Interpersonal coaching styles and attachment status in athletes:

The relationship between the athlete and the coach as an attachment figure

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Abstract

Attachment theory has been applied to understand relationships beyond infancy, such as romantic relationships and the client-therapist relationship (e.g., Hazan & Shaver, 1987; Mallinckrodt et al., 1995). The present study applies this theory to the player-coach relationship, through the creation of the Player Attachment to Coach Scale (PACS). This study also examines the intersection between athlete attachment status and coaching style, and its impact on athlete satisfaction. Participants (*N* = 414) were required to have previously played at least one sport under a coach. They completed measures of romantic attachment status, they rated their coaches coaching style, and they completed the PACS. They also rated general questions about their time as an athlete and satisfaction. Results suggest that the athlete-coach relationship can be conceptualized as an attachment relationship. In a series of regressions, the PACS was found to be a better predictor of sports-related outcomes over the ECR-S. Findings from several ANOVAs also suggest that athletes high in avoidance toward their coach were more satisfied with a controlling coach, compared to those low in avoidance. Limitations and future directions are also discussed.

Keywords: attachment theory, coaching style; Athletes, athlete satisfaction, attachment status

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Those of us who have played a sport know the importance of the coach. Coaches not only provide vital information on technique and strategy, but also encourage specific types of motivation in their athletes, adjust athletes' arousal levels when needed, help athletes reach their goals, and teach players how to overcome adversity, among other things. Athletes, no matter their skill level, inevitably struggle at some point, and it is often the coach's job to teach them how to conquer their difficulties and improve performance. Information and advice given to athletes by coaches is critical for performance and well-being, but not all coaches use the same coaching style.

The learning that occurs as a result of coaching takes place within the larger relationships that form between players and coaches. Many of us can easily recall our favorite coaches and their style of coaching that helped us as an athlete and a person. These coaches made us feel able to perform well and improve, while focusing all of their attention on their players' needs. On the other hand, it is not hard to remember our least favorite coaches and the horrible ways in which they tried to coach us but failed. These coaches often made us feel nervous and incapable of performing well, while trying to control every aspect of our lives. In short, when coaches bond with their teams and players, their impact is enhanced, while coaching in the absences of such bonds is limited in some respects. The proposed study wishes to explore two different types of coaching styles, autonomy-supportive and controlling, as well as athlete attachment status, and their combined effects on the athlete-coach relationship, as well as athlete satisfaction. Prior to reviewing the methods proposed for the study, brief reviews of two theories and prior research that informed the study's hypotheses are provided.

Attachment Status

One individual characteristic that may affect how athletes respond to different coaching styles is attachment style. Attachment style was originally introduced in infants and concerned their attachment

to a parent or caregiver (Ainsworth et al., 1978). Though attachment theory views the biological drive to form attachment relationships and the tendencies to use these relationships for protection from threats and support when distressed as universal, individual differences in attachment certainly exist. Ainsworth and others invented the Strange Situation to observe infant behaviors during separation from and reunion with a parent. They found three attachment styles that could be used to characterize infants' behavior with attachment figures: secure, anxious-resistant, and avoidant. Infants with secure attachment welcome their parent in their reunion in the Strange Situation. Infants with anxious-resistant attachment styles are ambivalent in their reunion with their parent and are not easily comforted. Finally, the avoidant attachment style infants do not seem distressed when separated from their parent and ignore them when they return. Originally, attachment style only focused on infants and the attachment to a parent or caregiver.

Though they primarily studied attachment in young children, both Bowlby (1982) and Ainsworth (1989) felt that attachment theory had implications well beyond infancy. Further, they anticipated that experiences with past attachment figures would influence adult relationships. Hazan and Shaver (1987) were among the first to test these theories of adult attachment by using self-report measures in multiple studies. They focus on adult love and use the same attachment styles as those in infancy. The primary contribution of this study was to show that adult ratings of attachment were associated with a variety of real world outcomes (e.g., divorce; relationship satisfaction; psychopathology) in a manner theoretically consistent with attachment theory.

While Hazan and Shaver's (1987) work provided the field with a model for applying attachment theory concepts to adult ideas, it left much to be desired in terms of measurement. Working from a slightly different framework, Bartholomew (1990) developed a model and measurement approach which characterized individual differences in adult attachment in terms of the quality of internal working models (IWMs) for the self and others. IWMs contain explicit and implicit beliefs, expectancies, and

feelings about the self and others that can be more positive or negative in nature. Thus, in Bartholomew's model, there are four different potential combinations of IWMs for self and others, which are described as prototypes for characterizing adult attachment status. These prototypes are quite similar to the attachment "styles" identified in children by Ainsworth and colleagues (1978), with some exceptions. The secure prototype has a positive view of self and others, meaning people are low in both anxiety and avoidance. Securely attached people enjoy relationships and do not get anxiety over them. A preoccupied attachment status has a negative view of self and a positive view of others, which is high in anxiety but low in avoidance. These people desperately want relationships and have a lot of anxiety over them. A dismissive attachment status has a positive view of self and a negative view of others, or is low in anxiety but high in avoidance. Dismissive people do not care to have relationships and enjoy being independent. Finally, a fearful attachment status has a negative view of both self and others, being high in both anxiety and avoidance. People with a fearful attachment status are ambivalent about relationships; they want to get close to others, but do not because they fear they will get hurt.

Today, most adult attachment researchers characterize individual differences in adult attachment along two orthogonal dimensions: attachment anxiety and attachment avoidance. Graphing these two dimensions produces a four-quadrant space that is consistent with Bartholomew's ideas. The most widely used measure of adult attachment dimensions is the Experience in Close Relationships Inventory (ECR; Brennan et al., 1998; for a review see Mikulincer & Shaver, 2007). These scales generally correspond to model of self and model of other respectively. Thus, individuals who score high on attachment avoidance tend to have more negative views of others, greater preference for independence, and difficulty becoming emotionally close. Research strongly suggests that these dimensions are orthogonal, thus forming four quadrants corresponding to Bartholomew's four adult attachment styles (e.g., an individual scoring low in both dimensions would score in the secure

quadrant, while an individual who scores high in both scores in the fearful quadrant). This model of attachment focuses on fit of an individual within the quadrants (e.g., high or low in attachment avoidance or anxiety) as opposed to categorical placements of individuals into one of the four styles.

How people interact with others is partially influenced by their attachment status. This is particularly true in attachment relationships. Not all relationships qualify as attachment relationships or serve attachment needs. Attachment relationships tend to involve support during times of distress, nurturance, proximity, and an emotional bond. The classic example is the child-caregiver relationship. Recent data suggest, however, that a wider number of close relationships appear to either be attachment relationships (e.g., marriages; close friends) or serve attachment functions (e.g., relationships with teachers; relationships with mentors). According to Bowlby, and generally supported by research (Mikulincer & Shaver, 2007), an important distinction between child-caregiver attachments and subsequent attachment relationships later in life is that later relationships are impacted by the individual's current attachment status, which has been impacted by prior attachment relationships. One relationship that has not yet been associated with attachment status is the coach-athlete relationship. The present study aims to apply attachment theory to this important relationship that exists in many athletes' lives.

Self-Determination Theory, Sports, and Coaching Style

Self-Determination Theory (SDT) would likely view coaches as an important part of athletes' social environment with power to have a positive or negative impact on players' motivation, growth, and well-being. As a theory, SDT explains how basic needs give rise to motivational states that impact behavior to promote or detract from well-being. It also focuses on how internal, social, and cultural factors interact to shape motivation. SDT would suggest that the broader social environment plays a big role in shaping athlete's motivation, performance, and well-being. One aspect of athletes' social environment likely to have a particularly important impact is their coach's interpersonal style.

When a coach's interpersonal style helps players meet basic needs and cultivates intrinsic motivations, players are more likely to work hard, perform well, and meet with success more frequently. According to basic needs theory (BNT), a sub theory of SDT, the social environment affects need satisfaction, which influences motivation and behavior (Reinboth et al., 2004). BNT asserts that three basic psychological needs must be fulfilled in order to act on intrinsic, self-determined motives to maximum subjective well-being (Deci & Ryan, 2002). These three needs include autonomy, competence, and relatedness (Reinboth et al., 2004). Autonomy refers to feeling one has control over one's own behavior and developing a sense of purpose. These needs are fulfilled by engaging in autonomy-supportive behaviors, like doing something because one wants to, not because of other external factors. Competence refers to feeling effective and capable of bringing about desired outcomes in one's environment. These needs are satisfied through experiencing mastery or achieving task goals, related to self-improvement rather than achieving outcomes. Relatedness needs include desires to feeling connected to others and to achieve a sense of belonging. Relatedness needs are satisfied through engaging with others in social communities, developing social support, and forging relationships with depth.

The experience of these needs affects motivation (Pelletier et al., 2001). If these basic psychological needs are fulfilled, self-determined motives will ensue and guide behavior. Meeting basic needs promotes well-being by allowing the individual to act on self-determined motives. Coaching styles that help athletes satisfy the basic psychological needs are more likely to facilitate adaptive motives leading to higher satisfaction. When basic needs cannot be met, less adaptive motives rule the day. Thus, coaching styles that do not meet basic needs are less likely to promote adaptive motives and to facilitate satisfaction in athletes. To understand how a coach's interpersonal style can impact players' motivation in positive and negative ways, one must understand how SDT differentiates adaptive from less adaptive forms of motivation.

Another sub-theory of SDT, Organismic Integration Theory (OIT; Ryan & Deci, 2000), posits various regulatory styles of motivation that are differentiated in terms of origin of motivation (intrinsic vs. extrinsic) and subjective sense of causality (self-determined vs. externally-determined or interpersonally-demanded). Intrinsic motivation is the most adaptive regulatory style, as motives are experienced as originating in the self (i.e., intrinsic) and under the individual's control (i.e., volitional). These motives can arise when all three basic needs are fulfilled. When one is intrinsically motivated, they are engaging in behaviors for their own sake. When basic needs are not met, individuals utilize regulatory styles characterized by extrinsic motivation or amotivation.

Identified motivation is not as self-determined as those from the intrinsic motivation level, as it is an extrinsic motivation, but is still perceived as being one's own choice. Non-self-determined motivation includes introjected motivation, external motivation, and amotivation. Introjected motivation is the next motivation down from identified motivation, and refers to when an external source of motivation is internalized, but not perceived as one's own. External motivation is behavior regulated by external means, such as rewards. Finally, amotivation is when there is no perceived relationship between one's actions and outcomes; this motivation is the least self-determined. Ideally, athletes will be intrinsically motivated to participate in their sports. This motivation comes about when the athlete's basic psychological needs are satisfied through the coach's interpersonal behavioral style and other environmental factors. Intrinsic motivation was found to enhance performance compared to extrinsic motivation (Beauchamp et al., 1996).

From an SDT perspective, a coach's interpersonal style is an aspect of the player's social environment that will affect how they pursue and construe need satisfaction, which in turn plays a significant role in athlete motivation. By impacting these factors, coaches can directly and indirectly affect players' performance and well-being.

Coaching Styles

Current research into coaching styles integrates some concepts from SDT and attachment theory. A notable approach to studying coaching styles differentiates two styles based on if coaches' behaviors are athlete-centered (vs. centered on the coach's needs) and support autonomy (vs. designed to keep players subservient, dependent, or under control of the coach). Coaches who are player-focused and support autonomy are referred to as having an autonomy-supporting coaching style, while those that are self-focused and controlling are described as having a more domineering-controlling style.

Each of these coaching styles has been shown to affect need satisfaction differently, which then affects athletes' performance and well-being. An autonomy-supportive coaching style fosters autonomy by placing focus on the athlete (Mageau & Vallerand, 2003). Coaches who embrace this style allow their players to make decisions and often take their perspective to better understand them. Coaches will also allow athletes to take initiative when possible and give rationale for any tasks or limits that are in place. Feedback to enhance competence is given, while controlling behaviors are avoided at all costs. Thus, such coaches strive to provide instruction and feedback in a supportive manner that is not experienced as unwanted or intrusive by the athlete.

Some research suggests that coaches who utilize an autonomy-supporting style are more likely to satisfy athletes' basic psychological needs and to serve attachment functions (Mikulincer & Shaver, 2007). For example, Pope and Wilson (2015) found that an autonomy-supportive coaching style positively predicted feelings of autonomy in rugby players. In this study, autonomy was the only basic need that predicted self-determined motives, and self-determined motives positively predicted performance. Therefore, through a four step sequence from coaching style to need satisfaction to motivation to performance, the autonomy-supportive coaching style positively predicted performance. Need satisfaction was also found to increase well-being (Gagné, 2003).

Not all coaches utilize the autonomy-supportive coaching style; some coaches adopt a controlling interpersonal coaching style, which is a very coach-centered approach (Mageau & Vallerand, 2003). Controlling coaches use external rewards, intimidation, and conditional regard to pressure players into behaving in a way that they deem appropriate (Bartholomew et al., 2009). Controlling coaches also impose their own values onto athletes and give controlling feedback to further ensure that athletes are behaving how they wish.

Another difference between a controlling coaching style and an autonomy-supportive coaching style is that controlling coaches promote the ego-involvement of athletes, while autonomy-supportive coaches do not, in an effort to motivate athletes (Bartholomew et al., 2009). Ego-involvement refers to evaluating oneself in comparison to others, while having an achievement or outcome goal. These coaches put focus on the outcome of performance (e.g., winning or losing), rather than the athlete's improvement (e.g., beating one's personal record). While winning often comes with improvement, it is very possible to perform extremely well and still have a poor outcome, such as losing. Such behaviors do not seem likely to satisfy the basic psychological needs, especially autonomy, nor do they likely serve attachment functions. Athletes are given no feelings of control over their behaviors with a controlling coach because the coach makes all decisions. Further, athletes may form more negative models for these coaches, seeing them as more motivated by self-interests and less invested in fostering athletes' growth. Indeed, this type of coaching style has been shown to promote non-self-determined motivation for participating in a sport (Pelletier et al., 2001), which ultimately decreases well-being (Gagné, 2003).

Although autonomy-supportive and controlling coaching styles seem like categorical opposites, a coach's behavior is unlikely to always fit into a single exclusive style (Pelletier et al., 2001). Coaches often display some behaviors from each coaching style. Further, coaches may deviate from their typical style, to meet the situational demands and adjust to what specific situations call for. At practice and in some game situations, giving athletes choices and fostering their autonomy is called for. In some high

pressure game situations or when athletes need direction, however, a controlling coaching style may be necessary to achieve the team's aims. This could be especially true for younger athletes who do not know what the best action for a specific situation may be, or who do not know how to cope with certain situations. For example, in volleyball, serve receive is a crucial part of the game that starts a play after the serve. This can be a high-stress situation that often results in choking from younger players who do not know how to cope with one bad serve receive pass or how to fix it. Coaches at this point, in the middle of a game where the athlete seems lost, may be better off using a controlling style, such as controlling feedback, to increase their player's performance. After the intense situation has passed, coaches can perhaps explain their controlling feedback to their athlete to make sure the basic psychological needs are still being satisfied. The point is, however, that controlling behaviors may be appropriate in some situations for some individuals.

Overall, the literature in this area suggests that the autonomy-supportive coaching style is better for motivation, long-term performance, and well-being (Blanchard et al., 2009; Gagné, 2003; Mageau & Vallerand, 2003; Pelletier et al., 2001; Pope & Wilson, 2015). This is generally aligned with expectations emerging from both SDT and attachment theory. The proposed study is interested in looking at the player-coach relationship, from the athlete perspective, and athlete satisfaction. Consistent with both SDT and attachment theory and based on past research, a main hypothesis of this study is that overall, participants with primarily autonomy-supportive coaches will report greater alignment with their coach, and greater satisfaction with their performance and overall athletic career. This may not be the case, however, for all participants. As noted in the volleyball example above, there may be some specific situations or some specific athletes that benefit more from a controlling coaching style. As such, another hypothesis of this study is to examine adult attachment status, which may impact or interact with coaching style to influence the coach-athlete relationship and athlete satisfaction. A brief background related to this hypothesis is provided below.

Attachment Status and Coaching Style

One relationship that athletes have later in life that likely serves attachment functions and is impacted by prior attachment experiences is their relationship with their coaches. In order for a coach to be considered an attachment figure, three functions must be fulfilled: proximity maintenance, safe haven, and secure base (Davis & Jowett, 2010). According to Mikulincer and Shaver (2007), coaches can fulfill these attachment functions. Proximity maintenance is the need to be physically close to the attached figure. Athletes often want to be close to their coaches in sport settings, such as practices, games, and tournaments. Safe haven refers to the attachment figure acting as a source of comfort and security during times of need. For athletes, coaches often fulfill this function during difficulties, such as struggling to improve a skill or losing an important competition. Lastly, a secure base is when the attachment figure allows the attached individual to explore other activities outside of the relationship. Coaches can fulfill this need by providing support when athletes are learning a new skill or are exploring other teams or sports. An athlete with high levels of attachment security will look to have a positive relationship with the coach and have little anxiety over it. This athlete is likely to have experienced more positive interactions with others, to expect positive outcomes from trusting and interacting with others, and to have confidence that he or she can work effectively and learn from the coach. Appropriate levels of self-esteem will help these players tolerate and cope with moments in which the coach is critical, hostile, or loses his or her temper (especially if this does not often occur) and be capable of repairing the relationship. Thus, ups and downs in the relationship are navigated and actually contribute to greater strength and closeness in the relationship.

Athletes with more attachment insecurity may, on occasion, struggle more in their relationships with their coach. An athlete with higher attachment anxiety may be so concerned with maintaining a good relationship with the coach, that he or she tries too hard, is not honest with the coach, and/or cannot tolerate moments of criticism (even if it is constructive feedback). This may result in extreme

submissiveness with the coach, intense anger with the coach, or, in some cases, both. A player with higher levels of attachment avoidance would most likely not care about creating a relationship with the coach and focus on themselves in the sport. These individuals may simply ignore the coach's instructions, may not respond to the coach's feedback, may not trust that the coach is trying to develop them as an athlete, and may withdraw from, rather than talk directly with, the coach about disagreements or problems. An athlete high in both attachment avoidance and anxiety would want a relationship with their coach but ultimately avoid one due to fear of rejection. These athletes would be expected to be the most likely to quit a team over a disagreement with a coach.

It is quite possible that the attachment status of athletes, in addition to influencing how they approach and relate with the coach, will also impact how they respond to different coaching styles. Interpersonal coaching style could affect the performances and well-beings of players with the different attachment statuses in very different ways. Those high in attachment security will value their relationship with their coach but also have a secure sense of self if the relationship is bad. Secure people can find other sources besides the coach to fulfill their basic needs, such as teammates, past coaches, or family members. It is anticipated that these participants will perform better with autonomy-supportive coaches than with controlling coaches, but still fare well enough to perform at an acceptable level if they are stuck with a controlling coaching style. People high in attachment anxiety also care about relationships, but often too much, and get a lot of anxiety over them. It is expected that these participants will do well with autonomy-supportive coaches but perform poorly with controlling coaches, because they really do depend on the coach-athlete relationship. An individual with high levels of attachment anxiety and avoidance is characterized by a high level of ambivalence toward people, and who avoids relationships to avoid getting hurt. These participants will perform better with autonomy-supportive coaches than with controlling coaches as well. The basic psychological needs must be fulfilled in order for them to perform well and they will perform drastically worse if these needs are not

satisfied. They will act much like those with a preoccupied attachment style in this case because there is no choice but to have a relationship with the coach. When they "get hurt" by the coach, like they may with a controlling coach, they will experience anxiety and perform poorly.

Those high in attachment avoidance do not care about relationships. Whether or not they have an autonomy-supportive coach or a controlling coach, they can perform at their own level. The short-term may often require a controlling style to quickly enhance performance without worrying about psychological needs, and this will not hinder athletes with a dismissive attachment status. They may even appreciate this style more because they can get the feedback they need without a coach tiptoeing around damaging the coach-athlete relationship. Individuals high in attachment avoidance and low in attachment anxiety are the only individuals that are expected to be more satisfied with a controlling coach than with an autonomy-supportive coach for these reasons.

The Proposed Study

SDT and attachment theory provide theoretical frameworks for conceptualizing why autonomy-supportive coaching styles benefit athletes. SDT asserts that we are motivated to meet social and achievement needs to improve our well-being. Attachment theory compliments SDT in suggesting that individuals are best able to pursue such needs within the context of a positive, growth-supporting relationship with a "stronger and wiser" mentor. Sports provide athletes with avenues to pursue the needs as described by SDT, while also forging the type of supportive, growth enhancing relationships with peers and with coaches described by attachment theory. The role of the coach would be expected to figure prominently in both theories. SDT would view the coach as a key component of athletes' social environment who can shape and influence the nature of athletes' motivation, while attachment theory would see the coach as a mentor who ideally satisfies basic relational needs to facilitate self-development and enhance growth. Both theories would anticipate that how one is coached and the nature of the athlete-coach relationship influences need pursuit, motivation, and performance. Both

also suggest that players receiving autonomy-supportive coaching will better tolerate and respond to situational shifts in a coach's style[1].

One way to do this is through sports, and in particular, through interpersonal coaching style. As part of an athlete's social environment, coaches can either help fulfill one's needs or fail to do so. This is often based on the differing coaching styles. Autonomy-supportive coaches are generally more helpful in fulfilling the basic needs (autonomy, competence, and relatedness), but this may not be the case for all individuals in all situations.

The proposed study is similar to past studies in that it is interested in examining the relationship between coaching style and well-being. Many previous studies were interested in looking at the coaches' impact on athletes throughout entire seasons by administering surveys. While situational shifts in style may sometimes be appropriate, most studies suggest that autonomy-supportive coaching styles provide more long-term benefits relative to controlling or domineering coaching styles (e.g., Blanchard et al., 2009; Gagné, 2003; Mageau & Vallerand, 2003; Pelletier et al., 2001; Pope & Wilson, 2015).

The impact of coaching style may also interact with personality. Because coaching is inherently interpersonal, athletes' attachment status may impact how they respond to various coaching styles. Different levels of security in attachment and different forms of attachment insecurity may respond

[1] While it has not been directly studied, both SDT and attachment theory would expect that athletes receiving primarily autonomy-supportive coaching from a coach would be more likely to respond to this coach's shifts from this style positively as a function of construing the action as situationally bound (i.e., rather than stable features of the coach, player, or relationship), viewing the shift as an effort to facilitate the pursuit of *shared* goals (e.g., winning a game) rather than designed to help the coach achieve his or her goals, and/or conceptualizing the shift as motived by a desire to bolster an individual athlete's immediate performance (e.g., by providing feedback; telling an athlete where to set up prior to the start of a play) and long-term competence. These expectations are in line with studies in attachment demonstrating that adults in more autonomy-supporting, secure relationships are more likely to view partners' deviations from typical ways of being as situationally bound and in line with longer term relational goals (e.g., to maintain the relationship; to enhance the relationship), even if the immediate execution did not achieve this aim in the short-term (e.g., a partners manner of expressing anger caused a fight; but there is awareness that the action was intended to share a concern and reflects investment in the relationship).

differently to the two types of coaching style. This makes sense theoretically from attachment theory's standpoint, but it needs to be empirically tested. Thus, another aim of the proposed study is to explore this possibility.

Hypotheses.

There are several hypotheses in the present study. The first hypothesis is that coaches can be an attachment figure for athletes, and furthermore, the coach-athlete relationship can be an attachment relationship. Just like other attachment relationships, it is predicted that the coach-athlete relationship can be measured. A new measure specifically designed for coaches and athletes will better assess this relationship compared to existing measures for other types of attachment relationships. The researchers have created a measure for the player-coach attachment relationship, and predict that it will effectively capture this relationship. It is anticipated that the coefficient alpha for the scale will be 0.70 or higher. For corrected item-to-scale correlations, it is predicted that 80 percent of the items will be at 0.40 or higher. In terms of convergent validity, it is expected that correlations between like scales will be larger than those between unlike scales. For example, the anxious scale on our measure should correlate higher with attachment anxiety than with attachment avoidance. We expect r values of 0.50 or higher between corresponding attachment to the coach scales and romantic attachment scales.

Continuing with more theoretical hypotheses of the current research, we expect that both prior athlete attachment status and interpersonal coaching style will impact the coach-athlete relationship. Overall, we anticipate that players who reported having coaches with an autonomy-supportive coaching style will have increased satisfaction and a better coach-athlete relationship. Athletes with high attachment avoidance and low attachment anxiety, however, are the only ones expected to report higher satisfaction with a controlling coach.

Method

Participants

Participants were recruited from three different locations: the subject pool at the University of Michigan-Dearborn, Amazon's Mechanical Turk (MTurk), and online postings via Facebook groups.

Participants recruited from the subject pool at the University of Michigan-Dearborn (UMD) went through the SONA system. People in the subject pool are college students for introductory psychology courses. Participants voluntarily sign up for studies in exchange for credit for their classes. Students in the subject pool must be 18 years old by the start of the semester and are exempt if they are not. Therefore, this sample includes college students over the age of 18. We also required participants to have played at least one sport under a coach.

Participants were also recruited on Amazon's MTurk. MTurk is a way to collect data from all over the country, and even the world, with more variety than a college sample can offer. People who complete MTurk studies are called Workers, and see a list of studies they qualify for on the MTurk website. From this list, they can select which studies to participate in based on compensation, length of time, interest, etc. Once they complete a study, they put a code into MTurk's website. Next, the researchers must approve or reject their submission, and then they may receive payment. Workers can be any age and live anywhere, unless you specify certain requirements. The three requirements to participate in the current study were to be at least 18 years of age, to live in the United States, and to have played at least one sport under a coach.

Lastly, participants were recruited on Facebook groups that included athletes. The researchers searched for groups with athletes by searching keywords, such as "athletes" or specific sports. If a group was deemed appropriate, the researchers contacted the administrator of the group asking for permission to join and post the study link. In some cases, the administrator felt more comfortable posting the study link themselves. Once permission was granted, the study link along with basic

information about the study was posted to the Facebook group. It was made clear that no compensation was offered. All requirements for participation were the same as the MTurk sample.

The following information was obtained and reported regarding participants in the final sample: age, race, gender, sport or sports played, and length of time in sport. Questions regarding satisfaction with the coach, performance, and one's overall athletic career were also asked.

Materials and Measures

Participants first filled out their corresponding consent form for the study. The consent form for SONA participants is based on the exempt consent form for the University of Michigan-Dearborn. The consent form goes over the basic purpose of the study and what will be expected of them, potential benefits and risks associated with the study, expected duration of the study, their compensation for the study (SONA credit), and contact information for the principal investigator. The consent form also reminds participants that they may choose to end participation at any time without risk of punishment. If participants verified that they were over 18 and consented to participate, they were then able to begin the study. The consent form for MTurk participants is very similar, but has some differences specific to MTurk, such as anonymity concerns. The compensation for the study is also different ($1.50). The consent form for online (Facebook) participants is the same as the SONA form, except that there is no compensation for participation.

The Experiences in Close Relationships Scale-short form (ECR-S; Appendix A; Wei et al., 2007a) was used to measure attachment status. The ECR-S contains 12 items that were chosen from the full form, which consists of 36 items (Brennan et al., 1998). This measure is designed to assess the two attachment dimensions: avoidance and anxiety. Respondents rate items based on how they feel in relationships using a 7-point Likert scale. The coefficient alpha for the anxiety dimension in previous samples ranged from 0.77 to 0.86, and for the avoidance dimension ranged from 0.78 to .088 (Wei et al., 2007b).

The Inventory of Interpersonal Ambivalence Short Form (IIA-8; Appendix B; Siefert, 2017) was used to measure attachment ambivalence. Attachment ambivalence refers to when an individual simultaneously desires and avoids close relationships. These people are high in both attachment anxiety and avoidance. The IIA-8 contains eight items that were chosen from the full form, which consists of 18 items (Siefert, 2017). Each item in the measure contains two statements. For participants to mark an item as true, both of the statements must be true. If one or both of the statements are false, then they must automatically answer false for the item. Participants rate items on a 4-point scale: False, Not True; Slightly True; Mainly True; Very True. The coefficient alpha for the IIA-18 in a previous sample was found to be 0.94 (Siefert, 2017).

The Coaches' Interpersonal Style Questionnaire (CIS-Q; Appendix C; Pulido et al., 2018a) was used to assess coaches' interpersonal coaching style. Participants were asked to think of the coach that they had for the longest amount of time, and answer the items based on this coach. The items are broken down into six categories that are based on Self-Determination Theory. Each subsection measures if the three basic needs in SDT are supported or thwarted. This creates six subscales: Autonomy Supporting, Competence Supporting, Relatedness Supporting, Autonomy Thwarting, Competence Thwarting, and Relatedness Thwarting. Each subscale contains four items, for a total of 24 items. Respondents rate items based on how their coach was during practices using a 5-point Likert scale. Using a previous sample, the coefficient omega for each of the six subscales was calculated. Each omega was greater than 0.70, except for the Competence Supporting scale, which was 0.66 (Pulido et al., 2018b).

A modified version of the Client Attachment to Therapist Scale (CATS; Mallinckrodt et al., 1995) was used to measure the participants' attachment to their coach. The original measure was used to assess clients' attachment to their therapist. The measure was altered in the present study to tap into the coach-athlete relationship as opposed to the therapist-client relationship. This modified version will

be referred to as the Player Attachment to Coach Scale (PACS; Appendix D). In the present study, participants continued to use the coach they had for the longest amount of time to respond to the PACS. The original CATS consisted of 36 items and was composed of three factors: Secure (14 items), Avoidant/Fearful (12 items), and Preoccupied/Merger (10 items). Participants rate items based on how they felt about their relationship with their therapist using a 6-point Likert scale. The coefficient alpha in a previous sample was 0.64 for the secure dimension, 0.63 for the avoidant/fearful dimension, and 0.81 for the preoccupied/merger dimension (Mallinckrodt et al., 1995). The modified version consists of 16 items, which were chosen based on the ease of transition to the coach-athlete relationship. Six items belong to the Secure factor, five items fall under the Avoidant/Fearful factor, and five items are in the Preoccupied/Merger factor. Participants rate items in the same manner as the original measure.

The final questionnaire collects information about the participants' sports history. They are asked to identify which sports they played in high school, which sports they played in high school for at least two years, and which sports they play now. If they play sports now, they are prompted to explain in what way they are still involved in sports. They are then asked some questions about how satisfied they are with their athletic career overall, how they individually performed under their coach, how their team performed under their coach, and how satisfied they were with their performance under their coach. They are also asked questions about how often their team won/lost, how long they played under their coach, if they ever quit the team, if they did quit the team how much of it was due to the coach, and if they would recommend a younger sibling to play under this coach. They are also asked if they consider themselves an athlete. They are then asked some demographic questions about gender, race/ethnicity, and age. Lastly, participants are given a debriefing form with further information about the study. Contact information for the principal investigator is given again. Mental health services are also listed.

Design

The present study tests the hypotheses with a cross-sectional survey research design consisting of the measures described above.

Procedures

Participants from the UMD subject pool logged into the SONA system and selected to participate in the study. MTurk participants logged into their Worker account and selected to participate in the study. Participants from online Facebook groups chose to click a link on a post to participate in the study. This link was the same for all three groups, and took them to the external Qualtrics survey. They were first asked which organization they were taking the study through (SONA, MTurk, or online posting). They were then routed to their corresponding consent form. If they were over 18 and consented to participate, they were first taken to the ECR-S and answered items about their attachment status. They then filled out the IIA-8, to collect further information on their attachment status. Next, participants were asked to think of the coach they had for the longest amount of time. They responded to the CIS-Q about their coach's interpersonal coaching style. Participants then answered the items in the PACS while keeping their same coach in mind, in order to understand their coach-athlete relationship. They then filled out the final questionnaire and demographics. Lastly, participants were given the debriefing form. Once they clicked that they were finished with the study, UMD participants were rerouted back to SONA and automatically given credit for their participation. MTurk participants were given a code to put into their Worker account to receive compensation. Facebook participants closed out of the window with the study with no further instructions.

Results

The sample consisted of 414 participants from three different groups. The SONA group was comprised of 113 participants, the MTurk group contained 271 participants, and the online Facebook

groups included 30 participants. Participants were asked their gender and had the option of selecting "Woman," "Man," "Non-binary," "Other," or "Prefer not to say." All participants chose either Woman (*n* = 167) or Man (*n* = 247). Our sample consisted of 153 participants age 18 to 25, 142 participants age 26 to 35, 72 participants age 36 to 45, 26 participants age 46 to 55, 18 participants age 56 to 65, and 3 participants age 66 or older.

Participants were also asked about their race/ethnicity, and could select as many options as they felt applied to their racial/ethnic identity. The majority of our sample (63.8%, *n* = 264) identified as White. An additional 17 identified as another race along with White. Fifty-eight participants identified as exclusively Black, with an additional four as another race along with Black. Twenty-seven participants identified as only Middle Eastern, with an additional three as another race along with Middle Eastern. Twenty participants identified as solely Asian, with three additional who identified as another race along with Asian. Twelve participants identified as only Latinx, with an additional 13 as another race along with Latinx. Eleven participants identified as exclusively Native American, with two additional who identified as another race along with Native American. The total of these numbers is greater than the total sample since 21 of our participants identified as multi-racial, and therefore selected multiple categories.

Participants were asked which sports they played in high school, which sports they played in high school for at least two years, which sports they play now, and how they are still involved in sports. These questions were designed to gauge how involved in sports participants are and what kind of sports they played. Participants who only played sports in high school for less than two years might not consider themselves as much of an athlete compared to those who played sports in high school for at least two years or who still play sports now. These participants also may not have had as much experience playing under a coach compared to participants who have played sports for longer. Tables 1-4 display scores for these questions (Appendix E). Most sports followed a general pattern: a sport

played in high school had a higher percentage of participants compared to the same sport played in high school for at least two years, which had a higher percentage of participants compared to the sport played now. For example, about 41% of participants played basketball in high school, 35% of participants played basketball in high school for at least two years, and only 28.5% of participants still play basketball now. There were some exceptions to this pattern (e.g., tennis, hockey, swimming, etc.). The most played sport across the three time periods was basketball, followed by football, then volleyball, then soccer, and, finally, tennis (the pattern was consistent with one exception: more participants play tennis now than soccer). The majority of participants are involved in sports now on a school team (30.19%), club team (28.02%), or in a backyard/for fun setting (25.12%). Some of our sample said that they are no longer involved in sports (19.57%).

Internal Consistency and Scale Characteristics

Participants' responses to the subscales on the ECR-S, IIA-8, CIS-Q, and PACS were summed to form their respective scale scores. For the ECR-S, the Avoidance scale showed adequate internal consistency with a coefficient alpha of 0.72, and the Anxiety scale displayed slightly stronger internal consistency with an alpha of 0.78. For the Avoidance scale, the potential values ranged from six, indicating low avoidance, to 42, indicating high avoidance, with a midpoint of 24. Actual scores ranged from six to 34 (M = 19.23; SD = 6.24). For the Anxiety scale, the potential values ranged from six, indicating low anxiety, to 42, indicating high anxiety, with a midpoint of 24. Actual scores ranged from six to 42 (M = 25.32; SD = 7.52).

All of the items in the IIA-8 comprise one scale (i.e., the Fearful scale), which showed strong internal consistency with a coefficient alpha of 0.91. Potential values ranged from eight, indicating low fearfulness, to 32, indicating high fearfulness, with a midpoint of 20. Actual scores ranged from eight to 32 (M = 19.03; SD = 6.40).

The CIS-Q is comprised of 6 scales: Autonomy Supporting, Competence Supporting, Relatedness Supporting, Autonomy Thwarting, Competence Thwarting, and Relatedness Thwarting. The Autonomy Supporting and the Relatedness Supporting scales both displayed adequate internal consistency, with coefficient alphas of 0.76 and 0.74 respectively. The internal consistency for the Competence Supporting scale was somewhat weaker, with an alpha of 0.64. Internal consistency was strong for both the Competence Thwarting and Relatedness Thwarting scales, with corresponding alphas of 0.88 and 0.86, while somewhat weaker for Autonomy Thwarting, with an alpha of 0.69. Potential values for all scales ranged from four to 20, with a midpoint of 12. Lower scores represent low supporting/thwarting, while higher scores represent high supporting/thwarting. Actual scores ranged from four to 20 for all scales. Means and standard deviations for each scale can be found in Table 5 (Appendix F).

The six scales on the CIS-Q were correlated to see if the questionnaire could be broken down into two scales of simply Supporting and Thwarting. The Competence Supporting and Relatedness Supporting scales were highly correlated with one another ($r = 0.73$, $p < .001$). The Autonomy Supporting scale, however, was more weakly correlated with both the Competence Supporting ($r = 0.45$, $p < .001$) and Relatedness Supporting scales ($r = 0.34$, $p < .001$). Therefore, we could not create one scale with all of the Supporting subscales. The three Thwarting scales all had strong correlations with one another. Autonomy Thwarting had a correlation of 0.75 with Competence Thwarting ($p < .001$). Autonomy Thwarting was correlated with Relatedness Thwarting with an equally strong relationship ($r = 0.71$, $p < .001$). Lastly, Competence Thwarting and Relatedness Thwarting were even more strongly correlated ($r = 0.86$, $p < .001$). Because these Thwarting scales were highly intercorrelated, we averaged them to make a composite scale.

Correlations between the Supporting and Thwarting scales were also analyzed. It was predicted that Supporting and Thwarting scales would be negatively correlated with one another, since each scale has an opposite (e.g., Autonomy Supporting and Autonomy Thwarting). As predicted, both the

Competence Supporting and Relatedness Supporting scales had a negative, although fairly weak, correlation with the composite Thwarting scale (r = -0.19, p < .001; r = -0.20, p < .001, correspondingly). A surprising find, however, was that Autonomy Supporting was positively correlated with the composite Thwarting scale (r = 0.20, p < .001). While the relationship is fairly weak, it is still in the opposite direction than was expected. Because the Autonomy Supporting scale did not work as intended within the sample, we focused more on the other two supporting scales in later analyses.

Psychometric Analysis of the PACS

Our measure, the PACS, consists of three scales: Secure, Avoidant, and Preoccupied. We discuss psychometric analyses for each scale below.

Internal consistency for the Secure scale was somewhat weak, with a coefficient alpha of 0.67. Corrected item-to-scale correlations were also run for each scale, and can be seen in Tables 7-11 (Appendix H). Overall, hypothesized item-to-scale relationships were as expected, except for one item on the Secure scale and one item on the Avoidant scale that performed poorly. For the Secure scale, items 2, 7, and 12 all had adequate correlations (r > 0.40), and items 5 and 9 (both reverse-coded) had slightly weaker correlations (r = 0.34; r = 0.37). Item 15 was very weakly correlated with the rest of the items (r = 0.18). When item 15 was removed and we recalculated the scale, alpha improved to 0.70 and item-to-scale correlations tended to improve (see Tables 7 and 8; Appendix H). Due to this improvement, the final PACS Secure scale is comprised of five strong items (means and standard deviations reported in Table 5; Appendix F).

Internal consistency for the Avoidant scale was adequate, with an alpha of 0.77. For corrected item-to-scale correlations, items 1, 8, 10, and 14 all had strong correlations (r > 0.50). Item 3, which was reverse-coded, had a very weak correlation (r = -0.01). When item 3 was removed and the scale was recalculated, the coefficient alpha increased to 0.87 and item-to-scale correlations all improved (see

Tables 9 and 10; Appendix H). Given this improvement, the final PACS Avoidant scale is composed of four strong items.

Internal consistency was strong for the Preoccupied scale, with an alpha of 0.83. For corrected item-to-scale correlations, all items (4, 6, 11, 13, 16) had strong correlations ($r > 0.50$). Because of this, all items were included in the final scale (see Table 11; Appendix H).

Potential values for the Secure scale ranged from five, indicating low attachment security, to 30, indicating high attachment security, with a midpoint of 17.5. Actual scores ranged from five to 30 (M = 21.36; SD = 4.75). Potential values for the Avoidant scale ranged from four, indicating low attachment avoidance, to 24, indicating high attachment avoidance, with a midpoint of 14. Actual scores ranged from four to 24 (M = 13.08; SD = 5.83). Potential values for the Preoccupied scale ranged from five, indicating low attachment anxiety, to 30, indicating high attachment anxiety, with a midpoint of 17.5. Actual scores ranged from five to 30 (M = 18.87; SD = 5.88).

It was expected that between the three scales in our measure, the Secure scale would be negatively correlated with both the Avoidant and Preoccupied scales, but the Avoidant and Preoccupied scales would be moderately positively correlated with each other (at roughly 0.30 to 0.40). Analyses partially supported this pattern. The Secure scale was strongly negatively correlated with the Avoidant scale (r = -0.72, $p < .001$) and moderately negatively correlated with the Preoccuped scale (r = -0.25, $p < .001$). Lastly, the Avoidant scale and the Preoccupied scale were positively correlated with one another (r = 0.61, $p<.001$); however, the magnitude of this correlation exceeded expectations.

Convergent and Divergent Validity

We expected that the PACS scales would be correlated with like ECR-S scales in theoretically predicted ways. Specifically, the PACS Avoidant scale was expected to be strongly positively correlated with the ECR-S's Avoidance scale, and less strongly correlated with the ECR-S's Anxiety scale. The PACS Preoccupied scale was expected to be correlated with the ECR-S's anxiety scale and less correlated with

the ECR-S's Avoidance scale. We expected the PACS Secure scale to be negatively correlated with both ECR-S scales. We found limited support for our hypotheses (see Table 6; Appendix G). The correlation between the PACS Avoidant scale and the ECR-S Avoidance scale was 0.55, $p < .001$, while the correlation between the PACS Avoidant scale and the ECR-S Anxiety scale was 0.56, $p < .001$. The Preoccupied scale was more strongly correlated with the Anxiety scale on the ECR-S ($r = 0.54$, $p < .001$) than with the Avoidance scale on the ECR-S ($r = 0.49$, $p<.001$), but only to a modest degree and less than what we had anticipated. Finally, our Secure scale was expected to be negatively correlated with both the Avoidance and Anxiety scale on the ECR-S, which ended up being correct. The Secure scale was negatively correlated with the Avoidance scale on the ECR-S ($r = -0.40$, $p < .001$), as well as the Anxiety scale on the ECR-S ($r = -0.35$, $p < .001$). A factor that complicated these analyses (see the Discussion section for a more detailed review) is that the ECR-S scales were much more highly correlated with each other ($r = 0.48$, $p < .001$) in our sample than has been reported in other samples. For example, Wei and colleagues (2007b) reported avoidance and anxiety correlations ranging from 0.19 (Study 1) to 0.28 (Study 2 and Study 5). A consequence of the strong correlation between the ECR-S scales is that it may limit their utility as indicators of convergent and divergent validity for the PACS.

Construct Validity of the PACS

We investigated construct validity by assessing if PACS scales would be associated with theoretically relevant variables, specifically patterns of supportive and counter-productive coaching (see Table 6; Appendix G). We expected that PACS security would be positively associated with supportive coaching and negatively associated with thwarting. We anticipated that the PACS Preoccupied scale would be positively associated with both supportive and thwarting ratings, while the PACS Avoidant scale would be negatively associated with supportive ratings and positively associated with thwarting ratings.

Our predictions regarding the Secure scale were largely confirmed, with one exception. The Secure scale was positively correlated with the Competence Supporting scale ($r = 0.49$, $p < .001$) and the Relatedness Supporting scale ($r = 0.48$, $p < .001$). This suggests that people who are more securely attached to their coach, report coaching behaviors that supported their competence and relationship with their coach. Unexpectedly, however, the PACS Secure scale had no significant relationship with the Autonomy Supporting scale ($r = 0.09$, $p > .05$). As expected, the Secure scale was strongly negatively correlated with the composite Thwarting scale ($r = -0.68$, $p < .001$). Those who scored higher on secure attachment to their coach reported fewer thwarting behaviors from their coach.

Our predictions regarding the Avoidant scale were partially confirmed. The Avoidant scale on the PACS had somewhat weak negative correlations with both the Competence Supporting and the Relatedness Supporting scales ($r = -0.16$, $p < .001$; $r = -0.17$, $p < .001$). Unexpectedly, however, the Avoidant scale and the Autonomy Supporting scale we moderately positively correlated ($r = 0.21$, $p < .001$). As expected, the Avoidant scale was highly correlated with the composite Thwarting scale ($r = 0.88$, $p < .001$). This suggests that those who are higher in avoidance in their relationship with their coach reported somewhat fewer competence and relatedness supporting behaviors, somewhat more autonomy supporting behaviors, and much more thwarting behaviors.

The pattern of correlations between the PACS Preoccupied scale and perception of coaching behaviors was confirmed, but the magnitude of some correlations were lower than expected. The Preoccupied scale on the PACS had a somewhat weak correlation with the Competence Supporting scale ($r = 0.20$, $p < .001$). The Preoccupied scale had an even weaker correlation with the Relatedness Supporting scale ($r = 0.13$, $p < .01$). However, the Preoccupied scale had strong correlations with both the Autonomy Supporting and the composite Thwarting scale ($r = 0.56$, $p < .001$; $r = 0.60$, $p < .001$). This suggests that those higher in anxiety in their relationship with their coach reported more autonomy

supportive behaviors, but also more thwarting behaviors. Those high in anxiety with their coach also reported some competence and relatedness supporting behaviors.

Interactions Between Attachment to Coach and Perceived Coaching Style

One hypothesis of the present study is that regardless of attachment status, participants overall would be more satisfied with a supporting coach. We found moderate support for this hypothesis. Recommending one's younger sibling to play under the coach was positively correlated with autonomy supporting behaviors from the coach (r = 0.37, p <.001), competence supporting behaviors (r = 0.47, p < .001), and relatedness supporting behaviors (r = 0.38, p < .001). Participants were only somewhat less likely to recommend a coach to their younger sibling when they were more thwarting (r = -0.18, p < .001). Participants were also more satisfied with their athletic career when their coach was more autonomy-supporting (r = 0.34, p < .001), competence-supporting (r = 0.36, p < .001), and relatedness-supporting (r = 0.31, p < .001). There was no relationship between satisfaction with athletic career and thwarting behaviors from the coach (r = 0.03, p > .05). There were no significant correlations between quitting the team and supporting behaviors from the coach, but there was a positive correlation between quitting the team and thwarting behaviors (r = 0.32, p < .001). While overall trends suggest that participants generally preferred supportive coaches over thwarting coaches, the present study was more interested at looking at how differences in attachment status influenced these ratings.

We also examined the construct validity of the PACS through a series of ANOVAs to test specific hypotheses about how interactions between attachment to one's coach and perceived coaching style would impact ratings of satisfaction. We hypothesized that those high on the PACS Avoidance scale would be more satisfied with a controlling/thwarting coach than with a supporting coach. We did not make apriori hypotheses for the PACS Secure and Preoccupied scales.

To examine these hypotheses, we had to create "high" and "low" groups. First, we converted all ratings to z-scores (such that a score of zero would indicate a score at the sample's mean, scores above

zero indicate scores above the mean, and scores below zero indicate scores below the mean). Second, we split participants into high and low attachment to the coach for the PACS Avoidant and Preoccupied scales. Since most people are securely attached (Mikulincer & Shaver, 2007) anyone with a z-score of 0.20 or less was considered low on that PACS dimension, and anyone with a z-score of 0.21 or more was coded as high on that PACS dimension. We also split participants to determine high and low thwarting from the coach on the CIS-Q composite Thwarting scale. Because there is no theoretical reason to use a different cutoff, we used the mean to split groups. Thus, participants with a z-score of zero or less were considered to have a low thwarting coach, and participants with a z-score of .01 or higher were considered to have a high thwarting coach.

We conducted a two (high vs. low PACS Avoidant) by two (high vs. low Thwarting) ANOVA with the dependent variable as willingness to recommend one's younger sibling to play under the coach. Higher scores on willingness to recommend one's younger sibling indicate that participants were more likely to encourage them to play under the coach. There was a main effect for the PACS Avoidant scale ($F = 6.16$, $p < 0.05$, $\eta^2 = 0.02$). Ratings were higher for those low on the PACS Avoidant scale ($M = 5.91$, $SD = 1.27$) compared to those high on the PACS Avoidant scale ($M = 5.34$, $SD = 1.60$). There was no main effect for the Thwarting scale. There was a significant interaction between the PACS Avoidant scale and the Thwarting scale, which can be seen in Figure 1 (Appendix I). In examining the interaction effect, it appears that differences in people high and low in avoidance toward their coach were minimal when thwarting from the coach was high, and most notable when thwarting was low. Further, effects of thwarting differed across those high and low in avoidance. Those low in avoidance toward the coach were more likely to recommend the coach to a younger sibling when thwarting was low relative to when it was high, while those high in avoidance were more likely to recommend the coach to a younger sibling when thwarting was high as opposed to low.

We also conducted a two (high vs. low PACS Avoidant) by two (high vs. low Thwarting) ANOVA with the dependent variable as participants' satisfaction with athletic career. Higher scores on satisfaction with athletic career indicate a higher level of satisfaction. There was no main effect for the PACS Avoidant scale. There was a main effect for the Thwarting scale ($F = 5.09$, $p < 0.05$, $\eta^2 = 0.01$). Those who reported low thwarting behaviors from their coach were less satisfied with their athletic career ($M = 3.79$, $SD = 0.88$) compared to those who reported high thwarting behaviors ($M = 3.92$, $SD = 0.89$). There was no significant interaction between the PACS Avoidant scale and the Thwarting scale, which can be seen in Figure 2 (Appendix J). Thwarting had little effect on satisfaction with athletic career in low avoidant people. Thwarting did have a large effect on satisfaction with athletic career in high avoidant people. Those high in avoidance who reported less thwarting from their coach were less satisfied with their athletic career than those who reported more thwarting from their coach.

Exploratory Results

To compare attachment to the coach and likelihood of quitting the team, a t-test was run on the sample. We looked at scores on the PACS scales and whether participants had ever left/quit the team under their coach. The PACS Secure scale was related to being less likely to quit the team (t (408) = 6.389, $p < .001$, $d = 0.63$). The PACS Avoidant scale, however, was related to being more likely to quit the team (t (408) = -6.52, $p < .001$, $d = -0.65$). The PACS Preoccupied scale was also related to being more likely to quit the team (t (407) = -3.51, $p < .001$, $d = -0.35$). Overall, we found that being securely attached to one's coach is associated with being less likely to quit the team, while being insecurely attached to the coach is associated with being more likely to quit the team.

To explore the unique contributions of adult romantic attachment (based on the ECR-S and IIA-8) and attachment to the coach (based on the PACS), we conducted a series of linear regressions. For all regressions, the ECR-S and IIA-8 scores were entered on Block 1. We next entered the three scales of the PACS on Block 2. We examined change in R^2 as an indicator of if the PACS made an incremental

increase in the amount of variance explained in willingness to recommend a coach to a sibling, overall satisfaction with athletic career, and quitting the team because of the coach.

As shown in Table 12 (Appendix K), the adult romantic attachment scales significantly predicted willingness to recommend a coach to a sibling ($R = 0.15$, $R^2 = 0.02$; F (3, 393) = 2.80, $p = .04$), but only accounted for 2% of the variance. Inclusion of PACS scales on Block 2 significantly incrementally improved prediction ($R = 0.64$, $R^2 = 0.41$; F (6, 393) = 44.41, $p < .001$; ΔF (3, 387) = 84.22, $p < .001$). In the final model, unique contributions were made by the PACS Secure scale (β = 0.47, $p < .001$), Avoidant scale (β = -0.19, $p = .01$), and Preoccupied scale (β = 0.49, $p < .001$), and the contributions of the ECR-S's scales dropped to insignificant levels.

As shown in Table 13 (Appendix L), the adult romantic attachment scales did not significantly predict satisfaction with athletic career ($R = 0.10$, $R^2 = 0.01$; F (3, 390) = 1.34, $p = .26$). Inclusion of the PACS scales on Block 2, however, did significantly predict satisfaction with athletic career ($R = 0.40$, $R^2 = 0.16$; F (6, 390) = 12.17, $p < .001$; ΔF (3, 384) = 22.78, $p < .001$). In the final model, unique contributions were made by the PACS Secure scale (β = 0.35, $p < .001$) and the Preoccupied scale (β = 0.33, $p < .001$). The Avoidant scale did not make a unique contribution in the final model (β = 0.16, $p = .09$).

As shown in Table 14 (Appendix M), the adult romantic attachment scales significantly predicted quitting the team because of the coach ($R = 0.35$, $R^2 = 0.12$; F (3, 117) = 5.13, $p < .05$). Inclusion of the PACS scales on Block 2 significantly incrementally improved prediction ($R = 0.65$, $R^2 = 0.42$; F (6, 117) = 13.56, $p < .001$; ΔF (3, 111) = 19.49, $p < .001$). In the final model, unique contributions were made by the PACS Avoidant scale (β = 0.64, $p < .001$). Neither the Secure scale nor the Preoccupied scale made a unique contribution in the final model (β = -0.12, $p = .25$; β = -0.11, $p = .39$).

Overall, the series of regression analyses indicate that, while the PACS and ECR-S are correlated, the PACS proved a better predictor of sports-related outcomes. Thus, while attachment theory may be applied to understand coach-athlete relationships, new measures, such as the PACS, are likely needed

for empirical research in this area. Additionally, the regression analyses indicated that though PACS scales were intercorrelated, they sometimes play unique roles (e.g., the prediction of if an athlete would recommend the coach to a sibling).

Adult Romantic Attachment and Perceptions of Supportive and Thwarting Coaching

We examined if adult romantic attachment was associated with different perceptions of coaches (see Table 6; Appendix G). Avoidance on the ECR-S had a weak negative correlation with Competence Supporting (r = -0.15, p < .005) and Relatedness Supporting (r = -0.17, p< .001). Avoidance also had a moderate correlation with Autonomy Supporting (r = 0.26, p < .001). Finally, Avoidance had a strong positive correlation with the composite Thwarting scale (r = 0.55, p < .001). This suggests that participants higher in avoidance in their romantic relationships reported more thwarting behaviors from their coach. Those higher in avoidance also reported somewhat more autonomy supporting behaviors in their coach. The Anxiety scale on the ECR-S had no significant relationship with the Competence Supporting (r = 0.07, p > .05) or Relatedness Supporting scales (r = 0.004, p > .05). Anxiety was moderately correlated with the Autonomy Supporting scale (r = 0.32, p < .001) and strongly correlated with the composite Thwarting scale (r = 0.55, p < .001). This suggests that those high in anxiety in their romantic relationships reported somewhat more autonomy supportive behaviors in their coach, and even more thwarting behaviors.

Moving to the IIA-8, which measures the ambivalence in attachment, there were no statistically significant correlations between the IIA-8 and either the Competence Supporting (r = 0.02, p > .05) or Relatedness Supporting scales (r = -0.05, p > .05). The IIA-8 was moderately correlated with the Autonomy Supporting scale (r = 0.32, p < .001) and strongly correlated with the composite Thwarting scale (r = 0.63, p < .001). This suggests that those who are more ambivalent in their romantic relationships reported somewhat more autonomy supportive behaviors in their coach, and even more

thwarting behaviors. This is the same pattern we found between coaching behaviors and both avoidance and anxiety in romantic relationships.

Discussion

A central hypothesis of the present study is that the player-coach relationship can be conceptualized as an attachment relationship. Attachment theory has been applied to many different types of relationships since its original use with the infant-caregiver relationship. Hazan and Shaver (1987) were among the first to conceptualize romantic relationships as attachment relationships. Their results supported the idea that romantic relationships could be attachment relationships. Mallinckrodt et al. (1995) hypothesized that attachment theory could also be applied to the client-therapist relationship. They found patterns of attachment in psychotherapy that mimicked infant attachment patterns, supporting their hypothesis. This was further substantiated by subsequent studies (Levy et al., 2018). Similarly, the present study explored the athlete-coach relationship as an attachment relationship.

The relationship between a player and their coach may also act as an attachment relationship (Ainsworth, 1989). Coaches meet the criteria to be considered an attachment figure (Mikulincer & Shaver, 2007). Coaches fulfill proximity maintenance by being physically close to their player throughout their season. Athletes in many sports see their coach almost every day, whether it be at a practice or a competition. Coaches also satisfy the safe haven function of an attachment relationship. Whether a player is struggling to learn a new skill, or dealing with a hard loss, the coach is responsible for comforting their player and helping them overcome their difficulties. Finally, coaches fulfill the function of a secure base. Players are often encouraged to explore new things, with or without the coach, and are supported in their endeavors. For example, athletes can step out of their comfort zone

by learning new skills, exploring higher-level teams and coaches, or even trying other sports. Players can feel comfortable doing these things with the support of the coach to return to.

Psychometric Adequacy

In order to successfully capture an attachment relationship, a measure specific to the type of relationship is needed. Participants in Hazan and Shaver's (1987) studies responded to items on traditional infant-caregiver attachment, but also one item on romantic relationship attachment. This single-item measure was modeled after Ainsworth et al.'s (1978) descriptions of infants, and changed to fit adult romantic relationships. Mallinckrodt et al. (1995) created their own measure to properly assess client attachment to the therapist. Just as these studies needed relationship-specific items to evaluate these relationships, a measure specific to player-coach attachment is necessary in the present study. We created the Player Attachment to Coach Scale (PACS) in order to capture this attachment relationship. We developed this measure by using the CATS as a base. The PACS was psychometrically sound. Overall, the subscales within the measure showed high internal consistency and strong corrected item-to-scale correlations. As often occurs in measure development, not all proposed items fit their scales. We threw out one item from the Secure scale and one item from the Avoidant scale. These items had very weak corrected item-to-scale correlations in relation to the other items in the scale, and, when removed, alphas for the scales improved.

Convergent and Divergent Validity

In terms of convergent and divergent validity, we expected the PACS scales to be more strongly correlated with like ECR-S scales compared to unlike ECR-S scales. This is because player attachment to the coach could be conceptualized within a person's broader attachment hierarchy. While we do form relationship-specific attachments, our general tendency to begin relationships is to rely on our higher-order attachment style derived from close relationships in our personal life. Thus, our initial perceptions

of others (e.g., coaches) should be somewhat influenced by attachment schemas based on past relationships (especially with authority figures).

Bowlby (1982) first used internal working models (IWMs) in describing attachment theory. Positive or negative working models of the self and others influence how people form relationships. Attachment to one's caregiver in infancy shapes how people view themselves and others. Securely attached infants view their caregiver as helpful, and view themselves as worthy of help. Insecurely attached infants may view their caregiver as unhelpful, unresponsive, or inconsistent, or do not view themselves as worthy of help. These IWMs are the base for creating new relationships throughout one's life. Those who are securely attached in infancy may have an easier time in romantic relationships because they have a positive view of themselves and others, whereas those who are insecurely attached may struggle more in romantic relationships. This is not to say, however, that insecurely attached individuals will stay that way forever. With stable attachment figures, such as a romantic partner, individuals may be able to develop secure attachments, which will later affect other relationships. In the same way, attachment to one's coach is likely influenced by other attachment relationships, including child-caregiver, romantic, and other types of relationships. This is why we expected PACS scales to be correlated with like romantic attachment scales on the ECR-S. Nonetheless, we recognize that one's global attachment status does not necessarily align with all relationship-specific attachments. For example, some show a different pattern of attachment with their closest friends than they do to their parents or romantic partners (Klohnen et al., 2005). Sometimes, attachment in specific romantic relationships differs from global attachment status (Sprecher & Fehr, 2011).

Our results supported this convergent validity hypothesis for the PACS Secure scale. Our secure scale was moderately negatively correlated with both anxiety and avoidance on the ECR-S. Our results did not support our hypothesis for the insecure PACS scales. While avoidance on the PACS and avoidance on the ECR-S were highly correlated, avoidance on the PACS and anxiety on the ECR-S were

also equally highly correlated. We found a similar pattern for anxiety on the PACS; the PACS Preoccupied scale was highly correlated with both ECR-S scales. This is likely explained by the ECR-S scales being more highly correlated in our sample than in other reported samples. In Wei and colleagues (2007b), correlations ranged from 0.19 to 0.28. In our sample, however, the ECR-S Anxiety and Avoidance scales were correlated at 0.48. This moderate-to-large correlation between ECR-S scales may have made finding a convergent and divergent pattern of associations with our PACS scales challenging. Theoretically, anxiety and avoidance are orthogonal. While these scales tend to be somewhat correlated at the level of measurement, they should be measuring separate constructs; therefore, they should not be as strongly correlated as we found in our sample. Although other studies have found strong evidence for an avoidance factor and an anxiety factor (Wei et al., 2007b), participants in our sample tended to rate themselves as either secure or insecure.

Another explanation for the insecure PACS scales being highly correlated with both ECR-S scales is that attachment is relationship-specific. Research suggests that attachment should be viewed in the context of each relationship, not as a broad personality trait (e.g., Baldwin et al., 1996; Fraley et al., 2011; Kobak, 1994; Lewis, 1994). IWMs for the self and others may be used to guide new relationships when no other information is available. Within specific relationships, however, attachment may be different. For example, someone may be securely attached to their caregiver, but due to personal experiences with romantic partners, be insecurely attached in romantic relationships. While their broader attachment style suggests that they would be securely attached to a romantic partner, the specific type of relationship influences the attachment style used in romantic relationships (Sprecher & Fehr, 2011). In other words, attachment styles from infancy or other preceding relationships are used as part of one's initial approach to new relationships and as a fallback option when more specific data about the immediate relationship is lacking. This could also be the case for the player-coach

relationship. While attachment in romantic relationships was correlated with attachment to one's coach in the present study, they are not the same.

The three PACS scales were also correlated with one another in a way that we did not originally anticipate. The Secure scale was strongly negatively correlated with the Avoidant scale, as we expected. However, the Secure scale was only moderately negatively correlated with the Preoccupied scale. Furthermore, the Avoidant scale and the Preoccupied scale were positively correlated with one another, but more strongly than we expected. One explanation for this is that the PACS scale is more of a general measure of attachment, assessing the dimension of secure-to-insecure. Alternatively, it is possible that this is a sample effect. As noted above, respondents in our sample rated the ECR-S, a well validated measure of relatively orthogonal factors, in a similar way. At this time, it is impossible to determine which of these hypotheses is accurate. Further research on the PACS's factor structure in new samples is necessary to fully address and clarify this question.

Predictive Utility

In addition to being psychometrically sound and showing some convergence with other measures of attachment, it is also important to show that new measures have utility beyond existing measures. This should be useful for testing theoretical hypotheses and they should incrementally increase predictions of theoretically relevant variables. In prior research on relationship specific attachments, measures of specific measures have often proven better predictors of outcomes associated with functioning within a specific relationship. For example, attachment to one's therapist has been found to be a better predictor of therapy outcome than patients' global attachment styles (Mallinckrodt et al., 1995). Similarly, expression of compassionate love within a romantic relationship is more strongly predicted by one's specific attachment status within that relationship in comparison to one's global attachment status (Sprecher & Fehr, 2011). Indeed, an advantage of developing relationship-specific measures of attachment are to make and study more specific predictions. Thus, we

had anticipated that the PACS would prove more predictive of specific outcomes related to the athlete-coach relationship. Additionally, if new measures predict little incremental variance beyond existing global measures of attachment, then one may reasonably question their necessity.

Several findings of the present study suggest that the PACS is indeed measuring something beyond other existing attachment measures. First, correlations between adult romantic attachment, measured by the ECR-S, and coaching style, measured by the CIS-Q, were consistently smaller than correlations between the PACS and the CIS-Q. The PACS measures specific attachment to one's coach, so it follows that this would be more related to the specific coach's coaching style. For example, athletes higher in avoidance in their romantic relationships reported more thwarting behaviors in their coach, but this relationship was even stronger for athletes higher in avoidance in their player-coach relationship. This adds to the discussion of whether attachment status is consistent across relationships, or is specific to the type of relationship. It seems that while a general form of attachment is useful to a certain extent, attachment to the specific relationship, in this case the athlete-coach relationship, may be capturing more. This may also be capturing the dyadic relationship between coaching style and attachment to the coach; an athlete's preexisting attachment status will influence how they interpret a coach's behavior, but a coach's behavior will also affect an athlete's attachment to that coach, as well as future coaches.

Second, we used the PACS to confirm some hypotheses that we expected to find. While we expected participants overall to be more satisfied with a supportive coach, we also expected participants high in avoidance to the coach to be more satisfied with a controlling coach compared to those low in avoidance. We found support for this hypothesis when using likeliness to recommend one's younger sibling to play under the coach as a dependent variable. Participants low in avoidance were more likely to recommend the coach to a younger sibling when thwarting was low compared to when it was high. At the same time, participants high in avoidance were more likely to recommend the

coach to a younger sibling when thwarting was high relative to when it was low. We found partial support for this hypothesis when using satisfaction with one's athletic career as a dependent variable. While there was no significant interaction between avoidance and level of thwarting behavior, we found that attachment avoidance was acting as a moderator variable. Those high in avoidance who reported less thwarting from their coach were less satisfied with their athletic career than those who reported more thwarting from their coach. Participants low in avoidance, however, did not show a significant difference across levels of thwarting for satisfaction with athletic career. The interaction effect was likely lost because the level of thwarting in one's coach did not affect participants low in avoidance. At the same time, a main effect for thwarting emerged because one group (i.e., those high in avoidance) appears to be driving the effect.

Third, in exploratory analyses, we also discovered patterns in participants who had quit their team. Those high in secure attachment to their coach were less likely to quit the team, while those high in insecure attachments to their coach (i.e., PACS Avoidant and Preoccupied scales) were more likely to quit the team. Going even further, we found that those high in avoidance toward their coach were more likely to quit the team because of the coach. These participants rated their reason for quitting the team as the coach's fault, while participants high in secure attachment to the coach and preoccupied attachment to the coach rated their reason for quitting the team as something other than due to the coach.

Fourth, and most importantly, regression revealed that predictive variance in several satisfaction variables significantly increased when the PACS scales were included in analyses. In short, inclusion of the PACS scales produced massive increases in the amount of variance explained. These increases were incremental, meaning they went above and beyond what was predicted by the ECR-S scales. For example, when examining an athlete's likeliness to recommend their sibling to play under the coach, romantic attachment accounted for only 2% of the variance. When attachment to the coach

was included, however, 41% of the variation in likeliness to recommend one's sibling was accounted for by the PACS. Similar patterns were found for satisfaction with one's athletic career (10% of variance versus 16% of variance) and quitting because of the coach (12% of variance versus 42% of variance) when the PACS measures were included in the regressions. While romantic attachment was significantly predictive for these variables, it was to a small degree, and including attachment to the coach significantly increased predictive variance.

Practical Application of the PACS

The PACS could be used in several different, practical ways. Researchers can use the PACS for predictive outcomes. For example, administering the items to athletes as a means of identifying athletes at risk for quitting a team. Once specific athletes are identified, such as those high in avoidance toward the coach, action can be taken to improve these players' athletic experiences with the coach in whatever way they need. Coaches, on the other hand, are not likely to administer measures to their players. Instead, coaches can use information from the PACS to identify at-risk players. For example, players are more likely to quit if they are high in avoidance toward the coach, and the PACS Avoidant scale lists some common indicators of this attachment. Once at-risk players are identified, coaches can then complete specific achievements with these players in an effort to combat their greater risk for quitting the team.

Limitations

While the results of the present study are promising, there are still several limitations that need to be considered. First, as discussed above, the sample responded to the romantic attachment measure in a way that was not consistent with past research. The Avoidance and Anxiety scales on the ECR-S were much more correlated than in past studies (Wei et al., 2007b). More research needs to be done to examine if this pattern was due to the current sample (e.g., using MTurk participants), the current

methodology (e.g., using the short form of the ECR rather than the full form), or a theoretical difference between general attachment status and relationship-specific attachment.

Another limitation in the present study concerns the creation of the PACS. The measure was created by using the CATS as a base and modifying relevant items to fit the player-coach relationship, as opposed to the client-therapist relationship. Future research should include a larger pool of items for each scale, and then be narrowed down after being administered to athletes. A factor analysis should also be run on the items. Another limitation with the PACS is the scales themselves. The scales are based on the CATS scales, which were originally Secure, Preoccupied-Merger, and Avoidant-Fearful. The Secure participants can be conceptualized the same way we conceptualized them in the present study; secure individuals have a positive IWM of the self and others. Preoccupied-Merger participants were also thought of in the same way as the present study; these individuals have a negative model of the self and a positive model of others. The Avoidant-Fearful participants, however, were conceptualized differently after their analysis of the CATS. The researchers describe participants in this subscale as having a negative view of the self and of others, which is more consistent with individuals with a fearful attachment status. After their analyses they created a fourth group of respondents called the Reluctant cluster. The Reluctant cluster does not match up perfectly with an avoidant attachment status, but may be more similar to avoidant individuals than the subscale labeled Avoidant-Fearful. Further research needs to be done on the PACS to ensure that items in each scale are measuring the correct concepts.

A final limitation of the present study deals with the supporting scales on the CIS-Q. While the Competence and Relatedness Supporting scales were highly positively correlated with one another, the Autonomy Supporting scale was only moderately positively correlated with the other two supporting scales. Furthermore, while the Competence and Relatedness Supporting scales were negatively correlated with the composite Thwarting scale, the Autonomy Supporting scale was actually positively correlated with thwarting. In regards to attachment, competence and relatedness supporting showed

consistently similar patterns of correlation, while autonomy supporting showed an often opposite correlation. For example, the Competence and Relatedness Supporting scales were both positively correlated with the PACS Secure scale, but the Autonomy Supporting scale was not related to security at all. Because the Autonomy Supporting scale was not working as intended within this particular sample, caution needs to be exercised around results for this specific scale. Given that this scale behaved oddly in our sample, we focused on the other two supporting scales in analyses. More research needs to be done on these scales and supporting behaviors in coaches in general to understand the differences between autonomy-, competence-, and relatedness-supporting behaviors.

Conclusion & Future Directions

The present study acts as a starting point for a player-coach attachment measure. While the results are promising, further research and review is needed before the PACS can be administered to athletes to improve satisfaction. The present study found evidence of reasonable psychometric adequacy. Future studies on the PACS could further establish evidence of psychometric adequacy through the use of factor analysis. This would also shed light on if the scale is best viewed as a unidimensional scale (i.e., secure-to-insecure) or if it is composed of three oblique factors as we intended. The present study provided initial evidence for the construct validity of the PACS by illustrating the utility of the measure for assessing theoretically-derived hypotheses regarding athletes, coaches, and athlete outcomes. Further research along this line is necessary for further establishing the measures usefulness for predicting important athlete outcomes. Further, this research is necessary to establish that the coach-athlete relationship can be reasonably viewed through the lens of attachment theory. While attachment theory would not be expected to explain all aspects of this relationship, the present findings indicate that it may be a useful framework for understanding the quality of the bond and athletes' affective responses to their coach's input. By developing and providing initial validation for

the PACS, we seek to empower future researchers to conduct research further addressing these questions.

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Appendix A

Experiences in Close Relationship Scale-Short Form (ECR-S)

Instruction: The following statements concern how you feel in romantic relationships. We are interested in how you generally experience relationships, not just in what is happening in a current relationship. Respond to each statement by indicating how much you agree or disagree with it. Mark your answer using the following rating scale:

1: Strongly Disagree
2: Disagree
3: Disagree Slightly
4: Neutral
5: Slightly Agree
6: Agree
7: Strongly Agree

1. It helps to turn to my romantic partner in times of need.

2. I need a lot of reassurance that I am loved by my partner.

3. I want to get close to my partner, but I keep pulling back.

4. I find that my partner(s) don't want to get as close as I would like.

5. I turn to my partner for many things, including comfort and reassurance.

6. My desire to be very close sometimes scares people away.

7. I try to avoid getting too close to my partner.

8. I do not often worry about being abandoned.

9. I usually discuss my problems and concerns with my partner.

10. I get frustrated if romantic partners are not available when I need them.

11. I am nervous when partners get too close to me.

12. I worry that romantic partners won't care about me as much as I care about them.

Appendix B

IIA 8-item Version

Below is the 8-item version of the IIA (i.e., the IIA-8). This version has been found to produce scores that are highly correlated with the full form. To score the 8-item version, just calculate the average for all eight items similar to how you would for the full-form.

The Inventory of Interpersonal Ambivalence – 8 (IIA-8)

Below are a series of statements; most include statements about two things within a single sentence. Please rate each statement based on how "true" the statement is for you. You should rate each statement based on the ENTIRE statement. Many statements contain more than one idea. If *either* idea is completely false for you, you should rate the statement as "False, Not True".

		False, Not True	Slightly True	Mainly True	Very True
1	I want to talk about my feelings with others, but I find that I keep my feelings bottled up inside.	F	ST	MT	VT
2	I'd like to form connections with others, but I find myself withdrawing before a connection is made.	F	ST	MT	VT
3	I want to depend on others, but I don't because I fear others will let me down if I rely on them.	F	ST	MT	VT
4	I have very mixed feelings about connecting with others.	F	ST	MT	VT
5	I want to have close relationships; at the same time, the idea of letting others into my life is very scary.	F	ST	MT	VT
6	I want to have close relationships with others, but something holds me back from putting myself out there.	F	ST	MT	VT
7	I believe I need others, but I avoid close relationships because I think people will ultimately let me down.	F	ST	MT	VT
8	I've generally kept others at a distance despite knowing I want close relationships.	F	ST	MT	VT

Appendix C

Coaches' Interpersonal Style Questionnaire

CIS-Q

Items

During Practices, my coach…

Autonomy Support

1… frequently asked about our preferences regarding activities to complete.

7… provided ample freedom for completing the exercises.

13… considered our opinions in the development of the trainings.

19… allowed us to participate in decision-making during the development of exercises.

Competence Support

2… developed our confidence regarding our performance of the exercises.

8… proposed tasks that were adjusted to our level so that we could adequately perform them.

14… always motivated us to achieve the objectives that were suggested in the exercises.

20… helped us learn and improve.

Relatedness Support

3… encouraged strong relationships between teammates at all times.

9… favored a healthy environment among teammates.

15… encouraged us to become involved.

21… helped us to amicably resolve conflicts.

Autonomy Thwarting

4… prevented me from making decisions regarding how I performed.

10… required that I do things in a certain manner.

16… forced me to adhere to a certain performance style.

22… made me accept a form of training that I did not like.

Competence Thwarting

5… proposed situations that made me feel incapable.

11… sometimes, made me feel incompetent.

17… suggested tasks and situations that made me feel inept.

23… did not provide opportunities that demonstrated my potential.

Relatedness Thwarting

6… made me feel rejected by him/her sometimes.

12… was sometimes indifferent with me.

18… created a team environment that I did not like.

24… made me feel unaccepted by this team.

Appendix D

Player Attachment to Coach Scale

Instructions: Imagine the coaches you have had throughout your time as an athlete. Choose the coach that you had for the longest time. Answer these statements based on how you felt about your coach at the time they coached you. Please try to respond to every item using the scale below to indicate how much you agree or disagree with each statement.

1	2	3	4	5	6
Strongly Disagree	Somewhat Disagree	Slightly Disagree	Slightly Agree	Somewhat Agree	Strongly Agree

1. I think my coach disliked me.
2. My coach was dependable.
3. ~~I know I could have told my coach anything and s/he would not have gotten mad at me.~~
4. I would have liked my coach to feel closer to me.
5. My coach wasn't giving me enough attention.
6. I would have liked to know more about my coach as a person.
7. When I needed something, my coach responded in a helpful way.
8. My coach made me feel bad in my practices/games.
9. I didn't know how my coach would react from practice to practice and from game to game.
10. Sometimes I was afraid that if I didn't please my coach, s/he would have disliked me or played me less.
11. I thought about being my coach's favorite player.
12. I could tell that my coach enjoyed working with me.
13. I wish there was a way I could have spent more time with my coach.
14. My coach treated me more like a child than an athlete.
15. ~~When I was with my coach, I felt like I was his/her highest priority.~~
16. I wish my coach had not been my coach so that we have could be friends.

Appendix E

Table 1: Sports played in high school

Sport	Total	Percent
1-Basketball	170	41.06
2-Soccer	109	26.33
3-Football	157	37.92
4-Volleyball	123	29.71
5-Baseball	63	15.22
6-Softball	30	7.25
7-Tennis	101	24.40
8-Hockey	45	10.87
9-Lacrosse	8	1.93
10-Wrestling	15	3.62
11-Swimming	59	14.25
12-Track&Field	46	11.11
13-Cross Country	15	3.62
14-Golf	15	3.62
15-Gymnastics	14	3.38
16-Cheer	10	2.42
17-Dance/Pom Team	27	6.52
18-Bowling	28	6.76
19-Skiing/Snowboarding	11	2.66
20-Rugby	2	0.48
21-Water Polo	4	0.97
22-Equestrian Team	1	0.24
23-Other	16	3.86

Table 2: Sports played in high school for 2 years

Sport	Total	Percent
1-Basketball	145	35.02
2-Soccer	84	20.29
3-Football	133	32.13
4-Volleyball	104	25.12
5-Baseball	57	13.77
6-Softball	26	6.28
7-Tennis	73	17.63
8-Hockey	30	7.25
9-Lacrosse	5	1.21
10-Wrestling	9	2.17
11-Swimming	39	9.42
12-Track&Field	28	6.76
13-Cross Country	13	3.14
14-Golf	11	2.66
15-Gymnastics	7	1.69
16-Cheer	12	2.90
17-Dance/Pom Team	11	2.66
18-Bowling	21	5.07
19-Skiing/Snowboarding	4	0.97
20-Rugby	2	0.48
21-Water Polo	2	0.48
22-Equestrian Team	0	0.00
23-Other	14	3.38

Appendix E continued

Table 3: Sports played now

Sport	Total	Percent
1-Basketball	118	28.50
2-Soccer	67	16.18
3-Football	114	27.54
4-Volleyball	106	25.60
5-Baseball	36	8.70
6-Softball	24	5.80
7-Tennis	90	21.74
8-Hockey	35	8.45
9-Lacrosse	5	1.21
10-Wrestling	11	2.66
11-Swimming	54	13.04
12-Track&Field	12	2.90
13-Cross Country	11	2.66
14-Golf	21	5.07
15-Gymnastics	4	0.97
16-Cheer	1	0.24
17-Dance/Pom Team	15	3.62
18-Bowling	23	5.56
19-Skiing/Snowboarding	12	2.90
20-Rugby	1	0.24
21-Water Polo	2	0.48
22-Equestrian Team	0	0.00
23-Other	29	7.00

Table 4: How you are involved in sports now

	Total	Percent
1-School Team	125	30.19
2-Club Team	116	28.02
3-Recreational Team	98	23.67
4-Professional Team	61	14.73
5-Pickup Team	66	15.94
6-Backyard/for fun	104	25.12
7-Other	5	1.21
8-None	81	19.57

Appendix F

Table 5: Scale descriptive statistics

	Mean	SD	Min	Max	Skewness	Kurtosis	Coefficient Alpha
Avoidance	19.227	6.238	6.000	34.000	-0.389	-0.647	0.720
Anxiety	25.323	7.518	6.000	42.000	-0.594	-0.520	0.779
Fearful	19.030	6.402	8.000	32.000	-0.177	-1.011	0.906
Autonomy Support	13.880	3.234	4.000	20.000	-0.712	0.410	0.762
Competence Support	15.700	2.436	4.000	20.000	-0.809	1.886	0.642
Relatedness Support	15.940	2.624	4.000	20.000	-1.097	2.574	0.743
Autonomy Thwarting	13.610	3.134	4.000	20.000	-0.452	-0.022	0.687
Competence Thwarting	12.020	4.432	4.000	20.000	-0.189	-1.075	0.880
Relatedness Thwarting	11.560	4.376	4.000	20.000	-0.074	-1.017	0.855
Secure (V2)	21.360	4.75	5.000	30.000	0.072	-0.276	0.700
Avoidant (V2)	13.080	5.83	4.000	24.000	-0.044	-1.246	0.870
Preoccupied	18.870	5.878	5.000	30.000	-0.243	-0.776	0.831

Appendix G

Table 6: Correlation matrix

		SECUREV2	AVOIDANTV2	PREOCCUPIED	AUTONOMYSUPPORT	COMPETENCESUPPORT	RELATEDNESSSUPPORT	AUTONOMYTHWARTING	COMPETENCETHWARTING	RELATEDNESSTHWARTING	Would S recommend younger sibling play under coach	Satisfaction w/ athletic career	Did S ever leave/quit the team	Did S leave/quit b/c of coach
AVOIDANCE	Pearson Correlation	-.395**	.552**	.492**	.256**	-.150**	-.171**	.412**	.546**	.543**	-.010	-.026	.188**	-.258**
	Sig. (2-tailed)	.000	.000	.000	.000	.003	.001	.000	.000	.000	.837	.607	.000	.004
	N	405	405	404	402	405	404	407	403	401	409	406	409	125
ANXIETY	Pearson Correlation	-.351**	.558**	.544**	.320**	.066	.004	.445**	.533**	.528**	.057	.061	.195**	-.273**
	Sig. (2-tailed)	.000	.000	.000	.000	.183	.937	.000	.000	.000	.245	.222	.000	.002
	N	408	408	407	405	408	406	410	406	404	412	409	412	126
FEARFUL	Pearson Correlation	-.360**	.614**	.605**	.324**	.018	-.046	.509**	.603**	.612**	.100*	.058	.241**	-.334**
	Sig. (2-tailed)	.000	.000	.000	.000	.723	.357	.000	.000	.000	.043	.247	.000	.000
	N	405	405	404	402	405	403	407	404	401	409	406	409	125
SECUREV2	Pearson Correlation	1.000**	-.716**	-.251**	.091	.485**	.479**	-.488**	-.651**	-.689**	.451**	.197**	-.302**	.457**
	Sig. (2-tailed)	0.000	.000	.000	.068	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	410	407	406	404	407	404	408	404	402	410	407	410	127
AVOIDANTV2	Pearson Correlation	-.716**	1.000**	.610**	.213**	-.161**	-.172**	.706**	.851**	.849**	-.177**	.024	.307**	-.604**
	Sig. (2-tailed)	.000	0.000	.000	.000	.001	.000	.000	.000	.000	.000	.626	.000	.000
	N	407	410	406	403	406	404	408	404	402	410	407	410	125
PREOCCUPIED	Pearson Correlation	-.251**	.610**	1.000**	.556**	.204**	.132**	.484**	.613**	.553**	.303**	.252**	.171**	-.231**
	Sig. (2-tailed)	.000	.000	0.000	.000	.000	.008	.000	.000	.000	.000	.000	.001	.010
	N	406	406	409	402	405	403	407	403	402	409	406	409	125

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix H

Table 7: PACS Secure scale item-total statistics before removing item 15

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
CATSR2	20.6902	20.297	.477	.288	.603
CATSR7	20.7415	19.302	.632	.485	.558
CATSR12	20.8146	20.318	.519	.455	.593
CATSR15	21.3634	22.555	.181	.389	.698
RCATSR5	21.5585	19.166	.344	.426	.651
RCATSR9	21.8439	18.734	.368	.469	.642

Table 8: PACS Secure scale item-total statistics after removing item 15

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
CATSR2	16.6512	16.668	.436	.287	.658
CATSR7	16.7024	16.195	.537	.452	.624
CATSR12	16.7756	17.519	.381	.368	.678
RCATSR5	17.5195	13.932	.459	.422	.653
RCATSR9	17.8049	13.307	.509	.434	.627

Table 9: PACS Avoidant scale item-total statistics before removing item 3

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
CATSR1	13.0512	21.325	.725	.607	.657
CATSR8	12.6268	20.807	.767	.671	.640
CATSR10	12.3341	21.895	.706	.519	.666
CATSR14	12.4073	23.083	.573	.438	.715
RCATSR3	13.0829	33.954	-.012	.051	.872

Table 10: PACS Avoidant scale item-total statistics after removing item 3

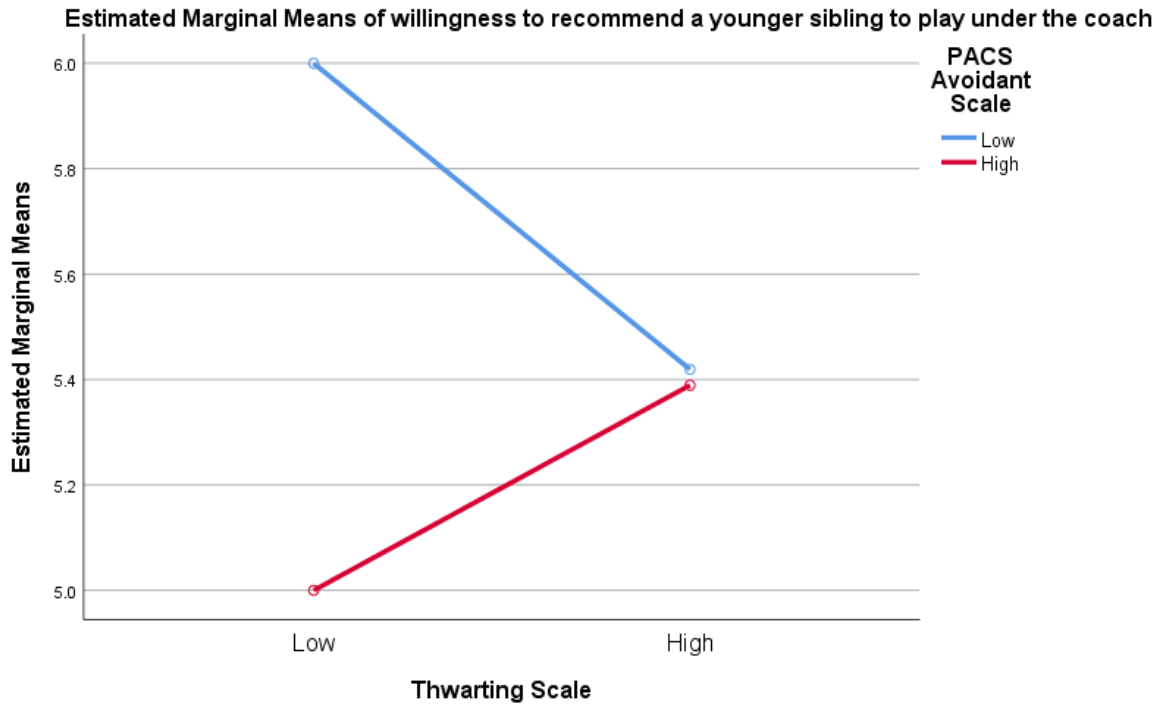
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
CATSR1	10.26	19.552	.755	.607	.824
CATSR8	9.83	18.950	.807	.671	.803
CATSR10	9.54	20.508	.701	.506	.845
CATSR14	9.61	20.653	.645	.418	.868

Table 11: PACS Preoccupied scale item-total statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
CATSR4	15.05	24.187	.583	.371	.810
CATSR6	14.87	24.409	.631	.428	.799
CATSR11	15.04	22.653	.600	.382	.807
CATSR13	14.97	23.038	.678	.465	.785
CATSR16	15.55	20.954	.676	.474	.785

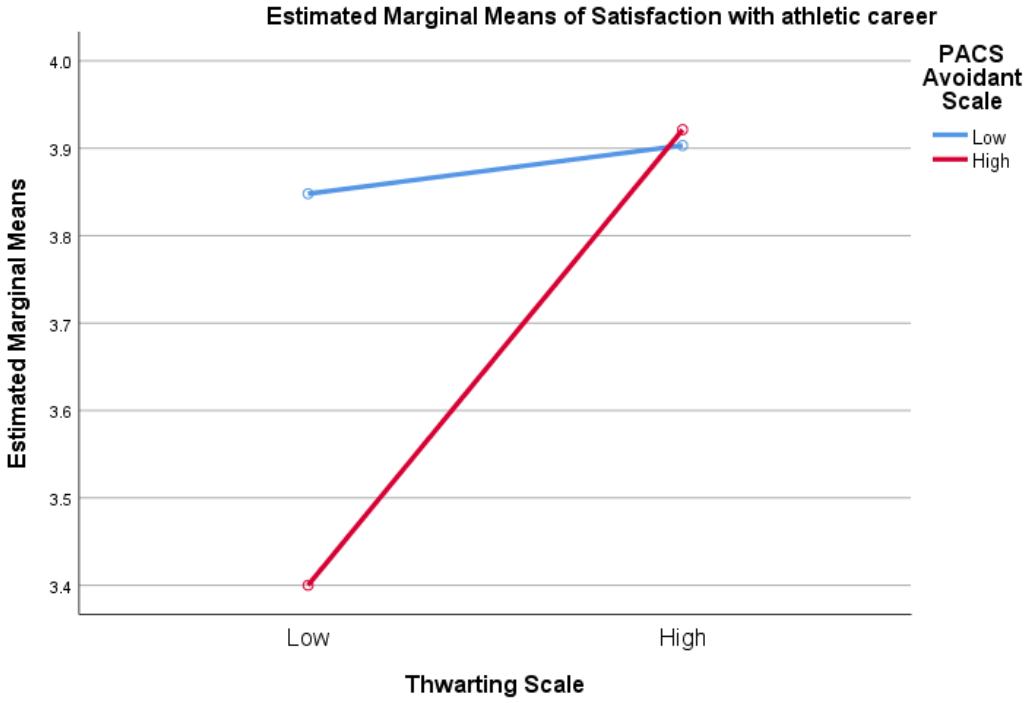
Appendix I

Figure 1



Appendix J

Figure 2



Appendix K

Table 12: Regression for willingness to recommend one's younger sibling to play under the coach

Dependent: Willingness to recommend one's younger sibling to play under the coach

Model	*R*	R^2	*F*	*p*	ΔR^2	ΔF	*p*
1	0.15	0.02	2.8	0.04			
2	0.64	0.41	44.41	<.001	0.39	84.22	<.001

*Block 1: ECR-S Avoidance, ECR-S Anxiety, IIA-8 Fearful

*Block 2: PACS Secure, PACS Avoidant, PACS Preoccupied

Table 12 continued: Scales that made unique contributions in the final model

Scale	β	*t*	*p*
ECRS-Avoidance	-0.04	-0.80	0.42
ECR-S Anxiety	-0.004	-0.07	0.95
IIA-8 Fearful	0.12	1.87	0.06
PACS Secure	0.47	7.73	<.001
PACS Avoidant	-0.19	-2.50	0.01
PACS Preoccupied	0.49	8.55	<.001

Note. All beta coefficients taken from the final model; ECRS-Avoidance = Experience in Close Relationships-Short attachment avoidance scale; ECRS-Anxiety = Experience in Close Relationships-Short Form attachment anxiety scale; IIA-8 Fearful = Inventory of Interpersonal Problems – 8; PACS Secure = Player-Coach attachment security scale; PACS Avoidant = Player-Coach attachment avoidance scale; PACS Preoccupied = Player-Coach attachment anxiety

Appendix L

Table 13: Regression for satisfaction with athletic career

Dependent: Satisfaction with athletic career

Model	*R*	R^2	*F*	*p*	ΔR^2	ΔF	*p*
1	0.10	0.01	1.34	0.26			
2	0.40	0.16	12.17	<.001	0.15	22.78	<.001

*Block 1: ECR-S Avoidance, ECR-S Anxiety, IIA-8 Fearful

*Block 2: PACS Secure, PACS Avoidant, PACS Preoccupied

Table 13 continued: Scales that made unique contributions in the final model

Scale	β	*t*	*p*
ECRS-Avoidance	-0.11	-1.71	0.09
ECR-S Anxiety	0.003	0.05	0.96
IIA-8 Fearful	-0.05	-0.68	0.50
PACS Secure	0.35	4.81	<.001
PACS Avoidant	0.16	1.70	0.09
PACS Preoccupied	0.33	4.84	<.001

Note. All beta coefficients taken from the final model; ECRS-Avoidance = Experience in Close Relationships-Short attachment avoidance scale; ECRS-Anxiety = Experience in Close Relationships-Short Form attachment anxiety scale; IIA-8 Fearful = Inventory of Interpersonal Problems – 8; PACS Secure = Player-Coach attachment security scale; PACS Avoidant = Player-Coach attachment avoidance scale; PACS Preoccupied = Player-Coach attachment anxiety

Appendix M

Table 14: Regression for quitting the team because of the coach

Dependent: Quitting the team because of the coach

Model	*R*	R^2	*F*	*p*	ΔR^2	ΔF	*p*
1	0.35	0.12	5.13	0.002			
2	0.65	0.42	13.56	<.001	0.30	19.49	<.001

*Block 1: ECR-S Avoidance, ECR-S Anxiety, IIA-8 Fearful

*Block 2: PACS Secure, PACS Avoidant, PACS Preoccupied

Table 14 continued: Scales that made unique contributions in the final model

Scale	β	*t*	*p*
ECRS-Avoidance	0.13	1.21	0.23
ECR-S Anxiety	0.10	0.88	0.38
IIA-8 Fearful	-0.19	-1.60	0.11
PACS Secure	0.12	1.16	0.25
PACS Avoidant	-0.64	-4.79	<.001
PACS Preoccupied	0.11	0.86	0.39

Note. All beta coefficients taken from the final model; ECRS-Avoidance = Experience in Close Relationships-Short attachment avoidance scale; ECRS-Anxiety = Experience in Close Relationships-Short Form attachment anxiety scale; IIA-8 Fearful = Inventory of Interpersonal Problems – 8; PACS Secure = Player-Coach attachment security scale; PACS Avoidant = Player-Coach attachment avoidance scale; PACS Preoccupied = Player-Coach attachment anxiety