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## Emotion Regulation and Coping as Mediators of the Association between Perfectionism and Self-Esteem in Athletes Compared to Non-athletes and Honors Students

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**EMOTION REGULATION AND COPING AS MEDIATORS OF THE ASSOCIATION  
BETWEEN PERFECTIONISM AND SELF-ESTEEM IN ATHLETES COMPARED TO  
NON-ATHLETES AND HONORS STUDENTS.**

By

Hollie Minichiello

A thesis submitted to the Department of Psychology  
in partial fulfillment of the requirements for the degree of

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### Abstract

Increased levels of perfectionism have been shown to be associated with increased levels of burnout, feelings of depression, heightened levels of anxiety, decreased self-esteem, and hindered overall performance. The current study aimed to investigate whether coping mechanisms and emotion regulation mediate the association between perfectionism and self-esteem in athletes compared to non-athletes and honors students. Four hundred ninety-three primarily white ( $n = 60.0\%$ ), female ( $n = 83.0\%$ ), psychology major, participants aged 18-49, completed a series of questionnaires including: the Self-Esteem Implicit Association Test (Greenwald et al., 2002), the Self-liking and Self-Competence Scale (Tafarodi & Swann Jr, 1995), the Cognitive Emotion Regulation Questionnaire (Garnefski & Kraaij, 2006), the Coping Function Questionnaire (Kowalski & Crocker, 2001), and the Multidimensional Perfectionism Scale (Hewitt et al., 1991). If participants engaged in competitive athletics, they answered questions from the Sport Multidimensional Perfectionism Scale (Dunn et al., 2006). An ANOVA examined mean differences in all scales between groups, which indicated significant differences in self-oriented perfectionism, socially prescribed perfectionism, and adaptive coping mechanisms. Athletes scored significantly lower than honors students in self-oriented perfectionism ( $p = .019$ ,  $d = .30$ ). Additionally, non-athletes scored significantly lower than honors students in self-oriented perfectionism ( $p = .030$ ,  $d = .31$ ). Athletes scored significantly lower than honors students in socially prescribed perfectionism ( $p = .014$ ,  $d = .29$ ). Further, athletes scored significantly higher than both non-athletes ( $p = .040$ ,  $d = .24$ ), and honors students ( $p = .015$ ,  $d = .32$ ) in adaptive coping. There were no other significant group differences. Model 4 mediation in PROCESS macro for SPSS was used to examine the relationship between perfectionism and self-esteem. Greater self-oriented perfectionism predicted lower self-liking

and self-competence through maladaptive emotion regulation techniques,  $-.145$ , 95% CI  $[-.031, -.012]$ ,  $-.008$ , 95% CI  $[-.011, -.004]$ . Greater socially prescribed perfectionism also predicted lower self-liking and self-competence through maladaptive and adaptive emotion regulation techniques,  $-.021$ , 95% CI  $[-.029, -.013]$ ,  $-.008$ , 95% CI  $[-.011, -.005]$ ,  $-.004$ , 95% CI  $[-.007, -.001]$ ,  $-.001$ , 95% CI  $[-.003, -.000]$ . No other pathways from socially prescribed or self-oriented perfectionism to implicit self-esteem were significant. Given that many individuals have participated in high-stress activities like athletics or academics, the lasting impacts of prolonged pressure can lead to negative self-views and should be further researched.

## PERFECTIONISM, EMOTION REGULATION, COPING, AND SELF-ESTEEM

### **Emotion Regulation and Coping as Mediators of the Association between Perfectionism and Self-Esteem in Athletes Compared to Non-athletes and Honors Students**

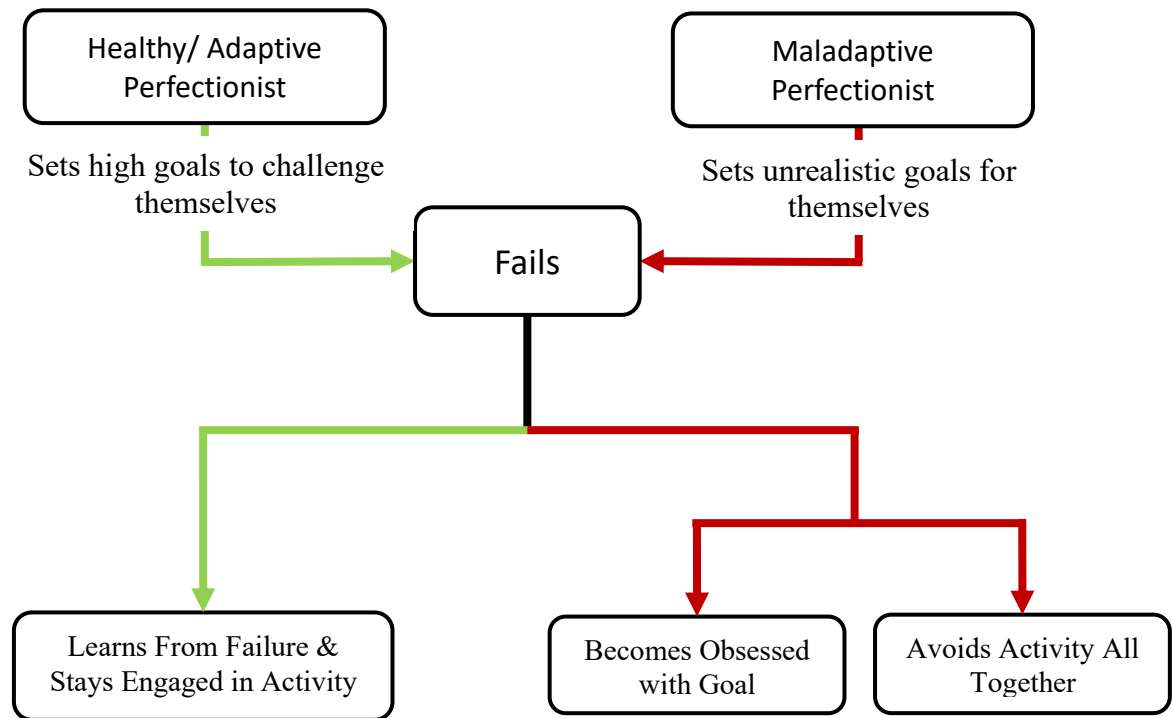
In 2019, approximately 154.4 million viewers in the United States watched live sports events at least once a month (Lange, 2020). While millions of people regularly engage in sporting events, most probably do not think about what competitive athletes experience. The purpose of the present research was to evaluate the link between maladaptive perfectionism and self-esteem, which may be due to pressure from coaches, parents, and viewers (Dunn et al., 2002). More specifically, the study examined whether emotion regulation techniques and coping mechanisms mediated the relationship between perfectionism and self-esteem.

#### **Perfectionism**

Perfectionism is defined as extremely critical evaluations of the self, paired with high standards of performance (Flett & Hewitt, 2002; Frost et al., 1990). Perfectionism itself is multidimensional; while performance may be positive, affect can still be negative. Hewitt and Flett's (2002) proposed multidimensional model of perfectionism is theorized to have two categories—maladaptive and adaptive perfectionism. Maladaptive perfectionism refers to behaviors that hinder performance and decrease levels of psychological well-being, which may include heightened levels of anxiety, depressive moods, and suicidal thoughts and behaviors (Antony et al., 1998; Blatt, 1995; Chang, 1998; Chang, 2002; Hamachek, 1978; Hewitt et al., 1994; Sherry et al., 2003). As such, maladaptive perfectionism is related to greater stress levels among different races, genders, and age groups (Ashby et al., 2012; Chang et al., 2004; Huang, & Mussap, 2018; Rice et al., 2015; Wei et al., 2007). Furthermore, maladaptive perfectionism can lead to increased feelings of inferiority and external locus of control and decreased social

and career self-efficacy and self-esteem (Ashby, & Trippi 1995; Ashby & Kottman, 1996; Ashby et al., 1997; Ashby et al., 1998; Periasamy & Ashby, 2002).

Opposing this, adaptive perfectionism refers to behaviors that increase self-control and positive affect. In line with this, adaptive perfectionists have been shown to experience less distress while striving for excellence, higher levels of self-efficacy, well-being, self-esteem, life satisfaction, and internal locus of control (Ashby & Rice, 2002; Ganske & Ashby, 2007; Grzegorek et al, 2004; LoCicero & Ashby, 2000; Rice & Slaney, 2002; Periasamy & Ashby, 2002; Slaney et al., 2002). Contrary to links with maladaptive perfectionism, adaptive perfectionism has not been associated with negative affect or depressive symptomology in previous research (Dunkley et al., 2003; Frost et al., 1993; Hamachek, 1978; Rice et al., 1998; Slaney et al., 2001; Stoeber, 2014; Terry-Short et al., 1995). Additionally, healthy or adaptive perfectionists, unlike maladaptive perfectionists, set higher goals to challenge themselves, and if they fail, they learn from this failure and continue to stay engaged in the activity. Conversely, maladaptive perfectionists set unrealistic goals that are not obtainable, which increases these individuals' chances of becoming obsessed with succeeding, and ultimately avoiding activities that they may fail at (see Figure 1 for the breakdown of perfectionistic pathways).

**Figure 1***Pathways of Perfectionism*

*Note.* Adapted from Master of Counseling Program by Jessica Rohifing Pryor at Northwestern University.

Extending Hewitt and Flett's (2002) multidimensional model of perfectionism, Stober (2014) outlines three additional dimensions—self-oriented, other-oriented, and socially prescribed. Self-oriented perfectionism relates to high expectations for success within the self. This dimension is driven by internal beliefs that align with the idea that being perfect is important (Stober, 2014). Although self-oriented perfectionism has been associated with a higher risk of burnout compared to other-oriented perfectionism (Hewitt & Flett, 2002; Hill et al., 2008; Hill & Appleton, 2011), it has also been linked to higher levels of self-esteem, conscientiousness,

goal attainment, and positive affect, unlike other dimensions of perfectionism (Hewitt & Flett, 2004; Molnar et al., 2006; Powers et al., 2005; Trumpeter et al., 2006). Because self-oriented perfectionism is intrinsically motivated, the likelihood for negative outcomes may be lowered compared to dimensions like other-oriented and socially prescribed perfectionism.

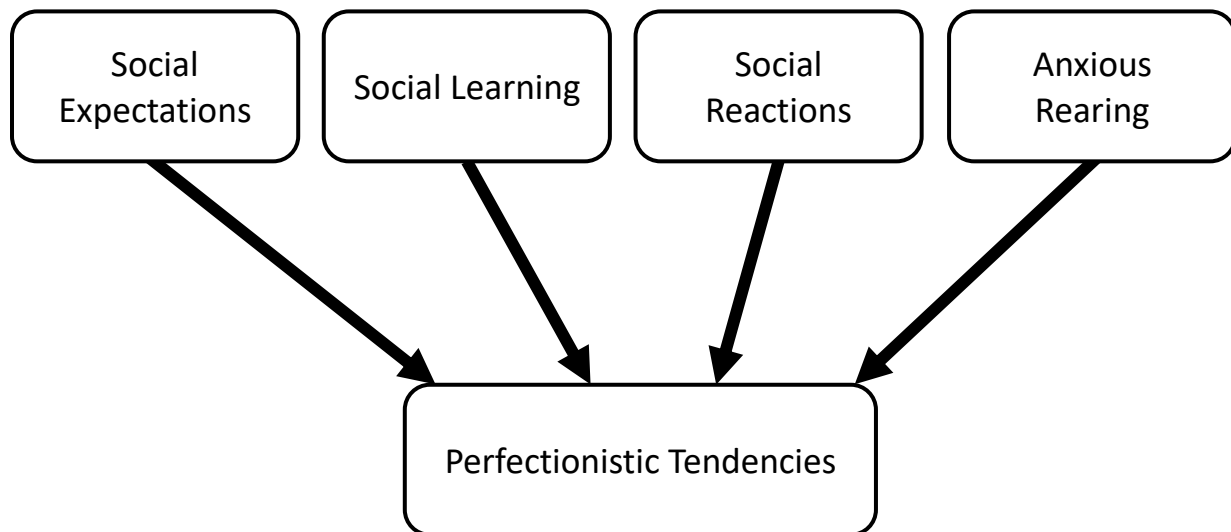
Other-oriented perfectionism refers to someone being highly critical of others and expecting others to be perfect. Research by Stober (2014) shows that individuals higher in other-oriented perfectionism are less interested in supporting, providing happiness, or helping others due to the negative relationship found with nurturance, intimacy, and social development. These individuals are also less likely to get to know others, understand others' feelings, and are less likely to get along with others (Stober, 2014). In line with this, individuals high in other-oriented perfectionism scored higher in the dark triad traits—Machiavellianism, Narcissism, and subclinical Psychopathy—than those who scored higher in self-oriented or socially prescribed perfectionism (Stoeber, 2015). Additionally, those individuals who scored higher in other-oriented perfectionism had a higher risk of developing social dominance goals (Flett et al., 2016; Kleszewski & Otto, 2019; Stober, 2014). Other-oriented perfectionism, while straining the development of individuals, is not a measure of interest within the proposed research, due to its nature of expectations in others and not the self.

Lastly, socially prescribed perfectionism is the perceived desire for validation from others paired with interpersonal sensitivity, and the belief that others are imposing unrealistic expectations on you (Curran & Hill, 2018; Hill et al., 2008; Hill et al., 2010a; Hill et al., 2010b; Stoeber, 2015). Previous research aligns with the idea that socially prescribed perfectionism is also linked with burnout in different populations (Hewitt & Flett, 1991; Hill et al., 2008; Hill et al., 2010a; Hill et al., 2010b, Hill & Appleton, 2011). Additionally, socially prescribed

perfectionism has been linked to higher levels of neuroticism and negative affect in individuals (Hewitt & Flett, 2004; Molnar et al., 2006; Stober et al., 2009). Further, socially prescribed perfectionism has been linked with peer victimization in school-aged individuals (Flett et al., 1994; Wilson et al., 2015). Further, individuals with socially prescribed perfectionistic tendencies, strive for flawlessness and an ideal public self-image. These individuals are in turn at higher risk for developing their ideal self with the public in mind (Hewitt & Genest, 1990; Razuvaeva et al., 2016). This may create dissonance within the individual in that basing one's ideal self on the public may promote a precarious self-image.

### ***Development of Perfectionism***

While many high achieving individuals may struggle with perfectionistic tendencies, it is important to focus on the development of these tendencies. Adolescence is a period in which an individual is sensitive to environmental, physical, and psychological changes (Blakemore, & Mills, 2014; Fuhrmann et al., 2015; Sommerville et al., 2010; Steinberg, 2008). Given the rapid developments and extreme sensitivity during adolescence, many researchers support the idea that perfectionism develops within adolescence (Damian et al., 2017; Flett et al., 2002; Gilman & Ashby, 2006; Stoeber & Childs, 2011). Research shows that perfectionism has multiple different pathways in which it develops via social expectations, social learning, social reactions, and anxious rearing pathways (see Figure 2).

**Figure 2***Development of Perfectionism*

The social expectations pathway develops through excessive expectations from surrounding individuals. The acceptance from these individuals is contingent upon the individual's achievement in certain tasks (Flett et al., 2002; Olsson et al., 2020). Typically, throughout adolescence individuals are surrounded by their parents, and therefore parental influences on individuals are the most researched developmental lens of perfectionism. In particular, a prominent idea is that pressure from parents increases perfectionistic tendencies in children and adolescents (Curran et al., 2017; Madigan et al., 2015; McArdle & Duda, 2008; Sapieja et al., 2011). Furthermore, perceived parental expectations in combination with parental acceptance contribute to the development of perfectionism (Madigan et al., 2019; Olsson et al., 2020). The parent's psychological control of their children (i.e., withdrawing love, expressing disappointment) has previously predicted increases in maladaptive perfectionism (Soenens et al. 2008). In addition, maladaptive perfectionism tends to develop through social expectations



mechanisms or seeking parental approval for behaviors, more than adaptive perfectionism (Appleton et al., 2010; Bandura, 1977; Damian et al., 2013; Damian et al., 2017; Olsson et al., 2020; Soenens et al., 2008; Speirs Neumeister, 2004; Speirs Neumeister et al., 2009).

Theorists also suggest that social learning pathways increase the development of perfectionism, through the observation of parental behaviors. This pathway develops due to the individuals present in the child's environment, combined with the child's ability to imitate parental behaviors (Olsson et al., 2020). Bandura (1977) suggests that children learn behaviors from the individuals around them, which may include parents, teachers, peers, and coaches. Further, research shows that when participants were asked where their perfectionistic tendencies come from, their responses aligned with social learning pathways, with particular reference to their parents' behaviors (Appleton et al., 2010; Bandura, 1977; Damian et al., 2013; Damian et al., 2017; Olsson et al., 2020; Soenens et al., 2008; Speirs Neumeister, 2004; Speirs Neumeister et al., 2009). In line with this, Bandura (1977) suggests that parental behaviors set the standard for individuals, which in turn, enhances the internalization of perceptions from others that surround them. Further, the extent to which the individual internalizes these beliefs is determined by the amount of exposure they have to the people surrounding them (Bandura, 1977). Thus, the development of perfectionism is influenced by perceptions and interactions with the people around us (Nordin-Bates et al., 2014; Olsson et al., 2020).

The social reactions pathway is another way in which perfectionism develops. The social reactions pathway suggests the way individuals surrounding you react to your failures and reinforces the negative affect coinciding with said failure (Olsson et al., 2020). An example of this would be the way academia influences the development process of individuals. Flett and colleagues (2002) suggest that experiences with academic success encourage the development of

perfectionism in adolescents. Further, higher academic achievement may be a predisposition to higher levels of perfectionism (Flett et al., 2002). Typically, the relationship between perfectionism and academic success is observed through the positive outcomes produced, however, the social reactions pathway relates perfectionism to negative outcomes of academic success and harsh life experiences (Bong et al., 2014; Damian et al., 2017; Nounopoulos et al., 2006; Stoeber, 2012; Wilson et al., 2015). Additionally, individuals strive for perfection to avoid social and emotional rejection from their peers (Eccles & Midgley, Damian et al., 2017; 1989; Steinberg, 2008; Wilson et al., 2015;). Due to this, maladaptive emotion regulation techniques like rumination and other negative outcomes can develop (Ashby et al., 2012; Flett & Hewitt, 2002; Wilson et al., 2015).

Finally, the anxious rearing pathway may influence the development of perfectionism in an individual. This pathway develops as a combination of social learning and social reaction techniques. The negative response to mistakes provided by the individuals' surroundings suggests that perfectionistic tendencies, specifically concern with mistakes, are potentially due to exposure to anxious parents who also worry over their own mistakes (Flett et al., 2002; Olsson et al., 2020; Speirs Neumeister et al., 2009). These parents tend to project their anxious tendencies on their children, which follows previous developmental pathways. Due to the projection of anxious tendencies from parents onto children, paired with the perfectionistic tendencies produced through high-pressure performance activities like athletics and academics. The present research focuses on high-achieving individuals. Those high achieving individuals are categorized into two groups: athletes and honors students.

*Perfectionism in Athletics*

Eight million people, or 2.5%, of the United States population high school age and above currently engage in competitive athletics (Schwarb, 2018). Research by Gotwals and colleagues (2003) has shown that maladaptive perfectionism is linked to lower self-esteem in athletes, whereas adaptive perfectionism has been linked to increased self-esteem. Curran and Hill's (2018) research provides evidence that high socially prescribed perfectionism by coaches in combination with high self-oriented perfectionism can increase feelings of guilt and shame within an athlete.

The increased pressure from coaches on athletes is just as influential in the development of perfectionistic tendencies as the pressures from parents, in that coaches play a major role in shaping athletes' specific self-determined motivation (Mageau & Vallerand, 2003). In the dynamic between the athlete and the coach, the coach's behaviors influence the athlete's motivation by directly impacting the athlete's three basic psychological needs: relatedness, competence, and autonomy (Deci & Ryan, 1985; Deci & Ryan, 2000). If the coach's behaviors are perceived as positive, the athlete is more likely to have adaptive outcomes regarding motivation and general well-being (Bartholomew et al., 2009). If the athlete perceives the coach's behaviors as maladaptive and controlling, this creates an environment that threatens the health and stability of the coach-athlete relationship (Ryan, 1982). In turn, this also creates threats to the athlete's self-esteem and increases performance concerns (Ryan, 1982). Thus, given the implications of the coach's behaviors, they must successfully adopt multiple roles for the athlete to ensure that they achieve their coaching responsibilities (Bebetsos et al., 2017). Crisfield et al. (2003) suggest such roles include:

1) As a leader. 2) As a teacher. 3) As a driving force that creates a positive and decisive environment towards athlete's development. 4) As a friend who supports the athlete. 5) As a manager who organizes and plans. 6) As a social worker who provides advice. 7) As a scientist involved in the analysis, evaluation and resolution of problems. 8) As a student who listens, learns and develops coaching skills and knowledge. 9) As a guardian who protects the athletes from injury, promoting health and physical conditioning and protects sport values. (p. 67)

With the pressure put on athletes to perform in the United States, there is a high potential for negative outcomes. Gould's (1996) research provides evidence that high achieving individuals, such as athletes, who score higher in perfectionism are at higher risk for decreased motivation, which can lead to higher levels of burnout. Thus, high achieving individuals can become emotionally and physically exhausted because they must do something they may no longer feel like doing. The exhaustion caused by this may be very stressful and increase feelings of anxiousness (Hill & Curran, 2015).

Further, these stressful events may evoke maladaptive coping mechanisms, such as increased risk of eating disorders and improper emotion regulation techniques (e.g., displacement of anger or denial) (Haase et al., 2002). According to Park and colleagues (2010), male athletes are at higher risk than their female counterparts for reliance upon maladaptive coping strategies. Additionally, most athletes must cope with socially prescribed perfectionism that is increasing stress on the individual, by coaches, parents, and spectators (Pensgaard & Ursin, 1998). While athletes are one group being represented in the current research, it is imperative to research other high achieving groups, like honors students.

*Perfectionism and Academics*

Research by Damian and colleagues (2017) supports the idea that individuals with higher academic achievement paired with higher perceived skills, are at an increased chance of developing maladaptive perfectionism. This idea is based on the repeated academic successes the high-achieving individual may experience, suggesting to the individual that they can achieve perfection, when it may not be possible (Flett et al., 2002). Further, these individuals may have higher perceived expectations from others, paired with increased external pressures due to their previous academic success. Moreover, these feelings can increase perfectionistic concerns and negative outcomes in high-achieving scholars (Damian et al., 2017).

One main concern with academic achievement is the introduction of test anxiety and procrastination (Steel, 2007; Zeidner, 1998). Maladaptive and socially prescribed perfectionism, but not other dimensions of perfectionism, have been previously associated with cognitive test anxiety (Mills & Blankstein, 2000; Rice et al., 2016; Stoeber et al., 2009). Moreover, increased test anxiety is negatively related to academic performance. For example, as scores on standardized testing decrease, test anxiety increases. Further, higher perfectionism levels have previously been correlated with lower testing scores in cognitive functioning, memory, and attention (Chapell et al., 2005; Eum & Rice, 2011; Hembree, 1988; Putwain et al., 2010; Zeidner, 1990).

Procrastination may develop in college students due to fearing the consequences of success, judgment, harsh evaluation, or fear of failure (Flett et al., 1992; Solomon & Rothblum, 1984). Further, those individuals experience increased levels of procrastination to put off the evaluation from others (Closson & Boutilier, 2017). The results of procrastination in high-achieving students may be lower grades, which in turn, can increase levels of anxiety (Closson &

Boutilier, 2017; Solomon & Rothblum, 1984; Steel, 2007). Additionally, these high-achieving individuals tend to overcompensate for the pressure others are putting on them by striving for unreachable standards (De Kuyper et al., 2013). This relationship between anxiety, maladaptive perfectionism, and procrastination is circular, and therefore each point influences the others.

Opposing these ideas, individuals who are engaged in their academic success tend to pay attention more, have increased effort, and enjoy academics more than those individuals who are not engaged (Shim et al., 2016). Those students higher in maladaptive perfectionism levels, such as self-oriented and socially prescribed perfectionism, may have increased fear of failure or fear of comparison to peers. Further, individuals higher in self-oriented perfectionism report lower levels of procrastination than those higher in socially prescribed perfectionism (Flett et al., 1992). Moreover, adaptive perfectionism predicted increases in academic engagement across age groups (Damian et al., 2017). Traditionally, perfectionism is seen as dysfunctional or as a psychological maladaptation because of its roots in clinical psychology, and yet it is common today amongst high achieving individuals (Burns, 1980; Pacht, 1984; Stoeber, 2011).

### **Coping**

Poorer coping mechanisms may produce similar mental health outcomes associated with maladaptive perfectionism. Coping can be defined as "the cognitive and behavioral efforts made to master, tolerate, or reduce external and internal demands and conflicts among them" (Folkman & Lazarus, 1980, p. 223). Coping strategies can be divided into three groups: problem-focused, emotion-focused, and avoidance (Krohne, 1993). Problem-focused coping mechanisms use strategies to help change or eliminate the stressor (Lazarus and Folkman, 1986). Some examples of problem-focused coping are asking for help, educating oneself, or establishing boundaries with others. Emotion-focused coping mechanisms use strategies that change how one might feel

about the event or stressor (Lazarus and Folkman, 1986). Examples of emotion-focused coping could be self-blame or wishful thinking. Avoidant coping mechanisms use strategies that will escape the stressor (Roth & Cohen, 1986). Examples of avoidant coping could be things such as rumination, procrastination, or self-destructive behaviors, such as the use or abuse of drugs and alcohol to forget the stressor. Research conducted by Crocker and Graham (1995), supports the idea that avoidant and emotion-focused coping leads to worse affect, while problem-focused coping tends to lead to better affect.

Adaptive coping mechanisms such as those outlined by problem-focused coping can help a person avoid psychological distress, heightened levels of anxiety, increased feelings of depression, and many other outcomes previously stated. Adaptive coping mechanisms are especially necessary for high achieving individuals, such as athletes and honors students, who are consistently in high-stress situations (Lazarus, 1999; Madigan, 2018). Research shows that athletes that are autonomously motivated, or motivated based on interest or enjoyability of the activity, and have higher personal standards, have better coping mechanisms. Contrasting this, those athletes that have more controlled motivation tendencies, or are motivated because of socially prescribed and self-oriented perfectionism, are more concerned with making mistakes and will, in turn, have poorer coping mechanisms (Mouratidis & Michou, 2011).

When high achieving individuals are not performing well, they cope in a few different ways. Research shows they tend to self-blame, increase efforts to perform better, limit competitive activities, and directly work to control their stress (Crocker & Graham, 1995; Grove & Heard, 1997; Kaiseler et al., 2009; Wolniak & Rekoutis, 2016). Further, self-oriented perfectionism has correlated with emotion-focused coping, while socially prescribed perfectionism has correlated with avoidant coping (Morris & Lomax, 2014).

### *Stress and Coping Theory*

The Lazarus theory of stress and coping specifies appraisal and coping processes, as shown in Figure 3. The Lazarus theory of stress redefined stress from an external stimulus to a transactional process between the person and the environment (Lazarus & Folkman, 1986). This theory allows individuals to investigate their psychological well-being and ability to manage different types of demands (Krohne, 2002). Within the Lazarus theory has five different stages: signals of stress, primary appraisal, secondary appraisal, coping, and pacing and learning. In this transactional model, Stress is an imbalance of pressures and resources, which, is often triggered by a stressful event.

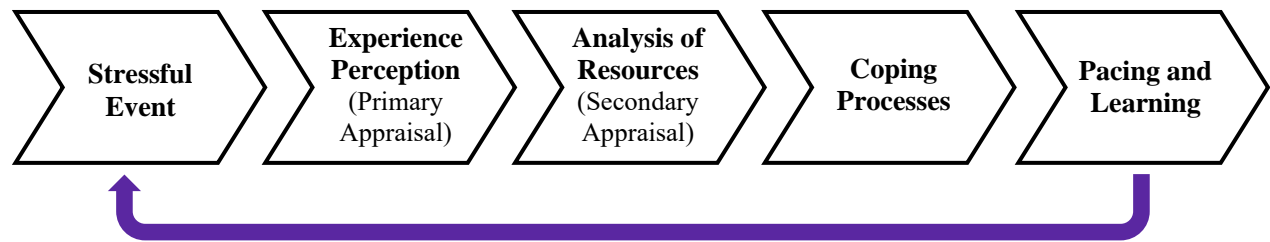
Applied to the present research, stress may represent an imbalance of coaching and/or parental pressures and personal talents or skills available at the time. When the individual is faced with a stressful event, the individual moves on to primary reappraisal or perception of experience, where they rethink the situation. The individual might be thinking things like “How well did I really do?” or “How do I feel about the situation?” or “Was this a negative or positive experience?” The individual then moves on to secondary appraisal, which is when they analyze their resources (i.e., talent, performance, or coach’s availability) that was accessible during that specific experience.

The individual then attempts to cope with the experience through either avoidant, problem-focused, or emotion-focused coping, as described previously. He emphasizes that coping with stress changes over time and those previous methods of coping may not work anymore, therefore the individual must have flexible coping techniques (Lazarus, 1993). The individual ends this process with pacing and learning, which is learning from successful/unsuccessful coping techniques and subsequent outcomes, either to avoid or alleviate



stress. If the individual is unable to learn from the stressful experience, they will begin this process again until they are able to employ successful coping techniques, achieving the goal of stress alleviation.

Extending the theory, Lazarus (1993) proposed that coping is a process that should be addressed in four different aspects. The first is that coping can be a process and not just a style; coping actions made while in stressful decisions need to be taken and analyzed separately from their outcomes (Lazarus, 1993). Second, we are unable to ask people truly how they cope with stressors because individuals cope with different stressors according to the intensity of the stressor, which influences what information the individual provides. Third, researchers must ask participants to thoroughly describe what they are feeling and how they go about changing such feelings as it occurs to measure proper coping (Lazarus, 1993). Fourth, coping is not a singular event in the individual's life, but rather a continuous process that one engages in every day (Lazarus, 1993). The Lazarus theory of stress and coping can be tied into the current research because of the stressful lifestyle that high-achieving individuals endure.

**Figure 3***Lazarus Theory of Stress and Coping*

*Note.* This theory has been used mainly used in stress research but is being used due to the stressful nature of sports. The wording has been adjusted to fit the needs of this research.

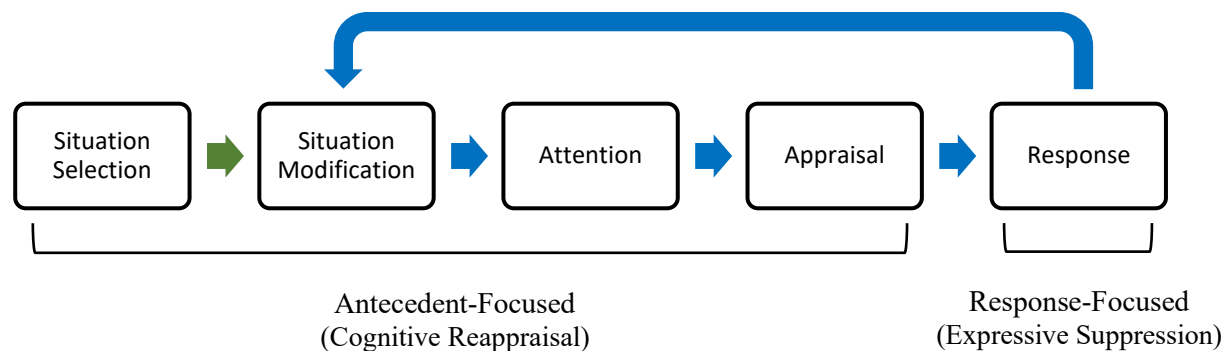
Adapted from Lazarus & Folkman (1986).

### **Emotion Regulation**

Individuals are not passive holders of emotion regulation abilities, and therefore, beliefs and attitudes on subjects can sway our ability to regulate emotions properly. Proper emotion regulation techniques are imperative to consider when referencing the well-being of high-achieving individuals (Thompson, 1994). Emotion regulation techniques involve evaluating, monitoring, and modifying emotional behaviors. Further, emotion regulation involves assessing the intensity of emotional behaviors and the features they present to reach a set goal (Thompson, 1994). Emotion regulation processes work both intrinsically and extrinsically to modify the individual's internal states and external emotional manifestations (Thompson, 1994). Cognitive reappraisal is defined as changing the way someone thinks about an emotional situation, which is seen as an adaptive way to regulate emotions (John & Gross, 2004; Lazarus & Alfert, 1964). Expressive suppression involves changing the behavioral response to an ongoing emotional

event, which is seen as a maladaptive way to regulate emotions (John & Gross, 2004; Lazarus & Alfert, 1964). Furthermore, expressive suppression has been positively associated with emotion control values, or the value you place on your ability to control your own emotions. Expressive suppression has also been negatively associated with malleability beliefs, or how much you believe you can control or modify your emotions. However, malleability beliefs are positively associated with cognitive reappraisal (Goodman et al., 2021).

The most used model of emotion regulation is the process model of emotion regulation, which allows researchers to assess the strategies used by individuals before, after, and at activation, as shown in Figure 4 (Gross & Thompson, 2007). The process model of emotion regulation works to assess, attend, reappraise, and respond to an emotion-evoking event. This process begins with situation selection, which is when we select a situation based on whether we think a situation will evoke the emotions we'd like to have or decrease the likelihood of emotions we do not want. When a situation occurs, we modify our behavior to avoid unwanted emotions. Situation modification involves directly modifying the emotion-evoking event to change its impact on our emotions. We then attend to avoidant behavior or thoughts that will distract us from the emotion-evoking situation. Next, we employ cognitive reappraisal techniques to change the way we think about the situation or event. Further, we respond to the situation, which may include inhibiting emotional expressions or suppressing our behaviors. Lastly, responses tend to change due to the person-environment interaction, and therefore the process restarts after modifying the situation.

**Figure 4***The Process Model of Emotion Regulation*

*Note.* Adapted from Gross & Thompson (2007).

Emotion regulation techniques are developed throughout childhood, which is the age at which most individuals are engaging in rigorous athletics and setting personal educational standards to strive towards (Vois & Damian, 2020). Further, as we age, reliance upon expressive suppression decreases while cognitive reappraisal increases (Gross & Levenson, 1993). Previous research supports the idea that maladaptive perfectionism can lead to maladaptive emotion regulation techniques, such as self-blame and rumination (Macedo et al., 2017; Rudolph et al., 2007). Further, maladaptive perfectionism has also been correlated with increased psychological distress, which in turn produces problems with emotion regulation (Macedo et al., 2017). Individuals with mixed perfectionistic tendencies (adaptive and maladaptive) tend to score higher in expressive suppression versus cognitive reappraisal, which correlates with unhealthy emotion regulation techniques like catastrophizing and rumination (Hill & Davis, 2014). Expressive suppression is similar to emotion-focused and avoidant coping styles, with links to unhealthy behavioral and psychological responses. Opposing this, cognitive reappraisal techniques mirror the psychological benefits that problem-focused coping produces.

**Self-Esteem**

Self-esteem consists of two different levels—global and domain-specific (Leary & Baumeister, 2000). Global self-esteem refers to the overall judgment someone has regarding oneself, whereas domain-specific self-esteem refers to the judgments someone has regarding specific aspects of themselves, i.e., sports or academics (Leary & Baumeister, 2000). Regardless of the domain, self-esteem is defined as the self-evaluation of behaviors or attitudes one has (Leary & Baumeister, 2000). Previous research has shown that an individual's behavior can change due to the perception of the self (De Kuyper et al., 2013; Leary et al., 1995; Lehmann, 1970). Due to this, individuals may seek validation for their feelings toward themselves from others, which can be particularly harmful to high achieving individuals such as athletes or honors students who already set high standards for themselves. However, maladaptive perfectionism may be a threat to the way an individual views themselves, or the individual's self-esteem. Depending on the dimension of perfectionism, perfectionism can be detrimental to the mental health, and performance of the athlete (Koivula & Hassme, 2002). Research shows that maladaptive perfectionism is one of many culprits for lower self-confidence and higher competitive anxiety (Koivula & Hassme, 2002). Further, self-esteem and maladaptive perfectionism may heighten feelings of depression in high-achieving individuals (Koivula & Hassme, 2002).

Further, maladaptive perfectionism has the potential to lower each of the five domain-specific levels of self-esteem—scholastic competence, athletic competence, social competence, physical appearance, and behavioral conduct (Neemann & Harter, 2012). Scholastic competence refers to the individuals' perceived cognitive competence, specifically in schoolwork. Further, athletic competence refers to one's ability to perform well in sports and their athletic expertise.

Social competence is defined as “the role of the self in promoting social competence or success” (Neemann & Harter, 2012, p. 8). Physical appearance encompasses the extent to which an individual feels good about their looks. Lastly, behavioral conduct is a combination of the way one conducts themselves, the ability to do the right thing, and trouble avoidance. Further, as we age, more domains can play a role in self-esteem including creativity, intellectual ability, job competence, relationships surrounding the individual (close, parent, romantic), finding humor in life, and morality (Neemann & Harter, 2012).

Previous research supports the idea that adaptive perfectionism does not lead to poorer self-esteem, which is important for athletes and other high-achieving individuals (Rice et al., 1998). While many factors lead to lower self-esteem, the negative implications can be far-reaching. Individuals with lower self-esteem may be at risk for other negative mental health outcomes such as increased depressive moods, heightened levels of anxiety, and overall lower levels of psychological well-being. Lastly, self-esteem has also been shown to buffer the relationship between perfectionism and depressive moods (Rice et al., 1998).

### ***Sociometer Theory***

Sociometer theory describes self-esteem as a meter in which relationships and social schemes can fuel a person's self-esteem (Leary & Baumeister, 2000). Leary (1990) suggests that self-esteem is the assessment of an individual's behavior for social inclusion or exclusion, in combination with external stimuli. As such, the sociometer theory redefines self-esteem by assessing it as an internal meter of relational values socially prescribed by other people (Leary, 2005). Sociometer theory posits both nature and nurture components by suggesting, as previous researchers have proven before, that self-esteem was originally used for survival and successful reproduction but has adapted over time (Barkow 1980; Leary, 2005; Pyszczynski, 1997). Thus,

according to sociometer theory, self-esteem now represents an individual trying their best to avoid social exclusion.

Sociometer theory works in four phases—signs of social exclusion, lower self-esteem, aversive emotions, and applying re-inclusion behaviors— as shown in Figure 5. The Sociometer Theory begins with a situation in which the individual detects signs of social exclusion (Leary et al., 1995; Leary & Baumeister, 2000). This phase could be enhanced or due to coaches, parents, or professors belittling the individual. This in turn lowers the individual's levels of self-esteem, representing the next phase in this theory (Leary et al., 1995; Leary & Baumeister, 2000). To combat the lowering levels of self-esteem, the individual begins to experience aversive emotions, such as exclusion and rejection rumination (Leary, 2005). The last phase of this theory is applying re-inclusion behaviors. This phase works by applying behaviors that the individual knows will make them accepted into the group, therefore alleviating decreased self-esteem and reducing aversive emotions (Leary et al., 1995; Leary & Baumeister, 2000). Examples of these behaviors could be trying harder in practice and competition.

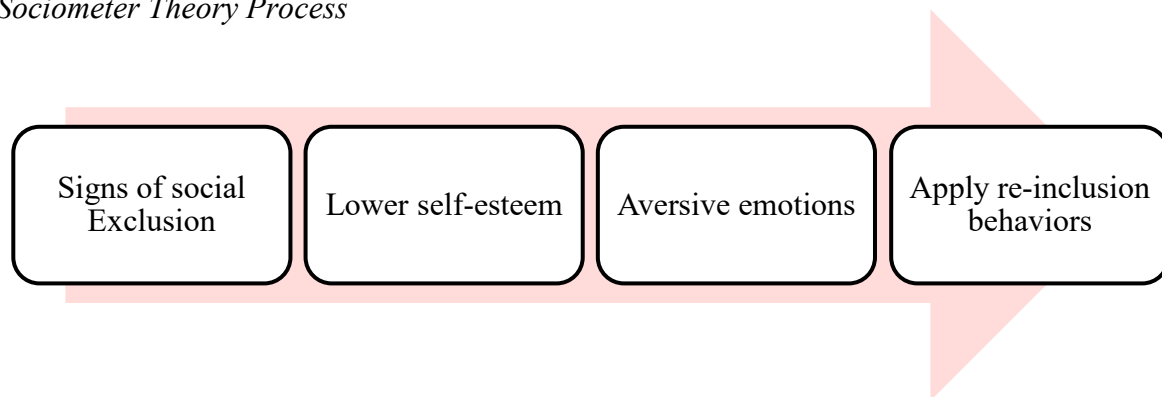
In line with this, sociometer theory suggests that people try to "increase their relational value and social acceptance, using self-esteem as a gauge of their effectiveness" (Leary, 2005, p. 1). Sociometer theory can predict self-described popularity within individuals and in turn, reinforce itself, causing increased self-esteem (Reitz et al., 2016). Individuals who have lowered internal self-esteem may have a harder time "fueling" the meter to optimum abilities without help from others. This theory relates interpersonal components relevant to the current research because it states that other people can add or take away from your self-esteem. For example, coaches, parents, or professors may react positively or negatively to an individual's behaviors, which may, in turn, promote or diminish the individual's self-esteem. This theory also ties into

socially prescribed perfectionism because it allows another person to put expectations on you.

Thus, at its core, this theory suggests that self-esteem could be an individual trying their best to avoid social isolation or exclusion.

**Figure 5**

*Sociometer Theory Process*



*Note.* Adapted from Leary & Baumeister (2000).

## Study Overview

The current study investigated how emotion regulation and coping mechanisms are related to maladaptive perfectionism and self-esteem in athletes, honors students, and non-athletes. Additionally, the effects of coping mechanisms and emotion regulation as mediators between maladaptive perfectionism and self-esteem were explored (Stoeber, 2014). Overall, it is important to support healthy self-esteem, coping, and emotion regulation strategies for all high-achieving individuals, as each of these variables can have detrimental outcomes. Further, exploratory analyses were conducted to assess gender differences and perfectionism specifically in the context of athletes.

The current research investigated three interrelated research questions:



1. Do athletes and/or honors students exhibit maladaptive perfectionism and lower self-esteem? It was hypothesized that people who engage in competitive athletics would have higher levels of maladaptive perfectionism and lower levels of self-esteem than non-athletes and honors students.
2. Is maladaptive perfectionism associated with poor emotion regulation, coping strategies, and lower self-esteem? It was hypothesized that maladaptive perfectionism would be associated with poor emotion regulation, maladaptive coping strategies, and lower self-esteem.
3. Are emotion regulation and coping mechanisms mediators between maladaptive perfectionism and self-esteem? It was hypothesized that maladaptive emotion regulation and maladaptive coping mechanisms would mediate the link between maladaptive perfectionism and self-esteem.

## **Method**

### **Participants**

Participants were recruited from the University of North Florida. We investigated three different distinct groups—athletes, non-athletes, and honors students. G\*power was used to examine the power needed to detect mean differences for three groups. A sample of 160 was determined to detect a medium-sized mean difference in a one-way ANOVA (e.g.,  $\eta^2 = .06$ ). Additionally, the pwr2ppl package in R was used to estimate the power to detect the proposed mediation effects. Based on correlations from previous literature between study variables (e.g., .3 to .5), the proposed sample of 160 would give adequate power (.80) to detect indirect effects through the proposed mediators.

Data were excluded for 120 participants due to failure to provide adequate consent, or if participants were under the age of 18. Participant grouping was determined through two demographic items “Have you ever participated in competitive athletics?”, and “Are you a student in the Honors College?”. To be considered an athlete in this sample, participants must have competed in athletics for a minimum of 3 years. Therefore, the final sample ( $N = 493$ ) consisted of 258 athletes, 150 non-athletes, and 90 honors students. Of these, 76 reported being biologically male at birth ( $n = 17.0\%$ ) and 371 reported being biologically female at birth ( $n = 83.0\%$ ), with an age range of 18-49 years old. The majority of the participants identified as psychology majors, white ( $n = 314, 60.0\%$ ), and with an average household income between \$50,000 and \$74,999 ( $n = 83, 18.9\%$ ). All individuals were undergraduate students enrolled in courses at a mid-sized southeastern university in the United States (see Table 1 for all participant characteristics).

**Table 1***Participant Demographic Characteristics by Group*

|                       | Total ( $n = 493$ ) | Athletes   | Non-Athletes | Honors Students |
|-----------------------|---------------------|------------|--------------|-----------------|
| Sex Assigned at Birth |                     |            |              |                 |
| Female                | 371(83.0%)          | 212(85.5%) | 92(82.9%)    | 67(76.1%)       |
| Male                  | 76(17.0%)           | 36(14.5%)  | 19(17.1%)    | 21(23.9%)       |
| Intersex              | 0(0.0%)             | 0(0.0%)    | 0(0.0%)      | 0(0.0%)         |
| Age (years)           | 20.65±4.03          | 20.63±4.31 | 21.27±3.98   | 19.82±3.01      |
| Race                  |                     |            |              |                 |

|                           |            |             |           |           |
|---------------------------|------------|-------------|-----------|-----------|
| White/Caucasian           | 314(63.7%) | 181(65.57%) | 65(57.0%) | 68(75.6%) |
| Black/African<br>American | 67(13.6%)  | 36(13.04%)  | 19(16.7%) | 12(13.3%) |
| Hispanic/Latino           | 78(15.8%)  | 39(14.13%)  | 25(21.9%) | 14(15.6%) |
| Asian                     | 28(5.7%)   | 9(3.26%)    | 13(11.4%) | 6(6.7%)   |
| Pacific Islander          | 1(0.2%)    | 0(0.0%)     | 1(.9%)    | 0(0.0%)   |
| Middle Eastern            | 9(1.8%)    | 2(.72%)     | 3(2.6%)   | 4(4.4%)   |
| Native American           | 5(1.0%)    | 3(1.08%)    | 2(1.8%)   | 0(0.0%)   |
| Multiple Race             | 16(3.2%)   | 5(1.81%)    | 7(6.1%)   | 4(4.4%)   |
| Other                     | 5(1.0%)    | 1(.36%)     | 3(2.6%)   | 1(1.1%)   |
| Household Income          |            |             |           |           |
| Under \$25,000            | 72(16.4%)  | 45(18.5%)   | 20(18.2%) | 7(8.1%)   |
| \$25,000 - \$39,999       | 68(15.5%)  | 37(15.2%)   | 23(20.9%) | 8(9.3%)   |
| \$40,000 - \$49,999       | 49(11.2%)  | 25(10.3%)   | 17(15.5%) | 7(8.1%)   |
| \$50,000 - \$79,999       | 83(18.9%)  | 40(16.5%)   | 19(17.3%) | 24(27.9%) |
| \$75,000 - \$99,999       | 61(13.9%)  | 35(14.4%)   | 11(10.0%) | 15(17.4%) |
| \$100,000 - \$149,999     | 59(13.4%)  | 30(12.3%)   | 14(12.7%) | 15(17.4%) |
| Over \$150,000            | 47(10.7%)  | 31(12.8%)   | 6(5.5%)   | 10(11.6%) |

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*Note.* Counts and percentages are given for nominal variables. Means and standard deviations are given for continuous variables.

Of the 258 athletes, 36 reported being biologically male at birth ( $n = 14.5\%$ ), 212 reported being biologically female at birth ( $n = 85.5\%$ ), with ages ranging from 18-49 years old.

The majority of athletes identified as white ( $n = 181$ , 70.1%), with an average household income between \$50,000 and \$74,999 ( $n = 40$ , 16.5%). Of the 150 non-athletes, 19 reported being biologically male at birth ( $n = 16.7\%$ ), 92 reported being biologically female at birth ( $n = 82.9\%$ ), with ages ranging from 18-40 years old. The majority of non-athletes identified as white ( $n = 65$ , 43.3%), with an average household income between \$25,000 and \$39,999 ( $n = 23$ , 20.9%). Lastly, of the 90 honors students, 21 reported being biologically male at birth ( $n = 23.9\%$ ), 67 reported being biologically female at birth ( $n = 76.1\%$ ), with ages ranging from 18-41 years old. The majority of honors students identified as white ( $n = 68$ , 74.7%), with an average household income between \$50,000 and \$74,999 ( $n = 24$ , 27.9%).

### **Procedure**

The following materials and procedure were approved by the University Internal Review Board (IRB). Prior to data collection participants reviewed and agreed to an electronic informed consent. Per the APA Ethical Principles of Psychologists and Code of Conduct participant treatment was ethical with maximization of benefits and minimization of risks (American Psychological Association, 2017). Respect for participants' privacy, confidentiality, and inclusion of self-determination was included for the protection of the participants. This study allowed participants to complete the online survey, which further ensured the safety of participants through the COVID-19 pandemic.

After confirming consent, participants began completing an Implicit Association Test and self-report questionnaires, which were presented through block randomization to control for order effects. The participants ended the survey by completing demographic questions. Upon completion, participants were compensated with extra credit for their classes through SONA, the university's psychology recruitment system. Regardless of participant turnout, data collection

ended on December 9th, 2021. To ensure the three groups were as even as possible, a recruitment email was sent out to all students enrolled in the honors college.

## **Materials**

### ***Demographics***

Participants were asked to report their demographic information, including their age, household income, race/ethnicity, gender, and sex at birth, as well as a few additional questions if they reported that they engaged in competitive athletics. These additional questions included “at what age did you start athletics?” “What sport do you play?” “Do you still play sports?” “How many hours on average do you practice each week?” and “if you do not play sports anymore, why?”.

### ***Self-Esteem (Implicit)***

Participants took a self-esteem implicit association test (Greenwald et al., 2002;  $\alpha = .78$  in this sample). This IAT uses the target measures of pleasant (Joy, Warmth, Happy, Pleasure, Smile), or unpleasant (Gloom, Agony, Filth, Stink, Pain), me (I, Me, My, Mine, Self), or Other (They, Them, Their, Theirs, Other). The goal of this measure is to target self-esteem, but more importantly, target self-esteem that is not a self-report measure. For this measure, the participants are instructed to respond as quickly and correctly as possible and to use the E and I keys to respond to each word. If they respond incorrectly a red X appears on the screen and they will have to respond correctly. If they take too long to respond to an item, participants are asked to “respond more quickly”. Scores are generated by determining how long it takes participants to respond and how accurately they respond. Previous research supports the validity of this test in adults and college students (Greenwald et al., 2009). The mean score of this measure was above .65, indicating that most participants “strong preference” for self-pleasant, and other-unpleasant.

### ***Emotion Regulation***

Participants completed the Cognitive Emotion Regulation Questionnaire-short (Garnefski & Kraaij, 2006;  $\alpha = .705$  in this sample). This 18-item, self-report questionnaire is designed to test the nine different aspects of emotional self-regulation based on different scenarios, and participants are asked to indicate agreement with each statement using a 1 = *Strongly Disagree* to 5 = *Strongly Agree* scale. The scenario given for each participant was to think of a time when they were disappointed and report accordingly. The nine different categories include: self-blame ( $\alpha = .915$ ), blaming others ( $\alpha = .856$ ), rumination ( $\alpha = .784$ ), catastrophizing ( $\alpha = .918$ ), positive refocusing ( $\alpha = .825$ ), refocusing on planning ( $\alpha = .718$ ), positive reappraisal ( $\alpha = .837$ ), putting into perspective ( $\alpha = .712$ ) and acceptance ( $\alpha = .851$ ). These nine categories were combined into two subscales: maladaptive emotion regulation techniques (self-blame, rumination, catastrophizing, and blaming others;  $\alpha = .714$ ) and adaptive emotion regulation techniques (positive refocusing, refocusing on planning, positive reappraisal, putting into perspective, and acceptance;  $\alpha = .760$ ). Questions ranged from “I feel that I am the one who is responsible for what has happened”, to “I feel that others are responsible for what has happened”. Previous research supports adequate validity of this questionnaire in both men and women aged 18 and up (Garnefski & Kraaij, 2006).

### ***Self-Liking/Self-Competence (Explicit)***

Participants filled out The Self-liking and Self-Competence scale (Tafarodi & Swann Jr, 1995;  $\alpha = .908$  in this sample). This self-report scale is used to assess global self-esteem. It has a total of 16 questions within two different subscales, one that looks at self-liking ( $\alpha = .915$ ) and one that looks at self-competence ( $\alpha = .768$ ). Questions ranged from “I tend to devalue myself”, to “I wish I were more skillful in my activities”. Previous research provides evidence for the

convergent and discriminant validity of this questionnaire in adults aged 18 and up (Tafarodi & Swann Jr, 1995). The participants were asked to indicate agreement with each of the statements using a 1 = *Strongly Disagree* to 5 = *Strongly Agree* scale.

### ***Perfectionism***

Participants responded to The Multidimensional Perfectionism Scale (Hewitt et al., 1991;  $\alpha = .804$  in this sample), which was designed to look at overall perfectionism. This 18-item, self-report scale was developed to look at self-oriented ( $\alpha = .69$ ), other-oriented ( $\alpha = .66$ ), and socially prescribed perfectionism ( $\alpha = .765$ ). Questions ranged from “It makes me uneasy to see an error in my work”, to “I do not have very high standards for those around me”. Previous research supports the concurrent validity of this scale in young adults, adulthood, and college students both male and female (Hewitt et al., 1991). The participants were asked to indicate agreement with each statement using a 1 = *Strongly Disagree* to 7 = *Strongly Agree* scale.

Those individuals who had participated in athletics, also answered 12 questions derived from the Sport Multidimensional Perfectionism Scale (Dunn et al., 2006;  $\alpha = .871$  in this sample). The Sport MPS has unique questions added to it to determine socially prescribed influences: personal standards ( $\alpha = .841$ ), perceived parental pressure ( $\alpha = .90$ ), and perceived coach pressure ( $\alpha = .838$ ). Questions ranged from “If I do not set the highest standards for myself in my sport, I am likely to end up a second-rate player”, to “I feel like I can never quite live up to my coach’s standards”. Previous research supports adequate external validity and convergent validity in both male and female adults aged 18 and up (Dunn et al., 2006). Participants were asked to think about a time where their performance mattered and were asked to indicate agreement with each statement using a 1 = *Strongly Disagree* to 5 = *Strongly Agree* scale.

### ***Coping Functionality***

Lastly, the participants responded to the Coping Function Questionnaire (Kowalski & Crocker, 2001;  $\alpha = .834$  in this sample). This 18-item, self-report questionnaire targets three different aspects of coping functionality, including avoidant ( $\alpha = .949$ ), problem-focused ( $\alpha = .870$ ), and emotion-focused ( $\alpha = .858$ ) coping styles. These three subscales were further combined into maladaptive (emotion-focused or avoidant;  $\alpha = .804$ ), and adaptive (problem-focused;  $\alpha = .870$ ). Questions ranged from “I tried to find a way to change the situation”, to “I tried to get away from the situation to reduce the stress”. Previous research supports convergent and divergent validity of this questionnaire in adolescents (Kowalski & Crocker, 2001). Participants were asked to indicate how much they typically engaged in each coping behavior using a 1 = *not used at all* to 5 = *very much used* scale.

## **Results**

### **Statistical Assumptions**

Before conducting analyses, statistical assumptions of the data were checked to ensure accurate conclusions were drawn. By checking the statistical assumptions, we can lower the possibility of Type I and Type II errors, as well as obtain better estimates of effect sizes. The data were assessed for outliers using boxplots, which generated outliers three standard deviations above and below the mean for each scale and subscale. When analyzed, the data did not produce any outliers that would impact the results of any of these analyses.

Normality of the data set was assessed through the skewness and kurtosis of each variable. As referenced in Table 2, skewness and kurtosis were not an issue for the Self-esteem IAT, Multidimensional perfectionism scale, or its subsequent subscales. Additionally, there was no issue with the self-liking and self-competence scale, or the Sport Multidimensional scale and



subscales. There was no issue with the Cognitive Emotion Regulation Questionnaire subscales except for the positive reappraisal subscale (skewness = -1.00, kurtosis = .536). Further, the Coping Function questionnaire did not have issues with skewness or kurtosis.

Moreover, homogeneity of variance was analyzed for each of the scales and subscales used in the analysis of group differences. In terms of ANOVA analyses, there was no issue with homogeneity of variance in any of the scales or subscales. Furthermore, multicollinearity was assessed in terms of mediation modeling for each of the scales and was not an issue for any of the scales or subscales. The data upheld all necessary statistical assumptions, confirming the ability to ensure accurate conclusions were drawn.

**Table 2***Descriptive Statistics for Study Measures*

| Scale Measure                              | Mean ( <i>SD</i> ) | Skewness | Kurtosis | Reliability | Range       |
|--|--------------------|----------|----------|-------------|-------------|
| Self-esteem implicit association test      | .68 (.34)          | -.384    | .10      | .78         | -.49- 1.47  |
| Self-liking and Self-Competence Scale      | 2.94 (.68)         | .133     | -.59     | .91         | 1.33- 4.72  |
| Cognitive Emotion Regulation Questionnaire | 3.51 (.45)         | .091     | .73      | .71         | 2.00-5.00   |
| Coping Function Questionnaire              | 3.56 (.56)         | -.114    | .63      | .83         | 1.89-5.00   |
| Multidimensional Perfectionism Scale       | 23.28 (3.93)       | -.115    | .208     | .802        | 11.00-33.67 |
| Sport Multidimensional Perfectionism Scale | 12.63 (3.38)       | -.215    | -.44     | .87         | 4.00-20.00  |

**Group Comparisons**

Following the confirmation of statistical assumptions of the data, a between-subjects univariate analysis of variance (ANOVA) was conducted to analyze mean group differences between athletes, non-athletes, and honors students. The results of self-oriented perfectionism were significant,  $F(2, 448) = 3.34, p = .036$ , indicating that there were differences in self-oriented perfectionism levels between at least two of the groups. The results of other-oriented perfectionism were not significant,  $F(2, 448) = .863, p = .442$ , indicating that there were no

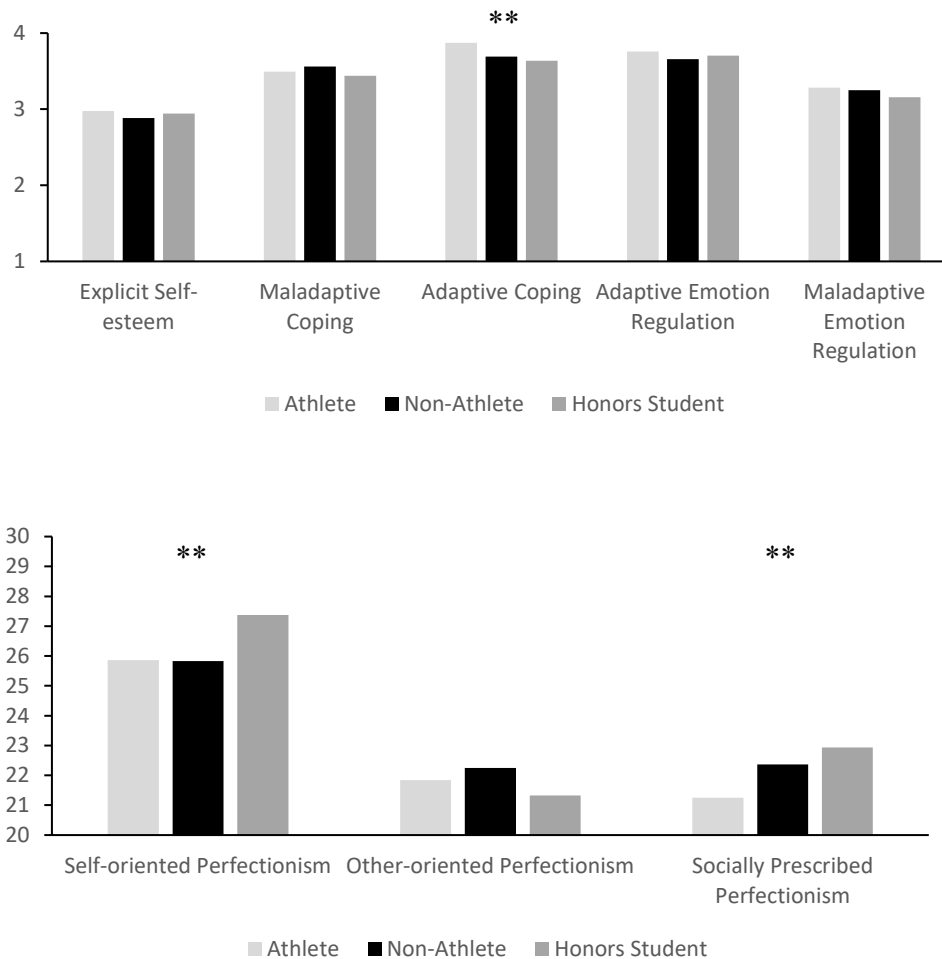
differences in other-oriented perfectionism levels between at least two of the groups. The results of socially prescribed perfectionism were significant,  $F(2, 448) = 3.34, p = .036$ , indicating that there were differences in socially prescribed perfectionism levels between at least two of the groups.

Next, a between-subject univariate analysis of variance was conducted to analyze group differences between explicit and implicit self-esteem. The results of explicit self-esteem were not significant,  $F(2, 452) = .721, p = .491$ , indicating that there were no differences in explicit self-esteem levels between at least two of the groups. The results of implicit self-esteem were not significant,  $F(2, 447) = .221, p = .802$ , indicating that there were no significant differences in implicit self-esteem levels between at least two of the groups.

Additionally, a between-subject univariate analysis of variance was conducted to analyze group differences in emotion regulation techniques. The results of adaptive emotion regulation were not significant,  $F(2, 450) = 1.15, p = .319$ , indicating that there were no differences in adaptive emotion regulation levels between at least two of the groups. The results of maladaptive emotion regulation were not significant,  $F(2, 450) = 1.13, p = .324$ , indicating that there were no differences in maladaptive emotion regulation levels between at least two of the groups. The results of maladaptive coping functionality were not significant,  $F(2, 448) = .900, p = .407$ , indicating that there were no differences in maladaptive coping functionality levels between at least two of the groups. The results of adaptive coping functionality were significant,  $F(2, 448) = 3.97, p = .02$ , indicating that there were significant differences in adaptive coping functionality levels between at least two of the groups (Figure 6).

Post-hoc analyses were conducted using Fisher's Least Significant Difference (LSD) on self-oriented perfectionism, socially prescribed perfectionism, and adaptive coping mechanisms.

Post-hoc comparisons indicated that the mean of self-oriented perfectionism of athletes ( $M = 25.85$ ) were significantly lower than honors students ( $M = 27.37$ , 95% CI  $[-3.07, -.282]$ ,  $p = .019$ ,  $d = .30$ ). Additionally, the mean of self-oriented perfectionism of non-athletes ( $M = 25.85$ ) were significantly lower than honors students (95% CI  $[-2.94, -.152]$ ,  $p = .03$ ,  $d = .31$ ). There was no significant difference between athletes and non-athletes. Post-hoc comparisons indicated that the mean of socially prescribed perfectionism of athletes ( $M = 21.25$ ) were significantly lower than honors students ( $M = 22.93$ , 95% CI  $[-2.73, -.305]$ ,  $p = .014$ ,  $d = .29$ ). There was no significant difference between athletes and non-athletes, and non-athletes and honors students. Post-hoc comparisons indicated that the mean of adaptive coping mechanisms of athletes ( $M = 3.87$ ) was significantly higher than non-athletes ( $M = 3.69$ , 95% CI  $[.006, .355]$ ,  $p = .04$ ,  $d = .24$ ). Additionally, the mean of adaptive coping mechanisms of athletes was significantly higher than honors students ( $M = 3.63$ , 95% CI  $[.046, .423]$ ,  $p = .015$ ,  $d = .32$ ). There was no significant difference between non-athletes and honors students.

**Figure 6***Mean Differences between Scales and Groups**Note.* \*\*  $p < .05$ **Associations among Perfectionism, Self-Esteem, Coping, and Emotion Regulation**

Pearson's bivariate correlation in SPSS was used to conduct the correlational analysis to further understand the relationships between perfectionism (self-oriented perfectionism, other-oriented perfectionism, and socially prescribed perfectionism), emotion regulation (maladaptive

and adaptive), coping mechanisms (maladaptive and adaptive), and self-esteem (implicit, self-liking, and self-competence). See Table 3 for all correlations.

### ***Self-Esteem***

The self-liking subscale was negatively correlated with self-oriented perfectionism ( $p < .001$ ), with socially prescribed perfectionism ( $p < .001$ ). In support of my hypothesis, this suggests that as self-oriented and socially prescribed perfectionism increases, self-esteem decreases. The self-liking subscale was negatively correlated with maladaptive emotion regulation ( $p < .001$ ). The self-liking subscale was positively correlated with adaptive emotion regulation ( $p < .001$ ), maladaptive coping mechanisms ( $p = .006$ ), and adaptive coping mechanisms ( $p = .001$ ). This suggests that as maladaptive coping mechanisms increase, self-esteem increases.

Further, the self-competence subscale was negatively correlated with maladaptive emotion regulation ( $p < .001$ ). Conversely, the self-competence subscale was positively correlated with the other-oriented perfectionism scale ( $p = .008$ ), adaptive emotion regulation ( $p < .001$ ), and adaptive coping mechanisms ( $p < .001$ ). Correlational analyses showed that the Self-Esteem IAT was not correlated with any scales or subscales.

### ***Perfectionism***

The self-oriented Multidimensional Perfectionism Scale subscale was positively correlated with maladaptive emotion regulation ( $p < .001$ ). This suggests that as self-oriented perfectionism increases, maladaptive emotion regulation increases.

The other-oriented Multidimensional Perfectionism Scale subscale was positively correlated with maladaptive emotion regulation ( $p < .001$ ), maladaptive coping mechanisms ( $p = .045$ ), and with adaptive coping mechanisms ( $p = .043$ ). This suggests that as other-oriented

perfectionism increases, maladaptive emotion regulation, and maladaptive coping mechanisms increase.

The socially prescribed Multidimensional Perfectionism Scale subscale was positively correlated with maladaptive emotion regulation ( $p < .001$ ). This suggests that as socially prescribed perfectionism increases, maladaptive emotion regulation increases. The socially prescribed perfectionism subscale was negatively correlated with adaptive emotion regulation ( $p = .004$ ).

Lastly, as expected, self-oriented and socially prescribed (Multidimensional Perfectionism scale) were correlated, ( $p < .001$ ) which is consistent with convergent subscale validity. As expected, self-oriented and other-oriented (Multidimensional Perfectionism scale) were correlated ( $p < .001$ ). As expected, socially prescribed and other-oriented (Multidimensional Perfectionism scale) were correlated, ( $p < .001$ ). Additionally, the maladaptive emotion regulation subscale was correlated with the adaptive emotion regulation subscale ( $p < .001$ ). The maladaptive coping subscale was correlated with the coping subscale ( $p < .001$ ). Further, the self-liking and self-competence subscales were correlated, ( $p < .001$ ), which is consistent with convergent subscale validity, as shown in table 3.

## PERFECTIONISM, EMOTION REGULATION, COPING, AND SELF-ESTEEM

**Table 3***Bivariate Correlations Among Study Measures (N = 493)*

|   | 1. | 2.  | 3.    | 4.     | 5.    | 6.     | 7.     | 8.     | 9.    | 10.   |
|---|----|-----|-------|--------|-------|--------|--------|--------|-------|-------|
| 1. Self-Esteem IAT                      | -  | .03 | .05   | -.01   | .04   | -.03   | -.02   | .06    | .09   | -.03  |
| 2. Self-liking subscale                 |    | -   | .62** | -.18** | .05   | -.29** | -.43** | .25**  | .13** | .15** |
| 3. Self-Competence subscale             |    |     | -     | .08    | .12** | -.09   | -.27** | -.20** | .06   | .25** |
| 4. Self-Oriented Perfectionism          |    |     |       | -      | .28** | .40**  | .25**  | -.02   | -.07  | .08   |
| 5. Other-Oriented Perfectionism         |    |     |       |        | -     | .31**  | .18**  | .11    | .94*  | .09*  |
| 6. Socially Prescribed<br>Perfectionism |    |     |       |        |       | -      | .29**  | -.13** | -.05  | -.06  |
| 7. Maladaptive Emotion<br>Regulation    |    |     |       |        |       |        | -      | .03    | .16** | .06   |
| 8. Adaptive Emotion Regulation          |    |     |       |        |       |        |        | -      | .28** | .37** |



## 9. Maladaptive Coping

- .26\*\*

## Mechanisms

## 10. Adaptive Coping Mechanisms

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

## PERFECTIONISM, EMOTION REGULATION, COPING, AND SELF-ESTEEM

### **Maladaptive and Adaptive Emotion Regulation and Coping as Mediators of the link from Perfectionism to Self-Esteem**

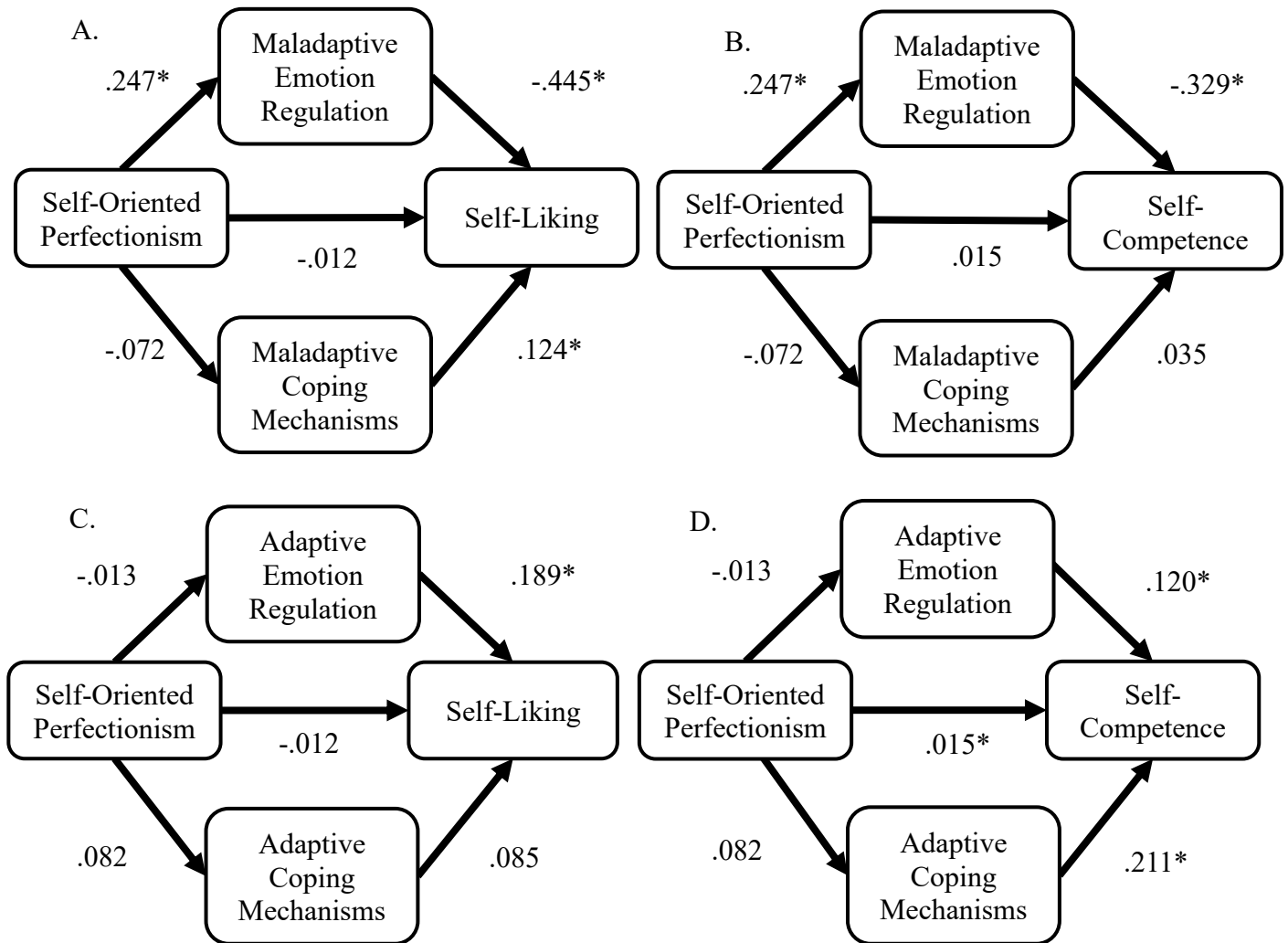
The PROCESS Macro model 4 parallel mediation in SPSS was used to examine the mediational effects of emotion regulation and coping mechanisms in the relationship between perfectionism and self-esteem. More specifically, self-oriented perfectionism and socially prescribed perfectionism were examined as predictors, and self-liking, self-competence, and implicit self-esteem were examined as outcomes. The mediators in this model were broken down into adaptive emotion regulation (positive refocusing, refocusing on planning, positive reappraisal, putting into perspective, and acceptance), maladaptive emotion regulation (self-blame, rumination, catastrophizing, and blaming others), adaptive coping mechanisms (problem-focused coping), and maladaptive coping mechanisms (emotion-focused and avoidant).

#### ***Self-Oriented Perfectionism and Self-Liking***

The indirect effect of self-oriented perfectionism and self-liking through adaptive emotion regulation techniques was not significant,  $-.003$ , 95% CI  $[-.023, .015]$ . The indirect effect of self-oriented perfectionism and self-liking through maladaptive emotion regulation techniques was significant,  $-.110$ , 95% CI  $[-.159, -.064]$ . When investigated further, the mediators of self-blame,  $-.036$ , 95% CI  $[-.072, -.009]$ , and catastrophizing,  $-.084$ ,  $[-.130, -.044]$  were both significant in predicting lower self-liking. Further, the indirect effects of self-oriented perfectionism and self-liking through adaptive and maladaptive coping mechanisms were not significant,  $.007$ , 95% CI  $[-.027, .003]$ ,  $-.009$ , 95% CI  $[-.002, .023]$ , respectively. The direct effect of self-oriented perfectionism on self-liking was not significant,  $-.012$ , 95% CI  $[-.029, .004]$  (Figure 7).

*Self-Oriented Perfectionism and Self-Competence*

The indirect effect of self-oriented perfectionism and self-competence through adaptive emotion regulation techniques was not significant,  $-.002$ , 95% CI  $[-.016, .010]$ . However, the indirect effect of self-oriented perfectionism and self-competence through maladaptive emotion regulation techniques was significant,  $-.081$ , 95% CI  $[-.019, -.047]$ . When investigated further, the mediator catastrophizing,  $-.058$ , 95% CI  $[-.103, -.023]$  was significant in predicting lower self-competence. Additionally, the indirect effects of self-oriented perfectionism and self-competence through maladaptive and adaptive coping mechanisms were not significant,  $-.003$ , 95% CI  $[-.014, .006]$ ,  $.017$ , 95% CI  $[-.003, .044]$ . The direct effect of self-oriented perfectionism on self-competence was significant,  $.015$ , 95% CI  $[.006, .023]$ , showing that self-oriented perfectionism predicts slightly high levels of self-competence. For every one-unit change in self-oriented perfectionism, there is a  $.015$ -unit change in self-competence (Figure 7).

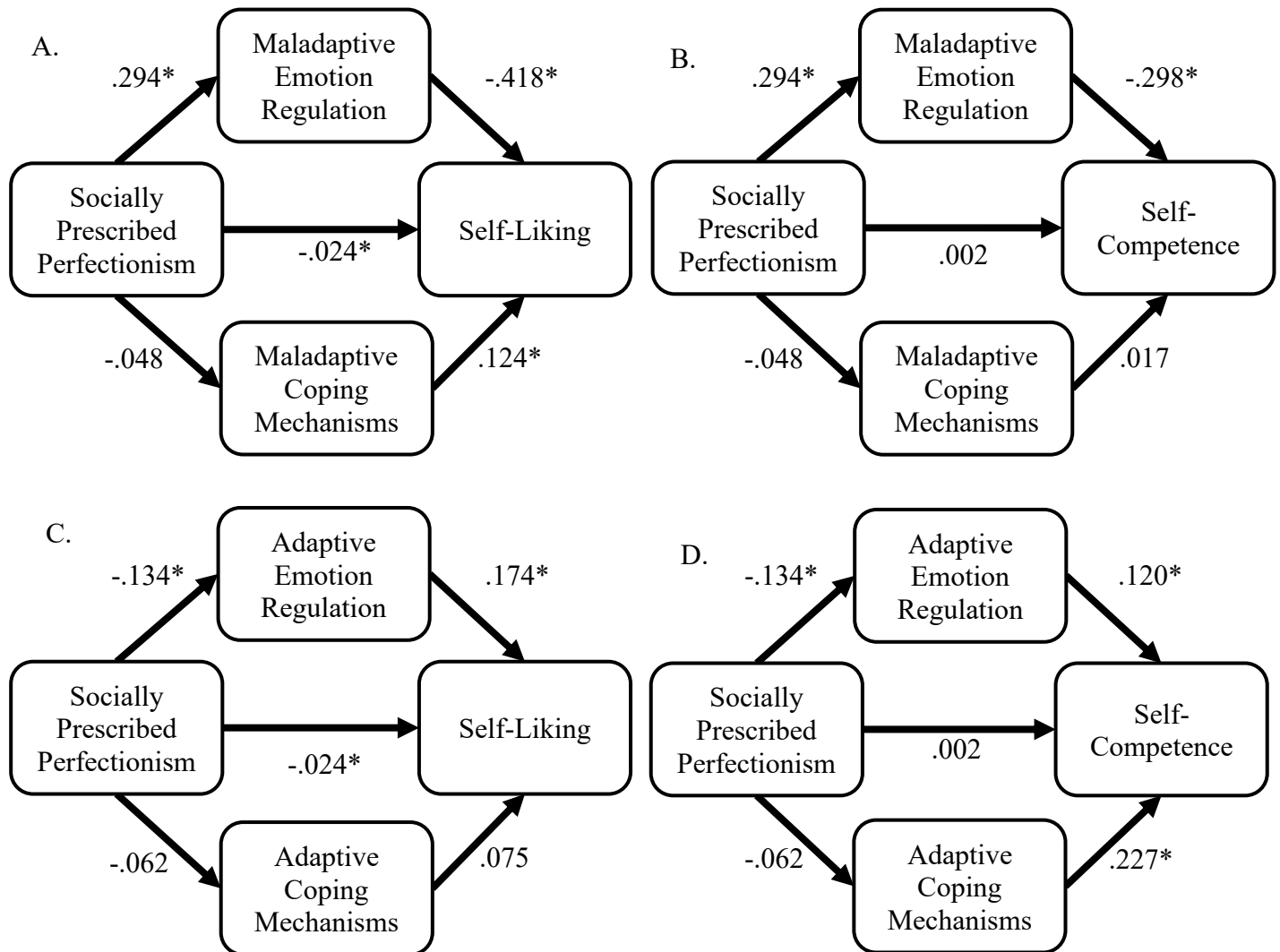
**Figure 7***Parallel Mediation Pathways of Self-Oriented Perfectionism with Self-Esteem**Note.* \* $p < .05$ ***Socially Prescribed Perfectionism and Self-Liking***

The indirect effect of socially prescribed perfectionism and self-liking through adaptive emotion regulation techniques was significant, -.023, 95% CI [-.046, -.006]. When investigated

further, the mediator of positive reappraisal,  $-.027$ , 95% CI  $[-.057, -.006]$  was significant in predicting lower self-liking. The indirect effect of socially prescribed perfectionism and self-liking through maladaptive emotion regulation techniques was significant,  $-.126$ , 95% CI  $[-.170, -.078]$ . When investigated further, the mediators of self-blame,  $-.021$ , 95% CI  $[-.046, -.003]$ , and catastrophizing,  $-.087$ , 95% CI  $[-.133, -.048]$  were both significant in predicting lower self-liking. Further, the indirect effects of socially prescribed perfectionism and self-liking through adaptive and maladaptive coping mechanisms were not significant,  $-.005$ , 95% CI  $[-.019, .003]$ ,  $-.006$ , 95% CI  $[-.022, .006]$ . The direct effect of socially prescribed perfectionism on self-liking was significant  $-.024$ , 95% CI  $[-.039, -.010]$ , showing that socially prescribed perfectionism predicts slightly lower levels of self-liking. For every one-unit change in socially prescribed perfectionism, there is a  $-.024$ -unit change in self-liking (Figure 8).

### ***Socially Prescribed Perfectionism and Self-Competence***

The indirect effect of socially prescribed perfectionism and self-competence through adaptive emotion regulation techniques was significant,  $-.016$ , 95% CI  $[-.036, -.002]$ . When investigated further, the mediator of positive reappraisal,  $-.040$ , 95% CI  $[-.075, -.014]$  was significant in predicting lower self-competence. The indirect effect of socially prescribed perfectionism and self-competence through maladaptive emotion regulation techniques was significant,  $-.088$ , 95% CI  $[-.130, -.053]$ . When investigated further, the mediator of catastrophizing,  $-.057$ , 95% CI  $[-.102, -.020]$  was significant in predicting lower self-competence. The indirect effects of socially prescribed perfectionism and self-competence through adaptive and maladaptive coping mechanisms were not significant,  $-.014$ , 95% CI  $[-.042, .008]$ ,  $-.001$ , 95% CI  $[-.010, .007]$ . The direct effect of socially prescribed perfectionism on self-competence was not significant  $.002$ , 95% CI  $[-.006, .010]$ , (Figure 8).

**Figure 8***Parallel Mediation Pathways of Socially Prescribed Perfectionism and Self-Esteem**Note.* \* $p < .05$ ***Perfectionism and Implicit Self-Esteem***

The indirect effects of self-oriented perfectionism and self-esteem IAT through adaptive and maladaptive emotion regulation techniques and adaptive and maladaptive coping

mechanisms were not significant,  $-.002$ , 95% CI  $[-.013, .006]$ ,  $-.009$ , 95%  $[-.034, .016]$ ,  $-.006$ , 95% CI  $[-.021, .003]$ ,  $-.008$ , 95% CI  $[-.025, .002]$ . The direct effect of self-oriented perfectionism on implicit self-esteem was not significant,  $.001$ , 95% CI  $[-.005, .008]$ .

The indirect effect of socially prescribed perfectionism and self-esteem IAT through adaptive and maladaptive emotion regulation techniques and adaptive and maladaptive coping techniques were not significant,  $-.009$ , 95% CI  $[-.027, .004]$ ,  $-.008$ , 95% CI  $[-.037, .022]$ ,  $.006$ , 95% CI  $[-.003, .019]$ ,  $-.005$ , 95% CI  $[-.019, .005]$ . The direct effect of socially prescribed perfectionism on implicit self-esteem was not significant,  $-.001$ , 95%  $[-.007, .005]$ .

### **Exploratory Analyses**

To further investigate associations within the data, sex differences were analyzed between all scales through using a t-test. Additionally, the scores on all measures for participants categorized as athletes were further explored. First athletes' scores on all measures were correlated to assess general associations. Finally, mediation was examined using sports perfectionism predictors with outcome variables of self-liking and self-competence and the mediators of emotion regulation (maladaptive and adaptive) and coping mechanisms (maladaptive and adaptive).

### ***Gender Differences***

Levels of explicit self-esteem (self-liking, self-competence) reported by men were higher than those reported by women. Levels of perfectionism and sport-specific perfectionism reported by men were lower than those reported by women. Levels of implicit self-esteem, coping functionality, and emotion regulation were not different between men and women (Table 4).

**Table 4***Mean Differences by Participant Sex*

|  | Female   |           | Male     |           | <i>t</i> (445) | <i>p</i> | Cohen's <i>d</i> |
|--|----------|-----------|----------|-----------|----------------|----------|------------------|
|  | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |                |          |                  |
| Explicit Self-Esteem                       | 2.92     | .68       | 3.12     | .64       | 2.37           | .018     | .299             |
| Cognitive Emotion Regulation Questionnaire | 3.51     | .44       | 3.53     | .47       | .26            | .793     | .033             |
| Coping Function Questionnaire              | 3.61     | .54       | 3.56     | .59       | -.57           | .567     | -.072            |
| Multidimensional Perfectionism Scale       | 23.58    | 3.89      | 21.79    | 3.72      | -3.67          | < .001   | -.462            |
| Sport Multidimensional Perfectionism Scale | 12.84    | 3.37      | 11.53    | 3.09      | -2.47          | .014     | -.393            |

*Note.* Sport Multidimensional Perfectionism Scale (*n* = 258)

### ***Athlete Specific Associations***

As shown in Table 5, The Self-esteem IAT was not correlated with any scales or gender. The Self-Liking, Self-Competence Scale was negatively correlated with the Cognitive Emotion Regulation Questionnaire ( $p = .008$ ), personal standards ( $p < .001$ ), and coaching pressure ( $p = .013$ ), and positively correlated with the Coping Function Questionnaire ( $p = .004$ ). The Cognitive Emotion Regulation Questionnaire was positively correlated with the Coping Function Questionnaire ( $p < .001$ ), Multidimensional Perfectionism Scale ( $p < .001$ ), the parental pressure subscale ( $p < .001$ ), coaching pressure ( $p < .001$ ), and personal standards ( $p < .001$ ). The Coping



Function Questionnaire was positively correlated with gender ( $p = .012$ ). The parental pressure subscale was positively correlated with the coaching pressure ( $p < .001$ ), and personal standards subscales ( $p < .001$ ). Lastly, the coaching pressure subscale was positively correlated with the personal standards subscale ( $p < .001$ ).

**Table 5**

*Correlations of all Scales for Athletes ( $n = 258$ )*

|   | 1. | 2.  | 3.     | 4.    | 5.    | 6.    | 7.    | 8.   |
|---|----|-----|--------|-------|-------|-------|-------|------|
| 1. Self-Esteem IAT                            | -  | .07 | .01    | -.02  | -.05  | -.12  | -.07  | -.09 |
| 2. Self-liking and Self-Competence Scale      |    | -   | -.17** | .18** | -.09  | -.16* | -.33* | -.08 |
| 3. Cognitive Emotion Regulation Questionnaire |    |     | -      | .31** | .23** | .21** | .26** | -.02 |
| 4. Coping Function Questionnaire              |    |     |        | -     | .08   | .03   | .05   | .16* |
| 5. Parental Pressure                          |    |     |        |       | -     | .32** | .36** | .11  |
| 6. Coaching Pressure                          |    |     |        |       |       | -     | .49** | .07  |
| 7. Personal Standards                         |    |     |        |       |       |       | -     | .04  |
| 8. Gender                                     |    |     |        |       |       |       |       | -    |

*Note.* \* $p < .005$ , \*\* $p < .001$

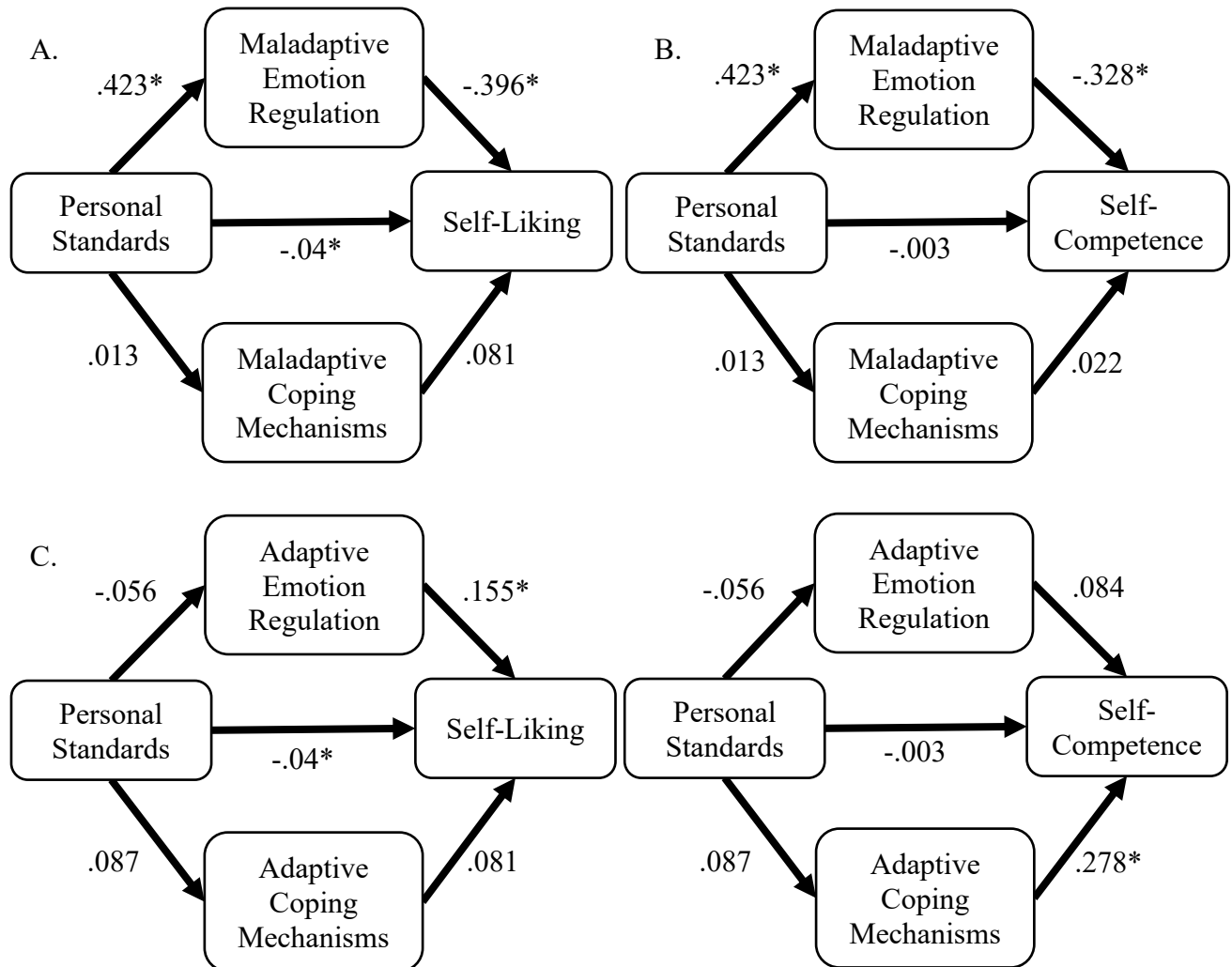
*Maladaptive and Adaptive Emotion Regulation and Coping as Mediators of the link from Perfectionism to Self-Esteem for Athletes*

**Personal Standards and Self-liking.**

The indirect effect of personal standards and self-liking through adaptive emotion regulation techniques was not significant,  $-.009$ , 95% CI  $[-.036, .011]$ . The indirect effect of personal standards and self-liking through maladaptive emotion regulation techniques was significant,  $-.167$ , 95% CI  $[-.241, -.104]$ . When investigated further, the mediator of catastrophizing,  $-.140$ , 95% CI  $[-.212, -.077]$  was significant in predicting lower self-liking. Further, the indirect effects of personal standards and self-liking through adaptive and maladaptive coping mechanisms were not significant,  $.007$ , 95% CI  $[-.005, .029]$ ,  $.001$ , 95% CI  $[-.013, .015]$ . The direct effect of personal standards on self-liking was significant,  $-.043$ , 95% CI  $[-.067, -.020]$ , meaning that for every one-unit change in personal standards there is a  $-.043$  change in self-liking (Figure 9).

**Personal Standards and Self-competence.**

The indirect effect of personal standards and self-competence through adaptive emotion regulation techniques was not significant,  $-.005$ , 95% CI  $[-.026, .006]$ . The indirect effect of personal standards and self-competence through maladaptive emotion regulation techniques was significant,  $-.139$ , 95% CI  $[-.214, -.076]$ . When investigated further, the mediator catastrophizing,  $-.101$ , 95% CI  $[-.175, -.037]$ , was significant in predicting lower self-competence. Further, the indirect effects of personal standards and self-competence through adaptive and maladaptive coping mechanisms were not significant,  $.002$ , 95% CI  $[-.001, .006]$ ,  $.000$ , 95% CI  $[-.001, .001]$ . The direct effect of personal standards on self-competence was not significant  $-.003$ , 95% CI  $[-.015, .009]$  (Figure 9).

**Figure 9***Model 4 Parallel Mediation Pathway of Personal Standards*

Note. \* $p < .05$

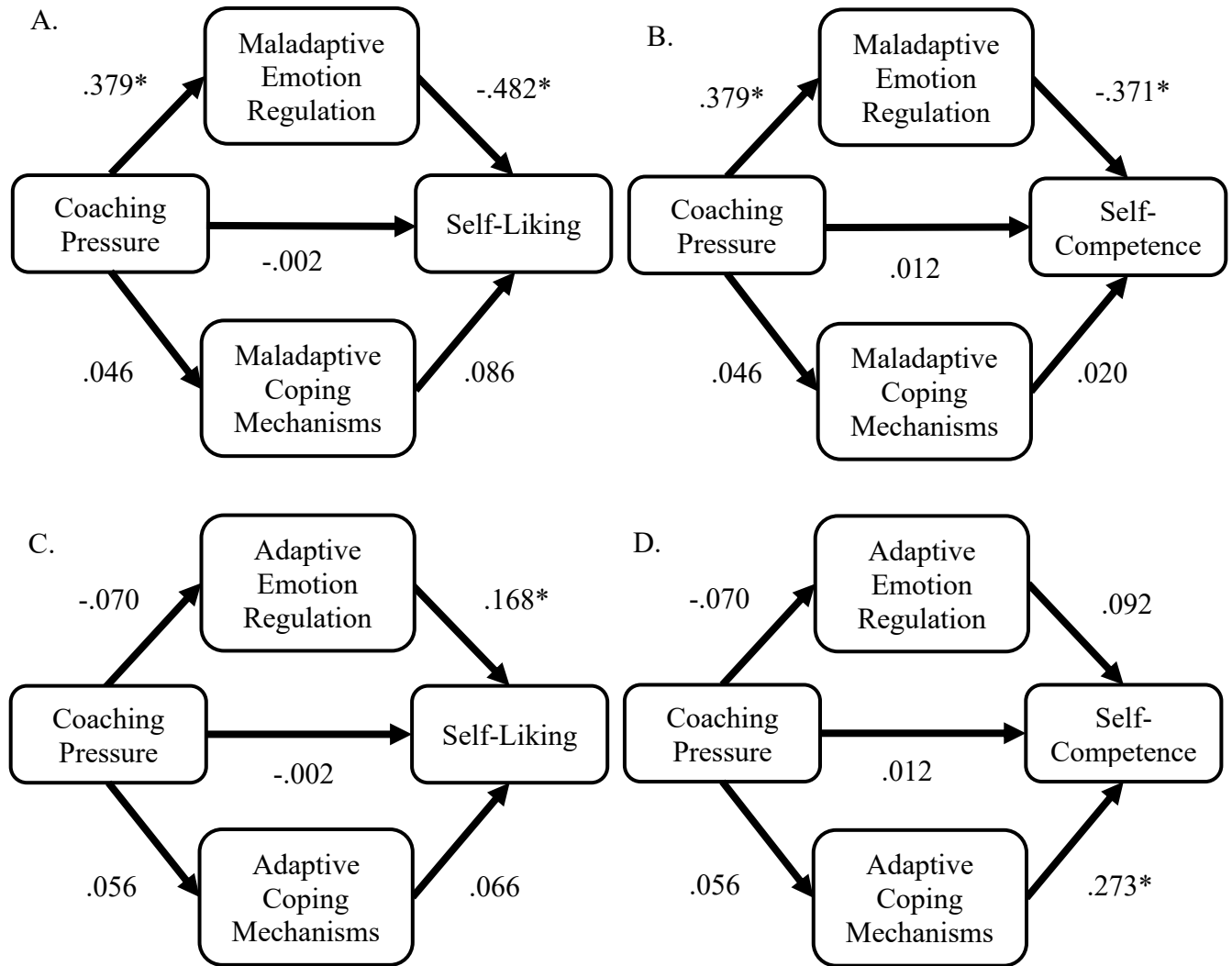
### Coaching pressure and Self-liking.

The indirect effect of coaching pressure and self-liking through adaptive emotion regulation techniques was not significant, -.012, 95% CI [-.038, .009]. The indirect effect of coaching pressure and self-liking through maladaptive emotion regulation techniques was

significant,  $-.182$ , 95% CI  $[-.258, -.114]$ . When investigated further, the mediators of self-blame,  $-.041$ , 95% CI  $[-.086, -.001]$ , and catastrophizing,  $-.134$ , 95% CI  $[-.204, -.076]$  were both significant in predicting lower self-liking. Further, the indirect effects of coaching pressure and self-liking through adaptive and maladaptive coping mechanisms were not significant,  $.004$ , 95% CI  $[-.007, .019]$ ,  $.004$ , 95% CI  $[-.009, .020]$ . The direct effect of coaching pressure on self-liking was not significant  $-.002$ , 95% CI  $[-.037, .032]$ , (Figure 10).

### **Coaching Pressure and Self-competence.**

The indirect effect of coaching pressure and self-competence through adaptive emotion regulation techniques was not significant,  $-.007$ , 95% CI  $[-.027, .006]$ . The indirect effect of coaching pressure and self-competence through maladaptive emotion regulation techniques was significant,  $-.141$ , 95% CI  $[-.208, -.081]$ . When investigated further, the mediators of self-blame,  $-.045$ , 95% CI  $[-.097, -.002]$ , and catastrophizing,  $-.092$ , 95% CI  $[-.156, -.038]$  were both significant in predicting lower self-competence. Further, the indirect effects of coaching pressure and self-competence through adaptive and maladaptive coping mechanisms were not significant,  $.015$ , 95% CI  $[-.018, .052]$ ,  $.001$ , 95% CI  $[-.009, .014]$ . The direct effect of coaching pressure on self-competence was not significant  $.012$ , 95% CI  $[-.005, .029]$  (Figure 10).

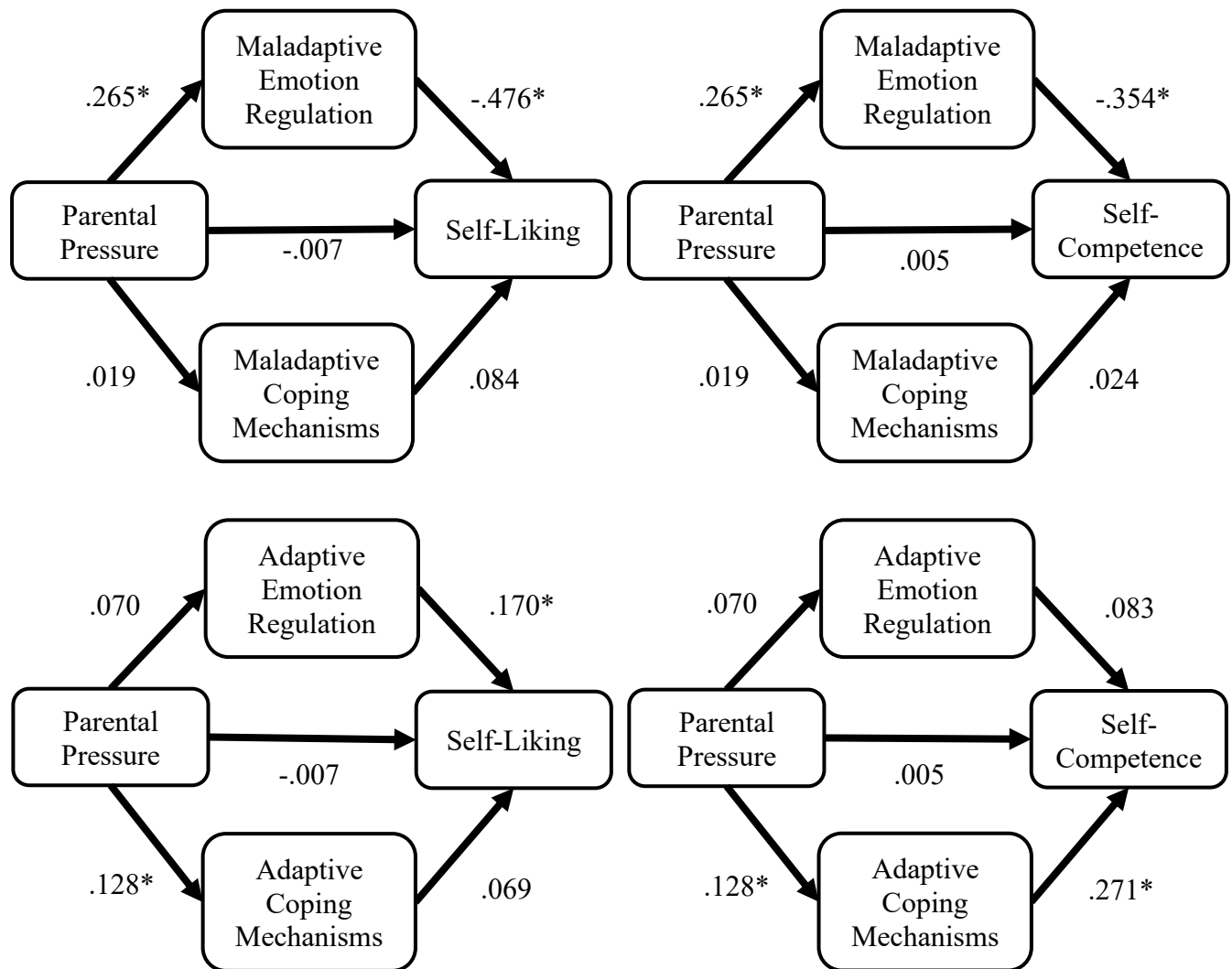
**Figure 10***Model 4 Parallel Mediation Pathway of Coaching Pressure**Note.* \* $p < .05$ **Parental Pressure and Self-liking.**

The indirect effect of parental pressure and self-liking through adaptive emotion regulation techniques was not significant, .012, 95% CI [-.00, .040]. The indirect effect of

parental pressure and self-liking through maladaptive emotion regulation techniques was significant,  $-.126$ , 95% CI  $[-.190, -.069]$ . When investigated further, the catastrophizing,  $-.063$ , 95% CI  $[-.124, -.010]$  was significant in predicting lower self-liking. Further, the indirect effects of parental pressure and self-liking through adaptive and maladaptive coping mechanisms were not significant,  $.009$ , 95% CI  $[-.005, .034]$ ,  $.002$ , 95% CI  $[-.012, .016]$ . The direct effect of parental pressure on self-liking was not significant  $-.007$ , 95% CI  $[-.031, .017]$ , (Figure 11).

### **Parental Pressure and Self-competence.**

The indirect effect of parental pressure and self-competence through adaptive emotion regulation techniques was not significant,  $.006$ , 95% CI  $[-.007, .024]$ . The indirect effect of parental pressure and self-competence through maladaptive emotion regulation techniques was significant,  $-.094$ , 95% CI  $[-.153, -.044]$ . When investigated further, the mediator catastrophizing,  $-.040$ , 95% CI  $[-.082, -.005]$  was significant in predicting lower self-competence. Further, the indirect effect of parental pressure and self-competence through adaptive coping mechanisms was significant,  $.035$ , 95% CI  $[-.001, .079]$ . However, maladaptive coping mechanisms were not significant,  $.000$ , 95% CI  $[-.010, .011]$ . The direct effect of parental pressure on self-competence was not significant  $.005$ , 95% CI  $[-.006, .017]$ , (Figure 11).

**Figure 11***Model 4 Parallel Mediation Pathway of Parental Pressure**Note. \* $p < .05$* 

## Discussion

The current study's objective was to investigate how emotion regulation and coping mechanisms are related to maladaptive perfectionism and self-esteem in athletes, non-athletes, and honors students. The first hypothesis analyzed was that people who engaged in competitive

athletics would have higher levels of maladaptive perfectionism and lower levels of self-esteem. The results regarding self-esteem were not significant, indicating that there is not a statistically reliable difference in self-esteem among the populations. However, athletes scored lower than honors students in self-oriented and socially prescribed perfectionism. Additionally, honors students scored higher than non-athletes in socially prescribed perfectionism. There was no difference between honors students and athletes with respect to self-oriented perfectionism. Additionally, there were no differences in self-oriented or socially prescribed perfectionism between athletes and non-athletes. This however could be due to the increases in stress, depression, anxiety, and lack of adaptive coping across all groups from the COVID-19 pandemic (Fugelstad et al., 2021; Minichiello et al., 2021; Wang et al., 2020). Within the realm of athletics, the COVID-19 pandemic increased training restrictions which may have affected the mental health of indoor athletics more than outdoor athletics, causing a disparity in data (Rubio et al., 2021). Further, the lack of social support from teammates due to the lockdown and training restrictions could have increased levels of stress in athletes, which may have been reflected in this data (Arnold et al., 2018; González-Hernández et al., 2021). Without the comparison to other individuals in competition, athletes' socially prescribed and self-oriented perfectionistic tendencies may not have been as high (Festinger, 1954).

Regarding academics, the introduction of online learning may have increased honors students' anxiety and overall perfectionism levels (Unger & Meiran, 2020). Additionally, the changes in family dynamics, economic concerns leading individuals to move back home, and lack of trust in the media may have impacted the perfectionistic tendencies of honors students (Das et al., 2021). Additionally, the grouping may be too similar in that even non-athlete, non-



honors students are still driven and facing pressures towards perfection, just as honors students and athletes are.

Secondly, the data addressed associations of maladaptive perfectionism with emotion regulation, coping mechanisms, and self-esteem. It was hypothesized that maladaptive perfectionism would be associated with poor emotion regulation, maladaptive coping mechanisms, and lower self-esteem. Confirming the hypothesis, all subscales of perfectionism were positively correlated with maladaptive emotion regulation, meaning that as perfectionism increases, maladaptive emotion regulation techniques increase. Additionally, socially prescribed perfectionism and other-oriented perfectionism were positively correlated with maladaptive coping mechanisms, meaning that as perfectionism increases, maladaptive coping mechanisms increase. While these relationships confirm the original hypothesis, many of the other perfectionism and self-esteem subscales were not correlated with maladaptive coping mechanisms, therefore the original hypothesis was not fully supported. Contrary to expectations, the self-esteem IAT was not correlated with any perfectionism subscales. Self-liking was, however, negatively correlated with all perfectionism subscales, excluding other-oriented perfectionism. This supports the hypothesis, meaning that as perfectionism increases, self-liking decreases. The self-competence subscale was negatively correlated with the personal standards perfectionism scale and maladaptive emotion regulation techniques, which partially confirms the hypothesis.

Lastly, it was hypothesized that maladaptive emotion regulation and maladaptive coping mechanisms would mediate the link between self-oriented and socially prescribed perfectionism and self-esteem. In a sample of young adults attending a four-year university in the southern United States, there was evidence supporting some parts of the proposed mediational analysis.

Maladaptive emotion regulation served as a mediator between self-oriented perfectionism and self-liking and self-competence. Additionally, it served as a mediator of the relationship between socially prescribed perfectionism and self-liking and self-competence. In these relationships, maladaptive emotion regulation techniques decreased self-liking and self-competence. Against expectations, adaptive emotion regulation served as a mediator in the relationship between socially prescribed perfectionism and self-liking and self-competence. Adaptive emotion regulation had a negative indirect effect, meaning that higher levels of perfectionism predicted decreases in adaptive emotion regulation techniques. However, adaptive emotion regulation techniques predicted increases in self-liking and self-competence. Lastly, maladaptive coping mechanisms did not serve as a mediator in the relationship between perfectionism and self-esteem which is against expectation.

Perfectionism is defined as extremely critical evaluations of the self, paired with high standards of performance (Flett & Hewitt, 2002; Frost et al., 1990). On the more negative side of perfectionism, we have maladaptive perfectionism—self-oriented, and socially prescribed perfectionism. The studied populations scored differently in these domains as expected. While self-oriented perfectionism has some previous links to adaptive outcomes, that was not supported in this research. In alignment with previous research, socially prescribed perfectionism predicted increases in maladaptive emotion regulation and in turn lowered self-esteem. Research suggested that an increase in these two types of perfectionism led to decreases in self-esteem in these populations (Antony et al, 1998; Blatt, 1995; Hewitt et al., 1994; Chang, 1998; Chang, 2002; Hamachek, 1978; Sherry et al, 2003). Additionally, the Lazarus theory of stress and coping suggests that stress is an imbalance of pressure and resources (Lazarus, 1993). This theory works on the individual's ability to cope with emotional stressors that may have been brought on by the

pressure of striving for perfectionism. Research states that problem-focused coping is the most successful and healthy way of coping, and it was the commonly used coping method in each of the populations examined in the current study.

Additionally, proper emotion regulation techniques are another important aspect when considering the well-being of high-achieving individuals. Emotion regulation works to monitor and modify emotional behaviors (Thompson, 1994). Cognitive emotion regulation through the use of refocusing on planning, positive reappraisal, and acceptance were most commonly used among the populations studied, suggesting that high-achieving individuals are healthily regulating their emotions. Additionally, positive refocusing, refocusing on planning, positive reappraisal, and putting into perspective, correlated with higher levels of explicit self-esteem. On the flip side, self-blame, rumination, and catastrophizing were correlated with lower levels of explicit self-esteem. Furthermore, positive refocusing, refocusing on planning, positive reappraisal, and putting into perspective, were correlated with higher levels of self-liking. Self-blame, rumination, and catastrophizing techniques correlated with lower levels of self-liking. Furthermore, refocusing on planning, positive reappraisal, and putting into perspective, were correlated with higher levels of self-competence. Self-blame, rumination, and catastrophizing techniques correlated with lower levels of self-competence. Further, research shows that perfectionistic concerns can lead to maladaptive emotion regulation techniques, such as self-blame and rumination, which are reflected in this data (Macedo et al., 2017; Rudolph et al., 2007).

The sociometer theory suggests that individuals can increase or deplete another individual's self-esteem (Leary & Baumeister, 2000). In this research, socially prescribed perfectionism, parental pressure, and coaching pressure were all negatively correlated with self-

liking and self-competence, which supports this theory. Additionally, parental pressure and coaching pressure were both negatively correlated with explicit self-esteem, which supports this theory. When investigating athletes specifically, the mediational pattern resembled that of the total sample. In that, the pathway from personal standards to self-liking and self-competence was significant through maladaptive emotion regulation, which aligned with self-oriented perfectionism pathways. Additionally, coaching pressure and parental pressure mediation models followed a similar pattern as the socially prescribed perfectionism models. In that, maladaptive emotion regulation served as a mediator on the relationship. The results tell us that higher levels of perfectionism predicted lower levels of self-esteem. However, coping mechanisms did not mediate the relationship between perfectionism and self-esteem. Additionally, the implicit measure of self-esteem did not correlate with the self-report measure. The participants' mean scores reflected a strong preference of self-pleasant, and other-unpleasant. Opposing this, participants scored about average on self-report measures of self-liking and self-competence, which opposed the initial hypothesis.

### **Strengths and Limitations**

While analyzing this data, it is important to note the limitations of this study. To begin, all the data were collected using self-report (except the IAT), which may impact the validity and reliability of the findings in this study (Gregorich, 2006). Further, all participants were collected using a convenience sample at a mid-sized southeastern university, which may not be generalizable due to self-selection biases (Heckman, 2010). While all undergraduate students at this university were able to participate, the ones that did participate were able to receive extra credit in their classes for participation, which may have influenced those who chose to participate. The method of data collection and compensation for participation limits the

participants to those who are psychology majors, which is another factor impacting the validity of the study. Additionally, where all participants are seeking a college education, this population would be overrepresented in this study than in the general public. Further, the sample profile was skewed by having more white females than any other race or biological sex at birth. The self-esteem IAT mean scores reflected a strong preference of self-pleasant, and other-unpleasant. This implies that the majority of participants' scores reflected that of high self-esteem. The self-liking and self-competence scale mean scores reflected a range of individuals with high, low, and moderate levels of self-esteem. Therefore, the self-esteem IAT and the self-liking and self-competence scale were not correlated, which is not aligned with convergent validity.

Additionally, this study collected all self-report measures, where none of the scales or tasks were manipulated. Given that there was no random assignment or manipulation in this study, we are unable to establish causality between perfectionism, self-esteem, emotion regulation, or coping mechanisms. Additionally, since there was no random assignment between athletes, non-athletes, and honors students, causality cannot be inferred in group differences in self-esteem and perfectionism. Further, mediational analyses were conducted using only measured variables, and due to that, we are unable to draw strict conclusions on the direction of these predictive analyses. Lastly, since data were not collected before the COVID-19 pandemic, we are unable to determine if the variables were affected due to an increase in stress because of the pandemic. Therefore, the findings are limited in their generalizability.

### **Implications**

Athletics and academics have been deemed stressors in most individuals' lives (Ong, & Cheong, 2009). This research investigated whether higher levels of perfectionism are related to lower levels of self-esteem through the mediators of emotion regulation and coping functionality,

specifically in high achieving individuals. The lasting impacts of prolonged increases in pressure from individuals surrounding you can increase feelings of anxiety and negative affect in athletes and honors students (Solomon & Rothblum, 1984; Hewitt & Flett, 2004; Molnar et al., 2006; Steel, 2007; Stober et al., 2009; Closson & Boutilier, 2017). These stressful events may evoke maladaptive emotion regulation techniques, such as self-blame, catastrophizing, rumination, and displacement of anger (John & Gross, 2004; Haase et al., 2002). According to the mediation models, self-oriented and socially prescribed perfectionism predicted increases in maladaptive emotion regulation techniques, which in turn predicted decreases in self-liking and self-competence. Therefore, it is imperative that we use early intervention on perfectionism tendencies to stop the progression of said maladaptive outcomes. Additionally, these individuals work to avoid shame and humiliation, by suppressing their emotions toward the stressor, which can be harmful to the individual.

Many individuals have participated in high-stress activities like athletics or academics in their life. Therefore, the results are translatable to many individuals' lives. Individuals with poorer emotion regulation techniques are at higher risk for maladaptive outcomes like lower explicit self-esteem according to this research. Given that many individuals create their ideal image of the self with the public in mind, it is imperative that these individuals have proper coping mechanisms and emotion regulation techniques to buffer the negative feelings they may experience due to socially prescribed perfectionism (Hewitt & Genest, 1990; Razuvaeva et al., 2016). The data supported the proposed underlying process that individuals take from perfectionism to lowered self-esteem through maladaptive emotion regulation. Additionally, the overall implications that lowered self-esteem has on overall psychological well-being can be far-

reaching and thus, it is imperative that we investigate this topic further to provide a broader scope of these underpinnings.

### **Future Directions**

The vast and imminent changes in athletics and academics provide a wide variety of future research opportunities. Future research should consider different groups with a larger range of participants to improve the generalizability of the current findings. This range could include adults who have previously graduated college from an honors college or were college athletes, adolescents who currently engage in athletics, adults who were categorized as “gifted” in younger years, or children who have been admitted to gifted programs. By varying groups between older and younger ages, researchers may be able to add a developmental lens to this area of research, especially with individuals currently engaging in athletics or honors-level classes. Adding in an aspect of developmental psychology, such as orchid versus dandelion children, could provide a future direction toward risk and resilience (Boyce & Ellis, 2005). While prior research has been conducted on each of these groups, many researchers have not compared these groupings previously. Additionally, domain-specific self-esteem and its relationship with socially prescribed perfectionism should be investigated.

Further, varied groupings may include individuals who were not currently represented within this data. Additionally, pre-data were unavailable regarding this sample, therefore longitudinal research may provide a post-collegiate sample to explore the long-term effects of perfectionism on self-esteem, through mediators of emotion regulation and coping. Since many individuals tend to move home after they finish their college degree, it would be of interest to examine the period immediately following graduation. To get a larger scope regarding each measure, it is recommended to use more inclusive scales with larger subscales included.

Additionally, these larger subscales may provide a clearer insight into the psychological process that individuals experience from perfectionism to self-esteem. Using the established subscales in each of the scales would provide clearer evidence of the psychological mechanisms that individuals take from perfectionism to self-esteem. Additionally, conducting experiments where random assignment, or where manipulation occurs should be conducted to determine causality in the data (e.g., intervention to effect emotional regulation or coping).

Further, the relations between variables in this research could also be investigated through the lens of personality (e.g., do the pathways differ based on self-monitoring or neuroticism). Additionally, connections between self-regulation and reciprocation of destructive behavior should be investigated. Furthermore, the dyadic relationship between high achieving individuals and their parents should be investigated to determine the bidirectional influence of parental pressure and rejection/failure on self-esteem. Given that rejection may undermine the willingness to self-regulate, the influence of rejection on emotion regulation is an imperative mechanism to investigate. Further, the interpersonal regulatory influences of how parents and children react to negative or destructive behavior from one another should be explored in the context of academic and athletic performance (Finkel & Cambell, 2001; Bohs et al., 2005). Lastly, investigating the mediational pathway from perfectionism to self-esteem should be investigated with the moderator of stress.

## **Conclusion**

Perfectionistic tendencies provide a basis for increased research in the field and stress the importance of proper emotion regulation techniques and coping functionality. Further, examining individual differences in emotion regulation techniques within perfectionism contexts provides insight into how high-achieving individuals are coping with increased stressors (Krohne, 1993;



Lazarus, 1999; De Kuyper et al., 2013; Madigan, 2018). While null results remained throughout each data analysis conducted, this may be due to the influence of the COVID-19 pandemic increasing stress throughout all populations. Although the release of the COVID-19 vaccination to the public was expected to decrease feelings of anxiety and depression, it may not have been reflected in this research. However, the significant results in this research present us with important information on maladaptive emotion regulation techniques and their influence on self-esteem. Socially prescribed and self-oriented perfectionism, directly and indirectly, influenced self-liking and self-competence through maladaptive emotion regulation techniques like rumination, self-blame, and catastrophizing. Additionally, the influence of maladaptive emotion regulation on the relationship between coaching pressure and parental pressure, and self-esteem were significant and therefore should be investigated further. Finally, the relationships between self-oriented perfectionism, socially prescribed perfectionism, maladaptive emotion regulation (self-blame, rumination, catastrophizing, and blaming others), and self-liking and self-competence all were shown to be significant and therefore should continue to be studied to improve people's emotion regulation and overall psychological well-being.

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