COLLEGE STUDENT-ATHLETE PERFECTIONISM AND MENTAL HEALTH

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ABSTRACT

Student-athletes face unique challenges balancing sport and academic responsibilities, leaving them potentially more vulnerable to negative mental health outcomes. Managing these challenges may lend itself to utilizing perfectionistic tendencies to achieve desired academic and athletic standards, which may exacerbate mental health issues for student-athlete populations. The current study investigated the hypothetical link between domain-specific perfectionism and mental health (anxiety and depression). In the study, 118 participants completed three self-report surveys which included the adapted Frost Multidimensional Perfectionism Scale (FMPS) the Sport Multidimensional Perfectionism Scale (Sport-MPS-2), and the shortened version of the Depression Anxiety Stress Scale (DASS-21). To test the main hypothesis, groupings of different levels (high, moderate, and low) of academic perfectionism and athletic perfectionism were compared in relation to the response variables of anxiety and depression. A 3x3 MANOVA found significant differences in anxiety and depression based on participants' levels of academic perfectionism. Athletes in the high academic perfectionism group had significantly higher anxiety and depression levels when compared to athletes in the moderate and low academic perfectionism groups. Further understanding of student-athlete multidimensional perfectionism in relation to mental health could help facilitate increasingly specialized mental health treatment for student-athletes that is tailored to their specific psychological dispositions.

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Dedication

I dedicate this thesis to my parents and sister. They have been with me and supported me at every step of this winding path that I continue to traverse. My sister Miya, who is my best friend and confidant, was a key inspiration for the creation of this thesis. I also dedicate this thesis to all of my peers, teachers, professors, coaches, and role-models in my life that have helped to guide and shape me into the person that I am today. Finally, I would like to dedicate this work to the participants in this study. This research simply would not have been possible without their thoughtful responses.

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Next, I would like to thank Dr. Pacewicz, who was the co-chair for my thesis. She provided a wonderful and enriching academic introduction to the field of sport psychology and research for me. Her well-taught classes helped me to find my interest in student-athlete perfectionism and getting my initial research idea off the ground. Her input regarding my research design was critical to the success of this thesis.

Finally, I would like to thank Dr. Maddox, who was my third member of my thesis committee and a valued humanities ally. Sport psychology is firmly a social science, so part of me missed direct engagement with concepts from the humanities that help inform thoughtful interpretations of the world around us. Dr. Maddox's sociology of sport class and her presence in the SLAM department encouraged me to maintain a style of critical thinking that is emblematic of the teachings of humanities, regardless of the specific discipline.

CHAPTER 1
INTRODUCTION & REVIEW OF LITERATURE

Student-athlete is a term often used to describe a varsity college athlete that is completing coursework in a higher education setting. Such a role requires mental and physical guile to successfully balance a considerable academic and athletic workload (Armstrong & Oomen-Early, 2009). Student-athletes certainly face intense demands of their time and energy. Student-athletes also participate in clubs, music/theater groups, work, Greek life, and research on top of their normal academic and athletic responsibilities.

One would expect that a certain segment of student-athletes internalizes both high academic and athletic expectations, and this would result in manifestation of multi-faceted perfectionistic tendencies. Understanding the impact of this development on student-athlete mental health is especially important considering soaring cases of anxiety and depression among the general college student population (Davoren & Hwang, 2014; Goldman, 2014). The rise of mental health issues on college campuses likely translates to increased risk for NCAA student-athletes (Kilcullen et al., 2022; NCAA, n.d.). Student-athletes face distinct demands that require focused research to identify the potentially debilitating psychological consequences of perfectionistic behaviors occurring within both an academic and athletic environment. Thus, the purpose of this study was to examine differences in mental health in the form of anxiety and depression in college athletes based on their levels of academic and athletic perfectionism.

In this chapter, relevant research and theory are discussed in relation to the purpose of the study. First, definitions, conceptual models, and relevant research in the area of perfectionism are discussed. Second, important aspects of mental health in college student-athletes are discussed, with a specific focus on anxiety and depression. Finally, the purpose and hypothesis of the study are presented.

Perfectionism

Perfectionism is a personality trait that is defined and modeled in several different and sometimes conflicting manners (Stoeber & Otto, 2006). For this study, we will focus on a multidimensional definition of perfectionism that incorporates the maladaptive behavior associated with the trait. Generally, perfectionism is believed to made up of two higher order dimensions, perfectionistic strivings and perfectionistic concerns with the former viewed as an adaptive trait, and the latter as a maladaptive trait (Madigan, 2019). Perfectionistic strivings can

be defined as setting extremely high standards of performance for oneself (Frost et al., 1990; Stoeber, 2012; Stoeber & Otto, 2006). Perfectionistic concerns can be defined as concerns over mistakes, doubting one's actions, fear of negative evaluation from parents or others, and a discrepancy between expectation and performance (Frost et al., 1990; Stoeber, 2012).

Frost et al. (1990) Multidimensional Perfectionism

Frost and colleagues (1990) explicitly define multidimensional perfectionism as setting exceedingly high standards of perfectionism coupled with a tendency to evaluate one's own behavior in an overly critical manner. Their perfectionism construct contains six different dimensions with one dimension (i.e., personal standards) relating to the high standards portion of their perfectionism definition, and the other five dimensions (i.e., concerns over mistakes, doubts about actions, parental expectations, parental criticism, and organization) relate to the critical evaluation portion of their perfectionism definition.

The first dimension is personal standards which relates to setting high standards for oneself. Perfectionistic individuals often set high standards for themselves as a means for acquiring social acceptance, recognition or self-worth. (Hall, 2019). However, it is important to note that only having high personal standards does not make someone perfectionistic because healthy high achievers often set high standards for themselves. The second dimension is concern over mistakes, and this relates to the idea that perfectionistic individuals will see any perceived mistakes as falling short of their lofty standards. This dimension along with the ensuing ones showcase the differentiation between high achievers and perfectionistic individuals through their connection to being overly critical of one's own behavior, which relates to the higher order perfectionistic concerns dimension. A third dimension is doubt about action, which relates to the idea that one's work is not satisfactorily completed, so this leads to difficulty in believing that they have truly completed a task.

The fourth and fifth dimensions are parental expectations and parental criticism, and these two dimensions are interrelated. A child aims to exceed a parent's expectations and minimize the chance of receiving parental criticism by reaching a parent's "standards." In this family environment, a child could also view their parents' love as contingent on whether or not the child's behavior reaches the standard of approval from the parent(s). A sixth and final dimension of perfectionism discussed by Frost and colleagues (1990) is organization, which relates to an over-emphasis on neatness, and order in one's external environment. This

dimension lacked a direct connection to the central perfectionism definition, and Frost and colleagues (1990) acknowledged that organization was neither strongly correlated with overall perfectionism nor with most other perfectionism dimensions.

Hewitt and Flett (1991) Multidimensional Perfectionism

As just discussed, Frost et al.'s (1990) multidimensional perfectionism largely focuses on the self's creation of perfectionistic behaviors. In another conceptualization of perfectionism, Hewitt and Flett (1991) provide a valuable model of multidimensional perfectionism that incorporates perfectionistic behavior related to external, social actors that are not necessarily parents. The theory forwarded by Hewitt and Flett (1991) focuses on three posited dimensions of perfectionism: self-oriented, other-oriented, and socially-prescribed. Self-oriented perfectionism links to setting demanding standards for oneself, and strictly judging, and condemning one's own behavior, which shares great similarity with parts of the Frost et al. (1990) definition of multidimensional perfectionism. Socially-prescribed perfectionism connects to our perception of significant others imposing high expectations, and strictly appraising an individual, which in turn pressures that individual to aim to achieve unrealistically high excellence. Other-oriented perfectionism relates to holding unrealistic expectations of others, believing that others being perfect is important, and utilizing unrealistic expectations to rigorously assess others (Hewitt & Flett, 1991).

In perfectionism meta-analyses or reviews, different dimensions across different constructions of multi-dimensional perfectionism are usually sorted into the two higher order perfectionism dimensions of perfectionistic strivings and perfectionistic concerns. In the case of Hewitt and Flett (1991) multidimensional perfectionism, self-oriented perfectionism relate to perfectionistic strivings (adaptive), while socially-prescribed perfectionism relate to perfectionistic concerns (maladaptive) (Madigan, 2019; Stoeber & Otto, 2006). Appleton et al. (2010) utilized Hewitt and Flett (1991) multidimensional perfectionism to inform their inquiry of parent and child relations and the subsequent determination of whether social expectations or social learning play a larger role in the development of children's perfectionistic tendencies. Socially-prescribed perfectionism could be quite important when considering the origins of academic perfectionism. In one study, Asian-Americans were disproportionately represented in high perfectionistic profiles. These findings could be a result of Asian socio-cultural values that view academic achievement as paramount (Lee, 2015; Lin & Muenks, 2022).

Tripartite and 2x2 Perfectionism Models

Stoeber et al. (2007) created the Tripartite Perfectionism Model to convey that perfectionism is a multi-dimensional personality trait that contains "adaptive" and "maladaptive" profiles. The model suggests that perfectionism is not an inherently maladaptive trait, and that by separating different dimensions of perfectionism it becomes clear that perfectionistic tendencies can be both adaptive and maladaptive. Their focus was on striving for perfection, and negative reactions to imperfection. The former relates to Frost and colleagues' (1990) perfectionistic strivings, and the latter relates to their conceptualization of perfectionistic concerns.

The Tripartite Perfectionism Model has three components (see Figure 1). The first component is "adaptive" perfectionism, which relates to higher levels of striving for perfection and lower levels of negative reactions to imperfection. The second component is "maladaptive" perfectionism, which relates to higher levels of striving for perfection and negative reactions to imperfection. The third and final component is non-perfectionism, which relates to the other two combinations of high and low levels of striving for perfection and negative reactions to imperfection. The main point of the model is to show that high levels of striving for perfection are adaptive unless they are accompanied by high levels of negative reactions to imperfection, because in conjunction they will relate to maladaptive outcomes.

The 2x2 Perfectionism Model was developed by Gaudreau and Thompson (2010) to illustrate different within-person perfectionism profiles that are determined by one's high or low evaluative concerns perfectionism (ECP) and personal standards perfectionism (PSP) (see Figure 1). Their definition of PSP is closely analogous to the personal standards perfectionism dimension taken from the Frost and colleagues' (1990) multidimensional perfectionism, and this dimension has generally been viewed as more adaptive (Madigan, 2019; Stoeber & Otto, 2006). Interestingly, the Gaudreau and Thompson (2010) definition of ECP took perfectionism dimensions from the Frost and colleagues' (1990) multidimensional perfectionism along with Hewitt and Flett's (1991) multidimensional perfectionism. They utilized the socially prescribed perfectionism dimension from Hewitt and Flett (1991), and combined it with the doubts about actions, and concerns over mistakes perfectionism dimensions from Frost and colleagues (1990). The 2x2 Perfectionism Model was partially developed as a critique and expansion upon the Tripartite Perfectionism Model by denoting pure ECP as a separate construct from non-perfectionism (Gaudreau & Thompson, 2010; Stoeber et al., 2007).

In the 2x2 Perfectionism Model there are four different perfectionism subtypes. The first subtype is non-perfectionism which relates to low evaluative concerns perfectionism and personal standards perfectionism. The second subtype is pure evaluative concerns perfectionism which relates to high evaluative concerns perfectionism and low personal standards perfectionism. The third subtype is pure personal standards perfectionism which relates to low evaluative concerns perfectionism and high personal standards perfectionism. The fourth and final subtype is mixed perfectionism which relates to high evaluative concerns perfectionism and personal standards perfectionism.

Gaudreau and Thompson (2010) found that the pure personal standards perfectionism subtype related to higher self-determination, academic satisfaction, general positive affect, academic goal progress, and lower negative affect in comparison to the other three perfectionism subtypes. Pure evaluative concerns perfectionism had more maladaptive associations across all adjustment measures (except for negative affect) in comparison to the other three perfectionism subtypes. Research has validated the 2x2 Perfectionism Model by using cluster analyses to see if four distinct constructs consistent with the model emerge from the data (Cumming & Duda, 2012; Nordin-Bates et al., 2017).

Figure 1

Tripartite Model and 2x2 Perfectionism Models

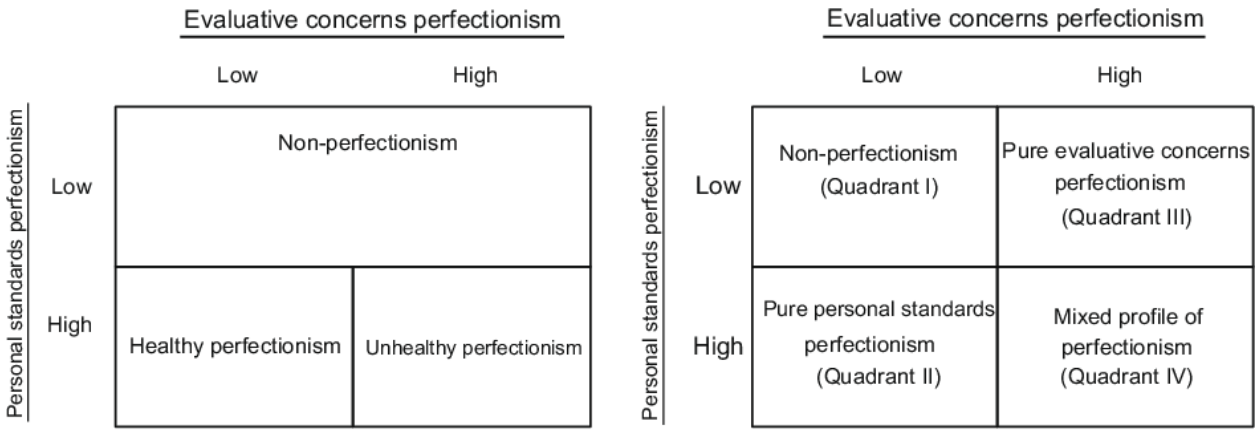

Fig. 1. Comparison of the tripartite model (left) and the 2 × 2 model of perfectionism (right).

Note. This model was produced by Gaudreau and Thompson in 2010 to show a visual comparison of their 2x2 Perfectionism Model with the Tripartite Model developed in 2007. From "Testing a 2x2 model of dispositional perfectionism," by P. Gaudreau and A. Thompson, 2010, *Personality and Individual Differences*, *48*(5), p. 533. Copyright 2009 by Elsevier Limited.

Hall (2019) highlighted the development of the Tripartite, and 2x2 Perfectionism models to showcase the different approaches researchers are taking to delineate different perfectionism profiles. The models separate different forms of perfectionism to provide researchers in the area clearer frameworks to work from to facilitate deeper and more nuanced understanding of adaptive and maladaptive aspects of multidimensional perfectionism.

Multidimensional Perfectionism's Complexities

Frost et al. (1990) defined perfectionism as both the desire to perform at high levels, and a strong inclination towards harshly evaluating one's own behavior. However, this definition has been altered by other perfectionism theorists with the desire of adding nuance to the definition of perfectionism, and to standardize the study of the personality trait (Gaudreau & Thompson, 2010; Stoeber et al., 2007). There is considerable debate regarding the boundaries of perfectionism, and whether the "essence" of the trait is being fully captured in current research (Hall, 2019; Stoeber & Otto, 2006). Some literature has called into question the labeling of perfectionistic strivings as "good", and perfectionistic concerns as "bad" by highlighting the complex and contradictory relationship between perfectionistic strivings and perfectionistic concerns (Hall, 2019; Madigan, 2019).

Although perfectionistic concerns have been consistently found as maladaptive across various domains, there is still considerable uncertainty regarding the long-term effects of perfectionistic strivings because there is limited longitudinal research that has looked at its impact (Hall, 2019; Hill et al., 2019; Madigan, 2019; Stoeber & Otto, 2006). Additionally, in more recent perfectionism research, partialling out shared variance between perfectionistic strivings and perfectionistic concerns has become common during data analysis. The "pure" perfectionistic strivings and perfectionistic concerns consistently strengthen perfectionistic strivings' relationship with positive outcomes and similarly strengthen perfectionistic concerns' relationships with negative outcomes (Hill et al., 2019; Madigan, 2019). However, the usefulness of these findings is questionable because the practice dichotomizes the impact of perfectionistic

strivings and perfectionistic concerns, and therefore minimizes the inherent ambiguity of the personality trait's impact on an individual. This is also the primary issue with perfectionism profiles because the different profiles convolute the original Frost and colleagues (1990) definition of perfectionism which suggests that a perfectionistic individual must possess both high personal standards and high evaluative concerns.

Hall (2019) argues that by combining perfectionistic concerns and perfectionistic strivings, perfectionism's meaning maintains a dual nature, but is informed by a confluence of various factors. One cannot simply remove perfectionistic concerns from one's definition of perfectionism without fundamentally changing perfectionism's meaning. Additionally, the concept of contingent self-worth pervades throughout both perfectionistic strivings and perfectionistic concerns (Hall, 2019; Shafran et al., 2010). Actions related to maintaining high standards and being overly concerned with making mistakes function as a means of shielding one's self-worth. Perfectionists likely develop contingent self-worth through a combination of innate and parental influences (Burns, 1980). With all of this in mind, the current research will align with the Frost et al. (1990) definition of perfectionism that incorporates perfectionistic strivings and concerns. Hopefully the current research study spurs further interest in painting a more holistic picture of the student-athlete experience with an emphasis on the *student* aspect.

Perfectionism in School

Lin and Muenks (2022) suggest that the study of perfectionism has increased substantially over the past 30 years, but limited work has been done to look at academic perfectionism. However, Madigan (2019) completed a meta-analysis analyzing perfectionism's relationship with academic achievement and found that perfectionistic strivings had a medium to large positive relationship with academic achievement. He also found that perfectionistic concerns and academic achievement shared a relatively small negative relationship.

As is the case in other discourse regarding perfectionism, there are different ways that perfectionism has been measured in the study of academic perfectionism. Regardless, perfectionistic strivings and concerns are still key concepts utilized to classify perfectionistic traits or profiles (Han et al., 2022; Lin & Muenks, 2022). Lin and Muenks (2022) found that maladaptive academic indicators relate to perfectionistic traits and have been linked to negative affect and avoidant behavior. These findings could be exacerbated by the inclusion of athletic stressors as well. However, in their analysis, the researchers only looked at general college

students, and limited research has combined both academic perfectionism and athletic perfectionism in their inquiry.

Student-Athlete Perfectionism

The current study aims to enhance our understanding of differences that can occur in mental health in a college student-athlete population based on domain-specific perfectionism. This research followed a similar line of inquiry as that undertaken by Dunn and colleagues (2005, 2012). Both studies investigated the concept of domain-specific perfectionism by looking at academic and athletic perfectionism in college student-athletes. Dunn and colleagues (2005) also separately scored the subscales of the Hewitt-Flett Multidimensional Perfectionism Scale (HF-MPS) for their analysis of global perfectionism, and domain-specific perfectionism (i.e. academic and athletic perfectionism). Dunn and colleagues (2005) findings suggested that student-athletes showed significantly different levels of perfectionistic tendencies in different achievement domains. In a subsequent study by Dunn and colleagues (2012), they found that how student-athletes weighed perceived competence and perceived importance of athletics and academics (in relation to one another) influenced the predicted levels of HF-MPS domain-specific dimensions (except for other-oriented perfectionism, which did not relate to perceived competence).

The novelty of the current study is that it expands upon previous research to investigate the relationship between domain-specific perfectionism and indices of mental health. There is ample literature that has looked at the link between perfectionism and mental health in athletic populations (Carter & Weissbrod, 2011; Hill et al., 2018; Nixdorf et al., 2020; Shanmugam et al., 2011; Stoeber et al., 2007). However, there is limited research that has looked at domain-specific perfectionism in relation to mental health. There may be different impacts on mental health based on the specific areas in which perfectionistic tendencies manifest for student-athletes.

Mental Health of Student Athletes

Ample literature has aimed to gain a better understanding of student-athlete mental health (Armstrong & Oomen-Early, 2009; Davoren & Hwang, 2014; Pennington & Castor, 2022; Stokowski et al., 2022). This research has focused on how certain athlete circumstances and attributes impact their mental health outcomes. In general, these studies struggled to find evidence that student-athletes experience greater mental health problems, despite the burden of huge commitments of time and energy that college sports require. A few protective factors

against mental health issues for student-athletes were posited to explain such findings, and those included greater social-connectedness, self-esteem, and awareness and availability of mental health resources. The potential influence of both positive and negative factors that may shape student-athlete mental health limits our ability to draw firm conclusions regarding student-athlete propensity towards mental health problems, especially considering that many studies rely on self-report surveys to obtain data (Armstrong & Oomen, 2009; Davoren & Hwang, 2014; Goldman, 2014; Han et al., 2022; Kilcullen et al., 2022; Madigan, 2019).

However, there is evidence that stigma plays a large role in young adults feeling unable to seek out the help they may need (Gulliver et al., 2010). Additionally, there is evidence to suggest that NCAA Division I, II, and III student-athletes perceive mental health as stigmatized on both public and personal levels (Hilliard et al., 2022; Kaier et al., 2015). College athletes also perceive a greater stigma associated with mental health in comparison to their non-athlete peers, and they also seek out campus mental health service less than their non-athlete peers (Kaier et al., 2015). Exposure and education have been indicated as two potential solutions that could help reduce mental health stigma in college student athletes (Chow et al., 2020; Hilliard et al., 2022). This current study does not aim to resolve this complex issue, but instead will differentiate student-athletes by levels of athletic perfectionism and academic perfectionism to see if there are differences in levels of anxiety, or depression among the different groups.

Depression can be generally defined as a persistent low mood coupled with a strong disinterest in completing daily habitual responsibilities. It is the most commonly diagnosed mental disorder in the United States. Ibrahim et al.'s (2013) systematic review of the college student depression literature found depression prevalence ranging from 10% to 85%. Sample and measurement differences likely explain the high variability in depression prevalence across the different studies included in the review. Beiter and colleagues (2015) found that 11% of a sample of undergraduate students indicated that they experienced severe or extremely severe levels of depression. Notably, that study used the Depression, Anxiety and Stress Scale (DASS-21) to measure mental health constructs, and the same scale was utilized in the current study. Even though qualitative descriptors are attributed to different levels of scores, the DASS-21 is not designed to identify or measure clinical depression or anxiety (Lovibond & Lovibond, 1995). College student-athletes have been found to experience both higher and lower levels of depression compared to the rest of the student body (Armstrong & Oomen, 2010; Storch et al.,

2005). These conflicting findings are emblematic of the opaqueness and dearth of literature concerning student-athlete depression.

Anxiety can be generally defined as strong feelings of future-oriented fear stemming from one's perception of their ability to handle a specific environmental stressor. This current study will focus specifically on state anxiety, but it is important to acknowledge that there are various forms of anxiety that can impact an individual in different manners. College students often experience anxiety due to financial, academic and social stressors (Jones et al., 2018; Vitasari et al., 2010). A recent systematic review found that 39% of college students experienced anxiety symptoms across the different reviewed studies (Fernandes et al., 2018). Demographic information and the type of depression scale mediated the levels of anxiety experienced by college students. Beiter and colleagues (2015) also found that 15% of their undergraduate sample experienced severe or extremely severe anxiety. The current study did not compare student-athletes with non-student-athletes in terms of levels of state anxiety, but this study may contribute to the understanding of student-athletes and state anxiety.

State anxiety can be more easily defined through comparison with trait anxiety. State anxiety is a form of anxiety that is bound to specific moments in time, so one's state anxiety can fluctuate considerably based on the current state of one's environment. Trait anxiety instead represents a more permanent predisposition towards having a certain baseline level of anxiety towards a given situation. The distinction is important because the DASS-21 measures state anxiety. Also, from a practical standpoint, sport psychology interventions have focused on managing state anxiety in athletes for a long time. Again, it is important to underline that state anxiety differs greatly from clinical forms of anxiety like generalized anxiety disorder or social anxiety disorder, so the current study was not designed to explore clinical implications.

In this study, differences in levels of state anxiety and depression were analyzed in relation to a student-athlete's level of athletic and academic perfectionism. Perfectionism is a personality trait that is associated with maladaptive behaviors and negative mental health outcomes that maps on well within the context of the demanding student-athlete environment. "Unhealthy perfectionism" has been defined as a propensity towards high perfectionistic strivings, and high perfectionistic concerns (Stoeber & Otto, 2006). While healthy perfectionism relates to high perfectionistic strivings and lessened perfectionistic concerns (Stoeber et al.,

2007). Therefore, we could posit that higher total perfectionism scores could relate to negative health effects such as increased anxiety and depression levels.

The Hill et al. (2018) meta-analytic review showed that research literature relating perfectionism to anxiety and depression in athlete populations is relatively sparse. However, the review did provide useful information regarding the relationship of perfectionistic strivings and perfectionistic concerns with well-being. Hill et al. (2018) also made a point to look at the relationships after deciding to partial out shared variance between perfectionistic strivings and perfectionistic concerns. This technique isolates "pure" perfectionistic strivings and perfectionistic concerns when analyzing their relationship with the well-being variable.

Participants from studies included in the meta-analysis varied significantly and included junior, adolescent, high school, college, and adult athletes. The inclusion of a wide scope of athletes is an important factor to consider when interpreting the results of the meta-analysis. Regardless, the Hill et al. (2018) findings suggested that perfectionistic strivings had a negligible to small positive relationship with depression and somatic, trait, and cognitive anxiety. After partialling out the shared variance between perfectionistic strivings and perfectionistic concerns, residual perfectionistic strivings showed a negligible to small negative relationship with depression and somatic, and cognitive anxiety. Residual perfectionistic concerns had a similar medium to large positive relationship with depression and somatic, trait, and cognitive anxiety. These findings suggest that perfectionistic concerns has a discernible negative relationship with mental health, while the relationship between perfectionistic strivings and mental health is more neutral.

Notably, studies analyzing the relationship between perfectionism and anxiety and depression variables have been quite different in terms of their measures of perfectionism, anxiety, and depression (Carter & Weissbrod, 2011; Nixdorf et al., 2020; Shanmugam et al., 2011; Stoeber et al., 2007). Hill et al. (2018) could not control the data from the studies they utilized, but the discrepancy in measures of perfectionism, anxiety and depression across these studies casts doubt on the applicability of their results and highlights the importance of the current study to help bolster this underdeveloped part of the perfectionism literature. Yet, Hill et al. (2018) underlined the importance of partialling out shared variance when studying perfectionistic strivings and perfectionistic concerns. There is still much debate regarding whether partialling out shared variance between perfectionistic strivings and perfectionistic

concerns is appropriate, and whether the residual perfectionistic striving and perfectionistic concerns are still representative of the constructs they aim to emulate (Hill et al., 2018; Stoeber et al., 2007). Hill et al. (2018) suggest that perfectionistic strivings cannot conclusively be deemed an adaptive trait because perfectionistic strivings share significant relationships with both adaptive and maladaptive characteristics. That is why the current study is not separating the higher order dimensions of perfectionistic strivings and perfectionistic concerns in its analysis and is instead viewing perfectionism in its inextricable totality.

Purpose of the Study and the Main Hypothesis

The main purpose of this study was to examine differences in anxiety and depression in college athletes based on their levels of academic and athletic perfectionism. It was hypothesized that athletes with higher levels of athletic perfectionism and academic perfectionism would demonstrate higher levels of anxiety and depression when compared to athletes with lower levels of athletic and academic perfectionism.

CHAPTER 2
METHOD

Participants

A G Power analysis was performed to determine how many participants were suitable to achieve the desired power and effect size. The MANOVA: Interaction with Special Effects test was used with alpha set at .05, power set at .80, a moderate effect size, six groups, two predictors, and two response variables. For this study, 98 participants were deemed necessary to achieve desired power. To protect against a conservative G power analysis the desired participant population was expanded by 25%, which resulted in the goal of obtaining 123 participants.

A total of 118 NCAA student-athletes completed the survey with 72.9% (n = 86) of student-athletes currently competing in NCAA Division I, and 27.1% (n = 32) of student-athletes currently competing in Division III. The survey was administered both online and in-person. Of the 118 participants, 10.2% (n = 12) completed the survey through Qualtrics (online survey), and 89.8% (n = 106) completed the survey's paper version. In total, 83.9% (n = 99) of participants self-identified as female and 16.1% (n = 19) self-identified as male. The average age was 19.34 years $\pm$ SD = 1.21 with ages ranging from 18-24 years. Participants were fairly racially homogenous with 86.4% (n = 102) identifying as White though several participants identified as Black (n = 6), Asian (n = 3), More than One Race (n = 2), and Other (n = 2).

Gymnastics and Track and Field were the most frequently cited college varsity sports that participants competed in with each sport representing 37.3% (n =44) and 38.1% (n = 45) of all participants, respectively. However, participants also competed in Baseball (n = 2), Basketball (n = 4), Field Hockey (n = 6), Football (n = 3), Soccer (n = 4), Swimming (n = 1), Synchronized Skating (n = 6), and Volleyball (n = 3). First year student-athletes represented 49.2% (n = 58) of participants, 18.6% (n = 22) were second years, 21.2% (n = 25) were third years, 9.3% (n = 11) were fourth years, and 1.7% (n = 2) were 5+ years. With regard to utilization of therapy, 55.1% (n = 62) indicated that they had not gone to therapy, and 44.1% (n = 52) indicated that they had gone to therapy. One individual preferred not to say. Less than a quarter of participants indicated that they had been diagnosed with a mental illness with 22.0% (n = 26) saying that they had, and 77.1% (n = 91) indicating that they had not been diagnosed with a mental illness. One individual preferred not to say.

Instruments/Measures

Along with demographic information, the study used three psychological inventories to measure academic perfectionism, athletic perfectionism, and anxiety/depression.

Demographic Information

Student-athletes were asked to complete a short demographic questionnaire where they reported their age, sex, gender, race, ethnicity, class year and sport (see Appendix, Part D). Questions were also asked regarding utilization of counseling or therapy, and whether or not they had been diagnosed with a mental illness.

Academic Perfectionism

Academic perfectionism was measured using an adapted form of the Frost et al. (1990) Multidimensional Perfectionism Scale (FMPS) (see Appendix, Part A). This 35-item self-report questionnaire measures six dimensions of perfectionism (i.e., concerns over mistakes (9 items), personal standards (7 items), parental expectations (5 items), parental criticism (4 items), doubts about actions (4 items), and organization (6 items)).

The current study only focused on three dimensions: personal standards, concerns over mistakes, and doubts about actions. The reason for this decision related to how the specific dimensions connected to the overarching concepts of perfectionistic strivings and perfectionistic concerns. A recent meta-analysis (Madigan, 2019) showed that when the FMPS was utilized in research, most often personal standards was linked to perfectionistic strivings, while concerns over mistakes and doubts about actions were linked to perfectionistic concerns. These relationships were conceptually obvious when you looked at the definitions of each of three dimensions. Personal standards related to setting high standards for oneself that one strictly adhered to because one critically self-evaluated against those standards. Concern over mistakes related to viewing mistakes as terrible failures that caused one to be devalued by others. Doubting of actions related to one who had not felt satisfied with the work that they had completed.

There were a few reasons why the Frost et al. (1990) perfectionism dimensions of parental expectations, parental criticism, and organization were not incorporated into this study. The current study was not focused on the impact of external actors on an individual's perfectionism, so parental expectations and parental criticism were not useful perfectionism dimensions in this study. Hewitt and Flett (1991) provided a better construct of socially-prescribed perfectionism, so that model would have been utilized if this current study was

looking at the potential influence of social actors on domain-specific perfectionism expression. Additionally, organization had been found to have a weak relationship with overall perfectionism (Frost et al., 1990; Stoeber & Otto. 2006).

The FMPS was altered to assess self-perceptions of perfectionism within the academic context. "In school" was added to the end of the most items in the survey to fit the desired academic context. The questionnaire utilized a 5-point Likert-type scale (1 = strongly disagree; 5 = strongly agree). Example items include "I set higher goals than most people (in school)" (personal standards), "I should be upset if I make a mistake (in school)" (concern over mistakes), and "I usually have doubts about the simple everyday things that I do (in school)" (doubts about actions). Total scores were determined by summing all items together. Since there were 20 items used from this scale, a total score could range from 20-100 with higher total scores indicating higher academic perfectionism, and lower total scores indicating lower academic perfectionism.

Frost et al. (1990) determined that the FMPS had suitable internal reliability with Cronbach's alpha for scores across all subscales at least .77, and the scale's overall alpha (without the organization subscale) was .90. Other scholars also provide support for the reliability of the FMPS with Cronbach's alphas for scores from the three subscales of interest ranging from .66 to .90, and the scale's overall alpha ranging from .85 to .90 (Amaral et al., 2013; Harvey et al., 2004; Parker & Adkins, 1995). Scores from the FMPS have also demonstrated construct validity (Amaral et al., 2013; Harvey et al., 2004).

Athletic Perfectionism

The Gotwals and Dunn (2009) Sport Multidimensional Perfectionism Scale (Sport-MPS-2) was used to measure athletic perfectionism (see Appendix, Part D). This scale extended from the initial sport perfectionism scale developed by Dunn et al. (2002) that identified four key dimensions: personal standards, concerns over mistakes, perceived parental pressure, and perceived coach pressure. Gotwals and Dunn (2009) added "doubts about actions" and "organization" as two additional dimensions within the new Sport-MPS-2. This scale was a 42-item self-report questionnaire that measured six dimensions of multidimensional perfectionism in sport (i.e., personal standards, concerns over mistakes, perceived parental pressure, perceived coach pressure, doubts about actions, and organization). As with academic perfectionism, the focus was on three key dimensions: personal standards, concerns over mistakes, and doubts about actions.

Structural and convergent validity of scores has been supported (Gotwals et al., 2010). Scores from the Sport-MPS-2 have also been found to be internally reliable for specific subscales, and the overall scale (Ijaz et al., 2022; Květon et al., 2022). The questionnaire utilized a 5-point Likert-type scale (1 = strongly disagree; 5 = strongly agree). Example items include "If I do not set the highest standards for myself in my sport, I am likely to end up a second-rate player" (personal standards), "If I fail in competition, I feel like a failure as a person" (concern over mistakes), and "I usually feel unsure about the adequacy of my pre-competition practices" (doubts about actions). Total scores were determined by summing all items together. Since there were 21 items used from this scale, a total score could range from 21-105 with higher total scores indicating higher athletic perfectionism, and lower total scores indicating lower athletic perfectionism.

Depression and Anxiety

Depression and anxiety were measured using the Depression Anxiety Stress Scale (DASS-21) (see Appendix, Part C). This 21-item self-report questionnaire was a shortened version of the 42-item DASS, and measured individuals' depression (14 items), anxiety (somatic, subjective, and situational anxiety; (14 items)), and stress (14 items). A 4-point Likert-type scale was used that ranged from 0 meaning "did not apply to me at all" to 3 meaning "applied to me very much or most of the time" (Stokowski et al., 2022). Example items include "I was worried about situations in which I might panic and make a fool of myself" (anxiety), and "I felt that I wasn't worth much as a person" (depression). Total scores were determined by summing anxiety and depression separately for all items related to each construct. Since the anxiety and depression subscales were associated with 7 items each, a total score for either anxiety or depression could range from 0-21 with higher total scores indicating higher anxiety/depression, and lower total scores indicating lower anxiety/depression.

Scores from the DASS-21 have demonstrated convergent validity in relation to other anxiety and depression scales, and scores from the anxiety and depression subscales have shown moderate to very high reliability with Cronbach's alphas ranging from .77 to .95 (Crawford et al., 2009; Henry & Crawford, 2005; Lovibond & Lovibond, 1995; Norton, 2007; Oei et al., 2013).

Procedure

The study was approved by the Miami University institutional review board. Data collection occurred during the winter and spring of 2024. Participants were recruited by contacting coaches and asking them to forward the study information to their student-athletes and by setting up in-person meeting with collegiate sport teams. Prior to completing the questionnaires, the participants were instructed to answer the questions honestly, and to the best of their abilities. Participants were also notified that they could choose to not participate in this study at any time and for whatever reason.

Statistical Analyses

An initial analysis was conducted to assess for normality and outliers in the dataset. Skewness values ranged from 0.13 to 1.50 for all subscales. Kurtosis values ranged from -0.33 to 1.96 for all subscales. No multivariate outliers were detected. To assess the study hypothesis, a multivariate analysis of variance (MANOVA) was utilized. Specifically, a 3x3 MANOVA was used because there were two separate independent variables (athletic perfectionism – 3 groups and academic perfectionism – 3 groups) and two dependent variables (anxiety and depression). Participants were grouped by their scores on academic and athletic perfectionism. Specifically, for each type of perfectionism, a "high" score was obtained if the value was greater than one standard deviation above the mean, a "moderate" score was obtained if the value was within one standard deviation above or below the mean, and a "low" score was obtained if the value was greater than one standard deviation below the mean. Therefore, there were six total groups that encompassed the three different levels of both types of perfectionism.

Importantly, a single participant's academic perfectionism and athletic perfectionism categorizations were determined separately, meaning that their athletic and academic perfectionism scores were not summed as a "total" perfectionism score. Thus, one could be placed in the "high" group for academic perfectionism but in the "moderate" group for athletic perfectionism. Following the MANOVA, univariate tests were conducted to assess specific effects for anxiety and depression. Tukey HSD post-hoc tests were used to assess where differences occurred between the three groups (e.g., athletic perfectionism or academic perfectionism).

CHAPTER 3
RESULTS

Descriptive Statistics

Correlations, means, standard deviations, ranges and internal consistency were calculated for all study variables and are presented in Table 1. Relative to response options, student-athletes' reported moderately high scores for the Sport-MPS-2 (*M* = 74.29, *SD* = 12.35), and moderate scores for the adapted FMPS (*M* = 63.65, *SD* = 11.03). Student-athletes' average anxiety scores were low (*M* = 5.88, *SD* = 5.07). Average depression scores were low (*M* = 4.20, *SD* = 4.63). The current study's anxiety and depression scores were similar to what has been found in previous studies that have used the DASS in non-clinical settings (Henry & Crawford, 2005; Lovibond & Lovibond, 1995).

All intercorrelations among the variables were significant at the $p < .001$ (two-tailed) level. The independent variables (athletic and academic perfectionism) and dependent variables (anxiety and depression) possessed the highest intercorrelations between each other with Pearson's correlations of .55 and .68, respectively.

The academic perfectionism and athletic perfectionism scores were separated into "high," "moderate," and "low" groups based on their distance from the mean within their specific domain. Mean scores for low, moderate, and high academic perfectionism (range = 20 to 100) were 48.04, 64.27, and 81.94, respectively. Mean scores for low, moderate, and high athletic perfectionism (range = 21 to 105) were 56.22, 73.68, and 93.00, respectively. Table 3 presents mean anxiety and depression scores for each group. Mean depression scores for low, moderate, and high academic perfectionism groups were 2.96, 3.76, and 7.94, respectively. Mean anxiety scores for low, moderate, and high academic perfectionism groups were 4.83, 5.06, and 11.06, respectively. Mean depression scores for low, moderate, and high athletic perfectionism groups were 2.11, 3.55, and 8.70, respectively. Mean anxiety scores for low, moderate, and high athletic perfectionism groups were 3.83, 5.23, and 10.35, respectively. Overall, groups with higher levels of domain-specific perfectionism had higher average anxiety and depression scores.

Internal consistency of scores from all scales were estimated using Cronbach's alpha. Cronbach's alpha values are displayed in Table 1, and values greater than .70 are generally regarded as acceptable. Scores from all four scales achieved estimated alpha values above .70 (Anxiety = .84, Depression = .90, Academic Perfectionism = .88, and Athletic Perfectionism =

.90). The Cronbach's alphas for the DASS subscales (anxiety and depression) fell within the range found in previous studies (Crawford et al., 2009; Henry & Crawford, 2005; Lovibond & Lovibond, 1995; Norton, 2007; Oei et al., 2013). The adapted FMPS Cronbach's alpha was similar to the Cronbach's alphas found for the standard FMPS (Amaral et al., 2013; Harvey et al., 2004; Parker & Adkins, 1995).

Main Study Analyses

A 3x3 MANOVA was used to test the main hypothesis using SPSS version 29.0.2.0. The multivariate tests provide the main findings from the 3x3 MANOVA. For academic perfectionism, the multivariate test statistic was significant: $F(4, 218) = 5.43$, $p < 0.001$; Wilk's $\Lambda = .827$, partial $\eta^2 = .091$. The partial eta-squared effect size suggests that 9.1% of the variance in mental health constructs is related to differences in levels of academic perfectionism (controlling for all other independent variables).

Follow-up univariate tests were conducted to examine group differences (i.e., between low, moderate, and high academic perfectionism) on anxiety and depression. The univariate test for anxiety was significant, $F(2, 110) = 11.44$; $p < .001$; partial $\eta^2 = .172$. Tukey's HSD post-hoc tests were conducted to check for significant differences in mean anxiety scores among the different levels of athletic perfectionism. These results are shown in Table 4. Mean anxiety scores were significantly different between low and high (low $M = 4.83$, high $M = 11.06$, $p < .001$), and moderate and high (moderate $M = 5.06$, high $M = 11.06$, $p < .001$) groups, but not for low and moderate groups ($p = .97$).

Additionally, the univariate test for depression was significant, $F(2, 110) = 3.86$; $p = .02$; partial $\eta^2 = .066$. Tukey's HSD post-hoc tests indicated that mean depression scores were significantly different between the low and high (low $M = 2.96$, high $M = 7.94$, $p = .001$) groups, and the moderate and high (moderate $M = 3.76$, high $M = 7.94$, $p = .001$) groups, but not between the low and moderate ($p = .69$) groups.

For athletic perfectionism, the multivariate test statistic was not significant: $F(4, 218) = 1.89$, $p = .114$; Wilk's $\Lambda = .934$, partial $\eta^2 = .033$. The multivariate test statistic for the interaction between academic perfectionism and athletic perfectionism was not significant, $F(6, 218) = 1.56$, $p = .16$; Wilk's $\Lambda = .919$, partial $\eta^2 = .041$.

CHAPTER 4
DISCUSSION

The purpose of the study was to examine differences in anxiety and depression in college athletes based on their levels of academic and athletic perfectionism. It was hypothesized that athletes with higher levels of academic or athletic perfectionism would demonstrate higher levels of anxiety and depression when compared to athletes with lower levels of athletic or academic perfectionism. The hypothesis was partially supported. Athletes with high academic perfectionism had higher levels of anxiety and depression when compared to athletes with low and moderate levels of academic perfectionism. No significant differences emerged in anxiety and depression between athletes with differing levels of athletic perfectionism.

Academic perfectionism, athletic perfectionism, depression, and anxiety were all positively related (see Table 1). The pairings of athletic perfectionism and academic perfectionism along with anxiety and depression were the most strongly related. This suggests that both types of perfectionism and both aspects of mental health were significantly related to each other. Anxiety and depression were moderately related to both types of perfectionism, but anxiety and depression had greater positive relationships to athletic perfectionism than academic perfectionism. Even though the main multivariate analysis found no significant relationship between athletic perfectionism and mental health, these underlying univariate correlations perhaps suggest that there are relationships here that are worth further investigation.

These findings are a notable expansion upon the meta-analysis accomplished by Hill and colleagues (2018) that examined athlete perfectionism in relation to different aspects of mental health. Their findings suggested that perfectionistic strivings had a small positive or small negative relationship with different forms of anxiety and depression (depending on whether or not you partialled out shared variance between perfectionistic strivings and perfectionistic concerns), and perfectionistic concerns had a medium to large positive relationship with different forms of anxiety and depression (with the relationship not changing significantly when shared variance was partialled out). Unlike Hill and colleagues (2018), the current study did not separately analyze perfectionistic strivings and perfectionistic concerns, but the positive correlations found among the study's variables perhaps suggests that higher levels of athletic or academic perfectionism could be related to higher anxiety and depression. The current findings could suggest, that at least within the academic domain, perfectionistic concerns has a stronger

relationship with mental health than perfectionistic strivings with the former's association with negative mental health overpowering the latter's (small) association with more positive mental health.

Domain-specific perfectionism scores were categorized based on their distance from the mean (i.e., high, moderate, and low). Mean values and standard deviations of these different groups are shown in Table 2. "Low" and "high" perfectionism groups were populated by scores that were greater than one standard deviation below the mean or greater than one standard deviation above the mean, respectively. Considering this manner of group delineation, the number of participants within the "low" and "high" perfectionism groups were of a similar value to what one might expect if the scores within the population were normally distributed. Skewness and kurtosis values were within normal parameters for both types of perfectionism, which provides some additional support for the belief that perfectionism scores were normally distributed.

Mean depression and anxiety scores seemed to differ based on level of athletic and academic perfectionism (see Table 3). Higher domain-specific perfectionism seemed to be associated with higher mean anxiety and depression. Perfectionism is generally regarded as a global personality trait, so one would expect that individuals would express similar levels of perfectionistic tendencies across domains (Frost et al., 1990). Support for this idea can be seen in some of the results from Table 3. Only one participant had a low academic perfectionism score and a high athletic perfectionism score, and none of the participants had a high academic perfectionism score and a low athletic perfectionism score. This observation suggests that in this population it was unlikely for an individual to have athletic perfectionism and academic perfectionism scores that were diametrically opposed. About half of participants were categorized within the "moderate" athletic and academic perfectionism groups. This is somewhat expected given the assumption that the population is fairly normal distributed, but this also shows that participants seemed to carry similar levels of perfectionistic tendencies in different domains. Almost two-thirds of participants had similar "levels" of perfectionism in both the academic and athletic domains. Despite these observations, it is still important to note that there is some research that has produced results that question that perfectionism is in fact a global personality trait, and instead suggest that perfectionistic tendencies can significantly differ for an

individual depending on the context (Dunn et al., 2012, Dunn et al., 2005, Mitchelson & Burns, 1998).

Depression and anxiety scores were relatively low regardless of the perfectionism group that an individual was in for both academic perfectionism and athletic perfectionism, except for one group: those with both high academic perfectionism and high athletic perfectionism. Excluding the high academic and athletic perfectionism group, all mean anxiety and depression scores for the different groups ranged from 1.90 to 7.58. The group of seven athletes with high academic perfectionism and high athletic perfectionism had mean scores of 16.40 and 12.14 for anxiety and depression, respectively. The mean anxiety and depression scores for the high academic and athletic perfectionism group are much higher than the mean anxiety and depression scores for any other group, and their mean scores would carry the normative description of "extremely severe" and "severe" for anxiety and depression, respectively. (Lovibond & Lovibond, 1995). Although, these high levels of anxiety and depression are certainly cause for concern, they cannot be directly related to DSM mental illness diagnoses. Results from the DASS-21 are most useful as an initial test for determining whether an in-depth investigation of one's mental well-being is required. (Lovibond & Lovibond, 1995). Nevertheless, this could imply that possessing high academic and high athletic perfectionism could have the most debilitating effects on a student-athlete's mental health in comparison to other pairings of relative levels of perfectionism in both domains. However, there are other factors that could explain the high anxiety and depression scores for these specific participants. These contributing factors could be as simple as specific mental health afflictions or more discrete like interactions among intersectional factors.

It is important to note that not enough participants were recruited to determine the statistical significance of the differences in anxiety and depression levels that were found among groups with differing levels of athletic and academic perfectionism. That being said, the results are similar to previous studies referenced in the literature which have found that different perfectionism sub-scales that fall within the higher order dimensions of perfectionistic strivings and perfectionistic concerns related to higher cognitive and somatic anxiety (Martinent et al., 2010; Stoeber et al., 2007). However, there are some caveats to be considered when linking the findings of previous studies with the current study. Previous studies utilized different measures of perfectionism and mental health and tended to separate the perfectionism subscales into the

higher order perfectionism dimensions of perfectionistic strivings and perfectionistic concerns for their analysis. The current study did not separate perfectionistic strivings and perfectionistic concerns in its measurement of athletic and academic perfectionism. Participants in these studies also covered a broad set of age ranges (i.e. high school, college, adult) and levels of competition. Prior research linking mental health and perfectionism has also been limited, so it is difficult to establish credence for the relationship found in these initial findings.

The main multivariate findings suggested that there were differences in anxiety and depression scores based on level of academic perfectionism but not athletic perfectionism. Specifically, those with high academic perfectionism had higher anxiety and depression scores than those with low or moderate academic perfectionism. Participants with low or moderate academic perfectionism did not significantly differ from each other in terms of their anxiety and depression scores. These findings suggest that negative mental health only impacts those with the highest levels of perfectionism. Those with moderate or low perfectionism could be viewed as possessing similarly low risks of negative mental health outcomes. One could argue that the participants recruited from an Ivy League institution may have impacted the findings from this study as well due to the rigorous educational environment, but a counterargument is that regardless of the college one attends, any person can possess high academic perfectionistic tendencies that may link to deleterious effects on their mental health. Some literature has investigated perfectionism in academic domains, but rarely in relation to mental health.

Therefore, it is difficult to draw direct comparisons between results of the current study and results from previous literature, but Lin and Muenks (2022) did find that academic perfectionistic traits linked to negative affect. Previous literature has generally found significant positive relationships between athletic perfectionism and worse mental health, so it is somewhat surprising that there was not a significant relationship found in this current study (Martinent et al., 2010; Stoeber et al., 2007). Though this could be at least partially explained by the different forms of anxiety measured in previous studies compared to the current study. Previous research found significant relationships between athletic perfectionism and competitive state-anxiety (Martinent et al., 2010; Stoeber et al., 2007). The current study measured general state-anxiety, which relates to an individual's anxiety over the past week or two weeks. One could presume that one's overall state-anxiety over the course of a week could significantly differ from one's

state-anxiety experienced within competitive environments. There was also no significant interactive connection between athletic perfectionism and academic perfectionism.

Implications, Limitations & Future Directions

Implications for this study are potentially far-reaching in college athletics. The findings from the current study seem to suggest that those with most domain-specific perfectionistic tendencies could be most susceptible to negative mental health. Follow-up work is necessary to validate this claim, but domain-specific perfectionism surveys could be used as a mental health screening tool for college athletics. Considering the mental health stigma that still exists on some college campuses and college sports teams, domain-specific perfectionism surveys could be viewed as a discrete proxy for finding athletes that may be at a greater risk for mental health issues (Gulliver et al., 2010; Hilliard et al., 2022; Kaier et al., 2015). More generally, coaches should be aware of the personalities and mental health afflictions of their athletes. They should be especially aware of student-athletes with high perfectionistic tendencies in athletics, academics or both, and tailor their interactions to the specific needs of those athletes, so that the coach is actively benefitting an athlete's physical, mental and emotional health. For example, a coach could be more aware of overly self-critical thinking that is often omnipresent for athletes with high perfectionistic tendencies in athletics. The coach could do this by softening constructive criticism for an athlete with high perfectionistic tendencies while also explicitly challenging a perfectionistic athlete's overly self-critical self-talk that they may express during practice or competition. This is a difficult balance to strike, and effective coaching of perfectionistic athletes may also vary based on the gender or race of the athlete in question. Nonetheless, putting in the effort to properly coach perfectionistic athletes will likely maximize the ability for these athletes to perform at their best, which of course is what all coaches desire from their athletes.

Additionally, by implementing screening measures, athletes' can become aware of their perfectionistic tendencies and learn to cope with these tendencies. Variations of cognitive behavioral therapy (CBT) have been commonly used techniques for trying to reduce perfectionism (Galloway et al., 2022). It's important to note that these techniques mostly center on the treatment of "clinical perfectionism," which emphasizes contingent self-worth as a driving force for perfectionistic behavior (Egan et al., 2011; Galloway et al., 2022; Shafran et al., 2010). The clinical perfectionism model showcases a cognitive behavioral feedback loop that exhibits

how perfectionistic behavior is driven. Perfectionistic student-athletes should be informed about clinical perfectionism, so that they can better understand how their own personal strivings may relate to and be driven by their self-worth. There is evidence that both face-to-face and self-help CBT for perfectionism could be effective for reducing perfectionism and symptoms of anxiety and depression (Galloway et al., 2022). This suggests that a self-help or a physician-guided CBT treatment of perfectionism could be effective in helping individuals with not only perfectionism, but also other mental comorbidities that are often intertwined with an individual's perfectionism. (Egan et al., 2011; Galloway et al., 2022).

Athletes can certainly work towards coping with perfectionism on their own, but coaches can also play an important role in aiding athletes as well. Coaches can help educate and remind athletes that the public sport culture is rooted in over-inflated and unrealistic expectations for athletes' performance and team outcomes. Unfortunately, what makes this difficult is that a coach's career advancement is often predicated on the performance of their athletes, so coaches are pushed by the same social, cultural and economic factors that continue to produce and reproduce perfectionistic sporting environments. Therefore, an impetus must be created to push for the evolution of youth, adolescent, and collegiate sporting environments. There is some reason to believe that the recent power shift in college athletics towards college student-athletes could usher in a new era where college student-athlete mental health and well-being is prioritized. We can only hope that this desired impact stretches to include all athletes, regardless of age or ability.

There are several weaknesses that should be acknowledged in relation to the current study. One weakness of this study is that it was cross-sectional. Causal takeaways were not possible from this research design, so the scope of this work could only establish correlational relationships between dependent and independent variables. The number of participants that were recruited was at the lower end of the acceptable range for carrying out the statistical analysis with sufficient power. Although the power that was achieved was 0.87, a larger sample likely would have cleared up the discrepancy between the univariate and multivariate findings that were found when looking at the relationship between athletic perfectionism and mental health. The demographics of the participant population was also not representative of all college student athletes because 83.9% (n = 99) of participants were female, and fairly racially homogenous with 86.4% (n = 102) identifying as White. This occurred despite concerted efforts

to recruit participants with diverse gender and racial backgrounds. Another weakness of the study was that 75.4% (n = 89) of all participants were either gymnasts or track and field athletes, which overrepresented college athletes from individual sports. Future research should recruit participants from different schools, sports, conferences, divisions to paint a fuller picture of the effects domain-specific perfectionism has on student-athlete mental health.

Future research could look towards furthering our understanding of the relationship between academic and athletic perfectionism, but also perfectionism in other domains like social relationships. However, differences in how perfectionism is conceptualized in domain-specific perfectionism scales complicates comparison across different domains (Gotwals et al., 2010). Improved scales and a consensus definition of perfectionism is necessary for substantiated relationships to be established across perfectionism domains. The perfectionism literature has struggled to empirically establish the "adaptive" or "functional" benefits of perfectionism (Stoeber & Otto, 2006). Qualitative research in this area could provide a more nuanced and contextualized understanding of the meaning and nature of perfectionism for student-athletes. Longitudinal work could track student-athlete perfectionism across specific time frames, and this could allow researchers to see how fluctuations in domain-specific perfectionism works to potentially influence student-athlete mental health. Additionally, future research viewing work-life balance, perceived importance, and self-worth as potential mediators in relation to student-athlete perfectionism and mental health could also be of interest. All of this future work could hopefully lead to a greater understanding of what can be done to further aid student-athletes.

Conclusion

The strengths of this research lie in its exploratory nature. There has been little work that has looked at domain-specific perfectionism to better understand student-athlete mental health. At the very least, this study helps further our understanding of domain-specific perfectionism and its impacts on mental health. Viewing multiple perfectionistic domains in conjunction with one another was relatively novel, and this avenue of analysis could give us the opportunity to dig down into the practical impacts of perfectionism across different measures (i.e., well-being, burnout, self-worth). The study aimed to broaden our understanding of multidimensional perfectionism within different contexts. This study will hopefully spark further interest in understanding the impact of domain-specific perfectionism on student-athletes mental health outcomes.

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Tables

Table 1

Descriptive Statistics, Correlations, and Cronbach's Alphas for Study Variables (N=118)

Variable	1	2	3	4
1. Academic Perf.	*.88*			
2. Athletic Perf.	.55*	*.89*		
3. Anxiety	.36*	.46*	*.85*	
4. Depression	.35*	.54*	.68*	*.90*
Possible Range	20-100	21-105	0 – 21	0 – 21
M	63.65	74.29	5.88	4.20
SD	11.03	12.35	5.07	4.63

Note. Perf. = Perfectionism. Cronbach's alpha values appear on the matrix diagonal in italics.
* $p < .01$

Table 2.1

Mean Scores For Different Levels of Academic Perfectionism (N=118)

Academic Perfectionism Groups	*M* (*SD*)
Low (*n* = 23)	48.04 (3.14)
Moderate (*n* = 78)	64.27 (5.57)
High (*n* =17)	81.94 (4.41)

Table 2.2

Mean Scores for Different Levels of Athletic Perfectionism (N=118)

Athletic Perfectionism Groups	*M* (*SD*)
Low (*n* = 18)	56.22 (5.00)
Moderate (*n* = 80)	73.68 (7.06)
High (*n* = 20)	93.00 (5.50)

Table 3

Mean Anxiety and Depression for Different Combinations of Levels of Academic Perfectionism and Athletic Perfectionism (N=118)

Academic Perfectionism Level	Athletic Perfectionism Level	Number of participants (*n*)	Mean Anxiety Score (*SD*)	Mean Depression Score (*SD*)
Low	Low	10	4.10 (5.53)	1.90 (2.89)
	Moderate	12	5.67 (4.40)	3.58 (4.80)
	High	1	2.00	6.00
Moderate	Low	8	3.50 (2.62)	2.38 (2.07)
	Moderate	58	4.76 (4.21)	3.29 (3.80)
	High	12	7.58 (5.81)	6.92 (6.14)
High	Moderate	10	7.40 (3.06)	5.00 (2.87)
	High	7	16.29 (1.98)	12.14 (5.27)

Note. No participants scored for school perfectionism and sport perfectionism at the "high" and "low" levels, respectively, for those perfectionism domains, which was why that row was omitted.

Table 4

Mean Anxiety and Depression for Academic Perfectionism and Athletic Perfectionism Levels (N = 118)

Perfectionism Type	Acad. Perf. Mean Anxiety (*SD*)	Acad. Perf. Mean Depression (*SD*)	Ath. Perf. Mean Anxiety (*SD*)	Ath. Perf. Mean Depression (*SD*)
Low (*n* = 23); (*n* = 18)	4.83_b (4.81)	2.96_b (4.01)	3.83 (4.37)	2.11 (2.49)
Moderate (*n* = 78); (*n* = 80)	5.06_b (4.46)	3.76_b (4.23)	5.23 (4.16)	3.55 (3.86)
High (*n* = 17); (*n* = 20)	11.06_a (5.20)	7.94_a (5.31)	10.35 (6.50)	8.70 (6.11)

Note. Acad. = Academic, Perf. = Perfectionism. N values are shown for academic perfectionism followed by athletic perfectionism for the indicated level of perfectionism. Within each row, subscale means with the subscript "a" are significantly higher (at the $p < .01$ level) than means with the subscript "b".

Appendix A

Survey to be used for data collection

A. **Put an X in the box for each item (1-20) to say how much each statement applies to you.** Please be honest --- there are no right or wrong answers. Do not spend too much time on any one question.

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. If I do not set the highest standards for myself **in school**, I am likely to end up a second-rate person.	☐	☐	☐	☐	☐
2. It is important to me that I be thoroughly competent in what I do **in school.**	☐	☐	☐	☐	☐
3. If I fail at **school**, I am a failure as a person.	☐	☐	☐	☐	☐
4. I should be upset if I make a mistake **in school**.	☐	☐	☐	☐	☐
5. I set higher goals than most people **in school**.	☐	☐	☐	☐	☐
6. If someone does a task at **school** better than I do, then I feel as if I failed the whole task.	☐	☐	☐	☐	☐
7. If I fail partly **in school,** it is as bad as being a complete failure.	☐	☐	☐	☐	☐

8. I am very good at focusing my efforts on attaining a goal **in school**.	☐	☐	☐	☐	☐
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
9. Even when I do something very carefully **in school**, I often feel that it is not quite right.	☐	☐	☐	☐	☐
10. I hate being less than the best **in school**.	☐	☐	☐	☐	☐
11. I have extremely high goals **in school**.	☐	☐	☐	☐	☐
12. People will probably think less of me if I make a mistake **in school.**	☐	☐	☐	☐	☐
13. If I do not do as well as other people **in school**, it means I am an inferior being.	☐	☐	☐	☐	☐
14. Other people seem to accept lower standards from themselves **in school** than I do.	☐	☐	☐	☐	☐
15. If I do not do well all the time **in school**, people will not respect me.	☐	☐	☐	☐	☐
16. I usually have doubts about the simple everyday things that I do **in school**.	☐	☐	☐	☐	☐

17. I expect higher performance in my daily **school** tasks more than most people.	☐	☐	☐	☐	☐
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
18. I tend to get behind in my **schoolwork** because I repeat things over and over.	☐	☐	☐	☐	☐
19. **In school,** it takes me a long time to do something "right".	☐	☐	☐	☐	☐
20. The fewer mistakes I make **in school**, the more people will like me.	☐	☐	☐	☐	☐

B. These questions assess how you view your competitive sport experiences. Indicate to what extent you agree or disagree with the following statements. **Put an X in the box for each item (1-21) to say how much each statement applies to you.**

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. If I do not set the highest standards for myself in my sport, I am likely to end up a second-rate player.	☐	☐	☐	☐	☐
2. Even if I fail slightly in competition, for me, it is as bad as being a complete failure.	☐	☐	☐	☐	☐
3. I usually feel uncertain as to whether or not my training effectively prepares me for competition.	☐	☐	☐	☐	☐
4. I hate being less than the best at things in my sport.	☐	☐	☐	☐	☐
5. If I fail in competition, I feel like a failure as a person.	☐	☐	☐	☐	☐
6. I usually feel unsure about the adequacy of my pre-competition practices.	☐	☐	☐	☐	☐
7. I rarely feel that my training fully prepares me for competition.	☐	☐	☐	☐	☐

8. The fewer mistakes I make in competition, the more people will like me.	☐	☐	☐	☐	☐
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
9. It is important to me that I be thoroughly competent in everything I do in my sport.	☐	☐	☐	☐	☐
10. Prior to competition, I rarely feel satisfied with my training.	☐	☐	☐	☐	☐
11. I think I expect higher performance and greater results in my daily sport-training than most players.	☐	☐	☐	☐	☐
12. I feel that other players generally accept lower standards for themselves in sport than I do.	☐	☐	☐	☐	☐
13. I should be upset if I make a mistake in competition.	☐	☐	☐	☐	☐
14. If a team-mate or opponent (who plays a similar position to me) plays better than me during competition, then I feel like I failed to some degree.	☐	☐	☐	☐	☐
15. I rarely feel that I have trained enough in preparation for a competition.	☐	☐	☐	☐	☐

16. If I do not do well all the time in competition, I feel that people will not respect me as an athlete.	☐	☐	☐	☐	☐
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
17. I have extremely high goals for myself in my sport.	☐	☐	☐	☐	☐
18. I set higher achievement goals than most athletes who play my sport.	☐	☐	☐	☐	☐
19. I usually have trouble deciding when I have practiced enough heading into a competition.	☐	☐	☐	☐	☐
20. People will probably think less of me if I make mistakes in competition.	☐	☐	☐	☐	☐
21. If I play well but only make one obvious mistake in the entire game, I still feel disappointed in my performance.	☐	☐	☐	☐	☐

C. Please read each statement and put an X in the box for each item (1-14). The numbers 0, 1, 2 or 3 indicate how much the statement applied to you **over the past week.** There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree or a good part of time
3 Applied to me very much or most of the time

	0	**1**	**2**	**3**
1. I was aware of dryness of my mouth	☐	☐	☐	☐
2. I couldn't seem to experience any positive feeling at all	☐	☐	☐	☐
3. I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	☐	☐	☐	☐
4. I found it difficult to work up the initiative to do things	☐	☐	☐	☐
5. I experienced trembling (e.g. in the hands)	☐	☐	☐	☐
6. I was worried about situations in which I might panic and make a fool of myself	☐	☐	☐	☐
7. I felt that I had nothing to look forward to	☐	☐	☐	☐

	0	1	2	3
8. I felt down-hearted and blue	☐	☐	☐	☐
9. I felt I was close to panic	☐	☐	☐	☐
10. I was unable to become enthusiastic about anything	☐	☐	☐	☐
11. I felt I wasn't worth much as a person	☐	☐	☐	☐
12. I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	☐	☐	☐	☐
13. I felt scared without a good reason	☐	☐	☐	☐
14. I felt that life was meaningless	☐	☐	☐	☐

D. Please answer the following **demographic questions about yourself.**

What is your **age**? _____

What is your **biological sex**? **(circle one)** Female Male

What is your **gender? (circle ONE)** Woman Man Non-binary Prefer not to disclose

Prefer to self-describe

What is your **ethnicity? (circle ONE)** Hispanic or Latino NOT Hispanic or Latino

What is your **race? (circle ONE)**

American Indian or Alaska Native | Asian | Black or African American

Native Hawaiian or other Pacific Islander | White | More than one race

Other | Prefer not to say

What college/university do you **currently attend**? _____

What **class** are you? **(circle ONE)** First Year Second Year Third Year Fourth Year

5+ Years

Do you currently **participate in a NCAA collegiate sport? (circle ONE)** Yes No

What is your primary sport? _____

Have you ever sought therapy or **treatment from a mental health professional? (circle ONE)**

Yes No Prefer not to say

Have you ever been **diagnosed with a mental illness? (circle ONE)** Yes No

Prefer not to say