THE RELATIONSHIP BETWEEN PERFECTIONISM AND SELF – DETERMINED MOTIVATION IN COLLEGIATE DIVISION I ATHLETES

by

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The following individuals read and discussed the thesis submitted by student Christian Sengfelder, and they evaluated his presentation and response to questions during the final oral examination. They found that the student passed the final oral examination.

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DEDICATION

I dedicate this thesis to my mother, Ines Sengfelder, who passed away too early from this earth because I want her to know that she has not been forgotten and that she is loved. She did not get the chance to live out her life nor see her children grow up. With her passing, I learned very soon in life that our time here is unbelievably short and precious. That is why I use my mother as my motivation to live my life to the fullest and pursue my passions, as I know that this is what will make my mother proud and happy.

I hope that my completion of this piece of academic work brings a smile to her face as I have not only achieved a milestone on the path toward my dream of working as a sport psychologist but have also discovered another true passion for academia.

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ABSTRACT

Introduction: An athlete's performance is dependent on both psychological and physical factors. Perfectionism and motivation are two psychological factors that can influence performance of athletes in a positive or negative manner. The relationship between perfectionism and motivation has been studied previously, but the relationship has not been studied with sport specific measurements and the collegiate athlete population has largely been ignored. **Purpose**: To investigate the levels of perfectionism and motivation in collegiate Division I student-athletes and determine how the forms of perfectionism (adaptive versus maladaptive) are related to the different levels of motivation (controlled vs autonomous forms) in this population. **Hypotheses:** It was hypothesized that collegiate athletes would have high levels of personal standards, high perceived coach pressure, and concern about mistakes and higher levels of controlled forms of motivation than autonomous motivation. Further, it was hypothesized that the adaptive forms of perfectionism would relate to autonomous forms of motivation whereas the maladaptive forms of perfectionism would relate to controlled forms of motivation in collegiate athletes. **Methods:** Two hundred and sixty-four student – athletes with an average age of 19.62(1.34) were recruited from a Division I university in the Western United States. Perfectionism was assessed using the Sport – Multidimensional Perfectionism Scale -2 with its six subscales (personal standards, organization, perceived parental pressure, perceived coach pressure, concern over mistakes and doubts about actions) and motivation was assessed by using the Behavioral Regulation in Sports Questionnaire with its nine

subscales (amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, intrinsic motivation to know, intrinsic motivation to accomplish, intrinsic motivation to experience stimulation and general intrinsic motivation). **Statistical Analysis:** Means and standard deviations were calculated to describe the sample. To test the relationship between the variables, a multivariate multiple regression (MMR) with follow up canonical correlation was conducted with the six subscales of the Sport – Multidimensional Perfectionism Scale -2 predicting the nine subscales of the Behavioral Regulation in Sports Questionnaire. **Results:** Student-athletes had high levels of personal standards and organization. Additionally, they had high levels of intrinsic motivation and autonomous forms of motivation. Further, the MMR indicated that two functions were significant and explained 19.62% of the variance (functions 1 = 15.62%, function 2 = 4.0%). Investigation of the functions indicated that personal standards, organization, concern over mistakes, and perceived parental pressure predicted autonomous forms of motivation. Maladaptive forms of perfectionism, represented by perceived coach pressure, perceived parental pressure, doubts about actions and concern over mistakes, positively predicted controlled forms of motivation and inversely predicted autonomous forms of motivation. **Conclusion:** Findings imply that an environment with low coach pressure and a focus on helping athletes learn new skills without concerns for mistakes would be most beneficial for athletes. Specifically, these changes would decrease perceived coach pressure, concern over mistakes and doubts about action and hence increase the likelihood of intrinsic motivation and autonomous forms of motivation. Secondly, athletes should be encouraged to hold high standards for themselves and to develop routines as these standards should lead to increased levels of intrinsic and autonomous forms of motivation.

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CHAPTER I

Introduction

College Athletes and Performance

One of the most popular sport domains in the world and especially in the United States is college athletics. The National Collegiate Athletic Association (NCAA) is the organization in charge of college athletics and states that approximately 480,000 students participate in some sort of college athletics (NCAA, 2018). Overall, there are three primary divisions in which students-athletes can participate: Division I, Division II and Division III. These three divisions all function as four-year institutions. According to the NCAA, Division I is the division with the largest schools and biggest athletic department budgets which allows for the largest allocation of athletic scholarships (NCAA, 2018). Thus, participating in Division I athletics is a goal for many high school athletes, as it is one way to pay for a college tuition as well as an opportunity to demonstrate athletic achievement and status. To be able to maintain scholarship status, a student athlete needs to be able to perform at a high level athletically and maintain a minimum grade threshold academically. To be able to perform well consistently, both academically and athletically, is a difficult task because performance is an unstable construct influenced by several factors. In a study by Greenleaf, Gould and Dieffenbach (2001), Olympic athletes were asked what factors would have a positive influence on their performance during the Olympic Games. The researchers found that several factors played an influence including coaching and physical preparedness and support. In addition, several psychological factors like confidence, being committed to excellence and having high expectations,

and focusing on performance instead of outcomes were also factors that influenced performance positively. One psychological construct that influences some of these factors is perfectionism, which is defined as setting exceedingly high standards and evaluating oneself based on these standards (Hewitt and Flett, 1991). Being committed to excellence and having high expectations are a significant part of perfectionism, as having high personal standards includes being committed to excellence and having high expectations. Some of these factors influencing performance also have an effect on an athlete's motivation, which in turn affects performance. Factors like coaching style and focusing on performance instead of outcomes affect the form of motivation that an athlete embodies. Research has found a relationship between being task-oriented and motivation that states that people who focus on performance instead of outcomes will have higher levels of intrinsic motivation (Horn, 2008). The athlete is more intrinsically motivated because a task-oriented goal is within the athlete's control. Since the athlete is more intrinsically motivated, performance will be improved compared to when the athlete is extrinsically motivated. As both perfectionism and motivation seem to influence performance, these two constructs will be examined more closely.

Perfectionism

Perfectionism has been defined as setting exceedingly high standards for oneself and evaluating oneself based on these standards (Hewitt & Flett, 1991). Whereas previous researchers believed perfectionism was a unidimensional construct, Hewitt and Flett (1991) found that three different forms of perfectionism existed: self-oriented perfectionism, other-oriented perfectionism, and socially-prescribed perfectionism. Self – oriented perfectionism is when a person sets very high standards and evaluates oneself on progress to these goals. Other – oriented perfectionism is

when a person has these exceedingly high standards for other people like significant others and evaluates these people based on these extreme standards. Socially prescribed perfectionism is the opposite of other oriented perfectionism in the sense that a person perceives that significant others have exceedingly high standards for oneself and is evaluated by others based on if one achieves these high standards (Hewitt & Flett, 1991). Frost et al. (1990) developed a different construct of perfectionism. These scholars did not argue that three different forms of perfectionism exist but rather that perfectionism has six different dimensions: personal standards, organization, doubts about action, concern over mistakes, parental expectations and parental criticism. One of the main limitations of the Hewitt and Flett (1991) and Frost et al (1990) conceptualization of perfectionism is that they were designed for the general population and not the sport domain. Several researchers have argued that perfectionism is not stable across domains and, therefore, there is a need to investigate perfectionism as a sport – specific construct. Throughout Dunn and colleagues' (2002; 2006) and Gotwals and Dunn (2009)'s process of conceptualizing and measuring perfectionism as a sport-specific construct, two dimensions of perfectionism, personal standards and organization, related consistently to adaptive outcomes whereas the other four dimensions consistently related to maladaptive outcomes. This is why for the present study, perfectionism will be divided as adaptive and maladaptive perfectionism based on the six subscales of the Sport-Multidimensional Perfectionism Scale-2 (Sport-MPS-2). Personal standards and organization will be part of the adaptive form whereas concern over mistakes, doubts about action, perceived parental pressure, and perceived coach pressure will form the maladaptive form of perfectionism.

Integrating Hewitt and Flett's (1991) conceptualization of perfectionism with Frost et al.'s (1990) idea of perfectionism, self-oriented perfectionism is comparable to the two adaptive dimensions of Frost et al.'s model as the evaluation of a behavior and setting high standards comes from the individual and not from outside factors. Specifically, self-oriented perfectionism relates to adaptive outcomes as do the dimensions 'personal standards' and 'organization'. On the other hand, socially prescribed perfectionism is comparable to the other four dimensions of Frost et al.'s model in that the evaluation of a behavior is coming from others and not from oneself. In fact, self - oriented perfectionism has been found to be mostly adaptive as they promote "diligence, industry and perseverance" (Hall, 2018, p. 6) and has been connected to lower levels of anxiety and burnout, higher levels of confidence as well as adaptive coping skills (Chen, Kee & Tsai, 2012; Mouratidis & Michou, 2011; Stoeber, Otto, Pescheck, Becker & Stoll, 2007). Socially prescribed perfectionism has been found to be mostly maladaptive as these forms can lead to diminished sense of oneself and decreased self-worth (Hall, 2018), higher levels of burnout, lower levels of confidence as well as maladaptive coping forms (Chen, Kee & Tsai, 2012; Mouratidis & Michou, 2011; Stoeber, Otto, Pescheck, Becker & Stoll, 2007). More specifically, burnout is enhanced in perfectionistic athletes because perfectionism can lead to decreased self- worth and stress, which are antecedents of burnout. Socially prescribed perfectionism leads to burnout because the evaluation of a behavior is out of the athlete's control (Chen, Kee & Tsai, 2012; Hall, 2018). Self-oriented perfectionism leads to burnout when the high goals that an athlete sets are consistently not fulfilled. This falling short will lead to a decreased sense of competence, which in turn will then lead to decreased self-worth and an increased chance of burnout (Hall, 2018). Additionally, perfectionism is related to competitive anxiety. More

specifically, socially prescribed perfectionism leads to higher levels of cognitive and somatic anxiety whereas self-oriented perfectionism leads to lower levels of these forms of anxiety and enhanced self-confidence (Stoeber et al. 2007). Lastly, perfectionism influences coping. Socially prescribed perfectionism is more related to avoidance coping whereas self-oriented perfectionism is more related to task-oriented coping. (Jowett, Hill, Hall & Curran, 2013).

Motivation

Another variable that has been studied with perfectionism is motivation. Motivation has been defined as the reason or the "why of a behavior" (Vallerand & Losier, 1999, p.143) as well as "the hypothetical construct used to describe the internal and/or external forces that produce the initiation, direction, intensity, and persistence of behavior" (Vallerand & Thill, 1993, p. 18). Based on this definition of motivation, one theoretical orientation that further investigates motivation is Deci and Ryan's (2000) Self–determination Theory (SDT). SDT is based on two primary theoretical underpinnings. First, SDT emphasizes that all humans have the need to look for psychological growth. Second, humans seek this psychological growth through fulfilling three universal needs, specifically, feeling competent, autonomous, and related to others. SDT is based on four sub theories: Cognitive Evaluation theory, Organismic Integration theory, Causality Orientation theory and Basic Needs theory. Central to the proposed study will be Organismic Integration Theory (OIT) that looks at the different forms of motivation. OIT states that motivation has different forms that lay on a continuum. This continuum goes from amotivation, which means that the person does not feel any motivation towards an activity, to intrinsic motivation, which means that a person engages in an activity for enjoyment and fun. The other forms between these two extremes are extrinsic forms, which are forms of motivation in

which the behavior towards a goal has not been fully internalized (Deci & Ryan, 2000). More specifically, because the motivation has not been fully internalized, extrinsic motivation is defined as "engaging in an activity as a means to an end and not for its own sake" (Vallerand, 2007, p.60), Those forms of motivation are external regulation, introjected regulation, identified regulation and integrated regulation. The major difference between external regulation, introjected regulation and identified and integrated regulation is the perceived locus of control (Horn, 2008). Locus of control refers to what reason a person perceives for engaging in a behavior (Deci & Ryan, 2000). If the locus of causality is perceived to be internal, then the person perceives that he or she will be engaging in an activity due to internal interest. When the perceived locus of causality is external, then external factors like rewards or punishment might be the cause of engaging in an activity. Being intrinsically motivated is related to higher levels of perseverance (Vallerand & Losier, 1999), persistence, performance and lower levels of drop out (Calvo, Cervello, Jimenez, Iglesias & Murcia, 2010; Deci & Ryan, 2000), and improved well- being (Horn, 2008).

A major factor that influences the form and level of motivation within an athlete is the environment. One of the most significant factors influencing the environment of the athlete is the athlete's coach. Hence, coaching style influences an athlete's form of motivation, as autonomy- supportive coaching leads to more intrinsic levels of motivation compared to controlling styles of coaching (Vallerand & Losier, 1999). Moreover, motivation has been found to have a mediating role in the perfectionism–burnout relationship as well as in the perfectionism–coping relationship within junior athlete populations (Mouratidis & Michou, 2011; Gaudreau & Antl, 2008; Jowett et al., 2013).

Need for the Study

In general, the relationship between perfectionism and motivation has been researched before in athletes. What these studies have shown was that the adaptive form of perfectionism such as self–oriented perfectionism or the dimension of personal standards were related to intrinsic forms of motivation whereas the maladaptive form of perfectionism such as socially–prescribed perfectionism and dimensions of concern over mistakes and doubts about actions were related to extrinsic forms of motivation. However, there still exists a further need to investigate this relationship because these studies have only looked at the relationship between perfectionism and motivation in certain populations. Specifically, these populations where the relationship has been investigated include international groups including Greek adolescent athletes who ranged from elite to novice levels of expertise (Mouratidis & Michou, 2011), French–Canadian athletes who competed in regional, provincial and national levels of competition (Gaudreau & Antl, 2008), and club and organizational athletes in England (Appleton & Hill, 2012; Jowett et al., 2013). By looking only at younger international athletes, research has neglected a specific group of athletes. Specifically, Division I athletes have not yet been studied and this group would add a unique perspective to the literature. Student–athletes have to balance being a full–time university student, commit to 20 hours of sport practice a week, and deal with the demands of traveling, media exposure and competition. Student-athletes have to perform successfully in each of these demands and therefore, must have high standards for themselves. For these athletes, the demand is high to perform in both the academic and athletic realms successfully to maintain scholarship status and play the sport at a high level and therefore, the possibility exists that the relationship between

motivation and perfectionism might be unique in this sample compared to other athletes.

Additionally, past research had a number of other limitations that did not provide a clear picture of perfectionism within the sport domain. First, measurements that were used in past research were not sport–specific or neglected several of the sub constructs of perfectionism (Appleton & Hill, 2012; Gaudreau & Antl, 2008; Jowett et al., 2013; Mouratidis & Michou, 2011). For example, several studies used more general questionnaires for perfectionism (Gaudreau & Antl, 2008; Mouratidis & Michou, 2011) or used only portions of a sport-specific measurements (Jowett et al., 2013). Not using the complete sport specific measurement for perfectionism or only using the general questionnaire for perfectionism is an important limitation of past research because perfectionism is unstable across different domains, which makes it important to assess perfectionism in a domain-specific manner (Dunn et al., 2006). Also, not including all of the subscales does not show the full picture of perfectionism within athletes, which once more indicates an existing need for further research.

Purpose

Therefore, the purpose of this proposed study was twofold. The first purpose was to investigate collegiate athletes' levels of perfectionism and motivation. The second purpose was to investigate the relationship between perfectionism and motivation in collegiate athletes when these two constructs are assessed with sport specific measurements.

Hypotheses

First, it was hypothesized that collegiate athletes would have high levels of personal standards, high perceived coach pressure, and concern about mistakes. Additionally, collegiate athletes would have higher levels of extrinsic forms of

motivation than intrinsic motivation. Secondly, it was hypothesized that high scores on the adaptive forms of perfectionism would predict intrinsic forms of motivation while high scores on maladaptive forms of perfectionism would predict external forms of motivation.

Operational Definition

For this study, college athletes are defined as participating in NCAA Division I varsity athletics.

Perfectionism is defined based on Hewitt and Flett's (1991) definition of setting exceedingly high standards on which one evaluates oneself. To assess perfectionism, the sport-specific construct with its six dimensions (personal standards, organization, perceived coach pressure, perceived parental pressure, doubts about actions, concern over mistakes) was used (Gotwals & Dunn, 2009). Personal standards is defined as having extremely high standards for oneself. Perceived coach pressure is defined as what standards the coach has for the athlete. Perceived parental pressure is defined as what expectations the parents have for the athlete. Concern over mistakes is defined as how worried an athlete is to make a mistake during practice or competition. Doubts about action is defined as constantly disliking one's performance because it might not be good enough. Organization is defined as having the need to be organized and have a plan.

Athletes' level of motivation was defined according to the sport-specific conceptualization of motivation based on nine dimensions: amotivation, external regulation, introjected regulation, identified regulation, integration regulation, intrinsic motivation to know, intrinsic motivation to experience stimulation, intrinsic motivation to accomplish and a general category of intrinsic motivation. Amotivation is defined as the lack of motivation to engage in a behavior. External regulation is

defined as motivation coming from external sources like rewards and punishments. Introjected regulation is defined as motivation for a behavior that is driven by factors such as guilt and shame. Identified regulation is when a person starts to see a behavior as personally important. Integrated regulation is when a person starts to see a behavior not only as important for oneself but also brings it in line with one's personal values. Intrinsic motivation to know is to engage in a behavior because one enjoys learning something new. Intrinsic motivation to experience stimulation is to engage in a behavior because one is attracted to the sensitive stimulation that comes along with that behavior. Intrinsic motivation to accomplish is to engage in a behavior because one enjoys the feeling of accomplishing a task, drill or challenge. General intrinsic motivation is to engage in a behavior because of the overall joy that behavior brings to a person.

Limitations

One limitation that this study has is that it was conducted as a cross-sectional research study. Participants filled out questionnaires to assess which form of perfectionism they have as well as how they are motivated. Because data collection was at a single time point, causation cannot be established. A second limitation was that the current study relied on self- report data, as the participants filled out the surveys based on their own perceptions. This means that as a researcher, one had no control over how honestly, objectively, and accurately the participants filled out the surveys. Nevertheless, the surveys used for this study have been shown to have acceptable reliability and validity previously and have been used frequently in the past. Lastly, the sample that was studied is very specific. Collegiate athletes are usually between 18-24 years old and this population is at the highest level of sport participation at this age which is not realistic for most individuals. Using this sample

means that generalizability of the findings to a general population of students or lower-level athletes is limited.

Significance

The significance of this study is that it extended the understanding of the perfectionism and motivation relationship. No study previously had looked at this relationship in college athletes. Additionally, no study had used the full sport-specific measure designed and appropriate for elite athletes. To conduct such a study was important because knowing how each subscale of perfectionism related to motivation helps to adjust for a better motivational climate within teams. For example, if an athlete scores high on perceived coach pressure and this construct relates to extrinsic forms of motivation, then an intervention can be implemented. Since this form of perceived pressure is related to extrinsic motivation, which is related to negative outcomes like lower self- confidence and higher dropout rates, adjusting the standards set by the coach or the coach's evaluation methods might decrease the perceived coach pressure and hence shift the motivation of that athlete to be more intrinsic. Thus, by better understanding the relationship between perfectionism and motivation within college athletes, a follow up study can examine interventions focusing on creating different sport climates for athletes. These climates could influence athletes' perfectionistic tendencies which could then influence motivation in a positive manner. For example, switching from a controlling coaching style to an autonomy- supportive style would change how the athletes perceive the pressure from the coach, which will lead to a change in perfectionism that then will shift an athlete's motivation from being extrinsic to intrinsic.

CHAPTER II

Literature Review

The research question for this proposed study is twofold. First, what are the levels of perfectionism and motivation in a group of collegiate Division I athletes? Second, what is the relationship between perfectionism and motivation in college athletes when sport-specific measurements are applied? At first, perfectionism and how it has been studied will be discussed. Then, motivation and how it has been studied will be discussed. Lastly, studies that have looked at the perfectionism – motivation relationship will be discussed. This section will be followed up by important limitations and how future research should address those limitations. The literature reviewed here is not exhaustive but rather focuses on main topics relevant to the current study. The reasoning for choosing these studies is that the present study will look at collegiate athletes and how they might be affected by the perfectionism–motivation relationship.

Perfectionism

Perfectionism is a personality trait that causes a person to set exceedingly high individual standards and is associated with harsh self-evaluations based on these standards which results in either feelings of achievement or failure depending on if they reach these standards. (Hewitt & Flett, 1991; Longbottom, Grove & Dimmock, 2012; Stoeber, 2011). At first, perfectionism was thought to be a unidimensional construct, seen as intrapersonal perfectionism or high standards of one's self, which came along with mostly negative consequences (Hewitt & Flett, 1991). However, Hewitt and Flett argued that perfectionism is multidimensional with differences in the

types dependent on having either a social component or a personal component. Additionally, the differences between these types of perfectionism are dependent on the person towards "whom the perfectionistic behavior is directed (e.g., self–oriented vs. other–oriented) or to whom the perfectionistic behavior is attributed (e.g., socially prescribed perfectionism). Hence, they developed a model with three forms of perfectionism: self-oriented perfectionism, other–oriented perfectionism, and socially prescribed perfectionism. Self–oriented perfectionism is characterized by a person's self-acceptance and self–worth dependent on if this person achieves the very high standards that he or she sets for him or herself. Other-oriented perfectionism is when one person holds exceedingly high standards for other people and expects them to be perfect. Socially prescribed perfectionism is based on the need that a person wants to achieve the goals and expectations that are set by others. A person's self-worth and self–acceptance is dependent on others, as these significant others have high expectations for a person and also evaluate that person on whether he or she achieved these high expectations. The major difference between self–oriented perfectionism and socially prescribed perfectionism is that the locus of control is more internal for the self-oriented perfectionism whereas the locus of control is more external for socially prescribed perfectionism.

To assess these three forms of perfectionism and to ensure that perfectionism was a multidimensional construct, Hewitt and Flett (1991) created the Multidimensional Perfectionism Scale (Hewitt & Flett - MPS), which is a 45–item questionnaire with 15 questions for each form of perfectionism. Throughout the process of developing the Hewitt & Flett – MPS, Hewitt and Flett found that there indeed were three independent forms of perfectionism that represent the self and social components of the psychological construct. Furthermore, self- oriented

perfectionism was related to constructs that are self–referenced such as self–criticism, self–blame, and high standards. Other–oriented perfectionism was related to other–blame, dominance, and authoritarianism, while socially prescribed perfectionism was related to demand for approval, fear of negative evaluation and ideal social standards. These findings showed that these three forms of perfectionism were distinct from each other, as they related to different constructs that significantly varied from each other. However, Hewitt and Flett did find some overlap as self-criticism was found to relate to both self-oriented and socially prescribed perfectionism. Lastly, the three forms of perfectionism related differently to psychological disorders which further demonstrated the multidimensionality of perfectionism. Socially prescribed perfectionism related to the greatest number of disorders including "schizoid, avoidant, and passive aggressive patterns" (p. 465) as well as borderline pattern of these disorders. In addition, socially prescribed perfectionism was related to clinical symptoms like alcohol abuse, anxiety, and psychotic depression. Self–oriented perfectionism, on the other hand, was not related to any personality disorder but was related to "somatoform symptoms, hypomania, and alcohol abuse" (p. 466). Lastly, other–oriented perfectionism correlated with histrionic, narcissistic, and antisocial scales as well as with drug abuse, and hypomania. Hewitt and Flett clearly demonstrated that perfectionism was a multidimensional construct, as the three forms of perfectionism related independently to numerous distinct personality measures, with the exception of self-criticism, personality disorder subscales, and clinical symptoms syndromes. One of the main reasons for Hewitt and Flett to develop their Multidimensional Perfectionism Scale was to study perfectionism's relationship with psychopathology in clinical settings. This can be inferred due to the way both scholars

developed their scale to measure perfectionism and their suggestions for how future practitioners should use the scale.

At the same time as Hewitt and Flett developed their multidimensional model of perfectionism Frost, Marten, Lahart and Rosenblate (1990) developed a similar conceptualization of perfectionism. When conceptualizing perfectionism, Frost and colleagues saw different subcategories of perfectionism that were based more on daily living situations compared to the strong clinical lens that Hewitt and Flett (1991) used. To create a new multidimensional construct of perfectionism, Frost et al. (1990) looked at previous perfectionism literature and modelled their construct from those past studies. According to Frost et al., there seemed to be "critical evaluative tendencies" that made perfectionism a multidimensional construct. First, there was the tendency to have concerns over mistakes, which were defined as being afraid to make a mistake, as these mistakes could lead to failure instead of achievement. A second tendency of perfectionists was doubts about actions, which was defined as having continuous thoughts that one's assignment was not completed satisfyingly. A third tendency was parental expectations, which was defined as having parents that have high expectations. The fourth tendency was parental criticism, which was defined as perceiving one's parents as overly critical. Personal standards was the fifth evaluative tendency, which was defined as setting high standards for oneself. Organization was the last tendency of perfectionism and was defined as having a need for orderliness and neatness. To make sure that this multidimensional construct indeed had these six dimensions, a scale with items reflecting these subcategories was given to female undergraduate university students to see whether these items reflected the assumed subscales. The results yielded six factors that resembled the assumed six subcategories.

As the subcategories of perfectionism were supported in the first step of developing a multidimensional scale to assess perfectionism, the next step was to look how perfectionism on the Frost – MPS related to psychopathology. To do so, Frost et al (1990) compared the Frost – MPS with the Brief Symptom Inventory and the Depressive Experiences Questionnaire in 72 female undergraduate students. Most importantly, the study found that overall perfectionism was related to 10 out of the 12 subscales of the Brief Symptom Inventory. When looking at specific subscales, doubts about actions and concerns over mistakes related positively to 12 out of 12 and 9 out of 12 subscales such as anxiety, depression, psychoticism, hostility and somatization. On the other hand, personal standards and organization were not significantly correlated with any of the subscales. In addition, perfectionism was significantly and positively correlated to dependency depression and self–critical depression, which were two subscales out of the Depressive Experiences Questionnaire. Specifically, doubts about action and concern over mistakes were more strongly related to self–critical depression than dependency depression. The personal standards subscale was related to self–efficacy. As a last step, Frost et al. looked at how perfectionism was related to compulsivity. To do so, 106 female college students completed the Frost–MPS, the Everyday Checking Behavior Scale (ECBS), Maudsley Obsessive–Compulsive Inventory (MOCI), and the Procrastination Assessment Scale–Students (PASS). What they found was that overall perfectionism was positively related with general compulsivity, three subscales of the MOCI, and the ECBS. Similarly, concern over mistakes and doubts about actions were also positively correlated with the overall score on the MOCI and ECBS. Conversely, the personal standards subscale was positively related to overall compulsivity and two subscales of the MOCI. Lastly, overall perfectionism and concern over mistakes were positively

related with procrastination and procrastination was seen as a problem by the participants. Personal standards and organization were negatively correlated with the frequency of procrastination, however, not in the perception of procrastination as a problem. Essentially, Frost and colleagues established that overall perfectionism was related to a "wide variety of symptoms of psychopathology" (p. 466). In fact, the concern over mistakes subscale related strongest with psychopathology. Additionally, except for personal standards and organization, all the other subscales were related to psychopathological symptoms as well. Contrary, personal standards and organization related to positive "personal characteristics" (p.465).

The major difference between the multidimensional constructs of perfectionism developed by Frost et al (1990) and Hewitt and Flett (1991) is that Frost et al.'s model is assessing the level of perfectionism based on the six subcategories that focus on specific tendencies of one's daily life that are influenced by significant others (parents) and internal behaviors like doubting, setting high standards and being concerned to fail while Hewitt and Flett's measurement covers three different types of perfectionism, which focus less on the actual behavior of a person but rather who the perfectionistic tendencies are directed towards and to "whom the perfectionistic behavior is attributed" (Hewitt & Flett, 1991, p. 457) Despite the different structure of the two perfectionism models, these two constructs are similar and often used interchangeably, as most of the subscales can be found within one of the three different forms of perfectionism. Personal standards can be found within self – oriented perfectionism, as setting high standards for oneself is the underlying principle for self- oriented perfectionism. Parental expectancies and parental criticism as well as doubts about actions and concern over mistakes can be viewed as part of socially prescribed perfectionism, as those four constructs are an individual's

perceptions of how others are evaluating their own abilities and not measuring their own standards. Perceiving that others, like parents, set exceedingly high standards and evaluating one's own behavior is similar to socially–prescribed perfectionism. Further, in each of the four subscales, the evaluation of a behavior is not in the control of the agent of the behavior. As one can tell, there are a lot of similarities that exist between Hewitt and Flett's construct of perfectionism and Frost et al.'s construct of perfectionism. However, a few differences are also observable. First, organization and the need for orderliness is not described in either of the three forms of perfectionism. Secondly, having perfectionistic behavior towards others, as it is described in other–directed perfectionism does not exist in Frost et al.'s construct of perfectionism. Lastly, a third difference is that the construct of Hewitt and Flett looks at perfectionism more broadly in which either form is not necessarily maladaptive whereas Frost et al., look at specific tendencies (the subscales) that will lead to perfectionism and each of these tendencies are clearly rated as good or bad.

Since Hewitt and Flett (1991) and Frost et al. (1990) came up with these general models of perfectionism as a multidimensional construct, researchers have questioned whether perfectionism is a domain-specific construct or stable across different domains. In response to this question, Dunn, Causgrove Dunn and Syrotuik (2002) developed a sport specific model of perfectionism. This construct (Sport–MPS) had four dimensions: personal standards (PS), perceived parental pressure (PPP), perceived coach pressure (PCP) and concern over mistakes (COM) and was based largely on Frost et al.'s (1990) general model of perfectionism that included personal standards, concern over mistakes, parental criticism, parental expectations, doubts about actions and organization. In the sport domain, the personal standards construct was assessed by asking athletes if they had extremely high goals for

themselves in their sport. Concern over mistakes assessed if athletes obsessed over specific mistakes and this obsession influenced their overall perception of their performance. Perceived parental pressure and perceived coach pressure were assessed by athlete's attitudes toward meeting the standards set by their parents and coaches. Dunn et al. (2002) decided to omit the doubts about actions and organization subscales on the basis of issues concerning face validity and relevance.

As Dunn, Gotwals and Causgrove Dunn (2005) argued that perfectionism was a domain-specific construct, they also argued it should be assessed with domain–specific measurements. To investigate this concept, the scholars looked at how Canadian student – athletes would score on the general perfectionism questionnaire (Hewitt & Flett –MPS) compared to two adapted forms of the MPS to the context of sport and school. What Dunn, Gotwals and Causgrove Dunn (2005) found was that the level of perfectionism within this sample was not the same in each context. More specifically, the scores on the subscales of the Sport–MPS were significantly higher compared to the other two subscales used for this experiment (Hewitt & Flett- MPS and School–MPS), which indicates that perfectionism should be assessed in a domain–specific way. Furthermore, assessing perfectionism in a domain–specific way may help researchers gain additional insights into individual differences. In the study by Dunn and colleagues (2005), they detected gender differences in the Sport–MPS where none were present in the Hewitt & Flett–MPS. More specifically, males scored significantly higher on three subscales of the Sport–MPS compared to females. Being able to detect gender differences when looking at perfectionism in a domain–specific way further increases the need to develop sport specific measurements for the assessment of perfectionism in the sport context.

Following the establishment of the Sport-MPS (Dunn, Gotwals, & Causgrove Dunn, 2005), Dunn, Causgrove Dunn, Gotwals, Vallance, Craft and Syrotuik (2006) then focused on establishing internal and external validity for the newly formed Sport-MPS. The scholars looked at Canadian athletes, mostly focusing on football players and figure skaters and compared the Hewitt & Flett–MPS to the Sport–MPS. The results of this study demonstrated that the exploratory factor analysis found the same four subscales that Dunn et al. (2002) had proposed earlier. In addition, internal and external validity was established, as self–oriented perfectionism was the strongest predictor of personal standards. Moreover, socially prescribed perfectionism most strongly predicted perceived parental pressure, concerns over mistakes, and perceived coach pressure. Importantly, concern over mistakes was predicted by both, self–oriented and socially prescribed perfectionism, the latter being the stronger predictor. The confirmatory factor analysis showed a lack of model fit and also simple structure of the items was still missing. Hence, the researchers believed future research for a sport–specific questionnaire to measure perfectionism was needed to further establish the reliability of the newly developed Sport–MPS.

As additional validity and reliability on the Sport–MPS questionnaire was still needed, Gotwals and Dunn (2009) looked to provide further evidence for the scale. They wanted to establish internal construct validity for the existing four subscales while also adding two subscales to the existing Sport–MPS. These two subscales were organization and doubt about actions. The reasoning for adding the organization and doubt about actions subscales was that previously omitting these two subscales led to an incomplete picture of perfectionism and poor model fit. In the sport domain, doubts about actions assessed if athletes felt uncertain about their skill level in practice and competition while organization assessed the ability to coordinate multiple

tasks in a logical and ordered manner. First, independent experts in the field of psychology rated how the newly created items for the doubts about actions and organization subscales had content relevance and representativeness. The results showed that both subscales had appropriate content relevance as well as representativeness. Second, Gotwals and Dunn (2009) examined whether doubts about actions and organization remained distinct subscales when they studied them with the preexisting other subscales. The results of the multidimensional scaling showed that all six subscales "represented constructs similar in nature to the other items from their respective item–sets but unique from the constructs represented by other item–sets" (p. 81). Finally, researchers wanted to ensure doubts about actions and organization were still distinct constructs when they were implemented within the complete Sport–MPS as well as to establish external validity of the new construct, Sport–MPS-2. The results showed that the inclusion of the two subscales was appropriate, as structural validity was obtained. In addition, simple structure for doubts about actions and organization also was obtained. External validity was also obtained as the four subscales doubts about actions, concern over mistakes, perceived parental pressure and perceived coach pressure yielded a significant negative correlation with self-esteem whereas personal standards and organization yielded a non–significant positive correlation with self-esteem. In a series of studies by Dunn et al. (2002), Dunn, Gotwals, and Causgrove Dunn (2005), Dunn et al. (2006) and Gotwals and Dunn (2009), a sport–specific measurement was created to assess perfectionism in the sport domain. Sport specific perfectionism is a multidimensional construct that is assessed with six different subscales: personal standards, organization, doubts about action, concern over mistakes, perceived parental pressure

and perceived coach pressure and future studies in the sport realm should use this scale to better understand the domain-specific forms of perfectionism.

Within the sport setting, perfectionism and its influence on different psychological constructs has been studied. Three of the main psychological constructs that were studied with perfectionism were competitive anxiety, burnout, and motivation. Research on these three psychological constructs demonstrates that perfectionism is a multidimensional construct, as those dimensions such as self–oriented perfectionism and personal standards typically related to more beneficial outcomes regarding competitive anxiety, burnout and motivation whereas socially prescribed perfectionism has been related to negative outcomes regarding competitive anxiety, burnout, and motivation.

Perfectionism and Competitive Anxiety

Athletes that have perfectionism as one of their major personality characteristics might interpret athletic situations like competition or practice in a way that will lead to increased levels of stress or anxiety. Since this possibility exists, perfectionism has been frequently studied with the construct of competitive anxiety. Competitive anxiety has been defined as having three components: cognitive anxiety, somatic anxiety and self–confidence (Stoeber et al., 2007). Cognitive anxiety refers to the (negative) thoughts about a competition while somatic anxiety refers to bodily sensations like arousal level. Self-confidence refers to feeling competent enough to meet a challenge and typically is seen as inversely related to the two types of anxiety. Conceptually it is thought that people who have high confidence are less likely to experience anxiety and vice versa (Stoeber et al., 2007).

One of the first studies looking at perfectionism and competitive anxiety was conducted by Frost and Henderson (1991). The researchers looked at 40 female

athletes and 5 coaches and measured perfectionism with the Frost–MPS and competitive anxiety with the sport competition anxiety test (SCAT). In addition, the trait sport–confidence inventory, general sports orientation questionnaire, reaction to mistakes during competition scale, coaches' questionnaire, and thoughts before competition scale were completed. Frost and Henderson (1991) found that the overall score of perfectionism as well as the score on concern over mistakes were significantly and positively related with anxiety prior to competition. In addition, concern over mistakes was also significantly and negatively related to self–confidence. More specifically, athletes that scored high on concern over mistakes were more likely to have thoughts about failing and making mistakes 24 hours prior to competition while also having a failure orientation. On the other hand, athletes high in personal standards and parental expectations had thoughts about succeeding prior to competition, as personal standards was related to having a success orientation. This study clearly demonstrates that perfectionism influenced athletes' level of anxiety. Having high concern over mistakes will negatively impact the level of anxiety as well as confidence whereas having high personal standards will lead to more of a success orientation.

Adding to the study of Frost and Henderson (1991), Hall, Kerr and Matthews (1998) looked at how achievement goals and perfectionism influenced state anxiety. Additionally, the scholars studied if an ego orientation moderated the influence of individual perfectionism on precompetitive anxiety. To do so, Hall, Kerr and Matthews (1998) looked at 119 high school student–athletes and assessed perfectionism using the Frost–MPS, competitive anxiety using the Competitive State Anxiety Inventory–2, and whether athletes were task- or ego-oriented with the Perceptions of Success Questionnaire. Levels of anxiety and confidence were

assessed at one week, two days, one day and 30 minutes prior to competition. Perfectionism was a significant predictor of competitive anxiety. In fact, overall perfectionism was significantly related to cognitive anxiety at all-time points. More specifically, concern over mistakes was the strongest predictor of cognitive anxiety, but doubts about action also predicted cognitive anxiety. Somatic anxiety, on the other hand, was predicted by doubts about action. At all four points of assessment, personal standards and perceived ability positively predicted self–confidence. The study demonstrated that perfectionism influenced anxiety in a mostly negatively manner, as overall perfectionism was positively correlated with anxiety towards athletic competition. Concern over mistakes and doubts about action were the two main variables leading to increased levels of anxiety. Additionally, overall perfectionism and concern over mistakes and doubts about actions were negatively related to self-confidence. Only personal standards, as a form of perfectionism, was seen to be adaptive as it increased the levels of confidence.

Further investigating perfectionism and competitive anxiety, a study conducted by Koivula, Hassmen and Fallby (2002) looked at 178 Olympic caliber athletes and what the relationship was between competitive anxiety, self–esteem, and perfectionism. Researchers found that self -esteem that was based on "respect and love" (p. 865) for oneself is related to more adaptive forms of perfectionism. On the other hand, when self-esteem was based on competence, this form of self–esteem was more strongly related to negative forms of perfectionism. Compared to the previous studies by Frost and Henderson (1991) and Hall, Kerr and Matthews (1998), the two different forms of perfectionism were similarly related to competitive anxiety. The maladaptive forms of perfectionism led to higher levels of cognitive anxiety and decreased self-confidence (Koivula, Hassmen & Fallby, 2002). More specifically,

athletes who rated high in personal standards and low in concern over mistakes and doubts about actions had higher levels of confidence and lower levels of both cognitive and somatic anxiety. Athletes that scored low on all three subscales, personal standards, concern over mistakes, and doubts about actions also had higher levels of confidence and lower levels of both types of anxiety. Conversely, the athletes who rated high in these three subscales had lower confidence and higher levels of both types of anxiety. When personal standards were low and concern over mistakes and doubts about action were high, this led to increased levels of anxiety. One important implication of this study is that depending on the form of self- esteem, perfectionism did not relate to higher levels of cognitive anxiety. The important factor that seems to mediate this relationship between perfectionism and cognitive anxiety is the form of self–esteem. If self-esteem is not based on "others' appreciation" or "through achievements", then this will also lower cognitive anxiety levels. Similarly, as found in the previous studies, Koivula, Hassmen and Fallby (2002) found that the maladaptive form of perfectionism, most specifically doubts about action and concern over mistakes have negative influences on the level of anxiety prevalent in athletes. However, perfectionism also might influence anxiety positively, as the subscale personal standards was found to be positively related to confidence and negatively related to anxiety.

Stoeber and colleagues (Stoeber et al., 2007) further investigated this dual relationship between perfectionism and competitive anxiety. In their study with four different sample groups of athletes ranging from high school athletes to college athletes out of Germany, Stoeber et al. looked at how overall perfectionism (striving for perfection and negative reactions to imperfection) and each of these parts of perfectionism related to competitive anxiety. What they found was that perfectionism

as a whole, including striving for perfection and negative reactions to imperfection, were positively related to both cognitive and somatic anxiety and negatively related to self–confidence. Interestingly, when looking at the two parts of perfectionism separately, the results showed that only negative reactions to imperfections were related to increased levels of cognitive and somatic anxiety. Furthermore, an inverse relationship was found between negative reactions to imperfection and self-confidence. Striving for perfection was, on the other hand, positively related with self– confidence and an inverse relationship was found between striving for perfection and both cognitive and somatic anxiety. The findings of this study are important because they further add to the literature that perfectionism is a multidimensional construct. Moreover, perfectionism seems to have adaptive and maladaptive qualities, as the subscale personal standards is continuously related to higher levels of confidence and lower levels of both types of anxiety. This indicates that striving for perfection is not detrimental. On the contrary, having concern over mistakes or doubts about actions is detrimental because these two dimensions of perfectionism are related to higher levels of cognitive and somatic anxiety and also lower levels of confidence.

Essentially, previous studies have shown that athletes who have high levels of personal standards will have better overall well-being compared to people who rate high in concern over mistakes and doubts about action as personal standards are related to higher levels of self-confidence and lower levels of both cognitive and somatic anxiety. These studies indicate that perfectionism cannot be strictly referred to as a maladaptive personality trait, as there is evidence to suggest that there are adaptive consequences when one strives for perfection. However, it is important to mention that overall perfectionism was related to higher levels of cognitive and somatic anxiety and lower levels of confidence in multiple of the above mentioned

studies. The reason for the negative relationship between overall perfectionism and confidence and the positive relationship between overall perfectionism and anxiety is that the subscales concern over mistakes and doubts about action are strong predictors that increase anxiety and lower confidence and might overwhelm the positive aspects of perfectionism. If athletes could control their concern over mistakes or doubts about action prior to and during competition and only focus on their personal standards, this should lead to elevated levels of confidence and lower levels of anxiety, which may lead to higher levels of performance.

Perfectionism and Burnout

Anxiety is a psychological construct that has a strong relationship with perfectionism. This relationship might lead to increased levels of stress that arise when cognitive anxiety is high. Stress is also an antecedent for another psychological construct that has been studied extensively with perfectionism. This construct is burnout. Burnout has been defined based on three components: devaluation of sport, physical and emotional exhaustion, and a reduced sense of accomplishment (Maslach, Jackson & Leiter, 1996). As mentioned previously, a major cause of burnout is chronic stress (Madigan, Stoeber & Passfield, 2015). The amount of chronic stress that a person experiences and that might lead to burnout is, however, dependent on the form of perfectionism that a person embodies.

As mentioned, one antecedent of burnout is stress. Coping is thought to be one way of relieving stress. Hence, Hill, Hall and Appleton (2010) decided to look at how coping mediated the relationship between perfectionism and burnout. To do so, Hill and colleagues surveyed 206 junior elite athletes on their levels of perfectionism with the Hewitt & Flett–MPS, coping skills with a modified version of the COPE scale, and burnout with the Athlete Burnout Questionnaire. The results showed that the

relationship between perfectionism and burnout was mediated by coping style. More specifically, self–oriented perfectionism was negatively related to burnout. Self–oriented perfectionism was related to problem–focused coping and inversely with avoidant coping. The researchers also found that problem–focused coping mediated the relationship between self-oriented perfectionism and burnout. Moreover, socially prescribed perfectionism was positively related to burnout. Also, socially prescribed perfectionism was positively related to avoidant coping and no relationship was found to problem focused coping. The researchers also found that the relationship between socially prescribed perfectionism and burnout was mediated by avoidant coping. What these findings suggest is that athletes who have perfectionistic strivings will have lower levels of burnout because these athletes will cope with stressors more actively instead of avoiding them. Hence, once an athlete is confronted with adversity, as it often happens in the sport realm, an athlete with perfectionistic strivings is more likely to deal with the adversity by figuring out what the stressor is and will take active steps towards eliminating that stressor compared to an athlete who is high in perfectionistic concerns. These actions are due to the fact that an athlete with perfectionistic concerns would rather disengage than deal with the issue which typically does not solve the problem which might increase burnout.

Hill, Hall and Appleton (2010) were able to establish what the perfectionism, burnout, and coping relationship looks like in a cross–sectional design, but one aspect that needed to still be studied is what this relationship would look like in a longitudinal study. In response to this need, Chen, Kee, and Tsai (2012) looked at this short–term longitudinal relationship between perfectionism and burnout. The researchers followed 188 high school student-athletes out of Taiwan and collected data over summer break during which athletes were not training. Perfectionism was

assessed with the Multidimensional Inventory of Perfectionism in Sport and burnout was measured with the Athlete Burnout Questionnaire. The two questionnaires were given at the end of June 2007 and then again in September 2007. The cross-sectional results of this study demonstrated that striving for perfection was inversely correlated with the three dimensions underlying burnout. Negative reactions to imperfection were positively correlated with each of these three concepts. When perfectionism and burnout were looked at longitudinally, striving for perfection and negative reactions to imperfection no longer predicted burnout, which might be explained by the fact that less pressure is on the athlete during the summer. One major limitation of this study is that the three-month period that was used for this short–term longitudinal study was the summer break in which athletes are considered to have "off" and thus, this might have influenced the longitudinal relationship between perfectionism and burnout.

To address this major limitation of the Chen, Kee and Tsai (2012) study, Madigan, Stoeber and Passfield (2015) looked at this longitudinal relationship between perfectionism and burnout over a three-month period within the school year. More specifically, Madigan, Stoeber and Passfield looked at 103 junior athletes to find out what the three–month longitudinal relationship was between the two forms of perfectionism and burnout. Athletes completed the Sport -MPS and the Multidimensional Inventory of Perfectionism in Sport. Athlete burnout was measured with the Athlete Burnout Questionnaire. The results showed that both forms of perfectionism had an effect on burnout when burnout was examined longitudinally. Perfectionistic strivings were associated with a decrease in burnout whereas perfectionistic concerns were associated with an increase in burnout. These findings implicate that perfectionistic strivings seems to be a "protective factor" (p.16) against burnout whereas perfectionistic concerns seem to significantly contribute to getting

burned out. A possible explanation for perfectionistic strivings working as a protective factor is that athletes with perfectionistic strivings might use better coping methods. This explanation would be supported by the Hill, Hall and Appleton (2010) study, as they found that self–oriented perfectionism was positively related with task–oriented coping.

Essentially, some of the more recent topics that perfectionism has been studied with are the psychological construct of competitive anxiety and burnout as well as burnout with coping as a mediator. All of these studies have looked at different types of athletes ranging from high school student athletes to elite junior athletes and even Olympic caliber athletes. A common theme of the above presented research is that perfectionistic strivings or self-oriented perfectionism has been continually related to more beneficial outcomes. Specifically, the more adaptive forms of perfectionism were inversely related to burnout, positively related to problem-focused coping, lower levels of cognitive and somatic anxiety and increased levels of confidence. In contrast, perfectionistic concerns, socially prescribed perfectionism or negative reactions to imperfection have been seen to be more maladaptive, as they were positively related to burnout, avoidant coping, cognitive and somatic anxiety, and negatively related to confidence.

Depending on the form of perfectionism, this personality characteristic can lead to lower levels of confidence, higher levels of anxiety and burnout. Since burnout is defined as losing a sense of accomplishment, devaluating the sport, and physical and emotional exhaustion, one can safely assume that the joy that comes with participation in sport is disappearing. Joy in an activity or engaging in an activity out of pure pleasure is the underlying principle of intrinsic motivation, which also is a psychological construct like perfectionism, competitive anxiety, and burnout. As there

seems to be a likely connection between perfectionism and motivation, motivation will be the next psychological construct that will be examined including what motivation is and how it has been studied in sport.

Motivation

Motivation has been defined as the reason or the "why of a behavior" (Vallerand & Losier, 1999, p.143) as well as "the hypothetical construct used to describe the internal and/or external forces that produce the initiation, direction, intensity, and persistence of behavior" (Vallerand & Thill, 1993, p. 18). According to Deci and Ryan (2000), Self–Determination Theory (SDT) is based on the notion that every human being has the need for psychological and physical growth and thus looks for adequate challenges to grow (Deci & Ryan, 2000). In addition, there are three basic, universal needs that every human wants to have fulfilled. These three needs are feeling competent, autonomous, and related. Autonomy captures whether a person feels that he or she has a choice to participate in an activity, meaning that the perceived locus of causality is internal. Throughout the literature, punishment and rewards are concepts that strongly impact the sense of autonomy for a person as these can sometimes make the individual feel as if their participation is controlled by them and no longer their choice. Competence means that one has the abilities and resources to meet a challenge. One of the most important factors influencing the sense of competence is feedback, especially from significant others like parents or coaches. Deci and Ryan (2000) argue that "competence is necessary for any type of motivation, [whereas] perceived autonomy is required for the motivation to be intrinsic" (p.235). Clearly, autonomy and competence are two major players influencing the level and form of motivation. Relatedness means that one feels related to the people in the environment, which includes coaches, parents and other significant others. The three

needs of autonomy, competence and relatedness are major parts of the level and forms of motivation that an athlete will embody according to SDT. Talking about SDT more specifically, it is a metatheory that is built around four sub theories: Cognitive Evaluation theory, Organismic Integration theory, Basic Needs theory and Causality Orientation theory. Cognitive Evaluation theory explains how the levels of intrinsic motivation are affected by competence and autonomy (Horn, 2008). Causality Orientation theory is about a more stable part of motivation. The three orientations that exist are: autonomous, controlled and impersonal (Horn, 2008). Basic Needs theory explores how the fulfillment of the three basic needs – autonomy, competence and relatedness – affects a person's well–being (Horn, 2008). Organismic Integration theory breaks down the different forms of motivation, as they appear on a continuum ranging from amotivation on one end to intrinsic motivation on the other end (Ryan & Deci, 2000). In total, these four theories encompass the basic assumptions of the overall framework of Self-Determination Theory such as need fulfillment, being self-determined and covering intrinsic and extrinsic forms of motivation.

To be able to understand what the specific differences are between the existing forms of motivation it is crucial to see what these forms are, how they vary from each other, and what they will look like in athletes. The first form of motivation that will be looked at is amotivation, which is on one extreme of the motivation continuum, as it demonstrates total lack of motivation to engage in a certain activity (Deci & Ryan, 2000). This lack of motivation appears when athletes have no efficacy or feel that they have no sense of control of a situation. One example of an amotivated athlete is when that athlete does not see any good in participating in sports, seriously starts to consider quitting, and stops trying hard during practice and games. External regulation, which is a form of extrinsic motivation, resembles a more motivated form

of motivation compared to amotivation but the locus of causality is external, and behavior is strongly driven by outside influences like rewards and punishments. One example of an athlete with an external regulation for participating in sports is that this athlete only participates because he or she receives a scholarship that helps pay for tuition. Introjected regulation is a more intrinsic form of motivation compared to external regulation, but the locus of causality is still external. The external influences like rewards or punishment that drive behavior when it is externally regulated do not cause a behavior to happen anymore but rather factors like guilt, shame or pride drive behavior. An example of an athlete with an introjected regulation for participating in sports is when that athlete decides to go shoot extra jump shots outside of practice because if that athlete would not do it, he or she would feel ashamed or guilty of his or her actions. Moving further towards more internalized forms of motivation, the form of motivation that is more internalized than introjected regulation is identified regulation. This regulation describes that a behavior is more internalized now, as some identification with that type of behavior starts to appear. Also, the perceived locus of causality is now internal. An example of an athlete with an identified regulation is when that athlete decides to shoot extra jump shots outside of practice because doing so will help improve his skill set and make him a better athlete. The most internalized form of extrinsic motivation is integrated regulation. Integrated regulation describes how an athlete starts to integrate a behavior and its benefits within one's identity. An example of an athlete with an integrated regulation is when that athlete decides to shoot extra jump shots because doing so is part of his or her identity as a hardworking, skilled basketball player.

The most internal form of motivation is intrinsic motivation. When a person is intrinsically motivated that person engages in an activity out of the pure joy he or she

experiences while doing the activity. An example of an intrinsically motivated athlete is when that athlete decides to shoot extra jump shots outside of practice, as doing so brings pleasure to that athlete. Important to state is that there are three different forms of intrinsic motivation: intrinsic motivation to know, to accomplish, and to experience stimulation. Intrinsic motivation to know means that a person does an activity like playing basketball to advance one's knowledge of the game. Intrinsic motivation to accomplish means that an athlete plays basketball, for example, because that athlete loves to accomplish things like playing a game or finishing a drill. Intrinsic motivation to experience stimulation means that an athlete engages in an activity because that athlete enjoys the sensations that come with it.

There are nine forms of motivation: amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, intrinsic motivation, intrinsic motivation to know, intrinsic motivation to accomplish, and intrinsic motivation to experience stimulation (Deci & Ryan, 2000). Between amotivation and intrinsic motivation are extrinsic forms of motivation. Those forms are external regulation as the most extrinsic form, introjected regulation, identified regulation, and integrated regulation as the most integrated form of extrinsic motivation. The further the form of motivation is away from intrinsic motivation on the continuum, the more controlled the form of motivation. To be more intrinsically motivated, one needs to start internalizing behaviors, which then will lead to autonomous forms of motivation like integrated or identified regulation. Extrinsic motivation is engaging in a behavior as a mean to an end with a perceived external locus of causality whereas intrinsic motivation is engaging in a behavior as an end in itself with a perceived internal locus of control.

After examining the different forms of motivation, the next part of this literature review will cover how motivation has previously been studied. Investigating past research on motivation is important because it will demonstrate how motivation relates to different constructs, which might also be related to perfectionism. The first construct that will be examined is performance.

Motivation and Performance

To investigate the performance and motivation relationship, it will be important to see what this relationship looks like outside of the sport–realm and to then look at it within the sport-realm to see whether significant differences exists between different domains. One study that looked at this relationship outside of the sport–context was conducted by Grant (2008). The purpose of this study was to find out if and how intrinsic motivation moderated the relationship between prosocial motivation and performance, persistence, and productivity. At first, Grant looked at 58 fire fighters and then at 140 paid fundraising callers. The results were that intrinsic motivation worked as a moderator, as intrinsic motivation reinforced the relationship between performance, persistence, productivity, and prosocial motivation. When intrinsic motivation and prosocial motivation were high, then performance, persistence, and productivity were also high, whereas when intrinsic motivation was low then the relationship between prosocial motivation and persistence, performance, and productivity was negative. Essentially, intrinsic motivation positively influenced persistence, productivity, and performance in the work context. The influence of intrinsic motivation on persistence has also been studied in the sport literature.

The relationship between persistence and motivation is important to understand because persistence is one indirect way of influencing performance. One way persistence may influence performance indirectly is by having athletes continue

to participate throughout tough stretches or slumps. The degree of persistence that an athlete has when he or she faces adversity is dependent on that athlete's motivation. When an athlete has low levels of intrinsic motivation, then during times of adversity that athlete will show lower levels of persistence or might even drop out compared to an athlete who has higher levels of intrinsic motivation, as this athlete will embody higher levels of persistence (Calvo et al., 2010). Calvo et al. examined this relationship between persistence and motivation with over 400 soccer players between the ages of 13 and 17. What they found was that when an athlete had external forms of motivation, specifically external regulation or introjected regulation, then this person was more likely to drop out of sport. Furthermore, the study found that persistence was significantly depending on their perceptions of autonomy and relatedness. This study demonstrated that being intrinsically motivated was beneficial for performance as it led to greater persistence of athletes. Specifically, athletes who are intrinsically motivated tend to drop out less often than athletes who are extrinsically motivated.

Besides influencing performance indirectly through persistence, motivation also directly influences performance. Tauer and Harackiewicz (2004) looked at how performance and intrinsic motivation were affected by cooperation, competition, or a combination of cooperation and competition in intergroup competition. For this study, task enjoyment was used as a concept to measure intrinsic motivation, as intrinsic motivation is defined as engaging in an activity out of the joy one receives from doing so. The task that was to be completed was a free throw task with either a competitive, cooperative, or intergroup competitive focus. The results of the study showed that intergroup competition led to the highest levels of task enjoyment and also was related to the best performance between these three groups. When looking at the

competition and cooperation group, performance and task enjoyment levels did not vary between these two groups. This finding that task enjoyment, the construct used to measure intrinsic motivation, was the same for the competition group and the cooperation group was unexpected because previous research had found that cooperation is related to higher levels of intrinsic motivation when compared to competition. One likely explanation for this finding between cooperation and competition on task enjoyment is that due to the independent task of shooting free throws, both designs have benefits that "may balance each other" (p. 860), which then led to similar levels of task enjoyment.

In both sport and out of sport context, research provides evidence that intrinsic motivation has beneficial outcomes as it increases persistence, leads to less drop out, which both influence performance positively and indirectly. Moreover, evidence exists that performance is directly influenced by intrinsic motivation in a positive way. Because intrinsic motivation can influence constructs like performance and persistence positively, it is important to understand what factors influence the type of motivation. One construct that has previously been studied is how the level of motivation of an athlete is influenced by the athlete's coach.

Motivation and the Influence of the Coach

Vallerand and Losier (1999) argued that there were two coaching styles that have been found to influence motivation. The first coaching style was a controlling coaching style and the other was an autonomy–supportive coaching style. A coach engages in a controlling coaching style when he or she interacts with his or her athletes in a "highly–directive manner" (p. 150). Contrary to this coaching style is the autonomy–supportive coaching style that is resembled by giving the athletes more room for their own input, which gives the athlete more autonomy. Regarding the

relationship between coaching style and intrinsic motivation, it is expected that a controlling style is related to lower levels of intrinsic motivation whereas an autonomy-supportive coaching style is related to higher levels of intrinsic motivation because autonomy supportive coaching will increase the sense of perceived autonomy and relatedness (Banack, Sabiston & Bloom, 2011). Additionally, autonomy supportive coaches tend to provide feedback in a more informative and productive way compared to controlling coaches, which will lead to enhanced feelings of competence, which also leads to higher levels of intrinsic motivation (Reinboth, Duda & Ntoumanis, 2004).

A study by Banack, Sabiston and Bloom (2011) tested the relationship between coaching style and motivation. These scholars studied Paralympic athletes and examined the relationship between the three basic needs of competence, relatedness and autonomy, an autonomy–supportive coaching style and intrinsic motivation to know, intrinsic motivation to accomplish, and intrinsic motivation to experience stimulation. The results of this study showed that autonomy and relatedness were significantly increased due to an autonomy- supportive coaching style. Another result from the study was that competence was not enhanced by an autonomy–supportive coaching style even though it was the only predictor for intrinsic motivation to know. Also, perceived competence predicted all three forms of intrinsic motivation whereas autonomy only predicted intrinsic motivation to accomplish and to experience stimulation. Relatedness, on the other hand, did not predict any of the three forms of intrinsic motivation. That autonomy and relatedness were significantly increased due to an autonomy–supportive coaching style is important as autonomy and relatedness are two of the three major sources of intrinsic motivation. The authors argued that the relationship between perceived autonomy

from the coach and competence failed to reach statistical significance because at such high level of athletics, the Olympic level, competence is much more dependent on outcomes such as winning and beating an opponent than a perceived coaching style. This study highlights the influence of an autonomy– supportive coaching style, as an autonomy–supportive style increased perceived autonomy and relatedness in those athletes.

This relationship between coaching style and motivation is important to know about because autonomy and relatedness are two important needs to influence intrinsic motivation. However, when the coaching style seems to decrease an athlete's sense of autonomy, it is to be expected that this will decrease their level of intrinsic motivation. Blanchard, Amiot, Perreault, Vallerand and Provencher (2009) investigated that relationship. Specifically, the study investigated the relationship between a team's cohesiveness, the coach's coaching style, and the universal needs of SDT. To study this relationship, Blanchard et al. looked at 207 basketball players out of Canada. The results demonstrated that a controlling coaching style was negatively associated with the need for autonomy but did not influence perceived relatedness and competence. Since perceived autonomy predicts autonomous forms of motivation, having a negative relationship between autonomy and controlling coaching styles will lead to less autonomous forms of motivation. On the other hand, having an autonomy– supportive coaching style influenced intrinsic motivation to know positively and directly. The study also yielded results for the mediating influence of the three universal needs with motivation and any other construct. One of these other constructs that was looked at in this study was team cohesiveness, which was found to positively predict all three needs, which in turn positively related to intrinsic motivation. The finding that a controlling coaching style decreased an athlete's sense

of autonomy is important because having a coach that wants to control an athlete's behavior instead of encouraging the athlete to try new skills will decrease athletes' intrinsic motivation. This happens because the athlete feels like he or she is not the origin of the behavior anymore, as the controlling style of the coaches is decreasing the athlete's sense of autonomy (Deci & Ryan, 2000).

To further investigate the influence of the two coaching styles on need satisfaction, Reinboth, Duda and Ntoumanis (2004) added well–being as a variable to study. These three scholars studied 265 British male soccer and cricket players. The results of this study showed that coaches with an autonomy–supportive coaching style influenced their athlete's perceived autonomy in a positive way by giving them more choice and being less controlling. Additionally, the needs for relatedness and competence were enhanced by coaches who focused on improvement, were task-oriented and gave emotional support and assistance. Furthermore, by enhancing these three needs, intrinsic motivation and well–being were improved. More specifically, improving an athlete's sense of competence, which relates to a sense of being skilled in the athletic realm, will increase intrinsic enjoyment. More importantly, having the needs of competence and autonomy fulfilled might lead to a feeling of eudaimonic well–being, which is a form of well–being that can only be achieved when the needs of competence and autonomy are satisfied. According to these scholars, competence seems to be the most important need to establish well-being. Interestingly, well-being seems to have a connection with self-determined forms of motivation as this connection was also found by Blanchard's et al. (2009) study, which found that higher satisfaction and positive emotions were related to self-determined forms of motivation.

Amorose and Horn (2000) found similar results in a study looking at the relationship between coaching style and motivation. In addition to looking at these two variables, Amorose and Horn (2000) also investigated the role that scholarship status and feedback played on athlete motivation. For their study, 386 Division I student–athletes completed surveys about the study variables. The scholars found that autonomy–supportive coaches enhanced intrinsic motivation in their athletes. In addition, results showed that coaches that provided feedback that was informational, encouraging, and praising increased intrinsic motivation in athletes. These findings are in line with SDT and more specifically the Cognitive Evaluation Theory, as the type of feedback that is provided to the athletes can enhance both their autonomy and competence. When these two needs are enhanced, intrinsic motivation will also be enhanced. Regarding the influence of coaching style on intrinsic motivation, a gender difference existed. Amorose and Horn (2000) found that to females it was more important to have a democratic, autonomy–supportive coach than to males. In addition, feedback that was more punitive was negatively related to females' intrinsic motivation, but this relationship was not seen in male athletes. These gender specific relationships show that according to what gender a coach is working with, different types of feedback and coaching styles should be selected.

Linking the influence of the coach back to how motivation affects persistence and performance, research supports that coaches with an autonomy–supportive coaching style will cause their athletes to have increased feelings of competence and autonomy. Those increased needs will lead to increased levels of intrinsic motivation (Blanchard et al., 2009; Reinboth, Duda & Ntoumanis, 2004; Vallerand & Losier, 1999). Furthermore, having higher levels of intrinsic motivation is related to increased levels of persistence as well as improved performance (Vallerand & Losier, 1999).

This relationship seems to have a circular tendency, as higher increased persistence and performance are strongly predicted by intrinsic forms of motivation, which is caused by autonomy–supportive coaching. Hence, if athletes are not performing at the level they are expected to perform at and might even start to consider quitting, a coaching style change might be the solution.

The coach with his or her coaching style has a significant impact on an athlete. The coaching style can lead to more intrinsic motivation or it can cause more extrinsic forms of motivation. Another way a coach can impact an athlete is by putting pressure on him or her. This will likely influence the level of perfectionism that this athlete will embody, as perceived coach pressure is one hypothesized construct of the Gotwals and Dunn (2009) model of perfectionism. It seems that at least an indirect relationship exists between motivation and perfectionism. To find out what the exact relationship between motivation and perfectionism is, this section will examine how these constructs have previously been studied. In most studies, motivation has usually been studied as a mediator when looked at with perfectionism. At first, perfectionism and motivation have been studied outside of the athletic realm and then the study of these two constructs was also examined in the athletic realm.

Perfectionism and Motivation

Perfectionism and Motivation in Academics

When perfectionism and motivation were studied in the academic realm, Burnam, Komarrajuk, Hamel and Nadler (2014) examined how perfectionism, motivation and academic procrastination interacted. These scholars looked at 393 undergraduate students who completed the Frost–MPS, the Academic Motivation Scale, and the Procrastination Assessment Scale. Autonomous forms of motivation were positively correlated with perfectionistic strivings, which in turn were negatively

related with academic procrastination. This relationship indicates that perfectionistic strivings inversely mediated the relationship between motivation and academic procrastination. Additionally, the results indicate that perfectionistic strivings works as a buffer that can protect one against academic procrastination.

The relationship between perfectionism and motivation in the academic realm was also examined by Stoeber, Feast and Hayward (2009) but in addition to the two constructs, the researchers also looked at their relationship with test anxiety. For this study, 105 participants from a British university completed the Hewitt & Flett-MPS, and a survey for motivation assessed by writing down two personal goals that were rated based on intrinsic or extrinsic motivation, and test anxiety. The results of this study were that socially prescribed perfectionism predicted extrinsic forms of motivation compared to self–oriented perfectionism, which predicted intrinsic forms of motivation. Additionally, socially prescribed perfectionism was positively correlated with lack of confidence and interference compared to self–oriented perfectionism, which was negatively correlated with lack of confidence and interference. Lastly, socially prescribed perfectionism was positively related to total test anxiety compared to self–oriented perfectionism which was unrelated to total test anxiety. The results indicated that different relationships exist between perfectionism and motivation. Self- oriented perfectionism was related to intrinsic motivation, higher levels of confidence, and lower levels of anxiety, which made this relationship adaptive. Contrary, socially prescribed perfectionism was related to extrinsic motivation, lower levels of confidence, and higher levels of anxiety, which made this relationship maladaptive. As the relationship between motivation and perfectionism is not straight forward but seems to be more complex, further research is needed.

To further investigate the relationship between perfectionism and motivation, Miquelon, Vallerand, Grouzet and Cardinal (2005) looked at perfectionism, academic motivation, and psychological adjustment. In their first study, 166 French–Canadian undergraduates completed the Hewitt & Flett–MPS, Academic Motivation Scale, and General Health Questionnaire which measured psychological adjustment difficulties. In their second study, 299 French- Canadian undergraduates completed the Hewitt & Flett–MPS, Subjective Vitality Scale, the Positive and Negative Affect Schedule, scale for students' satisfaction regarding undergraduate studies, and neuroticism. The results showed that socially prescribed perfectionism predicted extrinsic forms of motivation. Additionally, self– oriented perfectionism predicted intrinsic forms of motivation. Additionally, self–oriented perfectionism was negatively related to psychological adjustment difficulties while socially prescribed perfectionism was positively related to psychological adjustment difficulties. Furthermore, students with self–oriented perfectionism seemed to have better academic adjustment compared to students with socially prescribed perfectionism. The findings of this study indicate the multidimensionality of perfectionism with self–oriented perfectionism leading to adaptive outcomes like lower psychological adjustment difficulties and better academic adjustment whereas socially prescribed perfectionism led to greater psychological adjustment difficulties and lower academic adjustment.

As previously established, perfectionism indeed leads to different forms of motivation. Hence, self–oriented perfectionism is more of an adaptive form of perfectionism as it related to intrinsic motivation in the academic context. Socially – prescribed perfectionism related to extrinsic motivation and is more of a maladaptive form of perfectionism. The relationship between perfectionism and motivation in the academic context is a complex one as different forms of perfectionism predict

different forms of motivation. Both constructs are also prevalent within the athletic realm and influence athletes. Hence, it is important to see what the relationship between these construct looks like in the athletic context as well. This relationship has only recently been introduced into sport and these studies will briefly be reviewed next.

Perfectionism and Motivation in Sports

One of the earlier studies looking at the perfectionism and motivation relationship in the sports context was conducted by Gaudreau and Antl (2008). Gaudreau and Antl investigated how the relationship between perfectionism and coping was mediated by motivation, goal attainment, or adjustment in 186 French – Canadians (57% males) with an average age of 18.3(3.25) who completed both the Hewitt & Flett–MPS and the Frost– MPS. From these two questionnaires, the researchers looked at the concern over mistakes, doubts about actions, personal standards, parental pressure and organization subscales. Motivation was measured using the Sport Motivation Scale (SMS) and coping was measured with the Coping Inventory for competitive Sport. Self–determined motivation mediated the relationship between personal standards perfectionism and task–oriented coping whereas less self-determined motivation mediated the relationship between evaluative concerns perfectionism and distraction- and disengagement-oriented coping. Additionally, evaluative concern perfectionism was related to lower levels of autonomous motivation which led to disengagement coping which decreased the chances of goal attainment. The results indicate that athletes who are motivated in a more self–determined way and have high levels of personal standards perfectionism will engage in more adaptive forms of coping compared to athletes who are motivated in a more controlled way and have high levels of evaluative concerns perfectionism.

This relationship implies that perfectionists who have intrinsic motivation tend to view adversity more as a challenge and less as a stressor. Additional findings from the study were that subjective evaluation of goal attainment mediated the relationship between task– and disengagement–oriented coping and change in life satisfaction. One of the limitations of this study is that Gaudreau and Antl did not use context specific measurements to assess perfectionism and hence the authors stated that future research should look at the "dispositional versus contextual measures of perfectionism toward sport" (p.377). Essentially, this study demonstrated that personal standards perfectionism was positively related to intrinsic motivation which led to choosing a more adaptive form of coping. Conversely, evaluative concern perfectionism was negatively related to intrinsic motivation, which mediated the relationship with distraction and disengagement coping. Furthermore, personal standards perfectionism showed that it was more adaptive compared to evaluative concern perfectionism as it was related to task–oriented coping, which was subsequently related to goal attainment and life satisfaction.

To follow up on the findings of Gaudreau and Antl (2008), Mouratidis and Michou (2011) looked at the relationship between perfectionism, motivation, and a person's coping style. The two scholars looked at 334 athletes out of Greece (226 male, 107 female) with a mean age of 15.59 (2.37). Perfectionism was assessed with the personal standards and concern over mistakes subscales from the Frost-MPS. Motivation was assessed using the BRSQ and coping style was measured with the Athletic Coping Skills Inventory. What Mouratidis and Michou found was that personal standards were related to autonomous forms of motivation whereas concern over mistakes were related to controlled forms of motivation. Furthermore, controlled motivation was related to using coping skills that were less preferable compared to

autonomous motivation which was related to beneficial styles of coping as well as increased effort put forth.

In a second follow up study by Mouratidis and Michou (2011) looking at 81 Greek athletes with an average age of 14.32(1.52), the scholars added effort as a third variable in place of coping. The results showed that personal standards were related to both autonomous and controlled forms of motivation whereas concerns over mistakes were related only to controlled motivation. Moreover, self- determined forms of motivation were related to greater day-to-day effort. Surprisingly, controlled forms of motivation were not examined on its influence on daily efforts. The study was not without limitations. Specifically, scholars only looked at "two dimensions of perfectionism" (p. 365). This limitation is important because it does not allow for a complete understanding of the perfectionism-motivation relationship. The scholars argued that using only personal standards and concern over mistakes would "sufficiently cover the aspect of intrapersonal perfectionism" (p. 365). Nevertheless, it can be assumed that using only a portion of the subscales is not sufficiently portraying the aspects of perfectionism. As with the findings of Gaudreau and Antl (2008), the Mouratidis and Michou (2011) findings showed that perfectionism is a multidimensional construct and that the relationship between perfectionism and motivation is complex. Personal standards was related to autonomous forms of motivation whereas concern over mistakes was related to controlled forms of motivation. Furthermore, controlled motivation was related to less effective coping methods clearly showing that concern over mistakes is a maladaptive subscale of perfectionism, whereas personal standards seems to be more adaptive.

The previous studies showed that the different forms of perfectionism led, via autonomous or controlled motivation, to adaptive or maladaptive coping methods.

Coping methods are important in life and in athletics because they help to reduce stress that might be caused by coaches or teammates or competition. If this stress continues to impact the body, one consequence that may occur is athletic burnout. Burnout and perfectionism have been studied in the literature and hence it makes sense to see how this perfectionism – burnout relationship is influenced by motivation. Because perfectionism and burnout are a topic in the literature that is well researched, Appleton and Hill (2012) decided to see if this relationship would change if they added motivation as an additional variable. The two scholars studied 231 athletes out of England with an average age of 16.92 (2.63). The measurement to assess perfectionism in these young athletes was the Child and Adolescent Perfectionism Scale. Motivation was measured with the Sport Motivation Scale (SMS). In this study, burnout was positively related to socially prescribed perfectionism and this relationship was mediated by amotivation, but no mediating relationship was found with extrinsic forms of motivation. Also, burnout was inversely related to self-oriented perfectionism and this relationship was mediated by intrinsic forms of motivation. Lastly, when the scholars looked at perfectionism and motivation at the bivariate level, both forms of perfectionism were positively related to extrinsic forms of motivation and self–oriented perfectionism was negatively related with amotivation. Appleton and Hill (2012) found that the socially prescribed perfectionism–burnout relationship was mediated by amotivation and the self–oriented perfectionism–burnout relationship was mediated by intrinsic forms of motivation.

To follow up on the study by Appleton and Hill (2012), Jowett, Hill, Hall and Curran (2013) also looked the perfectionism–burnout relationship with motivation as a mediator. These scholars studied 211 junior athletes out of Northern England

(161males, 50 females), with the mean age of the participants was 15.61(1.73). Athletes completed the Sport-MPS-2 but only included the personal standards, concern over mistakes, and doubts about action subscales. This means that three subscales of the Sport-MPS-2 were omitted. Motivation was assessed using the BRSQ and the Athlete Burnout Questionnaire was used to assess burnout. The perfectionistic concerns–burnout relationship was mediated by controlled forms of motivation whereas the perfectionistic striving–burnout relationship was mediated by more autonomous forms of motivation. This mediating relationship make sense, as controlled motivation has an external locus of causality, which is also found in perfectionistic concerns. Lack of control such as controlled motivation (external regulation & introjected regulation) is primarily based on outside rewards or punishment and subsequently increases stress. Autonomous motivation has more of an internal locus of causality and control, which is also what is present in perfectionistic strivings. Comparable to the findings of Appleton and Hill (2012), controlled motivation mediated the relationship between perfectionistic concerns and burnout whereas autonomous motivation mediated the relationship between perfectionistic strivings and burnout.

Most research in this field demonstrates that the concept of perfectionism is a multidimensional one, as different forms of perfectionism led to different outcomes. Perfectionistic strivings and self–oriented perfectionism typically led to positive outcomes including lower burnout rates (Appleton & Hill, 2012; Jowett et al., 2013), better approaches to coping (Gaudreau & Antl, 2008; Mouratidis & Michou, 2011), more autonomous forms of motivation (Gaudreau & Antl, 2008; Mouratidis & Michou, 2011) and lower levels of anxiety (Frost & Henderson, 1991; Hall, Kerr and Matthews, 1998; Stoeber et al., 2007). Conversely, perfectionistic concerns and

socially prescribed perfectionism were typically related to more negative outcomes including higher rates of burnout (Appleton & Hill, 2012; Jowett et al., 2013), avoidant coping strategies (Gaudreau & Antl, 2008; Mouratidis & Michou, 2011), more controlled forms of motivation (Gaudreau & Antl, 2008; Mouratidis & Michou, 2011) and higher levels of anxiety (Frost & Henderson, 1991; Hall, Kerr and Matthews, 1998; Stoeber et al., 2007).

Limitations of Previous Research

In previous literature, motivation has mediated several relationships with perfectionism. However, no studies have looked solely at the perfectionism–motivation relationship. Rather, studies investigated how motivation mediated relationships between perfectionism and a third variable like coping or burnout. Nevertheless, these studies have found a consistent relationship between perfectionism and motivation. Specifically, self– oriented perfectionism and personal standards have consistently led to adaptive characteristics because they were related to autonomous forms of motivation, which mediated the inverse relationships between perfectionism and burnout and the positive relationship between perfectionism and task–oriented coping. On the other hand, socially prescribed perfectionism and concerns overs mistakes have been found to be more maladaptive because they were related to controlled forms of motivation, which mediated the positive relationship between perfectionism and burnout as well as perfectionism and avoidant–coping.

Even though there is some research on this relationship, there is still need for further research in this domain for several reasons. First, an important part of the athlete population has not been studied, specifically collegiate Division I student-athletes. Division I student-athletes are a special group because they have to balance the load of a full-time student and commit twenty hours of intense physical activity

for their sport each week. In addition, they are viewed as representatives for of the university in which they are competing and receive extra scrutiny from media and the general student body. Additionally, collegiate athletes vary from professional athletes, high school athletes and athletes from overseas. Specifically, professional athletes only have to worry about performing athletically while high school athletes do not have the challenging academic load of a college student-athlete. Because of these mentioned factors, we would expect high perfectionism in collegiate athletes because of the pressure on high achievement in the classroom and the playing field. Additionally, in the athletic context we expect more controlled forms of motivation due to the strong influence of the coach who is in control of increasing, maintaining or decreasing an athlete's scholarship status. Furthermore, most coaches have controlling influences on the athlete's private life as well, as they sanction partying and try to control what athletes eat and when they go sleep.

As mentioned above, previous research investigating the perfectionism–motivation relationship has only looked at non-American populations of athletes who have been either older or younger than most college athletes. Gaudreau and Antl (2008) looked at French Canadian athletes with an average age of 18.3 (3.25); Jowett et al. (2013) looked at athletes out of Northern England with an average age of 15.61 (1.73); Mouratidis and Michou (2011) looked at Greek athletes with an average age of 15.59 (2.37) and Appleton and Hill (2012) looked at athletes out of England with an average age of 16.92 (2.63). Compared to these international groups of athletes, Division I athletes would add a sample of primarily American athletes that come from a unique age range with different expectations. These two components, a sample consisting primarily of American athletes in young adulthood, could influence the relationship between perfectionism and motivation. Specifically, these individuals

face high levels of academic pressure, athletic pressure, traveling demands, and coaches who may be controlling in nature that might influence their levels of these two constructs.

A second major limitation is that the methodologies of past research are insufficient. This insufficiency exists because perfectionism typically has not been assessed with sport specific measurements. Dunn et al. (2006) and Stoeber (2011) have argued that perfectionism is a construct that is domain specific and has weak stability across domains. Even with this argument, Gaudreau and Antl (2008), Mouratidis and Michou (2011), and Appleton and Hill (2012) all used general perfectionism questionnaires (Frost-MPS and Hewitt & Flett-MPS; Child and Adolescent Perfectionism Scale). Hence, using a domain specific measurement is more appropriate and would better inform the conclusions drawn in the sport domain. One study did use a sport specific measure with athletes, but also had limitations. Specifically, Jowett el al. (2013) did not include the subscale perceived coach pressure, organization and perceived parental pressure. As previously established, the role of a coach is impactful on an athlete and thus leaving this subscale out might lead to false conclusions of the level of perfectionism for that athlete. Hence, this relationship needs to be investigated further. Looking at these limitation, one can conclude that previous research has not been able to provide a complete picture of perfectionism in Division I collegiate athletes and further study is warranted.

Summary

The above synthesized literature demonstrates that perfectionism is a multidimensional construct that has adaptive and maladaptive forms. The adaptive forms, portrayed by self-oriented perfectionism and personal standards, are related to lower anxiety, less burnout, better performance and better coping whereas the

maladaptive forms, represented by socially prescribed perfectionism and concerns over mistakes, in general, have the opposite effect on these constructs. Motivation, besides being strongly influenced by coaches and their feedback, usually mediates the perfectionism relationship. Perfectionistic strivings and self-oriented perfectionism were related to autonomous forms of motivation, which tends to mediate the relationship with burnout and task–oriented coping. Perfectionistic concerns and socially–prescribed perfectionism were related to more controlled forms of motivation, which mediated the relationship between perfectionism and burnout and perfectionism and avoidant–coping. Despite having these studies, future research is still needed due to limitations in past research. These limitations are that Division I student–athletes, a population of athletes that significantly varies from the previously studied athlete groups, has not been studied. Additionally, the studies looking at the perfectionism–motivation relationship insufficiently assessed perfectionism as full sport–specific measurements were not used when domain specific relationships may exist.

This present study addresses these limitations and thus the purpose of this study was twofold. First, the study investigated collegiate athletes' levels of perfectionism and motivation. The second purpose was to examine the relationship between perfectionism and motivation in collegiate athletes when sport-specific measurements were used to assess perfectionism and motivation. Based on previous research, it was hypothesized that collegiate athletes would have high levels of personal standards, perceived coach pressure, and concern about mistakes. Additionally, collegiate athletes would have higher levels of extrinsic forms of motivation than intrinsic motivation. For the second purpose, it was hypothesized that high scores on the adaptive forms of perfectionism would predict intrinsic forms of

motivation while high scores on maladaptive forms of perfectionism wouyld predict external forms of motivation.

CHAPTER III

Methods

Participants

The participants for this study were Division 1 college athletes from a western university in the United States. In total 269 completed a portion of the survey, but five participants did not complete significant portions of the survey and were not included in the study analyses. Therefore, 264 (71.6% female) participants filled out the questionnaire completely. The participants were between the age of 17 and 24 (*M*=19.62, *SD*=1.34). The sample consisted of Freshmen (27.7%), Sophomores (24.2%), Juniors (25.4 %), Seniors (20.5%), and 5th year graduate student athletes (1.9%). Over 70% of the sample identified as Caucasian, with 13.6% identifying as 'Other' and all other ethnicities represented with less than 5% of the sample. The sample had parents who were highly educated with the most common parent education degree being a bachelor's degree (see Table 1 and 2). The majority of fathers did not play sport in college (65.2%, see Table 3) and in the case that they did play a sport the most common sports were football (9.5%), basketball (4.5%) and baseball (4.2%). An even bigger percentage of the mothers did not play any college sport (79.2%, see Table 4). Of the mothers that did play sport, the most common sports were volleyball (4.2%), track and field (3.4%) and basketball (2.3%). Almost one third of the athletes had either a full scholarship (34.1%) or a partial scholarship (36.7%) respectively. In addition, athletes represented a variety of sports (see table 5). The average age for first participation in their college sport was 9.29 (*SD* = 4.56) with the most frequently cited age to start was 5 (12.1%) and 8 (10.2%) (see Table 5).

Table 1. Fathers' Education Level

	Frequency	*Percent*
High School	33	12.5
Some College	49	18.6
Bachelor's Degree	102	38.6
Master's Degree	58	22.0
JD, PhD or MD	18	6.8
Missing	4	1.5
Total	264	

Table 2. Mothers' Education Level

	Frequency	*Percent*
High School	39	14.8
Some College	52	19.7
Bachelor's degree	97	36.7
Master's Degree	66	25.0
JD, PhD or MD	6	2.3
Missing	4	1.5
Total	264	

Table 3. Father College Sport Experience

	Frequency	*Percent*
Yes	92	34.8
No	172	65.2

Table 4. Mother College Sport Experience

	Frequency	*Percent*
Yes	55	20.8
No	209	79.2

Table 5. Type of Sport Played

	Frequency	*Percent*
Cross Country and Track and Field	35	13.3
Soccer	31	11.7
Basketball	28	10.6
Softball	25	9.5
Swimming and Diving	22	8.3
Volleyball	22	8.3
Track and Field	20	7.6
Golf	15	5.7
Gymnastics	14	5.3
Tennis	14	5.3
Cross Country	11	4.2
Baseball	8	3.0
Football	2	.8
Missing	17	6.4

Instruments

Demographics

Athletes completed a survey to assess various demographic characteristics. For the study, athletes indicated gender, age, ethnicity, academic grade, athlete scholarship status, sport, parents' level of education, and athletic background of their parents (see Appendix II for demographics).

Perfectionism

The measurement used to assess the form of perfectionism was the Sport Multidimensional Perfectionism Scale-2 (Sport – MPS -2) (Dunn et al., 2002). The Sport -MPS-2 has 42 items that contain six subscales: personal standards (7 items; "I hate being less than the best at things in my sport"), organization (6 items; "I set plans that highlight the strategies I want to use when I compete"), concerns over mistakes (8 items; "If I fail in competition, I feel like a failure as a person"), perceived parental

pressure (9 items; “My parents set very high standards for me in my sport”), perceived coach pressure (6 items; “I feel like I can never quite live up to my coach’s standards”), and doubts about actions (6 items; “I rarely feel that I have trained enough in preparation for a competition”. All questions are rated on a 5-point Likert–Scale ranging from 1 (strongly disagree) to 5 (strongly agree). For the present study, a score for each subscale was calculated for each participant by adding the responses of the participants and calculating the average for each subscale (see appendix III for Sport-MPS-2).

The Sport-MPS-2 is used for athletes so that they can rate their experiences while competing and participating in competitive sport (Dunn et al., 2006). The validity of the Sport- MPS- 2 has been established by Dunn et al. (2006) and Gotwals and Dunn (2009) who tested for external and internal validity (Dunn et al., 2006) as well as added and completed the Sport–MPS–2 with the two subscales of organization and doubts about actions (Gotwals & Dunn, 2009). Dunn et al. (2006) established that the original four subscales had “acceptable levels of internal consistency” (Dunn et al., 2006, p.66) as well as sufficient external validity (Dunn et al., 2006). Gotwals and Dunn (2009) added two other dimensions of the Sport–MPS-2, doubt about action and organization, as they were able to show that these two subscales demonstrated both internal validity and external validity. The Sport–MPS–2 has been found to have sufficient internal consistency ($a \geq .70$) as well as sufficient factor structure, which has been established due to multiple exploratory factor analysis (Gotwals & Dunn, 2009). The present study supported the findings of previous research regarding internal consistency, as the reliability alpha levels for all subscales were above .70 (see Table 6).

Motivation

The measurement used to assess athlete's level of motivation was the Behavioral Regulation in Sports Questionnaire (BRSQ) developed by Lonsdale, Hodge and Rose (2008). The BRSQ has 36 items, which are evenly split into 9 different subscales representing the different motivation categories. Those subcategories are amotivation ("I participate in my sport but I question why I continue"), external regulation ("I participate in my sport to satisfy people who want me to play") introjected regulation ("I participate in my sport because I would feel guilty if I quit"), identified regulation ("I participate in my sport because the benefits of sport are important to me"), integrated regulation ("I participate in my sport because what I do in sport is an expression of who I am") and the three levels of intrinsic motivation. Those three levels are motivation to accomplish ("I participate in my sport because I get a sense of accomplishment when I strive to achieve my goal"), motivation experience stimulation ("I participate in my sport because I love the extreme highs that I feel during sport"), and the motivation to know ("I participate in my sport for the pleasure it gives me to know more about my sport"). Lastly, there is a general intrinsic motivation subscale ("I participate in my sport because I enjoy it"). Each question is rated on a Likert Scale that ranges from 1 (not at all true) to 7 (very true). Similar to scoring the Sport–MPS -2, the average score for each subscale was calculated. Lonsdale, Hodge and Rose (2008) argued that including all intrinsic motivation subscales is up to individual researchers and what is most appropriate for their study. As the present study was included all perfectionism subscales, we wanted to provide a complete picture of motivation by including all subscales of the BRSQ (see Appendix IV for BRSQ).

Lonsdale, Hodge and Rose (2008) developed the BRSQ and established internal consistency as well as external validity. More specifically, internal consistency was established by determining that the subscales of the BRSQ are reliable. The reliability of the subscales was found to be sufficient, as internal consistency was a ≥ .70. Furthermore, test– retest reliability was found to be sufficient as a ≥ .70 (Lonsdale, Hodge & Rose, 2008). The internal consistency in the present study was similar to Lonsdale, Hodge and Rose as the alpha reliability statistic for all subscales was above .70 (see Table 6).

Procedures

Data collection happened in person. Approval for data collection was attained from the athletic director of the university. After IRB approval was received, a member of the research team completed data collection during the compliance meetings that every team held in the beginning weeks of the school year. During these meetings, researchers overviewed the study with student athletes and the athletes were given the opportunity to participate in the study by filling out the survey packet. After the student–athletes provided consent, the surveys were given out to the student–athletes who filled out the surveys anonymously and handed them back to the researchers following completion. Time to complete surveys was 15 minutes. A number of steps were taken to ensure confidentiality. First, athletes completed surveys anonymously with no names collected during this process. Second, only group means were reported. Thirdly, only members of the research team had access to the original data to ensure individual responses were not used in any reports or discussion. All procedures from the Institutional Review Board were followed limiting any unforeseen consequences to the participants.

Data Analysis

All analyses were conducted via SPSS and functions with $p < 0.05$ were considered significant. Data analysis was twofold. Frist, descriptive statistics were calculated to describe the sample and to analyze data for outliers or skewness. Specifically, the study looked at the means and standard deviations of all subscales of the Sport–MPS-2and the BRSQ. In addition, we conducted a MANOVA to test group differences between gender and grade in school to see if these perceptions differed in male and female athletes or depending on age. This use of descriptive statistics was used to answer the first research question of the proposed study, which investigates the perfectionism and motivation levels of Division I college athletes.

To address the second research question, which asks what the relationship is between perfectionism and motivation in collegiate athletes when assessed with complete sport– specific measurements, the researchers ran a multivariate multiple regression analysis with follow up canonical correlations. In this analysis, the subscales of the Sport–MPS-2 served as predictor variables and the subscales of the BRSQ were the outcome variables.

CHAPTER IV

Results

The present study had two primary purposes. First, the researchers wanted to describe the levels of perfectionism and motivation in Division I college athletes. Second, because past research has only utilized pieces of each survey, researchers wanted to investigate the relationship between perfectionism and motivation in Division I college athletes when both psychological constructs were assessed with all subscales included. We hypothesized that for perfectionism, collegiate athletes would score highest on personal standards, perceived coach pressure, and concern over mistake. Additionally, we hypothesized that student-athletes would have higher levels of controlled forms of motivation compared to autonomous or intrinsic forms of motivation. Lastly, we hypothesized that the adaptive forms of perfectionism would predict intrinsic and autonomous forms of motivation and that the maladaptive forms of perfectionism would predict controlled forms of motivation.

To examine these two research purposes, a variety of statistical analyses were used. All results of these analyses are presented below. First, the descriptive statistics for perfectionism and motivation within Division I college athletes are presented. Then, the results from the multivariate multiple regression between the Sport-MPS-2 and the subscales of the BRSQ are presented.

Descriptive Statistics

Perfectionism

The descriptive statistics of the Sport-MPS-2 indicated that most student athletes rated themselves relatively high on the adaptive forms of perfectionism,

specifically organization and personal standards (see Table 6). Conversely, none of the maladaptive forms of perfectionism subscales reached the midpoint of the scale. More specifically, for the adaptive forms of perfectionism the vast majority (86.9%, 90.8%) of participants indicated at least the midpoint of the scale on the questionnaire. For the maladaptive forms of perfectionism, concerns over mistakes and perceived coach pressure subscales, a significant number of participants (45%, 53.5%) answered at the midpoint of the scale. For the last two subscales, perceived parental pressure and doubts about action, only 22.3% and 28.8% of the participants answered at the midpoint or higher.

When looking at the standard deviations and the ranges of the Sport-MPS-2 (see Table 6), the standard deviations for all subscales were extremely similar (.67 – .91). Further, the ranges of the perfectionism subscales were very similar. All of the maladaptive forms of perfectionism scores reached the lower limit of the scale while the adaptive subscales nearly reached the limit (1.14 and 1.33 respectively). Each of the subscales reached the maximum score for the scale.

Motivation

The descriptive statistics for the subscales of the BRSQ indicated that for the forms of motivation with an internal locus of control, specifically intrinsic motivation to know, intrinsic motivation to accomplish, intrinsic motivation to experience, general intrinsic motivation, integrated regulation and identified regulation, the average score was between 5.44 and 6.43. For the more controlled forms of motivation, amotivation, external regulation, and introjected regulation, each had an average score between 2.08 and 3.26 (see table 6 for all descriptive statistics). More specifically, for the intrinsic and autonomous forms of motivation, the vast majority of student-athletes (69.7% - 94.6%) selected at least ‘mostly true’ on the

questionnaire. For the controlled forms of motivation, only a small number of participants (6.1% - 18%) selected at least ‘mostly true’ on the questionnaire. These means and frequencies indicate that most student-athletes said that they enjoy sports due to internal reasons compared to external reasons.

Investigation of the standard deviations and ranges for the subscales of the BRSQ (see Table 6), the standard deviations were similar for all subscales. Specifically, the standard deviation scores ranged from .73 - 1.66. However, there were differences in the ranges for the subscales. Specifically, the range for intrinsic motivation to accomplish, experience, and general, as well as identified regulation and integrated regulation did not span the whole range. For intrinsic motivation to know, external regulation, and introjected regulation the range was the full scale score.

To summarize, most of the student athletes scored high on the adaptive forms of perfectionism as well as the forms of motivation that have an internal locus of control. However, it needs to be mentioned that the cutoff between adaptive and maladaptive forms of perfectionism was not as clear compared to the cutoff between autonomous forms of motivation and controlled forms of motivation, as still 45% and 53.5% of the participants scored at or above the midpoint for perceived coach pressure and concern over mistake.

Univariate Correlational Analysis

We conducted univariate Pearson correlations to determine the relationship within each subscale of the Sport-MPS-2 and the BRSQ as well as the relationships between the two scales. Results will explore the relationship within subscales of the Sport-MPS-2, within the BRSQ, and between the Sport-MPS-2 to the BRSQ. The results are presented below and in full in Table 6.

When looking at the coefficients of the univariate correlational analysis of the Sport-MPS-2, approximately half of the coefficients were statistically significant at $p \leq 0.01$. The range of the coefficients was between .17 to .54. These results indicate that the subscales of the perfectionism questionnaire were positively correlated with each other moderately or weakly. More specifically, the organization subscale was only significantly correlated with personal standards. Personal standards was positively correlated with all subscales except for doubt about action. Perceived parental pressure was positively and significantly correlated with all other subscales. Perceived coach pressure and concern over mistakes were correlated with all subscales but organization. This means that organization and personal standards seem to be related as well as that personal standards relates to negative forms of perfectionism.

When looking at the coefficients of the univariate correlational analysis within the BRSQ, one can see that nearly all coefficients were significantly correlated to each other. The significance level for these correlations was $p \leq 0.01$ for all but one correlation, which only reached statistical significance at $p \leq 0.05$. The range of the coefficients for the motivation questionnaire was from -.56 to .84. All forms of intrinsic motivation were positively correlated and were strong as the coefficients ranged from .58 to .84. When looking at all autonomous forms of motivation, specifically all forms of intrinsic motivation and identified and integrated regulation, the correlation coefficients are still high, and the range of these coefficients extends from .49 to .84. The controlled forms of motivation were either negatively or not significantly correlated with the autonomous forms of motivation and the correlations between the controlled forms of motivation were strong and positive (.69 to .73).

For the correlation between the Sport-MPS-2 and the BRSQ, a clear picture seems to appear. The adaptive forms of perfectionism, personal standards and organization, were significantly and positive related to all forms of autonomous motivation. The range for these relationships was low to moderate (.17 to .31). Furthermore, personal standards was also positively and significantly correlated to introjected regulation (.18). Organization was negatively and significantly correlated with amotivation (-.14). The maladaptive forms of perfectionism were either not significantly related with autonomous forms of motivation or negatively related. The range for these relationships was -.24 to -.13. Furthermore, all of the maladaptive forms of perfectionism were positively and significantly correlated with all controlled forms of motivation. The range was .29 to .48 for these relationships.

Table 6. Correlational Analysis for the Sport Multidimensional Perfectionism Scale 2 and the Behavioral Regulation in Sport Questionnaire

Subscales	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Intrinsic Motivation - Know	1.00														
2. Intrinsic Motivation – Accomplish	.582**	1.00													
3. Intrinsic Motivation – Experience	.650**	.836**	1.00												
4. Intrinsic Motivation – General	.691**	.665**	.751**	1.00											
5. Integrated Regulation	.672**	.716**	.738**	.654**	1.00										
6. Identified Regulation	.628**	.535**	.553**	.491**	.696**	1.00									
7. Introjected Regulation	-.182**	-.12	-.184**	-.338**	-.109	.089	1.00								
8. External Regulation	-.179**	-.248**	-.245**	-.368**	-.197**	.04	.734**	1.00							
9. Amotivation	-.337**	-.408**	-.468**	-.556**	-.357**	-.145*	.595**	.688**	1.00						
10. Personal Standards	.179**	.302**	.237**	.176**	.279**	.243**	.182**	.09	-.051	1.00					
11. Organization	.094	.267**	.306**	.166**	.211**	.099	-.05	-.079	-.137*	.165**	1.00				
12. Perceived Coach Pressure	-.180**	-.113	-.141*	-.183**	-.118	.026	.319**	.365**	.289**	.300**	.046	1.00			
13. Concern Over Mistakes	-.118	-.002	-.036	-.115	-.036	.081	.413**	.451**	.335**	.451**	.045	.535**	1.00		
14. Doubts about Action	-.150*	-.210**	-.198**	-.242**	-.187**	-.013	.315**	.404**	.393**	.078	-.067	.371**	.446**	1.00	
15. Perceived Parental Pressure	-.083	-.125*	-.102	-.173**	-.003	.047	.308**	.480**	.298**	.284**	.061	.344**	.521**	.324**	1.00
Means	5.44	6.44	6.16	6.17	5.79	5.83	3.26	2.35	2.08	3.68	3.80	2.96	2.85	2.39	2.25
Standard Deviations	1.35	.73	.91	.90	.96	1.01	1.66	1.43	1.34	.67	.69	.87	.91	.83	.89
Alpha Levels	.90	.86	.81	.88	.79	.71	.84	.86	.90	.75	.81	.83	.87	.83	.90
Range	1.00-7.00	3.00-7.00	3.00-7.00	2.75 - 7.00	3.00-7.00	2.25-7.00	1.00-7.00	1.00-7.00	1.00-6.50	1.14-5.00	1.33-5.00	1.00-5.00	1.00-5.00	1.00-5.00	1.00-5.00

** = $p < .01$
* = $p < .05$

Two-Way MANOVA

To test for group differences, a two-way MANOVA with gender and grade level as independent variables and the score on each subscale of the Sport-MPS-2 and the BRSQ as dependent variable was conducted. The results showed that no significant differences on any of the subscales appeared for gender nor grade level. More specially, for gender, there was no significant differences, as F (12, 234) = 1.12, p = .35; Wilks' λ = .95. For grade level, no significant differences existed between grades, as F (48, 903.43) = 1.21, p = .16; Wilks' λ = .79. This finding demonstrates that the scores on each of the subscales for motivation and perfectionism did not differ between males and females or between the different grade levels.

Multivariate Multiple Regression

To examine the second purpose of this study, to determine the relationship between perfectionism and motivation in Division I college athletes, we conducted a multivariate multiple regression with follow up canonical correlational analyses. The dependent variables were the subscales of the BRSQ and the predictor or independent variables were the different forms of perfectionism represented by the subscales of the Sport-MPS-2. The analysis yielded significant relationship between the two data sets, Wilks' λ=.40; F (54, 1243,66) = 4.44, p < .01. This result indicates that the various forms of perfectionism predicted a significant amount of the variability of student-athlete motivation.

To determine which of the perfectionism subscales were most related to the motivation subscales, we conducted a follow-up canonical correlation analysis. The results revealed three significant functions (R_1=.64, R_1^2=.38, p<.01; R_2=.24, R_2^2=.19, p<.01; R_3=.11, R_3^2=.10, p<.05). To determine which variables within each function contributed to the relationship between perfectionism and motivation, the structure

coefficients were examined (see Table 7). A criterion value of .40 was used to interpret the structure coefficients as that indicated that at least 16% of the shared variance was explained (Tabatchnick & Fidell, 2007). When looking at the first function, all maladaptive forms of perfectionism were predictive of controlled forms of motivation and inversely predictive of integrated regulation and all intrinsic forms of motivation. More specifically, the maladaptive forms of perfectionism (perceived coach pressure, doubts about action, perceived parental pressure, concern over mistake) were highly predictive of external regulation (.92) and amotivation (.80). When looking at the intrinsic forms of motivation, all forms were inversely predicted by the maladaptive subscales of perfectionism, with the lowest values being -.42 (intrinsic motivation to know/integrated regulation) and the highest being -.57 for general intrinsic motivation. Also, integrated regulation was predicted negatively. One exception was identified regulation, which failed to be predicted significantly by maladaptive perfectionism.

When looking at the second function of the canonical correlation, personal standards, concerns over mistake, and organization were predictive of intrinsic motivation to know, intrinsic motivation to experience, introjected regulation, identified regulation and integrated regulation. More specifically, the strongest predictor for these forms of motivation was personal standards (.87) with both concerns over mistake (.64) and organization (.50) significant. For the third function, perceived parental pressure (.58) was the only significant predictor with only integrated regulation (.42) significant as a dependent variable. Overall, the first function explained 13.70% of the variance. The second function explained another 4.53% and the last function explained .56% of the variability of the different forms of motivation. Combined, all three functions indicated that the predictor perfectionism

variables explained a total of 18.79% of the variance in the outcome motivation variables.

When investigating the correlations between the variables within each scale, all forms of intrinsic motivation were highly correlated with r > .70. This indicates that multicollinearity might be an issue and complicate interpretation of the results. Therefore, we conducted a second multivariate multiple regression with follow up canonical correlation analyses with only one of the intrinsic motivation variables, intrinsic motivation – general, included. The difference between the first and second analysis is that instead of having all intrinsic motivation subscales included only the general intrinsic motivation subscale was included in the second analysis.

The results for the second multivariate multiple regression were significant, Wilks' λ=.47, F (36, 1083.02) = 5.50, $p < .01$. As with the first analysis, this finding indicates that perfectionism predicted a significant amount of the variability in Division I student-athlete motivation. The canonical correlation analysis revealed that two functions were significant ($R_1 = .49$, $R_1^2 = .37$, $p < .01$; $R_2 = .19$, $R_2^2 = .16$, $p < .01$). As with the first analysis, structure coefficients were examined to determine exactly which forms of perfectionism predicted which type of motivation (see Table 8). Once again, we used a criterion score of .40 to indicate if structure coefficients were significant (Tabachnick & Fidell, 2007).

For the first function, all maladaptive forms of perfectionism were significant predictors of external regulation, amotivation and introjected regulation. Once again, maladaptive forms of perfectionism predicted external regulation (.95) and amotivation (.82) the strongest. Additionally, the maladaptive forms of perfectionism inversely predicted general intrinsic motivation (-.56) and integrated regulation (-.40). For the second function, personal standards (-.88), concerns over mistake (-.46),

perceived parental pressure (-.50) and organization (-.44) were all significant predictors of general intrinsic motivation (-.48), identified regulation (-.59), and integrated motivation (-.81). Once again, personal standards was the strongest predictor of autonomous forms of motivation. Overall, the first function explained 15.62% of the variance in motivation and the second function explained another 4.00% of the variance. Overall, 19.62% of the variability of the student athlete's motivation was explained by athlete's perfectionism in these two functions.

As the first and second multivariate multiple regression explained similar amounts of variance and indicated similar relationships between variables, the second regression will be used for elaboration in the discussion. Further, a higher percentage of the variance in athlete's motivation was explained by the second multivariate multiple regression and with only two functions to elaborate on it also lends itself to being more parsimonious. This second regression analysis also eliminates the issue of multicollinearity that might have also influenced the results.

Table 7. Follow Up Canonical Correlational Results with all intrinsic motivation subscales included

Variable	Function 1	Function 2	Function 3
Dependent Variable			
Factor 1: Intrinsic motivation to know	-.42	-.31	.32
Factor 2: Intrinsic motivation to accomplish	-.55	-.75	-.04
Factor 3: Intrinsic motivation to experience	-.53	-.52	.23
Factor 4: Intrinsic motivation, general	-.57	-.40	.06
Factor 5: Integrated Regulation	-.42	-.64	.42
Factor 6: Identified Regulation	-.11	-.52	.08
Factor 7: Introjected Regulation	.63	-.47	-.29
Factor 8: External Regulation	.92	-.32	.09
Factor 9: Amotivation	.80	.04	-.26
Predictor Variable			
Personal Standards	-.07	-.87	.02
Organization	-.25	-.50	.12
Perceived Coach Pressure	.59	-.29	-.30
Concern over Mistake	.64	-.64	-.33
Doubts about Action	.69	-.04	-.23
Perceived Parental Pressure	.71	-.39	.58

Table 8. Follow Up Canonical Correlation Results of Second Analysis with only Intrinsic Motivation-General included

Variable	Function 1	Function 2
Dependent Variable		
Factor 1: Intrinsic motivation, general	-.56	-.48
Factor 2: Integrated Regulation	-.40	-.81
Factor 3: Identified Regulation	-.09	-.59
Factor 4: Introjected Regulation	.67	-.38
Factor 5: External Regulation	.95	-.28
Factor 6: Amotivation	.82	.17
Predictor Variable		
Personal Standards	-.01	-.88
Organization	-.22	-.44
Perceived Coach Pressure	.60	-.15
Concern over Mistake	.68	-.47
Doubts about Action	.71	.06
Perceived Parental Pressure	.72	-.50

CHAPTER V: DISCUSSION

The purpose of this present study was twofold. First, the goal was to describe Division I collegiate athletes' levels of perfectionism and motivation. Second, the goal was to understand the relationship between perfectionism and motivation in Division I student athletes when both constructs are assessed fully with sport specific measures. For these two purposes, it was hypothesized that Division I student athletes would have high levels of personal standards, as well as perceived coach pressure and concern over mistake. In terms of motivation, it was hypothesized that Division I student athletes would have higher levels of controlled forms of motivation than autonomous forms of motivation. Regarding the second purpose, it was hypothesized that high scores on the adaptive forms of perfectionism would predict intrinsic and autonomous forms of motivation and high scores on the maladaptive forms of perfectionism would predict controlled forms of motivation. To test these hypotheses, different statistical analyses were run. The results of the present study are discussed in this section.

The descriptive statistics that were run to examine the first purpose of the study showed that the vast majority of the Division I student athletes in this sample scored highest on personal standards and organization. Additionally, the participants were high in perceived coach pressure and concern over mistakes. The results support the hypothesis about perfectionism, as personal standards, perceived coach pressure, and concern over mistakes were highest among student-athletes. These findings support the previously made assumption that Division I athletes hold themselves to high standards in sport. Having these high standards for oneself is probably one of the

reasons why these athletes have made it to the Division I level. It needs to be mentioned, that the level of personal standards in the present study (*M* = 3.68) is similar to the level of personal standards that previous studies found in their sample of athletes (3.79 (Appleton & Hill, 2012), 3.61 (Mouratidis & Michou, 2011), 3.70 (Jowett et al., 2013), 3.37 (Gaudreau & Antl, 2008)). Additionally, the levels of concern over mistakes were also similar to past research's findings. These findings suggest that regardless of the level of athlete, there is some consistency regarding the perfectionistic tendencies of athletes (i.e., personal standards being higher than concern over mistake).

In addition to comparing to past studies, this study adds new information to the literature as the findings show that Division I athletes tend to have a need for a highly organized schedule. No previous literature has looked at this component of perfectionism in the athlete population. However, it seems that being highly organized (*M* = 3.80) is as important as personal standards for Division I athletes. Even though this finding is novel, it is not surprising. This is because most aspects of athletics follow a strict routine. Whether this is a practice routine (i.e., warm – up, practice, cool – down) or specific steps before performing a skill (e.g., stepping into the batter's box or prior to free throws), organization and routine is crucial for sport success. Another novel finding is that perceived coach pressure is high in Division I athletes. No previous study has looked at this form of perfectionism, which is one reason why the present study was conducted. The high level of perceived coach pressure was expected because the coach is one of the most influential people in an athlete's life. Because the coach spends so much time with the athletes and may perceive pressure from the administration to win, it makes sense that some of that pressure is delegated down on the athletes. Unfortunately, as this was the first study to

look at perfectionism in a complete manner, future research is needed to investigate if the differences exist in other samples or is unique to this group of Division I student-athletes.

When looking at motivation, it was hypothesized that athletes would have controlled forms of motivation due to the outside pressures that negatively influence athletes' level of autonomy and competence. However, this was not the case, as most students rated themselves as high in intrinsic motivation and autonomous forms of motivation. The levels of motivation, whether intrinsic or extrinsic were comparable to previous sport research. It does seem surprising, however, that despite the high levels of concern over mistakes and perceived coach pressure, the overall form of motivation reported by student-athletes was intrinsic. One could argue that despite the outside pressure (i.e., the coach, the media, winning, academics, and family), athletes' love of their sport outweighed these outside pressures and did not harm their motivational attitude toward their sport. Another possible explanation for this finding might be that the athletic environment did not decrease an athlete's feeling of competence or autonomy regardless of the amount of pressure exerted, which also would lead to higher levels of intrinsic motivation. If these explanations are indeed correct, then this would contrast previous findings that factors like coach behaviors (e.g., criticism) and coaching style (e.g., controlling behaviors) will decrease an athlete's level of autonomy and competence, which in turn should lead to higher levels of extrinsic motivation (Amorose & Horn, 2000). Essentially, Division I student-athletes were intrinsically motivated despite being exposed to media scrutiny, the pressure of winning, and performing in the class room, which could be because student-athletes' love for their sport outweighed these negative pressures or because the athlete's environment did not decrease their level of competence or autonomy.

As athletes in the sample held more adaptive forms of perfectionism and were largely intrinsically motivated, we could expect that several athlete outcomes would also be influenced. Specifically, due to the sample being intrinsically motivated, we can assume that their level of performance, persistence and productivity would be high, as this is one previously cited beneficial outcome of intrinsic motivation (Grant, 2008; Calvo et al., 2010). Additionally, we would expect athlete well- being to be high because previous literature has indicated athletes who were intrinsically motivated had better well-being than athletes who were extrinsically motivated (Reinboth, Duda & Ntoumanis, 2004). In terms of perfectionism, student-athletes in the sample had high levels of personal standards. In past studies, personal standards were a "protective factor" (Madigan, Stoeber & Passfield, 2015, p 16) against possible negative outcomes such as burnout and competitive anxiety (Hill, Hall & Appleton, 2010; Madigan, Stoeber & Passfield, 2015; Frost and Henderson, 1991; Stoeber et al., 2007). This finding indicates that these Division I athletes may be less likely to burnout of their sport or experience high levels of cognitive or somatic anxiety (Koivula, Hassmen and Fallby 2002; Hill, Hall, and Appleton, 2010). On the contrary, due to the high levels of personal standards we would expect the sample to have to higher levels of self-confidence compared to others (Koivula, Hassmen and Fallby (2002). Lastly, one reason why athletes who have high personal standards tended to have lower levels of burnout is because personal standards was related to engaging in task-oriented coping which is a beneficial form of coping style (Gaudreau & Antl, 2008). Thus, we can assume that these athletes are more likely to engage in task-oriented coping, which in turn should lead to lower levels of burnout. Another reason why burnout should be low within this sample is because of the relationship between perfectionism-motivation-burnout that previous research has established.

Essentially, the descriptive findings indicate that these student-athletes are more apt to experience positive outcomes because of their high levels of intrinsic motivation and personal standards.

The results of the correlation analysis showed that when looking at the perfectionism subscales, personal standards was positively correlated with all subscales including organization. The relationship between personal standards and organization is expected because literature has stated that organization will be more of an adaptive facet of perfectionism similar to personal standards (Gotwals & Dunn, 2009). The maladaptive forms of perfectionism also positively correlated with each other. This also reflects past literature that has established these dimensions of perfectionism as causing negative consequences and representing similar aspects. Interestingly, personal standards was positively related to all maladaptive forms of perfectionism except doubts about action. This finding is interesting because it shows that even though we think of having high personal standards as beneficial, it might also lead to more negative aspects for athletes. When looking at the motivational scales, autonomous and controlled forms of motivation were highly correlated within each other. Furthermore, autonomous forms of motivation negatively correlated with controlled forms of motivation. These findings make sense since a high positive correlation would indicate that the constructs are related. In terms of motivation, if I enjoy an activity for the fun of it, I am also likely to enjoy it because I see this activity aligning with my personal values. Additionally, it makes sense that a negative correlation existed between autonomous and controlled forms of motivation as these forms are typically seen as opposite and when one is high it would conceptually make sense that the other would be low. The fact that introjected regulation failed to be significantly correlated with integrated and identified regulation might be due to the

fact that these forms represent the transition between autonomous forms and controlled forms and hence, they fall between the scales sufficiently to not be related to either.

The results of the main analysis revealed that perfectionism was a significant predictor of motivation when both constructs were assessed with complete sport-specific measures. The follow up canonical correlations revealed that two functions were significant and could be used to explain the relationship between perfectionism and motivation. For the first function, all maladaptive forms of perfectionism highly predicted controlled forms of motivation, such as external regulation, and amotivation. Moreover, these forms of perfectionism inversely predicted intrinsic motivation as well as autonomous forms of motivation. This first function supported the second part of our hypothesis that maladaptive forms of perfectionism would predict controlled forms of motivation. This finding also replicates what previous literature has found. In the four studies that have looked at the perfectionism – motivation relationship, all four studies have found that the maladaptive forms of perfectionism related either to controlled forms of motivation (Gaudreau & Antl, 2008, Mouratidis & Michou, 2011, Jowett et al., 2013) or amotivation (Appleton & Hill, 2012). Despite not establishing any new relationships, this finding still adds new information to the literature, as it demonstrates that the relationship between maladaptive perfectionism and controlled motivation is consistent across different types of athletes. Specifically, we see similar results in Division I athletes as have been reported in European adolescent athletes. That the maladaptive forms inversely predicted autonomous forms of motivation and intrinsic motivation is not surprising either, as it only makes sense that when controlled forms of motivation are increased by maladaptive forms of perfectionism that intrinsic and autonomous forms are

decreased. One possible reason for this existing relationship is that when an athlete has these maladaptive forms of perfectionism, their perceived locus of control is external. For perceived coach pressure and parental pressure and having concern over mistakes and doubts about action, the locus of control is external, as the athlete cannot control how much pressure the parents or the coach exert on the athlete. Neither can athletes control if their actions are sufficient to lead their team to victory as many other factors like the defense or game plan of an opponent influences whether a team loses or wins. Essentially, this finding indicates that forms of perfectionism with a perceived external locus of control predict forms of motivation that also have an external locus of control.

Concerning the second function, which explained less variance compared to the first function (i.e., 4% to 15.62%), the two adaptive forms of perfectionism as well as concern over mistakes and perceived parental pressure significantly predicted all autonomous forms of motivation as well as intrinsic motivation. This function partially supports the second hypothesis, which stated that the adaptive forms of perfectionism would predict intrinsic forms of motivation. This is indeed true, as personal standards and organization predicted all autonomous forms of motivation. This finding replicated previous studies that have found this relationship as well (Gaudreau & Antl, 2008; Mouratidis & Michou, 2011; Appleton & Hill, 2012; Jowett et al., 2013). Interestingly, Mouratidis and Michou (2011) found that personal standards predicted both autonomous and controlled forms of motivation. The present study did not replicate the Mouratidis and Michou finding as personal standards seemed to be solely adaptive in the present study. The fact that organization predicted autonomous forms of motivation is a new finding. At a conceptual level, organization has often been grouped with personal standards as an adaptive form of perfectionism,

however, no previous study has actually looked at what forms of motivation is predicted by organization. Hence, this study expands the literature, as it demonstrates that organization is indeed adaptive because it may lead to autonomous forms of motivation.

In addition to the adaptive forms of perfectionism, concern over mistakes and perceived parental pressure also predicted these autonomous forms of motivation. It seems that perceived parental pressure and concern over mistakes seem to be complex forms of perfectionism. In the first function, both forms predicted controlled forms of motivation. However, in the second function both also predict, to a much lesser extent, autonomous forms of motivation. This finding is surprising because concern over mistakes has been unrelated to autonomous forms of motivation in previous studies. One possible explanation for this finding could be that athletes are concerned to make mistakes because of their own personal standards. Athletes want to achieve perfection as often or fast as possible and try to avoid mistakes to reach their goal of achieving these self-set standards. Perhaps because these goals and standards of these athlete are self-set, having concerns over making a mistake does not decrease an athlete's sense of autonomy or competence, which could explain how this form of perfectionism could also predict autonomous forms of motivation.

Similar to concern over mistakes, perceived parental pressure primarily predicted controlled forms of motivation. However, this dimension also predicted, to a lesser extent, autonomous forms of motivation. This finding is also new to the literature as no previous study has assessed perceived parental pressure. One possible explanation for this finding could be that the parents, despite putting pressure on their children, still are perceived by their children as encouraging and wanting to improve their children's overall skill set and performance during practice and competition. If

athletes view this pressure as an indication of their own ability it would be possible that their sense of autonomy and competence would not be impacted. This mirrors Cognitive Evaluation Theory in that the two universal needs of autonomy and competence influenced the form of motivation within a student-athlete. Moreover, an individual's perception of parental behavior seems to be a crucial factor in how motivation is influenced. One possible explanation for the importance of this relationship could be that most athletes have had parental support in their pathway to the Division I level. These parents may have held high standards for their son or daughter and evaluated their performances throughout their career. Athletes might perceive these high standards as both undermining their autonomy while helping to increase feelings of competence. Future research should try to see if athletes who perceive parental pressure as positive are more intrinsically motivated compared to athletes who perceive parental pressure as negative. Another explanation could be that both of these subscales were adaptive in this study because of specific characteristics of the sample. Division I athletes are a unique sample of athletes as they are a combination of students and athletes. They have to focus on performing at the high athletic level, while also balancing a full-time academic load. Additionally, since student-athletes are representatives of the university, they receive extra scrutiny from media and the general student body. Athletes might fear making mistakes when they are performing, as this could increase the amount of criticism as well as pressure parents and other outside people place on the athletes. Hence, it is possible those additional factors could have influenced our findings and led to slightly different results compared to previous literature. As this study is the first study looking at Division I student-athletes, further research is needed to look at this relationship within this sample.

Implications

The findings of this research study have a few implications. Knowing that maladaptive forms of perfectionism predicted extrinsic forms of motivation and negatively predicted autonomous forms of motivation as well as intrinsic motivation in Division I athletes is important because it means that student-athletes who have high concern over mistakes, doubts about action, perceived coach and parental pressure, will in turn have higher levels of controlled forms of motivated. As research has shown, having controlled forms of motivation can make athletes more likely to drop out of their sport, have lower well-being, and show lower levels of persistence and performance (Vallerand & Losier, 1999, Horn, 2008, Calvo et al., 2010). Therefore, it is important to decrease these forms of perfectionism within college-athletes. Since there is an inverse relationship between the maladaptive forms of perfectionism and autonomous forms of motivation and intrinsic motivation, decreasing the maladaptive forms will lead to athletes being more intrinsically and autonomously motivated, which in turn will have beneficial outcomes such as improved well-being, lower drop-out rates, and higher levels of persistence (Calvo et al., 2010; Horn, 2008; Vallerand & Losier, 1999). More specifically, if coaches could decrease these maladaptive forms of perfectionism by creating a climate in which making mistakes is seen as growth experiences and athletes do not have to fear making mistakes, we would expect to see an increase in athlete's level of intrinsic motivation as well as autonomous forms of motivation. A second implication is that since personal standards and organization predicted intrinsic forms of motivation, coaches and other influential people in the lives of the athletes should aim to cultivate those two forms of perfectionism. This could be done by helping an athlete develop certain routines prior to competition and training sessions and to encourage athletes to

hold themselves to a higher standard than they have in the past. Lastly, since perceived parental pressure and concern over mistakes were found to be adaptive as well as maladaptive, it might be helpful to put some pressure on the athlete but only to the extent that this pressure does not decrease an athlete's sense of autonomy or competence. Additionally, parents should use caution in raising concerns about making a mistake in sport. This last implication should be considered with caution, as further research is needed to clearly establish a relationship between perceived parental pressure and concern over mistakes and motivation in a sample of Division I athletes.

Limitations

This present study is not without limitations. The first limitation is that the study was conducted with self-report measurements and hence the research team had no control over how honestly and accurately the participants filled out the questionnaires. Another limitation is that the study only took a cross-sectional approach assessing the levels of perfectionism, motivation, and the relationship between both. Since this study only represents a snapshot in time, one cannot establish how this relationship might change or develop throughout the year or even a college career. Lastly, the present study was conducted at the beginning of the school year and hence freshmen were unable to estimate and judge the coach's coaching style. This fact could have influenced the level of perfectionism within the sample, however, there was not a significant difference between seniors and freshman. Hence, it seems that the picture of perfectionism within Division I athletes was accurate, but it cannot be said for sure. Going along with the limitation of conducting the study at the beginning of the year, the strains of the training all year long and the season were not present, which additionally might influence the level of motivation or certain

forms of perfectionism (i.e., perceived coach pressure, concern over mistakes, doubts about action). However, as the levels of motivation were similar to other studies, it appears this may not have influenced results greatly, but additional investigation would be beneficial.

Future Research

Future research should try to address the above-mentioned limitations. More specifically, research should try to conduct a study that assesses this relationship over a period of time (i.e., a whole school year) to see how perfectionism and motivation might vary across the year and how the relationship between the two might change. Future research could also expand on the present study by looking at this relationship in more detail. Since only approximately 20% of the variance in motivation were explained by the forms of perfectionism, future research should look at variables that could further explain this relationship. Some possible variables that could help mediate this relationship might be coaching style, parenting style, past athletic experiences, and athletic identity. Additionally, future research should further investigate the role of perceived parental pressure, as the present study was the first study that investigated this form of perfectionism and found it to have both maladaptive and adaptive aspects. Additionally, organization should be further investigated. The relationship between organization and motivation seems to be clear but, as this was the first time it was investigated, further replication is needed to ensure this relationship exists the way it was found in the present study. Lastly, future research should add a third variable to this relationship to see, as past research has done it, if motivation mediates certain relationship between perfectionism and a third construct like passion or grit when it is assessed with sport-specific measurements in Division I athletes.

Conclusion

The present study found that Division I athletes were high in personal standards and organization and were highly intrinsically motivated. Additionally, the study found that maladaptive forms of perfectionism predicted controlled forms of motivation and inversely predicted autonomous forms of motivation. Furthermore, the adaptive forms of perfectionism plus perceived parental pressure and concern over mistakes predicted autonomous forms of motivation. Most of these findings were in line with previous literature and consistency of this relationships across a new sample of participants has been established. Coaches and people of authority at universities should act based on these findings to establish a climate where athletes' intrinsic forms of motivation are emphasized. Future research needs to investigate the role of perceived parental pressure and concern over mistake within Division I athletes more closely.

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APPENDIXES

APPENDIX I:

Informed Consent

Research Participant Information and Consent Form

This research study is being conducted to better understand how collegiate Division I athletes rate in perfectionism and motivation as well as what the relationship between perfectionism and motivation looks like.

I understand that my participation in this study will consist of spending the next 20 minutes filling out two sets of questionnaires that will ask me how I feel about myself during practice and competition, how I perceive my coach during practice and competition, how my parents influence me regarding practice and competition and what motivates me. The information collected in this study will help in forming an idea of how perceptions of an athlete influence the form of motivation that an athlete will have. The risk for the participants is minimal and the benefit to those participating is negligible as well.

You must be at least 18 years old to participate in this research.

Participation in this research project is completely voluntary. You have the right to say no. You may change your mind at any time and withdraw. You may choose not to answer specific questions or to stop participating at any time. Whether you choose to participate or not will have no affect on your grade or evaluation or status on the team.

CONTACT INFORMATION FOR QUESTIONS AND CONCERNS

If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the researcher Eric Martin, 208-426-5418, ericmmartin@boisestate.edu or Christian Sengfelder, 208-995-4269, christiansengfel@u.boisestate.edu.

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Boise State University's Human Research Protection Program at 208 – 426 - 5401, Fax 208 – 426 – 2055 or visit their office Riverfront Hall Suit 311, Mail Stop 1138, 83725, Boise Idaho.

You indicate your voluntary agreement to participate by completing and returning this survey.

APPENDIX II: SURVEY

Demographic Information

Thank you for agreeing to participate in this survey. The insights you provide will be very helpful to us in understanding the path you have traveled to become an athlete at a Division I university. All responses are confidential and no identifying information is collected to assure anonymity.

Directions: Please answer the following questions to the best of your knowledge by circling the best response.

Academic Grade: Freshmen Sophomore Junior Senior
5th year Graduate Student

Age _____

Gender: Male Female

Ethnicity: African American Asian Caucasian Hispanic
Native American Multicultural Other

What is your parent's highest level of education? (Circle the Highest)

Mother- High School Some college Bachelor's Degree Master's Degree JD,Ph.D or M.D

Father- High School Some college Bachelor's Degree Master's Degree JD,Ph.D or M.D

Current Varsity Sport Played_____

Age 1st Started _____

What is your current scholarship status?

Full Partial None

Did your father play a sport in college? Yes No

If yes, Which Sport _____

Did your mother play a sport in college? Yes No

If yes, Which Sport _____

APPENDIX III: SURVEY

Sport - Multidimensional Perfectionism Scale – 2

Using the five answer choices in the box below, please rate your agreement to the following statements.

Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	**2**	**3**	**4**	**5**

1.	If I do not set the highest standards for myself in my sport, I am likely to end up a second – rate player	1 2 3 4 5
2.	Even if I fail slightly in competition, for me, it is as bad as being a complete failure	1 2 3 4 5
3.	My parents set very high standards for me in my sport.	1 2 3 4 5
4.	I feel like my coach criticizes me for doing things less than perfectly in competition.	1 2 3 4 5
5.	In competition, I never feel like I can quite meet my parents' expectations.	1 2 3 4 5
6.	I hate being less than the best at things in my sport.	1 2 3 4 5
7.	If I fail in competition, I feel like a failure as a person.	1 2 3 4 5
8.	I usually feel uncertain as to whether or not my training effectively prepares me for my competition	1 2 3 4 5
9.	I rarely feel that I have training enough in preparation for a competition.	1 2 3 4 5
10.	It is important to me that I be thoroughly competent in everything I do in my sport.	1 2 3 4 5

11.	The fewer mistakes I make in competition, the more people will like me.	1 2 3 4 5
12.	Only outstanding performance during competition is good enough in my family.	1 2 3 4 5
13.	I feel like I can never quite live up to my coach's standards.	1 2 3 4 5
14.	I usually feel unsure about the adequacy of my pre-competition practices.	1 2 3 4 5
15.	On the day of competition, I have a routine that I try to follow.	1 2 3 4 5
16.	I have and follow a pre- competitive routine.	1 2 3 4 5
17.	I usually have trouble deciding when I have practiced enough heading into a competition.	1 2 3 4 5
18.	My coach sets very high standards for my in competition.	1 2 3 4 5
19.	My parents have always had higher expectation for my future in sport than I have.	1 2 3 4 5
20.	I should be upset if I make a mistake in competition.	1 2 3 4 5
21.	I think I expect higher performance and greater results in my daily sport – training than most players.	1 2 3 4 5
22.	I feel that other players generally accept lower standards for themselves in sport than I do.	1 2 3 4 5

23.	If a teammate or opponent (who plays a similar positive to me) plays better than me during competition, then I feel like I failed to some degree.	1 2 3 4 5
24.	I feel like I am criticized by my parents for doing things less than perfectly in competition	1 2 3 4 5
25.	My coach expects excellence from me at all times: both in training and competition.	1 2 3 4 5
26.	Prior to competition, I rarely feel satisfied with my training.	1 2 3 4 5
27.	I follow pre- planned steps to prepare myself for competition	1 2 3 4 5
28.	I follow a routine to get myself into a good mindset going into competition.	1 2 3 4 5
29.	I feel like my coach never tries to fully understand the mistakes I sometimes make.	1 2 3 4 5
30.	I rarely feel that my training fully prepares me for competition.	1 2 3 4 5
31.	I develop plans that dictate how I want to perform during competition.	1 2 3 4 5
32.	In competition, I never feel like I can quite live up to my parents' standards.	1 2 3 4 5
33.	My parents expect excellence from me in my sport.	1 2 3 4 5
34.	If I do not do well all the time in competition, I feel that people will not respect me as an athlete.	1 2 3 4 5

35.	People will probably think less of me if I make mistakes in competition	1 2 3 4 5
36.	I have extremely high goals for myself in sport.	1 2 3 4 5
37.	I set higher achievement goals than most athletes who play my sport.	1 2 3 4 5
38.	If I play well but only make one obvious mistake in the entire game, I still feel disappointed with my performance.	1 2 3 4 5
39.	I feel like my parents never try to fully understand the mistakes I make in competition.	1 2 3 4 5
40.	My parents want me to be better than all other players who play my sport.	1 2 3 4 5
41.	I set plans that highlight the strategies I want to use when I compete.	1 2 3 4 5
42.	Only outstanding performance in competition is good enough for my coach.	1 2 3 4 5

APPENDIX IV: SURVEY

Behavioral Regulation in Sports Questionnaire

While thinking of playing your sport and using the scale below, please indicate your level of agreement with each item.
Each statement is preceded by the stem: "I participate in my sport …"

Not at All True	Very Slightly True	Slightly True	Somewhat True	Mostly True	True	Very True
1	2	3	4	5	6	7

1.	Because I enjoy it.	1 2 3 4 5 6 7
2.	For the pleasure it gives me to know more about my sport.	1 2 3 4 5 6 7
3.	Because I love the extreme highs that I feel during sport.	1 2 3 4 5 6 7
4.	Because I enjoy the feeling of achievement when trying to reach long- term goals.	1 2 3 4 5 6 7
5.	Because it is part of who I am.	1 2 3 4 5 6 7
6.	Because the benefits of sport are important to me.	1 2 3 4 5 6 7
7.	Because I would feel ashamed if I quit.	1 2 3 4 5 6 7
8.	Because if I don't other people will not be pleased with me	1 2 3 4 5 6 7
9.	But I wonder what's the point.	1 2 3 4 5 6 7
10.	But I question why I continue	1 2 3 4 5 6 7
11.	Because I feel pressure from other people to play	1 2 3 4 5 6 7

12.	Because I would feel like a failure if I quit.	1 2 3 4 5 6 7
13.	Because it teaches my self- discipline.	1 2 3 4 5 6 7
14.	Because it's an opportunity to just be who I am.	1 2 3 4 5 6 7
15.	Because I enjoy the feeling of success when I am working towards something important.	1 2 3 4 5 6 7
16.	Because of the excitement I feel when I am really involved in the activity.	1 2 3 4 5 6 7
17.	Because I like learning how to apply new techniques.	1 2 3 4 5 6 7
18.	Because I like it.	1 2 3 4 5 6 7
19.	Because it's fun.	1 2 3 4 5 6 7
20.	Because I enjoy learning new techniques.	1 2 3 4 5 6 7
21.	Because of the pleasure I experience when I feel completely absorbed in my sport.	1 2 3 4 5 6 7
22.	Because I enjoy doing something to the best of my ability.	1 2 3 4 5 6 7
23.	Because what I do in sport in an expression of who I am.	1 2 3 4 5 6 7
24.	Because I value the benefits of my sport.	1 2 3 4 5 6 7
25.	Because I feel obligated to continue.	1 2 3 4 5 6 7
26.	Because people push me to play.	1 2 3 4 5 6 7
27.	But the reasons why are not clear to me anymore.	1 2 3 4 5 6 7
28.	But I question why I am putting myself through this.	1 2 3 4 5 6 7
29.	To satisfy people who want me to play.	1 2 3 4 5 6 7
30.	Because I would feel guilty if I quit.	1 2 3 4 5 6 7

31.	Because it is a good way to learn things which could be useful to me in my life.	1 2 3 4 5 6 7
32.	Because it allows me to live in a way that is true to my values.	1 2 3 4 5 6 7
33.	Because I get a sense of accomplishment when I strive to achieve my goals.	1 2 3 4 5 6 7
34.	Because of the positive feelings that I experience while playing my sport.	1 2 3 4 5 6 7
35.	I enjoy learning something new about my sport.	1 2 3 4 5 6 7
36.	Because I find it pleasurable.	1 2 3 4 5 6 7

APPENDIX V:

Subscales Composition for Sport-MPS-2 and BRSQ

Verbatim item descriptions for Sport-MPS-2

Personal Standards (PS)
1. If I do not set the highest standards for myself in my sport, I am likely to end up a second-rate player.
6. I hate being less than the best at things in my sport.
10. It is important to me that I be thoroughly competent in everything I do in my sport.
21. I think I expect higher performance and greater results in my daily sport-training than most players.
22. I feel that other players generally accept lower standards for themselves in sport than I do.
36. I have extremely high goals for myself in my sport.
37. I set higher achievement goals than most athletes who play my sport.

Organization (Org)
15. On the day of competition, I have a routine that I try to follow.
16. I have and follow a pre-competitive routine.
27. I follow pre-planned steps to prepare myself for competition.
28. I follow a routine to get myself into a good mindset going into competition
31. I develop plans that dictate how I want to perform during competition.
41. I set plans that highlight the strategies I want to use when I compete.

Concern Over Mistakes (COM)
2. Even if I fail slightly in competition, for me, it is as bad as being a complete failure.
7. If I fail in competition, I feel like a failure as a person.
11. The fewer mistakes I make in competition, the more people will like me.
20. I should be upset if I make a mistake in competition.
23. If a team-mate or opponent (who plays a similar position to me) plays better than me during competition, then I feel like I failed to some degree.
34. If I do not do well all the time in competition, I feel that people will not respect me as an athlete.
35. People will probably think less of me if I make mistakes in competition.
38. If I play well but only make one obvious mistake in the entire game, I still feel disappointed with my performance.

Perceived Parental Pressure (PPP)

3. My parents set very high standards for me in my sport.
5. In competition, I never feel like I can quite meet my parents' expectations.
12. Only outstanding performance during competition is good enough in my family.
19. My parents have always had higher expectations for my future in sport than I have.
24. I feel like I am criticized by my parents for doing things less than perfectly in competition.
32. In competition, I never feel like I can quite live up to my parents' standards.
33. My parents expect excellence from me in my sport.

39. I feel like my parents never try to fully understand the mistakes I make in competition.
40. My parents want me to be better than all other players who play my sport.

Perceived Coach Pressure (PCP)
4. I feel like my coach criticizes me for doing things less than perfectly in competition.
42. Only outstanding performance in competition is good enough for my coach.
13. I feel like I can never quite live up to my coach's standards.
18. My coach sets very high standards for me in competition.
25. My coach expects excellence from me at all times: both in training and competition.
29. I feel like my coach never tries to fully understand the mistakes I sometimes make.

Doubts About Action (DAA)
8. I usually feel uncertain as to whether or not my training effectively prepares me for competition.
14. I usually feel unsure about the adequacy of my pre- competition practices.
17. I usually have trouble deciding when I have practiced enough heading into a competition.
26. Prior to competition, I rarely feel satisfied with my training.
30. I rarely feel that my training fully prepares me for competition.
9. I rarely feel that I have trained enough in preparation for a competition.

Behavioral Regulation in Sports Questionnaire

Stem: I participate in my sport…

Intrinsic Motivation – General
Because I enjoy it.
Because I like it
Because it's fun.
Because I find it pleasurable.

Intrinsic Motivation to Know
For the pleasure it gives me to know more about my sport.
Because I like learning how to apply new techniques.
Because I enjoy learning new techniques.
I enjoy learning something new about my sport.

Intrinsic Motivation to Experience Stimulation
Because I love the extreme highs that I feel during sport.
Because of the excitement I feel when I am really involved in the activity.
Because of the pleasure I experience when I feel completely absorbed in my sport.
Because of the positive feelings that I experience while playing my sport.

Intrinsic Motivation to Accomplish
Because I enjoy the feeling of achievement when trying to reach long – term goals.
Because I enjoy the feeling of success when I am working toward something important.
Because I enjoy doing something to the best of my ability.
Because I get a sense of accomplishment when I strive to achieve my goals.

Integrated Regulation
Because it's a part of who I am.
Because it's an opportunity to just be who I am.
Because what I do in sport is an expression of who I am.
Because it allows me to live in a way that is true to my values.

Identified Regulation
Because the benefits of sport are important to me.
Because it teaches me self- discipline.
Because I value the benefits of my sport.
Because it is a good way to learn things which could be useful to me in my life.

Introjected Regulation
Because I would feel ashamed if I quit.
Because I would feel like a failure if I quit.
Because I feel obligated to continue.
Because I would feel guilty if I quit.

External Regulation
Because if I don't other people will not be pleased with me.
Because I feel pressure from other people to play.
Because people push me to play.
To satisfy people who want me to play.

Amotivation
But I wonder what's the point.
But I question why I continue.
But the reasons why are not clear to me anymore.
But I question why I am putting myself through this.