have error covariances with the latent variable depression. This adjustment also made theoretical sense based on resilience and self-efficacy theory, which asserts that an individual who possesses a greater sense of self-efficacy or resilience will not become as discouraged in the face of defeat and failure. Bandura argued that self-efficacy has such an influential impact on one's subjective cognitive functioning and psychological adjustment that higher levels of self-efficacy will result in fewer negative psychological symptoms, such as depression (Bandura, 1995; Wu et al., 2012). In other words, participants who were easily discouraged by failure and developed a negative opinion about themselves may be more prone to experience symptoms of depression and suffer from low subjective cognitive functioning (Allott et al., 2020).

Finally, the last step in the modification process was releasing the covariances relationship in two factors (somatic factor and cognitive factor) in trait anxiety. It made logical and theoretical sense that because these factors were measuring the covary in the same latent variable, as they should be tapping into the same latent construct: trait anxiety.

After implementing these seven modifications to the model, the final measurement model fit data well. The chi-square of the final measurement model was $\chi^2(236) = 323.012$, $P = .0001$, (P value $< .001$). RMSEA was .059, and SRMR was .05. CFI was .953 and the TLI or the NNFI was .95. All the model fit indices indicated the measurement model was acceptable and ready for further SEM analysis. (See Table 4.8 fit indices between initial and final measurement models.)

Table 4.8

Fit Indices for Resilience, Trait Anxiety, and Depression Measurement Models

Model	Description	χ^2	df	SRMR	RMSEA	CFI	TLI	X^2 <i>diff</i>
Initial model	Initial measurement model	400.213***	242	.058	.078	.914	.902	
Modification 1 V21:V19	Added covariance between V21 with V19	387.690***	241	.055	.075	.92	.909	12.523***
Modification 2 V21:V20	Added covariance between V21 with V20	374.645***	240	.054	.072	.927	.916	13.045***
Modification 3 V20:V19	Added covariance between V18 with V7	355.868***	239	.051	.068	.937	.927	18.777***
Modification 4 V26:V20	Added covariance between V26 with V20	339.998***	238	.051	.063	.945	.936	15.87***
Modification 5 V24:V4	Added covariance between V24 with V4	330.111***	237	.051	.061	.949	.941	9.887***
Modification 6 V23: Depression	Added covariance between V17 with depression	323.012***	236	.05	.059	.953	.945	7.099***
Final Measurement model	Released covariance between Trait 1 with Trait 2	323.012***	236	.05	.059	.953	.95	

Note: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$ X^2 *diff*: Chi-square difference

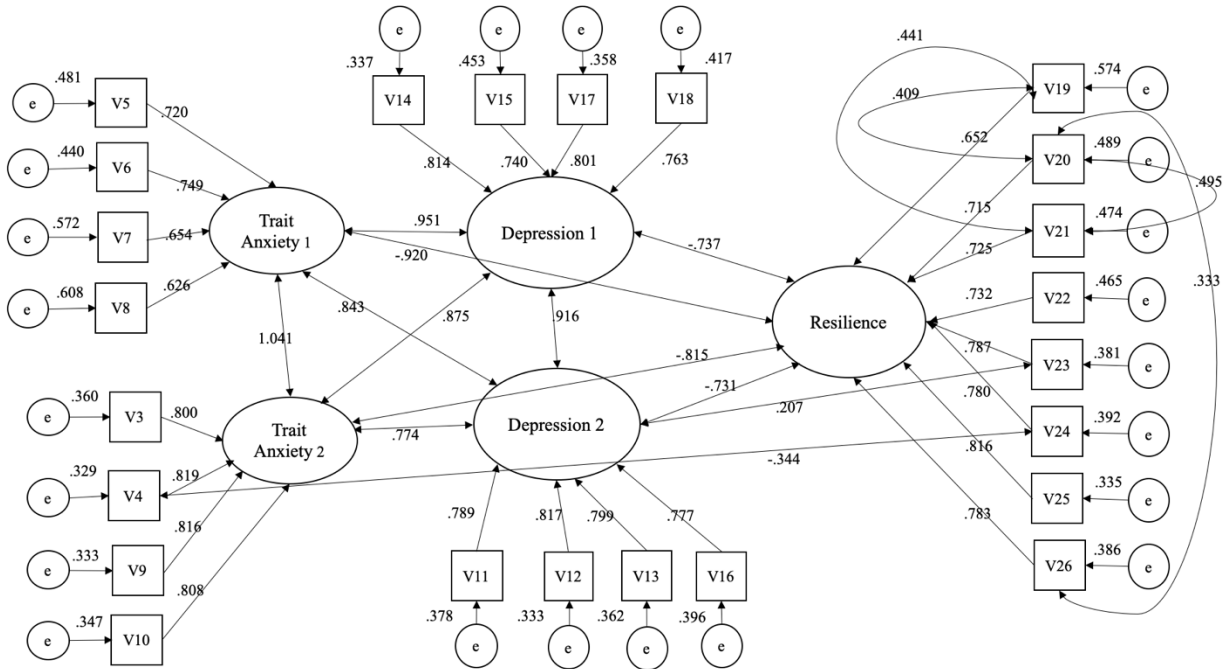


Figure 4.2 *Final measurement model for resilience, trait anxiety, and depression*

Note: Trait Anxiety 1: Anxiety present, Trait Anxiety 2: Anxiety absent, Depression 1: Somatic factor, Depression 2: Cognitive factor.

The Full Models

Structure Equation Model “SEM” for Resilience, Anxiety, and Depression

A structural model was created to estimate the relationships between the measured constructs of resilience, anxiety, and depression. The model fit was investigated to ensure the compatibility between the empirical evidence obtained and the model proposed. The final structural model fit indices indicated a good fit for the theoretical constructs between resilience, anxiety, and depression which shown in Figure 4.3. The resultant chi-square value’s relation to the p -value was significant ($\chi^2=331.004$; $df=253$; $p=.0007$, $p < .01$), CFI .95, TLI .94, RMSEA .054 and SRMR .069. All the necessary model fit indices indicated an acceptable fit for the theoretical relationship between resilience, anxiety, and depression in collegiate athletes at UHM.

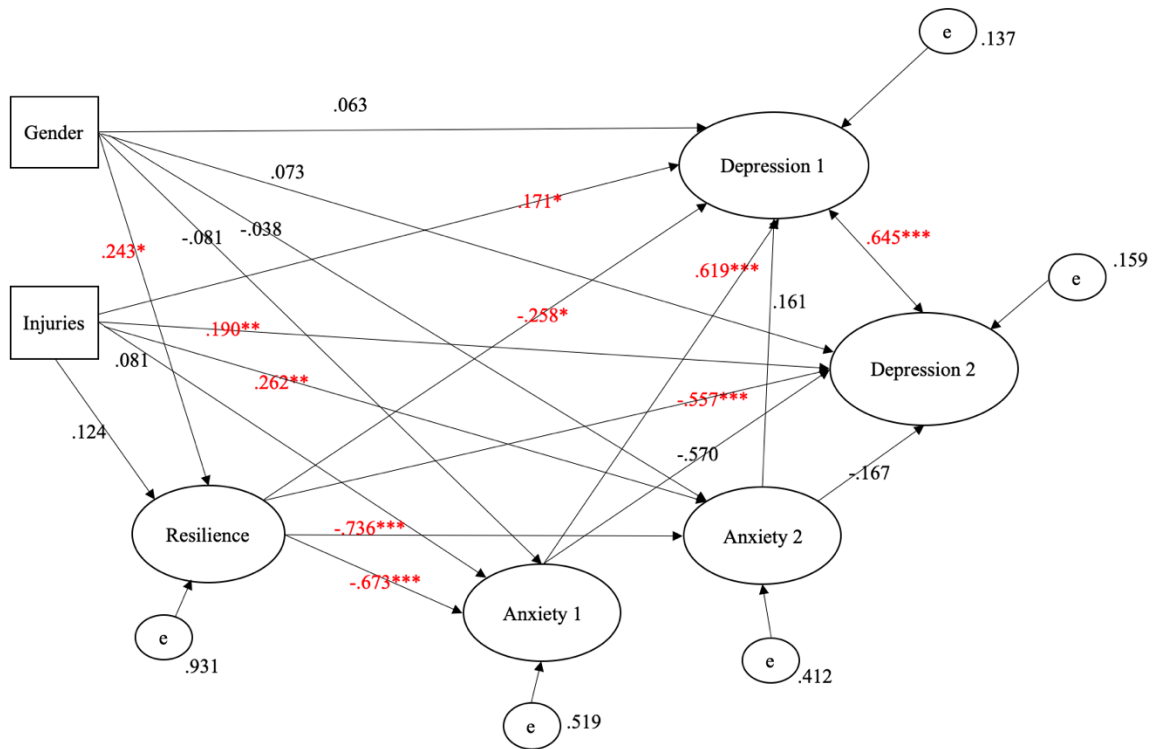


Figure 4.3 *The final structural equation model on resilience, anxiety, and depression*
 (* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$)

Note: Anxiety 1: Cognitive factor, Anxiety 2: Somatic factor, Depression 1: Somatic factor, Depression 2: Cognitive factor.

Based on the analysis done on the resilience, anxiety, and depression theoretical model, I observed a direct and indirect relationship between these constructs, along with categorical variables in gender effect as well as among injured and non-injured collegiate athletes. The results presented in Table 4.9 displayed the estimate⁴, standard error (SE), and two-tailed p -value.

4. Estimate: the calculated unique value between variables.

Table 4.9

Estimate, Standard Error, and Two-tailed p-value between analyzed variables

Relationship between Variables	Estimate	S.E.	Two tailed p-value
Anxiety 1 on Resilience	-.673	.071	.000***
Anxiety 2 on Resilience	-.736	.078	.000***
Depression 1 on Resilience	-.258	.120	.032*
Depression 2 on Resilience	-.557	.126	.000***
Depression 1 on Anxiety 1	.619	.107	.000***
Depression 1 on Anxiety 2	.161	.153	.292
Depression 2 on Anxiety 1	.570	.108	.000***
Depression 2 on Anxiety 2	-.167	.154	.277
Resilience on Gender	.243	.096	.011*
Resilience on Injuries	.124	.098	.209
Anxiety 1 on Gender	-.081	.085	.341
Anxiety 1 on Injuries	.081	.083	.330
Anxiety 2 on Gender	-.038	.089	.667
Anxiety 2 on Injuries	.262	.088	.003**
Depression 1 on Gender	.063	1.155	.249
Depression 1 on Injuries	.171	.070	.014*
Depression 2 on Gender	.073	.063	.248
Depression 2 on Injuries	.190	.072	.009**

Note: S.E.: standard error * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

The results shown in Table 4.9 indicated a significant inverse relationship between anxiety and resilience and suggested that a one unit increase in resilience should correspond with a .673 unit decrease in the cognitive factor and a .736 decrease in the somatic factor of anxiety. Female and male athletes in the non-injured group did not demonstrate a statistically significant relationship between anxiety and depression, but both male and female injured athletes exhibited a statistically significant correlation between injuries, anxiety, and depression. Specifically, the model predicted that injured athletes would experience a .171 unit increase in the somatic factor and a .190 unit increase in the cognitive factor of depression. the model also predicted that injured athletes would experience a .262 unit increase in the somatic factor of anxiety and a .190 unit increase in the cognitive factor of depression. That is, an athlete who experienced an injured was more susceptible than their non-injured peers to symptoms of anxiety and depression.

Anxiety and depression were positively correlated, with the model predicting that a one unit increase in the somatic factor of anxiety would cause the athlete to experience a .619 unit and a .570 increase in both somatic and cognitive factors of depression. The results also demonstrated a significant inverse relationship between resilience and depression. Specifically, the model predicted that athletes would experience a .258 decrease in the somatic factor and a .557 decrease in the cognitive factor of depression for every unit increase in resiliency level.

Gender also exhibited a statistically significant impact on resilience. Male athletes tended to score higher in resilience than their female counterparts. However, the injured group of male and female athletes did not present a significant change in resilience score, although female injured athletes reported lower mean score of resilience than injured male athletes. This study indicated that gender did not have a significant impact on anxiety and depression even though previous study pointed out that women in general tended to report higher scores in anxiety compared with men (Beck & Steer, 1993).

Structure Equation Model for Resilience, Trait Anxiety, and Depression

A second structural model was constructed to analyze the relationships between the latent variables of resilience, trait anxiety, and depression. The final structural model fit indices indicated the hypothetical model produced an acceptable fit based on the theoretical literature. The chi-square value's relation to the p -value was significant ($\chi^2 = 372.411$; $df=274$; $p=.0001$ $p < .001$), CFI .947, TLI .938, RMSEA .058 and SRMR .051. All the critical model fit indices indicated an acceptable fit for the theoretical relationship between resilience, trait anxiety, and depression in collegiate athletes at UHM.

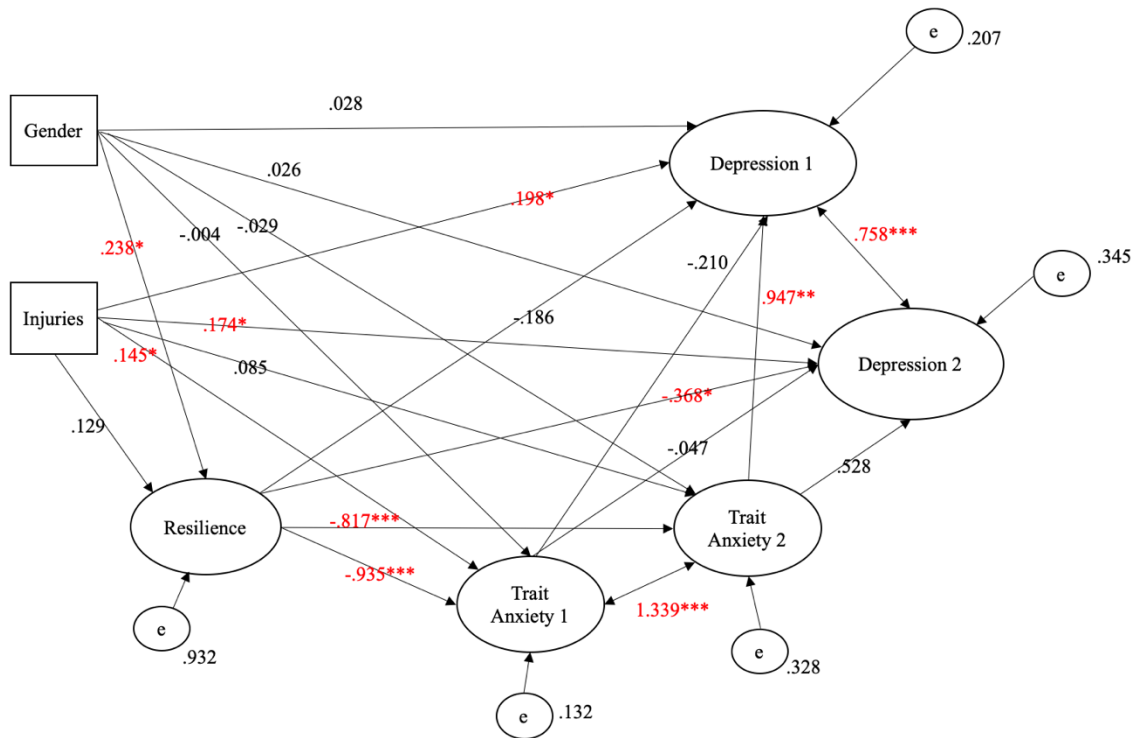


Figure 4.4 The final structural equation model for resilience, trait anxiety, and depression (* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$)

Note: Trait Anxiety 1: Anxiety present, Trait Anxiety 2: Anxiety absent, Depression 1: Somatic factor, Depression 2: Cognitive factor.

The final structure equation model on resilience, trait anxiety, and depression produced results similar to the first SEM model (resilience, anxiety, and depression) across all the latent variables and categorical variables (Table 4.10 displays the estimate, standard error, and two-tailed p-value between analyzed variables in resilience, trait anxiety, and depression). The Mplus data analysis indicated that trait anxiety and resilience had a significant inverse relationship, predicting that a one unit increase in resilience would result in a .935 unit decrease in the first factor (anxiety present) of trait anxiety, and a .817 unit decrease in the second factor (anxiety absent) of trait anxiety. Female and male athletes in the non-injured group did not exhibit a significant relationship with anxiety and depression, but male and female injured athletes demonstrated a significant positive association with trait anxiety and depression. An injured

athlete was more inclined to report symptoms of trait anxiety and depression. Trait anxiety and depression had a significant positive correlation, indicating that a one unit increase in second factor (anxiety absent) of trait anxiety would result in the athlete reporting a .947 unit increase in the somatic factor of depression.

As with the first SEM model, gender had a significant impact on reported resilience levels for the non-injured athletes. Although injured female athletes reported a lower mean resilience score than male athletes, the overall injured group did not report a significant change in resiliency levels. Resilience also exhibited a significant negative relationship with trait anxiety and depression. Specifically, the results indicated that a one unit increase in resilience would result in a .370 drop in the cognitive factor of depression, as well as .935 and .817 drop in both factors (anxiety present and anxiety absent) of trait anxiety.

Table 4.10
Estimate, Standard Error, and Two-tailed p-value between analyzed variables

Relationship between Variables	Estimate	S.E.	Two tailed p-value
Trait 1 on Resilience	-.935	.044	.000
Trait 2 on Resilience	-.817	.049	.000
Depression 1 on Resilience	-.186	.195	.339
Depression 2 on Resilience	-.370	.193	.050*
Depression 1 on Trait 1	-.210	.392	.591
Depression 1 on Trait 2	.947	.319	.003**
Depression 2 on Trait 1	-.047	.368	.898
Depression 2 on Trait 2	.528	.312	.090
Resilience on Gender	.238	.096	.013*
Resilience on Injuries	.129	.099	.190
Trait 1 on Gender	-.004	.072	.955
Trait 1 on Injuries	.145	.070	.038*
Trait 2 on Gender	-.029	.072	.687
Trait 2 on Injuries	.085	.071	.229
Depression 1 on Gender	.028	.071	.691
Depression 1 on Injuries	.198	.079	.012
Depression 2 on Gender	.026	.074	.730
Depression 2 on Injuries	.174	.080	.029*

Note: S.E.: standard error * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

The results from both structural equation models provided preliminary evidences in support of the theory about the relationship between resilience, anxiety, and depression. Both SEM results discovered that there existed a strong positive association between anxiety and depression as well as trait anxiety and depression. Furthermore, both SEM models found that resilience level of male and female athletes significantly predicted the degree of symptoms of anxiety and depression. These two SEM results indicated that injuries had a significant impact on collegiate athletes' symptoms of anxiety and depression. In addition, both SEM results found that male collegiate athletes tended to report higher levels of resiliency compared to their female counterparts in the studied population.

Why did not use the State Anxiety Scale for the Data Analysis

This study originally planned on using the STAI-Y state anxiety scale to evaluate UHM collegiate athletes' state anxiety during their competitive sport seasons. The state anxiety scale supports to measure participants' state anxiety, which refers to participants' subjective feelings in certain settings or situations at the moment (Spielberger, 1983). State anxiety encompasses the emotional and psychological signals of the automatic nervous system in response to spontaneous stressors (Boudarene, Legros, & Timsit-Berthier, 2002; Spielberger, 1983; Cao & Liu, 2015). In the early stages of this study, I was interested in investigating how competitive performances influence UHM collegiate athletes' state anxiety level. Unfortunately, due to the COVID-19 pandemic, all 2020 spring collegiate sports seasons in the United States were cancelled (Robinson, 2020; National Collegiate Athletic Association, 2020). For this reason, this study employed only a trait anxiety scale from the STAI-Y, as opposed to a state anxiety scale, for the SEM data analysis.

DISCUSSION

Anxiety and depression are becoming increasingly prevalent amongst college students in the United States due to various stressors. This is especially true for collegiate athletes who often face injuries and are required to split their attention between their academic and athletic endeavors. Recent studies argue that nurturing an individual's resilience may mitigate the negative symptoms of anxiety and depression (Kent, 2014; Hjemdal et al., 2011; Secades et al., 2016). The study described below examined a theoretical model of resilience, anxiety, and depression in current collegiate athletes from the University of Hawai'i at Mānoa ("UHM"). The study also seeks to develop a resilience educational program that other institutions could easily replicate or modify. In this section, I interpret the results of this study as they pertained to each research question and hypotheses, then I will discuss the findings and implication on future studies to relevant literature on developing a resilience education/training that could foster collegiate athletes and any other individual's resilient mindset. Limitations and conclusion of the research are also presented.

Research Question 1

The first research question addressed the relationships between anxiety, depression, and resilience among college athletes from UHM. The results of a structural equation modeling ("SEM") SEM test from chapter 4 result section confirmed that the SEM model fit the sample data of this study. The null hypothesis for the research question 1 was posited that there would be no statistically significant association between the three latent constructs: anxiety, depression, and resilience. The null hypothesis was rejected after the analyzing the data because the study's results indicated that there was a statistically significant relationship between anxiety, depression, and resilience. Specifically, the results indicated that there was positive relationship

between anxiety and depression, which support the previous literature regarding the comorbidity between these two negative psychological disorders (American Psychiatric Association, 2013; Castonguay & Oltmanns, 2013; Craske & Waters, 2005; Weber et al., 2018). The results also indicated an inverse correlation between resilience and anxiety and a negative relationship between resilience and depression. The finding thus confirmed the theory from previous resilience literature stated that an individual with strong resilience could more easily overcome or cope with the negative effects of anxiety and depression (Kent, 2014; Hjemdal et al., 2011; Secades et al., 2016).

Research Question 2

The second research question focused whether gender affected the relationship between anxiety, depression, and resilience. The results indicated that gender did have a significant impact on resiliency, as male athletes tended to report higher resiliency scores than their female counterparts. Previous research indicated that women in general tended to report higher scores in anxiety compared with men, but this study indicated that gender did not have a significant impact on anxiety and depression (Beck & Steer, 1993). Differences due to gender in this study may not be precise because the disparity in the male and female athlete population. Specifically, the studied population consisted of 81 female athletes and 26 male athletes.

Research Question 3

The third research question examined whether recent injuries affect student athletes' anxiety and/or depression levels. The null hypothesis for this research question was that participants who reported having recent injuries did not report statistically significant higher scores in anxiety and depression than their non-injuries peers. This null hypothesis was rejected after the data analysis. The study's finding suggested that recent injuries significantly affect both

male and female athletes' levels of anxiety and depression. This study thus lends further support to the previous literature concerning the common experience of injured competitive athletes that may similarly affect collegiate athletes suffering from anxious and depressed symptoms (Mann et al., 2007; Liberal et al., 2014; Leddy, et al., 1994; Smith & Smith, 1996; Petrie, 1992).

Implication

The results of this study support previous literature suggesting that anxiety and depression negatively affected collegiate athletes' mental well-beings. However, by taking a more prophylactic approach to treating these emotional challenges, through nurturing an individual's personal resiliency, that individual could overcome hardships better and more easily recover from the symptoms of anxiety and depression (Charney & Nemeroff, 2004; Everly, 2015). But, how can we train collegiate athletes to be more resilient?

Research indicates that resilience has both a biological and a psychological component in humans (Liu, Zhang, Ji, & Yang, 2018). For example, our adaptive immune system, which helps protect us from infectious diseases and viruses, is the biological or physical aspect of resiliency (Billerbeck, Horwitz, Labitt, Donovan, Vega, Budell, Koo, Rice, & Ploss, 2013). Resilience can also be displayed as a personal trait that influences how an individual responds or interacts to difficulties (Liu et al., 2018; Kent, 2014). Research has discovered that using neuropharmacological approaches could also improve psychological resilience in a person by altering the neurotransmitter activities in order to adapt to stressors better (Elghazi, Blandino-Rpsano, Alejandro, Cras-Méneur, & Bernal-Mizrachi, 2017; Liu et al., 2018; Rutten, Hammels, Geschwind, Menne-Lothmann, Pishva, Schruers, van Den Hove, Kenis, van Os, & Wichers, 2013). Additionally, several psychological and cognitive therapies such as mindfulness medication training (Hwang, Lee, Lim, Bae, Kwak, Park Kwon, & Hwang, 2018), and life skills

education-based programs (Sarkar, Dasgupta, Sinha, & Shahbabu, 2017; Li, Harrison, Fairchild, Chi, Zhao, & Zhao, 2017), were designed to improve people's psychological resilience. But the aforementioned methods may be more appropriate for specific groups of people who clinically need to receive special psychological treatments or medication.

This study supports the use of another resilience learning approach for collegiate athletes and college students, a positive thinking education. A substantial body of resilience research indicated that experiencing positive emotions and practicing positive self-regulation skills are critical building blocks of psychological resilience (Yang, Li, & Sun, 2020; de Visser, Dorfman, Chartrand, Lamon, Freedy, Weltman, & Mallak, 2016; Rutten et al, 2013). A former president of the American Psychology Association Dr. Seligman Martin E.P. asserted that the general population may improve their resiliency to face any difficulties by learning how to mentally create positive experience (Seligman et al., 2000). This study accordingly hope universities will offer a positive psychology course to undergraduate students so that resilience training will be easier for college students, including collegiate athletes, to learn about, and benefit from, the science of positive psychology.

The concept of positive psychology was derived from the original mission of psychology. The three major visions from psychology at the beginning of the 20th century were: (1) healing the mental dysfunction or illness; (2) making the lives of all people more meaningful and productive; (3) identifying the phenomenal talents in our community (Seligman, Csikszentmihalyi, & Seligman, 2000). In the decades since, however, the field of psychology has been predominantly focusing on the first mission, namely curing the mental illnesses or brain diseases. As previous research put it, most psychologists and psychological professionals know a lot about damaged brains, damaged behaviors, damaged childhoods, damaged drives, and

damaged habits, but not about nurturing the positive traits for general population (Seligman et al., 2000; Magalhães & Calheiro, 2017). The implication or the stereotype of psychology was almost as psychopathology and pharmacology (Suldo & Shaffer, 2008).

Frankly, research about mental dysfunction and curing mental illnesses remain the priority in psychology. In fact, most research grants are given to research proposals aimed at studying mental disorders (Seligman et al., 2000). Hence, many psychologists master the psychopathology really well and some psychological researchers even quipped that the National Institute of Mental Health could be renamed the National Institute of Mental Illness (Seligman et al., 2000). But the other two major visions in psychology should not be forgotten: making the lives better for most people and locating talent in our community are essential for promoting mental health in the general population (Snyder, Lopez, & Pedrotti, 2015).

A successful course of positive psychology should attempt to help people study affirmative human virtues, for example, work ethic, spirituality, good deeds, perseverance, growth, love, creativity, motivation, modesty, optimistic. Indeed, positive psychology includes discourse over a wide spectrum of personal positive experiences: well-being, satisfaction, and contentment (in the past), happiness and flow (in the present), optimism and hope (in the future). At the individual level, positive psychology advocates compassion, courage, interpersonal skills, sensitivity, forgiveness, vocation. At the community level, positive psychology teaches about the civic virtue that motivated each person to be a better citizen and develop a strong work ethic, altruism, responsibility, and tolerance (Seligman et al., 2000).

Positive Psychology is not simply asking an individual to encourage wishful thinking, unrealistic optimism, or deceptive beliefs (Seligman et al., 2000). Rather, it is based on the science that the best way to help people was to promote a holistic sense of well-being for both

mind and body (Seligman et al., 2000). Positive psychology asserts that there are two primary factors for mental well-being. It is not only the absence of mental disorders in an individual that mean a person has a complete healthy psychological and emotional well-being (Suldo & Shaffer, 2008). There is another dimension to a healthy mental well-being that research terms subjective well-being (“SWB”) (Diener, 2000; Magalhães & Calheiro, 2017). SWB is the technical term for happiness that consists of three correlated but different constructs: life satisfaction, positive emotional affect, and negative emotional affect (Diener, 2000; Magalhães & Calheiro, 2017). Life satisfaction involves an overall and area-specific (e.g., school, job, family, social relations) cognitive assessment of an individual’s happiness. SWB promotes a positive appraisal of the overall quality of one’s life, and internally generates a continuum of positive affect (e.g., elation, delight) to overcome negative affect (anger, guilt, sorrow) (Diener, 2000; Suldo & Shaffer, 2008; Magalhães & Calheiro, 2017).

Positive psychology delves deeper and shows us how to achieve higher levels of SWB or happiness in order to reinforce positive experiences that help us endure and thrive during challenging times (resilient and positive trait) (Seligman et al., 2000). In seeking higher levels of happiness, it is useful to differentiate between two type of positive experiences, pleasurable experiences and enjoyable experiences. Pleasurable experiences refer to the nice feelings that came from rewarding the homeostatic needs such as appetite, thirst, sex, and any other bodily comfort, or the material possessions that satisfying one’s greed and prodigality (e.g., money, fame, houses, sport cars) (Seligman et al., 2000; Muñoz-Velázquez, Gomez-Bava, & Lopez-Casquete, 2017). Enjoyable experiences, on the other hand, are characterized by great feelings that transcend the limits of homeostasis and material desires. Enjoyable experiences in positive psychology are often described as the feeling of achieving a goal, breaking a record, performing

a good deed, or performing well in sports or the arts. Enjoyment, instead of pleasure, is the foremost factor that leading to long-lasting happiness and personal growth (Muñiz-Velázquez, et al., 2017; Seligman et al., 2000). When we look beyond the pleasurable experiences and materialism and pursue enjoyable experiences as happiness and positive experiences, we may see things differently even in the worse circumstances. We can more easily generate the intrinsic motivation and joy to work through any obstacles. In fact, in ancient Greek, Aristotle defined the Latin word *eudemonism* as the conceptual scaffold that connects the practice of virtue with human happiness (Aristotle, 2001; Muñiz-Velázquez et al., 2017; Snyder et al., 2015).

People may think that positive psychology is pure imagination and believe that psychology should only emphasize the underdogs and victims (Seligman et al., 2000). But the principle of positive psychology is not new and dates back to at least to the time of ancient Greece (Snyder et al., 2015). In *The Myth of Sisyphus* author Albert Camus describes how Sisyphus's punishment for his sins was that he was forced to roll an extremely heavy rock up a mountain, only to then watched the rock rollback to the bottom of the hill. Sisyphus is forced to repeat this action indefinitely. Though his efforts in rolling the rock to the top over and over again could be described as hard, tedious, futile, and absurd, the author Camus attempts to convince readers that Sisyphus was in fact happy. Camus even stated: "The struggle itself towards the heights is enough to fill a man's heart. One must imagine Sisyphus happy!" (Campus & O'brien, 1991). The moral of this story is that it is the process of getting something done, even if that thing is hard, tragic, or even meaningless, can be enough to make us happy if we develop a positive mindset. Sisyphus maybe an imaginative example of a resilient character, but in the real-world setting, there have been numerous individuals who have achieved incredible feats despite their hardships. Ludwig van Beethoven, for instance, who is revered as one of the greatest

classical composers in the history, composed some of his best musical works: Moonlight Sonata and Symphony Number 9 “Ode to Joy” despite suffering the challenges of becoming completely deaf, homeless, broke, and suicidal (Wallace, 2018; Seligman et al., 2000). How could someone who went through depression and attempted suicide composed such a cheerful and timeless piece like “Ode to Joy”? Wallace’s book suggests that Beethoven believed that he could still use his talent to bring good music to others and it is that belief that kept him going (Wallace, 2018; Seligman et al., 2000). The motivation to benefit society with such masterful melodies (altruism), the love, creativity, and dedication of Beethoven is thus another vivid example of the concept of positive psychology. By pursuing positive human virtues, people may gain resilient traits that will help them overcome adversity.

Thus, by learning more details about positive psychology, collegiate athletes and the general population may significantly improve their long-term psychological resilience. The CD-RISC 25 questionnaire was employed in this study to evaluate sample participants’ level of resilience. Statements from the instrument include: “I like challenges”, “Not easily discouraged by failure”, “When things look hopeless, I don’t give up”, “I will work to attain my goals”, “I give my best effort in everything no matter what”, “I have a strong sense of purpose in life.” Statements like these embrace the concept of positive psychology and remind us to always find a way to stay positive, no matter what difficulties lie ahead of us (Connor & Davidson, 2003). Therefore, through learning the history, meanings, and application in positive psychology, college students and collegiate athletes would be more knowledgeable to internally direct their thinking toward positive emotion in order to nurture their resilience.

Limitation

It is essential to highlight some of the limitations of the present study that could affect how the findings are interpreted. First, the sample size was rather small. Ideally, a proper SEM data analysis would require at least 200 participants to precisely calculate the relationships between all the observed variables, independent variables, and latent variables (Hoyle & Gottfredson, 2015). Hence, a larger number of student athletes need to be recruited to confirm preliminary research outcomes better if other scholars would like to conduct similar research on resilience, anxiety, and depression.

One limitation in these data may be that these did not specify whether each athlete participated in team sports or individual sports, hence the data could not discern whether a certain sport had a disparate effect on an athlete's likelihood of displaying symptoms of depression, anxiety, or resilience. In addition, the study did not control for whether participants were suffering from any personal difficulties such as family struggles, loss of romantic partners, or poor sport performance because the study assumed most athletes were readily exposed to these stresses.

Data for this research were collected during the Novel Coronavirus 19 ("COVID-19") pandemic outbreak period, so it was also possible that this contributed to student athletes' negative emotions and feelings of anxiety during these uncertain times. The pandemic also impacted this study's ability to recruit participants because all the NCAA collegiate sports seasons were cancelled half way through the 2020 spring semester and most student athletes left the UHM campus and attended class online. The study should be repeated during a period when the COVID-19 pandemic is completely under control to ascertain what impact COVID-19 had on the findings of this study.

Additionally, this study employed a quantitative data analysis method to describe participants' experiences of anxiety, depression, and resilience. The quantitative approach of this study proceeded by asking specific and narrow questions to participants and then statistically analyzing those responses to provide numerical and objective descriptions of their experiences. However, solely relying on a quantitative data analysis method may not satisfactorily explained the complex relationship between psychological and subjective experiences, such as depression, anxiety, and resilience (Clark & Creswell, 2009). Accordingly, a potential shortcoming in using only Likert scale questions in quantitative data analysis was that nuanced information and personal experiences will likely not be reflected in these findings (Sandelowski, 2000). In other words, restricting responses to the narrow question provided to participants may not sufficiently represent the participants' experiences (Clark & Creswell, 2009). One of the strengths of a qualitative approach was its ability to provide participants the opportunity to express their perspectives and thoughts in their own words. Open-ended questions could engender answers that were meaningful to the participant, and thereby enable a greater understanding of the explored phenomena. Hence, in the future, a similar research topic should consider qualitative research methods to gather a more holistic set of responses from participants (Merriam, 2009).

Conclusion

The findings of the present research revealed a significant relationship between resilience, anxiety, and depression. The SEM models developed to observed the relationships between anxiety, resilience, and depression amongst collegiate athletes at UHM fit the empirical data. Additionally, the research indicated that injured athletes were more susceptible to symptoms of anxiety and depression. Nevertheless, the strongest indicator from the findings was that in both male and female athletes, an individual with greater level of resiliency was more

optimistic and experienced lower levels of anxious and depressed symptoms. The finding was consistent with the literatures concluding that collegiate athletes who developed a resilient mindset not only bounced back from symptoms of anxiety and depression more quickly, they were better prepared to succeed in their future athletic, educational, or occupational goals (Fletcher & Sarkar, 2012). Therefore, this research serves to confirm those findings and encourage collegiate athletes to cope with depression and anxiety by developing a resilient mindset.

The field of positive psychology asserted that positive thinking may help people tremendously improve their resilience and overall well-being (Snyder et al., 2015). This study was done in anticipation that collegiate athletes will learn the power of thinking positively and how to foster that in their lives. Previous literature strongly suggested that when we possess the optimistic thoughts for a long period of time, and align our actions with those thoughts, we are more likely to achieve our personal goals and becoming healthier and happier (Dispenza, 2012). This study encourages more universities in the United States to consider providing a general undergraduate positive psychology class or resilience training program for collegiate athletes and general college students (Fletcher & Sarkar, 2012). Currently a few universities provide positive psychology graduated programs and courses (e.g., Harvard university and the University of Pennsylvania) (University of Pennsylvania, 2021; Harvard Medical School, 2021). Positive psychology classes can provide specific tips for college students and collegiate athletes to improve their positive experiences and foster their psychological resilience (Rutten et al., 2013). The study encouraged added to the body of knowledge on the topics of resilience and positive psychology in order to help more people improve their capacity of resilience to prevent anxiety, depression, and other emotional distresses.

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APPENDIX A - FACTOR ANALYSIS TABLES FOR EACH MEASUREMENT

Table 6.1

Factor patterns for the three-factors model Connor Davidson Resilience Scale 25

Item numbers	Factors			S.E.	Est./S.E.	Two-Tailed P-Value
	I	II	III			
1.Able to adapt change	.656			.058	11.284	.000
2.Close and secure relationship			.647	.066	9.777	.000
3.Sometimes fate or God can help			.158	.092	1.710	.087
4.Can deal with whatever comes		.527		.076	6.962	.000
5.Past success gives confidence for new challenges	.699			.052	13.344	.000
6.See the humorous side of things		.545		.072	7.568	.000
7.Coping with stress can make me stronger		.674		.057	11.723	.000
8.Tend to bounce back after illness or hardships		.696		.053	13.451	.000
9.Things happen for a reason			.534	.080	6.704	.000
10.Best effort no matter what	.713			.051	14.028	.000
11.One can achieve one's goals	.787			.040	19.770	.000
12.When things look hopeless, I don't give up	.776			.042	18.556	.000
13.Know where to get help		.680		.051	14.189	.000
14.Under pressure, focused and think clearly		.735		.048	15.175	.000
15.Prefer to take the lead in problem solving	.605			.064	9.412	.000
16.Not easily discouraged by failure	.747			.046	16.269	.000
17.Think of self as strong person	.697			.052	13.641	.000
18.Make unpopular or difficult decisions	.443			.081	5.466	.000
19.Can handle unpleasant feelings	.504			.075	6.719	.000
20.Have to act on a hunch			.537	.070	7.672	.000
21.Strong sense of purpose	.671			.056	11.940	.000
22.In control of my life	.743			.047	15.911	.000
23.I like challenges	.798			.038	20.803	.000
24.I work to attain my goals	.770			.042	18.154	.000
25.pride in my achievements	.632			.061	10.332	.000

Note: Factor 1: Tenacity and personal competence

Factor 2: Tolerance of negative affect

Factor 3: Tendency toward spirituality

Table 6.2
Factor patterns for the two-factors model Beck Anxiety Inventory

Item numbers	Factors				
	I	II	S.E.	Est./S.E.	Two-Tailed P-Value
1.Numbness or tingling	.388		.089	4.363	.000
2.Feeling hot	.606		.069	8.800	.000
3.Wobbliness in legs		.074	.074	7.420	.000
4.Unable to relax	.7717		.055	13.097	.000
5.Fear of the worst happening	.770		.047	16.234	.000
6.Dizzy or lightheaded		.777	.053	14.543	.000
7.Heart pounding or racing		.784	.047	16.831	.000
8.Unsteady	.414		.089	4.654	.000
9.Terrified	.746		.051	14.678	.000
10.Nervous		.705	.056	12.498	.000
11.Feeling of choking		.557	.074	7.530	.000
12.Hands trembling		.572	.073	7.830	.000
13.Shaky		.631	.068	9.264	.000
14.Fear of losing control	.675		.060	11.198	.000
15.Difficulty breathing	.650		.067	9.656	.000
16.Fear of dying	.301		.093	3.239	.001
17.Scared	.701		.057	12.278	.000
18.Indigestion or discomfort in abdomen		.448	.079	5.682	.000
19.Faint		.639	.065	9.788	.000
20.Face flushed		.580	.072	8.078	.000
21.Sweating (not due to heat)		.357	.094	3.809	.000

Note: Factor 1: Cognitive
 Factor 2: Somatic

Table 6.3

Factor patterns for the two-factors model State Trait Anxiety Scale-Y Trait Anxiety

Item numbers	Factors				
	I	II	S.E.	Est./S.E.	Two-Tailed P-Value
1.I feel pleasant		.799	.038	20.857	.000
2.I feel nervous and restless	.712		.052	13.776	.000
3.I feel satisfied with myself		.844	.031	26.937	.000
4.I wish I could be as happy as others	.762		.045	17.070	.000
5.I feel like a failure	.693		.055	12.708	.000
6.I feel rested		.695	.051	13.906	.000
7.I am “calm, cool, and collected”		.745	.046	16.114	.000
8.I feel that difficulties are piling up that I cannot overcome them	.688		.055	12.568	.000
9.I worry too much over something that really doesn’t matter	.734		.049	15.093	.000
10.I am happy		.655	.059	11.084	.000
11.I have disturbing thoughts	.480		.078	6.143	.000
12.I lack self-confidence	.667		.058	11.545	.000
13.I feel secure		.815	.036	22.710	.000
14.I make decisions easily		.698	.051	13.906	.000
15. I feel inadequate	.760		.044	17.152	.000
16.I am content		.805	.037	21.549	.000
17.Some unimportant thought runs through my mind	.575		.069	8.389	.000
18.I take disappointments so keenly that I can’t let them go	.746		.046	16.114	.000
19.I am a steady person		.682	.055	12.473	.000
20.I get in a state of tension or turmoil as I think over my concerns	.699		.049	15.041	.000

Note: Factor 1: Anxiety Present

Factor 2: Anxiety Absent

Table 6.4
Factor patterns for the two-factors model Beck Depression Inventory-II

Item numbers	Factors				
	I	II	S.E.	Est./S.E.	Two-Tailed P-Value
1.Sadness		.762	.045	17.024	.000
2.Pessimism		.815	.037	22.134	.000
3.Past failure		.695	.054	12.903	.000
4.Loss of pleasure	.673		.056	11.926	.000
5.Guilty feelings		.725	.050	14.410	.000
6.Punishment feelings		.797	.040	20.010	.000
7.Self-dislike		.682	.056	12.220	.000
8.Self-criticalness		.640	.061	10.452	.000
9.Suicidal thoughts or wishes		.438	.082	5.347	.000
10.Crying	.789		.040	19.544	.000
11.Agitation	.731		.049	14.717	.000
12.Loss of Interest	.625		.063	9.997	.000
13.Indecisiveness	.698		.053	13.264	.000
14.Worthlessness		.808	.038	21.174	.000
15.loss of energy	.814		.037	22.134	.000
16.Changes in sleeping pattern	.656		.059	11.169	.000
17.Irritability	.607		.065	9.390	.000
18.Changes in Appetite	.529		.073	7.229	.000
19.Concentration difficulty	.793		.040	19.865	.000
20.Tiredness of fatigue	.734		.049	15.065	.000
21.Loss of interest in sex	.465		.079	5.863	.000

Note: Factor 1: Somatic
 Factor 2: Cognitive

Table 6.5

Factor patterns for the two-factors model State Trait Anxiety Scale-Y State Anxiety

Item numbers	Factors		S.E.	Est./S.E.	Two-Tailed P-Value
	I	II			
1.I feel calm		.762	.043	17.571	.000
2.I feel secure		.730	.048	15.219	.000
3.I am tense	.684		.057	11.973	.000
4.I feel strained	.559		.072	7.761	.000
5.I feel at ease		.820	.035	23.679	.000
6.I feel upset	.666		.059	11.299	.000
7.I am presently worrying over possible misfortunes	.800		.041	19.503	.000
8.I feel satisfied		.767	.043	18.006	.000
9.I feel frightened	.650		.062	10.526	.000
10.I feel comfortable		.748	.045	16.461	.000
11. I feel self-confident		.750	.045	16.669	.000
12.I feel nervous	.699		.055	12.756	.000
13.I am jittery	.617		.066	9.414	.000
14.I feel indecisive	.683		.057	11.960	.000
15.I am relaxed		.829	.033	24.864	.000
16.I feel content		.843	.031	27.197	.000
17.I am worried	.701		.055	12.798	.000
18.I feel confused	.622		.065	9.627	.000
19.I feel steady		.799	.038	21.037	.000
20.I feel pleasant		.875	.026	33.685	.000

Note: Factor 1: Anxiety Present

Factor 2: Anxiety Absent

APPENDIX B - MEASUREMENTS FOR THE STUDY

Beck Depression Inventory II (BDI-II)

<h1 style="margin: 0;">BDI-2</h1>	Date: <input style="width: 100%;" type="text"/>
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Name: _____ Marital Status: _____ Age: _____ Sex: _____

Occupation: _____ Education: _____

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

<p>1. Sadness</p> <ul style="list-style-type: none"> 0 I do not feel sad. 1 I feel sad much of the time. 2 I am sad all the time. 3 I am so sad or unhappy that I can't stand it. <p>2. Pessimism</p> <ul style="list-style-type: none"> 0 I am not discouraged about my future. 1 I feel more discouraged about my future than I used to be. 2 I do not expect things to work out for me. 3 I feel my future is hopeless and will only get worse. <p>3. Past Failure</p> <ul style="list-style-type: none"> 0 I do not feel like a failure. 1 I have failed more than I should have. 2 As I look back, I see a lot of failures. 3 I feel I am a total failure as a person. <p>4. Loss of Pleasure</p> <ul style="list-style-type: none"> 0 I get as much pleasure as I ever did from the things I enjoy. 1 I don't enjoy things as much as I used to. 2 I get very little pleasure from the things I used to enjoy. 3 I can't get any pleasure from the things I used to enjoy. <p>5. Guilty Feelings</p> <ul style="list-style-type: none"> 0 I don't feel particularly guilty. 1 I feel guilty over many things I have done or should have done. 2 I feel quite guilty most of the time. 3 I feel guilty all of the time. 	<p>6. Punishment Feelings</p> <ul style="list-style-type: none"> 0 I don't feel I am being punished. 1 I feel I may be punished. 2 I expect to be punished. 3 I feel I am being punished. <p>7. Self-Dislike</p> <ul style="list-style-type: none"> 0 I feel the same about myself as ever. 1 I have lost confidence in myself. 2 I am disappointed in myself. 3 I dislike myself. <p>8. Self-Criticalness</p> <ul style="list-style-type: none"> 0 I don't criticize or blame myself more than usual. 1 I am more critical of myself than I used to be. 2 I criticize myself for all of my faults. 3 I blame myself for everything bad that happens. <p>9. Suicidal Thoughts or Wishes</p> <ul style="list-style-type: none"> 0 I don't have any thoughts of killing myself. 1 I have thoughts of killing myself, but I would not carry them out. 2 I would like to kill myself. 3 I would kill myself if I had the chance. <p>10. Crying</p> <ul style="list-style-type: none"> 0 I don't cry any more than I used to. 1 I cry more than I used to. 2 I cry over every little thing. 3 I feel like crying, but I can't.
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Subtotal Page 1 Continued on Back

11. Agitation

- 0 I am no more restless or wound up than usual.
- 1 I feel more restless or wound up than usual.
- 2 I am so restless or agitated that it's hard to stay still.
- 3 I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest

- 0 I have not lost interest in other people or activities.
- 1 I am less interested in other people or things than before.
- 2 I have lost most of my interest in other people or things.
- 3 It's hard to get interested in anything.

13. Indecisiveness

- 0 I make decisions about as well as ever.
- 1 I find it more difficult to make decisions than usual.
- 2 I have much greater difficulty in making decisions than I used to.
- 3 I have trouble making any decisions.

14. Worthlessness

- 0 I do not feel I am worthless.
- 1 I don't consider myself as worthwhile and useful as I used to.
- 2 I feel more worthless as compared to other people.
- 3 I feel utterly worthless.

15. Loss of Energy

- 0 I have as much energy as ever.
- 1 I have less energy than I used to have.
- 2 I don't have enough energy to do very much.
- 3 I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

- 0 I have not experienced any change in my sleeping pattern.

- 1a I sleep somewhat more than usual.
- 1b I sleep somewhat less than usual.

- 2a I sleep a lot more than usual.
- 2b I sleep a lot less than usual.

- 3a I sleep most of the day.
- 3b I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

- 0 I am no more irritable than usual.
- 1 I am more irritable than usual.
- 2 I am much more irritable than usual.
- 3 I am irritable all the time.

18. Changes in Appetite

- 0 I have not experienced any change in my appetite.

- 1a My appetite is somewhat less than usual.
- 1b My appetite is somewhat greater than usual.

- 2a My appetite is much less than before.
- 2b My appetite is much greater than usual.

- 3a I have no appetite at all.
- 3b I crave food all the time.

19. Concentration Difficulty

- 0 I can concentrate as well as ever.
- 1 I can't concentrate as well as usual.
- 2 It's hard to keep my mind on anything for very long.
- 3 I find I can't concentrate on anything.

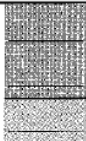
20. Tiredness or Fatigue

- 0 I am no more tired or fatigued than usual.
- 1 I get more tired or fatigued more easily than usual.
- 2 I am too tired or fatigued to do a lot of the things I used to do.
- 3 I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

- 0 I have not noticed any recent change in my interest in sex.
- 1 I am less interested in sex than I used to be.
- 2 I am much less interested in sex now.
- 3 I have lost interest in sex completely.

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Subtotal Page 2

Subtotal Page 1

Total Score

281263-4 6543

Beck Anxiety Inventory (BDI)



NAME _____ DATE _____

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by each symptom during the PAST WEEK, INCLUDING TODAY, by placing an X in the corresponding space in the column next to each symptom.

	NOT AT ALL	MILDLY <small>It did not bother me much.</small>	MODERATELY <small>It was very unpleasant, but I could stand it.</small>	SEVERELY <small>I could barely stand it.</small>
1. Numbness or tingling.				
2. Feeling hot.				
3. Wobbliness in legs.				
4. Unable to relax.				
5. Fear of the worst happening.				
6. Dizzy or lightheaded.				
7. Heart pounding or racing.				
8. Unsteady.				
9. Terrified.				
10. Nervous.				
11. Feelings of choking.				
12. Hands trembling.				
13. Shaky.				
14. Fear of losing control.				
15. Difficulty breathing.				
16. Fear of dying.				
17. Scared.				
18. Indigestion or discomfort in abdomen.				
19. Faint.				
20. Face flushed.				
21. Sweating (not due to heat).				



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56 57 58 59 60 61 62 63 64 65 66 67 68 A B C D E 281553-4 654321

Product Number 0158018427

Connor-Davidson Resilience Scale 25 (CD-RISC 25)

Connor-Davidson Resilience Scale 25 (CD-RISC-25) ©

For each item, please mark an "x" in the box below that best indicates how much you agree with the following statements as they apply to you over the last **month**. If a particular situation has not occurred recently, answer according to how you think you would have felt.

	not true at all (0)	rarely true (1)	sometimes true (2)	often true (3)	true nearly all the time (4)
1. I am able to adapt when changes occur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I have at least one close and secure relationship that helps me when I am stressed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. When there are no clear solutions to my problems, sometimes fate or God can help.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I can deal with whatever comes my way.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Past successes give me confidence in dealing with new challenges and difficulties.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I try to see the humorous side of things when I am faced with problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Having to cope with stress can make me stronger.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I tend to bounce back after illness, injury, or other hardships.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Good or bad, I believe that most things happen for a reason.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I give my best effort no matter what the outcome may be.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I believe I can achieve my goals, even if there are obstacles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Even when things look hopeless, I don't give up.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. During times of stress/crisis, I know where to turn for help.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Under pressure, I stay focused and think clearly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. I prefer to take the lead in solving problems rather than letting others make all the decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I am not easily discouraged by failure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. I think of myself as a strong person when dealing with life's challenges and difficulties.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. I can make unpopular or difficult decisions that affect other people, if it is necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I am able to handle unpleasant or painful feelings like sadness, fear, and anger.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. In dealing with life's problems, sometimes you have to act on a hunch without knowing why.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. I have a strong sense of purpose in life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. I feel in control of my life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. I like challenges.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. I work to attain my goals no matter what roadblocks I encounter along the way.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. I take pride in my achievements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Add up your score for each column 0 + ____ + ____ + ____ + ____

Add each of the column totals to obtain CD-RISC score = _____

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01-01-18

State-Trait Anxiety Inventory-State Anxiety Scale (STAI Form Y-1)

SELF-EVALUATION QUESTIONNAIRE STAI Form Y-1

Please provide the following information:

Name _____ Date _____ S _____
 Age _____ Gender (Circle) M F T _____

DIRECTIONS:

A number of statements which people have used to describe themselves are given below. Read each statement and then blacken the appropriate circle to the right of the statement to indicate how you feel *right* now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

NOT AT ALL
 SOMEWHAT
 MODERATELY SO
 VERY MUCH SO

- | | | | | |
|--|---|---|---|---|
| 1. I feel calm | 1 | 2 | 3 | 4 |
| 2. I feel secure | 1 | 2 | 3 | 4 |
| 3. I am tense | 1 | 2 | 3 | 4 |
| 4. I feel strained | 1 | 2 | 3 | 4 |
| 5. I feel at ease | 1 | 2 | 3 | 4 |
| 6. I feel upset | 1 | 2 | 3 | 4 |
| 7. I am presently worrying over possible misfortunes | 1 | 2 | 3 | 4 |
| 8. I feel satisfied | 1 | 2 | 3 | 4 |
| 9. I feel frightened | 1 | 2 | 3 | 4 |
| 10. I feel comfortable | 1 | 2 | 3 | 4 |
| 11. I feel self-confident | 1 | 2 | 3 | 4 |
| 12. I feel nervous | 1 | 2 | 3 | 4 |
| 13. I am jittery | 1 | 2 | 3 | 4 |
| 14. I feel indecisive | 1 | 2 | 3 | 4 |
| 15. I am relaxed | 1 | 2 | 3 | 4 |
| 16. I feel content | 1 | 2 | 3 | 4 |
| 17. I am worried | 1 | 2 | 3 | 4 |
| 18. I feel confused | 1 | 2 | 3 | 4 |
| 19. I feel steady | 1 | 2 | 3 | 4 |
| 20. I feel pleasant | 1 | 2 | 3 | 4 |

Sample

State-Trait Anxiety Inventory-Trait Anxiety Scale (STAI Form Y-2)

SELF-EVALUATION QUESTIONNAIRE STAI Form Y-1

Please provide the following information:

Name _____ Date _____ S _____

Age _____ Gender (Circle) **M** **F** T _____

DIRECTIONS:

A number of statements which people have used to describe themselves are given below. Read each statement and then blacken the appropriate circle to the right of the statement to indicate how you feel *right now*, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

NOT AT ALL
 SOMEWHAT
 MODERATELY SO
 VERY MUCH SO

- | | | | | |
|---|---|---|---|---|
| 1. I feel calm..... | 1 | 2 | 3 | 4 |
| 2. I feel secure..... | 1 | 2 | 3 | 4 |
| 3. I am tense..... | 1 | 2 | 3 | 4 |
| 4. I feel strained..... | 1 | 2 | 3 | 4 |
| 5. I feel at ease..... | 1 | 2 | 3 | 4 |
| 6. I feel upset..... | 1 | 2 | 3 | 4 |
| 7. I am presently worrying over possible misfortunes..... | 1 | 2 | 3 | 4 |
| 8. I feel satisfied..... | 1 | 2 | 3 | 4 |
| 9. I feel frightened..... | 1 | 2 | 3 | 4 |
| 10. I feel comfortable..... | 1 | 2 | 3 | 4 |
| 11. I feel self-confident..... | 1 | 2 | 3 | 4 |
| 12. I feel nervous..... | 1 | 2 | 3 | 4 |
| 13. I am jittery..... | 1 | 2 | 3 | 4 |
| 14. I feel indecisive..... | 1 | 2 | 3 | 4 |
| 15. I am relaxed..... | 1 | 2 | 3 | 4 |
| 16. I feel content..... | 1 | 2 | 3 | 4 |
| 17. I am worried..... | 1 | 2 | 3 | 4 |
| 18. I feel confused..... | 1 | 2 | 3 | 4 |
| 19. I feel steady..... | 1 | 2 | 3 | 4 |
| 20. I feel pleasant..... | 1 | 2 | 3 | 4 |

Sample