Personality and Perceptions about Sport Participation in Collegiate Club Hockey Athletes

Rachel Dembek
Personality and Perceptions about Sport Participation in Collegiate Club Hockey Athletes

Rachel Dembek

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Project Advisor:  
Dr. David A. Tobar

Second Reader:  
Dr. Ray Schneider
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Rachel Dembek
Bowling Green State University
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Introduction

Club sports provide opportunities for college students who may not want to or cannot participate in varsity athletics (Rundio & Buning, 2022). Club sports provide college students with physical and social engagements. These engagements can vary from orchestrating meetings, practices, and dates of competition (Lee, Liu, & Bentley, 2024), in addition to a variety of health benefits. College students get to incorporate their physical talents and interests within a recreational environment without the constraints of the pressures from varsity athletics. Rundio & Buning (2022) states that “in one school year, approximately two million students participated in club sports in the USA alone,” (p.3) compared to 430,000 students in varsity athletic programs (Pennington, 2008).

Club sports are traditionally orchestrated by student volunteers who “set rules for the club, recruit participants, organize practice and competition schedules, recruit sponsors, and secure funding among other duties (Blumenthal, 2009)” (Rundio & Buning, 2021, p.86). These students gain valid experience and skills that average college students may not have the opportunity to experience or develop. Some of these skills that are developed include leadership, personal development, integrity, decision-making, organization, and time management; all of these skills may be beneficial in future employment (Rundio & Buning, 2022). Club sports not only benefit the overall college experience but also the college student as well. Dugan, Turman, & Torrez (2015) suggests that nearly half of all college students participate in intramural and/or club sports throughout college providing a huge leverage point for collegiate recreation. Additionally, Rundio & Buning (2022) provides empirical evidence that suggests “participation in collegiate club sports outperforms other recreational sport services in achieving both student
The benefits outweigh the negatives, but collegiate club sports do have their disadvantages that need to be addressed. Club sports are often provided with limited support from the universities which can create negative experiences for college students in relation to physical, social, and financial demands (Lee et al., 2024). These demands may significantly affect college students’ well-being and contribute to discontinued participation in club sports. College students are constantly graduating, so club teams must continue to implement strategies to recruit and retain participants, as many student volunteers may not understand the difficulties and/or constraints that participants are faced with throughout the recruiting process (Rundio & Buning, 2021). Therefore, the participation of club sports includes its own unique opportunities and stresses for the students that are willing to participate (Martin, Unfried, Kim, & Beckham, 2021). There is a paucity of research on college club sports compared to varsity and intramural athletics, but from the research that has been done, club sports are generally student-run and have little non-student supervision (Lifschutz, 2012) which further contributes to the burdens on student participants. More research is needed on the potential stress associated with club sport participation.

**Theory of Emotion and Coping**

Lazarus and Folkman (1987) examined the fundamental premises of their cognitive-relational theory of emotion and coping. They discovered that throughout those premises there is a transactional relationship (theory), which is uncommon. Within this transactional relationship, there were two main theoretical constructs within their system, i.e., appraisal and coping. In other words, stress is a transactional process involving antecedent factors that may be considered stressful or threatening, appraisal of those factors and coping, and various outcome measures. Development of specific measures such as daily stress, appraisal, and coping, were needed to
study the empirical relationships of the different variables that may comprise the stress process. Additionally, Lazarus and Folkman (1987) discovered that the development of stress is generally caused by a negative person-environment relationship. Throughout this relationship, the independence of the person and the environment tend to get lost in favor of a new condition or state. For example, we can use the application of threat to understand this relationship. Threat is not just a ‘property’ of a person or an environment. Lazarus and Folkman (1987) describe that “it requires the conjunction of an environment having certain attributes with a particular kind of person who will react with threat when exposed to those environmental attributes” (p.142). The environmental attribute may be considered potential stressors. That is, stressors are variables in the environment that may initiate the stress process if the individual considers it a threat. Threat will lose all of its ‘meaning’ when applied to an environment without the persons who transact with it (Lazarus & Folkman, 1987) and vice versa; alluding to the transactional theory.

To understand the vulnerability of stress and how it can be so differential among individuals is that we have to understand and evaluate the degree of the stress, but also the source of the stress (Lazarus & Folkman, 1987). The person-environment relationship through the transactional theory is still inferred because an individual’s stress may arise from work situations or social situations, which are two completely different environments in direct relation to those individuals. But the main difference that needs to be understood is that stress can develop from stressful experiences of daily living or develop from chronic conditions of living (Lazarus & Folkman, 1987). Regardless, vulnerability of stress arises from the structure of the environment and the potential stressors appraised by the individual.

In accordance with Lazarus and Folkman’s (1987) in-depth examination of the transactional theory of stress and the person-environment relationship, the goal of this study is to
examine the relationship person variables (i.e., traits of perfectionism and self-handicapping) on athletes’ psychological well-being (i.e., stress) in the environment of collegiate club sports, specifically Division I collegiate club hockey. Thus, the next section will provide a review of literature on perfectionism and self-handicapping, the relationship between these two personality traits, and the influence they may have on stress and performance in sport settings.

**Literature Review**

**Perfectionism**

Perfectionism can be defined as, “a personality disposition characterized by striving for flawlessness and setting exceedingly high standards of performance accompanied by overly critical evaluations of one’s behavior” (Stoeber, Haskew, & Scott, 2015, p. 171). Perfectionism can enable athletes to understand that they can create standards for themselves, and how they want their athletic performance to be, accepting nothing less. Sometimes those standards can be high, ultimately unachievable, but the athletes believe that they can be achieved. Perfectionism is also “multidimensional” (Curtis & Hutchinson, 2022, p.16) and includes two super-ordinate dimensions known as perfectionistic strivings and perfectionistic concerns.

Perfectionistic strivings are known to affect athletic performance in a positive way and are considered adaptive. Perfectionistic strivings are self-oriented strivings of perfection and the setting of extremely high personal performance standards (Curtis & Hutchinson, 2022). Perfectionistic strivings are standards that the athletes ‘strive’ to attain, so this dimension can allow athletes to have the mindset to consistently push themselves and accept improvement. On the other hand, perfectionistic concerns are the opposite. Perfectionistic concerns are the concern of mistakes, fear of negative social evaluation, and critical self-evaluation. These concerns negatively impact an athlete’s athletic performance and can negatively impact their motivation
and well-being as an athlete (Curtis & Hutchinson, 2022). In comparison, perfectionistic concerns are when an athlete is ‘too hard on themselves’ and will struggle to motivate themselves to keep competing after a mistake. Athletes that embrace the orientation of perfectionistic strivings will adapt to a mistake and use that mistake as a ‘striving opportunity’ to become a better athlete.

In addition to the super/higher order factors of perfectionistic strivings and concerns, there have been other tendencies that have been examined to help develop a full spectrum of perfectionism (Smith, Saklofske, & Nordstokke, 2014). A sociopsychological perspective that includes interpersonal aspects of perfectionism, which was developed by Hewitt and Flett (1991), concludes three forms of perfectionism: self-oriented, other-oriented, and socially prescribed. Self-oriented perfectionism (SOP) is directed towards setting high standards for oneself (Hewitt & Flett, 1991, 2004). SOP athletes will create standards that they know their talent can achieve, such as a 40-yard completed catch or zero missed free-throws during a basketball game. Other-oriented perfectionism (OOP) relates to various expectations about the abilities of others, i.e., setting unrealistic standards for other people and placing importance on others to be perfect. OOP athletes will often ‘stress’ on their teammates to meet their desired expectations of them, rather than the overall team expectations. Lastly, socially prescribed perfectionism (SPP) describes the desire to meet the perceived high expectations and standards imposed by others (Hewitt & Flett, 1991, 2004). SPP athletes generally are affected by others desires for their performance, and these individuals may include, coaches, parents, friends, etc. They value these individuals so much that their standards for them as an athlete are the only thing that matters. As concluded, perfectionism is a multidimensional, complex trait, and these
forms of perfectionism aid into the complexity. It is often inevitable that athletes will not develop some sort of perfectionist trait throughout their sport performance and/or career.

**Perfectionism and Performance**

Perfectionistic strivings and perfectionistic concerns represent opposing relationships among sport performance. Perfectionistic strivings show a positive relationship with performance, whereas perfectionistic concerns show a weak relationship (Hill, Mallinson-Howard, & Jowett, 2018). Madigan, Stoeber, Culley, Passfield, & Hill (2018) conducted a research study on experienced basketball athletes throughout their training performance. The study discovered that “perfectionistic strivings showed small-to-medium positive correlations with all achievement goals... Perfectionistic strivings and other-approach goals showed small-to-medium positive correlations with performance” (p. 1275), but perfectionistic concerns showed nonsignificant positive correlations with performance. Likewise, the study discovered that perfectionistic strivings was a strong predictor of performance, and perfectionistic concerns was not. Furthermore, the study suggests the evidence that “athletes higher in perfectionistic strivings may outperform athletes with lower levels of perfectionistic strivings in certain circumstances” (p. 1276). Athletes with higher levels of perfectionistic strivings will be more likely to have a better overall performance. Athletes with higher levels of perfectionistic strivings and lower levels of perfectionistic concerns will have a more positive relationship to performance because the athletes will have increased intrinsic motivations, cognitive appraisals, and affective states towards their performance. It was concluded that perfectionistic concerns had no significance and was unrelated to the performance within their study. Perfectionistic strivings are more relevant to performance and perfectionistic concerns may be indirectly negatively related to performance. This is consistent with the research of the perfectionism and performance
relationship because perfectionistic strivings are often “the primary focus of theoretical and empirical work in this regard” (p. 1272) and contain the majority of personal goal-oriented elements of perfectionism (Madigan et al., 2018). The research from Madigan et al. (2018) supports the perfectionism and performance relationship from Hill et al. (2018) that perfectionistic strivings develop a positive relationship with performance and perfectionistic concerns develop a weak relationship with performance.

A risk within sport performance is the risk of injury. Various injuries from minor (i.e., a sprained ankle) to severe (i.e., a torn meniscus) are risks within sport performance, and most athletes are aware of the risk of injury within their sport. Olmedilla, Aguilar, Ramos, Trigueros, & Canton (2022) studied how perfectionism and mental health markers such as depression, stress, and anxiety may be of contribution to injuries of female football athletes. It is understood that perfectionistic strivings, which are adaptive tendencies; and perfectionistic concerns, which are maladaptive tendencies will affect an athlete’s sport performance differently. They discovered that “the perfectionism factor has a significant relationship with psychological health factors” (p.54). When the perfectionism approach is adaptive, it will be a positive influence towards potential negative aspects of the psychological health factors (i.e., a protective factor), whereas a maladaptive approach will not be a protective factor. Within Olmedilla’s et al. (2022) study, they found evidence to support Madigan’s et al. (2018) predicted pattern that there is “a statistically significant link between maladaptive perfectionism and injury risk and a negative inverse association between maladaptive and adaptive perfectionism” (p. 54). With the adaptive approach being a protective factor and the maladaptive approach being linked to risk of injury, it can be concluded that athletes with higher levels of adaptive perfectionist approaches can lower and cope with negative psychological factors towards an injury (Olmedilla et al., 2022). It can be
inferred that athletes with perfectionistic orientations typically experience adaptive tendencies to have a positive relationship with their sport performance.

Particularly, club sports may be less ‘organized’ than varsity sports, but they still provide athletes with plenty of opportunities to benefit their social interaction. The increase of social interaction can enhance the maturity of club athletes to mature and instill morals and values (Rodríguez-Franco, Carlo, Valdivia-Moral, & González-Hernández, 2023). An example of this kind of opportunity would be when student club captains must take it upon themselves to provide schedules of practices and tournaments for their club sport. Varsity sports are provided those opportunities by athletic professionals, whereas student captains may not have any experience in that genre, so those opportunities will help mature those athletes within their social interaction.

Within the participation of club sports, the athletes will either develop or have already developed attributions, behaviors, and/or traits that influence how they may compete in their performance. These may vary from various rituals before games (i.e., same hairstyles or pregame breakfast) or most importantly, how they react to mistakes and success throughout their performance in their sport. Athletes may develop different levels of traits or attributions depending on the sport's level of competition, but specifically, how may perfectionist athletes react to competition. Athletes with a perfectionist orientation tend to develop conflicts where there is a high perception of competitiveness. According to Rodríguez-Franco et al. (2023), they studied “the relationships between cognitive-behavioral patterns of perfectionism in competitive sport and both prosociality and aggressiveness in a sample of adolescents competing in federated sports” (p. 4). It was discovered that there was a direct and significant relationship between self-oriented perfectionism and prosocial behaviors in young athletes. Additionally, as socially prescribed perfectionism and other-oriented perfectionist tendencies were increased, then the
prosocial behavior links were significantly smaller. Furthermore, they studied the orientation of socially prescribed perfectionism (SPP) and how it is the most complicated orientation to interpret and understand. In consideration of Hewitt, Flett, Turnbull-Donovan, & Mikail (1991), socially prescribed perfectionism is related to the high expectations that may be imposed by others or external factors, whereas Rodríguez-Franco et al. (2023) adds to it describing that it characterizes “people under intense pressure from others who expect and demand perfection and who feel pressure to meet the extreme expectations of demanding people” (p. 8). An example of this perfectionist orientation would be the relationship between an athlete and their coach. The athlete understands the demands that their coach expects from their performance, so the athlete will ‘perfect their craft’ to meet or exceed the demands of their coach, and nothing less. These athletes admire those demands of their coach, so with the development of SPP they will believe that they are superior to their teammates (Rodríguez-Franco et al., 2023), creating this perfectionist orientation to be maladaptive. Although, SPP orientation may be maladaptive, the development of prosocial traits from bonds that are built through working together through common goals, will become a protective factor for athletes that come across high pressure performances in competitive sports (Rodríguez-Franco et al., 2023).

Athletes with the SPP orientation are more sensitive/vulnerable because of the maladaptive characteristic of SPP orientation; ultimately, negatively affecting their sport performance. More sensitive athletes do not handle mistakes within their sport performance well because they are so indebted to pleasing the demands of the coach, when all else fails, the athlete will begin to spiral down negatively affecting their sport performance. Perfectionist orientations are inevitable within competitive sports performances and are inherent to “surpassing oneself and achieving sporting goals” (Rodríguez-Franco et al., 2023, p. 9).
**Perfectionism and Stress**

In comparison to performance, stress that athletes experience can have a relationship with their perfectionist orientation. The level of stress an athlete may experience may vary by sport and by the level of competition. Depending on the competition level, the amount of training and preparation required of athletes for their sport may have an influential effect on the amount of stress among the athletes. For example, the sport of dance is one of a kind, as it branches into a variety of dances such as tap, competitive ballroom dance, and/or ballet. Dance is known to be a perfectionist sport because of the exact rhythms, steps, and beats that must be sufficient to their dances, and no dance can be the same from another. Ballroom dancing usually includes a partner; the inclusion of a partner into a dance routine results in greater training and preparation for the final performance. Nordin-Bates & Jowett (2022) studied perfectionism, stress, and support among the sport of dance, and how each may develop a relationship among the dance athletes. They discovered that in the dancers “perceived stress shared positive correlations with all dimensions of perfectionism, ranging from small (OOP), to medium (SOP), and to large (SPP) in size” (Nordin-Bates & Jowett, 2022, p. 30). Based off that data, it can be concluded that when there is a high level of perfectionism, no matter the perfectionist orientation, there will be a high level of stress; SPP orientation will have the largest level of stress, and et cetera.

Although, they also discovered that stress acted as a ‘mediator’ in a small negative relationship between perfectionism, specifically SPP, and autonomy and competence support among the dancers. Stress takes the role of a ‘go-between’ within the negative relationship of SPP, autonomy, and competence support; when there is a higher level of SPP there was lower autonomy and competence support, and vice versa. This finding seems to highlight the negative association between stress and the basic needs to satisfy dancers. Moreover, SPP orientation
developed to be a maladaptive tendency in athletes and their performance. Perceived stress examined with other-oriented perfectionism (OOP) orientation on autonomy and competence support was associated with portrayed some positive indirect effects, specifically with leaders and not the athletes. This was concluded because leaders who expected perfection from their athletes were likely to provide them support, so they were less stressed (Nordin-Bates & Jowett, 2022).

The positive indirect effects of OOP, autonomy, and competence support from stress result from the statistical suppression of OOP by self-oriented perfectionism (SOP) and SPP (Nordin-Bates & Jowett, 2022). A suppression effect may occur “when the association between a predictor and an outcome is substantially increased or changes direction when other predictors are added to the model” (Nordin-Bates & Jowett, 2022, p. 32). The small positive relationship between OOP and stress progressed to a small negative association when SOP and SPP orientations were included. Adding the predictors of SOP and SPP changed the direction of OOP, changing the relationship from positive to negative. Overall, this finding focuses on the importance of examining the relationships that the different perfectionism orientations may share with outcomes (Nordin-Bates & Jowett, 2022).

**Self-Handicapping**

Self-handicapping is defined as “any action or choice of performance setting that enhances the opportunity to externalize (or excuse) failure and to internalize (reasonably accept credit for) success” (Berglas & Jones, 1978, p. 406). Although self-handicapping is similar to attributions that athletes may make for their performance, attributions are made following the performance whereas self-handicapping strategies occur prior to performance. This self-protective coping strategy occurs beforehand because an individual views the upcoming event
and/or activity with some degree of uncertainty of success; a fear of failure. In avoidance or a sense of self-protection, an individual may feign an impediment, such as being ill, before an upcoming event and/or activity (Higgins, Snyder, & Berglas, 1990). The use of this strategy will provide the self-handicapper with a win-win scenario (Berger & Tobar, 2019). That is, a poor performance may be blamed on the impediment, while a good performance is due to the individual’s high ability despite the impediment (Berger & Tobar, 2019); either way the individual avoids the risk of failure.

Also, Leary and Sheppard (1986) described two forms of self-handicapping strategies: claimed and behavioral. Claimed self-handicappers will be influenced to report impediments, even if they don't actually exist (e.g., pretending to be sick or having a body ailment), before an upcoming event that may negatively impact performance, resulting in a potential ‘excuse’ of a poor performance. Whereas a behavioral self-handicapper will actively create an actual impediment to their performance (i.e., not practicing or recklessly partying before an important competition), which will result in a greater probability of a poor performance. Overall, self-handicapping strategies provide short-term benefits such as decreased anxiety and enhanced self-esteem (Leary & Sheppard, 1986). Although, the continued use of self-handicapping, also known as the chronic self-handicapper, would be considered a maladaptive, coping strategy because of the habitual development of creating impediments to performance; ultimately resulting in the possibility of undesirable thoughts and outcomes (Higgins et al., 1990).

Self-Handicapping and Performance

The research on the relationship between self-handicapping and performance is heavily directed towards academic performance, with relatively few research studies on sport performance. Ommundsen (2004) studied self-handicapping related to task, performance-
approach, and performance-avoidance goals in junior high school physical education students. It was discovered that physical education students who were high in performance-avoidance goals, no matter the level of task orientation, were likely to self-handicap; which suggests the likelihood that performance-avoidance goals are the dominant predictor of self-handicapping. Furthermore, when high performance-avoidance goals were paired with low or high task orientations (i.e., developing competence), they indicated that the task goal would have a dampening effect of self-handicapping towards the performance-avoidance goal. Overall, the study concluded that a task goal orientation was preventive towards self-handicapping of the physical education students and suggested that the pairing of a task orientation with both performance-approach and/or performance-avoidance goals was adaptive. Performance-approach goals are a ‘double-edged sword’ towards self-handicapping, whereas performance-avoidance goals are a motivation to generate self-handicapping (Ommundsen, 2004).

Although Elliot, Cury, Fryer, & Huguet (2006) examined a study on achievement goals, self-handicapping, and performance attainment among basketball dribbling. Performance attainment can be defined as “something of a “gold standard” in achievement motivation research, in that it carries (at minimum) information regarding how well an individual is adapting to the demands of the achievement situation” (Elliot et al., 2006, p. 345). In addition to performance attainment, three forms of achievement goals were studied: mastery, performance-approach, and performance-avoidance. Mastery goals are focused on attaining task-based competence or developing intrapersonal competence; performance-approach goals are focused on demonstrating normative competence; and performance-avoidance goals are focused on avoiding the demonstration of normative incompetence (Elliot et al., 2006).
Uniquely, the manipulation of mastery and performance-approach goals seem to not be related or negatively related to self-handicapping because they focus on the full commitment to attain competence. Whereas performance-avoidance goals will facilitate self-handicapping. Elliot et al. (2006) had agreed with Ommundsen (2004) that performance-avoidance goals tend to facilitate self-handicapping because they focus on any potential negative outcomes which will likely generate threat appraisals leading to the attempts of protecting oneself from the negative possibility.

Elliot’s et al. (2006) study of basketball dribbling discovered that the performance-avoidance participants had a greater interest in protecting themselves from the level of incompetence; therefore, have negative implications for performance outcomes. Furthermore, they emphasized that the repeated strategic use of self-handicapping would undermine performance over time because the possibility of anxiety and fear sustaining this strategy would destroy the enjoyment and interest of the performance needed for long-term success (Elliot et al., 2006).

More recently, Khalkhali (2012) examined a study between self-handicapping and sport performance among sport competitions in relation to specific task difficulties. It was emphasized that the outcome of an athlete’s performance is such a meaningful measure of their ability within an ‘entity theory’ so athletes may perform steps to make their performance not as meaningful towards their ability. An entity theory is when there is an existing uncontrollable trait that is not changed through an athlete’s effort (Khalkhali, 2012). Notably, athletes may intentionally self-handicap their performance, so their performance can be blamed on obstacles rather than their own ability. Athletes are more likely to experience a self-handicap when they are feeling uncertain of an important performance.
**Self-Handicapping and Stress**

Athletes who experience long lasting sport performance slumps or decrements may experience a considerable amount of stress, which affect various outcomes, such as behaviors and well-being. As a coping strategy for the stressful situations of performance slumps, athletes may develop the strategy of self-handicapping. It would be expected that self-handicappers experiencing a performance slump would want to ‘protect’ themselves from continuous failure, especially depending on the length of the slump. Continuous poor performance is stressful to athletes because many athletes rely heavily on how they perform (Prapavessis, Grove, Maddison, & Zillman, 2003), and if they are not performing well, it can affect their sense of ability. Therefore, the development of self-handicapping tendencies are likely to occur. A key consideration is that athletes who develop strong self-handicap tendencies may take longer to recognize problems with their performance when they occur (Prapavessis et al., 2003).

Although there has been little research on the relationship of self-handicapping and stress, it can be inferred that with the management of a variety of external factors, in addition to the preparation of their sport, that athletes who engage in self-handicapping may be experiencing greater levels of stress, and athletes who use less self-handicapping may be experiencing lower levels of stress. Stress is usually developed from a negative person-environment relationship (Lazarus & Folkman, 1987), and athletes who tend to have a higher orientation to self-handicap will generally blame the environment for their circumstances, developing a negative relationship and an unhealthy relationship with stress. Self-handicapping is generally a more maladaptive trait for athletes to exhibit and will likely contribute to the vulnerability of those athletes to more negative outcomes (Sahranc, 2011).
Furthermore, anxiety can be an indicator of stress in sport. Prapavessis et al. (2003) also studied that self-handicapping tendencies are positively associated with anxiety, especially precompetitive anxiety when dealt with stressful situations. It was inferred that since the conditions that surround performance in competitive sport are similar to some of the conditions that are used to facilitate self-handicapping behaviors that this kind of relationship would be strong in athletes. They examined male and female Australian athletes from water polo, track and field, cricket, gymnastics, rugby, football, tennis, field hockey, swimming, netball, squash, basketball, triathlon, and golf discovered that the athletes with a strong tendency to self-handicap would generally have anxiety prior to their competition. Moreso, with this conclusion it is possible that athletes who experience high tendencies of self-handicapping may not experience high levels of precompetitive anxiety unless the upcoming performance is important. Additionally, it is also possible that athletes with high tendencies to self-handicapping might ‘down-play’ the importance of their upcoming competition, to aide in alleviating their anxiety (Prapavessis et al., 2003). This study can be used to support the examination of athletes who experience higher levels of self-handicapping towards a competition of importance will experience higher levels of stress and vice versa because anxiety is an indicator of stress.

**Gender Differences in Perfectionism and Self-Handicapping**

The dimensions of perfectionism among men and women can be interpreted differently. Ahmed, Yan Ho, Begum, & López Sánchez (2021) examined the relationships between the will to win, self-esteem, and perfectionism of adolescent athletes in Maharashtra, India. The study focused on the following dimensions within perfectionism: concern over mistakes (CM), high standards for others (HSO), need for approval (NA), organization (O), perceived parental pressure (PPP), planfulness (P), rumination (R), and striving for excellence (SE). The study
discovered a significant difference between perfectionism and self-esteem of men and women athletes. The significant difference was primarily among the perfectionist dimension of rumination. It was discovered that the male athletes scored higher rumination scores than the female athletes. Rumination can be defined as “the tendency to obsessively worry about past errors, less-than-perfect performances, and future mistakes” (Ahmed et al., 2021, p. 9). It can be concluded that male athletes may portray stronger perfectionist strategies because they are more likely to be concerned for their performance and how they perform than female athletes.

Moreover, the strategy of self-handicapping can be used differently among men and women. According to Sultan & Kanwal (2014), they examined gender differences in self-handicapping with self-esteem and fear of negative evaluation among bilingual postgraduate students. It was discovered that men showed to be higher, positively correlated in self-handicapping, self-esteem, and fear of negative evaluation in comparison to women. It can be assumed that these individual factors may represent the root cause of these differences in men and women. Furthermore, when men are strong self-handicappers there will be an increase in their self-esteem and fear of negative evaluation, and vice versa. Although Sultan & Kanwal’s (2014) study specifically found positive correlations with men having a greater tendency to self-handicap, women can have the tendency to self-handicap it just might not be as often as men.

The relationship between perfectionism and self-handicapping is likely to be different between men and women. Doebler, Schick, Beck, & Astor-Stetson (2000) studied how generally self-oriented perfectionist (SOP) men have a relationship to also self-handicap compared to women, and it suggested that because self-handicapping would be used to meet their self-presentation standards. Additionally, they studied that low self-oriented perfectionist (SOP) women performed greater efforts to claim self-handicap compared to men. This finding had
demonstrated that those women preferred to claim self-handicap as it would allow them to feel better about their own intelligence and ability of themselves than others (Doebler et al., 2000). These findings help correlate with the general stereotype that men are internally driven and are expected to handle everything on their own, which can have them become high in SOP. Whereas women have the stereotype to be concerned about how others and external factors view themselves, so it is accurate that women who are low in SOP would have a significant relationship with claimed self-handicapping.

**Perfectionism and Self-Handicapping in Non-Sport Settings**

There have been several studies in non-sport settings that have shown a relationship between perfectionism and self-handicapping, with the relationship being dependent on the type of perfectionism measured (Kearns, Forbes, & Gardiner, 2007; Stewart & De George-Walker, 2014). For example, Flett, Blankstein, Hewitt, & Koledin (1992) discovered that college students who reported higher levels of socially prescribed perfectionism (SPP) were more likely to engage in self-handicapping behaviors than college students who reported higher levels of self-oriented perfectionism (SOP). This finding provides evidence in support of self-handicapping behaviors being used as a ‘self-protection’ in the presence of others. If an individual reports high SPP, they believe that others create high expectations of them and there is minimal space for failure. Making excuses or allowing for impediments to result in poor performance will create the opportunity for the responsibility of failure to be removed from the individual and placed on other conditions, such as the environment or the stated impediment (Curtis & Hutchinson, 2022).

In addition to the dimension of perfectionism being measured, Youn & Lee (2022) discussed that perfectionism is a key predictor of self-handicapping. Perfectionists will self-handicap as a coping mechanism if they feel that their ability to meet expectations is irrelevant.
Likewise, they will likely blame the environment for their current ability than accept blame for themselves. Moreso, self-handicapping use does depend on the perfectionist’s tendencies and if they are striving for their own standards or other’s standards and expectations (Youn & Lee, 2022). Self-oriented perfectionists (SOP) will experience a higher use of self-handicapping because of the specific set of standards that they have for themselves to achieve and when they do not achieve those standards, they will self-handicap to avoid self-blame. Whereas, other-oriented perfectionists (OOP) will use less self-handicapping because they set standards for the individuals around them instead of themselves.

**Perfectionism and Self-Handicapping in Sport**

Perfectionism and self-handicapping are both tendencies that are acquired in sport, from the amateur level to the elite level. Török, Szabó, & Orosz (2022) argued that perfectionistic strivings and concerns are opposing predictors of self-handicapping among elite athletes. Their study included elite athletes that competed among team sports, individual sports, or team and individual sports at international competitions (i.e., Olympic Games). They discovered the findings that perfectionistic concerns had a positive relationship with self-handicapping and perfectionistic strivings had a negative relationship with self-handicapping (Török et al., 2022). Elite athletes that had presented high perfectionist concerns would likely self-handicap, and elite athletes that had presented high perfectionist strivings would likely not self-handicap; vice versa. Athletes that display internal and intentional attributions during negative events would more likely self-handicap. In addition, self-blame on failures from the set of high standards can lead to maladaptive attributions regarding performance. It is crucial to understand the connection between protecting oneself and self-handicapping among elite athletes (Török et al., 2022).
Further research on the relationship between perfectionism and self-handicapping within sport has been minimal, and non-existent for collegiate club sports.

This study sought to understand the significant difference of perfectionism and self-handicapping between male and female collegiate club athletes. Due to the paucity of research between perfectionism, self-handicapping, performance, and stress, specifically with the population of collegiate club athletes, this study sought to explore the following research questions. We examined if there is a relationship between perfectionism and stress, perfectionism and performance, perfectionism and self-handicapping, self-handicapping and performance, or self-handicapping and stress in Division I collegiate club hockey athletes on their sport participation.
Method

Participants

The participants in this study were collegiate club hockey student athletes from a university in the Midwest. The club athletes came from separate men’s and women’s club hockey teams. These sports consisted of Men’s club hockey \((n = 20)\) and Women’s hockey \((n = 11)\). Descriptive statistics for the participants included the total number of participants \((n = 31)\), the total means and standard deviations for age \((M = 40.27, SD = 2.65)\), years on club teams \((M = 4.11, SD = 2.03)\), and years playing hockey \((M = 26.95, SD = 6.94)\). Table 1 provides the complete descriptive statistics information.

Table 1: Descriptive statistics of the study

<table>
<thead>
<tr>
<th>Variables</th>
<th>(n)</th>
<th>Age</th>
<th>Years on Club Team</th>
<th>Years Playing Hockey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(M)</td>
<td>(SD)</td>
<td>(M)</td>
</tr>
<tr>
<td>Men’s Hockey</td>
<td>20</td>
<td>20.00</td>
<td>1.30</td>
<td>2.20</td>
</tr>
<tr>
<td>Women’s Hockey</td>
<td>11</td>
<td>20.27</td>
<td>1.35</td>
<td>1.91</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>40.27</td>
<td>2.65</td>
<td>4.11</td>
</tr>
</tbody>
</table>

Frequency data for the participants year in school included 10 freshmen, 8 sophomores, 7 juniors, and 6 seniors. Table 2 provides the complete frequency data. Hockey club athletes were selected because of the time in season of the study and the organization between the programs. The club participants were studied during the spring semester of the sport season. Participants in the study were over 18 to participate, with an age range between 18-23 years of age. The club athletes were undergraduate students and were expected to be in good health mentally and physically. The participants were selected to test the hypotheses that there is a
relationship between perfectionism, self-handicapping, performance, and stress tendencies in collegiate club athletes.

**Table 2: Year in school frequency data**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Year in School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freshman</td>
</tr>
<tr>
<td>Men’s Hockey</td>
<td>7</td>
</tr>
<tr>
<td>Women’s Hockey</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>10</td>
</tr>
</tbody>
</table>

**Instruments**

*Demographics and Sport Participation Questionnaire.* Information about the participants was collected from a study-specific questionnaire that included basic demographic and club hockey information. In regard to hockey history, participants were asked the number of years playing hockey and the number of years participating on the club hockey team. Additionally, the participants were asked to self-identify how often they feel ‘stressed’ on the club hockey team and how often they feel pressure from their coach and/or teammates to perform well on the club hockey team, as well as their overall contribution to the team. See Appendix C for a copy of the demographic and sport participation data.

*15-item Multidimensional Perfectionism Scale.* The 15-item Multidimensional Perfectionism Scale (MPS) (Hewitt, Habke, Lee-Bagley, Sherry, & Flett, 2008) is a shortened version of the original 45-item scale developed by Hewitt et al. (1991) and it assesses the levels of perfectionism in the three sub-types (self-oriented, other-oriented, and socially prescribed). The self-oriented perfectionism subscale contains five items (i.e., “It is very important that I am perfect in everything I attempt”); other-oriented perfectionism subscale contains five items (i.e.,
“I have high expectations for the people who are important to me”), and socially prescribed perfectionism subscale contains five items (i.e., “People expect nothing less than perfection from me”). Responses are measured on a 7-point Likert scale ranging from 1 (disagree) to 7 (agree) with higher scores indicating higher levels of perfectionism. The MPS does not classify individuals as perfectionistic or non-perfectionistic.

The 15-item Multidimensional Perfectionism Scale (MPS) measured to have a strong correlation to the 45-item Multidimensional Perfectionism Scale. The reliability measured between the short and long forms self-oriented perfectionism ($a = 0.91$), other-oriented perfectionism ($a = 0.81$), and social prescribed perfectionism ($a = 0.90$) (Hewitt et al., 2008); all three of these subscales were reliable and above the acceptable range. See Appendix D for a copy of the perfectionism document.

**Self-Handicapping Scale.** Self-handicapping was measured at the dispositional level using the 14-item Self-Handicapping Scale (SHS) (Jones & Rhodewalt, 1982) as cited in (Rhodewalt, 1990). The 14-item SHS is a modified version of the original 25-item scale and it assesses individuals’ habit to self-handicap with statements such as: “When I do something wrong, my first impulse is to blame circumstances” or “I would do much better if I did not let my emotions get in the way.” Responses are measured on a 6-point Likert scale from 0 (disagree very much) to 5 (agree very much) with a score range from 0 to 70.

The 14-item Self-Handicapping Scale (SHS) measured the reliability through Cronbach’s alpha ($a$). The SHS was determined reliable and had an acceptable internal consistency ($a = 0.79$). Additionally, the SHS had shown a test-retest reliability at one month, which showed results of $r = 0.74$ (Jones & Rhodewalt, 1982). See Appendix E for a copy of the self-handicapping document.
**Perceived Stress Scale 4 (PSS-4).** Perceived stress was measured using the PSS-4 scale (Cohen, Kamarck, & Mermelstein, 1983). The PSS-4 scale consists of 4-items that measures perceived stress of participants within the ‘last month’ via statements such as: “In the last month, how often have you felt that you were unable to control the important things in your life” or “In the last month, how often have you felt that things were going your way” (Cohen et al., 1983). Responses are measured on a 5-point Likert scale from 0 (never) to 4 (very often) with a score range from 0-16; higher scores on the PSS-4 scale correlate to more perceived stress.

The Perceived Stress Scale 4 (PSS-4) measured its reliability through Cronbach’s alpha ($\alpha$) and the results indicated that the PSS-4 was reliable and above the acceptable range. The alpha levels ranged from 0.84 to 0.86 (Cohen et al., 1983). The three samples that were studied in Cohen et al. (1983) were college student sample I ($\alpha = 0.84$); college student sample II ($\alpha = 0.85$); and smoking-cessation ($\alpha = 0.86$). In addition, the test-retest correlation had a value of $r = 0.85$ (Cohen et al., 1983). See Appendix F for a copy of the perceived stress document.

**Procedure**

The protocol of this study was approved by the Institutional Review Board (IRB). Questionnaires were administered in the Spring 2024 semester to one Midwest collegiate club sport. Club sport athletes were academically full or part-time students depending on the amount of credits they were enrolled in. Part-time students were cleared to participate in club sports with university approval.

To recruit participants, the primary researcher contacted the club coach from two club sports (Men’s club hockey and Women’s club hockey) via email to discuss the study. The primary researcher met in person with the club coaches, in separate meetings, and described the purpose and the procedure of the study. The benefits of the study were explained to the coaches,
and the primary researcher provided the coaches with a physical copy of the informed consent form and recruitment script if they were interested. The primary researcher informed them that there were no risks, compared to daily life, and the results of the study would be available to the club participants upon request and via a participant-created, specific code. The club coaches were also informed that participation in this study was completely voluntary and that everyone had the option to decline participation.

Upon receiving permission from each of the club coaches, the primary researcher attended a designated practice or arranged for a meeting at an alternate location (i.e., Exercise and Sport Psychology Lab) to recruit and survey participants. Coaches were asked to not be in attendance during the recruitment and surveying of the athletes to prevent any influence of athlete participation. At the beginning of each arranged meeting, the primary researcher recruited club athletes to participate in the research study (See Appendix B for the recruitment script). The primary researcher introduced and explained the procedures of the study. After completion of recruiting participants from each club hockey team, the primary researcher passed out and collected the informed consent forms before administering the other questionnaires of the study. The informed consent form document further explained the study and the procedures, voluntary nature of the study, confidentiality, risks, and contact information of the researchers.

Confidentiality was thoroughly explained to the participants. The primary researcher explained that all information would be stored in a locked file cabinet inside the faculty advisor’s locked office. Computer data will be stored on a password protected computer. Athletes that were interested in their results were asked by the primary researcher to provide a participant-created, specific code by using the first three letters of the mother’s maiden name, and if the participants did not know their mother’s maiden name, to provide the first three letters
of their pet’s name, in addition to the last four digits of their phone number. The confidentiality code was designated for the demographic's questionnaire of the questionnaire packet.

Informed consent form documents were completed and returned to the primary researcher. Once the informed consent forms were completed, the additional questionnaires were explained by the primary researcher. Any participant questions were answered prior and during the assessment if needed. Each participant was given a stapled packet of five questionnaires. The questionnaires included a demographics and sport participation questionnaire, the 15-item Multidimensional Perfectionism Scale, the Self-Handicapping Scale, and the Perceived Stress Scale 4 (PSS-4).

Completion of the stapled questionnaire packet took approximately 10-15 minutes. After completing the questionnaires, the participants submitted their assessments to the primary researcher who placed them in a secure file folder, separate from the informed consent form documents. After gathering all informed consent form documents and stapled questionnaire packets, the primary researcher left the team practice to store the files in a locked cabinet inside the locked office of the faculty advisor’s office. These files would later be used for the data analysis and results, discussion, and conclusion of the research study. Assessments were separated by teams in the locked file cabinet to aid in organization and data input.

**Data Analysis**

Descriptive statistics of the means, standard deviations, and frequencies were calculated for all variables included in this research study. Independent *t* tests were used to examine differences between the men’s and women’s club hockey teams for the dependent variables of perfectionism, self-handicapping, performance, and stress. Bivariate correlations were used to examine the relationship among dependent variables. Effect sizes were calculated to estimate the
magnitude of the difference (i.e., Hedges’ g) or strength of the relationship (i.e., coefficient of
determination). Quantitative data was analyzed using the Statistical Package for the Social
Science (SPSS) version 29.0 computer program. Due to the lack of research on the relationships
between perfectionism, self-handicapping, performance, and stress, especially for the club
hockey athletes, two-tailed tests were considered appropriate. For all analyses, an alpha level of
0.05 was used to determine significance.
Results

Initial Analysis/Descriptive Statistics

A series of independent $t$-tests were used to determine if there were any significant differences between the men’s and women’s club hockey teams for perfectionism, self-handicapping, performance, and stress. The results of the independent $t$-tests indicated that there was a significant difference for self-handicapping with the women’s club hockey team having a higher mean compared to the men’s club hockey team (see Table 3). The magnitude of this difference for self-handicapping was considered large with a Hedges’ $g$ effect size equal to 0.88. Descriptive statistics for the dependent variables, organized by the gender of the sport team, are provided in Table 3. Descriptive statistics for the dependent variables of the entire sample are provided in Table 4.

Table 3: Descriptive statistics for dependent variables and sport groups

<table>
<thead>
<tr>
<th></th>
<th>Men’s Hockey $n= 20$</th>
<th>Women’s Hockey $n= 11$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Stress Being a Member</td>
<td>1.20</td>
<td>0.83</td>
</tr>
<tr>
<td>Pressure from Coach</td>
<td>1.50</td>
<td>1.19</td>
</tr>
<tr>
<td>Pressure from Teammates</td>
<td>1.80</td>
<td>1.24</td>
</tr>
<tr>
<td>Performance</td>
<td>3.25</td>
<td>0.55</td>
</tr>
<tr>
<td>Perceived Stress</td>
<td>1.44</td>
<td>0.81</td>
</tr>
<tr>
<td>Self-Handicapping</td>
<td>2.08</td>
<td>0.62</td>
</tr>
<tr>
<td>Self-Oriented Perfectionism</td>
<td>4.99</td>
<td>0.99</td>
</tr>
<tr>
<td>Other-Oriented Perfectionism</td>
<td>4.20</td>
<td>0.84</td>
</tr>
<tr>
<td>Social-Prescribed Perfectionism</td>
<td>4.29</td>
<td>1.03</td>
</tr>
</tbody>
</table>

* = $p < 0.05$, ** = $p < 0.01$
Table 4: Descriptive statistics of dependent variables

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Variance</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress being a Member</td>
<td>31</td>
<td>1.26</td>
<td>0.96</td>
<td>0.93</td>
<td>0.00-4.00</td>
</tr>
<tr>
<td>Pressure from Coach</td>
<td>31</td>
<td>1.48</td>
<td>1.15</td>
<td>1.33</td>
<td>0.00-4.00</td>
</tr>
<tr>
<td>Pressure from Teammates</td>
<td>31</td>
<td>1.94</td>
<td>1.21</td>
<td>1.46</td>
<td>0.00-4.00</td>
</tr>
<tr>
<td>Performance</td>
<td>31</td>
<td>3.21</td>
<td>0.66</td>
<td>0.43</td>
<td>1.50-4.00</td>
</tr>
<tr>
<td>Perceived Stress</td>
<td>31</td>
<td>1.54</td>
<td>0.93</td>
<td>0.86</td>
<td>0.00-3.50</td>
</tr>
<tr>
<td>Self-Handicapping</td>
<td>31</td>
<td>2.27</td>
<td>0.66</td>
<td>0.43</td>
<td>0.71-3.57</td>
</tr>
<tr>
<td>Self-Oriented Perfectionism</td>
<td>31</td>
<td>5.01</td>
<td>0.94</td>
<td>0.88</td>
<td>3.40-7.00</td>
</tr>
<tr>
<td>Other-Oriented Perfectionism</td>
<td>31</td>
<td>4.11</td>
<td>0.85</td>
<td>0.72</td>
<td>2.40-5.40</td>
</tr>
<tr>
<td>Social-Prescribed Perfectionism</td>
<td>31</td>
<td>4.37</td>
<td>0.99</td>
<td>0.98</td>
<td>3.00-6.80</td>
</tr>
</tbody>
</table>

Bivariate Correlations

Bivariate correlations were calculated for perfectionism, self-handicapping, performance, and stress to examine the relationship between each variable. These correlations were done separately for the men’s and women’s club hockey teams. Significant correlations ($p < 0.05$) ($p < .01$) are reported below. The significant bivariate correlation tables are provided in Appendix G.

Perfectionism and Self-Handicapping. The researchers hypothesized that perfectionism would be positively associated with self-handicapping tendencies. Bivariate correlations were performed to examine the relationship between perfectionism and self-handicapping.
There was a negative correlation between self-oriented perfectionism (SOP) and self-handicapping ($r = -0.533, p < 0.016$) in men’s club hockey athletes. Men’s club hockey athletes with higher self-oriented perfectionist tendencies reported lower levels of self-handicapping. The shared variance between SOP and self-handicapping was equal to 28%, and this was considered to be large.

**Perfectionism and Performance.** The researchers hypothesized that perfectionism would be positively associated with sport performance. Bivariate correlations were performed to examine the relationship between perfectionism and performance.

There was a positive correlation between other-oriented perfectionism (OOP) and performance ($r = 0.653, p < 0.029$) in women’s club hockey athletes. Women’s club hockey athletes that would strongly impose specific standards onto others would have a greater impact on their sport performance. The shared variance between OOP and performance was equal to 43%, and this was considered to be large.

**Perfectionism and Perceived Stress.** The researchers hypothesized that perfectionism would be positively associated with perceived stress. Bivariate correlations were performed to examine the relationship between perfectionism and perceived stress.

There was a negative correlation between self-oriented perfectionism (SOP) and perceived stress ($r = -0.474, p < 0.035$) in men’s club hockey athletes. Men’s club hockey athletes that have strong perfectionist views for themselves would have lower levels of perceived stress. The shared variance between SOP and perceived stress was equal to 22%, and this was considered to be moderate. Additionally, there was a negative correlation between other-oriented perfectionism (OOP) and perceived stress ($r = -0.625, p < 0.040$) in women’s club hockey athletes. Women’s club hockey athletes that would strongly impose specific standards onto
others would have lower levels of perceived stress. The shared variance between OOP and perceived stress was equal to 39%, and this was considered to be large.

**Perfectionism and Coach Pressure Stress.** The researchers hypothesized that perfectionism would be positively associated with coach pressure stress. Bivariate correlations were performed to examine the relationship between perfectionism and coach pressure stress.

There was a positive correlation between social-prescribed perfectionism (SPP) and coach pressure stress \((r = .691, p < .019)\) in women’s club hockey athletes. Women’s club hockey athletes that strongly rely on other’s standards for themselves would have a greater feeling of stress from their coach. The shared variance between SPP and coach pressure stress was equal to 48%, and this was considered to be large.

**Self-Handicapping and Perceived Stress.** The researchers hypothesized that self-handicapping would be positively associated with perceived stress. Bivariate correlations were performed to examine the relationship between self-handicapping and perceived stress.

There was a positive correlation between self-handicapping and perceived stress \((r = .648, p < .002)\) in men’s club hockey athletes. The shared variance between self-handicapping and perceived stress was equal to 42%, and this was considered to be large. Also, there was a positive correlation between self-handicapping and perceived stress \((r = .640, p < .034)\) in women’s club hockey athletes. Men’s and women’s club hockey athletes in high stress situations have greater self-handicap tendencies. The shared variance between self-handicapping and perceived stress was equal to 41%, and this was considered to be large.

**Self-Handicapping and Stress from Being a Member.** The researchers hypothesized that self-handicapping would be positively associated with the stress that athletes may experience while being on the team. Bivariate correlations were performed to examine the
relationship between self-handicapping and the stress athletes may experience from being a member of the team.

There was a positive correlation between self-handicapping and stress from being a member of the team ($r = .710, p < .001$) in men’s club hockey athletes. Men’s club hockey athletes have higher tendencies to self-handicap if being a member of the team is stressful. The shared variance between self-handicapping and stress from being a member was equal to 50%, and this was considered to be large.

**Self-Handicapping and Coach Pressure Stress.** The researchers hypothesized that self-handicapping would be positively associated with coach pressure stress. Bivariate correlations were performed to examine the relationship between self-handicapping and coach pressure stress.

There was a positive correlation between self-handicapping and coach pressure stress ($r = .495, p < .027$) in men’s club hockey athletes. Men’s club hockey athletes experience greater tendencies to self-handicap if there are higher levels of stress from their coach. The shared variance between self-handicapping and coach pressure stress was equal to 25%, and this was considered to be large.

**Self-Handicapping and Team Pressure Stress.** The researchers hypothesized that self-handicapping would be positively associated with team pressure stress. Bivariate correlations were performed to examine the relationship between self-handicapping and team pressure stress.

There was a positive correlation between self-handicapping and team pressure stress ($r = .674, p < .001$) in men’s club hockey athletes. Men’s club hockey athletes that experience a higher stress to perform well from their teammates have greater tendencies to self-handicap. The
shared variance between self-handicapping and team pressure stress was equal to 45%, and this was considered to be large.

**Discussion**

The purpose of this study was to examine the relationship of perfectionism, self-handicapping, performance, and stress in Division I collegiate club hockey athletes. It was hypothesized that there would be significant differences between the men’s and women’s club hockey teams for the variables of perfectionism, self-handicapping, performance, and stress. It was hypothesized that perfectionism would be positively associated with self-handicapping.

Potential gender and sport differences were examined for the dependent variables of this study. There was a significant difference between the means of self-handicapping of the men and women club hockey athletes. The women club hockey athletes had a greater mean of self-handicapping compared to the men club hockey athletes. One potential explanation of this finding is that the women club hockey athletes reported 4.5 years of less playing experience and the quality of those experiences is unknown. Athletes with less experience may be unsure of their ability to be successful in achievement contexts which may have contributed to the higher mean for self-handicapping in the women club hockey athletes. For the other variables of perfectionism, performance, and stress it is possible that the men and women club hockey athletes did not differ on the variables because of similarities in practice location, training, the time spent participating in the sport, and the number of competitions. These similarities may have caused no differences between perfectionism, performance, and stress among the club hockey athletes because both club hockey teams have practices at the same location, so they do not have to readjust their abilities for different practice locations. Also, the number of competitions or time spent participating in the sport may cause no difference because they are
not directly affiliated with the athlete’s ability. In addition, the time spent participating in the sport varies among each athlete (i.e., starter, coming off the bench, etc.) so this similarity may cause there to be no difference between those variables. This study was a cross-sectional study because this study specifically observed collegiate club hockey athletes and analyzed their data near the end of their competitive season.

Bivariate correlation results provided partial support for the hypotheses that the relationship of perfectionism, self-handicapping, performance, and stress would be positively associated with each other. Positive correlations were found between other-oriented perfectionism (OOP) and performance. This finding indicates that athletes who are higher in other-oriented perfectionism are more likely to feel like they contribute to their team's performance. It also shows that athletes who are high in other-oriented perfectionism will also adapt to the perfectionistic striving tendency that is positively associated with performance, which supports the literature of Madigan et al. (2018) who suggested that athletes with a higher level of perfectionistic strivings would have a better overall performance. There was a positive correlation between socially-prescribed perfectionism (SPP) and coach pressure stress. This finding shows that athletes who are higher in SPP tendencies will have a greater tendency to experience a feeling of stress from their coach. There was a positive correlation between self-handicapping and perceived stress. This finding shows that athletes with greater tendencies to self-handicap are more likely to occur during highly stressed situations. It also shows that athletes who are more likely to self-handicap because of stress may blame external factors for their performance as a self-protection strategy. This finding supports Lazarus & Folkman (1987) who suggested that stress is usually developed from a negative person-environment relationship (e.g., feeling stress because they feel that their coach expects them to be perfect); therefore,
athletes who self-handicap will blame the environment and other external factors for potentially poor performances. Also, there was a positive correlation between self-handicapping and the stress from being a team member. This finding shows that athletes will have a greater tendency to self-handicap if being a member of the team is stressful. Moreover, there was also a positive correlation between self-handicapping and coach pressure stress, and self-handicapping and team member stress. These two findings indicate that athletes will have greater tendencies to self-handicap if there are high levels of stress and other pressures from their coach or teammates. Overall, these findings support that self-handicapping is a maladaptive coping strategy to stress. Sahranc (2011) suggested that self-handicapping and stress are maladaptive to athletes to inherit and can make the athletes more vulnerable. Stress can be neither good nor bad because it is based on the individual's interpretation and how they handle it. Self-handicapping is a coping strategy that can be used to cope with stress, but self-handicapping can become a maladaptive strategy because individuals will avoid self-blame; therefore, creating other factors to blame. This can become a maladaptive strategy, especially if chronically used because individuals will focus more on finding those factors to blame than just accepting the blame and making the necessary adjustments to improve. Thus, by addressing the issues related to the fear of failure and/or not correcting root causes of potential poor performances, focusing on finding other factors that may contribute to athletes continuing to be more vulnerable to stress.

Although most of the hypothesized relationships among the variables were in the expected direction, there were negative correlations between perfectionism and self-handicapping, and between perfectionism and perceived stress. Both findings contradicted the original hypotheses of positive relationships between the two. There was a negative correlation between self-oriented perfectionism (SOP) and self-handicapping. This finding indicates that
athletes with higher SOP tendencies are least likely to self-handicap. It also shows that athletes who are self-oriented perfectionists may also have a positive, strong relationship with perfectionistic strivings. Török et al. (2022) suggested that athletes with higher levels of perfectionistic strivings would likely not self-handicap. That is, when potentially unpleasing or negative events occur throughout their sport, athletes that display perfectionistic strivings and are highly self-oriented will likely not or feel the need to self-handicap. For example, Lizmore, Dunn, and Dunn (2017) found that perfectionist strivings was associated with less perfectionism and more self-compassion and optimism in a sample of college athletes. Thus, if an athlete does not feel that s/he is meeting their personal performance standards, they will be less likely to let it affect them in a negative way and strive to be more optimistic of future performances so there is less need to engage in self-handicapping which would be consistent with the negative correlation between perfectionism and self-handicapping. Moreover, there was a negative correlation between self-oriented and other-oriented perfectionism and perceived stress. Athletes that highly displayed either self-oriented (SOP) or other-oriented (OOP) perfectionist tendencies would be least likely to develop feelings of stress. This finding, to an extent, is consistent with Nordin-Bates & Jowett (2022). They suggested that other-oriented perfectionists would have a negative relationship to perceived stress when self-oriented and social-prescribed orientations were also present within that relationship, but other-oriented perfectionism alone would have a positive relationship to stress and not a negative relationship. Athletes that are other-oriented perfectionists project their own standards onto others (i.e., teammates or coaches) that they want them to achieve or hold themselves to; therefore, stress can be interpreted greater for OOP tendencies because of the possible uncertainty that the teammates or coaches will not achieve those standards. So, the finding of this study that other-oriented perfectionists would likely not
experience stress would only be supported of the Nordin-Bates & Jowett’s (2022) finding if self-oriented and social-prescribed tendencies are also included. Future research is needed to more fully understand the relationship between perfectionism, self-handicapping, performance, and stress.

Limitations and Future Research

Limitations of this study may include the point in time of the season that the data was collected. For both club hockey teams, the data was collected near the end of both competitive seasons. Data collected at the beginning of the club season would not be influenced by the cumulative effects of a competitive season or by the team’s overall performance record. On the other hand, understanding how these factors influence select outcome variables over the course of a season would be of interest. Future research should consider a longitudinal approach; where data is collected at the beginning of the competitive season and at multiple other times through the end of the season.

Participants in this sample might limit the generalizability of the results of this study. There were more men ($n = 20$) club hockey athletes than women ($n = 11$) club hockey athletes. Larger sample sizes tend to result in smaller variances and more stable statistics which essentially contributes to more accurate estimates. Future research needs to consider having larger sample sizes with more similar numbers of participants from each sport team to have accurate results of their differences. Also, this study was conducted with one particular club sport (i.e., hockey) and at one university within the Midwest, so these results may not apply to other club sport teams at this Midwestern university or at different universities. To help increase the generalizability of future research, researchers should consider additional club sports and
universities across the United States. This can help generalize the results to the entire population and not have the limitation of the findings to one region of the United States.

Additionally, some sport club teams may lack consistent practice attendance, competition travel attendance, and the availability of experienced coaches rather than student captains. These factors may also influence the results of future research. Additional factors like academics (e.g., major, number of enrolled credits while in-season, year in school) or conditioning level should also be considered in future research regarding perfectionism, self-handicapping, performance, and stress.

**Practical Implications**

Collegiate club sport programs can use this information to help further understand the similarities and differences between the relationships of perfectionism, self-handicapping, performance, and stress that club sport athletes may experience throughout their club sport seasons. This information can be beneficial towards club sport coaches to understand how their club athletes may react to certain situations throughout their sport. That is, club sport student-athletes may experience a variety of stressors, and some of these stressors may emanate from the team environment. In addition to the typical stress that college students may experience, student club athletes may experience coach-related and/or team-related stress, and stress was found to be related to self-handicapping tendencies, a maladaptive coping strategy. Practitioners of club sport programs can use this information to help identify stressors related to the team environment and make adjustments to help minimize these potential stressors. For example, establishing clear team goals and roles/expectations of players, providing opportunities to improve cohesion, and using more transformative or servant leadership styles may help minimize coach and team-related stress. Although hiring a professional coach and a sport psychology consultant would
probably not be feasible for a club sport team, the university may be able to provide some resources for coach training, and increasing awareness of campus resources for assisting with mental well-being could contribute to less perceived stress and/or developing coping strategies to deal more appropriately with stress, rather than employing self-handicapping strategies.

**Conclusion**

This current study examined relationships among the variables of perfectionism, self-handicapping, performance, and stress, and through bivariate correlations discovered there to be both positive and negative correlations. This research study found significant relationships among the variables of perfectionism, self-handicapping, performance, and stress in Division I collegiate club hockey athletes. These findings may be beneficial to coaches and athletes involved in college club athletics by helping to understand the relationship between perfectionism and self-handicapping and sources that may influence performance and stress.
References

https://doi.org/10.3389/fpsyg.2021.580446


https://doi.org/10.1037/0022-3514.36.4.405


Appendices
Appendix A

Informed Consent Form

Project Title: Personality and Perceptions about Sport Participation in Collegiate Club Athletes
Researchers: Rachel Dembek, Graduate Student, School of AHD
David Tobar, Associate Professor, School of AHD
Ray Schneider, Professor, School of AHD

Introduction: My name is Rachel Dembek and I am a graduate student in the Sport Administration program at Bowling Green State University. I am currently working on my master’s research project with my advisor, Dr. David Tobar. This study focuses on personality and perceptions of sport participation. You are being asked to participate in this study because of your involvement in club sports at Bowling Green State University.

Purpose: The purpose of this study is to provide information on the personality and perceptions of sport club athletes. The results from this study may be used in future research studies. This study may further our knowledge on topics related to sport. Participants may increase their awareness of attitudes and behaviors in sports. There are no direct benefits or incentives, such as course credit, gift certificates, or money, to the participants.

Procedure: You must be 18 years of age or older to participate in this study. Upon completion of the informed consent document, you will be asked to complete some questionnaires related to demographic information, personality, and perceptions about sport participation. Completion of these questionnaires will take approximately 10 to 15 minutes. This is a one-time only assessment.

Voluntary nature: Your participation is completely voluntary. You are free to withdraw at any time. You may decide to skip questions or discontinue participation at any time without penalty. Deciding to participate or not will not affect your relationship with Bowling Green State University. Participants may experience emotional discomfort or distress when responding to specific questions related to personality, mood states, or feelings of participation in club sports. The nature of these questions may evoke memories, thoughts, or feelings that could be unsettling.

Confidentiality: All information taken from the study will be coded to protect each subject’s name. No names or other identifying information will be used when discussing or reporting data. The investigator (s) Rachel Dembek and Dr. David Tobar will keep all files and data collected in a secured, locked file cabinet inside the faculty advisor’s (Dr. David Tobar) locked office. Computer data will be stored on a password protected computer. Only Rachel Dembek and Dr. David Tobar will have access to the information. Audio recordings and any electronic or printed transcripts will be stored in a locked, secure location for five years after the publication of this research, after which, all files will be destroyed.

Risks: There are minimal, if any, risks associated with participation in this study. However, if you do experience emotional discomfort or distress you can contact the Bowling Green State
University Counseling Center at 419-372-2081 or online: https://www.bgsu.edu/counseling-center.html.

**Contact Information:** If you have any questions about this research or your participation in this study, you may contact Rachel Dembek, 614-578-8102, rdembek@bgsu.edu, or Dr. David Tobar, 419-372-6914, dtobar@bgsu.edu. You may also contact the Chair, Institutional Review Board at 419-372-7716 or irb@bgsu.edu, if you have any questions about your rights as a participant in this research. Thank you for your time.

I have been informed of the purposes, procedures, risks and benefits of this study. I have had the opportunity to have all my questions answered and I have been informed that my participation is completely voluntary.

___ I agree to participate in this study. ___ I do not agree to participate in this study.

______________________________  ______________________________
Signature  Printed Name

______________________________  ______________________________
Date  Email
Appendix B

Participant Recruitment Script

Hello,

My name is Rachel Dembek and I am a second-year graduate student working on my research project here at Bowling Green State University. I am conducting a master’s research project regarding personality and perceptions of sport participation under the supervision of Dr. David Tobar. I have received permission from your club coach to see if you would be willing to take 10 to 15-minutes to complete five different questionnaires related to personality and perceptions of sport participation. Please know that your participation is completely voluntary and any information that you provide will be anonymous. Participation in this study will help to increase our knowledge of club sport athletes. You may also benefit by increasing your awareness of behaviors in sport which in turn may have psychological and physical benefits. Risks of participation in this study are no more than those experienced in everyday life.

To participate in this study, you will need to read and sign the informed consent form that I will hand out. This form provides information about this study, and it explains your rights as a participant and that this study has been approved by the Institutional Review Board. Your data will be kept anonymous. If you have any questions about your rights as a participant, please feel free to contact the Institutional Review Board at Bowling Green State University at 419-3727716 or email irb@bgsu.edu.

By participating, you agree that: you are volunteering and your decision to participate will not impact your relationship with Bowling Green State University, you are over the age of 18, and you may withdraw consent and terminate participation at any time. The information that you provide will be kept anonymous.

If you have any questions about completing the survey, please feel free to contact me at rdembek@bgsu.edu or 614-578-8102.

Thank you for your time,
Rachel Dembek
Bowling Green State University
Appendix C

Demographics and Sport Participation Questionnaire

Gender: ________________________

Age (in years): ______

Year in school (e.g. Freshman, Sophomore, etc.): ________________________

Years on club team: ______

Years playing hockey: ______

How often do you feel “stressed” being a member of the club hockey team? _____
(0= Never, 1= Rarely, 2= Sometimes, 3= Often, 4= Very Often)

How often do you feel pressure from your coach to perform well on the club hockey team? _____
(0= Never, 1= Rarely, 2= Sometimes, 3= Often, 4= Very Often)

How often do you feel pressure from your teammates to perform well on the club hockey team? _____
(0= Never, 1= Rarely, 2= Sometimes, 3= Often, 4= Very Often)

How often do you feel that you contribute to the performance of the team? ______
(0= Never, 1= Rarely, 2= Sometimes, 3= Often, 4= Very Often)
Appendix D

Please indicate (by writing a number in the blank for each item) the degree to which you agree with each of the following statements as a description of the kind of person you think you are most of the time.

<table>
<thead>
<tr>
<th>Disagree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

1. ___ One of my goals is to be perfect in everything I do.
2. ___ I strive to be as perfect as I can be.
3. ___ It is very important that I am perfect in everything I attempt.
4. ___ I demand nothing less than perfection from myself.
5. ___ I must work to my full potential at all times.
6. ___ Everything that others do must be top-notch quality.
7. ___ I have high expectations for the people who are important to me.
8. ___ I can’t be bothered with people who won’t strive to better themselves.
9. ___ If I ask someone to do something, I expect it to be done flawlessly.
10. ___ I cannot stand to see people close to me make mistakes.
11. ___ The better I do, the better I am expected to do.
12. ___ Success means that I work even harder to please others.
13. ___ My family expects me to be perfect.
14. ___ People expect nothing less that perfection from me.
15. ___ People expect more from me than I am capable of giving.
Appendix E

Please indicate (by writing a number in the blank for each item) the degree to which you agree with each of the following statements as a description of the kind of person you think you are most of the time.

Use the following scale:
0 = disagree very much
1 = disagree pretty much
2 = disagree a little
3 = agree a little
4 = agree pretty much
5 = agree very much

_____ 1. When I do something wrong, my first impulse is to blame circumstances.
_____ 2. I tend to put things off until the last moment.
_____ 3. I suppose I feel “under the weather” more often than most people.
_____ 4. I always try to do my best, no matter what.
_____ 5. I am easily distracted by noises or my own creative thoughts when I try to read.
_____ 6. I try not to get too intensely involved in competitive activities so it won’t hurt too much if I lose or do poorly.
_____ 7. I would do a lot better if I tried harder.
_____ 8. Someday I might “get it all together.”
_____ 9. I sometimes enjoy being mildly ill for a day or two because it takes off the pressure.
_____ 10. I would do much better if I did not let my emotions get in the way.
_____ 11. I admit that I am tempted to rationalize when I don’t live up to other’s expectations.
_____ 12. I often think I have more than my share of bad luck in sports, card games, and other measures of talent.
_____ 13. I overindulge in food and drink more often than I should.
_____ 14. Sometimes I get so depressed that even easy tasks become difficult.
Appendix F

Perceived Stress Scale 4 (PSS-4)

INSTRUCTIONS
The questions in this scale ask you about your feelings and thoughts during THE LAST MONTH. In each case, please indicate your response by placing an “X” over the square representing HOW OFTEN you felt or thought a certain way.

<table>
<thead>
<tr>
<th>Question</th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Fairly Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In the last month, how often have you felt that you were unable to control the important things in your life?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. In the last month, how often have you felt confident about your ability to handle your personal problems?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. In the last month, how often have you felt that things were going your way?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix G

Table G1: Correlation matrix (men) perfectionism and self-handicapping

<table>
<thead>
<tr>
<th></th>
<th>Self-Handicapping</th>
<th>Self-Oriented Perfectionism</th>
<th>Other-Oriented Perfectionism</th>
<th>Social-Prescribed Perfectionism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Handicapping</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Self-Oriented Perfectionism</td>
<td>-.533*</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other-Oriented Perfectionism</td>
<td>-.049</td>
<td>.275</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Social-Prescribed Perfectionism</td>
<td>-.003</td>
<td>.149</td>
<td>.349</td>
<td>1</td>
</tr>
</tbody>
</table>

* = p < 0.05, ** = p < 0.01

Table G2: Correlation matrix (women) perfectionism and performance

<table>
<thead>
<tr>
<th></th>
<th>Performance</th>
<th>Self-Oriented Perfectionism</th>
<th>Other-Oriented Perfectionism</th>
<th>Social-Prescribed Perfectionism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Self-Oriented Perfectionism</td>
<td>-.007</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other-Oriented Perfectionism</td>
<td>.653*</td>
<td>.033</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Social-Prescribed Perfectionism</td>
<td>.056</td>
<td>-.136</td>
<td>.124</td>
<td>1</td>
</tr>
</tbody>
</table>

* = p < 0.05, ** = p < 0.01
### Table G3: Correlation matrix (men) perfectionism and perceived stress

<table>
<thead>
<tr>
<th></th>
<th>Perceived Stress</th>
<th>Self-Oriented Perfectionism</th>
<th>Other-Oriented Perfectionism</th>
<th>Social-Prescribed Perfectionism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Stress</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Self-Oriented</td>
<td>-.474*</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Perfectionism</td>
<td>.275</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other-Oriented</td>
<td>.236</td>
<td></td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Perfectionism</td>
<td>.023</td>
<td>.149</td>
<td>.349</td>
<td>1</td>
</tr>
</tbody>
</table>

* = p < 0.05, ** = p < 0.01

### Table G4: Correlation matrix (women) perfectionism and perceived stress

<table>
<thead>
<tr>
<th></th>
<th>Perceived Stress</th>
<th>Self-Oriented Perfectionism</th>
<th>Other-Oriented Perfectionism</th>
<th>Social-Prescribed Perfectionism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Stress</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Self-Oriented</td>
<td>-.189</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Perfectionism</td>
<td>.033</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other-Oriented</td>
<td>.625*</td>
<td></td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Perfectionism</td>
<td>.222</td>
<td>-.136</td>
<td>.124</td>
<td>1</td>
</tr>
</tbody>
</table>

* = p < 0.05, ** = p < 0.01
Table G5: Correlation matrix (women) perfectionism and coach pressure stress

<table>
<thead>
<tr>
<th></th>
<th>Coach Pressure Stress</th>
<th>Self-Oriented Perfectionism</th>
<th>Other-Oriented Perfectionism</th>
<th>Social-Prescribed Perfectionism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coach Pressure Stress</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Self-Oriented</td>
<td>-37.2</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pressure Perfectionism</td>
<td>.087</td>
<td>.033</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Other-Oriented</td>
<td>.691*</td>
<td>-.136</td>
<td>.124</td>
<td>1</td>
</tr>
<tr>
<td>Perfectionism</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* = $p < 0.05$, ** = $p < 0.01$

Table G6: Correlation matrix (men) self-handicapping and perceived stress

<table>
<thead>
<tr>
<th></th>
<th>Self-Handicapping</th>
<th>Perceived Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Handicapping</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Perceived Stress</td>
<td>.678**</td>
<td>1</td>
</tr>
</tbody>
</table>

* = $p < 0.05$, ** = $p < 0.01$

Table G7: Correlation matrix (women) self-handicapping and perceived stress

<table>
<thead>
<tr>
<th></th>
<th>Self-Handicapping</th>
<th>Perceived Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Handicapping</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Perceived Stress</td>
<td>.640*</td>
<td>1</td>
</tr>
</tbody>
</table>

* = $p < 0.05$, ** = $p < 0.01$

Table G8: Correlation matrix (men) self-handicapping and stress from being a member

<table>
<thead>
<tr>
<th></th>
<th>Self-Handicapping</th>
<th>Stress Being a Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Handicapping</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Stress Being a Member</td>
<td>.710**</td>
<td>1</td>
</tr>
</tbody>
</table>

* = $p < 0.05$, ** = $p < 0.01$
Table G9: Correlation matrix (men) self-handicapping and coach pressure stress

<table>
<thead>
<tr>
<th></th>
<th>Self-Handicapping</th>
<th>Coach Pressure Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Handicapping</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Coach Pressure Stress</td>
<td>.495*</td>
<td>1</td>
</tr>
</tbody>
</table>

* = p < 0.05, ** = p < 0.01

Table G10: Correlation matrix (men) self-handicapping and team pressure stress

<table>
<thead>
<tr>
<th></th>
<th>Self-Handicapping</th>
<th>Team Pressure Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Handicapping</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Team Pressure Stress</td>
<td>.674**</td>
<td>1</td>
</tr>
</tbody>
</table>

* = p < 0.05, ** = p < 0.01