# The Relationship Between Athlete Attachment Style with Coaches and Disordered Eating and Body Image in Division III Collegiate Athletes




Megan E. Aaron

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# The Relationship Between Athlete Attachment Style with Coaches and Disordered Eating and Body Image in Division III Collegiate Athletes

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Presented by: Megan E. Aaron

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Pledge: *Megan E. Aaron*

Approved:

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Lauren Paulson

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Sarah Stanger

**Abstract**

This study examined the relationship between the attachment style of the coach-athlete relationship on disordered eating and body image in NCAA Division III collegiate athletes at Allegheny College. The current study aimed to determine an association between the coach-athlete relationship attachment style and disordered eating behaviors and body image dissatisfaction. The researcher hypothesized that those with secure attachment to their coaches will have less disordered eating habits and lower body image dissatisfaction than those with insecure attachment. Participants were student-athletes enrolled at Allegheny College participating in an NCAA sport. The sample size consisted of 16 male and 53 female Division III Allegheny College student athletes. Descriptive Statistics comparing the means and standard deviations of the measures across gender were calculated. Independent sample t-tests were run to compare the mean difference between secure and insecure attachment groups across the disordered eating and body image scores. Bivariate Pearson correlations were run to observe the relationship between the variables at hand. A statistically significant difference between disordered eating behaviors and body image dissatisfaction and secure attachment and disordered eating behaviors and body image dissatisfaction and insecure attachment was found. Athletes with insecure attachment reported more disordered eating and body image dissatisfaction than those with secure attachment. The current findings are important in establishing prevention and treatment measures for Division III collegiate athletes. Limitations of the present study were the small sample size being drawn from and the lack of research surrounding disordered eating behaviors and body image dissatisfaction in males.

*Keywords:* attachment style, coach-athlete relationship, collegiate athletes, disordered eating behaviors, body image, Division III

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**The Relationship Between Athlete Attachment Style with Coaches and Disordered Eating and Body Image in Division III Collegiate Athletes**

Throughout history, society has struggled with significant body image dissatisfaction and disordered eating behavior issues. Body image can be described as the thoughts and feelings one has surrounding their body appearance (Grogan, 2008). When there is body image dissatisfaction, there is a disconnect between how the body looks and how one perceives themselves (Grogan, 2008). Eating disorders are persistent disturbances of food intake that significantly affect physical and psychological well-being, while disordered eating behaviors are unhealthy habits harmful to well-being that do not meet the criteria for eating disorders (American Psychiatric Association, 2013; Tarlow, 2017). Disordered eating, eating disorders, and body image dissatisfaction affect one another interchangeably and can negatively impact physical and mental well-being if not treated properly. These issues will always be prevalent as new focuses on appearance are always evolving and changing largely due to what we see in the media. It is estimated that eating disorders, often beginning in adolescence, impact over 28 million people in the U.S., with the prevalence of disordered eating behaviors being even greater (Murray et al., 2022). Disordered eating can have long-lasting adverse health effects on the individual if not given adequate treatment quickly and effectively, so it is an important health issue to discuss. Previous research has suggested that some athletes are at exceptionally high risk for disordered eating habits due to the desire to achieve a sport-specific body type (Mancine et al., 2020). While it is known that athletes are more at risk for developing disordered eating behaviors and body image dissatisfaction due to body image focus within sports, it is essential to identify variables that affect these issues to allow for proper preventative measures and treatment to be implemented. One variable to consider is the coach-athlete relationship, which previous

studies have found to impact disordered eating in athletes (Allen, 2022; Coker-Cranney & Reel, 2015; Shanmugam et al., 2014; Smith, 2018). The current study used the attachment style theory by John Bowlby (1982) as a framework to explain why the relationship between the attachment style of athletes with coaches is associated with essential aspects of well-being, such as disordered eating and body image. Further research is needed in examining the association between the attachment style of the coach-athlete relationship and disordered eating behaviors and body image dissatisfaction in male and female Division III collegiate athletes, with attachment style as the theoretical framework.

**Attachment Style Theory**

Attachment style theory, created by John Bowlby (1982), examines the connection and communication between primary caregivers and children. The three broad patterns of attachment style derived from attachment style theory are secure, anxious, and avoidant (Bowlby, 1982; Drake, 2009; Felton & Jowett, 2013; Felton & Jowett, 2015). Secure attachment is shown in individuals who initially become distressed when separated from a caregiver but compose themselves knowing the caregiver will soon return (Drake, 2009). Anxious attachment is found in individuals who have a strong desire for proximity and intimacy with a caregiver and often become distressed when separated from their caregiver (Felton & Jowett, 2013). Avoidant attachment is present in individuals who show little distress when separated from their caregiver and remain distant in social situations (Felton & Jowett, 2013; Felton & Jowett, 2015). Anxious and avoidant attachment styles can be categorized as insecure attachment style, which is developed in infants who had caregivers who were either unavailable during their times of need or were preoccupied (Harmon et al., 2019). Normativity defines the secure attachment style as

the universal norm, with most people having a secure attachment to their caregivers (Ainsworth et al., 2015).

While attachment style begins during infancy through the infant's primary caregivers, it can continue with a person throughout their adult life (Bowlby, 1982). Attachment style has the potential to appear in other environments such as friendships or romantic relationships. Bowlby (1982) put forth the hypothesis that variations in the quality of attachments to caregivers were the foundations for personality differences later in life, which Sroufe (2005) sought to explore in a longitudinal study on attachment style and development from birth to adulthood. Attachment during infancy can look like infant dependency on the caregiver, with the infant-caregiver relationship as the core (Sroufe, 2005). Attachment during later development will undergo many transformations through focus on other areas such as emotional expressions or peer relationships (Sroufe, 2005). Sroufe (2005) found within their longitudinal study that school-aged children with anxious histories were dramatically more reliant on their teachers, with little overlap between anxious and secure attachment. Based on teacher ratings, children with secure attachment histories were consistently rated as more self-confident, with higher self-esteem, and more ego resilient than those with avoidant attachment histories (Sroufe, 2005). Sroufe (2005) also found that secure attachment is significantly linked to general measures of social competence from early childhood to adulthood, and attachment style is linked to the emotional tone of adult relationships.

Collins and colleagues (2002) investigated an association between attachment style in adolescence and romantic relationships in adulthood to further investigate the idea that early attachment styles impact adulthood. Participants were males and females aged 13 to 19, and the study consisted of a longitudinal design with a follow-up report six years later (Collins et al.,

2002). The researchers found that insecure attachment in adolescence was associated with adverse relationship outcomes during adulthood, with avoidant attachment styles reporting less satisfying relationships and engaging in fewer pro-relationship behaviors (Collins et al., 2002).

Attachment style to essential life figures can impact psychological well-being throughout the lifespan, with previous research conducted to support this claim (Armsden & Greenberg, 1987; Raja et al., 1992). Armsden and Greenberg (1987) investigated the relationship between parent and peer attachment and psychological well-being in adolescents. Their findings indicated that adolescents with high secure attachment reported greater levels of satisfaction within themselves, greater likelihood of seeking social support, and less symptomatic responses to stressful situations (Armsden & Greenberg, 1987). Raja and colleagues (1992) found similar results when they investigated how perceived adolescent attachment to their parents and peers impacted psychological well-being. The researchers found that overall lower perceived attachment to parents was significantly associated with lower scores on the measures of well-being, and adolescents with higher perceived attachment had the highest scores of self-perceived strengths (Raja et al., 1992).

As seen through research, relationships with key significant figures in adulthood can be impacted through attachment styles, such as relationships with parents or peers, and have an influence on individual well-being (Armsden & Greenberg, 1987; Raja et al., 1992). Being an athlete provides an additional essential relationship between the athletes and their coaches because athletes look to their coaches for guidance and knowledge. Research on attachment theory has proven that the coach relationship is a significant possible attachment figure in providing athletes satisfaction with their basic needs being met (Drake, 2009; Felton & Jowett, 2013; Felton & Jowett, 2015).

Davis and Jowett (2014) looked at the attachment styles between coaches and athletes, the overall quality of these relationships, and how the quality impacts the well-being of athletes aged 16 to 32. Results from this study showed that certain attachment styles were connected to the quality of the coach-athlete relationship and that focusing on certain aspects of this relationship, such as interpersonal conflict and social support, could result in more overall positive emotions for athletes (Davis & Jowett, 2014). In turn, this could benefit athletes by allowing them to strengthen the relationship they have with their sport (Davis & Jowett, 2014).

**Coach-Athlete Relationship**

The coach-athlete relationship is important and significant in athletes' lives (Davis & Jowett, 2010; Jowett, 2008). To an athlete this relationship is one of the most powerful and influential relationships the athlete will develop within their sport because of the ability of coaches to help the athlete grow and evolve (Jowett, 2008).

A study run by Powers and their colleagues (2020) observed the influence of the relationship between coaches and their athletes on the athletes' mental health among Division I college athletes aged 18 to 23. The research showed the significance of the coach-athlete relationship in predicting depression and overall psychological well-being among athletes (Powers et al., 2020). This means that the psychological well-being of athletes was correlated with a more positive relationship with coaches, while a negative relationship was connected to athletes showing signs of depressive symptoms.

Further recent research by Simons and Bird (2022) examined the connection between the relationship of athletes and coaches across external support systems and the psychological well-being in Division I NCAA collegiate athletes. The researchers found that the overall relationship between coaches and athletes and the social support within the athletes were both

positively correlated to the athletes' well-being, once again emphasizing the importance of the coach-athlete relationship on the well-being and mental health of athletes (Simons & Bird, 2022).

Furthermore, multiple studies have been done supporting the finding that the coach-athlete relationship has an impact on athletes' disordered eating habits and body image perceptions specifically (Allen, 2022; Coker-Cranney & Reel, 2015; Shanmugam et al., 2014; Smith, 2018). Shanmugam and colleagues (2014) observed athletes' attachments to their parents and coaches in relation to their disordered eating behaviors in athletes aged 17 to 36. From the research, the study found disordered eating habits to be influenced by the relationship between athletes and coaches only, not their parents, and those who were found to have insecure attachment styles to their coaches showed higher levels of disordered eating behaviors (Shanmugam et al., 2014). This area of research on the coach-athlete relationship and its influence on disordered eating and body image in athletes, along with the existing literature looking at the significance of the overall coach-athlete relationship, supports the importance of observing this topic within a less researched population, Division III collegiate-athletes (Davis & Jowett, 2010; Jowett, 2008).

**Disordered Eating Behaviors and Athletes**

Disordered eating can be defined as eating or exercise habits that are harmful to overall well-being but do not meet the specific criteria for an eating disorder (American Psychiatric Association, 2013; Tarlow, 2017). Those with disordered eating behaviors risk developing an eating disorder, which negatively affects mental and physical health (American Psychiatric Association, 2013). Signs and symptoms of eating disorders include restriction leading to significantly low body weight, binge eating followed by compulsive purging, and consuming a

larger amount of food than normal in a small amount of time with no sense of control (American Psychiatric Association, 2013). Signs and symptoms of disordered eating are characteristic of eating disorders and cause the individual clinically significant distress or impairment, but do not meet the full criteria for an eating disorder (American Psychiatric Association, 2013). Examples of disordered eating behaviors are being overly concerned with the fat content or calorie amount in foods, skipping meals, refusing to eat or avoiding certain foods, or exercising to burn calories to make the body look a certain way (Tarlow, 2017). Eating disorders and disordered eating patterns can coexist with or develop due to other mental health issues such as substance use disorders, anxiety disorders, or depressive disorders (American Psychiatric Association, 2013). Both can lead to impactful issues for individuals such as low bone mineral density, social isolation, nutritional deficiencies, electrolyte imbalances, and increased medical morbidity and mortality (American Psychiatric Association, 2013). Disordered eating and eating disorders put those who have them at greater risk for suicide as well, highlighting the importance of researching populations more likely to develop these habits or disorders (American Psychiatric Association, 2013).

Research shows that eating disorders negatively impact the physical health and overall performance of athletes within their sport by causing symptoms such as low electrolytes and energy, dehydration, and unhealthy body mass (El Ghoch et al., 2013). There is strong evidence that some athletes, especially those competing in lean sports, such as aesthetic athletes and male weight-dependent athletes, are at higher risk for disordered eating due to the want to obtain a sport-specific body type (Mancine et al., 2020).

Greenleaf and colleagues (2009) observed the prevalence of eating disorders and disordered eating habits in female college athletes. The results showed that most of the symptom

levels of the female athletes were not enough to diagnose eating disorders, but were still found to be problematic (Greenleaf et al., 2009). A more recent study on collegiate female runners looked at the risk of disordered eating in female distance runners (Dambacher, 2022). Dambacher (2022) found many female athletes to be at risk for disordered eating, demonstrating that collegiate female runners are at higher risk for health and performance consequences related to disordered eating behaviors.

Sport-specific research has been done to determine the effect different sport types have on disordered eating. Kong and Harris (2015) conducted a study on female athletes in Australia aged 17 to 30 competing at elite, recreational, or noncompetitive levels. The study compared disordered eating symptoms within leanness-focused sports (e.g., gymnastics, long-distance running, lightweight boxing, and lightweight rowing) and non-leanness-focused sports (e.g., hockey, cricket, baseball) (Kong & Harris, 2015). The researchers found that athletes from leanness-focused sports reported more significant disordered eating symptoms regardless of participation level, highlighting issues of disordered eating habits within leanness-focused sports (Kong & Harris, 2015).

It is important to note that little is known about disordered eating in male collegiate athletes because more research needs to be done on this topic. A recent study done by Scott and colleagues (2022) looked at the degree to which teammate factors predicted athletes' eating and exercise attitudes and behaviors, and whether these predictive relationships differed as a function of gender and sport. Participants were club and school level athletes aged 15 to 18 and university level athletes aged 18 and older in the United Kingdom (Scott et al., 2022). When looking at how these predictive relationships differed by gender and sport type, the researchers found that males and those participating in non-lean or team-based sports (e.g., rugby) were at an increased risk of

modeling disordered eating behaviors (Scott et al., 2022). These findings may be explained by the finding that non-lean or team-based sport athletes and male athletes will follow the behaviors of their teammates to eliminate differences (Scott et al., 2022). This idea can be supported by the recent findings of Stoyel and their colleagues (2021) that male athletes compare themselves to their opponents and role models, going as far as imitating training and dietary behaviors, which are often amplified through social media (Stoyel et al., 2021). While it is known that the ideal dream body type is different between men and women, more research on disordered eating habits in men is needed to fully understand why disordered eating occurs in the male population, and whether or not different treatment types for males are needed to combat such gender differences.

**Body Image Dissatisfaction and Athletes**

Body image can be defined as the thoughts, perceptions, and feelings when viewing their own body (Grogan, 2008). Women more than men are found to be concerned with their body image and appearances, but both genders struggle with body image dissatisfaction (Grogan, 2008). Body dissatisfaction is the negative thoughts and feelings a person has surrounding their body (Grogan, 2008). When there is body dissatisfaction, there is a disconnect between perceived and ideal body image, which could lead to unhealthy behaviors in an attempt to alter physical appearance. Body image dissatisfaction is a known risk factor for disordered eating and eating disorders, and these issues can go hand in hand. Certain eating disorders such as anorexia nervosa or bulimia nervosa are characterized by an intense fear of gaining weight or a desire to lose weight due to body dissatisfaction (American Psychiatric Association, 2013). Multiple studies have found that individuals with high levels of body dissatisfaction are at higher risk for having subclinical disordered eating behaviors and even clinically diagnosable eating disorders (Mora-Giral et al., 2004; Shaw et al., 2004). Body image dissatisfaction can also be a predictor

for disordered eating and eating disorders because individuals with disordered eating or an eating disorder are fueled by a negative perception of their bodies (American Psychiatric Association, 2013). Research supports the idea that body dissatisfaction predicts the development of disordered eating behaviors as well (Wertheim et al., 2001). Eating disorders and disordered eating cause significant impairment and distress within individuals, and increase morbidity and mortality rates as a result (American Psychiatric Association, 2013).

It is known that body dissatisfaction is a global issue, with both men and women worrying about their physical appearance and weight. With social media being a huge part of society today, research links media images capturing the impossible to obtain thin ideals to body image concerns in women (Grabe et al., 2008). Research has also shown that men suffer from body dissatisfaction, not only women (Lavender et al., 2012).

Body dissatisfaction negatively impacts the physical and psychological well-being of the individual and can lead to the development of certain disorders or extreme behaviors to correct specific perceived body image issues. One study found that body image dissatisfaction shows higher levels of dieting, unhealthy weight control behaviors, binge eating, and lower levels of physical activity in males and females (Neumark-Sztainer et al., 2006). Body image dissatisfaction also risks leading to more severe issues such as body image-related disorders or body dysmorphia, which show high rates of comorbidity with OCD, anxiety, and depression disorders within individuals (Veale et al., 1996).

Research has proven body dissatisfaction to be a problem for male and female athletes, although more research has been done on body dissatisfaction in females (Goltz et al., 2013; de Oliveira et al., 2017; Swami et al., 2009). Different factors, such as sport type and gender, can play a role in body dissatisfaction in athletes. A study done by Goltz and their colleagues (2013)

looked to identify disordered eating behaviors and body dissatisfaction in relation to body fat in male athletes aged 18 years or older who were involved in sports at a higher risk for eating disorders such as weight-class sports or sports with aesthetic ideals. The researchers found that over one-quarter of the male athletes had disordered eating, which was associated with body image dissatisfaction (Goltz et al., 2013). Goltz and their colleagues (2013) also found male athletes with a higher body fat percentage to have higher levels of body dissatisfaction, indicating that those who feel they do not meet the body image ideal for their sport type may be more dissatisfied with their body image.

Similar research has been done for females; Swami and their colleagues (2009) observed body dissatisfaction and body size ideals in females aged 16 to 61 years who participated in a leanness-focused sport, a non-leanness-focused sport, and nonathletes. The females with the highest body dissatisfaction were the leanness-focused sports athletes, highlighting the idea that women who participate in sports that promote thin ideals have higher body dissatisfaction than women who are not in thin-body-focused sports and nonathletes (Swami et al., 2009). A more recent study done by de Oliveira and colleagues (2017) looked at body image in female athletes of different sports ages 12 to 22 and found similar results. The researchers found that females presented higher levels of body dissatisfaction in sports characterized by lightness and low body weight such as distance running, gymnastics, and figure skating (de Oliveira et al., 2017).

**Goals/Aims of Current Research**

The objective of the current study was to examine the relationship between the type of attachment style of the coach-athlete relationship and disordered eating and body image dissatisfaction in collegiate Division III athletes. Given current issues that athletes are experiencing with disordered eating, and the high prevalence rates of disordered eating behaviors

among the athlete population, it was important to further investigate a scientifically proven risk factor, the coach-athlete relationship. This investigation is necessary in order to develop prevention and intervention strategies such as educating athletes on the dangers of disordered eating or informing coaches of treatment resources. This research used an online survey with selected scales used by previous studies within this area of research.

While previous research has been done on the coach-athlete relationship and disordered eating and body satisfaction, the present study enhanced current research by observing the relationship between the coach-athlete relationship on disordered eating and body image dissatisfaction within male and female Division III athletics alone, and used the attachment style theory as the theoretical framework. It was relevant to evaluate Division III athletes because smaller athletic communities have less athletic funding, leading to less accessible treatment and resources for athletes who could still struggle with disordered eating and body image issues. A smaller team in comparison with Division I or II schools gives athletes more one-on-one time with their coaches, placing more emphasis on a variable that could negatively impact disordered eating and body image, the coach-athlete relationship. Also, NCAA athletics are currently on the rise with Division III seeing the largest growth out of all other Division levels (National Collegiate Athletic Association, 2022). In the last year, overall NCAA participation increased by nearly 30,000, with Division III athletics making up over half of this (National Collegiate Athletic Association, 2022). As more student-athletes join Division III athletics, it is important to research this increasing population.

Similar research has been conducted on how the coach-athlete relationship could affect disordered eating; however, only one study has used attachment style theory as a framework to support the research (Allen, 2022). This study was done by Allen (2022) who examined the

relationship between athlete attachment style with their coaches and disordered eating and body image anxiety in NCAA collegiate athletes. The researcher found that athletes who report secure attachment styles with their coaches report less disordered eating and body image anxiety than athletes who report insecure attachment styles with their coaches (Allen, 2022). This research and findings by Allen (2022) on the coach-athlete relationship and attachment style inspired and guided the work of the current study. The current study was a similar replication study based on the previously mentioned study with a few changes (Allen, 2022). First, the current study used a shortened version of the Body Shaping Questionnaire (BSQ) to measure body dissatisfaction (Evans & Dolan, 1993). Second, the population was solely Division III athletes to consider the coach-athlete relationship within a smaller athletic population that could not be motivated by athletic scholarships. The current study added to the literature by observing disordered eating and body image dissatisfaction in Division III collegiate athletes using attachment style theory as a theoretical framework. To the researcher's knowledge, no study like this one has been done before.

**Research Question and Hypotheses**

There were two research questions the current study explored. The first research question was: Is there a relationship between attachment style with coaches and disordered eating in Division III collegiate athletes? The second research question was: Is there a relationship between attachment style with coaches and body image dissatisfaction in Division III collegiate athletes? The researcher theorized two hypotheses for the two research questions.

**Hypothesis 1**: Athletes who reported secure attachment to their coaches would report less disordered eating habits than those with insecure attachment.

**Hypothesis 2:** Athletes who reported secure attachment to their coaches would report less body dissatisfaction than those with insecure attachment.

### Study Design

This research used a between-subjects study design to compare the difference between the means of the two independent variable groups. The independent variable groups were secure and insecure attachment, and the dependent variables being measured were disordered eating and body image. This design tested the two hypotheses by looking for a mean difference between the type of attachment style groups and disordered eating behaviors and body image satisfaction scores.

Independent sample t-tests were run to test the two hypotheses described above using secure and insecure attachment groups as the two independent sample groups. Secondary bivariate Pearson correlation analyses were run to observe the association between attachment style and disordered eating and attachment style and body image using three groups of attachment style instead of two, which were anxious, avoidant, and secure. To run all analyses, the computer software statistical analysis program JASP was used.

## Method

### Participants

A total of 69 collegiate level student-athletes completed the current study. To participate in the study, participants must have been an active member of an NCAA varsity sports team at Allegheny College and an enrolled student at Allegheny College at the time of survey completion. The study required participants to be over the age of 18 and did not include those who participate in a club or intramural sport alone. When calculating independent sample t-tests, the minimum number of participants necessary to yield proper power of at least 80% for a

medium to large effect size is 30 participants per cell (VanVoorhis et al., 2007). According to Cohen conventions, a small effect size is .20, a medium effect size is .50, and a large effect size is .80 (VanVoorhis et al., 2007). The current study found an estimated medium effect size with Cohen's $d$ = -0.45 for disordered eating and Cohen's $d$ = -0.51 for body image. Given the rule of thumb for mean difference tests and the effect size of the current study, the minimum number of participants for the current study to yield proper power would be 60 participants, 30 participants for each of the two cells of the current study (VanVoorhis et al., 2007). Some participants submitted incomplete data, but missing data was accounted for by the researcher, so no data was eliminated and the final sample size for the current study stayed as $n$ = 69. With this sample total, the study has enough participants to yield proper power and draw conclusions from the mean difference tests (VanVoorhis et al., 2007).

To recruit participants, the researcher reached out to all current student-athletes via email (see Appendix A). The study was accessed on Allegheny College's web-based system to manage and schedule Psychology Department research called Sona. There was no compensation for participation in the current study; however, at the discretion of psychology professors, students could earn up to 1 Sona credit by participating if needed for any psychology courses requiring Sona credits.

Out of the total sample size of $n$ = 69 participants, the ages ranged from 18 to 22 years old with a mean age of $M$ = 19.57 ($SD$ = 1.09). There were 23.2% of participants who self-identified as a man, and 76.8% of participants who self-identified as a woman in the current study. There are 13 different eligible sports across men and women at Allegheny College, and the present study received data from at least one athlete from all 13 sports. All demographic data reported for the full sample can be seen in Table 1.

**Table 1**

*Demographic Characteristics of all Participants*

| Characteristic | *n* | % |
|---|---|---|
| Gender | | |
| Man | 16 | 23.2 |
| Woman | 53 | 76.8 |
| Sport | | |
| Baseball | 2 | 2.9 |
| Basketball | 4 | 5.8 |
| Cross Country | 7 | 10.1 |
| Field Hockey | 7 | 10.1 |
| Football | 7 | 10.1 |
| Golf | 6 | 8.7 |
| Lacrosse | 6 | 8.7 |
| Soccer | 6 | 8.7 |
| Softball | 8 | 11.6 |
| Swimming & Diving | 1 | 1.4 |
| Tennis | 4 | 5.8 |
| Track & Field | 7 | 10.1 |
| Volleyball | 4 | 5.8 |
| Years with Coach | | |
| One | 20 | 29.0 |
| Two | 37 | 53.6 |
| Three | 5 | 7.2 |

**Table 1 Continued**

| Characteristic | *n* | % |
|---|---|---|
| Four | 7 | 10.1 |

*Note.* For the total sample, $n = 69$. For the age of participants, $M = 19.57$ ($SD = 1.09$).

## Materials

### *Coach-Athlete Attachment Scale (CAAS; Davis & Jowett, 2013)*

To measure the relationship between athletes and their coaches, the Coach-Athlete Attachment Scale (CAAS) was used (Davis & Jowett, 2013). This scale looks at the attachment style of athletes with their coaches through the athletes' point of view and consists of 19 items. Three possible attachment styles are concluded from this scale, and these attachment styles are secure, anxious, and avoidant attachment styles. Within the measure, there are seven questions related to anxious attachment, seven related to avoidant attachment, and five related to secure attachment. The athletes rated each item on a 7-point Likert scale which ranged from "1 Strongly Disagree" to "7 Strongly Agree" and examples of questions are "I do not turn to my coach for reassurance" and "I find it easy to interact with my coach" (see Appendix B) (Davis & Jowett, 2013).

This instrument was proved to have psychometric adequacy and was chosen to be used in the current study due to its previously determined sufficient reliability and validity. This scale best fit the type of measure the current research was looking for to determine the coach-athlete relationship for each athlete. The original assessment to test the psychometric properties by Davis and Jowett (2013) found the CAAS to have acceptable content, factorial, predictive

validity, and reliability. The same assessment by Davis and Jowett (2013) found the scale to have good internal consistency as well, with alpha coefficients ranging from .82 to .86. The same researchers completed a follow-up study and found satisfactory internal consistency reliability for each of the three levels of attachment style; anxious, avoidant, and secure (Davis & Jowett, 2014). Allen (2022) also found reasonable levels of internal consistency reliability within each of the three subscales, with alpha coefficients ranging from .88 to .92. The current study demonstrated good levels of internal consistency for each of the three subscales with $\alpha = .93$ for avoidant attachment, $\alpha = .90$ for anxious attachment, and $\alpha = .92$ for secure attachment. Anxious and avoidant subscales combined showed good internal consistency as well, with $\alpha = .93$ for insecure attachment.

***Eating Attitudes Test-26 (EAT-26; Garner et al., 1982)***

To measure disordered eating behaviors, the Eating Attitudes Test-26 (EAT-26), a commonly used measure for disordered eating, was used (Garner et al., 1982). The EAT-26 is a 26-item recognized shortened version of the original 40-item Eating Attitudes Test-40 (EAT-40)(Garner & Garfinkel, 1979). The Eat-26 consists of 3 subscales: Dieting, Bulimia and Food Preoccupation, and Oral Control. The current study used only the Dieting subscale because these questions best fit the objectives of the current study. The dieting subscale consists of 13 items, and each item was rated by participants on a Likert scale which ranged from “1 Never” to “6 Always” (Garner & Garfinkel, 1979). Examples of questions are “Am terrified about being overweight” and “Engage in dieting behavior” (see Appendix C) (Garner et al., 1982).

When considering the validity and reliability of the EAT-26, the original researchers found the test to be a valid, reliable, and economical tool for measuring eating disorder

symptoms (Garner et al., 1982). Since then, many other researchers have used the EAT-40 and EAT-26 when observing disordered eating characteristics. Doninger and their colleagues (2005) used the EAT-26 to measure female collegiate athletes and found good internal consistency reliability, ranging from .70 to .88, and good convergent validity. Specifically, the Dieting subscale was found to have acceptable internal consistency reliability in female college athletes with an alpha coefficient of .82 (Doninger, 2005). Gleaves and researchers (2014) also found acceptable internal consistency reliability for each of the three subscales of the EAT-26, with the Dieting subscale having an alpha coefficient of .80. Allen (2022) found the Dieting subscale of the EAT-26 to have good internal consistency with an alpha coefficient of .91 among male and female collegiate athletes. The current study demonstrated good internal consistency with $\alpha = .91$ for the EAT-26 Dieting subscale.

This measure was chosen for the current study because it matched what the researcher was looking for to measure disordered eating behaviors in college student-athletes and has been proven to be psychometrically sound. This scale is popular in researching eating disorders and disordered eating and has been universally accepted in observing disordered eating among college student-athletes (Doninger et al., 2005). With this being said, less research on eating disorders and disordered eating has been done on the male population compared to the female population, so less is known about measuring disordered eating in males. Previous research has been done using the EAT-26 to measure disordered eating in male athletes, but the research is limited (Allen, 2022; Goltz et al., 2013).

***Body Shape Questionnaire 8-item Scale 4 (BSQ; Evans & Dolan, 1993)***

To measure body dissatisfaction, a version of the Body Shape Questionnaire (BSQ), a widely used scale that measures concerns about body shape and body dissatisfaction, was used

(Cooper et al., 1987). The current study used the approved and recognized 8-item Scale 4 shortened version to motivate participation in athletes due to fewer items to respond to (Evans & Dolan, 1993). Most items in this scale are phrased with negative connotations to measure body dissatisfaction, and items were rated by participants on a Likert scale which ranged from "1 Never" to "6 Always" (Cooper et al., 1987). Examples of items are "Have you noticed the shape of others and felt that your own shape compared unfavorably" and "Have you pinched areas of your body to see how much fat there is" (see Appendix D) (Cooper et al., 1987; Evans & Dolan, 1993).

Research proves the original BSQ to be reliable and valid (Rosen et al., 1996), and also indicates that the shortened versions have similar convergent and discriminant validity (Evans & Dolan, 1993). The full version of the BSQ has also been found to have high internal consistency and test-retest reliability (Di Pietro & Da Silveira, 2009; Rosen et al., 1996). All shortened versions of the BSQ have reported high reliability and high correlations with the scores from the original 34-item version (Warren et al., 2008). Specifically, Evans and Dolan (1993) found the 8-item version used in this study to have high validity with an alpha coefficient of .89. The current study found good internal consistency with $\alpha = .95$ for the BSQ 8-item Scale 4 version.

The BSQ has been used extensively in research concerning eating-disordered and non-eating-disordered populations, making it a perfect fit to measure body dissatisfaction in the current study. The scale questions are not tailored to athletes specifically, but for the general population, which was a limitation of the current study. With this being said, another researcher has used this scale on the athlete population, so this study will not be the first to do so (Goltz et al., 2013).

As previously noted, body image has yet to be widely studied in the male population, so less is known about the use of the BSQ in males. It is known that ideal body images differ between males and females, so separate gender-specific scales would be necessary to measure body image specifics, such as losing body fat versus gaining muscle mass. The current study looked at overall gender-neutral body dissatisfaction between athletes of all genders. It could still be argued that separate scales are necessary, but more research is needed to prove this theory. It is also important to note that previous research has used the BSQ to measure body dissatisfaction in the male population (Goltz et al., 2013). Rosen and colleagues (1996) found the scale to have acceptable concurrent validity in obese men, but noted that more research is needed when observing all men.

### *Demographic Questionnaire*

The participants responded to a 4-item demographic questionnaire to gather demographic information about each participant. The questions within the questionnaire asked the participants' age, gender, primary sport of participation, and years worked with their current main sports coach (see Appendix E). The demographic data provided extra information about the participants to further explain the results of the current study and give more direction for future research.

## Procedure

Prior to beginning data collection and publicly posting the study, the researcher submitted a request to conduct human research to the Institutional Review Board of Allegheny College and obtained approval. Recruitment was done by the researcher sending a mass email to a list of all current eligible athletes at Allegheny College obtained by the assistant athletic director of the college and approved by the athletic director of the college. The email contained a link to Sona,

where participants could request an account and sign up to participate in the current study in the comfort of their personal space. Before the study was completed, participants were shown an informed consent form explaining that participation in the current study was voluntary and anonymous (see Appendix F). Consent to participate in the current study was specified when the participant clicked the "YES, Start Survey" button at the bottom of the page. A sample size of $n$ = 16 male student-athletes and $n$ = 53 female student-athletes was obtained for the current study.

Once the participant agreed to participate in the current study, each completed the four measures within the online survey in the order as follows: demographic questionnaire, CAAS, EAT-26 dieting subscale, and BSQ 8-item Scale 4 shortened form. All participants took the survey online on their devices in the privacy of their own space to encourage more participation due to the survey containing sensitive topics for some participants. Participants were presented an online debriefing form after completing the survey that included the purpose of the study, resource and treatment information (e.g., National Eating Disorders Association, National Alliance on Mental Illness), and the contact information of the student researcher and research supervisor (see Appendix G). Participants were provided the option of reaching out to the student researcher if they wished to receive a copy of the summarized findings of the current study once the study was completed.

Participants were placed into groups by the researcher according to their individual survey results. Each participant was assigned to one of the two groups of the independent variable (e.g., secure or insecure) based on their results from the CAAS (Davis & Jowett, 2013).

## Data Reduction

### *Attachment Style Groups*

The CAAS reports scores of secure, anxious, and avoidant attachment styles for each participant (Davis & Jowett, 2013). For each participant, items 1 through 7 were averaged together to find an anxious attachment score, items 8 through 14 were averaged together to find an avoidant attachment score, and items 15 through 19 were averaged together to find a secure attachment score ( Allen 2022; Davis & Jowett, 2013). No items got reverse-scored for this measure.

To run independent sample t-tests, anxious and avoidant attachment scores were averaged together to gain an insecure attachment score for each participant (Allen, 2022). Once the insecure attachment score was obtained, it was compared with the secure attachment score to determine which score was higher (Allen, 2022). According to the CAAS, higher secure attachment scores conclude a secure attachment, and higher anxious or avoidant scores conclude insecure attachment for participants (Allen 2022; Davis & Jowett, 2013). Participants were grouped in either the secure or insecure attachment group based on their highest score. The secure group was coded as 0 and the insecure group was coded as 1 to run independent sample t-tests.

To handle missing data for the CAAS, participants' attachment scores were still calculated regardless of whether or not they declined to answer any of the items. Due to scores being averaged, missing data points did not affect the attachment scores of participants who declined to answer items. It is important to note that less than 1% of data points were missing. No outliers were found when checking with a box and whisker plot. Cronbach’s alpha coefficient was calculated using a unidimensional reliability test to test the internal consistency of each of

the three subscales which are avoidant, anxious, and secure within the current study. A Cronbach's alpha coefficient was calculated for insecure attachment as well by combining the anxious and avoidant attachment items.

***Measurement of Disordered Eating***

To measure disordered eating, total scores for each participant were calculated from responses to the EAT-26 dieting subscale questionnaire (Garner, 2021). Before totals were calculated, each item was coded as follows: Always = 3; Usually = 2; Often = 1; Other Answers = 0. Item 13 was reverse coded as follows: Always = 1; Usually = 2; Often = 3; Other Answers = 0 (Garner, 2021). Once all scores were coded, a total score was calculated for each participant by summing together each coded item score for each participant (Garner, 2021).

To handle missing data for the EAT-26 dieting subscale, the researcher input the median coded answer for that particular item by finding the median of all other coded responses to that particular item (Garner, 2021). It is important to note that less than 1% of data points were missing. To handle outliers for the Eat-26 dieting subscale, the researcher considered participants with scores greater than two standard deviations away from the mean to be outliers. In this case, $M = 8.15$ and $SD = 8.90$, so scores greater than 25.95 were outliers. Independent sample t-tests and correlations were reported with and without outliers. Cronbach's alpha coefficient was calculated using a unidimensional reliability test to assess the internal consistency of the EAT-26 Dieting Subscale within the current study.

***Measurement of Body Image***

To measure body image, the researcher calculated total scores for each participant from the responses of the BSQ 8-item Scale 4 version (Cooper et al., 1987; Evans & Dolan, 1993). Total scores for each participant were found by summing together each item score for each

participant (Cooper et al., 1987; Evans & Dolan, 1993). No items got reverse-scored in this measure, no coding was necessary for the BSQ, and no outliers or missing data points needed to be handled. Cronbach's alpha coefficient was calculated using a unidimensional reliability test to evaluate the internal consistency of the BSQ 8-item Scale 4 within the current study.

### *Measurement of Demographic Questionnaire*

To report the demographic data, the gender and sport variables were coded for JASP due to being nominal variables. For gender, man was coded as 1 and woman was coded as 2. For sport, baseball was coded as 1, basketball was coded as 2, cross country was coded as 3, field hockey was coded as 4, football was coded as 5, golf was coded as 6, lacrosse was coded as 7, soccer was coded as 8, softball was coded as 9, swimming and diving was coded as 10, tennis was coded as 11, track and field was coded as 12, and volleyball was coded as 13. The variables age and years worked with their current coach did not need to be coded.

## Results

### Descriptive Statistics

Descriptive statistics were used to gather information regarding all variables in the present study, and can be seen in Table 2. Means and standard deviations were calculated to be compared among the variables. The avoidant, anxious, secure, and insecure attachment style means were consistent with the means collected from previous samples using the CAAS (Allen 2022; Davis & Jowett, 2013). The range of responses and possible range of responses were found to further explain the data, and Cronbach's alpha was computed to observe internal consistency within the measures.

**Table 2**

*Descriptive Statistics of the Study Measures for all Participants*

| Variable | Sample Mean | SD | Range | Possible Range | Cronbach's α |
|---|---|---|---|---|---|
| Avoidant Attachment | 4.38 | 1.50 | 1.00-7.00 | 1-7 | .93 |
| Anxious Attachment | 3.13 | 1.56 | 1.00-5.86 | 1-7 | .90 |
| Secure Attachment | 4.67 | 1.55 | 1.00-7.00 | 1-7 | .92 |
| Insecure Attachment | 3.76 | 1.36 | 1.00-6.07 | 1-7 | .93 |
| Disordered Eating | 8.15 | 8.90 | 0.00-39.00 | 0-39 | .91 |
| Body Image | 23.15 | 10.73 | 8.00-48.00 | 8-48 | .95 |

*Note.* For the total sample, $n = 69$.

Further descriptive statistics were calculated to compare the means and standard deviations of the measures across males and females in the current study as shown in Table 3. In regards to attachment style, males had a higher secure attachment style mean in comparison to females, and females had higher anxious, avoidant, and insecure attachment style means in comparison to males. Females had a higher disordered eating mean score and a higher negative body image perception mean score when compared to males as well. Range scores for all measures across males and females are also displayed.

**Table 3**

*Descriptive Statistics of the Study Measures Across Gender*

| | Males | | | Females | | |
|---|---|---|---|---|---|---|
| Variable | Mean | SD | Range | Mean | SD | Range |
| Avoidant Attachment | 3.92 | 1.50 | 1.00-6.71 | 4.52 | 1.49 | 1.00-7.00 |
| Anxious Attachment | 2.61 | 1.62 | 1.00-5.71 | 3.29 | 1.53 | 1.00-5.86 |
| Secure Attachment | 5.21 | 1.72 | 1.00-7.00 | 4.51 | 1.48 | 1.60-7.00 |
| Insecure Attachment | 3.27 | 1.28 | 1.00-5.43 | 3.90 | 1.36 | 1.14-6.07 |
| Disordered Eating | 4.38 | 3.36 | 0.00-10.00 | 9.28 | 9.73 | 0.00-38.00 |
| Body Image | 12.88 | 5.69 | 8.00-31.00 | 26.25 | 9.94 | 8.00-48.00 |

*Note.* For males, $n = 16$; for females, $n = 53$. The possible range for all attachment styles was 1-7, the possible range for disordered eating was 0-39, and the possible range for body image was 8-48.

## Inferential Statistics

### *Independent Sample T-Test Analyses*

Before conducting the independent sample t-tests, the data was checked for the assumptions of an independent t-test which are independence of observation, significant outliers, normality, and homogeneity of variance (DataNovia, 2018). Following assumption checks, the data was assessed accordingly and t-tests were run.

To test the hypothesis, independent sample t-tests were run to compare the means of the disordered eating and body image variables across the two conditions of secure and insecure attachment style. A total of four t-tests were run and reported to include results with the full sample and with outliers removed for each of the two dependent variables.

As Table 4 displays, there were significant differences found between the secure attachment and insecure attachment conditions on disordered eating behaviors ($t$ (67) = -1.79, $p$ = .039, 95% CI [-∞; -0.27], Cohen's $d$ = -0.45) and body image perception ($t$ (67) = -2.04, $p$ = .022, 95% CI [-∞; -0.98], Cohen's $d$ = -0.51), meaning there were differences between groups on both measured dependent variables within the full sample. The t-test indicated that athletes with secure attachment ($n$ = 43, $M$ = 6.67, $SD$ = 8.46) had less disordered eating behaviors than those with insecure attachment ($n$ = 26, $M$ = 10.58, $SD$ = 9.23). The t-test indicated that athletes with secure attachment ($n$ = 43, $M$ = 21.14, $SD$ = 10.56) had less negative body image perception than those with insecure attachment ($n$ = 26, $M$ = 26.46, $SD$ = 10.36).

**Table 4**

*Secure and Insecure Attachment on Disordered Eating and Body Image: Full Sample*

| Variable | Secure | | Insecure | | *t*(67) | *p* | 95% CI | | Cohen's *d* |
|---|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | | | *LL* | *UL* | |
| Disordered Eating | 6.67 | 8.46 | 10.58 | 9.23 | -1.79 | .039 | -∞ | -0.27 | -0.45 |
| Body Image | 21.14 | 10.56 | 26.46 | 10.36 | -2.04 | .022 | -∞ | -0.98 | -0.51 |

*Note.* For the secure group, $n = 43$; for the insecure group, $n = 26$. *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit. Student test was reported even though the Shapiro-Wilk test indicated that the normality assumption was violated. The Mann-Whitney test was also run, and significance was still found.

Evidently, when removing the classified outliers, the significance found does not change, as shown in Table 5. Significant differences can be seen between both conditions on disordered eating ($t$ (34.56) = -2.08, $p$ = .022, 95% CI [-∞; -0.67], Cohen's $d$ = -0.57) and body image ($t$ (61) = -2.12, $p$ = .019, 95% CI [-∞; -1.06], Cohen's $d$ = -0.55). Secure ($n$ = 40, $M$ = 4.83, $SD$ = 4.99) had less disordered eating than insecure ($n$ = 23, $M$ = 8.35, $SD$ = 7.17). Secure ($n$ = 40, $M$ = 19.50, $SD$ = 8.88) had less negative body image than insecure ($n$ = 23, $M$ = 24.52, $SD$ = 9.38).

**Table 5**

*Secure and Insecure Attachment on Disordered Eating and Body Image: Outliers Removed*

| Variable | Secure | | Insecure | | *t*(67) | *p* | 95% CI | | Cohen's *d* |
|---|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | | | *LL* | *UL* | |
| Disordered Eating[a] | 4.83 | 4.99 | 8.35 | 7.17 | -2.08 | .022 | -∞ | -0.67 | -0.57 |
| Body Image | 19.50 | 8.88 | 24.52 | 9.38 | -2.12 | .019 | -∞ | -1.06 | -0.55 |

*Note.* For the secure group, $n = 40$; for the insecure group, $n = 23$. *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit. Student test was reported even though the Shapiro-Wilk test indicated that the normality assumption was violated. The Mann-Whitney test was also run, and significance was still found.

[a] Welch test was reported because Levene's test showed that the homogeneity of variances assumption was not met for this variable.

***Bivariate Correlation Analyses***

Before running the bivariate correlations, the data was checked for assumptions of a Pearson correlation which are as follows: sample is representative of the population, data is normally distributed, variables are continuous, values are independent of one another, and significant outliers are handled (Schober et al., 2018). After running assumption checks, the data was assessed accordingly and correlations were run.

As a follow-up analysis, Pearson correlations were run to compare the relationships between the variables of the current study. A total of two Pearson correlations were run and

reported to show the results with the full sample and the sample with outliers removed across five variables.

As indicated in Table 6, despite weak correlations, all correlations are trending as expected based on the independent sample t-test results and hypotheses. Avoidant and anxious attachment were positively correlated with disordered eating and body image scores. Secure attachment was negatively correlated with disordered eating and body image. The correlation between secure attachment and body image was significant ($r$ = -.26, $p$ < .05).

**Table 6**

*Correlations with Attachment Style on Disordered Eating and Body Image: Full Sample*

| Variable | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. Avoidant | -- | | | | |
| 2. Anxious | .59** | -- | | | |
| 3. Secure | -.69** | -.81** | -- | | |
| 4. Disordered Eating | .04 | .10 | -.14 | -- | |
| 5. Body Image | .14 | .23 | -.26* | .75** | -- |

*Note.* For the sample total, $n$ = 69. Pearson's correlation was still reported even though the Shapiro-Wilk test indicated that the normality assumption was violated.

*$p$ < .05; ** $p$ < .001

Similar results are demonstrated in Table 7 when the outliers are removed. Avoidant and anxious attachment were positively correlated with disordered eating and body image, and secure attachment was negatively correlated with disordered eating and body image. The correlation between secure attachment and body image was significant ($r$ = -.29, $p$ < .05).

**Table 7**

*Correlations with Attachment Style on Disordered Eating and Body Image: Outliers Removed*

| Variable | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. Avoidant | -- | | | | |
| 2. Anxious | .56** | -- | | | |
| 3. Secure | -.67** | -.78** | -- | | |
| 4. Disordered Eating | .06 | .19 | -.19 | -- | |
| 5. Body Image | .17 | .31 | -.29* | .61** | -- |

*Note.* For the sample total, $n$ = 63. Pearson's correlation was still reported even though the Shapiro-Wilk test indicated that the normality assumption was violated.

*$p$ < .05; ** $p$ < .001

## Discussion

The present study observed the relationship between the coach-athlete relationship and disordered eating and body image perception in Division III student-athletes. This research was important in building upon the previously discovered issue that athletes are at high risk for developing disordered eating habits (Dambacher 2022; Kong & Harris, 2015; Scott et al., 2022). In correspondence with disordered eating, research has also proven negative body image perception to be a problem for athletes, which the current study expanded upon as well (de Oliveira et al., 2017; Goltz et al., 2013). Disordered eating and body image perception are known to go together, with body image dissatisfaction found to be a predictor and risk factor for disordered eating and eating disorders through research (Mora-Giral et al., 2004; Shaw et al., 2004; Wertheim et al., 2001). This study added to the literature by specifically examining Division III athletes due to their unique coach-athlete relationship experience given their smaller communities, while little past research has examined Division III level athletes specifically. Attachment style theory created by John Bowlby (1982) was used as the theoretical framework, which only one previous study has explored (Allen, 2022). Research has proven attachment styles to carry with an individual throughout their life, and have an impact on later relationships such as the coach-athlete relationship (Sroufe, 2005). The present study examined the coach-athlete relationship through the perspective of the athlete by collecting self-report data via an online survey. The researcher hypothesized that athletes who reported secure attachment to their coaches would report less disordered eating habits and body dissatisfaction than those with insecure attachments. This was due to previous studies demonstrating the significance of the coach-athlete relationship on emotion and psychological well-being (Davis & Jowett, 2014; Powers et al., 2020; Simmons & Bird, 2022). Furthermore, previous research has found that the

coach-athlete relationship directly impacts disordered eating and body image specifically (Allen, 2022; Coker-Cranney & Reel, 2015; Shanmugam et al., 2014; Smith, 2018).

The hypotheses were supported by the findings of the current study. There was a significant difference of disordered eating behaviors and body image dissatisfaction between athletes with secure attachment to their coaches and athletes with insecure attachment to their coaches. While cause and effect relationships were not looked for and cannot be claimed, it is noteworthy that when dividing athletes by attachment style to their coaches, a significant difference between disordered eating and body image dissatisfaction was detected. Furthermore, despite little significance being found, all relationships between the variables were trending in the direction of secure athletes having less disordered eating and body image dissatisfaction than insecure athletes. Avoidant and anxious attachments had positive relationships with disordered eating and body image dissatisfaction, while secure attachment had a negative relationship with disordered eating and body image dissatisfaction. A significant relationship was found between secure attachment style and body image, meaning that secure attachment correlated strongly with low body dissatisfaction. These findings suggest that the coach-athlete relationship is worth further exploration when looking for factors that could contribute to detrimental issues athletes face such as disordered eating and negative body image perception, especially within Division III athletes. Previous research has looked at disordered eating and body image within athletes across different Division levels, but never Division III specifically to the knowledge of the researcher (Allen, 2022; Coker-Cranney & Reel, 2015). Division III athletics have experienced a massive growth of over 17,000 athletes within the past year, so it is essential to further research this community (National Collegiate Athletic Association, 2022). Due to their known smaller teams and communities within Division III athletics, Division III athletes could naturally have more

personal interactions with their coaches leading to greater significance placed on the coach-athlete relationship. The coach-athlete relationship has been proven to be a significant relationship within athletes' lives, which has the potential to influence factors such as disordered eating and body image perception (Davis & Jowett, 2010; Jowett, 2008). Disordered eating and negative body image lead to negative health outcomes for athletes over time such as extreme distress and impairment, so preventative measures and risk factors are important to identify (American Psychiatric Association, 2013). This research highlights a variable to further investigate in relation to disordered eating and negative body image within Division III athletes due to the differences found between the two attachment groups within the current study. Given the findings, the hypotheses were supported, so there were no discrepancies between the hypotheses and the results. The weak correlation findings may be due to the small sample size within the current study, as sample size can affect the ability to find significance.

**Implications for Clinical Psychologists/Sport Psychologists**

The findings of the current study highlight a possible factor that could lead to higher levels of disordered eating and body image dissatisfaction in Division III athletes, but further research is needed to determine cause and effect relationships. For now, the findings suggest an area for clinical psychologists and sports psychologists who are currently treating these athletes with eating disorders and body image dissatisfaction to examine. It is important for athletes to understand the significance of the coach-athlete relationship within their individual lives, and how significant relationships can have an impact on their mental and psychological well-being. It is especially important for Division III athletes because their smaller communities place greater emphasis on the coach-athlete relationship. Clinical psychologists can look to educate athletes on attachment style and the importance of creating healthy attachments to significant figures within

their personal lives such as their coaches. They can do this through educational training for the athletes and implementing attachment style discussions into the athletes' treatment sessions. Sports psychologists can discuss the impact of the coach-athlete relationship and its outcomes on performance within the athlete and develop strategies for the athlete to achieve maximum performance. Athletes may be struggling with current issues of disordered eating and body image, but never consider how relationships may be promoting these negative issues and the great impact these issues can have on their lives. The coach-athlete relationship could often be overlooked by athletes because the role of a coach can be viewed differently depending on the athlete.

While it is important for athletes to understand the significance of the coach-athlete relationship, it is important for coaches to understand this relationship and its potential impact on athletes as well. The findings of the current study are important in teaching coaches the magnitude of the coach-athlete relationship because clinical psychologists and sports psychologists can also work with coaches. It seems as though Division III coaches especially have the unique environment to create stronger bonds with their athletes given their smaller team atmospheres, indicating that the type of relationship they build could be crucial to their athletes' well-being. Clinical psychologists can work with coaches to ensure the needs within their personal lives are satisfied and filled with healthy relationships, so the coaches can transfer a positive environment into their coaching atmospheres. Educational interventions and positive coaching techniques could be implemented by sports psychologists to help coaches understand the impact of their actions on their athletes and how they can coach athletes in a way to allow them to be the healthiest versions of themselves. It is important for coaches to understand that while this study does not highlight insecure attachment to cause disordered eating and body

dissatisfaction, it does indicate that the coach-athlete relationship may influence disordered eating and body image. Clinical psychologists and sports psychologists can aid coaches in examining their own coaching styles and individual actions towards their athletes with the goal of creating secure relationships with all of their athletes. Furthermore, it is important for coaches to understand issues that the coach-athlete relationship could impact such as disordered eating and body image dissatisfaction, and educate themselves on treatment resources through the help of clinical psychologists.

Overall, the findings of the current study allow clinical psychologists and sports psychologists to dive deeper into the coach-athlete relationship at the Division III level in order to promote positive relationships between athletes and coaches. The coach-athlete relationship can be used to look for risk factors and preventative measures for disordered eating and negative body image perception. With the current study using the attachment style theory as a framework and finding significance, clinical psychologists and sports psychologists can use this information to guide their training, educational programs, and research to grasp the concepts behind the coach-athlete relationship as well. Finally, due to the study being conducted on Division III athletes, clinical psychologists and sports psychologists should consider whether or not extra emphasis should be placed on the coach-athlete relationship within smaller team atmospheres in comparison to larger team atmospheres.

When considering the findings of the current study, similar research has been conducted on the coach-athlete relationship and disordered eating and body image perception, and yielded similar results (Allen, 2022;  Coker-Cranney & Reel, 2015; Shanmugam et al., 2014; Smith, 2018). The study that inspired the current study by Allen (2022) observed athletes with secure attachment styles to report less disordered eating and body image anxiety than those with

insecure attachment styles in NCAA collegiate athletes at the I, II, and III Division levels. Coker-Cranney & Reel (2015) found the coach-athlete relationship to be a partial mediating variable across perceived coach pressures and disordered eating in female college athletes. The researchers concluded that strong relationships between athletes and their coaches may reduce disordered eating due to perceived coach pressure related to body image (Coker-Cranney & Reel, 2015). Similarly, Shanmugam and colleagues (2014) found the relationship between athletes and their coaches to influence disordered eating habits within the athletes, and athletes with insecure attachment to their coaches had higher levels of disordered eating. Finally, Smith (2018) further proved that the coach-athlete relationship utilizes attachment style, and that the coach-athlete relationship is associated with body perception in performance and social situations within Division I female collegiate athletes.

While previous research supports the findings of the current study, alternate explanations are possible. One alternative explanation for the findings is that the variable of teammate influence is affecting the results. Teammates play influential roles within the lives of athletes. They have the potential to impact an individual athlete's perceptions of their coach, therefore impacting the coach-athlete relationship. Athletes tend to compare themselves to their teammates, so teammates could influence disordered eating habits or body image perception as well. Another alternative explanation for the findings of the present study is that the relationship between the athlete and their sport is affecting the results. The researcher did not assess the athletes' feelings towards the sport they are involved in. If an athlete does not have passion for their sport, this could affect the relationship they have with their coach or their mental health.

**Limitations**

The present study had several limitations that are important to mention. A small sample size was a limitation of the current study with the standards for adequate power barely being met for the body image variable, and being slightly below for the disordered eating variable. The small sample size could have contributed to the lack of significant relationships between the variables when correlations were run. The researcher reached the goal minimum number of participants for the current study, but did not have the time or resources to collect a larger sample size. Future researchers should draw from a larger sample size to increase chances of finding significance and leave less room for error.

Another limitation of the current study was the BSQ not being specifically tailored to athletes, and less research done on using the BSQ on athlete populations. The BSQ was created for the general population, so the questions do not ask athlete-specific questions. This could affect the results by not targeting athlete-specific issues with body image perception because there are differences between athletes and the general population regarding body image. Given this, a previous study has used the BSQ on athletes and found body image dissatisfaction (Goltz et al., 2013). The researcher chose to use this measure for the current study because of the available shortened forms being more appealing to participants. In the future, researchers could create an athlete-specific scale to assess body image, or test the BSQ on more athletes to eliminate this as a potential limitation.

In congruence with a limitation discussed by the study that the current study replicated, combining the anxious and avoidant attachment scores on the CAAS to receive an insecure attachment score was a limitation of the present study (Allen, 2022). The researcher chose to calculate an insecure attachment score in order to create two groups of the attachment variable to run independent sample t-tests due to the small sample size respectively. Combining the anxious

and avoidant attachment scores creates more room for error and could alter the results. While previous studies have calculated an insecure attachment score from the CAAS, future researchers could choose statistical analyses that utilize three groups of the independent variable instead of two (Allen, 2022; Davis & Jowett, 2010).

Furthermore, another limitation of this study is the lack of research surrounding body image issues and disordered eating in males. Due to this, few measures assessing these variables have been tested on the male population. The EAT was originally designed to assess for anorexia nervosa in female populations, and the EAT-26 was first tested on female populations as well (Garner & Garfinkel, 1979; Garner et al., 1982). The BSQ also was originally designed for female populations and first tested on them (Cooper et al., 1987). Minimal previous research has been conducted using the EAT-26 or BSQ on the male population, but it has been done (Allen, 2022; Goltz et al., 2013). Future researchers looking to examine these issues within the male population should test such scales on more male populations first.

Response bias could have been a limitation of the current study due to self-reported measures which future researchers could better assess for. The researcher chose the self-report method for gathering data due to the surveys asking about sensitive topics, and to collect data efficiently. All four measures used in the online survey were self-report measures, meaning participants recorded their own data. Participants could have provided inaccurate or false answers due to a number of factors such as not paying attention or aiming to please the researcher by supporting the presumed hypotheses. The researcher tried to give broad descriptions of the study within the recruitment email and informed consent form; however, no specific measures were taken to control for the possibility of response bias. Only one question on the EAT-26 dieting subscale measure was reverse scored, and no attention checks were added to

the current study. Future researchers could use attention checks to ensure participants are answering attentively to throw out data that does not pass the attention checks, and include more reverse scored questions within their measures. There is also room for self-report bias due to participants basing their responses around recent interactions with their coaches or their feelings during the time of survey completion, instead of an accurate overall assessment. Future researchers could collect observational data over time rather than using self-report measures.

Finally, the recruitment method for participants is a limitation of the current study due to the researcher's unexpected potential influence. Participants were recruited via email through the researcher reaching out to all eligible athletes to give every athlete an opportunity to complete the survey. However, given that the researcher is an athlete, more teammates of the researcher chose to participate to provide participants. To control for this limitation, future researchers should choose anonymous recruitment methods if their identity has the potential to affect the sample.

The present study could not address how sport type affected the results because there were not enough athletes from each sport to draw significant conclusions. To further investigate how coach-athlete attachment across disordered eating and body image variables differs by sport type, researchers should collect enough athletes to represent each sport respectively. Furthermore, the results of the present study may not be fully generalizable to all Division III athletes despite being conclusive enough to find significance. The researcher collected data from Allegheny College athletes specifically because these were the most accessible participants. Future researchers should look to collect random samples from multiple Division III colleges or universities to provide more generalizability across all Division III athletes.

**Future Directions and Conclusion**

After analyzing the current study, future research is necessary to further the findings of the current study. One important area for future researchers to consider is gender, and how the coach-athlete relationship differs by gender. Much less is known about male athletes in relation to disordered eating and body image perception in comparison to female athletes. Future researchers should explore how gender affects the coach-athlete relationship across disordered eating and body image. It is also important to consider the gender of the coaches in relation to the gender of the athletes, which the current study did not assess. The current study was unable to accurately assess differences between gender because significantly less males completed the study compared to females due to the sampling technique. Future researchers are encouraged to choose a sampling technique that yields more equal groups of males and females to properly assess for differences between gender.

Another area of future research to be explored is the attachment styles between athletes and coaches from the coach perspective at the Division III level. The current study shows a significant difference between secure and insecure attachment styles across disordered eating and body image from the athletes' perspective. As a follow-up, researchers could gain another understanding from the coaches' point of view by surveying the coaches. This could further aid clinical psychologists in promoting secure attachment styles between coaches and their athletes. Furthermore, researchers could investigate the level of knowledge coaches hold in relation to disordered eating and body image dissatisfaction education and treatment at the Division III level.

Finally, as the current study researched Division III athletes specifically, future research could examine the coach-athlete relationship on disordered eating and body image perception across Division levels. Now that the current study has found significance at the Division III

level, researchers could examine if there is greater significance within a certain Division level. This could tell clinical psychologists where to focus their efforts in implementing healthy attachment styles between coaches and athletes. Each Division level is different and brings something different to the athletic experience such as population size or scholarship incentive.

The present study found a significant difference between secure attachment and insecure attachment among coaches and athletes across disordered eating and body image dissatisfaction in Division III college athletes. The present study added to the literature by examining the coach-athlete relationship through the attachment theory created by John Bowlby (1982) as a framework, and looking at Division III athletes specifically. With Division III athletics on the rise, it is important to research this growing population of individuals (National Collegiate Athletic Association, 2022). The findings of the current study supported the hypotheses and highlight areas for more research to be conducted. These findings underline the significance of the coach-athlete relationship at the Division III level, and can be used to implement preventative measures and highlight risk factors for disordered eating and body image dissatisfaction. Clinical psychologists can promote healthy attachments between coaches and athletes through education and training. It is important for coaches to understand their impact on athletes' psychological well-being in order to create a healthy and positive environment within sport culture. Future researchers should continue to conduct research on the coach-athlete relationship across issues such as disordered eating and body image to explore unanswered questions and continue to discover ways to improve the overall health of athletes.

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# Appendices

**Appendix A:** Recruitment Email

Dear Student Athlete,

This is a request for you to participate in a research study assessing coaches and the health of athletes. This project is being conducted by Megan Aaron, the Department of Psychology with the supervision of Dr. Lauren Paulson, professor in the Department of Psychology, and has been approved by the IRB and the AD Bill Ross. Participation in this project is greatly appreciated, and it will take approximately 20 minutes to fill out an online survey.

Information provided in this project will remain anonymous, and all data will only be reported aggregately. You must be 18 years of age or older to participate. I will not ask for any information that should lead back to your identity, and participation is completely voluntary.

After creating an account on Sona, the study can be taken in the privacy of your own space. Below I have provided a link to Sona, and 1 Sona credit can be received upon participation at the discretion of your professors if applicable.

I hope that you will participate in this study as participation will be beneficial in understanding perceptions of athletic relationships and their impacts. Thank you for your time, and should you have any questions about this research project, please feel free to contact me by email at aaronm@allegheny.edu.

Sona link: https://alleghenypsych.sona-systems.com

Sincerely,
Megan Aaron

**Appendix B:** Coach-Athlete Attachment Scale (Davis & Jowett, 2013)

Please answer each of the following questions to the best of your ability based on your relationship with your current head coach within your main sport.

If you feel uncomfortable at any point in time and do not wish to provide an answer to a question, please check the "do not want to provide an answer for this question" box and press the "next" button at the bottom of the page.

Strongly Disagree 1--------2--------3--------4--------5--------6--------7 Strongly Agree

1. I do not usually discuss my problems or concerns with my coach.
2. I do not turn to my coach for reassurance.
3. I avoid discussing my personal issues with my coach.
4. I do not rely on my coach when I have a problem to solve.
5. I do not turn to my coach when I need to get something off my chest.
6. I do not ask my coach for advice and help.
7. I do not seek out my coach when things go wrong.
8. I often wonder if my coach cares about me as an athlete.
9. I often worry that my coach does not value me as much as I value him/her.
10. I worry a fair amount about my coach leaving me to coach elsewhere.
11. I am concerned that my coach will find another athlete that he/she prefers.
12. I often worry that my coach does not want to coach me anymore.
13. Sometimes I worry that my coach is not as committed to me as I am to them.

14. I worry that my coach does not respect me as much as I respect him/her.
15. I know that my coach is loyal to me.
16. I feel confident that our coach-athlete relationship will last.
17. I find it easy to interact with my coach.
18. I know my coach likes me.
19. I know I can rely on my coach.

Avoidant: items 1-7 Anxious: items 8-14 Secure: items 15-19

**Appendix C:** Eating Attitudes Test - 26 Dieting Subscale (Garner et al., 1982)

Please answer each of the following questions to the best of your ability based on your feelings toward your eating behaviors.

If you feel uncomfortable at any point in time and do not wish to provide an answer to a question, please check the "do not want to provide an answer for this question" box and press the "next" button at the bottom of the page.

Never 1---------Rarely 2---------Sometimes 3---------Often 4---------Usually 5---------6 Always

1. Am terrified about being overweight.
2. Aware of the calorie content of foods that I eat.
3. Particularly avoid food with high carbohydrate content (i.e., bread, rice, potatoes, etc.).
4. Feel extremely guilty after eating.
5. Am preoccupied with a desire to weigh less.
6. Think about burning calories when I exercise.
7. Am preoccupied with the thought of having fat on my body.
8. Avoid foods with sugar in them.
9. Eat diet foods.
10. Feel uncomfortable after eating sweets.
11. Engage in dieting behavior.
12. Like my stomach to be empty.
13. Enjoy trying new rich foods.

**Appendix D:** Body Shape Questionnaire 8-item Scale 4 (Cooper et al., 1987; Evans & Dolan, 1993)

Please answer each of the following questions to the best of your ability based on your feelings toward your body over the past four weeks.

If you feel uncomfortable at any point in time and do not wish to provide an answer to a question, please check the "do not want to provide an answer for this question" box and press the "next" button at the bottom of the page.

Never 1---------Rarely 2---------Sometimes 3---------Often 4---------Very Often 5---------6 Always

1. Have you been so worried about your shape that you have been feeling you ought to diet?
2. Have you noticed the shape of other women and felt that your own shape compared unfavorably?
3. Has being naked, such as when taking a bath, made you feel fat?
4. Have you not gone out to social occasions (e.g., parties) because you have felt bad about your shape?
5. Have you worried about other people seeing rolls of fat around your waist or stomach?
6. When in company, have you worried about taking up too much room (e.g., sitting on a sofa or a bus seat)?
7. Have you pinched areas of your body to see how much fat there is?
8. Have you avoided situations where people could see your body (e.g., communal changing rooms or swimming baths)?

**Appendix E:** Demographic Questionnaire

1. What is your current age?

2. Which gender do you most identify with?
    a. Man
    b. Woman
    c. Other
    d. Prefer Not to Say
3. What is the main sport that you participate in which you will answer the survey questions based on?
    a. Baseball
    b. Basketball
    c. Cross Country
    d. Field Hockey
    e. Football
    f. Golf
    g. Lacrosse
    h. Soccer
    i. Softball
    j. Swimming and Diving
    k. Tennis
    l. Track and Field
    m. Volleyball

4. How many years have you worked with your current primary sports coach?
    a. 1
    b. 2
    c. 3
    d. 4
    e. 5

**Appendix F:** Informed Consent

**Informed Consent**
Coaching and Health Behaviors
Department of Psychology

**Purpose of Research:** The purpose of this study is to positively impact the health of Division III collegiate athletes through the research and findings of the current study. The research area topic relates to coaching and the relationship between health behaviors among athletes.

**Method/Procedure:** I understand that I will be asked to participate in an online survey consisting of four surveys, which I can take in the privacy of my own home or an environment of my choosing.

**Length of Participation:** I understand that the questionnaire will take approximately 20 minutes.

**Risks to the Individual:** I understand that there may be emotional or physical discomfort as disordered eating and body image dissatisfaction may be sensitive topics for some participants. There will be no more risk other than what is experienced in everyday life. Treatment for these issues is available on campus in our counseling center, which can be reached via phone at (814) 332-4368 or email at cpdc@allegheny.edu. The 24/7 crisis line for those requiring immediate assistance is (814) 332-2105. The National Eating Disorders Association for off-campus assistance can be reached at (800) 931 2237.

**Benefits of the Research:** I understand that this research will provide more information on eating behaviors and body image perception within division III student-athletes to allow for necessary preventative measures and treatments to be put into place.

**Compensation:** There is no form of compensation for partaking in this research, yet you are eligible to receive 1 Sona credit for participating in this study which can be applied to a psychology course at the professor's discretion.

**Confidentiality, Recording Information, and Data Security**: I understand that all information provided will remain anonymous, and data will be reported as aggregate data only. Data will be stored and protected under a password-protected folder contained on a password-protected computer that only the primary researcher and primary researcher's advisor will have access to. The results of the current study may be used in reports, publications, or presentations. Data will be destroyed after use in the current study through the deletion of files.

**Voluntary Nature of Participation**: I understand that I do NOT have to participate in this research project. Furthermore, I may choose to withdraw my participation at any time without penalty. I understand that I may skip any individual questions that I do not wish to answer, and I may choose not to participate in any part of the study without being questioned.

**Results of Research Project:** I understand that I am entitled to a copy of the results once this study is completed. A summary will be available by email upon participant request by emailing aaronm@allegheny.edu.

**Contact Information**: If I have any questions about this research project, I can contact the Student Researcher, Megan Aaron, at aaronm@allegheny.edu or the research advisor, Dr. Lauren Paulson at lpaulson@allegheny.edu. If I have questions or concerns about the treatment of research participants in this IRB-approved project, I can contact the Chair of the Allegheny Institutional Review Board (IRB) at IRB@allegheny.edu.

I understand that clicking the "YES, Start Survey" button at the bottom of the screen indicates that I am at least 18 years of age at the time of my participation in this study and that I have received a copy of this informed consent form. I have carefully read and understood the information on this form and all of my questions thus far have been answered.

I agree to participate in the study.

**Appendix G:** Debriefing Form

## Debriefing Form

Thank you for your participation in this study! Your responses to the survey questions are greatly appreciated.

**Purpose of the Study:**
The purpose of this study was to look at the relationship between the attachment style of the coach-athlete relationship and disordered eating and body image in Division III NCAA student-athletes through four online surveys. The research was based on the attachment theory created by John Bowlby (1982) to further explain the relationship between the coach-athlete relationship across disordered eating and body image. The study was conducted to fill in gaps in the literature on disordered eating and body image dissatisfaction in Division III athletes with the attachment style theory as the theoretical framework in the hopes of identifying risk factors to ensure that proper resources and preventative measures can be put into place to benefit student-athletes.

**Research Hypothesis:**
It is hypothesized that those with secure attachment to their coaches will have less disordered eating habits and higher body image dissatisfaction than those with anxious or avoidant attachment to their coaches.

**Confidentiality:**
Your responses are anonymous, as only the student researcher and faculty supervisor will have access to the data. In order to maintain the quality of this study, please do not disclose research procedures to anyone who might participate in this study in the future as this could bias the results.

If you are experiencing eating concerns or body image anxiety, below are some national resources to gain more information and help regarding these issues:

**Counseling Center Information**
Phone: (814) 332-4368
Email: cpdc@allegheny.edu
24/7 Crisis Line: (814) 332-2105

**National Eating Disorders Association**
https://www.nationaleatingdisorders.org
(800) 931 2237

**National Alliance on Mental Illness**
https://www.nami.org/Home

**For Further Research on This Topic:**

Allen, T. (2022). Athlete attachment style with coaches as a predictor of athlete disordered eating and body image anxiety [Unpublished doctoral dissertation]. West Virginia University.

Coker-Cranney, A., & Reel, J. J. (2015). Coach pressure and disordered eating in female collegiate athletes: Is the coach-athlete relationship a mediating factor? *Journal of Clinical Sport Psychology, 9*(3), 213-231.

Shanmugam, V., Jowett, S., & Meyer, C. (2014). Interpersonal difficulties as a risk factor for athletes' eating psychopathology. *Scandinavian Journal of Medicine & Science in Sports, 24*(2), 469-476.

Smith, B. E. (2018). *An exploration of the collegiate coach-athlete relationship and its impact on female athlete attitudes and behaviors toward disordered eating and body image.* (Publication No. 10933093) [Doctoral dissertation, James Madison University]. Proquest Dissertations Publishing.

**Final Report:**
If you would like to receive a copy of a summary of the findings of this study when it is completed, please feel free to contact aaronm@allegheny.edu.

**Contact Information:**
Please reach out if you have any questions or concerns to be addressed.

**Student Researcher:** Megan Aaron
aaronm@allegheny.edu

**Research Supervisor:** Dr. Lauren Paulson
lpaulson@allegheny.edu

**Chair of IRB:** Dr. Becky Dawson
irb@allegheny.edu