

**COLLEGE ATHLETES' REFLECTIVE JUDGMENT: A MODERATOR
BETWEEN SPORT AND SOCIOCULTURAL PRESSURES, BODY IDEAL
INTERNALIZATION, AND BODY DISSATISFACTION**

A Dissertation

Presented to

The Faculty of the School of Education

The College of William & Mary in Virginia

In Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

by

Catie A. Greene

March 2015

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Acknowledgements

I would like to acknowledge the following individuals who have played a vital role in helping me get to, and make the most of my time at, The College of William & Mary:

- Dr. Foster, I am so grateful to have you as my advisor. I appreciate all of the respect and autonomy you gave me throughout my process in the doctoral program while always offering me encouragement, feedback, and insight. I don't think I ever left your office without a theoretical book in hand. I appreciate your wisdom and your unapologetic feminist leanings, which undoubtedly helped me to assert myself more confidently. Thank you.
- Dr.'s McAdams & Ward, thank you for your feedback, support, and suggestions you provided me throughout my dissertation process and throughout the doctoral program. I learned so much from you both.
- Dr.'s Gressard & Brendel, thank you both for always going out of your way on so many occasions to provide support, supervision, feedback, or just a friendly chat. I have been so fortunate you both took as much time as you did to be a part of my doctoral process. I am a better clinician, educator, and supervisor because of both of you.
- Sterling, Amy, Sharon, & Pam; what a cohort. Thanks for the collaboration and encouragement but most of all thank you for the friendship. I think we all know how lucky we are for the culture we've been able to create together.
- To Dr.'s Walker & Adekson from St. Bonaventure University, thank you both for calling this before I did. I appreciate the lifelong mentorship from both of you.
- To my parents and brothers; I probably can't thank you enough for the significant but different roles you've played in me getting to this place. From reminding me what's most important, to making me tougher by crushing me in sports in the driveway, to encouraging my every athletic and academic pursuit. There isn't a chance I'd have become this excited about learning without you. Though, I'm not sure any of you truly knew what degree I was getting while down in Virginia the past three years, that just goes to show that I have your support and pride no matter what it is I am doing and that is always what has meant the most.
- To my partner; thanks for always reminding me to not take myself too seriously. It has meant more than you know.

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ABSTRACT

The purpose of this research was to investigate the sociocultural model of eating disorder development among male and female college student-athletes as moderated by students' level of Reflective Judgment, a stage theory of adult epistemology marked by increasing cognitive complexity. A review of literature on the established relationships between pressures in sociocultural and sport environments to adhere to body ideals and resulting body dissatisfaction as mediated by body ideal internalization was presented. The Reflective Judgment model was hypothesized as a moderator to body ideal internalization due to its relationship with feminist identity development (a moderator among females) and applicability to both genders to inform current interventions. A sample of 131 NCAA college student-athletes (33 male; 98 female) completed the Perceived Sociocultural Pressures Scale (PSPS), the Weight Pressures in Sport Scale (WPS), the Body Parts Satisfaction Scale (BPSS), the Sociocultural Attitudes Towards Appearance Scale-3 (SATAQ-3) and the Reasoning about Current Issues test (RCI). Multi-sample Structural Equation Modeling (SEM) was utilized to examine the hypothesized relationships between the variables and revealed significant differences between genders. In general, males' higher Reflective Judgment was a full mediator between pressures and body dissatisfaction, resulting in lower body dissatisfaction. However, females' higher Reflective Judgment was a moderator between pressures and body ideal internalization, resulting in higher body dissatisfaction. These major findings as well as additional findings as elaborated by curvilinear regression analysis, current literature, and theories of socialized gender differences in epistemology were presented. Limitations, areas for further research, and implications for practice were identified.

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CHAPTER ONE

This chapter first describes the sociocultural model of eating disorder development as composed of sociocultural and sport pressures to adhere to body ideals, body ideal internalization, and body dissatisfaction leading to eating pathology amongst college athletes. One of the major current approaches to preventing and reducing the problem of body ideal internalization amongst college athletes that is based on this sociocultural model is reviewed. Based on both the successful outcomes and limitations of this approach, the Reflective Judgment model is suggested as a proposed moderator that influences the relationship between sociocultural/sport pressures and body ideal internalization within the sociocultural model of eating disorder development.

Statement of the Problem

Clinical eating disorders, including anorexia nervosa, bulimia nervosa, binge-eating disorder, and other unspecified eating disorders, are marked by intense body dissatisfaction and compensatory behaviors of restriction and bingeing and/or purging and have close to the highest mortality rate of all disorders in the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association [APA], 2006; APA, 2013). Although eating disorders are estimated to affect approximately 1-2% of the U.S. population as a whole, with a median age of onset of 18-21 years old, the prevalence of eating disorders amongst college students is estimated to be at least triple that of the general population (Hoerr, Bokram, Lugo, Bivins, & Keast, 2002; Hudson, Hiripi, Pope, & Kessler, 2012; White, Reynolds-Malear, & Cordero, 2011). Though the problem of eating disorders among college students has been investigated for decades, the prevalence remains high, and may be increasing. In an investigation of one university

over a 13-year period, White and colleagues (2011) found that total eating disorders increased from 23 to 32% among females and from 7.9 to 25% among males between 1995 and 2008. Body dissatisfaction is a principal, direct risk factor for eating disorder development that has been widely investigated as being influenced by sociocultural pressures to adhere to body ideals and the subsequent internalization of these pressures (Choate, 2005; Stice, 2002). Referred to as 'normative discontent,' body dissatisfaction may be the norm amongst college students overall (Snapp, Choate, & Ryu, 2012).

College student athletes have been suggested to make up a particular subculture of college students who are uniquely impacted by the problems of body dissatisfaction and eating disorders. However, in the National Eating Disorder Association's Collegiate Survey Project national survey of programs and resources, college athletes were identified as an underserved population on campus in terms of existing eating disorder prevention and intervention programming (Levine, Carlton, Davie, & Steinwurtzel, 2013). Approximately 27% of participating female and 20% of male NCAA college athletes are estimated to suffer from at least clinical or diagnostically subclinical forms of eating disorders (Greenleaf, Petrie, Carter, & Reel, 2009; Petrie, Greenleaf, Reel, & Carter, 2008). The high prevalence of body dissatisfaction amongst college athletes has also been consistently reflected in the literature, with approximately 54.4% and 39.4% of female and male college athletes respectively reporting dissatisfaction with current weight (Greenleaf et al., 2009; Petrie et al., 2008). These prevalence rates may be largely due to the sociocultural pressures at play in the college and athletic environments as well as the unique developmental needs of college student athletes (Barth, 2003; Keel, Forney, Brown, & Heatherton, 2013), but this connection has not yet been investigated.

Sociocultural Model of Eating Disorder Development

Feminist counselors and theorists argue that body image is a social construction. That is, persistent messages within the sociocultural environment and mass media define beauty and attractiveness into extremely narrow forms that idealize certain body types—typically ultra-thin, slender, or lean and muscular types—over others (Piran & Cormier, 2005; Surrey, 1991). These socially constructed idealized images and resulting pressures and messages through media, peers, family, and subcultures to adhere to these ideals are typically stronger and more persistent for women than men and theoretically contribute to the development and maintenance of body dissatisfaction and eating pathology (Paquette & Raine, 2004; Piran & Cormier, 2005). The sociocultural model of eating disorder development posits that societal and social pressures to adhere to unrealistic ideals result in individuals' increased awareness of the discrepancy between the self and socially prescribed body ideals (Striegel-Moore & Bulik, 2007). Pressures to adhere to body ideals from peers, family, and the media contribute to an internalization of the importance of these body ideals, which leads to an over-evaluation of appearance and subsequent body dissatisfaction, which then places individuals at risk for dietary restraint and eating pathology to address the discrepancy between the actual self and these body ideals (Striegel-Moore & Bulik, 2007; Striegel-Moore, Silberstein, & Rodin, 1986).

Sociocultural Pressures in College and College Athletic Environment

The prevalence and persistence of these pressures within the college environment have been noted as particularly pervasive and contribute to a culture in which many students relate to their bodies with normative discontent (Snapp et al., 2012). Some contexts within the college environment, such as the subculture of college athletics, have

been suggested to present stronger, or at least unique, pressures to adhere to ideal body images than those of society in general. These unique pressures combine to contribute significantly to the body dissatisfaction and eating behaviors of the college student athletes within these contexts (Galli, Petrie, Reel, Chatteron, & Baghurst, 2014; Hensley, 2005; Miles, 2009; Reel, Petrie, SooHoo, & Anderson, 2013). Empirical research has so far supported the feminist conceptualization of eating disorder development as being initially impacted, at least partially, by these sociocultural pressures within the environment and subcultural context of college athletics (Busanich & McGannon, 2010).

Influence of gender expectations. Body image is intimately connected to gender role norms and expectations in society (Paquette & Raine, 2004; Snapp et al., 2012). Gender role norms and expectations play significant but different functions in societal definitions of ideal images and subsequent pressures and messages that female and male college students and student athletes receive to adhere to these ideals (Gillen & Lefkowitz, 2006; Griffiths, Murray, & Touyz, 2014). Gender role norms refer to the socially constructed attitudes and traits that define masculinity and femininity in society (Gillen & Lefkowitz, 2006). Gender role development is the process by which individuals develop gendered personality traits, attitudes, and beliefs about men and women in society (McHale, Updegraff, Helms-Erikson, & Crouter, 2001).

Societal influences of media, peer, and familial messages that females receive are typically reflective of pressures to adhere a thin body ideal, whereas males tend to receive messages to adhere to a body that is characterized by well-developed muscle mass and low body fat (Gillen & Lefkowitz, 2006; Griffiths et al., 2014). Research on individuals' experiences of body image dissatisfaction is consistent with these separate ideal images,

as females tend to largely report body discontent in the direction of a desire to lose weight and males are generally split in terms of body discontent in either the direction of a desire to lose or desire to gain weight (Cohn & Adler, 1992; McCabe & Ricciardelli, 2004). These gender roles and norms also have a significant impact on the college athlete experience in which gender differences, disparities, inequalities, and gender role conflicts have historical roots and current implications on college athletes' experiences of their bodies and their athletic performance (Deaner, 2009).

Societal expectations and definitions of hegemonic masculinity generally relate to power, force, competition, cognition, and control, whereas societal expectations of hegemonic femininity relate to nurturance, care, aestheticism, emotionality, and passivity (Hart & Kenny, 1997). There are social risks to nonconformity when it comes to gender role expectations in society and within college athletics (Kauer & Krane, 2006). For example, due to societal expectations of athleticism and competition as related to masculinity, the performance of talented female college athletes is often dismissed as being a result of being lesbian or masculine (Kauer & Krane, 2006). These stereotypes often result in female college athletes taking measures to reduce this bias and to meet social expectations of femininity. One of the major ways in which female athletes do so is through their bodies (Deaner, 2009; Kauer & Krane, 2006). For some young women, these conflicting pressures to adhere to both hegemonic feminine and masculine stereotypes through gender role expectations and sport participation can result in the endorsement of what is known as the 'superwoman ideal,' or the desire and attempt to respond to these pressures by perfectly meeting both societal gender role expectations (Mesinger, Bonifazi, & LaRosa, 2007). Endorsing the superwoman ideal has been

associated with increased eating disorder symptomatology amongst female adolescent and college samples (Hart & Kenny, 1997; Mesinger et al., 2007), as has high endorsement of either masculine or feminine gender role stereotypes for male college students (Griffiths et al., 2014).

Due to the consistent findings that females report higher levels of body dissatisfaction than males and the differences in these contextual factors and pressures that contribute to the experience of body image dissatisfaction and eating pathology between genders, much of the recent research on eating disorder development has taken precautions to study this phenomenon amongst female and male participants separately (Lowery et al., 2005). This is not only due to the acknowledgement that pressures that males and females face to conform to societal body ideals are different, it also reflects the growing body of literature that confirms that these societal pressures are in fact significant (Lowery et al., 2005; McCabe & Ricciardelli, 2004; Piran & Cormier, 2005).

Body Ideal Internalization as a Mediating Factor between Pressures and Dissatisfaction

Research on male and female athletes and non-athletes has confirmed that sociocultural pressures do significantly contribute to the development of body dissatisfaction, dietary restraint, and eating pathology. However, the sociocultural model of eating disorder development also posits that the impact of these sociocultural pressures for body ideals on males and females' body dissatisfaction and eating pathology is mediated largely by a factor that has been consistently found across these investigations, which is the internalization of sociocultural ideals. Internalization of sociocultural ideals is the extent to which an individual places importance on attaining these ideal images and

subsequently engages in behaviors to approximate these ideals (Stice & Agras, 1998; Thompson & Stice, 2001).

Decades of research into the mediating factor of body ideal internalization between societal pressures to adhere to body ideals and body dissatisfaction has resulted in the development of what is known today as cognitive dissonance-based programming (Stice, Rohde, & Shaw, 2013). The major aim of this programming is to persuade participants with higher than average body ideal internalization to voluntarily argue against the sociocultural messages that contribute to the societal body ideals through written, verbal, and behavioral exercises (Thompson & Stice, 2001). In theory, engaging in counterattitudinal activities through arguing against these often unquestioned and unexamined societal ideals results in cognitive dissonance between previously internalized beliefs about body ideals and this new perspective (Stice, Shaw, & Marti, 2007). Initially, this cognitive dissonance is experienced as psychological disequilibrium, and in order to restore equilibrium, Stice and colleagues posit that participants shift belief systems in order to align with this new, anti-sociocultural body ideal stance (Stice et al., 2013). Because it is the internalization of these ideals and subsequent belief systems that individuals hold as a result of sociocultural pressures to adhere to body ideals that contribute to body dissatisfaction and eating pathology, adopting more flexible belief systems has resulted in significant reductions in body dissatisfaction, dietary restraint, and eating pathology among participants (Becker, McDaniel, Bull, Powell, & McIntyre, 2012; Stice, Marti, Spoor, Presnell, 2008; Stormer & Thompson, 1998).

Justification for a Cognitive Development Model

College student development theory generally suggests that the more complex meaning making capacities a student has, or the more cognitively developed a student is, the more capable the student is of consulting with internal beliefs when faced with complex external pressures and the more options for coping with such pressures the student has access to (Abes, Jones, & McEwen, 2007; Baxter Magolda, 2009; King & Kitchener, 1994). Due to the emphasis on cognitive dissonance and psychological disequilibrium in reducing body ideal internalization and subsequent body dissatisfaction, dietary restraint, and eating pathology, an exploration into the potential moderating factor of college student cognitive developmental theory is befitting, as cognitive dissonance is the process by which developmental theorists posit that individuals gain increased cognitive mastery over environmental pressures (Sprinthall, 1994). Increasing cognitive mastery over the environmental pressures affords an individual the increasing ability to select, criticize, and reject unfounded messages, which may have implications for the processes by which college athletes internalize or reject pressures to adhere to body ideals.

Increased cognitive development occurs in contexts that are supportive and facilitative of such growth, such as educational environments (Baxter Magolda, 2009; Sprinthall, 1994). As internalizing sociocultural pressures to adhere to body ideals have been related to increased body dissatisfaction and eating pathology among female and male college athletes, and the ability to reject these messages have been related to decreased body dissatisfaction and eating pathology in female college athletes (Becker et al., 2012), investigation into a cognitive developmental model as a moderator to body

ideal internalization may inform the improvement of current prevention approaches with male and female college athletes. One such model is King and Kitchener's (1994) model of Reflective Judgment.

King and Kitchener's Reflective Judgment model. The Reflective Judgment model, based on twenty years of interviews with participants ranging from high school through doctoral level educational attainment, is one model of cognitive development that describes how people justify their beliefs when faced with complex or vexing problems (King & Kitchener, 1994). This stage model describes a developmental progression of assumptions about knowledge and the corresponding justifications individuals make for their beliefs about complex problems that do not have identifiable solutions (King & Kitchener, 1994).

King and Kitchener (1994)'s definition of reflective thinking is based on Dewey's (1938) early work on the construct. According to Dewey, individuals make Reflective Judgments in order to bring closure to situations that are uncertain and have no identifiable solution (King & Kitchener, 1994). The problem solver must evaluate potential solutions in light of existing information that may be incomplete and unverifiable, requiring the individual to continually evaluate beliefs, assumptions, and hypotheses against existing information and alternative interpretations. The Reflective Judgment model consists of seven qualitatively different stages that describe how individuals perceive and reason about ill-structured problems (King & Kitchener, 1994). Each successive stage represents a more complex view of knowledge and more effective meaning making processes. Within King and Kitchener's (1994) seven-stage model, there are three levels: Pre-reflective (Stages 1, 2, and 3), Quasi-reflective (Stages 4 and

5), and Reflective (Stages 6 and 7). These stages, their corresponding views of knowledge, and justification for beliefs are outlined in Table 1.

Table 1.

King and Kitchener's Reflective Judgment Model.

Stage	Level	View of Knowledge	Concept of Justification
1	Pre-Reflective Thinking	Assumed to exist absolutely and concretely; it is not understood as an abstraction. It can be obtained with certainty by direct observation.	Beliefs need no justification since there is assumed to be an absolute correspondence between what is believed to be true and what is true. Alternative beliefs are not perceived.
2		Assumed to be absolutely certain or certain but not immediately available. Knowledge can be obtained directly through the senses or via authority figures.	Beliefs are unexamined and unjustified or justified by their correspondence with the beliefs of an authority figure. Most issues are assumed to have a right answer, so there is little or no conflict in making decisions about disputed issues.
3		Assumed to be absolutely certain or temporarily uncertain. In areas of temporary uncertainty, only personal beliefs can be known until absolute knowledge is obtained. In areas of absolute certainty, knowledge is obtained from authorities.	In areas in which certain answers exist, by reference to authorities' views. In areas in which answers do not exist, personal opinion since the link between evidence and beliefs is unclear.
4	Quasi-Reflective Thinking	Uncertain and knowledge claims are idiosyncratic to the individual since situational variables dictate that knowing always involves an element of ambiguity.	By giving reasons and using evidence but the arguments and choice of evidence are idiosyncratic.
5		Contextual and subjective since it is filtered through a person's perceptions and criteria for judgment. Only interpretations of evidence, events, or issues may be known.	Within a particular context by means of the rules of inquiry for that context and by context-specific interpretations of evidence. Specific beliefs are assumed to be context specific or are balanced against other interpretations, which complicate conclusions.

6	Reflective Thinking	Constructed into individual conclusions about ill-structured problems on the basis of information from a variety of sources. Interpretations that are based on evaluations of evidence across contexts and on the evaluated opinions of reputable others can be known.	Comparing evidence and opinion from different perspectives on an issue or across different contexts and by constructing solutions that are evaluated by criteria such as the weight of the evidence, the utility of the solution, or the pragmatic need for action.
7		The outcome of a process of reasonable inquiry in which solutions to ill-structured problems are constructed. The adequacy of those solutions is evaluated in terms of what is most reasonable or probable according to the current evidence, and it is reevaluated when relevant new evidence, perspective, or tools of inquiry become available.	Probabilistically on the basis of a variety of interpretive considerations, such as the weight of the evidence, the explanatory value of the interpretations, the risk of erroneous conclusions, consequences of alternative judgments, and the interrelationships of these factors. Conclusions are defended as representing the most complete, plausible, or compelling understanding of an issue on the basis of available evidence.

Adapted from King & Kitchener's (1994) Exhibit 1.1

Often associated with critical thinking, the construct of reflective thinking differs from critical thinking in distinct ways (King & Kitchener, 1994). Critical thinking consists of a set of skills or general principles that one can apply in order to solve a problem. Rather than utilizing a particular set of skills, reflective thinking begins with some epistemic assumptions, or assumptions about knowledge. For example, whether the individual believes that knowledge is derived strictly from authority figures or that knowledge is reflectively constructed would be indicative of that individual's assumptions about knowledge (Kitchener & King, 1981). If one believes that knowledge is derived from authority figures, King and Kitchener (1994) argue that the problem at hand is no longer one without identifiable solutions. King and Kitchener (1994) argue that it is only in adulthood that individuals hold epistemic assumptions that allow for true

reflective thinking on ill-structured problems with no identifiable solutions (King & Kitchener, 1994).

Research has established a relationship between pressures to adhere to body ideals in the sociocultural environment and subculture of college athletics, internalization of these body ideals, and subsequent body dissatisfaction amongst male and female athletes (Halliwell & Harvey, 2006; Stice, 2002). In recent years, the factors of feminist beliefs and feminist identity development have been investigated as moderators in the relationship between sociocultural pressures and body ideal internalization amongst females (Myers & Crowther, 2007). Reflective Judgment, though related to feminist identity development, has not yet been investigated as a moderator to this relationship. Unlike the feminist identity development model, the Reflective Judgment model is not gender-specific (King, Kitchener, & Wood, 1994). The current study investigated the moderating factor of Reflective Judgment on the relationship between pressures to adhere to body ideals in the sociocultural environment and subculture of college athletics, internalization of these body ideals, and subsequent body dissatisfaction amongst male and female college athletes.

Purpose of the Study

The purpose of the current study was to investigate the relationship between Sociocultural and Sport Pressures to adhere to body ideals, Body Ideal Internalization, and Body Dissatisfaction as potentially moderated by student-athletes' Reflective Judgment. An investigation into this relationship was intended to highlight the developmental needs of both male and female college athletes and provide a lens through which college counselors and higher educators can adequately developmentally meet,

support, and challenge college athletes of different meaning making capacities to reflectively think about and critique these omnipresent pressures. Ultimately, the purpose of this study is to inform modifications to current prevention and intervention efforts to promote long-term resilience to body ideal internalization, body dissatisfaction, and resulting eating pathology amongst college student-athletes.

This cross-sectional design investigated current student athletes' perceived Sociocultural and Sport Pressures, Reflective Judgment, Body Ideal Internalization, and Body Dissatisfaction, through self-report assessments and tested a hypothesized relationship between these variables as informed by the sociocultural model of eating disorder development (Stice & Agras, 1998) and the Reflective Judgment model of college student cognitive development (King & Kitchener, 1994) using Structural Equation Modeling (SEM) statistical analyses. Specifically, the purpose of this study was to answer the following research questions:

1. Does Reflective Judgment moderate the relationship between student athletes' perceived Sociocultural and Sport Pressures and Body Ideal Internalization?
2. Is this moderating relationship the same for male and female athletes?
3. Does this moderating relationship influence subsequent Body Dissatisfaction?

Definition of Terms

Perceived Sociocultural Pressures: These are general pressures that individuals experience to adhere to sociocultural ideal body types (Stice & Agras, 1998). These pressures are different for females and males. For females, these include pressures to lose weight, to be more attractive, and to have a perfect body. For males, include

pressures to have a lean body, to look more muscular, and to be more attractive (Anderson, Petrie, & Neumann, 2011).

Sport-Weight Pressure: These are pressures to adhere to body ideals unique to individuals in athletic environments. These pressures are different for females and males. For females, these include pressures from coaches and sport about weight, and pressures regarding appearance and performance. For males, these include the aforementioned pressures in addition to uniform fit.

Reflective Judgment: This is a model of cognitive development by King and Kitchener (1994) that refers to the ways in which adults make meaning of knowledge and reason about ill-structured problems across seven stages of increasing complexity.

Body Ideal Internalization: The extent to which an individual places importance on attaining the ideal body images pressured by the sociocultural and sport environments. Has been found to be a major mediator between these pressures and body dissatisfaction (Thompson & Stice, 2001).

Body Dissatisfaction: The degree to which an individual perceives her or his body image as unsatisfactory. Has been found to be a causal risk factor for eating pathology (Stice, 2002).

General Research Hypotheses

Specific research hypotheses are depicted in path analyses in Figures 1 in Chapter 3.

General research hypotheses include:

Hypothesis 1 (PSPS → SATAQ) – There will be a significant, direct positive effect of higher reported Sociocultural Pressures (PSPS) on Body Ideal Internalization (SATAQ) among female and male college student-athletes.

Hypothesis 2 (WPS → SATAQ)– There will be a significant, direct positive effect of higher reported Sport Pressures (WPS) on Body Ideal Internalization (SATAQ) among female and male college student-athletes.

Hypothesis 3 (WPS → RCI → SATAQ)– There will be a significant, indirect positive effect of higher reported Sport Pressures (WPS) on Body Ideal Internalization (SATAQ) among female and male college student-athletes.

Hypothesis 4 (PSPS → RCI → SATAQ) – There will be a significant, indirect positive effect of higher reported Sociocultural Pressures (PSPS) on Body Ideal Internalization (SATAQ) among female and male athletes.

Hypothesis 5 (PSPS → RCI → SATAQ) – Reflective Judgment (RCI) will significantly moderate the indirect relationship between reported Sociocultural Pressures (PSPS) and Body Ideal Internalization (SATAQ) among female and male student-athletes, with higher Reflective Judgment (RCI) significantly predicting lower Body Ideal Internalization (SATAQ).

Hypothesis 6 – (WPS → RCI → SATAQ) - Reflective Judgment will significantly moderate the indirect relationship between reported Sport Pressures (WPS) and Body Ideal Internalization (SATAQ) among female and male student-athletes, with higher Reflective Judgment significantly predicting lower Body Ideal Internalization (SATAQ).

Hypothesis 7 (SATAQ → BPSS) - There will be a significant, positive effect of higher reported Body Ideal Internalization (SATAQ) on Body Dissatisfaction (BPSS) among female and male student-athletes.

Hypothesis 8 (eSport \leftrightarrow eSoc) – There will be a significant relationship between Sociocultural Pressures (PSPS) and Sport Pressures (WPS) among female and male college student-athletes as depicted by covariance in error variances for WPS and PSPS.

Sample Description and Data Gathering Procedures

Participants in the current study were recruited from a convenience sample of female and male college athletes from regional colleges in the state of Virginia. These college athletes were those who competed in the 2015-16 training period across 22 total men and women's sports. These college athletes represented one college from Division I and two colleges from Division III of the NCAA. Data was gathered through self-report assessments taken by the athletes through a survey link emailed through Qualtrics.

Summary

This chapter presented the problem of eating disorders among college student athletes. The problem, as informed by the sociocultural model of eating disorder development, was presented as a relationship between sociocultural and sport-weight pressures, body ideal internalization, and body dissatisfaction, leading to eating pathology in college athletes. Cognitive dissonance-based programming was presented as a current intervention approach to the problem and limitations of this programming were outlined including its lack of generalizability to male athletes and its need for investigation into moderating variables for intervention effects. Feminist identity development was also presented as a current approach to the problem of investigating a moderator between sociocultural pressures, sport-weight pressures and body ideal internalization, and the limitations of this model are addressed. The theoretical rationale

for the investigating the relationship between sociocultural pressure and sport-weight pressures and body ideal internalization as moderated by the Reflective Judgment model instead of feminist identity development was discussed and an overview of the methodology was provided. The next chapter will provide an in-depth review of the literature relevant to the proposed study.

CHAPTER TWO

Review of Literature

The following review highlights selected literature that substantiates the feminist sociocultural model of eating disorder development and the evidence base of three related factors within the model. These factors include research on sociocultural pressures that contribute to body dissatisfaction, research on body ideal internalization as a mediating factor between sociocultural pressures and body dissatisfaction, and research on the contribution of these two factors to body dissatisfaction and subsequent eating pathology. This review of relevant literature addresses these findings from studies with male and female college students generally as well as male and female college student-athletes.

The research base of cognitive dissonance-based programming as related to this model is also addressed with specific attention to the results of a pilot of this program with college athletes. The need for expansion of this programming for males and for stronger long-term effects is addressed. The potential moderating factor of cognitive development as it may contribute to college athletes' body ideal internalization is suggested in response to these limitations. A suggested model for examining this relationship is King and Kitchener's (1994) Reflective Judgment model, which is reviewed following a review of the existing research on college student athletes' cognitive development. Connections are drawn between Reflective Judgment, information seeking, and the constructs of feminist identity development and beliefs, which have been found to be protective factors for body dissatisfaction and eating pathology in non-athlete samples. This section concludes with a suggested need to investigate the relationship between male and female college student athletes' Reflective

Judgment and body ideal internalization in the context of sociocultural and subcultural pressures to adhere to body ideals.

Sociocultural Pressures as Risk Factors for Body Dissatisfaction and Eating Pathology

In a meta-analytic review of prospective and experimental studies on the risk and maintenance factors of eating pathology in female participants only, Stice (2002) found evidence across four empirical studies that perceived sociocultural pressure for thinness is a significant risk factor for body dissatisfaction (Cattarin & Thompson, 1994; Field et al., 2001; Stice, 2001; Stice & Whitenton, 2002), reported dietary restraint (Field et al., 2001; Stice, 2001; Stice, Mazotti et al., 1998; Wertheim, Koerner, & Paxton, 2001), and eating pathology (Field et al., 1999; Stice & Agras, 1998; Stice et al., 2002; Wertheim et al., 2001). This analysis included studies that defined sociocultural pressures to be thin as messages from media, peers, and family. Stice (2002) concluded with the position that perceived sociocultural pressure for thinness could be considered a causal risk factor for body dissatisfaction, dieting, and eating pathology.

Of the studies evaluated in Stice's (2002) analysis, Cattarin and Thompson's (1994) three-year longitudinal study of 87 adolescent girls found the highest effect of perceived pressure for thinness on body dissatisfaction ($r = .25$). In contrast, Byely and colleagues' (2000) 12-month longitudinal study of 52 adolescent females did not find that the effect of social influence on body dissatisfaction was large ($r = .08$) or significant ($p = .404$). However, Byely and colleagues (2000) did not include a measure of sociocultural pressures to adhere to body ideals, but rather measured social influences through adolescents' self-report of whether or not they had been told to diet, their exposure to

friends' dieting behaviors, and mothers' perceptions of daughters weight in comparison to other girls (Byely et al., 2000). Valid and reliable measures of perceived sociocultural pressures to adhere to body ideals, such as the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004) and the Perceived Sociocultural Pressures Scale for women and modified for men (PSPS; Stice, Ziemba, Margolis, & Flick, 1996), have been developed since Byely and colleagues' (2000) prospective study, which may have been a limitation that contributed to this small effect (Stice, 2002).

Cafri, Yamamiya, Brannick, and Thompson's (2005) meta-analysis on cross-sectional studies investigated the relationship between sociocultural pressures and body image dissatisfaction. This analysis, which also included studies involving only female participants, focused on empirical research that measured perceived sociocultural pressures to adhere to body ideas with the SATAQ-3 and similar valid and reliable measures. Of the seven studies that investigated the relationship between perceived sociocultural pressures to adhere to body ideals and body dissatisfaction (total $n = 1,998$), Cafri and colleagues found an average positive correlation of $r = .48$. The authors reported this finding to be significantly above zero, adding further support to the evidence of a relationship between sociocultural pressures and body dissatisfaction in females.

Groesz, Levine, and Murnen (2002)'s meta-analytic review provided further support for the theory that sociocultural pressure has a negative impact on body satisfaction in females. Unlike Stice (2002) and Cafri and colleagues (2005) who also included studies that defined sociocultural pressures as those from family, peers, in addition to media, Groesz and colleagues (2002) investigated only empirically controlled

studies that considered media influences as sociocultural pressures for thinness. Of the 25 controlled experiments that investigated the relationship between thin-ideal media exposure and body dissatisfaction ($n = 2,292$), Groesz and colleagues (2002) found an overall effect size of $d = -.31$, with thin media messages having a statistically significant adverse influence on female participants' body satisfaction ($p < .0001$).

Though largely underrepresented in the literature in comparison to females, a number of studies have found similar results with male participants when assessing for pressures to adhere to body ideals that are somewhat unique to males, such as muscularity, leanness, and fitness. In a single controlled experiment, Agliata and Tantleff-Dunn (2004) investigated the impact of media exposure on the body satisfaction of undergraduate men ($n = 158$). Participants in the experimental group who were exposed to commercials that reflected the male ideal of attractiveness were found to significantly increase in muscle dissatisfaction ($p < .004$) and depression ($p < .006$) following the media exposure in comparison to the control group who were exposed to neutral commercials. The researchers concluded that exposure to media promoting the ideal male body has deleterious effects on the body satisfaction and mood of undergraduate men.

In a cross-sectional analysis of both male ($n = 257$) and female ($n = 250$) adolescents, Halliwell and Harvey (2006) also found evidence for a relationship between sociocultural pressures and body dissatisfaction among males. Though, as expected, female participants in the sample rated significantly greater perceived pressure to lose weight and body dissatisfaction than did males, Halliwell and Harvey (2006) found evidence to support the model of the negative influence of perceived weight pressure on

adolescent males' internalization of body ideals, body satisfaction, and eating pathology. Pritchard and Cramblitt (2014) also found support for the sociocultural model amongst male participants in a cross-sectional analysis of both male ($n = 109$) and female undergraduate students ($n = 159$). Perceived societal pressures to have the perfect body was significantly correlated with drive for thinness among men.

There has been a history of methodological issues in the study of the influence of sociocultural pressures and male participants' body dissatisfaction and eating pathology that contribute to the low reports of males with body dissatisfaction as compared to females (McCabe & Ricciardelli, 2004). These issues include the use of measures normed and validated with females with male participants and the reality that many males in a sample tend to espouse a strong drive to either lose or gain weight which greatly reduces the mean body dissatisfaction scores when sample scores are averaged (McCabe & Ricciardelli, 2004). However, the aforementioned selected correlational and experimental investigations provide evidence for a connection between sociocultural pressures and body dissatisfaction amongst males. Recent research on the pressures in the athletic environment on male body dissatisfaction has addressed some of these methodological issues by developing measures that assess these pressures differently for males than for females that better represent the unique and distinct pressures male and female athletes are presented.

Pressures in the athletic environment as risk factor for body dissatisfaction.

In an exploratory factor analysis of a sample of 204 female college athletes, Reel, SooHoo, Petrie, Greenleaf, and Carter (2010) found that the most frequently reported body-related pressures by female college athletes included comments made by teammates

and coaches regarding weight and shape. Galli, Reel, Petrie, Greenleaf, and Carter (2011) found comparable results with a sample of male college athletes ($n = 203$), with an additional pressure of uniform fit reported by male participants. Longitudinally, Anderson, Petrie, and Neumann (2012) confirmed that these weight and appearance pressures from coaches and teammates at the start of a competitive season were significant predictors of body dissatisfaction throughout the competitive season in a sample of female college athletes ($n = 219$).

In investigations with female and male athletes respectively, Reel and colleagues (2013) and Galli and colleagues (2014) not only found evidence for the overall sociocultural model of eating disorder development and the significant influence of perceived sociocultural pressures on body dissatisfaction and eating pathology, but also found that the aforementioned sport-weight pressures contribute uniquely to body dissatisfaction, dietary restraint, and eating pathology than general sociocultural pressures alone. Reel and colleagues' (2013) factor analysis resulted in the development of a valid and reliable measure of these weight-pressures in female athletics, the Weight Pressures in Sport Scale – Female (WPSS-F), an 11-item measure of two factors that emerged in the investigation with 414 female college athletes. These two factors were: coach and sport pressures about weight, and pressures regarding appearance and performance.

Galli and colleagues' (2014) study paralleled Reel and colleagues' (2013) investigation with male athlete samples, with a factor analysis resulting in the development of the valid and reliable measure of weight-pressures in male athletics, the Weight Pressures in Sport Scale – Male (WPSS-M). A 12-item measure of three factors emerged in Galli and colleagues' (2014) investigation with 698 male college athletes.

These three factors were: coach and teammate pressure about weight, pressure regarding appearance and weight, and uniform pressure. These pressures that emerged in Reel and colleagues (2013) and Galli and colleagues (2014) factor analyses quantified the pressures observed in the athletic environment that contribute to male and female college athletes' eating disorder symptomatology in ways that are unique to the sociocultural pressures faced by the general population (Petrie & Greenleaf, 2007, 2012; Petrie et al., 2009).

Body Ideal Internalization as a Mediating Factor between Pressures and Dissatisfaction

A major critique of the sociocultural model is the assertion that sociocultural pressures are causal risk factors for body dissatisfaction and eating pathology, which fails to explain why some individuals appear to be more negatively influenced by media, peer, and societal influences than others (Agliata & Tantleff-Dunn, 2004). Thus, researchers in the years following Stice's (2002) meta-analysis suggested that considering sociocultural pressure as a causal risk factor for indices such as body dissatisfaction, dietary restraint, and eating pathology, may be misleading, and instead suggested it may be more apt to consider sociocultural pressure as a variable risk factor that further research may reveal to be a causal risk factor in future analyses (Levine & Murnen, 2009). What has been found to be a major difference between the college students and college athletes who are more negatively influenced by these sociocultural pressures and those who appear to be less negatively influenced is the degree to which students internalize these sociocultural body ideals (Galli et al., 2014; Griffiths et al., 2014; Reel et al., 2013; Thompson & Stice, 2001).

In the early research of the body ideal internalization factor, Stice and colleagues aimed to identify a correlation between body ideal internalization, body dissatisfaction, and eating pathology. Stice, Schupak-Neuberg, Shaw, and Stein's (1994) cross-sectional investigation of 238 undergraduate women first studied the relationships between the variables of reported media exposure, gender-role endorsement, ideal body internalization, body dissatisfaction, and eating pathology and found significant correlations between all variables except for gender role endorsement and ideal body internalization. The researchers then used the SEM to investigate the directional relationships between the variables. It was found that media exposure is both directly and indirectly related to eating pathology. Body ideal internalization of sociocultural pressures was found to mediate the relationship between media exposure and eating pathology and gender role internalization was found to heighten body ideal internalization in the proposed model. As was predicted, greater ideal body internalization was related to increased body dissatisfaction, which was related to higher levels of eating pathology. This report not only found that body ideal internalization among college women is correlated with body dissatisfaction and eating pathology, but that internalization is a partial mediator between social pressures and these symptoms. Of the 18 studies in Cafri (2005) and colleagues' analysis that investigated the relationship between internalization of body ideals and body dissatisfaction among female participants ($n = 7,079$), the authors also found that the relationship between internalization and body dissatisfaction was significantly above zero with an average $r = .50$.

Halliwell and Harvey (2006)'s study also found evidence that internalization, along with social comparison, mediated the effect of reported sociocultural weight pressure on body dissatisfaction and that body dissatisfaction mediated this effect on the eating pathology of adolescent females and males. In a cross-sectional investigation of the mediators between magazine exposure and drive for muscularity among young men ($n = 161$), Giles and Close (2008) also found that body ideal internalization partially mediated the relationship between media exposure and young men's behavioral drive for muscularity. In addition, Giles and Close (2008) found that body ideal internalization fully mediated the relationship between media exposure and young men's attitudinal drive for muscularity, as did Daniel and Bridges (2010) in cross-sectional path analyses of internalization of media ideals and drive for muscularity in a sample of 244 college men.

Both Galli and colleagues (2014) and Reel and colleagues (2013) found body ideal internalization to be a significant mediator between perceived sociocultural pressures, sport-weight pressures and the body dissatisfaction, dietary restraint, and eating pathology of male and female college athletes in the aforementioned factor analyses. In a longitudinal investigation of 232 female college athletes, Homan (2010) found evidence for a distinct sociocultural body ideal that impacts college athletes, known as the athletic-ideal. The initial internalization of athletic-ideal was found to predict increases athletes' compulsive exercising at seven-month post-test. In the same investigation, initial thin-ideal internalization was found to predict body dissatisfaction, dieting, and compulsive exercise in the sample of college athletes at seven-month post-test.

Reducing Internalization: Cognitive Dissonance-Based Programming

Next in early exploratory research of the mediating factor of body ideal internalization, Stice and colleagues began conducting research in a series of randomized and controlled experiments on the effects of interventions aimed to reduce one of the major contributors to sociocultural pressures to adhere to body ideals: media portrayals of the thin ideal. This was the beginning of what is known today as dissonance based programming, developed initially by Stormer and Thompson (1998) and most recently in the second edition of its manual form by Stice, Rohde, and Shaw (2013).

Through pre, post, and follow-up assessment, cognitive dissonance based interventions have resulted in decreased body ideal internalization, body dissatisfaction, negative affect, and eating pathology (Stice et al., 2000; Stice, Chase, Stormer, & Appel, 2001). In a meta-analysis of all controlled studies of eating disorder prevention programs, Stice and colleagues (2007) found that interventions with dissonance-based content showed significantly greater effects on reducing participants' thin-ideal internalization, body dissatisfaction, dietary restraint, and eating pathology when compared to prevention programming without dissonance-based content.

Although an unmodified version of this dissonance based programming had been found to be unsuccessful in reducing eating disorder symptomatology with a sample of female college athletes (Smith & Petrie, 2008), Becker and colleagues (2012) piloted a modification of Stice and colleagues' (2007) original dissonance-based program with a program specifically designed for female college athletes in a controlled experiment with 168 female athletes and found significant results across predictions. These modifications included information regarding the female athlete triad and discussion of the body image

pressures placed on athletes in specific sports (Becker et al., 2012). At six-week post-test and one-year follow-up, thin-ideal internalization, body dissatisfaction, dietary restraint, and eating pathology were all significantly reduced from pre-test.

Room for improvement of current programming.

Need for expansion to males. Though Stormer and Thompson's (1999) original dissonance based program included both male and female participants, as with Becker and colleagues' (2012) intervention with college athletes, dissonance-based programming has since far been developed and implemented with girls and women only. Though Stice and colleagues' (2007) meta-analysis concluded with the finding that programs implemented with male only or male and female participants were significantly less effective than programs with females only, none of the interventions in the meta-analysis with dissonance-based content included male participants. The justification that Stice and colleagues cite for the inclusion of only females in subsequent years of controlled efficacy trials of dissonance based programming is that females tend to show significant improvements following prevention programming and males tend not to show any significant changes (Stice et al., 2007).

Consistent with this finding, in Yager and O'Dea's (2008) review of all 27 large, controlled interventions of prevention programs for body image and eating disorders on university campuses over the span of 20 years, only one included male participants. This media literacy, dissonance-based intervention resulted in improvements in body satisfaction for the college women in the experimental group but did not result in any significant improvements for the college males. A major limitation of this investigation, however, was that the intervention was designed and targeted toward females,

surrounding discussions about the sociocultural thin ideal for women promoted by the media (Rabak-Wagener, Eickhoff-Shemek, & Kelly-Vance, 1998). This reflects a significant deficit in prevention programming on college campuses with male college athletes virtually ignored in college prevention programming literature and speaks more to the ill-design of such programming than to the lower potential for males to make changes as a result of participation (Yager & O'Dea, 2008).

Need to investigate moderating variables. In their critique of the extant eating disorder prevention literature, Stice and colleagues (2007) called for future studies to investigate moderators of intervention effects in order to provide important information regarding the types of participants who show the best responses to current interventions and direction for modifying current programs or designing new programs. One potentially meaningful moderator to sociocultural body ideal internalization that has not yet been investigated is the cognitive developmental positions through which college athletes make meaning of the messages within their sociocultural environments.

Stice and colleagues' (2008) meta-analysis of dissonance-based programming in comparison to alternative interventions or control groups found evidence that dissonance-based programming had significant long term effects on body dissatisfaction, thin ideal internalization, and eating pathology in comparison to waitlist controls and expressive-writing groups. However, the healthy weight intervention, an alternative program aimed to provide participants with information and suggestions making lifestyle changes in order to attain and maintain a healthy weight was found to result in significantly stronger effects at three-years follow up than dissonance-based programming. This program was also found to promote positive outcomes for the female college athletes in Becker and

colleagues' (2012) investigation, and was qualitatively more preferred by the athletes involved than those involved in the dissonance-based programming. However, Becker and colleagues (2012) note that potential limitations to these effects were confrontations between group members and peer leaders in the dissonance based programming intervention. It is possible that the major difference between the two programs being the didactic presentation of the healthy weight intervention program and the interactive, cognitively challenging approach of the dissonance-based programming led by peer group leaders may have contributed to this qualitative finding.

These findings suggest both a potential need for improvement in the dissonance-based interventions for promoting long-term resilience to sociocultural pressures as well as an investigation into the moderating factors, such as cognitive development, that may inform which athletes would benefit most from which intervention. It is known that when counselors work to meet an individual at the stage within which he or she makes meaning, a counselor must read and flex his or her approaches in order to promote the optimal developmental growth and resilience (Sprinthall, 1994). Perhaps, developmentally, the healthy weight intervention is a match for some athletes and the cognitive dissonance based programming is a match for others. However, this has yet to be investigated.

Cognitive Development and College Student-Athletes

There is scant research on the cognitive development of college athletes, much of which investigates cognitive development in terms of learning outcomes rather than through theoretical models of cognitive development that are not domain, or education, specific. In addition, the majority of extant research on these cognitive learning

outcomes as related to athletic participation is not recent. Some existing literature on these outcomes suggests that athletic participation is associated with poorer learning outcomes as compared to non-athlete samples. For example, Astin's (1993) analysis of a national sample of college athletes indicated that athletic participation in college is negatively associated with scores on standardized graduate school admission tests, such as the Graduate Record Examination, the Law School Aptitude Test, and the National Teachers' Examination.

Literature reviews on the developmental and mental health needs of college athletes, such as those by Despres, Brady, and McGowan (2008) and Valentine and Taub (1999) who both construct suggestions for higher educators and counselors around Chickering and Reisser's (1993) vector theory of psychosocial development, portray negative depictions of the impact of the culture of college athletics on the psychosocial and learning outcomes of student athletes. Though student athletes are thought to progress through the same developmental stages as non-athletes, Valentine and Taub (1999) suggest that because of the consuming nature of college athletics, student-athletes may not master basic developmental tasks as compared to non-athletes. Howard-Hamilton and Sina (2001) offer an explanation for this proposed deficit, which is that college athletes may not be adequately provided with the intellectual challenge and support needed to successfully move through stages of cognitive development. An example the authors offer is that athletic coaches might require student athletes to follow absolute rules that do not provide the appropriate context for student athletes to consider knowledge as anything other than right or wrong, good or bad, resulting in a dualistic

frame of reference. A limitation to this suggestion is that Howard-Hamilton and Sina cite no empirical research that validates this assumption.

A few empirical studies do support the positive influence of athletic participation on learning outcomes for most college athletes, with the exception of athletes involved in revenue-producing sports such as men's football and basketball, which tend to show deficits in learning outcomes as compared to athletes in non-revenue producing sports and non-athletes (Gayles & Hu, 2009). Pascarella and colleagues' (1999) study of 3,331 college students assessed students on reading comprehension, mathematics, critical thinking, writing skills, and science reasoning through multiple-choice modules in the Collegiate Assessment of Academic Proficiency (CAAP) measured across four years. Of most relevance to cognitive development theory, the critical thinking module of the CAAP included a 32-item instrument designed to measure student's ability to clarify, analyze, evaluate, and extend arguments (Pascarella et al., 1999). For female athletes, the only scores that significantly differed from female non-athletes were reading comprehension scores, which were found to be significantly lower than non-athletes at the end of the third year. Critical thinking, mathematics comprehension, and science reasoning scores were not found to significantly differ from non-athletes across the four years. Male athletes who did not participate in revenue-producing sports such as football and basketball also were not found to have any significant cognitive differences than non-athletes. Pascarella and colleagues (1999) concluded that the only consistent pattern of relative cognitive disadvantages for athletes in comparison to non-athletes was found for males involved in the revenue-producing sports of football and basketball. These athletes were found to have significantly poorer writing skills, reading comprehension, and

critical thinking skills than male non-athletes and in comparison to male athletes in nonrevenue-producing sports.

These investigations into the cognitive development of college athletes as measured by these learning outcomes do have implications for higher educators and college counselors (Howard-Hamilton & Sina, 2001). However, there is a lack of research on cognitive development of college athletes as measured by theoretical models of college student cognitive development that span beyond educational success or non-success and are reflective of how students make meaning of knowledge provided by the overall environment. As compared to learning outcomes alone, measures of college student cognitive development theoretical models may be more relevant for understanding college athletes' body ideal internalization processes and subsequent body dissatisfaction within the subculture of college athletics. One such model that reflects stages of meaning making associated with increasing mastery over the environment is King and Kitchener's (1994) model of Reflective Judgment.

King and Kitchener's Reflective Judgment Model

The Reflective Judgment model, unlike many other models of adult cognitive development, has a longitudinal research database that reflects measurable changes in participants' Reflective Judgment processes when faced with ambiguous problems across time and educational attainment (King & Kitchener, 1994). King and Kitchener's (1987) original ten-year longitudinal study of the 1981 Reflective Judgment model included eighty participants who were assessed with the Reflective Judgment interview (RJI). The RJI was designed to elucidate the ways in which students reason about a few ambiguous social problems (King, Kitchener, & Wood, 1994). Participants were retested with the

RJI four times throughout those ten years and each of the RJI problems were rated blindly at each testing. At first testing, doctoral students scored significantly higher than college students who scored significantly higher than the high school students in Reflective Judgment. These differences remained throughout subsequent testing, with the original doctoral students scoring significantly higher than the other two groups. However, these scores became more similar across groups over time, as the growth patterns differed between groups. Consistent patterns of increasing RJI mean scores were found for all groups at each subsequent testing with the exception of the original doctoral students whose scores remained stable between the final two RJI testings. Over time, higher-stage reasoning was evidenced across the groups more often and lower-stage reasoning became less evident across the groups. Between testings, no single individual declined in RJI scores over time, and no single score increase exceeded one and one half stages between testings. Given these patterns, the researchers concluded that, among individuals engaged in educational programs, the development of reflective thinking evolves slowly and steadily over time.

Reflective Judgment and gender. A major feminist critique of traditional cognitive developmental stage theories is that these models of development privilege the epistemology of men (Belenky, Clinchy, Goldberger, & Tarule, 1986; Clinchy, 1998; Gilligan, 1982). Methodologically, some models, such as Perry's (1970) model of college student cognitive development, have privileged the epistemological assumptions and developmental markers of men by developing the initial model almost exclusively with European-American male participants. King and Kitchener (1994) purposely sampled and conducted their longitudinal analyses of the RJI with both females and

males in order not to privilege one gender's epistemological, or ways of knowing, over another.

General linear modeling analyses of the results of King and Kitchener's 10-year longitudinal investigation revealed a few significant differences between RJI scores by gender groups, however these differences were found to be inconclusive (King & Kitchener, 1994). For one of the five RJI ill-structured problems, former high school junior men scored about one-third of a stage lower than high school junior women, former college junior men scored about half a stage higher than college junior women, and doctoral students' scores on this particular problem were identical. These patterns were both inconsistent and unexpected for the overall Reflective Judgment model. RJI scores were not found to significantly differ by gender for any of the four remaining ill-structured problems (King & Kitchener, 1994).

Subsequent research has not found conclusive gender differences in RJI scores (Jensen, 1998; King & Kitchener, 1994) with the exception of Kitchener, Lynch, Fischer, and Wood (1993) who found gender differences in reflective thinking growth between the late teens and early adulthood. Females in this longitudinal investigation showed dramatic growth in reflective thinking in the late teens in comparison to males and a similar dramatic growth period was found for males in early adulthood in comparison to females. These differences suggest a relationship between developmental growth spurts and growth in Reflective Judgment but these intersecting factors have not since been further investigated.

Though research has not found major significant differences in Reflective Judgment between males and females, the Reflective Judgment model has been critiqued

for having been initially developed largely with European American participants. Though subsequent research has found evidence for the Reflective Judgment model of development within non-European college student populations, King and Kitchener (2002) acknowledge the multitude of potential factors that may contribute to growth in Reflective Judgment worthy of further investigation. The major factor, however, that has been found to contribute to individuals' growth in Reflective Judgment across these investigations is participants' educational experiences.

Reflective Judgment and education. In both longitudinal and cross-sectional investigations, participants' Reflective Judgment has been found to significantly correlate with their level of educational attainment. King and colleagues (1994) acknowledge that age and educational attainment are typically confounded in studies that contrast students' Reflective Judgment across grade levels. However, six studies comparing RJI scores of nonstudent same-age adults to college students found that nonstudents scored significantly lower on the RJI than college students, and that adults with college degrees scored significantly higher than adults without college degrees (Glatfelter, 1982; Glenn & Eklund, 1991; Josephson, 1988; Kelton & Griffith, 1986; King, 1986; Lawson, 1980). King, Kitchener, and Wood (1994) combined the data from these six studies, which included a total of 191 participants, and found a mean RJI score of 3.60 ($sd = .76$) for those without college degrees and a mean RJI score of 4.29 ($sd = .74$) for those with college degrees. The suggested explanation for the significant differences between these groups is the opportunity and exposure to activities that can improve critical and reflective thinking skills within educational environments (King & Kitchener, 1994).

More recently, in Friedman's (2004) investigation of 43 undergraduate, master's, and doctoral-level female students in the same academic program, RJI scores significantly differed between undergraduate seniors and doctoral-level students. However, Friedman did not find this to be consistently true for all participants, as some individual students with higher educational attainment evidenced lower levels of reflective thinking than students with lower levels of educational attainment. Further investigation into the students' personality traits as measured by the Omnibus Personality Inventory (OPI) revealed that reflective thinking was significantly correlated with the intellectual dispositions of introverted thinking ($r = .48, p = .001$), autonomy ($r = .36, p = .017$), cognitive complexity ($r = .31, p = .046$), a theoretical thinking orientation ($r = .32, p = .017$). However, Friedman did not investigate, or did not provide information about an investigation into, the relationship between educational attainment and these personality trait intellectual dispositions. Renaud's (1967) early research on the OPI revealed significant personality changes in these intellectual dispositions of individuals between adolescence and early adulthood that significantly differed between groups of educational attainment. Therefore, the significant correlations found between personality trait intellectual dispositions and reflective thinking in Friedman's (2004) investigation suggests that reflective thinking is associated with cognitive complexity, theoretical and introverted thinking, and autonomy, which are not static traits but can also be nurtured in educational environments (King & Kitchener, 1994; Renaud, 1967).

Reflective Judgment and information gathering. In a qualitative investigation with twelve undergraduate students, instead of interviewing students using the RJI, Whitmire (2002) asked students to search for electronic information sources to best

answer two of the RJI dilemmas. Throughout the process, Whitmire questioned students on how and why they made their selections of information sources. Results of the analysis revealed a relationship between students' Reflective Judgment and information-seeking behavior. Pre-reflective thinkers typically allowed the search engines to make judgments about the relevancy and quality of the information source by selecting the first results to their searches and did not use a lot of criteria, beyond looking for keywords that were needed, for judging web sites. In contrast, Whitmire found that quasi-reflective thinkers looked at the URLs of Web sites to determine if the site was generated by a .gov or .edu organization, were overall more critical and skeptical of information found on the web, and were able to distinguish legitimate and authoritative sites from those that were not. Though this investigation included only a dozen students, its findings are consistent with the expectations of the Reflective Judgment model (King & Kitchener, 1994).

The findings in Whitmire's analysis may have implications for the ways in which college athletes make meaning and potentially internalize sociocultural pressures to adhere to body ideals. In a study involving 311 male and female undergraduates, Princhard and Cramblitt (2014) found that female students who reported using media as a source of information on how to attain the ideal body reported significantly higher drive for thinness than female students who reported similar levels of media exposure but did not use media as a source of information on how to attain the ideal body. Similarly, male students who reported using media as a source of information on how to attain the ideal body reported significantly higher drive for muscularity than male students who reported similar levels of media exposure but did not use media as a source of information on how to attain the ideal body. Princhard and Cramblitt did not include an assessment of

students' Reflective Judgment in the investigation, but these findings do suggest a connection between body ideal internalization and information seeking behavior, which Whitmire found to be a reflection of students' positions of Reflective Judgment.

Reflective Judgment, feminist beliefs, and body ideal internalization.

According to Rickard (1989), higher levels of feminist identity development are affiliated with higher levels in Kitchener's (1986) Reflective Judgment model. In a more recent investigation, Gerstmann and Kramer (1997) found that measures of feminist identity and cognitive development were significantly correlated within a sample of 198 college women. Specifically, the researchers found that scoring at the lowest level of cognitive development was associated with scoring at the lowest level of feminist identity and negatively correlated with the highest level of feminist identity. Similar relationships were found in terms of feminist identity for those scoring at the highest level of cognitive development. These investigators only included female undergraduates due to the language associated with the feminist identity model and assessment of feminist identity.

Though Reflective Judgment has not yet been investigated as a protective factor to ideal internalization or body dissatisfaction, its correlate, feminist identity, has. Murnen and Smolak's (2009) meta-analytic review of 26 studies that investigated the protective factor of feminist identity on body dissatisfaction concluded with evidence to support the association between feminist identity and body attitudes, drive for thinness, and body ideal internalization. Specifically, espousing higher feminist identity was significantly associated with more positive body attitudes (overall effect size $r = .123$, $p < .001$), lower drive for thinness (overall effect size $r = .072$, $p < .05$), and less body ideal internalization (overall effect size $r = .149$, $p < .01$). These are small, yet significant,

effect sizes. As a result, Murnen and Smolak (2009) called for programming that encourages the promotion of participants' feminist consciousness, marked by critical and reflective thinking, to support the protection against societal pressures to adhere to body ideals and subsequent body shame, dissatisfaction, and eating pathology.

Though investigations on males' feminist identity development are limited, Worrell, Stilwell, and Oakley (1999) included 26 men in a longitudinal investigation of 101 graduate students and found that academic program emphasis on gender studies was significantly correlated with increases in social constructionist beliefs and feminist identity within the sample. The authors concluded that when students are informed on issues related to gender they experience a cognitive shift toward social constructionist beliefs. This cognitive shift is reflective of the aim of dissonance-based programming, wherein participants in controlled experiments are taught to consider body ideals as social constructions and subsequently engage in behaviors that reject these ideals, resulting in decreased ideal internalization and body dissatisfaction (Stice et al., 2013).

Limitations of feminist identity and beliefs as mediators to body dissatisfaction. Of Moradi, Subich, and Phillips' (2002) suggestion that feminist identity development has implications for men, Hansen (2002) (formerly Downing) writes; "[...] given the oppression-related emphasis in the feminist identity model, I lack their optimism about the usefulness of their existing literature to inform or guide this needed research concerning men" (p. 89), in a review of the literature on the feminist identity development model. Consistent with this assertion, the Feminist Identity Development Scale (FIDS) is a measure of feminist identity designed specifically for females. Hansen's assertion is problematic for expanding the literature associating female

participants' higher levels feminist identity with lower reported body ideal internalization to males who have been found to similarly internalize body ideals that are also gendered and prevalent in societal and athletic contexts (Agliata & Tantleff-Dunn, 2004; Galli et al., 2014). This is also problematic for enhancing prevention programming for male college athletes in light of Murnen and Smolak's (2009) suggestion to facilitate participants' feminist consciousness as an aim of prevention programming in order to promote this protective factor to body ideal internalization, body shame and dissatisfaction. The Reflective Judgment model, however, has not been found to be a gender-specific measure of development (King, Kitchener, & Wood, 1994).

Feminist identity development generally refers to the emerging consciousness of women's oppression in society and the adaptation of those beliefs into one's identity (Hansen, 2002). Though there are multiple distinct feminist identities, Downing and Roush's (1985) original feminist identity development model was conceived and published as a reflection of a time when feminists were united in a goal of ratifying the Equal Rights Amendment. Different from feminist identity development, feminist beliefs refers to an individual's attitudes and behaviors towards women and gender in society (Henley, 1998). Though, as Downing noted, the feminist identity development model does not reflect the diversity of feminist identities, Henley's (1998) Feminist Perspective Scale was designed to address the diversity of feminist thought and beliefs. This scale measures individuals' beliefs associated with conservatism, liberal feminism, cultural feminist, radical feminism, socialist feminism, and women of color feminism as separate subscales. The initial development of this scale also included both male and female participants and is not a gender-specific measure. Though the feminist beliefs construct

addresses both the female-specific and lack of diversity of feminism limitations of the feminist identity development model, because feminist beliefs refer to attitudes and behaviors rather than epistemological assumptions, this construct is limited in its ability to measure the ways in which individuals make meaning of societal and subcultural pressures and expectations to adhere to body ideals. The Reflective Judgment model, in contrast, is a model that ascertains college students' epistemological assumptions and abilities to reflectively think when faced with ill-structured problems. Thus, this may more aptly respond to Murnen and Smolak's (2009) suggestion for further investigation into factors related to feminist identity that specifically contribute to the ability to critically reflect and think as protective factor for body ideal internalization and body dissatisfaction.

A need to Investigate Reflective Judgment and College Student-Athletes' Body Ideal Internalization

The aforementioned research by King, Kitchener and colleagues and Worrell and colleagues (1999) suggest that the college educational environment can promote critical and reflective thinking in students, resulting in increases in measures of Reflective Judgment, feminist identity, and social constructionist beliefs. These outcomes may influence the ways in which college students accept or critique sociocultural messages concerning body ideals. In a longitudinal investigation of college students, Gillen and Lefkowitz (2012) found that although female college students reported significantly lower body satisfaction than males across time, both female and male college students became increasingly more satisfied with their appearance over the first three semesters of college. Gillen and Lefkowitz (2012) postulated that this trend may have been due to

students taking courses that encourage criticism of unrealistic images in the media or engaging in student activity programs that encourage positive body image, but this information was not collected from participants.

Anderson et al., (2012) did not find such decreases, however, in a sample of NCAA Division I female gymnast and swimmers, but rather found that body dissatisfaction was relatively stable across a five-month training period. What was found was that pressures in the sport environment concerning weight loss and having a thin body/appearance were significantly related to decreases in body satisfaction over the course of the five months, even after the researchers controlled for the female athletes' body satisfaction at the beginning of the season. Anderson and colleagues (2012) suggested that these findings were indicative of the constant pressures and expectations athletes experience in the training environments within which they compete. Similar results were found in Homan's (2010) longitudinal investigation across a seven-month training period, wherein college athletes' initial internalization of the athletic-ideal and the thin-ideal were found to significantly predict increases in compulsive exercise, body dissatisfaction, and dieting at seven-month post-test.

As Anderson and colleagues highlight, these findings, when compared to Gillen and Lefkowitz's opposing findings with college students generally, call for the need to support college athletes in unique ways due to the unique sociocultural pressures at play in the sport environment that may confound the protective gains suggested to be gleaned through participation in collegiate-level critical education. If Reflective Judgment were found to be associated with greater capacity to reject sociocultural and sport-specific pressures to adhere to body ideals, resulting in reduced internalization of body ideals and

body dissatisfaction amongst college athletes, the results of both Anderson and colleagues' (2012) and Homan's (2010) longitudinal investigations with college athletes in comparison to that of Gillen and Leftkowitz's (2012) results with college students generally might substantiate Howard-Hamilton and Sina's (2001) aforementioned claims of the impact of the athletic environment in limiting college student athletes' opportunities for growth in cognitive development.

Summary

This chapter presented studies that have established a connection between pressures sociocultural and sport environments to adhere to body ideals and subsequent body dissatisfaction and eating pathology of the college athletes who receive these pressures (Anderson et al., 2012; Galli et al., 2011; Homan, 2010; Halliwell & Harvey, 2006; Reel et al., 2010; Stice, 2002). This chapter also highlighted the significant, mediating role that internalization of these sociocultural body ideals plays in the development of body dissatisfaction and eating pathology amongst college athletes (Galli et al., 2014; Reel et al., 2013; Thompson & Stice, 2001). As noted in the chapter, reducing body ideal internalization through reflectively thinking about and critiquing these sociocultural pressures within cognitive dissonance-based programming has been found to effectively reduce body dissatisfaction and eating pathology amongst college students generally as well as female college athletes (Becker et al., 2012; Stice et al., 2013). Some current limitations with this programming were noted, including its lack of inclusivity for male participants and male college athletes as well as its need for further investigation into individual moderators that may contribute to long-term resilience to body ideal internalization (Stice et al., 2007; Yager & O'Dea, 2008). Research on the

Reflective Judgment model proposed to be a potential moderator in the current study was reviewed and the dearth of current literature on college athletes' cognitive development as measured by stage theories of development rather than learning outcomes was noted.

This chapter provided a rationale for the investigation into the Reflective Judgment model as a moderator between sociocultural and sport pressures and body ideal internalization as the relationship impacts body dissatisfaction amongst athletes. The methodology for investigating this relationship within a sample of college athletes is outlined in the next chapter.

CHAPTER THREE

This chapter outlines the research methodology for the current study. The information describes the research design, the target population, sampling and participants, data collection instruments, procedures, and data analysis. Limitations of the study as well as ethical considerations are discussed.

Population

The target population for this study is current college student athletes who participate in the National Collegiate Athletics Association (NCAA). As of 2013-14 data, 478,869 athletes compete in the NCAA. Of competing athletes, approximately 208,418 (43.5 percent) were female athletes and 271,263 (56.5 percent) were male athletes in 2013-14 (Irick, 2014). The total population of NCAA athletes is 68.3 percent White, 15.4 percent Black or African American, .4 percent American Indian or Alaska Native, 1.9 percent Asian/Native Hawaiian/Pacific Islander, 2.5 percent Multiracial, 3.3 percent Non-Resident Alien, and 3.5 unknown/other (Irick, 2014).

Participants were obtained from a convenience sample of college athletes from three universities in the state of Virginia. These Universities are identified as University A, University B, and University C in this study to protect participants' privacy. Athletes attending these universities compete in the Division I Colonial Athletic Association Conference, the Division III Capital Athletic Conference, and the Division II Collegiate Athletic Association Conference of the NCAA respectively.

University A is a selective, liberal arts public college in eastern Virginia that competes athletically in the NCAA Division I Colonial Athletic Association conference (Forbes, 2015). According to 2013-14 statistics, the University A has in attendance 8,258

students (6,171 undergraduate, 99 percent full-time enrollment), 520 of which are NCAA student-athletes (54.4 percent male and 45.6 percent female) (Forbes, 2015; U.S. Department of Education, 2015). The total student population is six percent Asian/Native Hawaiian/Pacific Islander, seven percent Black or African American, nine percent Hispanic/Latino, 59 percent White, four percent Multiracial, four percent Non-Resident Alien, and 10 percent race/ethnicity unknown (Forbes, 2015). Student-athletes at University A compete in a total of 10 men's and 11 women's sports, including football (105 athletes), men's and women's basketball (14 athletes; 15 athletes), baseball (33 athletes), women's lacrosse (33 athletes), men's and women's track and field and men's and women's cross country (100 athletes; 131 athletes), men's and women's gymnastics (17 athletes; 18 athletes), men's and women's golf (11 athletes; 8 athletes), men's and women's tennis (11 athletes; 9 athletes), field hockey (27 athletes), and men's and women's swimming (27 athletes; 29 athletes) (U.S. Department of Education, 2015).

University B is a public college in northern Virginia that competes athletically in the NCAA Division III Capital Athletic Conference (Forbes, 2015). According to 2013-14 statistics, the University has in attendance 5,093 students (4,515 undergraduate, 86 percent full-time enrollment), 521 of which are NCAA student-athletes (46.4 percent male and 53.5 percent female) (Forbes, 2015; U.S. Department of Education, 2015). The total student population is five percent Asian/Native Hawaiian/Pacific Islander, six percent Black or African American, six percent Hispanic/Latino, 64 percent White, four percent multiracial, one percent non-resident alien, and 14 percent race/ethnicity unknown (Forbes, 2015). Student-athletes at University B compete in a total of eight men's, ten women's, and one co-ed sports, including baseball (24 athletes), men's and

women's basketball (17 athletes; 14 athletes), men's and women's lacrosse (39 athletes; 27 athletes), men's and women's track and field (84 athletes; 68 athletes), men's and women's rowing (17 athletes; 31 athletes), men's and women's soccer (26 athletes; 27 athletes), softball (19 athletes) men's and women's tennis (10 athletes; 12 athletes), volleyball (16 athletes), men's and women's swimming (23 athletes; 26 athletes), and co-ed equestrian (2 male athletes; 17 female athletes) (U.S. Department of Education, 2015).

University C is a public college in southeastern Virginia that competes athletically in the NCAA Division III Collegiate Athletic Association (U.S. News & World Report, 2015). According to 2015 statistics, University C has in attendance 1,502 students (100% undergraduate), 338 of which are NCAA student-athletes (52.6 percent male and 47.4 percent female) (College Data, 2015). The total student population is 1.5 percent Asian, .1 percent Native Hawaiian/Pacific Islander, 23.5 percent black or African American, 7.8 percent Hispanic/Latino, 56.6 percent white, 6.2 percent multiracial, and 3.9 percent race/ethnicity unknown (Forbes, 2015). Student-athletes at University C compete in a total of nine men's and ten women's sports including men's and women's basketball (24 athletes; 16 athletes), baseball (29 athletes), men's and women's lacrosse (35 athletes; 17 athletes), men's golf (7 athletes), men's and women's soccer (32 athletes; 30 athletes), softball (19 athletes) men's and women's tennis (9 athletes; 6 athletes), field hockey (16 athletes), volleyball (17 athletes), men's and women's cross country (13 athletes; 9 athletes), and men's and women's track & field (29 athletes; 19 athletes).

Due to convenience sampling from these three universities, the population that the sample aimed to represent is the population of all student-athletes competing in the Colonial Athletic Association Conference, the Capital Athletic Conference, and the

Collegiate Athletic Association Conference in 2015 combined ($N = 14,578$) in 2015-16. This population is made up of 44.31 percent female student-athletes and 55.69 percent male student-athletes.

Data Gathering

The researcher contacted the athletic directors at each university via email and telephone to request permission to elicit student-athletes' voluntary participation in the study. The researcher provided each athletic director with options of allowing the researcher access to student-athletes' email addresses to email them directly, allowing coaches to choose whether to provide the researcher access to their team of student-athletes' email addresses to email the student athletes, or to forward an email to coaches which coaches could then forward to their team student-athletes which included a link to a form on SignUpGenius.com where student-athletes were asked to enter their email address if they wished to be contacted with the survey links and directions. The researcher also offered each athletic director the option of allowing the researcher to incentivize athletic department cooperation with a donation to the athletic department and to incentivize student-athlete participation with an ability to enter into a raffle to win an Amazon.com gift card, as suggested by Perkins (2011) to increase web-based survey response rate with college students. The researcher provided the athletic directors with appropriate NCAA regulations for Divisions I and III regarding incentivizing student-athlete participation and requested that athletic directors speak with their compliance directors before informing the researcher their preference for data collection methods and incentivization (M. Miranda, Personal Communication, June 2, 2015).

University A

University A's athletic director expressed a preference for the researcher to send an email (Appendix A) with information regarding the study that the athletic directors then forwarded to their coaching staff who then had the option of either forwarding the email which included the link to a form on SignUpGenius.com to their team of student-athletes or emailing the researcher with a list of their student-athletes' email addresses who the researcher then emailed directly (Appendix B). University A's athletic director opted to accept the donation incentive from the researcher to the athletic department but declined to allow student-athletes to enter to win an Amazon.com gift card raffle. University A's athletic director allowed the researcher to book a date and time to invite student-athletes to take the assessments in a classroom in person and allowed the researcher to incentivize this event by providing student athletes with pizza.

University B

University B's athletic director expressed a preference for the researcher to send an email (Appendix C) with information regarding the study that the athletic directors then forwarded to their coaching staff who then forwarded the email to their team student-athletes which included the link to a form on SignUpGenius.com (Appendix D). University B's athletic director opted to accept the donation incentive from the researcher to the athletic department as well as allowed student-athletes to enter to win an Amazon.com gift card raffle. University B's athletic director also allowed the researcher to book a date and time to invite student-athletes to take the assessments in a classroom in person.

University C

University C's athletic director expressed a preference for the researcher to send an email with information regarding the study that the athletic directors then forwarded to their coaching staff (Appendix E) who then had the option of either forwarding the email which included the link to a form on SignUpGenius.com to their team of student-athletes or emailing the researcher with a list of their student-athletes' email addresses who the researcher then emailed directly (Appendix F). University C's athletic director opted to accept the donation incentive from the researcher to the athletic department as well as allowed student-athletes to enter to win an Amazon.com gift card raffle. The researcher did not book a date and time to invite student-athletes to take the assessments in a classroom in person at University C.

Voluntary participants were each sent an individualized recruitment email including a Qualtrics survey link that included a consent form with a field for an electronic signature, a demographic field including gender, race and ethnicity, NCAA division, sport, and academic year, and if the athlete identified as female, the Weight Pressures in Sport Scale for Female Athletes (WPS-F; Reel et al., 2013), the Perceived Sociocultural Pressures Scale (PSPS; Stice & Agras, 1998), the Sociocultural Attitudes Towards Appearance Questionnaire – Internalization General Factor (SATAQ-3; Thompson et al., 2004), and the Body Parts Satisfaction Scale-Revised (BPSS-R; Petrie, Tripp, & Harvey, 2002). Athletes who identified as male completed the Weight Pressures in Sport Scale for Male Athletes (WPS-M; Galli et al., 2011), the Modified Perceived Sociocultural Pressures Scale (PSPS-R; Anderson et al., 2011), the SATAQ-3 (Thompson et al., 2004), and fourteen selected items from the Body Parts Satisfaction Scale for Men (BPSS-M; McFarland & Petrie, 2012) in the Qualtrics link.

Immediately after completing the Qualtrics assessments, participants' web browsers were directed to reflectivejudgment.org where they completed the Reasoning about Current Issues questionnaire (RCI; Kitchener, Wood, & Jensen, 2002). The RCI also included additional demographic questions to include educational attainment, birth date, and citizenship. In the email, participants were provided with a unique ID code that ranged from "cgwm001" to "cgwm372" in order for the researcher to cross-reference the data entered into Qualtrics with the data entered into reflectivejudgment.org and scored by the University of Michigan's Center for the Study of Higher Education and Postsecondary Education. In total, male participants were asked to answer 101 items and female participants were asked to answer 101. Assessments took approximately 25-25 minutes to complete.

At the end of the Qualtrics assessments, participants from Universities B and C—whose athletic directors provided permission for their student-athletes to enter into a raffle—were given the opportunity to provide their email address to enter into the raffle to win a gift card. Participants were sent two follow-up emails as suggested by Perkins (2011) increase the web-based survey response rate of college students. The emails also included referral resources for participants interested in exploring body image concerns with a professional counselor near and on each college campus.

Response Rate

A total of 372 emails with unique ID codes, study directions, and links were sent to potential participants who either personally provided permission to be contacted by signing up electronically on a form emailed to them by athletic department personnel (i.e. coach, strength and conditioning coach, or athletic director) or were emailed directly by

the researcher from a list of student-athletes' email addresses that coaches allowed the researcher permission to contact. 159 of the individuals who were emailed participated by completing at least one of the assessments and 131 participants completed all assessments for a total response rate of 35.22% which is consistent with the mean response rate for web-based surveys (34%) in Shih and Fan's (2008) meta-analysis of response rates of web and mail surveys.

Sample

The following tables include the frequency of cases by demographic information collected including gender, age, race, sport, sport type, division, year in academics, and year in athletics for unweighted cases.

Gender unweighted. The majority of participants in the sample were female (74.8%), which is not representative of the mostly male population of student-athletes from which the sample is drawn (44.31% females) (Table 2).

Table 2.

<i>Gender distribution in sample.</i>		
Gender	Frequency	Percent
Male	33	25.2
Female	98	74.8
Total	131	100.0

Age unweighted. Participants ranged in age from 18-22 years old with a mean age of 19.89 ($SD= 1.178$), median age of 20 with the least participants 18 or 22 of age and most participants' ages in the middle of the range (Table 3).

Table 3.

<i>Age distribution in sample.</i>		
Age	Frequency	Percent
18 years	20	15.3
19 years	28	21.4

20 years	39	29.8
21 years	34	26.0
22 years	10	7.6
Total	131	100.0

Race unweighted. The majority of participants sampled were White, with Black participants at the second highest frequency representing 10.7 percent of the sample. The remaining seven race categories were below 3 percent of the sample (Table 4).

Table 4.

Race distribution in sample.

Race	Frequency	Percent
Multiracial	2	1.5
Black	14	10.7
Caucasian	104	79.4
Asian	3	2.3
Native Hawaiian/Pacific Islander	2	1.5
Hispanic/Latino	2	1.5
Other	4	3.1
Total	131	100.0

Sport unweighted. Twenty-two of the 24 different men and women's sports in the population were represented in the sample. The two sports that were not represented by any participants in the sample were men and women's golf. Women's lacrosse (n=20), women's softball (n=17), men's basketball (n=11), and women's field hockey (n=11) drew the most participants with the remaining sports represented by less than ten participants each (Table 5).

Table 5.

Sport distribution in sample.

Sport	Frequency	Percent
Women's Basketball	8	6.1
Men's Basketball	11	8.4
Men's Football	6	4.6
Women's Lacrosse	20	15.3
Men's Lacrosse	1	.8
Women's Track & Field	3	2.3

Men's Track & Field	1	.8
Women's Cross Country	6	4.6
Men's Cross Country	5	3.8
Women's Softball	17	13.0
Men's Baseball	1	.8
Women's Field Hockey	11	8.4
Women's Swimming & Diving	7	5.3
Men's Swimming & Diving	2	1.5
Women's Soccer	9	6.9
Men's Soccer	2	1.5
Men's Gymnastics	2	1.5
Women's Tennis	2	1.5
Men's Tennis	1	.8
Women's Volleyball	5	3.8
Equestrian	3	2.3
Cheerleading	8	6.1
Total	131	100.0

Sport type unweighted. The researcher categorized sports into lean and non-lean sport types based on the classification systems of Sundgot-Borgen and Larsen (1993) and Thompson and Sherman (2010). Sundgot-Borgen and Larsen (1993) classified sports into the following categories: technical, endurance, aesthetic, weight class, ball game, power, and anti-gravitation. Thompson and Sherman (2010) further classified these categories into lean and non-lean sports, with endurance, aesthetic, and weight-class sports comprising lean sports due to their shared emphasis on weight/appearance, and technical, ball game, power, and anti-gravitation sports comprising the non-lean sports due to their lack of emphasis on weight/appearance. Approximately three-quarters of the sample was comprised of student-athletes who were participating in a non-lean sport (Table 6).

Table 6.

<i>Sport type distribution in sample.</i>		
Type	Frequency	Percent
Lean	33	25.2

Non-Lean	98	74.8
Total	131	100.0

Division unweighted. The majority of participants were drawn from the two Division III universities, with Division III athletes making up 68.7 percent of the sample (Table 7).

Table 7.

Division distribution in sample.

Division	Frequency	Percent
Division I	41	31.8
Division III	90	68.7
Total	131	100.0

Year in academics unweighted. There was an approximately even distribution of academic freshmen, sophomores, juniors, and seniors with slightly fewer juniors and slightly more seniors overall in the sample but generally evenly distributed (Table 8).

Table 8.

Year in academics distribution in sample.

Year	Frequency	Percent
Freshman	49	19.5
Sophomore	74	29.6
Junior	70	28.2
Senior	57	22.7
Total	131	100.0

Year in athletics unweighted. There was an approximately even distribution of athletic freshmen, sophomores, juniors, and seniors with a low representation of participants currently in a redshirt year, which was to be expected. There were slightly less athletic seniors and slightly more athletic sophomores in the sample (Table 9).

Table 9.

Year in athletics distribution in sample.

Year	Frequency	Percent
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Freshman	34	26.0
Sophomore	36	27.5
Junior	31	23.7
Senior	27	20.6
Redshirt	3	2.3
Total	131	100.0

Representativeness of Sample to Population

The sample (n = 131) was not found to be representative of the population of athletes competing in the Colonial Athletic Association Conference, the Capital Athletic Conference, and the Collegiate Athletic Association Conference in 2015-16 in terms of gender. Percentages of gender by race in both the sample and population are provided in Table 10.

Table 10.

Percentages of gender by race in sample and population.

Gender x Race		Percentage in Sample (n=131)	Percentage in Population (N=14,578)	Weight Value
Male	Multiracial	3.0%	2.4%	3.827
	Black	9.1%	18.7%	8.871
	White	78.8%	69.9%	3.827
	Asian	3.0%	1.2%	1.779
	Native Hawaiian/Pacific Islander	0%	.1%	0
	Hispanic/Latino	0%	4.1%	0
	Other	6.06%	3.7%	2.640
Female	Multiracial	1.0%	2.9%	3.298
	Black	11.2%	10.3%	1.062
	White	79.6%	78.6%	1.141
	Asian	2.0%	1.8%	1.0
	Native Hawaiian/Pacific Islander	2.0%	.2%	.105
	Hispanic/Latina	2.0%	3.0%	1.684
	Other	2.0%	3.3%	1.868

Weighting cases. Due to disproportionate representation of gender in the sample compared to the population, cases were weighted by gender and race prior to analyzing

the data. Individual case weights were calculated, as suggested by Kish (1990), in order to correct for disproportionate sampling fractions. Weights are calculated by dividing the observed percentage of the race by gender in the sample by the expected percentage of the race by gender based on percentages in the population. All statistical analyses were conducted using the weighted value for each case. Percentages of race by gender in the sample and population are provided in Table 9 along with associated weight values calculated to produce a proportionate sample.

Weighted frequency distributions. The following tables include the frequency of cases by demographic information collected including gender, age, race, sport, division, year in academics, and year in athletics for weighted cases.

Gender weighted. Weighting cases purposefully significantly adjusted the gender distribution while maintaining as many cases as possible. The proportion of females in the sample decreased from 73.7 percent to 45.4 percent and the proportion of females in the sample increased from 44.3 percent to 54.6 percent which are both representative of the population from which the sample is drawn (55.7% males; 44.3% females; Table 11). Table 11.

<i>Weighted gender distribution in sample.</i>		
Gender	Frequency	Percent
Male	137	54.6
Female	113	45.4
Total	250	100.0

Age weighted. Weighting cases resulted in a mean age of 19.98 ($SD = 1.140$) and median age of 20. Again the distribution was normal with a skewness of $-.072$ ($SE = .154$) and kurtosis of $-.811$ ($SE = .307$) with the least participants 18 or 22 of age and most participants' ages in the middle of the range (Table 12).

Table 12.

Weighted age distribution in sample.

Age	Frequency	Percent
18 years	28	11.2
19 years	59	23.5
20 years	74	29.8
21 years	67	27.0
22 years	22	8.6
Total	250	100.0

Race weighted. Weighting cases purposefully adjusted the distribution of participants from categories of race resulting in a reduced percentage of White participants (79.4% to 75.4%), an increased percentage of Black participants (10.7% to 15.3%) and a slight increase in percentage of participants who selected Other/Prefer not answer. The remaining race categories slightly decreased by no more than one percent (Table 13).

Table 13.

Weighted race distribution in sample

Race	Frequency	Percent
Multiracial	7	2.7
Black	38	15.3
Caucasian	189	75.4
Asian	4	1.5
Native Hawaiian/Pacific Islander	< 1	.1
Hispanic/Latino	3	1.3
Other	9	3.7
Total	250	100.0

Sport weighted. After weighting cases, men's basketball (21.3%) replaced women's lacrosse (10.4%) for highest proportion of participants, followed by men's football (9.2%) and women's softball (8.5%) with the remaining sports making up six or less percent of the sample (Table 14).

Table 14.

Weighted sport distribution in sample

Sport	Frequency	Percent
Women's Basketball	9	3.6
Men's Basketball	53	21.3
Men's Football	23	9.2
Women's Lacrosse	26	10.4
Men's Lacrosse	4	1.5
Women's Track & Field	3	1.3
Men's Track & Field	4	1.5
Women's Cross Country	7	2.7
Men's Cross Country	19	7.7
Women's Softball	21	8.5
Men's Baseball	1	.5
Women's Field Hockey	13	5.3
Women's Swimming & Diving	8	3.2
Men's Swimming & Diving	8	3.1
Women's Soccer	10	4.1
Men's Soccer	5	2.1
Men's Gymnastics	8	3.1
Women's Tennis	2	.9
Men's Tennis	3	1.1
Women's Volleyball	5	1.9
Equestrian	4	1.7
Cheerleading	14	5.5
Total	250	100.0

Sport type weighted. Weighting cases slightly increased the percentage of participants involved in lean sport types in the sample from 25.2 to 27.2 percent (Table 15).

Table 15.

Weighted sport type distribution in sample.

Type	Frequency	Percent
Lean	68	27.2
Non-Lean	182	72.8
Total	250	100.0

Division weighted. Weighting cases resulted in an increase in the percentage of participants in the sample representing Division I athletes, with an increase from 31.3 to 37.3 percent (Table 16).

Table 16.

Weighted division distribution in sample.

Division	Frequency	Percent
Division I	93	37.3
Division III	157	62.7
Total	250	100.0

Year in academics weighted. Weighting cases resulted in a less even distribution of participant years in academics than prior to weighting, with freshmen making up 19.5 percent of the sample and juniors making up 28.2 percent after cases were weighted (Table 17).

Table 17.

Weighted year in academics distribution in sample.

Year	Frequency	Percent
Freshman	49	19.5
Sophomore	74	29.6
Junior	70	28.2
Senior	57	22.7
Total	250	100.0

Year in athletics weighted. Weighting cases also resulted in a less even distribution of participant years in academics than prior to weighting, with athletic seniors making up only 16.3 percent (from 20.6) of the sample and sophomores making up 34.2 percent (from 27.5%) after cases were weighted (Table 18).

Table 18.

Weighted year in athletics distribution in sample.

Year	Frequency	Percent
Freshman	55	22.1
Sophomore	86	34.2
Junior	62	24.9
Senior	41	16.3
Redshirt	6	2.4
Total	250	100.0

Research Questions

The research questions investigated in the current study include:

1. Does Reflective Judgment moderate the relationship between Sociocultural and Sport Pressures and the Body Ideal Internalization among female and male college athletes?
2. If so, does the moderating effect on the relationship between Sociocultural and Sport Pressures and the Body Ideal Internalization lead to lower Body Dissatisfaction amongst male and female college student-athletes?
3. Does the moderating effect of Reflective Judgment on the relationship between Sociocultural and Sport Pressures and Body Ideal Internalization differ between samples of male college athletes and female college student-athletes?

Research Design

The research design was a web-based, self-report, cross-sectional analysis of male and female college student athletes' perceived Sociocultural Pressures, Sport Pressures, Reflective Judgment, Body Ideal Internalization, and Body Dissatisfaction. This was a quantitative causal-comparative design. The purpose of the causal-comparative design is to explore relationships among variables that cannot be actively manipulated or controlled by the researcher (Gay, Mills, & Airasian, 2011).

Instrumentation

Reflective Judgment

The RCI test is a measure of Reflective Judgment designed to identify an individual's assumptions about knowledge and the levels of certainty that knowledge claims can be made (Wood, Kitchener, & Jensen, 2002). Correlations with the RJI have

been found to be between .30 and .40 for the RCI (Wood et al., 2002), suggesting that the RCI and RJI measures similar but separate constructs related to Reflective Judgment.

The major difference between the RCI and the RJI is that instead of producing an argument in the RJI, participants completing the RCI recognize and rank arguments that most reflect their own beliefs that are provided in a list similar to Rest's Defining Issues Test (Rest, 1993). Participants are presented with one of five problems and are asked to write a short response to a question on the given topic in their own words and then rate, on a Likert scale, the extent to which each of ten short written responses are similar to their own written response. Each statement represents the epistemic assumptions of one level of the Reflective Judgment model. After rating the statements, participants are asked to rank three statements as most similar to their own views.

To score the RCI, a rating ranging from a Reflective Judgment score of a Pre-reflective Thinker 2 to that of Reflective Thinker 7 is assigned to each of the three ranked statements (Wood et al., 2002). These ranked statements are then weighted to favor the most highly ranked statement and these weighted scores are summed for each dilemma. The five dilemmas are averaged to comprise the total RCI score, as in the Defining Issues Test. For the current study, RCIs completed by participants were sent to the Center for the Study of Higher Education and Postsecondary Education at the University of Michigan for scoring.

Internal consistency for the RCI across large samples of college students has been found to be in the range of low to mid .70's (Wood, Kitchener, & Jensen, 2003). A recent investigation found a Cronbach's alpha estimate of $\alpha = .79$ for the RCI when administered to undergraduate students and a Cronbach's alpha estimate of $\alpha = .51$ when

administered to graduate students, suggesting that the internal consistency of the RCI is significantly stronger when administered to undergraduate samples than graduate student samples (Owen, 2011). In the current study the RCI was administered to both male and female student athlete participants to measure athletes' Reflective Judgment.

Sport Pressures

Female athletes. The WPS-F is an 11-item scale used to assess sport-specific weight pressures unique for female athletes participating in a variety of sports (Reel et al., 2013). Participants rate each item using a 6-point Likert scale ranging from 1 = Never to 6 = Always and the WPS-F is scored by the average. Higher scores on the WPS-F represent more weight-related pressures in sport for female athletes. The WPS-F is composed of two factors: (1) Pressures from coaches and sport about weight (Weight) and (2) Pressures regarding appearance and performance (Appearance). Strong internal consistency has been reported for each of these factors, with Cronbach alphas of $\alpha = .90$ for the Weight factor and $\alpha = .86$ for the Appearance factor. The WPS-F has been found to have strong convergent validity with the perceived Sociocultural Pressures generally as evidenced by a significant correlation with the PSPS and strong concurrent validity as evidenced by significant correlations with measures of internalization, dietary restraint, and bulimic symptomatology (Reel et al., 2013).

In the current study, the WPS-F was administered to female student-athlete participants only to measure the sport-weight pressures reported by female athletes. Total internal consistency for the WPS-F was $\alpha = .873$ with $\alpha = .765$ for the Weight subscale and $\alpha = .867$ for the Appearance subscale.

Male athletes. The WPS-M is a 12-item scale used to assess sport-weight pressures unique for male athletes participating in a variety of sports (Galli et al., 2014). Participants rate each item using a 6-point Likert scale ranging from 1 = Never to 6 = Always and the WPS-M is scored by the average. Higher scores on the WPS-M represent more weight-related pressures in sport for male athletes. The WPS-M is composed of three factors: (1) Pressures from coaches and teammates (Coach/Teammate Pressures), (2) Body Weight and Appearance Importance (Body Weight and Appearance), and (3) Uniform pressures. Strong internal consistency has been reported for each of these factors, with Cronbach alphas of $\alpha = .84$ for the Coach/Teammate pressures factor, $\alpha = .73$ for the Body Weight and Appearance Importance factor, and $\alpha = .74$ for the Uniform Pressures factor. The WPS-M has been found to have small-to-moderate convergent validity with the modified PSPS, suggesting that the WPS-M factors for the male athlete environment are unique from the general societal pressures athletes experience about being lean, having more muscular build, and being more attractive (Galli et al., 2014). The WPS-M has been found to have strong concurrent validity as evidenced by significant correlations with measures of internalization, dietary restraint, body satisfaction, and bulimic symptomatology (Galli et al., 2014).

In the current study, the WPS-M was administered to male student-athlete participants only to measure the sport-weight pressures reported by male athletes. Total internal consistency for the WPS-M was $\alpha = .820$ with $\alpha = .820$ for the Coach/Teammate Pressures, $\alpha = .575$ for the Body Weight and Appearance, and $\alpha = .559$ for the Uniform Pressures subscales.

Sociocultural Pressures

Females. The PSPS is a 12-item scale developed to assess the amount of sociocultural pressure women experience (1) to lose weight, (2) to be more attractive, and (3) to have the perfect body (Stice & Agras, 1998). Within each area, participants rate the pressures they perceive from family, female friends, romantic/dating partners, and the media using a 5-point scale ranging from 1 = never to 5 = always. Total scores will be calculated for each of the three pressure areas by averaging the ratings across the sources, with higher scores indicating more perceived sociocultural pressure. Cronbach's alphas have been reported as $\alpha = .74$ (Lose Weight), $\alpha = .81$ (Attractive), and $\alpha = .84$ (Perfect Body) for the PSPS with a sample of female college athletes (Reel et al., 2013). Two-week test-retest reliability coefficients ranged from .75 to .96 in a sample of female undergraduates (Stice & Agras, 1998). In Reel and colleagues' (2013) study with $n = 207$ female college student athletes, the mean PSPS was 2.04($SD = .953$) with a range of 1.0 – 4.83.

In the current study, the PSPS was administered to female student-athlete participants only to measure female athletes' perceived Sociocultural Pressures for adhering to body ideals. Total internal consistency for the PSPS was $\alpha = .897$ with $\alpha = .726$ for the Lose Weight, $\alpha = .781$ for the Attractive, and $\alpha = .766$ for the Perfect Body subscales.

Males. Galli and colleagues (2014) modified the original PSPS to be more reflective of Sociocultural Pressures for males. The modified version of the PSPS is a 12-item scale used to assess perceived Sociocultural Pressures across three areas: (1) to have a lean body, (2) to look more muscular, and (3) to be more attractive. Within each area, participants rate the pressure they experience from four different sources: male

friends, family, girlfriends/partners, and the media using a 5-point scale that ranges from 1 = never to 5 = always. Total scores for each area are the mean ratings of the four sources, with higher scores indicating more perceived pressures. Cronbach's alphas have been reported as $\alpha = .87$ (Lean Body), $\alpha = .85$ (Muscular), and $\alpha = .87$ (Attractive) for the modified PSPS with a sample of male college athletes (Galli et al., 2014). The modified PSPS has been significantly negatively correlated with measures of body satisfaction, and significantly positively correlated with measures of body ideal internalization and dietary restraint. In Tylka, Bergeron, and Schwartz's (2005) investigation with male college students ($n = 241$), mean PSPS scores were 2.36 ($SD = .85$).

In the current study, the modified PSPS was administered to male student-athlete participants only to measure male athletes' perceived Sociocultural Pressures for adhering to body ideals. Total internal consistency for the modified PSPS was $\alpha = .871$ with $\alpha = .548$ for the Lean Body, $\alpha = .770$ for the Muscular, and $\alpha = .851$ for the Attractive subscales.

Internalization of Body Ideals

The SATAQ-3 is a 30-item scale used to measure societal influences on body image and eating disturbances (Thompson et al., 2004). For each item of the SATAQ-3, participants rate their agreement on a 5-point Likert scale that ranges from 1 = completely disagree to 5 = completely agree. The total score is the mean of all ratings and ranges from 1 = low internalization to 5 = high internalization. The scale is made up of four factors: (1) Internalization – General (nine items); (2) Pressures (seven items); (3) Internalization-Athlete (five items); and (4) Information (nine items). In the current investigation, participants will be asked to complete only the Internalization – General

items and the Internalization – Athlete items, consistent with recent research on the internalization of body ideals amongst college athletes (Galli et al., 2014; Reel et al., 2013). The Internalization – General factor is used to measure the degree to which participants internalize general societal messages from the media about beauty, attractiveness, and body size/shape. The Internalization – Athlete factor is used to measure the degree to which participants internalize messages from athletic culture to adhere to the perfect athlete body.

These factors have both been found to have high internal consistency, with Cronbach alphas of $\alpha = .92$ for the Internalization – General factor and $\alpha = .89$ for the Internalization – Athlete factor (Thompson et al., 2004). Strong construct validity has been found for the Internalization - General factor, as evidenced by a main effect of the factor with patients with eating disorders and disordered eating scoring significantly higher than control subjects. Strong construct validity has also been reported for the Internalization – Athlete factor as measured by significantly different mean scores for samples of individuals with disordered eating as compared to control samples. The SATAQ-3 was also found to have high predictive validity to eating disturbance as measured by a significant regression with the Eating Disorders Inventory (EDI; Garner, 1991) Dietary Restraint subscale (Thompson et al., 2004).

In Reel and colleagues' (2013) study with $n = 207$ female college student athletes, the mean total SATAQ-3 score was $2.85(SD = .98)$ with a range of $1.0 - 5.0$. In a study comparing female residential patients with eating disorders and a norm sample of female college students, Calogero, Davis, and Thompson (2004) found a mean score of $3.91(SD = 1.0)$ for the Internalization – General factor and a mean score of $4.09(SD = .88)$

Internalization – Athlete factor for the residential patients with eating disorders ($n = 440$) compared to a mean score of 3.18($SD = 1.09$) for the Internalization – General factor and a mean score of 3.24($SD = .982$) for the Internalization – Athlete factor for the norm sample of female college students ($n = 370$). In Pritchard and Nielson's (2014) investigation of female and male college athletes and non-athletes, male college athletes ($n = 38$) were found to have a mean total SATAQ-3 score of 3.11($SD = .86$). Female college athletes ($n = 30$) were found to have a mean total SATAQ-3 score of 3.59($SD = .90$).

In the current study, the SATAQ-3 was administered to both female and male student-athlete participants to measure athletes' internalization of sociocultural and athlete body ideals. Total internal consistency for both males and females together was $\alpha = .887$ with $\alpha = .878$ for the Internalization – General subscale and $\alpha = .740$ for the Internalization – Athlete subscale.

Body Dissatisfaction

Females. The BPSS-R is an 11-item scale used to measure females' body satisfaction (Petrie et al., 2002). The BPSS-R is made up of two factors: (1) Satisfaction with face and (2) Satisfaction with body. Because of the focus of the current study concerning body image, participants will be asked to complete the 7-items from the Body Factor from the BPSS-R only. For each body part, participants indicate their levels of satisfaction using a 6-point scale that ranges from 1 = extremely dissatisfied to 6 = extremely satisfied. The total BPSS-R score is the mean, which can range from 1 = low satisfaction to 6 = high satisfaction. In a sample of female undergraduates, Petrie and colleagues (2002) reported internal consistency (Cronbach's alpha) of $\alpha = .90$. The Body

Factor of the BPSS-R has been found to have both strong construct and concurrent validity, with significant correlations with measures of undergraduate women's body mass index, body satisfaction, importance of appearance, concern with body size and shape, bodily shame/guilt, bodily dysphoria, dietary restraint, binge eating, and body shaming (Petrie et al., 2002). These correlations were found to be significantly stronger for the Body factor than the Face factor for of the BPSS-R (Petrie et al., 2002). In Reel and colleagues' (2013) study with $n = 207$ female college student athletes, the mean total BPSS-R score was $2.09(SD = .93)$ with a range of $1.0 - 4.86$.

In the current study the BPSS-R was administered to female student-athlete participants only to measure the body satisfaction of female athletes. Internal consistency for the BPSS-R for the females in the current sample was $\alpha = .914$.

Males. The BPSS-M is a 25-item scale used to measure males' body satisfaction (McFarland & Petrie, 2012). Consistent with recent research on the body satisfaction of amongst male college athletes (Galli et al., 2014), 14 of the 25 items from the BPSS-M will be selected for the current study to assess male student athlete participants' satisfaction with upper body based on leanness and muscularity ratings of specific body parts and overall body. These 14 items were selected by Galli and colleagues (2014) as items that best represent athletes' satisfaction with their bodies. For each item, participants rate their level of satisfaction using a 6-point Likert scale ranging from 1 = extremely dissatisfied to 6 = extremely satisfied. The total BPSS-M score is the mean of each item and higher scores indicate more satisfaction with one's body. In a sample of male college athletes, internal consistency was found to be high, with Cronbach's alpha $\alpha = .96$ (Galli et al., 2014). Internal consistency and 6-month test-retest reliability were

also found to be high in a sample of male undergraduates, with values of $\alpha = .98$ and $r = .72$ respectively (McFarland & Petrie, 2012). Strong construct and concurrent validity have also been reported for the BPSS-M, with the upper body factor found to significantly positively correlate with measures of self-esteem ($r = .49$), satisfaction with life ($r = .39$), and significantly negatively correlate with measures of depression ($r = -.35$) and bulimic symptomatology ($r = -.34$) (McFarland & Petrie, 2012). McFarland and Petrie (2012) found that college men ($n = 189$) who were satisfied with their weight had a mean BPSS-M upper-body factor score of 1.65($SD = .97$), which they found to be significantly higher than those who were dissatisfied with their weight ($M = 2.48$, $SD = .96$).

In the current study the BPSS-M was administered to male student-athlete participants only to measure the body satisfaction of male athletes. Internal consistency for the BPSS-M for the males in the current sample was $\alpha = .915$.

Data Analysis

SEM was used in the current study to investigate the relationship between the latent factors of Sociocultural Pressures, Sport Pressures, Reflective Judgment, internalization, and Body Dissatisfaction among male and female college student athletes using the SPSS add-on program, Amos 21 (Arbuckle, 2012). SEM allows the researcher to examine a hypothesized model fit by analyzing the weight of direct and indirect linear structural relations among a number of factors simultaneously (Jöreskog & Sörbom, 2002). SEM has been widely used in the development of the sociocultural model of eating disorder development (Stice & Agras, 1998) and to test hypothesized factors that contribute to the sociocultural model such as feminist beliefs (Myers & Crowther, 2007).

In the current investigation, multi-sample SEM was used to test a model investigating the moderating influence of Reflective Judgment in the established mediational relationship between the path of Sociocultural and Sport Pressures to adhere to body ideals contributing to the internalization of body ideals and Body Dissatisfaction amongst female college athletes and male college athletes separately as well as together (Figure 1). The sample was split by gender. Before testing for measurement invariance across gender, the researcher first tested the hypothesized model for acceptable fit for the all-groups sample. Then, the model was tested for acceptable fit for each of the multiple groups individually. Each sample was tested for acceptability with goodness of fit analyses and by all regression and covariance weights (Garson, 2015). These baseline findings determined if the hypothesized path model was plausible for the multiple groups. Separate testing provides an overview of how consistent the hypothesized model results are; if the results of a multi-sample SEM analysis indicate poor model fit, one can conclude that the groups differ, suggesting that moderation has occurred (Garson, 2015). Correlational analyses were also utilized to examine the relationships among all variables and descriptive information and bivariate correlations were explored in early diagnostics.

Research Hypotheses

Figure 1 represents the hypothesized path model for the current investigation for both male and female college athletes.

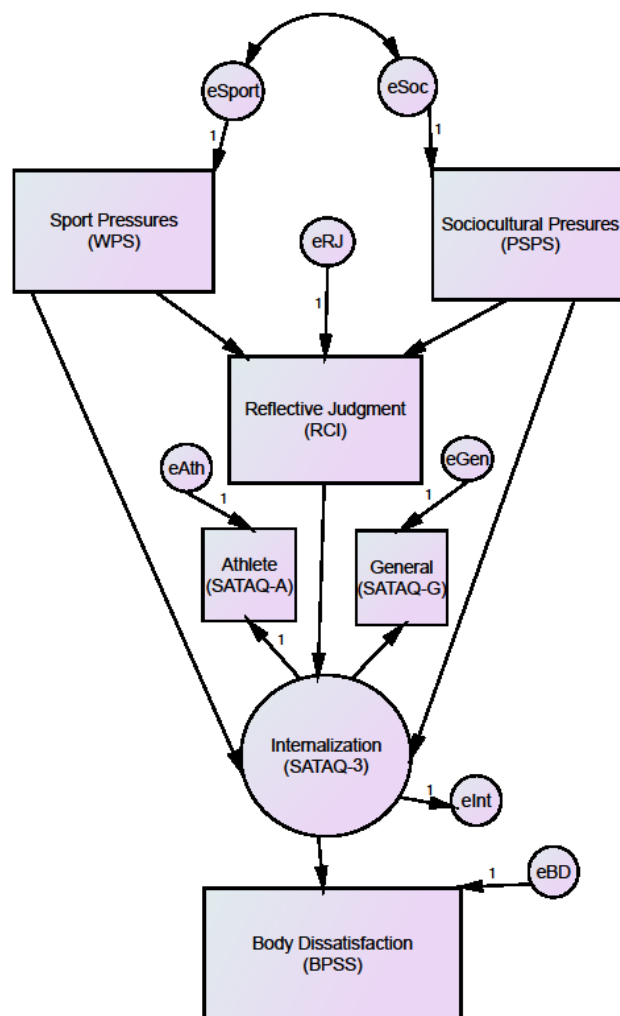


Figure 1. Original hypothesized model tested in multi-sample SEM.

The model begins with the observed variables of Sociocultural Pressures, as measured by the valid and reliable PSPS for women and the PSPS revised for men, and Sport Pressures, as measured by the valid and reliable WPS-F for women and WPS-M for men (Galli et al., 2014; Reel et al., 2013). Galli et al. and Reel et al.'s investigations found significant correlations between these observed variables, however, an overarching construct of "Pressures" has not yet been defined in the literature that would suggest that these observed factors be a part of the same overall factor structure, as Hermida (2015) would suggest to consider rather than hypothesizing covariance in the errors of these

factors due to concerns related to inflating goodness-of-fit indices in doing so. Therefore, it is initially predicted that the error variance of these two observed variables (Sociocultural and Sport Pressures) will have a bidirectional relationship (Hypothesis 8: $eSport \leftrightarrow eSoc$). If these covariant relationships are significant for both the female and male final models, the researcher will considering identifying an overall unobserved factor “Pressures” for the two observed factors (Sport and Sociocultural Pressures) to make up one factor structure. =

The direct relationships between both Sociocultural Pressures (PSPS) (Griffiths et al., 2014; Halliwell & Harvey, 2006; Stice & Agras, 1998; Stice et al., 1994; Thompson & Sherman, 2001) and Sport Pressures (WPS) (Anderson et al., 2012; Galli et al., 2014; Homan, 2010; Reel et al., 2013) as predictors of body ideal internalization have been substantiated in a number of investigations. Internalization of the Athlete ideal and internalization of General ideals are two observed variables that contribute to the latent variable of Body Ideal Internalization as evidenced by the valid and reliable measure of the SATAQ-3 (Thompson et al., 2004) (Hypothesis 1: $PSPS \rightarrow SATAQ$; Hypothesis 2: $WPS \rightarrow SATAQ$).

Body Ideal Internalization (SATAQ) has been found to be a full mediator in the relationships between Sociocultural and Sport Pressures and the observed variable of Body Dissatisfaction among athletes and non-athletes, as predicted in the hypothesized model (Becker et al., 2012; Galli et al., 2014; Griffiths et al., 2014; Reel et al., 2013; Stice, 2002; Thompson & Stice, 2001) (Hypothesis 7: $SATAQ \rightarrow BPSS$).

The observed variable of Reflective Judgment, as measured by the RCI (Wood et al., 2003), as a moderator between Sociocultural/Sport Pressures and Body Ideal

Internalization has not yet been investigated but is the major hypothesis of the predicted model as informed by the sociocultural model of eating disorder development, the theory that drives current cognitive dissonance based programming, the Reflective Judgment model, and feminist identity development. As Reflective Judgment is not predicted to fully mediate the relationship between Sociocultural/Sport Pressures, direct effects are also predicted for both Sociocultural Pressures and Sport Pressures on Body Ideal Internalization (Hypotheses 3&6: WPS \rightarrow RCI \rightarrow SATAQ; Hypothesis 4&5: PSPS \rightarrow RCI \rightarrow SATAQ).

Hypothesis 1 (PSPS \rightarrow SATAQ) – There will be a significant, direct positive effect of higher reported Sociocultural Pressures (PSPS) on Body Ideal Internalization (SATAQ) among female and male college student-athletes.

Hypothesis 2 (WPS \rightarrow SATAQ)– There will be a significant, direct positive effect of higher reported Sport Pressures (WPS) on Body Ideal Internalization (SATAQ) among female and male college student-athletes.

Hypothesis 3 (WPS \rightarrow RCI \rightarrow SATAQ)– There will be a significant, indirect positive effect of higher reported Sport Pressures (WPS) on Body Ideal Internalization (SATAQ) among female and male college student-athletes.

Hypothesis 4 (PSPS \rightarrow RCI \rightarrow SATAQ) – There will be a significant, indirect positive effect of higher reported Sociocultural Pressures (PSPS) on Body Ideal Internalization (SATAQ) among female and male athletes.

Hypothesis 5 (PSPS \rightarrow RCI \rightarrow SATAQ) – Reflective Judgment (RCI) will significantly moderate the indirect relationship between reported Sociocultural Pressures (PSPS) and Body Ideal Internalization (SATAQ) among female and male student-

athletes, with higher Reflective Judgment (RCI) significantly predicting lower Body Ideal Internalization (SATAQ).

Hypothesis 6 – (WPS → RCI → SATAQ) - Reflective Judgment will significantly moderate the indirect relationship between reported Sport Pressures (WPS) and Body Ideal Internalization (SATAQ) among female and male student-athletes, with higher Reflective Judgment significantly predicting lower Body Ideal Internalization (SATAQ).

Hypothesis 7 (SATAQ → BPSS) - There will be a significant, positive effect of higher reported Body Ideal Internalization (SATAQ) on Body Dissatisfaction (BPSS) among female and male student-athletes.

Hypothesis 8 (eSport ↔ eSoc) – There will be a significant relationship between Sociocultural Pressures (PSPS) and Sport Pressures (WPS) among female and male college student-athletes as depicted by covariance in error variances for WPS and PSPS.

The hypothesized path models for female college athletes only and for the male college athletes only were the same as for the all-groups sample, as there were no predicted differences in the path models. This is informed by the similarities between Galli and colleagues' (2014) and Reel and colleagues (2013) findings into the sociocultural model of eating disorder development among male college athletes and female college athletes in terms of path model analyses.

Ethical Considerations

The following precautions were undertaken in efforts to maintain ethical standards of research practice:

1. The proposal of this study was submitted to and approved by the College of William and Mary's Institutional Review Board (IRB). It was subsequently approved by the IRB of each of the three institutions from which student athlete participants were drawn, with minor changes made to the consent form for each university as requested by the IRBs.
2. Participants were fully informed of the purpose of this investigation in writing within the consent form.
3. Participation was voluntary and participants were informed of their right to discontinue the survey at any times in the consent form.
4. Participants were assured of the confidentiality of their responses in the consent form.
5. Participants were provided with debriefing statements to include counseling referral resources in the community that their university is located in the event that they became interested in further exploring body image concerns following participation in the study.

Summary

The researcher investigated the moderating relationship of Reflective Judgment (as measured by the RCI) on the relationship between Sociocultural Pressures (as measured by the PSPS and PSPS-M) and Sport Pressures (as measured by the WPS-F and WPS-M) and Body Ideal Internalization (as measured by the SATAQ-3) on Body Dissatisfaction (as measured by the BPSS-R and BPSS-M) within a sample of NCAA Division I and Division III male and female college athletes from three universities throughout the state of Virginia. The investigation was a cross-sectional, web-based,

self-report, causal-comparative design and data was analyzed with a multi-sample SEM.

Ethical standards were maintained throughout the data gathering and analysis procedures.

The next chapter will describe the results from the significance tests of the hypothesized path model for male and female athletes together, as well as male and female college athletes separately.

CHAPTER FOUR

Chapter Three presented the steps the researcher undertook to select the research sample, recruit participants, collect and preliminarily analyze the data for the current study. This chapter describes the steps the researcher undertook to analyze the data collected by first exploratory analyses of descriptive statistics and correlations among the variables of Reflective Judgment (RCI), Body Ideal Internalization (SATAQ), Sport Pressures to adhere to body ideals (WPS), Sociocultural Pressures to adhere to body ideals (PSPS), and Body Dissatisfaction (BPSS) among the sample ($n = 250$) of male and female college student-athletes. This chapter also describes the Multi-Sample SEM conducted in order to answer the research questions and test the research hypotheses.

Analysis of Results

Research Questions

1. Does Reflective Judgment (RCI) moderate the relationship between Sociocultural and Sport Pressures and the Internalization Of Body Ideals among female and male college student-athletes?
2. Does the moderation effect on the relationship between Sociocultural and Sport Pressures and the Internalization of Body Ideals reduce Body Dissatisfaction amongst male and female college student-athletes?
3. Does the moderation influence of Reflective Judgment on the relationship between Sociocultural and Sport Pressures and Internalization of Body Ideals differ between samples of male college athletes and female college student-athletes?

Descriptive Statistics

Frequency distributions and descriptive statistics were examined in the total sample and then females and males separately for each of the following variables: Reflective Judgment (RCI); Sport Pressures (WPS); Sociocultural Pressures (PSPS); Body Ideal Internalization (SATAQ-3); Body Ideal Internalization – General factor (SATAQ-G); Body Ideal Internalization - Athlete factor (SATAQ-A); Body Dissatisfaction (BPSS) (Table 19). Frequency distributions for each variable can be found in Appendix G.

Significant skewness or kurtosis for each distribution was determined by the standard error rule that suggests that if the absolute value of the skewness or kurtosis statistic is greater than two times the standard error of skewness or kurtosis, then the distribution is significantly skewed or kurtotic (Brown, 1997; Lomax & Hahs-Vaughn, 2012). The 2.0 rule of thumb was also considered, in that even if the distribution was found not to be significantly skewed or kurtotic by the above standard error rule, if the absolute value of the skewness or kurtosis statistic was greater than 2.0 the distribution was considered to be significantly skewed or kurtotic (Lomax & Hahs-Vaughn, 2012).

Table 19.

Sample descriptive statistics scores on all measures.

Variable**	Mean(SD)*	Median	Range	Skewness (SEs)*	Kurtosis (SEk)*	Model Notes
RCI Total	4.48(8.28)	4.57	1.6 - 6.23	-.604(.154)	-.642(.307)	Negative skew & Platykurtic Negative skew Platykurtic
RCI Females	4.48(.920)	4.66	1.6 - 6.03	-.846(.227)	.631(.227)	
RCI Males	4.48(.747)	4.57	2.57 - 6.23	-.211(.207)	.312(.412)	
SATAQ-3 Total	3.05(.816)	3.0	1.0 - 5.0	-.083(.154)	-.363(.307)	
SATAQ-3	3.22(.832)	3.2	1.0 - 5.0	-	-.143(.451)	

Female				.236(.227)		
SATAQ-3	2.91(.778)	2.93	1.0 - 5.0	-	-.450(.412)	
Male				.019(.207)		
SATAQ-G	2.88(.981)	2.9	1.0 - 5.0	.010(.227)	-.655(.451)	
Female						
SATAQ-G	2.66(.830)	2.9	1.0 - 4.22	-.166(.207)	-.611(.412)	
Male						
SATAQ-A	3.83(.970)	4.0	1.0 - 5.0	-	.584(.451)	Negative skew
Female				.975(.227)		
SATAQ-A	3.36(.888)	3.2	1.0 - 5.0	-	-.167(.412)	
Male				.047(.207)		
WPS	2.34(.876)	2.09	1.0 - 4.09	.685(.154)	.133(.307)	Positive skew
Total						
WPS	2.26(.985)	2.09	1.0 - 5.09	.776(.227)	.070(.451)	Positive skew
Female						
WPS	2.41(.771)	2.25	1.09 - 4.50	.686(.207)	.119(.412)	Positive skew
Male						
PSPS	1.76(.727)	1.58	1.0 - 4.08	1.02(.154)	.158(.307)	Positive skew
Total						
PSPS	1.98(.8)	1.83	1.0 - 4.08	.583(.227)	-.544(.451)	Positive skew
Female						
PSPS	1.59(.612)	1.42	1.0 - 3.42	1.46(.207)	1.42(.412)	Positive skew
Male						
BPSS	2.57(.912)	2.5	1.0 - 5.57	.485(.154)	-.424(.307)	Positive skew
Total						
BPSS	2.75(1.03)	2.57	1.0 - 5.57	.512(.227)	.153(.451)	
Female						
BPSS	2.42(.777)	2.5	1.0 - 3.86	.032(.207)	-.500(.412)	
Male						

Notes. *SD = standard deviation, SE_s = standard error of skewness, SE_k = standard error of kurtosis; **RCI = Reasoning about Current Issues test which is the measure of Reflective Judgment, SATAQ-3 = Sociocultural Attitudes Towards Appearance Questionnaire-3 which is the measure of Body Ideal Internalization, SATAQ-G = Internalization – General Factor is the Internalization factor that measured general societal Body Ideal Internalization, SATAQ-A = Internalization – Athlete Factor is the Internalization factor that measured athlete-specific Body Ideal Internalization, PSPS = Perceived Sociocultural Pressures Scale which is the measure for Sociocultural Pressures, WPS = Weight Pressures in Sport scale which is the measure for Sport Pressures and BPSS = Body Parts Satisfaction Scale which is the measure for Body Dissatisfaction.

As illustrated in Table 19, the majority of the variables had distributions within the acceptable range of normality with the exception of the WPS (total and for male and

female) the PSPS (total and for male and female separately) which all had positively skewed distributions, reflected by relatively low mean scores and low ranges. The SATAQ-A was negatively skewed for the female only sample, reflected by a relatively high mean score (3.83 out of 5.0), and the RCI was found to be both platykurtic and negatively skewed for both the total sample and the female only sample but not for the male only sample. This negative, platykurtic distribution was reflected by a relatively large range yet high mean RCI score for the total sample and for the females only.

Sample descriptive statistics in reference to related samples. Though none of the measures for the factors within the sociocultural model of eating disorder development (Sport Pressures by the WPS, Sociocultural Pressures by the PSPS, Body Ideal Internalization by the SATAQ, & Body Dissatisfaction by the BPSS) have specific cut-off scores that represent a certain degree of concern with each factor, the higher an individual scores on each measure, the more pressures, internalization, or Body Dissatisfaction they reportedly experience. Without a specific cut-off point for major concern, the researcher pulled mean scores from several recent studies to compare the mean and standard deviations with *t*-tests of significance to determine whether the current sample is similar or different from other recent samples of college students, residential treatment patients with eating disorders, or college student-athletes. The available comparisons are outlined in Table 20. Table 20 also includes RCI scores from a recent study with undergraduate students, though the RCI does have specific cut-off scores that represent seven qualitatively different stages of Reflective Judgment from 1.0 - 7.0.

When compared to the mean PSPS score in Reel and colleagues' (2013) sample of 207 female college gymnasts, swimmers, and divers were not found to significantly

differ. However, the current investigation had a slightly lower range than what was found in Reel et al.'s sample, which reflects the negative skewed distribution in the current study. When compared to the mean PSPS scores in Tylka and colleagues' (2005) sample of 241 male college students, the mean PSPS score for males student-athletes in the current sample was found to be significantly lower. Tylka and colleagues (2005) did not report a range of scores for their sample so these could not be compared. A comparison between PSPS mean scores in the current sample of male student-athletes and another study (such as Galli et al., 2014) of male student-athletes rather than male college students in general would be a more appropriate comparison, however, Galli and colleagues (2014) did not report mean PSPS scores for their sample of male student-athletes.

When compared to the mean SATAQ-3 score in Reel and colleagues (2013) sample of 207 female college gymnasts, swimmers, and divers, the mean SATAQ-3 score in the current sample was found to be significantly greater (with the same ranges for both samples), but was found to be significantly lower than the mean SATAQ-3 scores from Pritchard and Nielson's (2014) sample of 30 female college student-athletes. Neither Pritchard and Nielson or Reel and colleagues reported descriptive statistics for the separate factors of the SATAQ-3 (SATAQ-A and SATAQ-G) for comparison to another sample of female college student-athletes. However, when compared to Calogero et al.'s (2004) sample of 440 female residential patients with eating disorders, mean SATAQ-G scores for the residential patients with eating disorders and Thompson et al.'s (2004) norm sample of 280 college women, the female student-athletes in the current sample's mean SATAQ-G scores was significantly lower than both the residential sample and the

norm sample of college women. In terms of the SATAQ-A, the current sample of female student-athletes' mean score was significantly lower than the residential patients with eating disorders, but when compared to Thompson and colleagues' (2004) norm sample of college women the current sample's mean SATAQ-A score is significantly greater. These findings make sense given that the current sample is a non-clinical sample of female student-athletes.

When compared to Pritchard and Nielson's (2014) sample of 38 male college student athletes, the male student athletes' mean SATAQ-3 scores in the current sample was not found to be significantly different. Pritchard and Nielson did not report descriptive statistics for the separate factors of the SATAQ-3 (SATAQ-A and SATAQ-G) for comparison to another sample of male college student-athletes on these factors.

When compared to the mean BPSS-R from Reel and colleagues' (2013) study with 207 female college student-athletes, the current sample mean was significantly greater with a range that was also wider. When compared to the mean BPSS-M for the college men who reported being satisfied with their weight in McFarland and Petrie's (2012) study with 130 male college students as well as those who reported being dissatisfied with their weight ($n = 57$) in their study the male student athletes in the current sample were not significantly different than those who were dissatisfied with their weight in McFarland and Petrie's study and had a mean score that was significantly greater than those who reported being satisfied with their weight in McFarland and Petrie's study. This suggests that the male student-athletes in the current sample had Body Dissatisfaction stronger than what would be expected from a norm sample.

The mean RCI score for the female student-athletes and male student-athletes

(who were all undergraduate students) in the current sample were not significantly different than Owen's (2011) sample of 34 female and male undergraduate students for females and males respectively. Though Owen (2011) did not provide mean RCI scores for the male ($n = 17$) and female ($n = 17$) undergraduate students separately in order to make separate comparisons for the current sample, as compared to Owen's total sample the current sample's mean RCI scores are expected.

The WPS for both males and females in the current sample were unable to be compared to a similar sample, as Reel and colleagues' (2013) and Galli and colleagues (2014) recently developed the WPS-F and WPS-M respectively. No studies reporting male and female student-athletes scores on the WPS were able to be located and neither Galli and colleagues or Reel and colleagues reported the mean scores for their samples in their factor analyses for the measures.

Table 20.

Sample descriptive statistics in reference to related samples.

Measure**	Comparison Sample	Independent <i>t</i> -test
Females		
PSPS Current sample $M = 1.98$, $SD = .8$ Range = 1.0 - 4.08	Reel et al. (2013) N = 207 female college gymnasts, swimmers, & divers; $M = 2.04$, $SD =$ $.953$ Range = 1.0 – 4.83	$t(2, 318) = .569$, $p = .57$
SATAQ-3 Current sample $M = 2.85$, $SD = .98$ Range = 1.0 – 5.0	Reel et al. (2013) N = 207 female college gymnasts, swimmers, & divers; $M = 3.22$, $SD =$ $.832$ Range = 1.0 – 5.0	$t(2, 318) = 4.13$, $p < .0001^*$
	Pritchard & Nielson (2014) N = 30 female college student-athletes;	$t(2, 141) = 2.17$, $p = .03^*$

	$M = 3.59, SD = .90$ No range reported.	
SATAQ-G Current sample $M = 2.88, SD = .98$	Calogero et al. (2004) $N = 440$ female residential patients with eating disorders; $M = 3.91, SD = 1.0$ No range reported. Thompson et al. (2004) $N = 280$ norm sample of college women (not specific student-athletes); $M = 3.24, SD = .982$ No range reported.	$t(2, 551) = 10.57, p < .0001^*$ $t(2, 391) = 3.67, p = .0003^*$
SATAQ-A Current sample $M = 3.83, SD = .97$	Calogero et al. (2004) $N = 440$ female residential patients with eating disorders; $M = 4.09, SD = .88$ No range reported. Thompson et al. (2004) $N = 280$ norm sample of college women (not specific student-athletes); $M = 3.24, SD = .982$ No range reported.	$t(2, 551) = 2.95, p = .003^*$ $t(2, 391) = 6.027, p < .0001^*$
BPSS-M Current sample $M = 2.75, SD = 1.03$ Range = 1.0 – 5.57	Reel et al. (2013) $N = 207$ female college gymnasts, swimmers, & divers; $M = 2.09, SD = .93$ Range = 1.0 – 4.86	$t(2, 318) = 5.84, p < .0001^*$
RCI Current sample $M = 4.48, SD = .920$	Owen (2011) female and male college students (not specific student-athletes); $M = 4.70, SD = .84$ No range reported.	$t(2, 145) = 1.25, p = .22$
Males		
PSPS Current sample	Tylka et al. (2005) $N = 241$ male college students	$t(2, 376) = 9.32, p < .0001^*$

$M = 1.59, SD = .61$	(not specific student-athletes) $M = 2.36, SD = .85$ No range reported.	
SATAQ-3 Current sample $M = 2.91, SD = .78$	Pritchard & Nielson (2014) $N = 38$ male college student-athletes; $M = 3.11, SD = .86$ No range reported.	$t(2, 173) = 1.27, p = .207$
BPSS-R Current sample $M = 2.42, SD = .78$	McFarland & Petrie (2012) $N = 130$ male college students who were satisfied with weight (not specific student-athletes); $M = 1.65, SD = .97$	$t(2, 192) = 7.18, p < .0001^*$
RCI Current sample $M = 4.48, SD = .747$	McFarland & Petrie (2012) $N = 130$ male college students who were dissatisfied with weight (not specific student-athletes); $M = 2.48, SD = .96$	$t(2, 265) = .56, p = .574$
	Owen (2011) female and male college students (not specific student-athletes); $M = 4.70, SD = .84$ No range reported.	$t(2, 171) = 1.50, p = .14$

Notes. *indicates a statistically significant difference at $\alpha = .05$. **PSPS = Sociocultural Pressures, SATAQ-3 = Body Ideal Internalization, SATAQ-G = Internalization – General Factor, SATAQ-A = Internalization – Athlete Factor, WPS = Sport Pressures and BPSS = Body Dissatisfaction; RCI = Reflective Judgment.

Comparison of males and females. Independent sample *t*-tests were performed to explore differences in the mean scores between males and females on each variable (Table 21). Females were found to have significantly greater scores on all variables with the exception of Sport Pressures (WPS), the Internalization – General Factor (SATAQ-G), and Reflective Judgment (RCI), which were not found to significantly differ between

males and females.

Table 21.

Comparison of male and female mean scores across variables.

Variable	Male <i>M</i> (<i>SD</i>)	Female <i>M</i> (<i>SD</i>)	Independent <i>t</i> -test (<i>df</i> = 248)	
BPSS	2.42(.777)	2.75(1.03)	<i>t</i> = -2.91	<i>p</i> = .004*
PSPS	1.59(.612)	1.98(.8)	<i>t</i> = -4.28	<i>p</i> < .001*
WPS	2.41(.771)	2.26(.985)	<i>t</i> = -1.340	<i>p</i> = .182
SATAQ-3	2.91(.778)	3.22(.832)	<i>t</i> = -3.026	<i>p</i> = .003*
SATAQ-A	3.36(.888)	3.83(.970)	<i>t</i> = -1.882	<i>p</i> = .061
SATAQ-G	2.66(.830)	2.88(.981)	<i>t</i> = -4.069	<i>p</i> < .001*
RCI	4.48(.747)	4.48(.920)	<i>t</i> = -.060	<i>p</i> = .952

Note. *indicates a statistically significant difference at $\alpha = .05$.

Bivariate Correlations

The research hypotheses predicted significant, positive correlations between Sociocultural Pressures, Sport Pressures, Body Ideal Internalization, and Body Dissatisfaction variables and significant, negative correlations between Reflective Judgment and Body Ideal Internalization and Body Dissatisfaction variables (summary of findings in Table 22).

Sociocultural Pressures and Sport Pressures total. Overall, Sociocultural Pressures and Sport Pressures were found to significantly positively correlate with an $r(250) = .376, p < .001$ for the total sample. This was anticipated by the research hypotheses. When the data were split by gender, Sociocultural Pressures and Sport Pressures were not found to significantly correlate for males with an $r(137) = .136, p = .113$. However, Sociocultural Pressures and Sport Pressures were found to significantly positively correlate for females with an $r(113) = .614, p < .001$ which was anticipated by the research hypotheses.

Sociocultural Pressures and Body Ideal Internalization. Overall, Sociocultural Pressures and Body Ideal Internalization were found to significantly positively correlate

with an $r(250) = .658, p < .001$ for the total sample. This was anticipated by the research hypotheses. When the data were split by gender, Sociocultural Pressures and Body Ideal Internalization were found to significantly positively correlate for males with an $r(137) = .600, p < .001$, as well as for females with an $r(113) = .685, p < .001$ which were both anticipated by the research hypotheses.

Sociocultural Pressures and Body Ideal Internalization – Athlete factor.

Overall, Sociocultural Pressures and Body Ideal Internalization – Athlete factor were found to significantly positively correlate with an $r(250) = .561, p < .001$ for the total sample. This was anticipated by the research hypotheses. When the data were split by gender, Sociocultural Pressures (PSPS) and the Body Ideal Internalization – Athlete factor were found to significantly positively correlate for males with an $r(137) = .495, p < .001$, as well as females with an $r(113) = .562, p < .001$, which were both anticipated by the research hypotheses.

Sociocultural Pressures and Body Ideal Internalization – General factor.

Overall, Sociocultural Pressures and Body Ideal Internalization – General factor were found to significantly positively correlate with an $r(250) = .596, p < .001$ for the total sample. This was anticipated by the research hypotheses. When the data were split by gender, Sociocultural Pressures and the Body Ideal Internalization - General factor were found to significantly positively correlate for males with an $r(137) = .584, p < .001$, as well as for females only with an $r(113) = .595, p < .001$, which were both anticipated by the research hypotheses.

Sociocultural Pressures and Body Dissatisfaction. Overall, Sociocultural Pressures and Body Dissatisfaction were found to significantly positively correlate with

an $r(250) = .509, p < .001$ for the total sample. This was anticipated by the research hypotheses. When the data were split by gender, Sociocultural Pressures and Body Dissatisfaction were found to significantly positively correlate for males with an $r(137) = .354, p < .001$, as well as for females only with an $r(113) = .578, p < .001$ which were both anticipated by the research hypotheses.

Sociocultural Pressures and Reflective Judgment. Overall, Sociocultural Pressures and Reflective Judgment were not found to significantly correlate, with an $r(250) = .090, p = .157$ for the total sample. When the data were split by gender, Sociocultural Pressures and Reflective Judgment were not found to significantly correlate for males with an $r(137) = -.039, p = .648$, but were significantly positively correlated for females with an $r(113) = .194, p < .05$.

Sport Pressures and Body Ideal Internalization. Overall, Sport Pressures and Body Ideal Internalization were found to significantly positively correlate with an $r(250) = .279, p < .001$ for the total sample. This was anticipated by the research hypotheses. When the data were split by gender, Sport Pressures and Body Ideal Internalization were not found to significantly correlate for males with an $r(137) = .084, p = .328$. However, Sport Pressures and Body Ideal Internalization were found to significantly positively correlate for females with an $r(113) = .496, p < .001$ which was anticipated by the research hypotheses.

Sport Pressures and Body Ideal Internalization – athlete factor. Overall, Sport Pressures and Body Ideal Internalization – athlete factor were found to significantly positively correlate with an $r(250) = .324, p < .001$ for the total sample. This was anticipated by the research hypotheses. When the data were split by gender, Sport

Pressures and the Body Ideal Internalization - Athlete factor were found to significantly positively correlate for males with an $r(137) = .183, p = .033$, as well as for females only with an $r(113) = .510, p < .001$, which were both anticipated by the research hypotheses.

Sport Pressures and Body Ideal Internalization – general factor. Overall, Sport Pressures and Body Ideal Internalization – General factor were found to significantly positively correlate with an $r(250) = .202, p = .001$ for the total sample. This was anticipated by the research hypotheses. When the data were split by gender, Sport Pressures and the Body Ideal Internalization - general factor were not found to significantly positively correlate for males with an $r(137) = .015, p = .858$, but were significantly positively correlated for females with an $r(113) = .374, p < .001$. The finding for females only was anticipated by the research hypotheses.

Sport Pressures and Body Dissatisfaction. Overall, Sport Pressures and Body Dissatisfaction were found to significantly positively correlate with an $r(250) = .362, p < .001$ for the total sample. This was anticipated by the research hypotheses. When the data were split by gender, Sport Pressures and Body Dissatisfaction were not found to significantly positively correlate for males with an $r(137) = .168, p = .05$. However, Sport Pressures and Body Dissatisfaction were found to significantly positively correlate for females with an $r(113) = .540, p < .001$ which was anticipated by the research hypotheses.

Sport Pressures and Reflective Judgment. Overall, Sport Pressures and Reflective Judgment were not found to be significantly correlated with an $r(250) = -.033, p > .599$. When the data were split by gender, Sport Pressures and Reflective Judgment were found to be significantly negatively correlate for males $r(137) = -.292, p = .001$.

However, Sport Pressures and Reflective Judgment were not found to significantly correlate for females $r(113) = .164, p = .082$.

Body Ideal Internalization and Body Dissatisfaction. Overall, Body Ideal Internalization and Body Dissatisfaction were found to significantly positively correlate with an $r(250) = .441, p < .001$ for the total sample. This was anticipated by the research hypotheses. When the data were split by gender, Body Ideal Internalization and Body Dissatisfaction were found to significantly positively correlate for males with an $r(137) = .214, p = .012$, as well as for females only with an $r(113) = .603, p < .001$ which were both anticipated by the research hypotheses.

Body Ideal Internalization – athlete factor and Body Dissatisfaction. Overall, Body Ideal Internalization – athlete factor and Body Dissatisfaction were found to significantly positively correlate with an $r(250) = .406, p < .001$ for the total sample. This was anticipated by the research hypotheses. When the data were split by gender, the Body Ideal Internalization - Athlete factor and Body Dissatisfaction were found to significantly positively correlate for males with an $r(137) = .236, p < .001$, as well for females only with an $r(113) = .499, p < .001$, which were both anticipated by the research hypotheses.

Body Ideal Internalization – general factor and Body Dissatisfaction. Overall, Body Ideal Internalization – general factor and Body Dissatisfaction were found to significantly positively correlate with an $r(250) = .382, p < .001$ for the total sample. This was anticipated by the research hypotheses. When the data were split by gender, the Body Ideal Internalization - general factor and Body Dissatisfaction were found to significantly positively correlate for males with an $r(137) = .174, p = .043$, as well as for

females only with an $r(113) = .521, p < .001$, which were both anticipated by the research hypotheses.

Body Ideal Internalization and Reflective Judgment. Overall, Body Ideal Internalization and Reflective Judgment were found to significantly positively correlate with an $r(250) = .145, p = .022$ for the total sample. This was the opposite direction of relationship significance than anticipated by the research hypotheses. When the data were split by gender, Body Ideal Internalization and Reflective Judgment were not found to significantly correlate for males with an $r(137) = .003, p = .975$. However, Body Ideal Internalization and Reflective Judgment did significantly positively correlate for females with an $r(113) = .282, p = .002$. This, again, was the opposite of what was anticipated by the research hypotheses, which resulted in further investigation into Reflective Judgment model categories and Body Ideal Internalization.

Body Ideal Internalization – athlete factor and Reflective Judgment. Overall, Body Ideal Internalization – athlete factor and Reflective Judgment were not found to significantly correlate with an $r(250) = .032, p = .609$ for the total sample. This was not anticipated by the research hypotheses. When the data were split by gender, the Body Ideal Internalization - athlete factor and Reflective Judgment were found to significantly negatively correlate for males with an $r(137) = -.214, p = .012$, which was anticipated by the research hypotheses. However, the measures were found to significantly positively correlate for females with an $r(113) = .255, p = .006$, which was the opposite of what was anticipated by the research hypotheses.

Body Ideal Internalization – general factor and Reflective Judgment. Overall, Body Ideal Internalization – general factor and Reflective Judgment were found

to significantly positively correlate with an $r(250) = .184, p = .004$ for the total sample.

This was the opposite of what was anticipated by the research hypotheses. When the data were split by gender, the Body Ideal Internalization - general factor and Reflective Judgment were not found to significantly correlate for males with an $r(137) = .130, p = .131$, but were found to significantly positively correlate for females with an $r(113) = .232, p = .013$, which was not anticipated by the research hypotheses.

Body Dissatisfaction and Reflective Judgment. Overall, Body Dissatisfaction and Reflective Judgment were not found to significantly correlate with an $r(250) = -.062, p = .327$. When the data were split by gender, Body Dissatisfaction and Reflective Judgment were found to be significantly negatively correlated for males with an $r(137) = -.448, p < .001$. However, they were found to be significantly positively correlated for females only with an $r(113) = .223, p = .017$.

Table 22.

Summary of predicted and obtained bivariate correlations between variables.

Variable		Predicted Relationship	Total	Female	Male
PSPS	WPS	Positive	Positive	Positive	None
	SATAQ-3	Positive	Positive	Positive	Positive
	SATAQ-A	Positive	Positive	Positive	Positive
	SATAQ-G	Positive	Positive	Positive	Positive
	BPSS	Positive	Positive	Positive	Positive
	RCI	None	None	Positive	None
WPS	SATAQ-3	Positive	Positive	Positive	None
	SATAQ-A	Positive	Positive	Positive	Positive
	SATAQ-G	Positive	Positive	Positive	None
	BPSS	Positive	Positive	Positive	None
	RCI	None	None	Positive	Negative
SATAQ-3	BPSS	Positive	Positive	Positive	Positive
	RCI	Negative	Positive	Positive	None
SATAQ-A	BPSS	Positive	Positive	Positive	Positive
	RCI	Negative	None	Positive	Negative
SATAQ-G	BPSS	Positive	Positive	Positive	Positive
	RCI	Negative	Positive	Positive	None

RCI	BPSS	Negative	None	Positive	Negative
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Notes. * *None* = no significant relationship. **PSPS = Sociocultural Pressures, SATAQ-3 = Body Ideal Internalization, SATAQ-G = Internalization – General Factor, SATAQ-A = Internalization – Athlete Factor, WPS = Sport Pressures and BPSS = Body Dissatisfaction; RCI = Reflective Judgment.

Decision to Further Explore Reflective Judgment by Splitting Variable into Three Levels of the RJM

Bivariate correlations revealed several relationships not predicted by the research hypotheses concerning Reflective Judgment. In particular, females' Reflective Judgment was found to significantly positively correlate with Body Dissatisfaction, Body Ideal Internalization and the total sample's (male and female) Reflective Judgment scores were found to significantly positively correlate with Body Ideal Internalization, though when split by gender the male correlation alone was not found to be statistically significant. Because the research hypotheses, drawn from relevant literature, predicted significant negative correlations between Reflective Judgment and these variables, the researcher sought to further explore the Reflective Judgment variable by splitting the data into categories of Pre-Reflective (stages 1-3), Quasi-Reflective (stages 4-5), and Reflective (6-7). Of the 250 participants, 23 (9.2 percent) were in the Pre-Reflective category (19 male; 18 female), 187 (74.8 percent) were in the Quasi-Reflective Category (105 male; 98 female), and 27 (10.8 percent) were in the Reflective category (13 male; 14 female). Informed by cognitive development theory, the researcher wondered if perhaps there were differences in mean scores and bivariate correlations among the variables between the three Reflective Judgment categories, which reflect qualitatively different ways of interacting with knowledge.

Descriptive statistics for Reflective Judgment split by RJM stages: Pre-

reflective, Quasi-Reflective, Reflective. The frequency distributions for males and females' Body Dissatisfaction scores (BPSS), Sociocultural Pressure scores (PSPS), Sport Pressure scores (WPS), and Body Ideal Internalization scores (SATAQ) separated by the three Reflective Judgment categories of Pre-Reflective (stages 1-3), Quasi-Reflective (stages 4-5), and Reflective (stages 6-7) are as follows. Frequency distributions for each of these variables can be found in Appendix G.

Table 23.

Sample descriptive statistics scores split by Reflective Judgment levels on all measures.

Male Pre-Reflective (<i>n</i> = 19)						
Variable**	Mean(<i>SD</i>)*	Median	Range	Skewness (<i>SEs</i>)*	Kurtosis (<i>SEk</i>)*	Model Notes
RCI	3.19(.334)	3.19	2.57 - 3.47	-1.32(.522)	.230 (<i>1.01</i>)	Negative skew
SATAQ-3	2.80(.301)	2.35	1.79 - 4.21	.539(.522)	-1.31(<i>1.01</i>)	
SATAQ-G	2.38(<i>1.02</i>)	2.33	1.22 - 3.89	.301(.522)	-1.38(<i>1.01</i>)	
SATAQ-A	3.56(.904)	3.6	2.4 - 4.8	.054(.522)	-1.51(<i>1.01</i>)	
WPS	2.78(.773)	2.83	1.67 - 4.0	.199(.522)	-.469(<i>1.01</i>)	
PSPS	1.42(.230)	1.33	1.67 - 1.83	1.08(.522)	.039(<i>1.01</i>)	
BPSS	3.01(.650)	3.07	1.86 - 3.71	-.973(.522)	-.178(<i>1.01</i>)	
Male Quasi-Reflective (<i>n</i> = 105)						
RCI	4.55(.407)	4.57	3.73 - 5.2	-.254(.236)	-.955(.468)	Platy- kurtic
SATAQ-3	2.95(.780)	2.89	1.0 - 4.29	-.178(.236)	-.429(.468)	
SATAQ-G	2.71(.819)	2.78	1.0 - 4.22	-.192(.236)	-.429(.468)	
SATAQ-A	3.39(.892)	3.2	1.0 - 5.0	-.229(.236)	.079(.468)	
WPS	2.44(.737)	2.25	1.08 - 4.5	.804(.236)	.489(.468)	Positive skew
PSPS	1.67(.649)	1.58	1.0 - 3.42	1.22(.236)	.536(.468)	Positive skew
BPSS	2.45(.670)	2.5	1.07 -	.334(.236)	.204(.468)	

3.86					
Male Reflective (<i>n</i> = 13)					
RCI	5.84(.268)	5.67	5.67 – 6.23	.986(.622)	-1.26(1.203)
SATAQ-3	2.70(.478)	3.0	2.0 – 3.0	-.986(.622)	-1.26(1.203)
SATAQ-G	2.67(.531)	3.0	1.89 – 3.0	-.986(.622)	-1.26(1.203)
SATAQ-A	2.76(.382)	3.0	2.2 – 3.0	-.986(.622)	-1.26(1.203)
WPS	1.56(.359)	1.33	1.33 – 2.08	.986(.622)	-1.26(1.203)
PSPS	1.0 (0)	1.0	1.0 – 1.0	N/A(.622)	N/A(1.203)
BPSS	1.17(.273)	1.0	1.0 – 1.57	.986(.622)	-1.26(1.203)
Female Pre-Reflective (<i>n</i> = 18)					
RCI	2.79(.538)	2.93	1.6 – 3.48	-.814(.543)	.077(1.05)
SATAQ-3	2.90(1.02)	2.86	1.0 – 5.0	.328(.543)	.097(1.05)
SATAQ-G	2.61(1.09)	2.44	1.0 – 5.0	.561(.543)	.023(1.05)
SATAQ-A	3.42(1.10)	3.75	1.0 – 5.0	-.595(.543)	.038(1.05)
WPS	1.85(1.11)	1.27	1.0 – 4.55	1.35(.543)	.826(1.05)
PSPS	1.63(.755)	1.46	1.0 – 3.0	1.04(.543)	-.340(1.05)
BPSS	2.34(.745)	2.11	1.0 – 3.57	.129(.543)	-.910(1.05)
Female Quasi-Reflective (<i>n</i> = 82)					
RCI	4.63(.465)	4.67	3.51 – 5.43	-.142(.265)	-.738(.525)
SATAQ-3	3.25(.816)	3.21	1.14 – 4.71	-.311(.265)	-.386(.525)
SATAQ-G	2.9(.981)	2.93	1.0 – 5.0	-.109(.265)	-.820(.525)
SATAQ-A	3.87(.984)	4.0	1.0 – 5.0	-.948(.265)	.399(.525)
WPS	2.27(.933)	2.13	1.0 – 5.09	.880(.265)	.667(.525)
PSPS	2.02(.792)	1.86	1.0 – 3.92	.446(.265)	-.739(.525)
BPSS	2.75(1.06)	2.57	1.0 – 5.57	.550(.265)	.240(.525)

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Female Reflective (n = 14)					
RCI	5.72(.207)	5.60	5.5 – 6.03	.611(.604)	-1.45(1.17)
SATAQ-3	3.47(.557)	3.43	2.7 – 4.93	1.52(.604)	3.76(1.17)
SATAQ-G	3.08(.810)	3.07	1.78 – 4.89	.698(.604)	1.15(1.17)
SATAQ-A	4.17(.431)	4.2	3.6 – 5.0	.620(.604)	-.419(1.17)
WPS	2.74(.978)	2.56	1.55 – 4.55	.418(.604)	-1.13(1.17)
PSPS	2.08(.847)	1.99	1.17 – 4.08	1.18(.604)	1.39(1.17)
BPSS	3.26(.965)	3.08	1.43 – 5.0	.06(.604)	-.029(1.17)

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Notes. **SD* = standard deviation, *SE_s* = standard error of skewness, *SE_k* = standard error of kurtosis; **PSPS = Sociocultural Pressures, SATAQ-3 = Body Ideal Internalization, SATAQ-G = Internalization – General Factor, SATAQ-A = Internalization – Athlete Factor, WPS = Sport Pressures and BPSS = Body Dissatisfaction; RCI = Reflective Judgment.

Bivariate Correlations Split by RJM Levels

The researcher then investigated bivariate correlations among the variables within each Reflective Judgment category. The hypothesized relationships remained the same as for the data that were not split by Reflective Judgment, predicting significant, positive correlations between Sociocultural Pressures, Sport Pressures, Body Ideal Internalization, and Body Dissatisfaction variables and significant, negative correlations between Reflective Judgment and Body Ideal Internalization and Body Dissatisfaction variables (summary of findings in Table 24).

Sociocultural Pressures and Sport Pressures. Sociocultural Pressures and Sport Pressures were not found to significantly correlate for male participants in the pre-reflective category only with an $r(19) = -.405, p = .084$, nor for males in the quasi-reflective category only with an $r(105) = .091, p = .354$, nor for males in the reflective

category only (r could not be computed due to all participants' PSPS scores = 1).

Sociocultural Pressures and Sport Pressures were found to significantly positively correlate for female participants in the pre-reflective category only with an $r(18) = .599, p = .01$, as well as for female participants in the quasi-reflective category only with an $r(82) = .630, p < .001$, but not for female participants in the reflective category only with $r(14) = .487, p = .083$.

Sociocultural Pressures and Body Ideal Internalization. Sociocultural Pressures and Body Ideal Internalization were found to significantly correlate for male participants in the pre-reflective category only with an $r(19) = .837, p < .001$ and for males in the quasi-reflective category only with an $r(105) = .630, p < .01$, but not for males in the reflective category only (r could not be computed due to all participants' PSPS scores = 1). Sociocultural Pressures and Body Ideal Internalization were found to significantly positively correlate for female participants in the pre-reflective category only with an $r(18) = .726, p = .001$, as well as for female participants in the quasi-reflective category only with an $r(82) = .655, p < .001$, and for female participants in the reflective category only with $r(14) = .878, p < .001$.

Sociocultural Pressures and Body Dissatisfaction. Sociocultural Pressures and Body Dissatisfaction were not found to significantly correlate for male participants in the pre-reflective category only with an $r(19) = .395, p = .093$, but were significantly positively correlated for males in the quasi-reflective category only with an $r(105) = .310, p = .001$, but not for males in the reflective category only (r could not be computed due to all participants' PSPS scores = 1). Sociocultural Pressures and Body Dissatisfaction were found to significantly positively correlate for female participants in the pre-reflective

category only with an $r(18) = .585, p = .012$, as well as for female participants in the quasi-reflective category only with an $r(82) = .615, p < .001$, but not for female participants in the reflective category only with $r(14) = .272, p = .355$.

Sociocultural Pressures and Reflective Judgment. Sociocultural Pressures and Reflective Judgment were not found to significantly correlate for male participants in the pre-reflective category only with an $r(19) = -.055, p = .822$, nor for males in the quasi-reflective category only with an $r(105) = .104, p = .290$, nor for males in the reflective category only (r could not be computed due to all participants' PSPS scores = 1). Sociocultural Pressures and Reflective Judgment were not found to significantly correlate for female participants in the pre-reflective category only with an $r(18) = .270, p = .286$, nor for females in the quasi-reflective category only with an $r(82) = .091, p = .415$, nor for females in the reflective category with an $r(14) = -.399, p = .165$.

Sport Pressures and Body Ideal Internalization. Sport Pressures and Body Ideal Internalization were not found to significantly correlate for male participants in the pre-reflective category only with an $r(19) = .044, p = .858$, nor for males in the quasi-reflective category only with an $r(105) = .111, p = .259$, but were found to positively correlate for males in the reflective category only with an $r(13) = 1.0, p < .001$. Sport Pressures and Body Ideal Internalization were found to significantly positively correlate for female participants in the pre-reflective category only with an $r(18) = .655, p = .004$, as well as for female participants in the quasi-reflective category only with an $r(82) = .449, p < .001$, but not for female participants in the reflective category only with $r(14) = .260, p = .378$.

Sport Pressures and Body Dissatisfaction.

Sport Pressures and Body Dissatisfaction were found to significantly negatively correlate for male participants in the pre-reflective category only with an $r(19) = -.799, p < .001$, were not significantly correlated for males in the quasi-reflective category only with an $r(105) = .034, p = .733$, but were significantly positively correlated for males in the reflective category only with an $r(13) = 1.0, p < .001$. Sport Pressures and Body Dissatisfaction were found to significantly positively correlate for female participants in the pre-reflective category only with an $r(18) = .481, p = .047$, as well as for female participants in the quasi-reflective category only with an $r(82) = .537, p < .001$, but not for female participants in the reflective category only with $r(14) = .459, p = .104$.

Sport Pressures and Reflective Judgment.

Sport Pressures and Reflective Judgment were not found to significantly correlate for male participants in the pre-reflective category only with an $r(19) = -.193, p = .427$, nor for males in the quasi-reflective category only with an $r(105) = .019, p = .844$, but were significantly positively correlated for males in the reflective category only with an $r(13) = 1.0, p < .001$. Sport Pressures and Reflective Judgment were not found to significantly correlate for female participants in the pre-reflective category only with an $r(18) = -.233, p = .361$, nor for females in the quasi-reflective category only with an $r(82) = -.040, p = .723$, nor for females in the reflective category only with an $r(14) = -.004, p = .990$.

Body Ideal Internalization and Body Dissatisfaction.

Body Ideal Internalization and Body Dissatisfaction were not found to significantly correlate for male participants in the pre-reflective category only with an $r(19) = .221, p = .362$, but were significantly positively correlated for males in the quasi-reflective category only

with an $r(105) = .266, p = .006$, and were significantly positively correlated for males in the reflective category only with an $r(13) = 1.0, p < .001$. Body Ideal Internalization and Body Dissatisfaction were found to significantly positively correlate for female participants in the pre-reflective category only with an $r(18) = .816, p < .001$, as well as for female participants in the quasi-reflective category only with an $r(82) = .596, p < .001$, but not for female participants in the reflective category only with $r(14) = .271, p = .357$.

Body Ideal Internalization and Reflective Judgment. Body Ideal

Internalization and Reflective Judgment were found to significantly negatively correlate for male participants in the pre-reflective category only with an $r(19) = -.485, p = .035$, were not found to be significantly correlated for males in the quasi-reflective category only with an $r(105) = .152, p = .122$, and were significantly negatively correlated for males in the reflective category only with an $r(13) = -1.0, p < .001$. Body Ideal Internalization and Reflective Judgment were not found to significantly correlate for female participants in the pre-reflective category only with an $r(18) = .296, p = .241$, but were significantly positively correlated for female participants in the quasi-reflective category only with an $r(82) = .596, p < .001$, and were significantly negatively correlated for female participants in the reflective category only with $r(14) = -.545, p = .047$.

Body dissatisfaction and Reflective Judgment. Body dissatisfaction and

Reflective Judgment were not found to be significantly correlated for male participants in the pre-reflective category only with an $r(19) = -.370, p = .118$, nor for males in the quasi-reflective category only with an $r(105) = .044, p > .05$, but were significantly negatively correlated for males in the reflective category only with an $r(13) = -1.0, p < .001$. Body dissatisfaction and Reflective Judgment were not found to be significantly correlated for

female participants in the pre-reflective category only with an $r(18) = .307, p = .223$, nor for females in the quasi-reflective category only with an $r(82) = .049, p = .664$, nor females in the reflective category only with an $r(13) = -.381, p = .186$.

Table 24.

Summary of predicted and obtained bivariate correlations between variables.

Variable		Predicted	Pre	Female Quasi	Ref
PSPS	WPS	Positive	Positive	Positive	None
	SATAQ-3	Positive	Positive	Positive	Positive
	BPSS	Positive	Positive	Positive	None
	RCI	None	None	None	None
WPS	SATAQ-3	Positive	Positive	Positive	None
	BPSS	Positive	Positive	Positive	None
	RCI	None	None	None	None
SATAQ-3	BPSS	Positive	Positive	Positive	None
	RCI	Negative	Positive	Negative	
RCI	BPSS	Negative	None	None	
Variable		Predicted	Pre	Male Quasi	Ref
PSPS	WPS	Positive	None	None	N/A
	SATAQ-3	Positive	Positive	Positive	N/A
	BPSS	Positive	None	Positive	N/A
	RCI	None	None	None	N/A
WPS	SATAQ-3	Positive	None	None	Positive
	BPSS	Positive	Negative	None	Positive
	RCI	None	None	None	Positive
SATAQ-3	BPSS	Positive	None	Positive	None
	RCI	Negative	Negative	None	Negative
RCI	BPSS	Negative	None	None	Negative

Notes. None = no significant relationship. PSPS = Sociocultural Pressures, SATAQ-3 = Body Ideal Internalization, SATAQ-G = Internalization – General Factor, SATAQ-A = Internalization – Athlete Factor, WPS = Sport Pressures and BPSS = Body Dissatisfaction; RCI = Reflective Judgment.

Curvilinear regression analysis of Body Ideal Internalization and Reflective

Judgment variables. As noted above, when the data were split by gender and Reflective Judgment levels (Pre-Reflective, Quasi-Reflective, Reflective), bivariate correlations revealed that there was not a significant relationship between Body Ideal Internalization

and Reflective Judgment for the female participants in the Pre-Reflective category, but that there was significant positive correlation between these variables for females in the Quasi-Reflective category, which was followed by a significant negative correlation between the variables for the females in the Reflective category (see graphs in Appendix H). This suggested that the direction of the correlation between the variables was a function of difference in Reflective Judgment levels and also suggested that the overall relationship between Reflective Judgment and Body Ideal Internalization for females may not have been a significant positive relationship as the original bivariate correlations suggested when the data were not split by the three Reflective Judgment levels. This pointed to the potential that the overall correlation was not linear, but instead was curvilinear (Appendix H). So the researcher analyzed the relationship between Body Ideal Internalization and Reflective Judgment in the female sample with a curvilinear regression analysis.

The researcher first found that the linear relationship between Body Ideal Internalization and Reflective Judgment was significant and positive with an $r = .282$, $R^2(1, 111) = .080$, $F = 9.627$, $p < .001$. The researcher then squared the Reflective Judgment scores (independent variable) and found that the non-linear addition resulted in a significant relationship, with $r = .288$, $R^2(1, 110) = .083$, $F = 4.974$, $p < .01$ and an adjusted $R^2 = .066$ (6.6% impact on the dependent variable, Body Ideal Internalization). The Beta value for the non-linear model = $-.371$, which indicates a negative trend in Body Ideal Internalization with higher Reflective Judgment scores, as predicted by the split bivariate correlations by Reflective Judgment level. Therefore, while in the final model for females in the SEM there was a significant, positive relationship between Body

Ideal Internalization and Reflective Judgment resulting in Reflective Judgment positively moderating this relationship, the significance of this curvilinear analysis points to the likelihood that these results may only be the case for the females scoring at lower two Reflective Judgment levels. This positive effect was reflected in the final SEM model for females likely due to the large majority of cases representing female college student-athletes in the Quasi-Reflective level of the Reflective Judgment model. These results will be further explored in Chapter Five.

Multi-Sample Structural Equation Model

The researcher then proceeded with the multi-sample SEM first by testing the overall model and then testing and modifying the male and female models separately. The multi-sample SEM tested the following hypotheses (Figure 2):

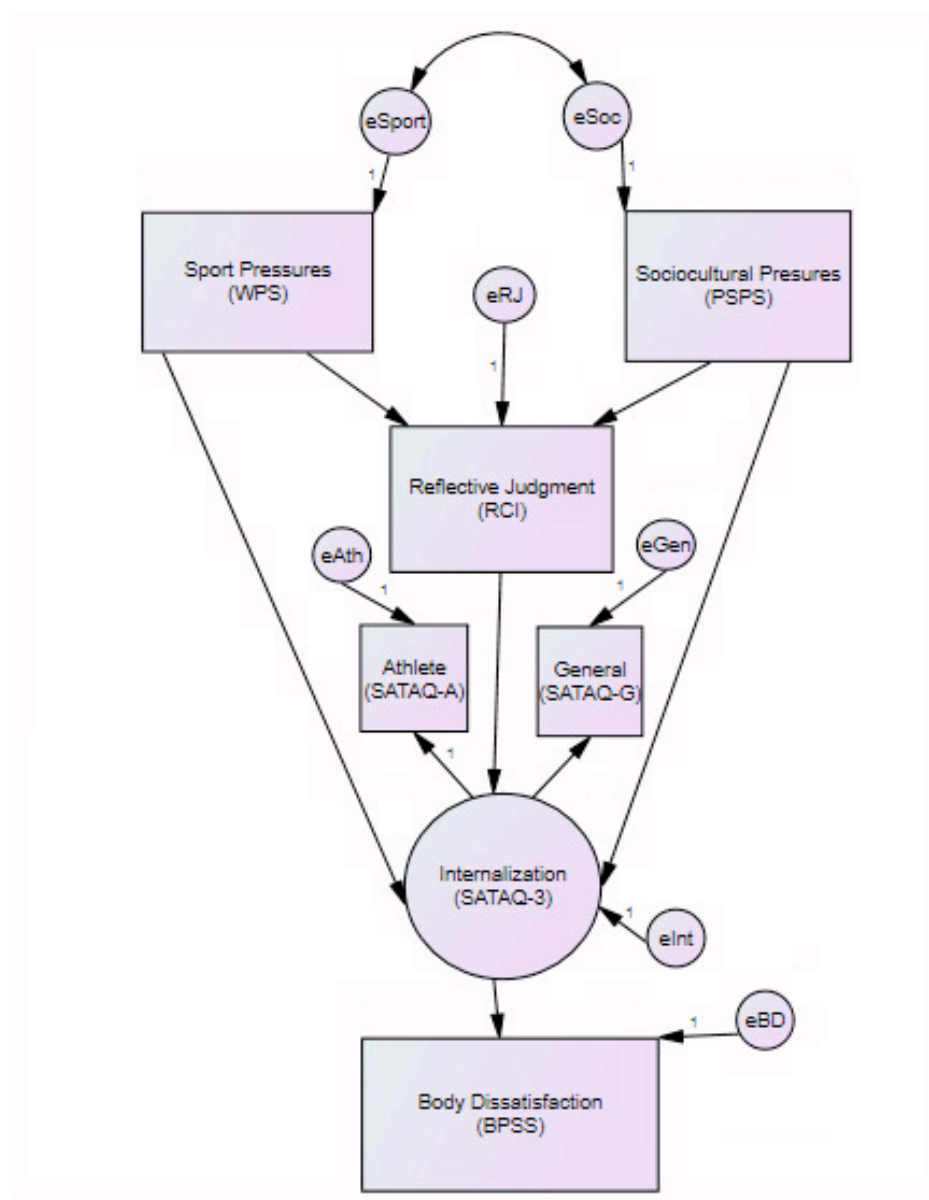


Figure 2. Original hypothesized model.

Hypothesis 1 (PSPS → SATAQ) – There will be a significant, direct positive effect of higher reported Sociocultural Pressures (PSPS) on Body Ideal Internalization (SATAQ) among female and male college student-athletes.

Hypothesis 2 (WPS → SATAQ)– There will be a significant, direct positive effect of higher reported Sport Pressures (WPS) on Body Ideal Internalization (SATAQ) among female and male college student-athletes.

Hypothesis 3 (WPS → RCI → SATAQ)– There will be a significant, indirect positive effect of higher reported Sport Pressures (WPS) on Body Ideal Internalization (SATAQ) among female and male college student-athletes.

Hypothesis 4 (PSPS → RCI → SATAQ) – There will be a significant, indirect positive effect of higher reported Sociocultural Pressures (PSPS) on Body Ideal Internalization (SATAQ) among female and male athletes.

Hypothesis 5 (PSPS → RCI → SATAQ) – Reflective Judgment (RCI) will significantly moderate the indirect relationship between reported Sociocultural Pressures (PSPS) and Body Ideal Internalization (SATAQ) among female and male student-athletes, with higher Reflective Judgment (RCI) significantly predicting lower Body Ideal Internalization (SATAQ).

Hypothesis 6 – (WPS → RCI → SATAQ) - Reflective Judgment will significantly moderate the indirect relationship between reported Sport Pressures (WPS) and Body Ideal Internalization (SATAQ) among female and male student-athletes, with higher Reflective Judgment significantly predicting lower Body Ideal Internalization (SATAQ).

Hypothesis 7 (SATAQ → BPSS) - There will be a significant, positive effect of higher reported Body Ideal Internalization (SATAQ) on Body Dissatisfaction (BPSS) among female and male student-athletes.

Hypothesis 8 (eSport ↔ eSoc) – There will be a significant relationship between Sociocultural Pressures (PSPS) and Sport Pressures (WPS) among female and male college student-athletes as depicted by covariance in error variances for WPS and PSPS.

Goodness of fit indices. The following goodness of fit indices were adopted in the current study: a) non-significant Chi-Square value (Barrett, 2007); b) Root mean square error of approximation (RMSEA) value below .06 (Hu & Bentler, 1999; Steiger, 2007), c) Goodness-of-fit statistic (GFI) with a cut-off of .95 or greater (range 0 – 1) (Miles & Shevlin, 1995), d) Comparative fit index (CFI) of $\geq .95$ (Hu & Bentler, 1999), and e) Chi-Square /degrees of freedom ratio (CMIN/DF) of < 2.0 (Byrne, 1991).

Model fit indices. Table 25 provides the model fit indices for the model with male and female student-athlete samples tested together, which suggested a poor model fit according to the above criteria.

Table 25.

Model fit indices for total original model.

	Chi-Square	GFI	CFI	RMSEA	CMIN/DF
Model A	$X^2 (12) = 81.264, p = .001$.911	.842	.153	6.772

*Note: GFI = Goodness-of-fit statistic; CFI = Comparative fit statistic; RMSEA = Root mean square error of approximation; CMIN/DF = Chi-Square /degrees of freedom ratio.

Male original unconstrained model. Relationships among the variables within the male-only model were then examined (see Figure 3 and Table 26 for regression weights among the variables).

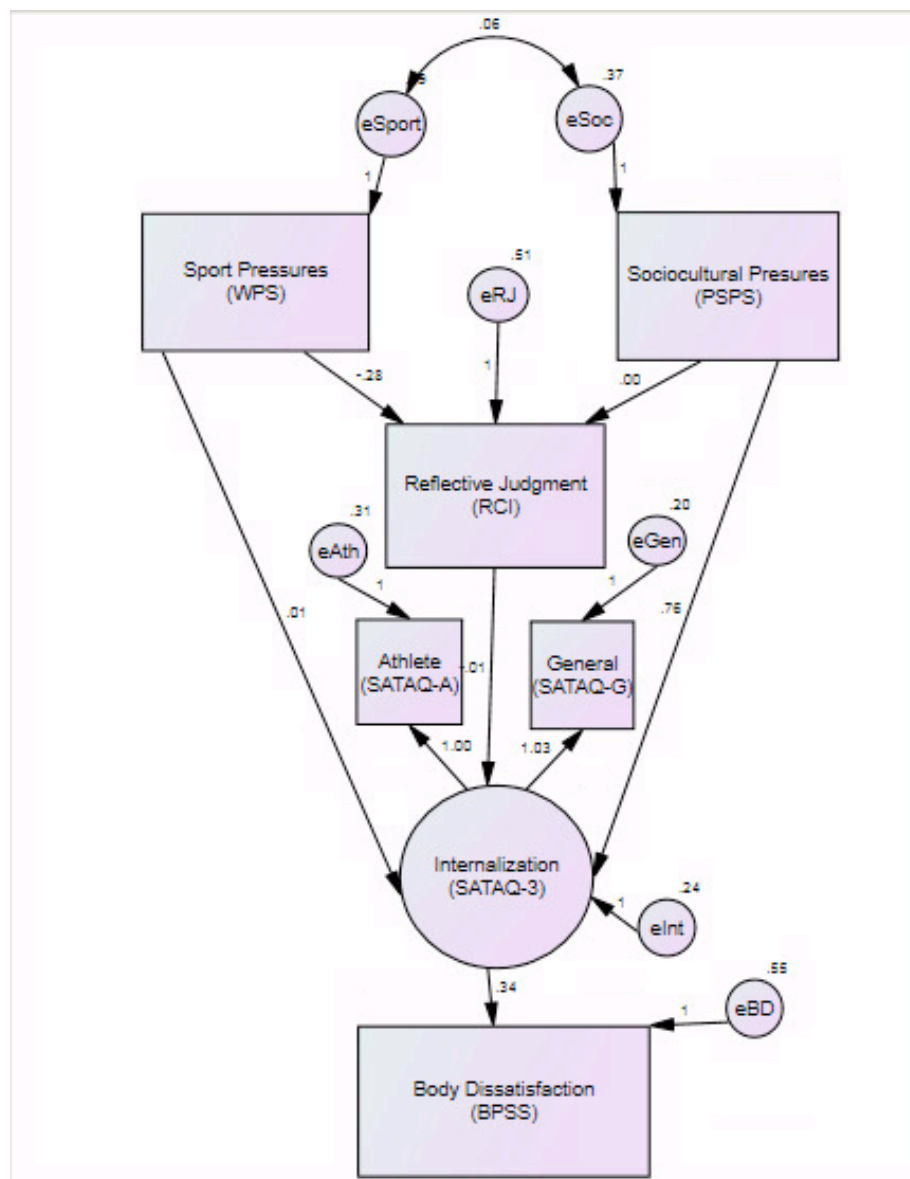


Figure 3. Original hypothesized unconstrained model with male sample only.

Table 26.

Regression weights for male sample in the unconstrained model.

Path	Estimate	S.E.	<i>p</i>
*RCI \leftarrow WPS	-.283	.080	< .001
RCI \leftarrow PSPS	.001	.101	.996
SATAQ-3 \leftarrow RCI	-.011	.072	.881
SATAQ-3 \leftarrow WPS	.013	.070	.856
SATAQ-3 \leftarrow PSPS	.759	.104	< .001
SATAQ-A \leftarrow SATAQ-3	1.0 (constrained)		
SATAQ-G \leftarrow SATAQ-3	1.032	.130	< .001

BPSS ← SATAQ-3	.338	.107	.002
eSport ← → eSoc	.064	.040	.115

*PSPS = Sociocultural Pressures, SATAQ-3 = Body Ideal Internalization, SATAQ-G = Internalization – General Factor, SATAQ-A = Internalization – Athlete Factor, WPS = Sport Pressures and BPSS = Body Dissatisfaction; RCI = Reflective Judgment; eSport = error variance for Sport Pressures; eSoc = error variance for Sociocultural Pressures.

Female original unconstrained model. Relationships among the variables within the female-only model were then examined (see Figure 4 and Table 27 for regression weights among the variables).

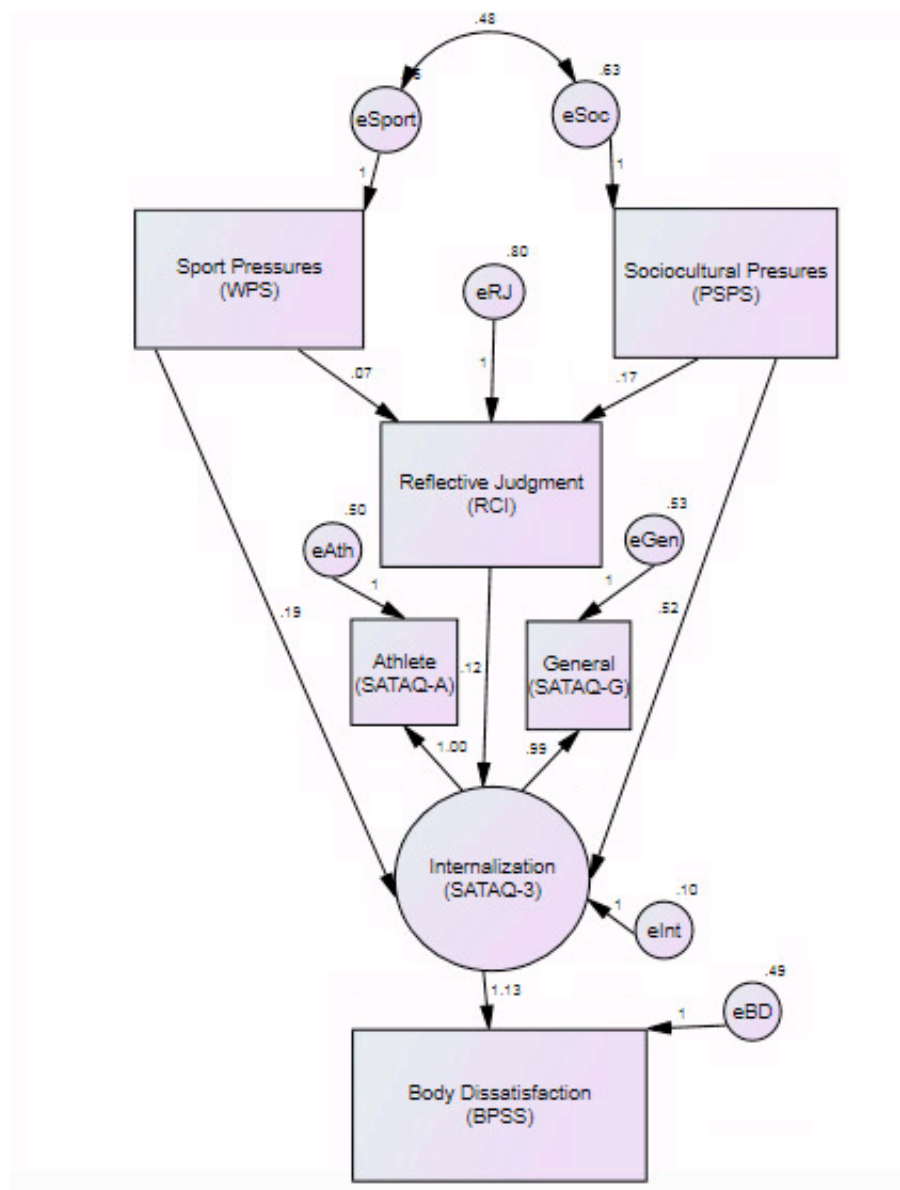


Figure 4. Original hypothesized unconstrained model with female sample only.

Table 27.

Regression weights for female sample in the unconstrained model.

Path	Estimate	S.E.	<i>p</i>
RCI \leftarrow WPS	.068	.109	.537
RCI \leftarrow PSPS	.172	.135	.202
SATAQ-3 \leftarrow RCI	.124	.054	.022
SATAQ-3 \leftarrow WPS	.187	.064	.003
SATAQ-3 \leftarrow PSPS	.518	.090	< .001
SATAQ-A \leftarrow SATAQ-3	1.0 (constrained)		
SATAQ-G \leftarrow SATAQ-3	.990	.161	< .001
BPSS \leftarrow SATAQ-3	1.132	.171	< .001
eSport $\leftarrow \rightarrow$ eSoc	.479	.087	< .001

*PSPS = Sociocultural Pressures, SATAQ-3 = Body Ideal Internalization, SATAQ-G = Internalization – General Factor, SATAQ-A = Internalization – Athlete Factor, WPS = Sport Pressures and BPSS = Body Dissatisfaction; RCI = Reflective Judgment; eSport = error variance for Sport Pressures; eSoc = error variance for Sociocultural Pressures.

Path weight for WPS \rightarrow RCI path was significant for males and not females. Path weights for RCI \rightarrow SATAQ-3, WPS \rightarrow SATAQ-3, and eSport $\leftarrow \rightarrow$ eSoc were significant for females and not males. The remaining path weights were the same for males and females in terms of significance and non-significance.

Fully constrained model. In order to analyze whether the differences in male and female parameter estimates were significant in the model that included Reflective Judgment as a moderator, the researcher repeated the analysis after constraining each parameter, requiring that each of the parameters in the male sample be equal to the corresponding parameter in the female sample. Goodness of fit indices are provide in Table 28 (see Figure 5 and Table 29 for regression weights among the variables).

Table 28.

Model fit indices for constrained model.

	Chi-Square	GFI	CFI	RMSEA	CMIN/DF
Model B	$X^2 (19) = 163.832, p < .001$.850	.688	.143	6.068

Note. GFI = Goodness-of-fit statistic; CFI = Comparative fit statistic; RMSEA = Root mean square error of approximation; CMIN/DF = Chi-Square /degrees of freedom ratio.

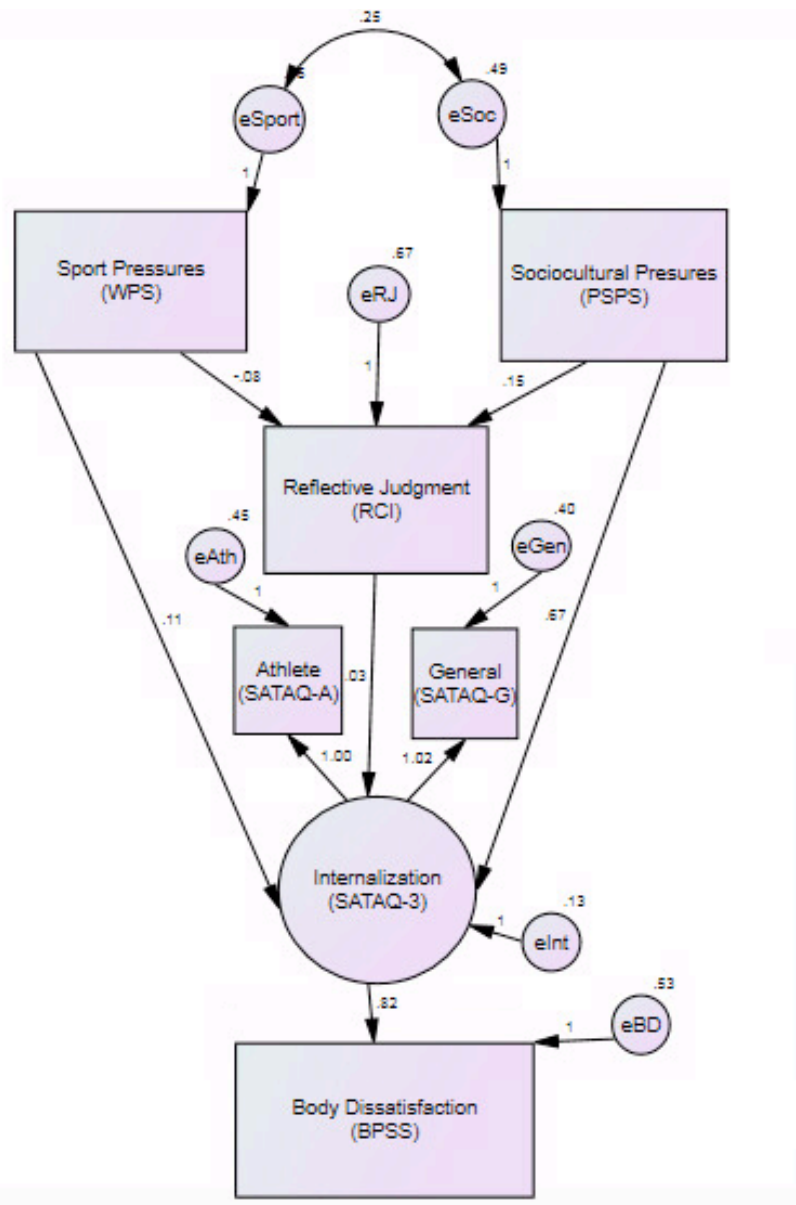


Figure 5. Fully constrained model with female and male sample together.

Chi-square difference statistic was significant between the constrained and unconstrained models $X^2_{\text{diff}}(7) = 82.568, p < .000$. Therefore, the researcher concluded that the models did not have measurement invariance across male and female groups.

Path by path analyses were then conducted in order to determine by which paths the models differed.

Table 29.

Path by path analysis between constrained and unconstrained models.

Path Constrained	Model Chi-Square	Model df	Chi Square Diff.	Df diff	<i>p</i>
Baseline	81.264	12			
WPS → RCI	89.488	13	8.224	1	< .01
PSPS → RCI	82.295	13	1.031	1	> .05
WPS → SATAQ-3	84.576	14	3.312	2	> .05
PSPS → SATAQ-3**	99.658	15	18.394	3	< .001
RCI → SATAQ-3	147.302	17	66.038	5	< .001
SATAQ-3 → BPSS	120.421	16	39.157	4	< .001

Notes. *PSPS = Sociocultural Pressures, SATAQ-3 = Body Ideal Internalization, SATAQ-G = Internalization – General Factor, SATAQ-A = Internalization – Athlete Factor, WPS = Sport Pressures and BPSS = Body Dissatisfaction; RCI = Reflective Judgment. **PSPS → SATAQ-3 path could not be computed because this resulted in eGeneral having a negative variance of -.154

Path by path analyses revealed that the models significantly differed between gender in the relationships between Sport Pressures (WPS) and Reflective Judgment (RCI), Sociocultural Pressures (PSPS) and Body Ideal Internalization (SATAQ-3), Reflective Judgment (RCI) and Body Ideal Internalization (SATAQ-3), and Body Ideal Internalization (SATAQ-3) and Body Dissatisfaction (BPSS).

Model Respecification. Due to these significant differences in the models for males and females, the researcher then continued to modify the male and female models separately to find best model fits through exploratory analysis.

Female only model respecification. When analyzed alone, the original model for the female only sample resulted in a non-significant Chi-Square value ($X^2(6) = 8.842, p > .183$) however, it also had an impossible regression weight of > 1.0 (1.132) for the SATAQ-3 → BPSS path, which is typically the result of multicollinearity or some other

error in the data (Kenny, 2015). Informed by preliminary bivariate correlations and the above findings, the researcher sought to modify this model. Because simply deleting the path between SATAQ-3 \rightarrow BPSS would not have been theoretically sound due to the substantial literature base on the relationship between Body Ideal Internalization (SATAQ-3) and Body Dissatisfaction (BPSS) in the sociocultural model of eating disorder development literature, the researcher first began modifying the original model as informed by the bivariate correlations.

First, the researcher removed the path with the lowest regression weight (WPS \rightarrow RCI), as supported by non-significant bivariate correlations (see m2 in Table 30). This resulted in a larger Chi-Square statistic and left the concern of the impossible regression weight of >1.0 for the SATAQ-3 \rightarrow BPSS path. The researcher chose to maintain this change, however, due to its effect on the remaining path weights as all significant.

Second, the researcher removed the originally hypothesized paths from Sport Pressures (WPS) and Sociocultural Pressures (PSPS) directly to the Body Ideal Internalization (SATAQ-3) factor and instead directed them to the specific factors that related to those pressures, creating a path from Sport Pressures (WPS) to the Body Ideal Internalization – Athlete factor (SATAQ-A) and Sociocultural Pressures (PSPS) directly to the Body Ideal Internalization – General factor (SATAQ-G). This had a significantly detrimental impact on the model fit (see m3 in Table 30). However, when the researcher left only the direct path from Sport Pressures (WPS) to the Body Ideal Internalization – Athlete factor and the path between Sociocultural Pressures (PSPS) and Body Ideal Internalization overall (SATAQ-3), the model significantly improved (see m4 in Table 30), suggesting that Sport Pressures (WPS) directly led to internalization of the Athlete

specific body ideal (SATAQ-A) but that Sociocultural Pressures (PSPS) led to Body Ideal Internalization (SATAQ-3) more broadly.

Last, the modification indices in Amos 21 suggested the model would better fit with the addition of a direct path from Sport Pressures (WPS) to Body Dissatisfaction (BPSS) (see m5 in Table 30). When the researcher included this path, the model fit was strengthened and all regression weights were significant.

Table 30.

Female sample model respecification process.

Model	X^2	Df	GFI	CFI	RMSEA	CMIN/DF	p	Δdf	ΔX^2
m1(original model)	8.842	6	.975	.987	.065	1.474	.183		
m2(WPS → RCI path removed)	9.222	7	.974	.990	.053	1.317	.237	1	-.38
m3(WPS → SATAQ-3 to WPS → SATAQ-A & PSPS → SATAQ-3 to PSPS → SATAQ-G)	62.750	7	.869	.742	.267	8.964	< .001	0	-53.53
m4(replaced path PSPS → SATAQ-G back to PSPS → SATAQ-3)	12.311	7	.966	.975	.082	1.759	.091	0	50.439
m5(WPS → BPSS path added)	3.531	6	.990	1.0	.000	.588	.740	1	8.96

Note. GFI = Goodness-of-fit statistic; CFI = Comparative fit statistic; RMSEA = Root mean square error of approximation; CMIN/DF = Chi-Square /degrees of freedom ratio.

The model with the best fit indices for females had a non-significant Chi-Square value; $X^2(6) = 3.531$, $p = .740$ (see Figure 6 and Table 31 for regression weights among the variables).

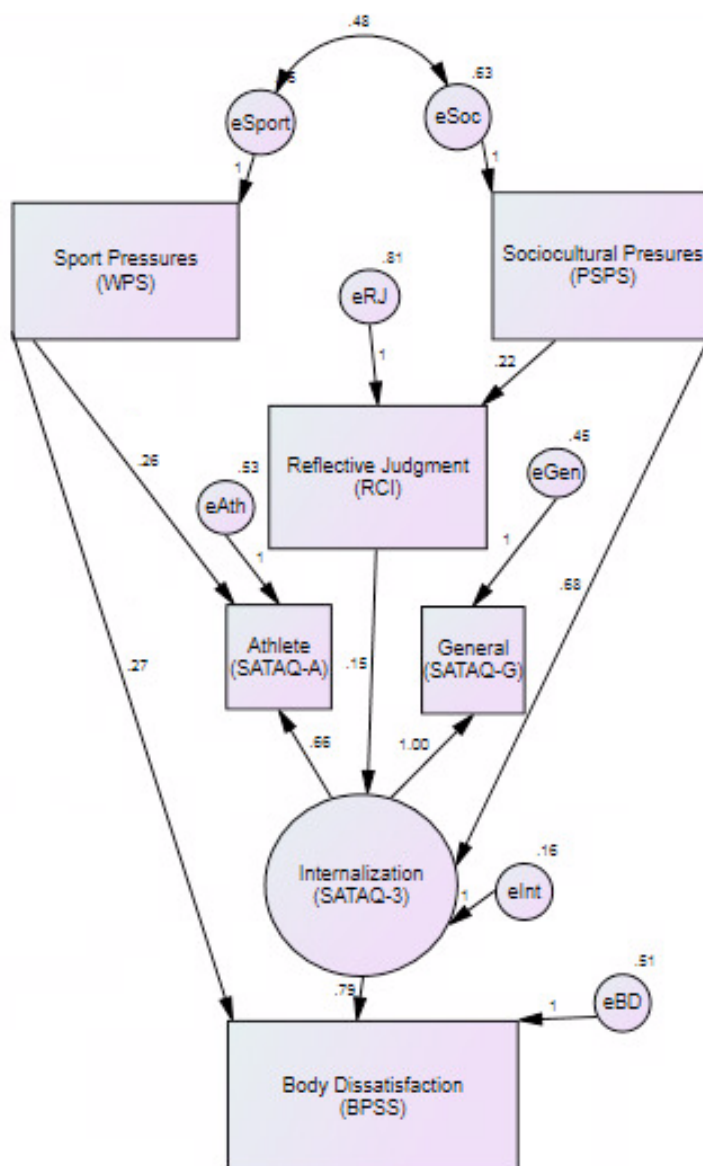


Figure 6. Final model for female sample only.

Table 31.

Regression weights for the female sample final model.

Path	Estimate	S.E.*	<i>p</i>
RCI \leftarrow PSPS	.223	.107	.036
SATAQ-3 \leftarrow PSPS	.682	.091	< .001
SATAQ-3 \leftarrow RCI	.152	.067	.024
SATAQ-A \leftarrow SATAQ-3	.659	.155	< .001
SATAQ-G \leftarrow SATAQ-3	1.0 (constrained)		
BPSS \leftarrow SATAQ-3	.788	.163	< .001
BPSS \leftarrow WPS	.275	.091	.002
SATAQ-A \leftarrow WPS	.261	.090	.004

eSport \leftrightarrow eSoc	.479	.087	< .001
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Note. *S.E. = standard error.

Male only model respecification. When analyzed alone the original model for the male only sample resulted in a significant Chi-Square value ($X^2(6) = 72.465, p < .001$) with no apparent errors in the paths. In order to find the best fit for this model, the researcher first followed modification indices suggested by Amos 21 and first included a direct path from Reflective Judgment (RCI) to Body Dissatisfaction (BPSS), which resulted in an improvement in the model (see m2 in Table 32).

Modification indices also suggested drawing direct paths from Reflective Judgment (RCI) to the separate Internalization factors (SATAQ-A and SATAQ-G). Upon looking at the model and bivariate correlations, it was apparent that RCI and SATAQ-A were negatively correlated, as expected by the research hypotheses, however, RCI and SATAQ-G were positively correlated, which was the opposite of what was expected by the research hypotheses. Because RCI related to each of these factors differently and significantly, the researcher determined that the factor structure of Internalization as an endogenous variable with the Athlete and General factors as contributing to the model was not holding up as one true, whole model. Therefore, the researcher deleted Internalization (SATAQ-3) as an endogenous variable in order to allow Internalization – Athlete (SATAQ-A) and Internalization – General (SATAQ-G) factors to act as their own factors without forcing them within the model of Internalization because they were relating to other factors, such as RCI both differently and significantly. By deleting this endogenous variable, the researcher replaced the paths that were directly from Sport Pressures (WPS) to Internalization (SATAQ-3) and moved it to the Internalization – Athlete (SATAQ-A) factor and from Sociocultural Pressures

(PSPS) to Internalization (SATAQ-3) and moved it to the Internalization – General (SATAQ-G) factor due to the these pressures theoretically contributing to these different aspects of Body Ideal Internalization. It was also necessary, after removing the endogenous variable of Internalization (SATAQ-3) that the researcher replace the path between that variable and Body Dissatisfaction (BPSS) and so drew paths directly from both Internalization factors (SATAQ-A and SATAQ-G) to Body Dissatisfaction (BPSS). These changes initially resulted in a significantly worse fit (see m3 in Table 32).

Then the researcher followed the first modification suggested by Amos 21, which was to draw a direct path from SATAQ-A to SATAQ-G. This would mean that male student-athletes' Body Ideal Internalization concerning the Athlete-specific ideal leads to Body Ideal Internalization of the General male body ideal in society, which was theoretically sound. This resulted in an improvement in the model fit but left much more room for improvement (see m4 in Table 32).

Next, modification indices in Amos 21 suggested a direct path from Reflective Judgment (RCI) to Body Dissatisfaction (BPSS), which would suggest that Reflective Judgment modified the relationship between pressures, internalization, and Body Dissatisfaction already in the model, which was also theoretically sound. This resulted in an improvement in the model (see m5 in Table 32).

Next, modification indices in Amos suggested a direct path from Sociocultural Pressures (PSPS) to the Internalization – Athlete factor (SATAQ-A). This resulted in an improvement in the model (see m6 in Table 32).

Next, modification indices in Amos suggested a direct path from Sociocultural Pressures (PSPS) to Body Dissatisfaction (BPSS). This resulted in an improvement in

the model and a non-significant Chi-Square value, along with meeting all other goodness of fit criteria set in the current study (see m7 in Table 32). However, several paths were not significant between the variables (PSPS \rightarrow RCI; WPS \rightarrow RCI; SATAQ-A \rightarrow BPSS; and SATAQ-G \rightarrow BPSS). Particularly because modification indices as well as bivariate correlations suggested that there were significant relationships between RCI and both SATAQ-G and SATAQ-A, and theoretically, it would not be congruent with the sociocultural model of eating disorder development if these Body Ideal Internalization factors did not significantly contribute to Body Dissatisfaction, the researcher chose to reverse the direction of the paths between SATAQ-G and RCI and SATAQ-A and RCI, which would suggest that Reflective Judgment moderates their relationship with Body Dissatisfaction (BPSS) rather than their relationship with Sport (WPS) and Sociocultural Pressures (PSPS). This resulted in a model that met some but not all goodness of fit criteria (see m8 in Table 32) but the paths between SATAQ-A and SATAQ-G and Body Dissatisfaction (BPSS) remained non-significant, so they were deleted, which suggested that RCI truly mediated their relationship to Body Dissatisfaction rather than modified it. This resulted in an increased Chi-Square value but overall an improvement in the model fit across criteria (see m9 in Table 32).

Next, Amos 21 modification indices suggested drawing a direct path between Sport Pressures (WPS) and the Body Ideal Internalization – General factor (SATAQ-G), which resulted in an improvement in the model (see m10 in Table 32). However, the paths between Sport Pressures and Internalization – Athlete factor (WPS \rightarrow SATAQ-A) and Sociocultural Pressures and Reflective Judgment (PSPS \rightarrow RCI) remained non-significant. The researcher first deleted the path between WPS \rightarrow SATAQ-A (see m11 in

SATAQ-G → RCI)

	4.502	2	.989	.989	.096	2.251	.105	0	-3.4
m9(removed paths SATAQ-A → BPSS and SATAQ-G → BPSS)	5.758	4	.986	.992	.057	1.439	.218	2	-1.256
m10(added path WPS → SATAQ-G)	1.258	3	.997	1.0	0	.419	.739	1	4.5
m11(WPS→SATAQ-A path removed)	3.722	4	.991	1.0	0	.931	.445	1	-2.464
m12(PSPS→RCI path removed)	4.115	5	.990	1.0	0	.823	.533	1	-.393
m13(eSOC ↔ eSport path removed)	6.668	6	.984	.997	.029	1.111	.353	1	-2.553

Note. GFI = Goodness-of-fit statistic; CFI = Comparative fit statistic; RMSEA = Root mean square error of approximation; CMIN/DF = Chi-Square /degrees of freedom ratio.

The model with the best fit indices for males had a non-significant Chi-Square value; $X^2(6) = 6.668, p = .353$ (see Figure 6 and Table 33 for regression weights among the variables).

Table 33.

Regression weights for the male sample final model.

Path	Estimate	S.E.	<i>p</i>
SATAQ-A ← PSPS	.712	.107	< .001
SATAQ-G ← PSPS	.469	.091	< .001
SATAQ-G ← SATAQ-A	.489	.063	< .001
SATAQ-G ← WPS	-.136	.062	.029
RCI ← WPS	-.206	.074	.006
RCI ← SATAQ-A	-.402	.088	< .001
RCI ← SATAQ-G	.403	.092	< .001
BPSS ← RCI	-.452	.074	< .001
BPSS ← PSPS	.429	.090	< .001

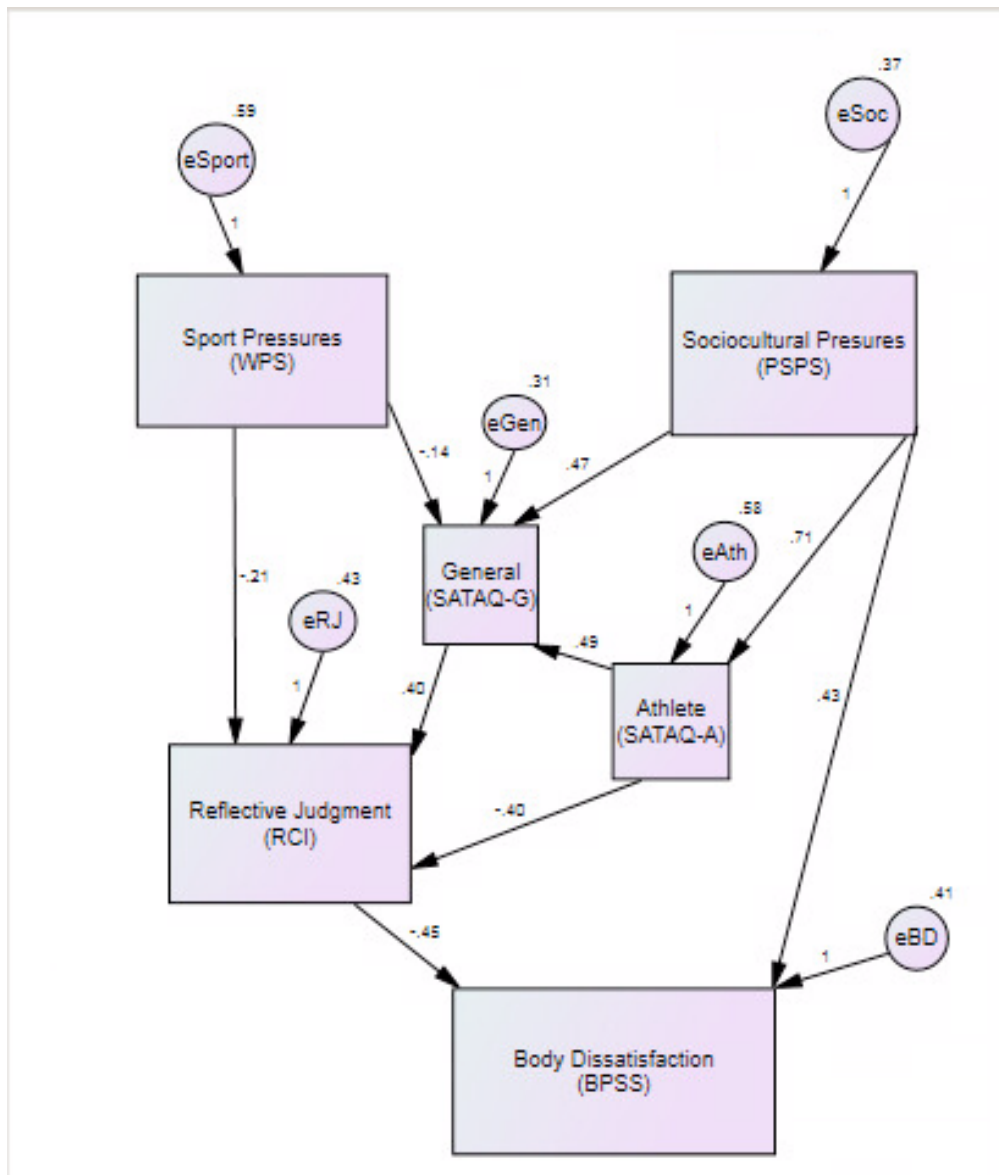


Figure 7. Final model for male sample only.

Non-nested model comparisons: Male and female final models with and without Reflective Judgment factor. The researcher then went on to compare both the female and male final models to their exact same models without the Reflective Judgment (RCI) factor, as the addition of the Reflective Judgment factor into the sociocultural model of eating disorder development among male and female college

student-athletes would be the unique contribution that the current study offers to the literature on the sociocultural model of eating disorder development among college student-athletes as discussed in Chapters One and Two (Tables 34 & 36). Because non-nested models cannot be compared statistically through Chi-Square difference testing, the models with and without the Reflective Judgment factor were ranked using Akaike's Informational Criteria (AIC) and Expected Cross-Validation Index (ECVI), where lower AIC and ECVI suggest a better model fit (Browne & Cudeck, 1989; Kumar & Sharma, 1999).

Table 34.

<i>Non-nested model female model comparison.</i>			
	Chi-Square	AIC	ECVI
Final Female Model Without Reflective Judgment	$X^2 (4) = 2.475, p = .480$	26.485	.236
Final Female Model with Reflective Judgment	$X^2 (6) = 3.531, p = .740$	33.531	.299

The final model for females, which included the Reflective Judgment factor (RCI), had AIC and ECVI values that were slightly higher than the sociocultural model for females without the Reflective Judgment (RCI) factor. This suggests that though Reflective Judgment (RCI) does play a role in the sociocultural model of eating disorder development for female college student-athletes, the model is a slightly better fit without the addition of this factor (see Figure 8 and Table 35 for mode regression weights).

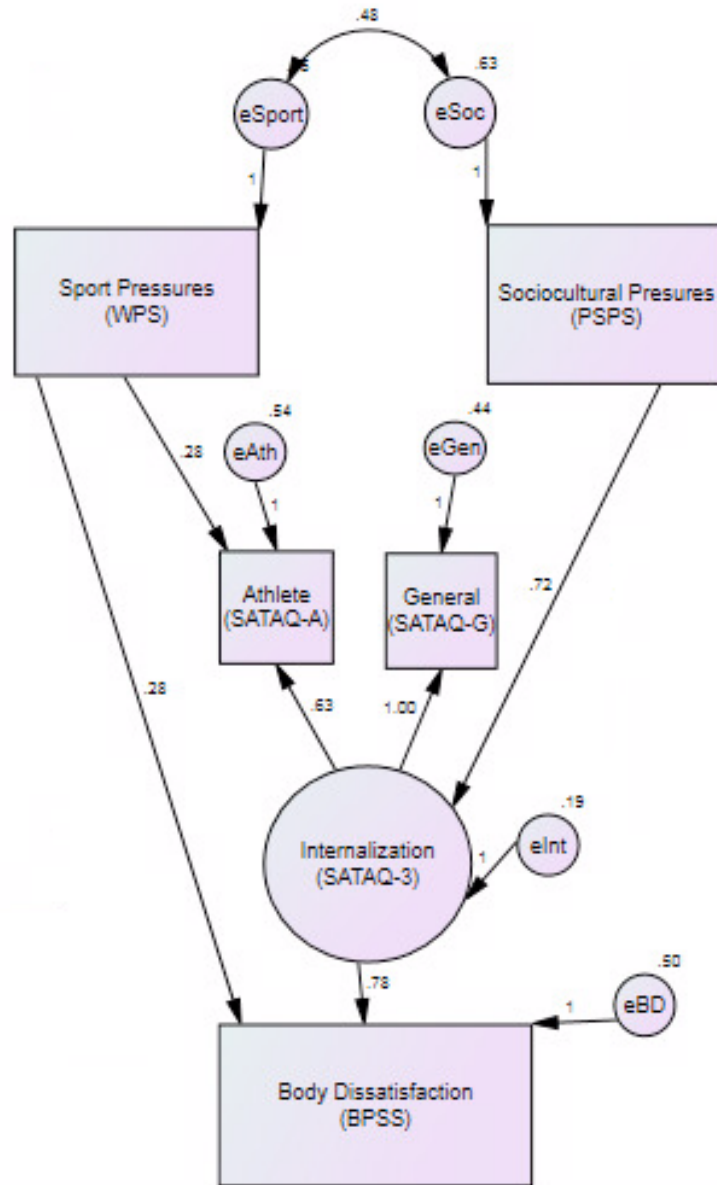


Figure 8. Final female model without Reflective Judgment factor.

Table 35.

Regression weights for the female model without Reflective Judgment.

Path	Estimate	S.E.*	p
SATAQ-3 ← PSPS	.720	.093	< .001
SATAQ-A ← SATAQ-3	.626	.155	< .001
SATAQ-G ← SATAQ-3	1.0 (constrained)		
BPSS ← SATAQ-3	.780	.165	< .001
BPSS ← WPS	.280	.091	.002
SATAQ-A ← WPS	.275	.091	.002
eSport ↔ eSoc	.479	.087	< .001

Next, the researcher did the same comparison for the final male model with and without the Reflective Judgment factor (Table 36).

Table 36.

Non-nested model male model comparison.

	Chi-Square	AIC	ECVI
Final Male Model Without Reflective Judgment	$X^2(2) = 5.017, p = .081$	31.017	.228
Final Male Model with Reflective Judgment	$X^2(5) = 6.668, p = .353$	36.668	.270

The final model for males, which included the Reflective Judgment factor (RCI), had AIC and ECVI values that were slightly higher than the sociocultural model for males without the Reflective Judgment (RCI) factor. This suggests that though Reflective Judgment (RCI) does play a role in the sociocultural model of eating disorder development for male college student-athletes, the model is a slightly better fit without the addition of this factor. However, several of the regression weights were not significant in the model that would have been expected for the sociocultural model of eating disorder development without Reflective Judgment, which suggests Reflective Judgment does play a significant mediating and moderating role in the model (see Figure 9 and Table 3 for regression weights). These findings are further explored in Chapter Five.

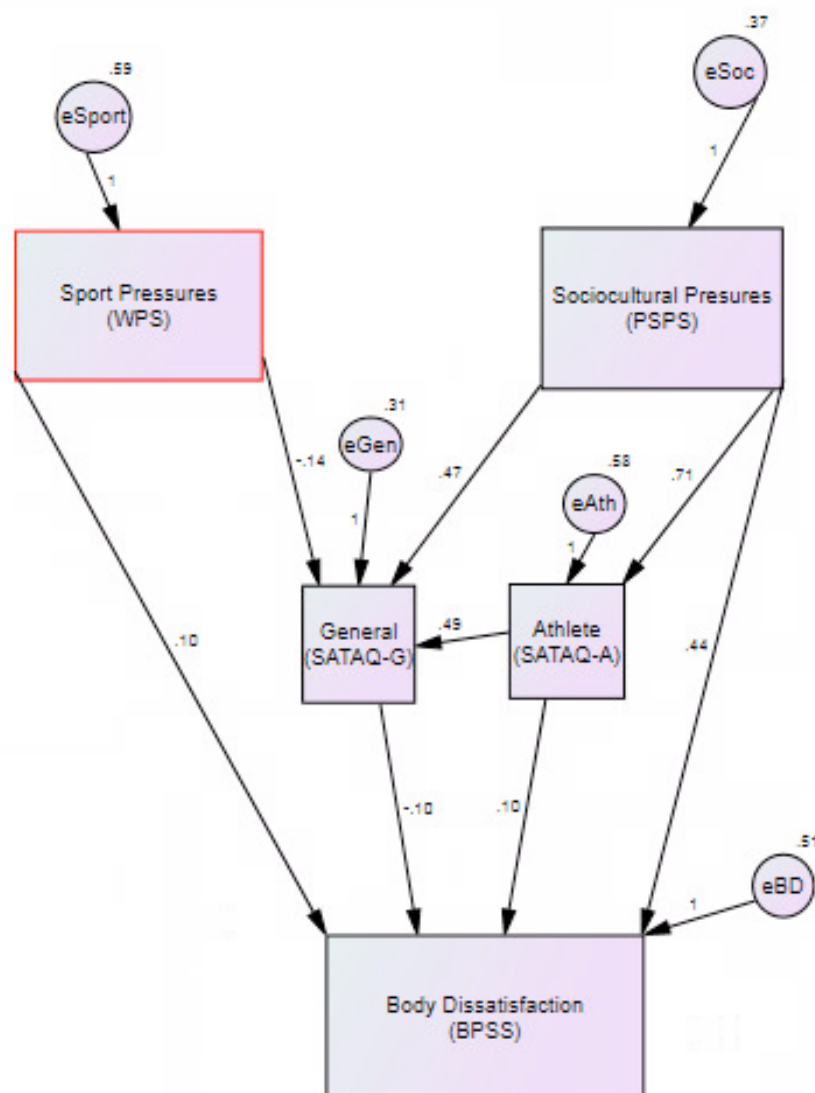


Figure 9. Final male model without Reflective Judgment factor.

Table 37.

Regression weights for the male model without Reflective Judgment.

Path	Estimate	S.E.	<i>p</i>
SATAQ-A ← PSPS	.712	.107	< .001*
SATAQ-G ← PSPS	.469	.091	< .001*
SATAQ-G ← SATAQ-A	.489	.063	< .001*
SATAQ-G ← WPS	-.136	.062	.029*
BPSS ← WPS	.102	.081	.209
BPSS ← SATAQ-A	.104	.097	.282
BPSS ← SATAQ-G	-.101	.110	.358
BPSS ← PSPS	.439	.127	< .001

Evaluation of Research Hypotheses

Hypothesis 1 (PSPS → SATAQ) – *There will be a significant, direct positive effect of higher reported Sociocultural Pressures (PSPS) on Body Ideal Internalization (SATAQ) among female and male college student-athletes.* This hypothesis was supported in both the female and male final models.

Hypothesis 2 (WPS → SATAQ)– *There will be a significant, direct positive effect of higher reported Sport Pressures (WPS) on Body Ideal Internalization (SATAQ) among female and male college student-athletes.* This hypothesis was supported for both the female and male models. There was a direct, significant, positive effect of Sport Pressures (WPS) on the Internalization of the General male body ideal (SATAQ-G) for male college student-athletes but not for the Internalization of the Athlete body ideal (SATAQ-A) for male college athletes. For females, there was a direct, significant, positive effect of Sport Pressures (WPS) on the Internalization of the Athlete specific body ideal (SATAQ-A) but not for the Internalization factor overall (SATAQ-3) or for the Internalization of the General female body ideal (SATAQ-G).

Hypothesis 3 (WPS → RCI → SATAQ)– *There will be a significant, indirect positive effect of higher reported Sport Pressures (WPS) on Body Ideal Internalization (SATAQ) among female and male college student-athletes.* This hypothesis was not supported in the final male model, as this path was found to be direct, with Reflective Judgment (RCI) instead mediating the path between the Internalization factors (SATAQ-A and SATAQ-G) and Body Dissatisfaction (BPSS). This hypothesis was also not supported for the final female model. Higher reported Sport Pressures (WPS) had a direct, positively effect on higher Body Ideal Internalization of the Athlete specific body

ideal (SATAQ-A) but did not indirectly positively effect the Body Ideal Internalization Athlete factor (SATAQ-A) as moderated by Reflective Judgment (RCI) in the final female only model.

Hypothesis 4 (PSPS → RCI → SATAQ) – *There will be a significant, indirect positive effect of higher reported Sociocultural Pressures (PSPS) on Body Ideal Internalization (SATAQ) among female and male athletes.* This hypothesis was not supported in the final male model, as this path was found to be direct, with Reflective Judgment (RCI) instead mediating the path between the Internalization factors (SATAQ-A and SATAQ-G) and Body Dissatisfaction (BPSS). This hypothesis was supported in the final female model only, with higher Sociocultural Pressures (PSPS) indirectly effecting higher Body Ideal Internalization (SATAQ-3) as moderated by Reflective Judgment (RCI).

Hypothesis 5 (PSPS → RCI → SATAQ) – *Reflective Judgment (RCI) will significantly moderate the indirect relationship between reported Sociocultural Pressures (PSPS) and Body Ideal Internalization (SATAQ) among female and male student-athletes, with higher Reflective Judgment (RCI) significantly predicting lower Body Ideal Internalization (SATAQ).* Reflective Judgment (RCI) was not found to moderate the relationship between Sociocultural Pressures (PSPS) and Body Ideal Internalization (SATAQ) in the final male model. Instead, Reflective Judgment (RCI) was found to mediate the relationship between Body Ideal Internalization of the General male ideal (SATAQ-G) and Body Ideal Internalization of the Athlete male ideal (SATAQ-A) and Body Dissatisfaction (BPSS) with a significant negative effect. However, only the path from the Body Ideal Internalization of the male Athlete ideal (SATAQ-A) to Reflective

Judgment (RCI) was negative, with the path from the Body Ideal Internalization of General male ideal (SATAQ-G) to Reflective Judgment (RCI) significant and positive, suggesting that the high internalization of the general male body ideal (SATAQ-G) relates to higher Reflective Judgment (RCI) but high internalization of the athlete body ideal (SATAQ-A) relates to lower Reflective Judgment (which was expected by this hypothesis). But ultimately, male student-athletes' higher Reflective Judgment (RCI) was found to have a direct, negative effect on Body Dissatisfaction (BPSS), one that fully mediated the relationships between SATAQ-A and SATAQ-G and Body Dissatisfaction (BPSS).

For the female sample, Reflective Judgment (RCI) was found to moderate the relationship between Sociocultural Pressures (PSPS) and Body Ideal Internalization (SATAQ) in the final female model, however this was a significant positive effect, with higher Reflective Judgment (RCI) related to higher Body Ideal Internalization (SATAQ).

Hypothesis 6 – (WPS → RCI → SATAQ) *Reflective Judgment will significantly moderate the indirect relationship between reported Sport Pressures (WPS) and Body Ideal Internalization (SATAQ) among female and male student-athletes, with higher Reflective Judgment significantly predicting lower Body Ideal Internalization (SATAQ).*

This hypothesis was not supported in the final male model only, as stated above (Hypothesis 7), Reflective Judgment (RCI) was instead found to mediate the relationship between Body Ideal Internalization, both for the general male body ideal (SATAQ-G) and for the athlete male body ideal (SATAQ-A). Reflective Judgment (RCI), instead, did fully mediate the relationship between Sport Pressures (WPS) and Body Dissatisfaction (BPSS), with higher Sport Pressures (WPS) having a significant positive effect on Body

Dissatisfaction (BPSS) in bivariate correlations but in the final male model, Reflective Judgment (RCI) mediates this effect, having a direct, negative effect on Body Dissatisfaction (BPSS). Reflective Judgment (RCI) was not found to moderate the relationship between Sport Pressures and Body Ideal Internalization in the final female model.

Hypothesis 7 (SATAQ → BPSS) - *There will be a significant, positive effect of higher reported Body Ideal Internalization (SATAQ) on Body Dissatisfaction (BPSS) among female and male student-athletes.* This hypothesis was supported in both the female and male final models, however, Reflective Judgment (RCI) was found to fully mediate this relationship for the male sample, with higher Reflective Judgment (RCI) leading to lower Body Dissatisfaction (BPSS).

Hypothesis 8 (eSport ↔ eSoc) – *There will be a significant relationship between Sociocultural Pressures (PSPS) and Sport Pressures (WPS) among female and male college student-athletes as depicted by covariance in error variances for WPS and PSPS.* This hypothesis was supported in both the final female model only, not for the final male model.

Summary

This chapter described the data analysis for the current study. After exploring descriptive statistics and bivariate correlations among the variables, multi-sample SEM was conducted to test the research hypotheses. The hypothesized model was not found to be a fit for both male and female student-athletes together, which was supported by differences in *t*-tests and bivariate correlations, which suggested there were some significant differences between the means and relationships between variables among the

female and male samples. The models were then further modified as separate samples of female and male college student-athletes. Both final models resulted in Reflective Judgment mediating or moderating the relationship between Sport Pressures, Sociocultural Pressures, Body Ideal Internalization and Body Dissatisfaction variables among the female and male college student-athletes in the sample. For the male sample, Reflective Judgment was found to fully mediate the relationship between Body Ideal Internalization of the Athlete ideal and Body Ideal Internalization of the General male ideal and Body Dissatisfaction in the expected direction (with higher Reflective Judgment leading to lower Body Dissatisfaction), rather than moderating the relationship between Sport and Sociocultural Pressures and Body Ideal Internalization as was expected. Another unexpected finding for the male sample was that Body Ideal Internalization of the General male ideal was found to have positive relationship with Reflective Judgment but Body Ideal Internalization of the Athlete ideal was found to have a negative relationship with Reflective Judgment, which led the researcher to consider these separate factors rather than factors that together made up the endogenous variable of Body Ideal Internalization as was true for the female sample and expected given that they were factors from within the same measure (SATAQ-3).

An unexpected finding for the female sample was that, though Reflective Judgment did moderate the relationship between Sociocultural Pressures and Body Ideal Internalization, it had a significant, positive effect on Body Ideal Internalization, which had a positive, direct effect on Body Dissatisfaction. This suggests that higher Reflective Judgment leads to greater Body Ideal Internalization and Body Dissatisfaction, which was the opposite of the research hypotheses. However, when the researcher conducted a

curvilinear regression analysis on the relationship between Body Ideal Internalization and Reflective Judgment, as well as split the data by levels of Reflective Judgment (Pre-Reflective, Quasi-Reflective, and Reflective), a significant curvilinear relationship was found, suggesting that higher Reflective Judgment had a significant, positive effect on Body Ideal Internalization for the majority of college student-athletes in the sample (who made up the Pre-Reflective and Quasi-Reflective levels; $n = 100$) as was reflected in the final model, however, for those who were in the highest Reflective Judgment level (Reflective; $n = 13$), this relationship was significant and negative.

Chapter Five further explores these findings as related to limitations of the current study, the literature presented in Chapter Two on the sociocultural model of eating disorder development among college student-athletes, and extant literature on the Reflective Judgment model and other select theories of college student epistemology that may further explain some of the findings that were not initially anticipated by the research hypotheses.

CHAPTER FIVE

Review of Research Purpose and Questions

Research into the sociocultural model of eating disorder development has established a relationship between pressures in sociocultural and sport environments to adhere to body ideals and resulting body dissatisfaction among female and male college student-athletes (Anderson et al., 2012; Galli et al., 2011; Homan, 2010; Halliwell & Harvey, 2006; Reel et al., 2010; Stice, 2002). Research has also found that the degree to which male and female college student-athletes internalize body ideals mediates the relationship between these pressures and subsequent body dissatisfaction and eating pathology (Galli et al., 2014; Reel et al., 2013; Thompson & Stice, 2001). Cognitive dissonance-based interventions, designed to encourage participants to reflectively think about and critique these sociocultural pressures in order to reduce body ideal internalization, have resulted in significant reductions in body dissatisfaction and eating pathology among samples of college students generally as well as female college student-athletes specifically (Becker et al., 2012; Stice et al., 2013). As a result of the program's widespread implementation and efficacy, Stice and colleagues (2007) called for further research to investigate potential moderators of intervention effects on body ideal internalization in order to provide direction for the advancement of current programs.

One moderator between college students' perceived sociocultural pressures and body ideal internalization that has been established in recent literature is feminist identity development (Murnen & Smolak, 2009). Feminist identity development generally refers to the emerging critical consciousness of women's oppression in society and the adaptation of those beliefs into one's identity (Hansen, 2002). Higher feminist identity

development has been associated with lower body ideal internalization and body dissatisfaction among college women and has thus been suggested as a protective factor against these concerns (Murnen & Smolak, 2009). However, a major limitation to modifying prevention programming based on the finding that feminist identity development is a protective factor for body ideal internalization is that the model has been critiqued for its lack of relevance for males (Hansen, 2002). Even though males have been found to internalize body ideals that are also gendered and prevalent in societal and athletic contexts (Agliata & Tantleff-Dunn, 2004; Galli et al., 2014).

Reflective Judgment, a developmental stage model based on college students' epistemological assumptions and abilities to reflectively think when faced with ill-structured societal problems, has been correlated with feminist identity development. Reflective Judgment is not a gender-specific construct (King & Kitchener, 1994) as evidenced by non-significant differences between female and males' Reflective Judgment in the current study. This construct, however, had not yet been investigated as a potential protective factor within the sociocultural model of eating disorder development among college student-athletes.

Based on the aforementioned research, the current study investigated the relationships between the factors that have been found to make up the sociocultural model of eating disorder development (Sociocultural Pressures and Sport Pressures to adhere to body ideals, Body Ideal Internalization, Body Dissatisfaction) with Reflective Judgment among a sample of male and female actively participating college student-athletes across 22 different sports from three universities in the state of Virginia. Multi-sample SEM was utilized to investigate the role that Reflective Judgment may play in the

development of body dissatisfaction among the sample of college student-athletes. The study addressed the following research questions:

1. Does Reflective Judgment moderate the relationship between Sociocultural and Sport Pressures and the Body Ideal Internalization among female and male college student-athletes?
2. If so, does the moderating effect on the relationship between Sociocultural and Sport Pressures and the Body Ideal Internalization lead to lower Body Dissatisfaction amongst male and female college student-athletes?
3. Does the moderating effect of Reflective Judgment on the relationship between Sociocultural and Sport Pressures and Body Ideal Internalization differ between samples of male college student-athletes and female college student-athletes?

Discussion

Differences in Findings by Gender

To begin with the third research question, multi-sample SEM did reveal significant differences in the hypothesized models for the male and female college student-athletes in the sample. Independent *t*-tests also revealed that female college student-athletes had significantly greater Body Dissatisfaction, perceived Sociocultural Pressures to adhere to body ideals in their environments, overall Body Ideal Internalization, and Body Ideal Internalization of the General societal ideal than male college student-athletes in the sample. These findings are largely supported by research on eating disorder development among college students generally and college student-athletes specifically. Research consistently finds that societal pressures are generally more prevalent and societal body ideals more unrealistic for women (Striegel-Moore &

Bulik, 2007) (and more discrepant from athlete-specific ideals for female college student-athletes which also adds additional pressure [Kauer & Krane, 2006]) than men.

Subsequently, females tend to report higher levels of body dissatisfaction and eating pathology (Greenleaf et al., 2009; Petrie et al., 2008).

Male and female college student-athletes in the sample did not differ significantly in terms of reported Sport Pressures to adhere to body ideals, Body Ideal Internalization of Athlete-specific body ideals, or Reflective Judgment. These findings suggest that both pressures to adhere to athlete-specific body ideals and the internalization of athlete-specific body ideals were the same for both male and female college-student athletes in the sample. This finding, in comparison to the finding that females espoused higher perceived Sociocultural Pressures to adhere to body ideals and had higher Internalization of the General societal body ideal, is supported by previous research on body dissatisfaction and eating disorder development among male and female student-athletes. This finding suggests that males and females experience similar pressure within the sports environment, but females experience more pressure than males outside of this environment (Galli et al., 2014; Reel et al., 2013).

For women, Sport Pressures also had a direct, significantly positive effect on both Body Ideal Internalization of the Athlete-specific ideal and Body Dissatisfaction, whereas in the model for the male sample, Sport Pressures did not have a direct effect on Body Dissatisfaction. Sport Pressure did have a direct and significantly negative effect on the Internalization of the General societal Body Ideal for the male sample. This suggests that though pressures in the sport environment were similar for males and for females in terms of reported severity, the impact on other variables was differential. The higher these

reported pressures were the more negatively impacted the female college student-athletes' Body Ideal Internalization and Body Dissatisfaction. However, perceived Sport Pressures had no such effect on the Body Dissatisfaction for male student-athletes, and unexpectedly had a significant negative effect on Internalization of the General societal body ideal. This suggests that the more male college student-athletes' perceived there to be Sport Pressures to adhere to body ideals, the less these ideals were internalized. This points to a potential protective function of Sport Pressures on male student-athletes' internalization of the general body ideal that is explored further below.

In terms of hypothesized relationships among the variables, multi-sample SEM revealed significant differences in the expected relationships between Sociocultural Pressures and Body Ideal Internalization, Sociocultural Pressures and Sport Pressures, Sport Pressures and Reflective Judgment, Reflective Judgment and Body Ideal Internalization, and Body Ideal Internalization and Body Dissatisfaction among the male and female student-athletes in the sample. Thus, when males and females were analyzed together in the multi-sample SEM, the original hypothesized model did not fit well. Separately, the hypothesized model was a much better fit for the female sample than the male sample. However both models required significant model respecifications before resulting in models with significant coefficients for each path that were theoretically sound and that met goodness-of-fit indices. The major differences in the resulting final models by gender is indicative of the differences in the paths from Sociocultural and Sport Pressures to Body Dissatisfaction between male and female student-athletes in the sample. Both of these models are explained in the next section in order to address both research questions one and two.

Examination of Findings within Final Male and Female Models

The original model hypothesized that college student-athletes' Reflective Judgment would moderate the relationship between perceived Sport and Sociocultural pressures to adhere to body ideals and the Internalization of these body ideals, which would directly and positively correlate with Body Dissatisfaction. This would mean that the higher a student-athletes' Reflective Judgment, the lower his or her Body Ideal Internalization and therefore the lower her or his Body Dissatisfaction. The original model also hypothesized expected relationships between the other factors of the sociocultural model of eating disorder development, which would predict that Sport and Sociocultural Pressures would be correlated (as depicted by covariance in error in the model), Sport Pressures would have a direct, positive effect on Body Ideal Internalization which would have a direct, positive effect on Body Dissatisfaction and thus, moderate the relationship. In the same way as Sport Pressures, Sociocultural pressures were expected to have a direct, positive effect on Body Ideal Internalization, which would have a direct, positive effect on Body Dissatisfaction and thus, moderate this relationship as well. Instead, the final models for male and female college student-athletes revealed that:

a) Reflective Judgment:

- a. Fully mediated the relationship between Body Ideal Internalization and Body Dissatisfaction among male student-athletes.
- b. Moderated the relationship between Sport Pressures and Body Dissatisfaction among male student-athletes.
- c. Was significantly, negatively correlated with Perceived Sport Pressures for male college student-athletes.

- d. Moderated the relationship between perceived Sociocultural Pressures and Body Ideal Internalization among females, however, in the opposite direction of what was expected by original hypotheses (the higher a female student-athletes' Reflective Judgment, the higher their Body Ideal Internalization and subsequent Body Dissatisfaction).
 - e. Had a significant, curvilinear relationship with Body Ideal Internalization among female college student-athletes.
 - f. Did not moderate the relationship between Sport Pressures and Body Ideal Internalization among female college student-athletes.
- b) Perceived Sport Pressures
- a. Had a significant, negative effect on male student-athletes' Body Ideal Internalization of the General body ideal in society.
 - b. Had a direct, positive effect on only the Body Ideal Internalization of the Athlete-specific body ideal for female college student-athletes rather than on overall Body Ideal Internalization.
 - c. Had a significant, negative effect on Reflective Judgment for the male student-athletes.
 - d. Had an effect on Body Dissatisfaction that was fully mediated by Reflective Judgment for the male student-athletes.
 - e. Was found to have error variance that was significantly correlated with the error variance of Sociocultural Pressures for the female model but not the male model.
- c) Sociocultural Pressures:

- a. Had a direct, positive effect on overall Body Ideal Internalization (of the General societal body ideal as well as the Athlete-specific body ideal) as well as had a direct, positive effect on Body Dissatisfaction among male student-athletes.
 - b. Had an indirect, positive effect on Body Ideal Internalization among female student-athletes that was moderated by Reflective Judgment.
- d) Body Ideal Internalization:
- a. Had an indirect effect on Body Dissatisfaction among male student-athletes that was mediated by Reflective Judgment.
 - b. Two factors of Body Ideal Internalization (General male societal body ideal and the Athlete-specific body ideal) interacted in opposite ways with Reflective Judgment among males to the degree that it was more theoretically sound to remove the entire Body Ideal Internalization factor structure that held the two observed variables to the same unobserved variable (Internalization) and consider them separate factors for the male sample.
 - c. Had a significant, curvilinear relationship with Reflective Judgment among female student-athletes.
 - d. Was significantly and positively effected by perceived Sociocultural Pressures for the female college student-athletes as moderated by Reflective Judgment.
 - e. Had a direct, significant, positive effect on Body Dissatisfaction among female student-athletes.

Each of these findings are further explored through current research on the sociocultural model of eating disorder development among college student-athletes and the Reflective Judgment model below. In addition, select epistemological theories that largely parallel the Reflective Judgment model stages, such as Perry's (1970) scheme and Belenky et al.'s (1986) Women's Ways of Knowing (WWK), are included in this discussion. These additional theories offer further insight into observed differences in relationships between the factors among the male and female college student-athletes in the current investigation.

Reflective Judgment: A Mediator between Body Ideal Internalization and Body Dissatisfaction for Male College Student-Athletes

Reflective Judgment fully mediated the relationship between Body Ideal Internalization (of the General male body ideal in society and the Athlete-specific body ideal) and Body Dissatisfaction. This means that though higher perceived Sociocultural Pressures directly led to higher Body Ideal Internalization (both for the General male body ideal in society and the Athlete-specific body ideal) for the male student-athletes in the sample, the higher male college student-athletes' Reflective Judgment were, the lower their Body Dissatisfaction.

From what is known about the sociocultural model of eating disorder development, higher Body Ideal Internalization (of both the General body ideal in society and the Athlete-specific body ideal) should have a direct, positive effect on Body Dissatisfaction in the male model (Galli et al., 2014; Griffiths et al., 2014). However, when the Reflective Judgment factor was removed from the model, the path between Body Ideal Internalization and Body Dissatisfaction was not significant for the final male model in

the current sample. This points to the significant role that Reflective Judgment played in this aspect of the model for male student-athletes. This role is that the stronger the male college student-athletes' reflective thinking and the more complex their assumptions about knowledge (higher Reflective Judgment) did not lead to lower body ideal internalization as was originally hypothesized. However, it was found that if they did internalize these body ideals, it was less likely they were to subsequently espouse body dissatisfaction.

Reflective Judgment: A Moderator between Sport Pressures and Body

Dissatisfaction for Male College Student-Athletes

Reflective Judgment moderated the relationship between Sport Pressures and Body Dissatisfaction in the male model. Without Reflective Judgment in the model, the relationship between Sport Pressures and Body Dissatisfaction was non-significant, which would not have been predicted by the sociocultural model of eating disorder development. It would have been expected that higher perceived Sport Pressures would have a significant positive effect on higher Body Dissatisfaction for male college student-athletes (Galli et al., 2014). A statistical explanation may be that, though this relationship was found to be significant, the distribution of male participants' WPS (Sport Pressures) scores was positively skewed with a mean that was lower than what would have been expected if the distribution were normal. This may have impacted its lack of significant positive effect on Body Dissatisfaction (which both would not have been predicted by the sociocultural model of eating disorder development or the developers of the WPS scale [Galli et al., 2014]).

The significant negative effect of perceived Sport Pressures on Reflective Judgment suggested that the higher the male college student-athletes' perceived there to be pressures within their sport environment to adhere to body ideals, the lower their Reflective Judgment. This corroborates with the negative effect that higher Reflective Judgment has on Body Dissatisfaction in the model. Original hypotheses predicted that perceived Sport Pressures would have a significant, direct effect on Reflective Judgment, as it was expected that Reflective Judgment would moderate the relationship between Sport Pressures and Body Ideal Internalization and Body Dissatisfaction and thus would need to be significantly correlated with Sport pressures in order to do so. However, the original hypothesis was non-directional. One explanation for the finding that higher Sport Pressures were found to have a direct, negative effect on Reflective Judgment is Howard-Hamilton and Sina's (2001) claims that the college athletic environment may not offer opportunities for adequate intellectual challenge and support for cognitive development. The current findings suggest that not only might these pressures in the sport environment to adhere to body ideals not provide adequate challenge and support to promote male athletes' cognitive development, they may directly effect a lack in Reflective Judgment for male college student-athletes.

In contrast, higher Sociocultural Pressures had a significant, positive effect on higher Reflective Judgment for the female sample suggesting that perceiving these pressures actually leads to increase in Reflective Judgment for female college student-athletes. And outside of the final model, Sport Pressures and Reflective Judgment were significantly and positively correlated for females. These findings may be supported by previous research findings that female college student-athletes tend not to differ from the

general undergraduate student population in terms of cognitive development, but males (in particular, those who participate in revenue-producing sports) do show deficits due to the particular restrictions within the sport environment (Pascarella et al., 1999).

Reflective Judgment: A Moderator Between Sociocultural Pressures and Body Ideal Internalization among Female College Student-Athletes

Reflective Judgment was found to moderate the relationship between perceived Sociocultural Pressures to adhere to body ideals and Body Ideal Internalization, with Reflective Judgment having a direct, positive effect on Body Ideal Internalization and subsequent Body Dissatisfaction for the female college student-athletes. When Reflective Judgment was removed from the model, these factors were related as expected by the sociocultural model of eating disorder development. Sociocultural and Sport Pressures both had positive and direct effects Body Ideal Internalization, which partially mediated the relationship between these pressures and Body Dissatisfaction. These findings, along with the previously mentioned findings, which noted that Reflective Judgment had an opposite relationship to these factors for the male sample, may be explained by further exploring the three qualitatively different levels of the Reflective Judgment model.

Pre-Reflective Thinking (stages 1-3) of the Reflective Judgment model is generally marked as the level of viewing knowledge as certain and as prescribed and justified by authority. Quasi-Reflective Thinking (stages 4-5) of the Reflective Judgment model is generally marked as the level of viewing knowledge as uncertain, subjective, and justifications for knowledge claims as idiosyncratic. Reflective Thinking (stages 6-7) is marked as the level of viewing knowledge as continually constructed and justifications

for knowledge claims as based on contextualized, pragmatic criteria and on the consequences of alternative judgments (King & Kitchener, 1994).

Because of these qualitatively different levels and the way in which increases in Reflective Judgment was found to directly and positively impact Body Ideal Internalization for the female college student-athletes, the researcher sought to test the linearity of this relationship with a curvilinear regression. It was found that Reflective Judgment and Body Ideal Internalization had a significant curvilinear relationship; increases in Body Ideal Internalization was correlated with increases in Reflective Judgment scores for women in the first two levels of Reflective Judgment (Pre-Reflective Thinking and Quasi-Reflective Thinking) but was negatively correlated with increases in Reflective Judgment scores for women in the third level of Reflective Judgment (Reflective Thinking). The majority of female college student-athletes in the sample fell within the Pre-Reflective and Quasi-Reflective stages of the Reflective Judgment model ($n = 100$ of 113), which explains why the final female model in the SEM suggested that overall, Reflective Judgment moderated the relationship between Sociocultural Pressures and Body Ideal Internalization by having a direct, positive effect on Body Ideal Internalization. Further potential explanations of these findings are provided for each of the three Reflective Judgment levels.

Pre-Reflective thinking (RJM stages 1-3) and Body Ideal Internalization.

Pressures to adhere to body ideals in society as well as in athletics can be authority driven (by coaches, parents, the media, older teammates or older peers). Because individuals in the Pre-Reflective stage of the Reflective Judgment model perceive knowledge to be determined and justified by authority figures, if a college student-athlete who operates

from Pre-Reflective stage of Reflective Judgment receives messages to adhere to societal body ideals from authority figures, it is likely that these messages will be internalized as truth and will subsequently experience Body Dissatisfaction, as reflected in the final SEM model for female college student-athletes. The final SEM model for the male college student-athletes also reflected this finding, which exemplified that lower Reflective Judgment scores were associated with higher Body Dissatisfaction due to the mediating role Reflective Judgment played in the relationship between Body Ideal Internalization and Body Dissatisfaction.

Quasi-Reflective thinking (RJM stages 4-5) and Body Ideal Internalization.

In addition to being authority driven, pressures to adhere to body ideals in society as well as in athletics can be subjective and omnipresent (peers, media, in the general sport culture). Because individuals in the Quasi-Reflective stage of the Reflective Judgment model perceive knowledge to be idiosyncratic and justified by context-specific interpretations of evidence, it may be difficult for a female college student-athlete in a context wrought with these pressures not to internalize societal expectations for the female body ideal. However, this did not appear to be the case for the male student-athletes in the Quasi-Reflective stage within the sample, whose Reflective Judgment scores were associated with decreases in Body Ideal Internalization. This calls for a closer look at the differences in contextual pressures for males and females and how this may intersect with suggested differences in epistemology based on gender.

Gender differences in epistemological leanings. Through interviews with male Harvard students the 1970's, William Perry established a nine-position framework of epistemological development with four general categories of cognitive complexity that

have been paralleled with the three levels of the Reflective Judgment model (Hofer & Pintrich, 1997; Love & Guthrie, 1999; Table 38). These four general stages included: a) Dualism; b) Multiplicity; c) Relativism; and d) Commitment in Relativism. In 1986, feminist researchers Belenky, Clinchy, Goldberger, and Tarule set out to organize the voices of 135 diverse women along Perry's framework and found sufficient evidence to corroborate Perry's scheme with the female sample across race and class difference. However, the authors found inconsistencies within each position to justify creating a nearly parallel five-position framework to Perry's original scheme to better represent the collective voices of the women interviewed. These five positions included: a) Silence, b) Received Knowing, c) Subjective Knowing, d) Procedural Knowing (Connected and Separate subtypes); and Constructed Knowing (Belenky et al., 1986). The major ways in which these models differed included: a) an overall paradigm shift from development of "sight" to development of "voice" from the Perry to WWK model; b) the finding that there seemed to be a stage even earlier than the lowest stage of Perry's model that Belenky et al. (1986) named the position of Silence marked by a view of oneself as mindless, voiceless, and view of knowledge as entirely determined by authority; and c) evidence that there seemed to be two distinct ways of approaching knowledge in one particular position of the model, the Procedural position, which is the position that would parallel Perry's position of Relativism, and the position that would parallel the Reflective Judgment model's Quasi-Reflective level (Hofer & Pintrich, 1997). Belenky et al. (1986) referred to these two distinct ways of knowing in the Procedural position as: a) Separate Knowing and b) Connected Knowing.

Table 38.

Comparison of Reflective Judgment, Perry's Scheme, and Women's Ways of Knowing models.

<i>Reflective Judgment Model</i>	<i>Perry's Scheme</i>	<i>Women's Ways of Knowing</i>
Pre-Reflective Thinking	Dualism Multiplicity	Silence Received Subjective Procedural Knowledge
Quasi-Reflective Thinking	Relativism	(a) Connected Knowing (b) Separate Knowing
Reflective Thinking	Commitment in Relativism	Constructed Knowledge

Note. Stages are aligned to indicate similarity across the three models as adapted from Hofer and Pintrich (1997) and Love & Guthrie (1999).

Separate Knowing is essentially critical thinking, which is the process of evaluating or analyzing an object or issue from a detached, objective, impersonal stance (Clinchy, 1989). This critical stance would align with a *devil's advocate* approach to arriving at judgments. This is the type of thinking often encouraged, praised, and intentionally promoted in educational settings (Belenky et al., 1986). Connected Knowing, in contrast, is a subjective approach that analyzes an object or issue first by understanding, perspective-taking, or empathy and before drawing conclusions. Clinchy (1989) provides the following description of Connected Knowing:

Connected knowers are not dispassionate, unbiased observers. They deliberately bias themselves in favor of what they are examining. They try to get inside it and form an intimate attachment to it. The heart of connected knowing is imaginative attachment: trying to get behind the other person's eyes and 'look at it from that person's point of view' (p. 29).

Belenky and colleagues (1986) argue that Connected Knowing is no more or less complex than Separate Knowing, but is not praised, encouraged, or promoted in educational settings like Separate Knowing or critical thinking is. Belenky and

colleagues (1986) deny that the WWK model claims that there are gender-specific ways of knowing, which has been a major critique of the model (Goldberger, 1996). However, the authors do posit that Separate Knowing and Connected Knowing are gender-related; "...more women than men tip toward Connected Knowing and more men than women toward Separate Knowing" (Belenky et al., 1986, p. 14). Galotti, Clinchy Ainsworth, Lavin, and Mansfield (1999) and Galotti, Drebus, Reimer (2001) found such differences, with college men in their samples reporting more frequent use of Separate Knowing procedures than women and women reporting more frequent use of Connected Knowing procedures than men.

Though the current study did not investigate such differences, gendered leanings toward Separate and Connected knowing in the Procedural stage of WWK, which parallels the Reflective Judgment model's stage of Quasi-Reflective Thinking, may offer some explanation as to the major discrepancy in the relationship between Body Ideal Internalization and Reflective Judgment and the influence of this relationship on Body Dissatisfaction for male and female college student-athletes in the current study. Though Separate Knowing takes an objective stance to knowledge that would align with critical thinking regarding Sociocultural Pressures to adhere to body ideals as promoted in Cognitive Dissonance Based programming, Connected Knowing takes a subjective stance to knowledge, first by trying a perspective on for size, or more aptly, *internalizing* the message in the process toward evaluation (Clinchy, 1989). This process may be particularly concerning for female college student-athletes who receive persistent messages and pressures to adhere to certain body ideals in society to a degree that is stronger (Striegel-Moore & Bulik, 2007) and more discrepant to body ideals they receive

messages and pressures to adhere to in their sport (Kauer & Krane, 2006) and who may evaluate knowledge claims from a Connected Knowing, or inherently internalizing, paradigm. Though these speculations are theoretical in nature, these concerns can be intentionally explored through further research into differences among male and female samples of college student-athletes who fall within the Quasi-Reflective level of the Reflective Judgment model along Connected and Separate Knowing styles as measured by the Attitudes to Thinking and Learning Survey (Gallotti et al., 1999). Investigation into the relationship between Separate and Connected Knowing styles in this particular stage of epistemological development, which is the level that most undergraduate students operate from within (Owen, 2011), may offer further insight into the current study's findings.

Reflective Thinking (RJM stages 6-7) and Body Ideal Internalization. As depicted in Table 38, the Reflective Thinking level of the Reflective Judgment model can be paralleled with the Constructed Knowing position of the WWK model (Hofer & Pintrich, 1997). Belenky and colleagues (1986) describe the Constructed Knowing position as a “weaving together the strands of rational and emotive thought” (p. 134) wherein the individual no longer interacts with knowledge from a Connected or Separate position as in Procedural Knowing. When evaluating societal pressures to adhere to body ideals with knowledge assumptions and justifications from the Reflective Thinking stage of the Reflective Judgment model, one might consider the consequences of internalizing these pressures on the mental and physical health of the college student-athlete, evaluate the sources of these pressures (media, peers, coaches) and the evidence behind these pressures, and might consult with themselves (and their bodies) along with other

knowledge sources. Doing so might result in reduced internalization of societal body ideals and subsequent Body Dissatisfaction. This was reflected in the curvilinear relationship between Reflective Judgment and Body Ideal Internalization, with a negative correlation between Reflective Judgment and Body Ideal Internalization for the females in the Reflective Thinking level but a positive correlation between Reflective Judgment and Body Ideal Internalization for those in the two earlier levels.

This was not reflected in the final SEM model for female college student-athletes due to the curvilinearity of the relationship between Body Ideal Internalization and Reflective Judgment for women in the Reflective Thinking stage of the Reflective Judgment model and the relative lack of representation of women in the Reflective Thinking level of the model in comparison to the Quasi-Reflective Thinking level. The final SEM model for the male college student-athletes reflected this finding; higher Reflective Judgment scores were associated with lower Body Dissatisfaction due to the mediating role Reflective Judgment played in the relationship between Body Ideal Internalization and Body Dissatisfaction.

Reflective Judgment: Not a Moderator between Sport Pressures and Body Ideal Internalization among Female College Student-Athletes

Though Reflective Judgment was found to be a moderator between Sociocultural Pressures to adhere to body ideals and Body Ideal Internalization among female college student-athletes, it did not have the same effect on the relationship between Sport Pressures to adhere to body ideals and Body Ideal Internalization. This may possibly be explained by differences in the ways the female college student-athletes interact with pressures to adhere to societal body ideals and pressures to adhere to body ideals within

their sport. Perhaps those pressures in the sport are more authority driven by coaches, judges, and perhaps more specific (Reel et al., 2013) and so though higher Reflective Judgment (particularly within the Quasi-Reflective thinking level) was found to be related to higher Body Ideal Internalization for the female college student-athletes in the sample, Reflective Judgment is just not a relevant factor in this process as it was for Societal Pressures. However, initial bivariate correlations revealed that Sport Pressures and Reflective Judgment were significantly positively correlated and that Reflective Judgment and Body Ideal Internalization were also significantly positively correlated for female college student-athletes in the sample, as was true for Sociocultural Pressures which Reflective Judgment was found to moderate in its relationship to Body Ideal Internalization. As with the male sample, a statistical explanation may be that, though these bivariate relationships were found to be significant, the distribution of female participants' WPS scores was positively skewed with a mean that was lower than what would have been expected if the distribution were normal. This may have impacted its lack of significant relationship with Reflective Judgment in the final female SEM model.

Sport Pressures: A Direct, Negative Effect on Males' General Societal Body Ideal Internalization

Sport pressures had a significant, negative effect on male student-athletes' Internalization of the General societal body ideal, which would not have been predicted by the sociocultural model of eating disorder development generally or by the developers of the WPS scale (Galli et al., 2014). This meant that males who perceived there to be higher pressures to adhere to body ideals in their sport environment were less likely to internalize the general societal body ideal. As was stated previously, pressures in the

sport environment to adhere to body ideals for male college student-athletes tend not to be as discrepant to the societal body ideal for males in general as it is for female college student-athletes (Busanich & McGowan, 2010). The fact that perceiving high pressures in the sport environment to adhere to body ideals was significantly and directly related to lower body ideal internalization general societal ideal suggests that there may be some protective function of perceiving the pressure in the sport environment for males to reject the internalization of the general male body ideal that may be worthy of exploration.

This also could be a function of measurement error with the WPS-M scale, which was recently developed and had a significant positive skew for the current male sample, as it was found to significantly contribute to internalization of the general societal body ideal for male sample in the pilot study for the measure (Galli et al., 2014).

Sport Pressures: A Direct, Positive Effect on Females' Athlete-Specific Body Ideal Internalization

Sport Pressure was found to directly and positively affect the female college student-athletes' Internalization of the Athlete-specific body ideal but not the General societal body ideal or overall Body Ideal Internalization. This supports recent research by Reel and colleagues (2011; 2013) who developed the WPS in order to specifically ascertain pressures that are unique to female college student-athletes sport environments to adhere to athlete-specific body ideals. It appears that in comparison to Sociocultural Pressures that directly and positively affect overall Body Ideal Internalization for the female college student-athletes suggesting that societal pressures encourage women to be thin, slim, lean, fit, and muscular, Sport Pressures are unique to the sport environment and

contribute to unique body ideals of muscularity, fitness, and leanness for female college student-athletes but not to the general societal thin-ideal.

Sport Pressure was also found to have a direct, positive effect on Body Dissatisfaction in the final female SEM model. Therefore, Internalization of the Athlete-specific body ideal was a partial mediator in the relationship between Sport Pressures and Body Dissatisfaction. This is consistent with literature on the sociocultural model of eating disorder development among female and male college students generally and college student-athletes, which has reported both that Body Ideal Internalization was found to either fully or partially mediate this relationship (Becker et al., 2012; Galli et al., 2014; Griffiths et al., 2014; Reel et al., 2013; Stice, 2002; Thompson & Stice, 2001).

Sport Pressures and Sociocultural Pressures: Covariance in Error for Females but not Males

Original hypotheses predicted that the error variance of Sport and Sociocultural Pressures would have a bidirectional relationship due to both Galli et al. (2014) and Reel et al.'s (2013) investigations, which both found a significant correlations between these observed variables. This was found only for the final female model but not the final male model. This was found to be a significant, positive relationship for the female model as also reflected by bivariate correlations between the variables, however, this was not the case for the male model nor for the bivariate correlations between the variables for the male sample which was not significant. The researcher considered identifying a new unobserved factor labeled "Pressures" as noted in Chapter Four that the observed factors of Sport and Sociocultural Pressures would together make up the factor structure for. However, the factors interacted with the remaining variables in very different ways for

both the male and female models with no similarities with the exception of Sport Pressures having a direct, positive effect on Body Dissatisfaction and Sociocultural pressures having an indirect, positive effect on Body Dissatisfaction in the final female model. Therefore, due to the lack of relationship in bivariate or error variance for the male sample, the covariance hypothesis was removed for the final model and due to the lack of similarity in interaction with other factors, was not combined to make up an overall unobserved “Pressures” factor for the female sample.

The lack of relationship between perceived Sport Pressures and Sociocultural Pressures for the male student-athletes also points to the potential for measurement error in the WPS-M or sampling error in the current study for the male sample. However, when considered along with the finding that perceived Sport Pressures had a direct, negative effect on internalization of the General societal male body ideal among male student-athletes, this finding may be reflective of the significant differences between perceived Sport Pressures and Sociocultural Pressures for male college student-athletes. This finding suggests that perceiving there to be high pressures in the sport environment has little relationship with the perception that there are high societal pressures to adhere to body ideals for the male college student-athletes only. Female college student-athletes, in contrast, who perceived there to be high pressures in the sociocultural environment to adhere to body ideals also perceived there to be high pressures in the sport environment to adhere to body ideals. However, these factors had effects on athlete-specific body ideal internalization, body ideal internalization overall, and body dissatisfaction in different ways. Though for the aforementioned differences, combining these observed factors into an overall unobserved factor of “Pressures” in the current study was not

indicated, further research might explore the relationships between these variables and the remaining factors within the sociocultural model of eating disorder development to determine if combining these factors into an overall unobserved factor would be indicated to better understand the impact and interaction of these overall pressures on student-athletes.

Limitations

One major limitation in the current investigation was the low number of male college student-athletes originally recruited for the sample in comparison to female college student-athletes. This concern was addressed statistically by weighting the entire sample's data by the combined distribution of demographic categories as expected in the athletic conferences from which the three universities participated. However, had there originally been more a representative number of male and female participants, one could expect these results to be slightly different than what was produced by the weighted estimates. In addition, the researcher chose to weight the data by the race and gender demographics expected in the population, which resulted in some sports (i.e. men's football) with an overrepresentation of student-athletes in the sample as compared to what would be expected in the overall population. This was also true for some sports that did not have any representation at all (i.e. men and women's golf) but male and female golf players do make up the overall population. Had representation of sports in the sample had been as expected in the population the resulting male and female final models may be different from those that were found in the current investigation.

The study was also limited in further exploration of the differences in Reflective Judgment levels on the Body Ideal Internalization and Body Dissatisfaction factors due to

the majority of the sample falling within the Quasi-Reflective level of Reflective Judgment. Though this is expected due to the majority of undergraduate students operating within this level of the model, a larger or purposive sample that had equal or near-equal numbers of participants in each level would have allowed the researcher to examine the differences more fully through multi-sample SEM rather than through speculation following bivariate and curvilinear regressions.

Another limitation that was noted throughout the description of the findings was the potential for measurement error, particularly for the WPS-M scale. Though several of the frequency distributions revealed significant skewness or kurtosis for the measures, the way that the WPS-M (measure of perceived Sport Pressures for male athletes) interacted with the factors in the current investigation would not have been predicted by the scale's developers whose pilot included a much larger sample of male college student-athletes than the present study (Galli et al., 2014). It is unclear whether this was a true finding, a result of sampling error and recruitment of male participants as previously mentioned, or a result of measurement error in the current study. Another limitation regarding measurement error is that two of the measures utilized in the study (BPSS and PSPS) were developed first with females and then revised to make a male version for studying these constructs with males, unlike the WPS male and female versions which were both normed and validated with males and females specifically.

A final potential limitation in interpreting the final male and female SEM models was that both were modified in order to obtain an acceptable fit, with the final male model in particular undergoing several modifications before reaching an acceptable fit. Therefore, if the final male model is a result of model specification error, it may be that

the final male model is a fit for the particular sample rather than representable to population as a whole (Kenny, 2015). The final male model will need to be tested with another sample from the population to determine whether or not this is the case.

Implications for Research

One major finding in the current investigation was the significant differences in the ways the factors interacted within the male and female student-athlete models. As noted in Chapter Two, though the breadth of research on the issue of body dissatisfaction and eating concerns has favored female student-athletes over males, researchers typically make efforts to expect and then test hypothetical differences between males and females when males and females are studied together. The current investigation's findings support this practice, as the final models were significantly different for males and females in several ways. As the final male model was most different from how the sociocultural model of eating disorder development would expect the variables to relate, the current investigation highlights the need to continue to investigate the overall fit of this model for male college-student athletes. In particular, the finding that there may be a potential protective function of pressures in the sport environment to adhere to body ideals to the internalization of the general male societal body ideal in male college student-athletes warrants further investigation.

There are several ways that the findings in current study may lead to further research on the function of Reflective Judgment in the sociocultural model of eating disorder development for female and male college student-athletes. As noted in the limitations, research with adequate sample sizes of college students or college student-athletes in each of the three Reflective Judgment levels could highlight the differences in

relationships with Body Ideal Internalization that was apparent in the current investigation. This could be investigated by subsequent multi-sample SEM analyses comparing the final models for participants within the three Reflective Judgment levels. In addition, the researcher proposed some explanations for the major difference in the way Reflective Judgment related to Body Ideal Internalization and Body Dissatisfaction between the male and female student-athletes by two additional epistemological theories: Perry's scheme (1970) and Belenky et al.'s (1986) WWK model. Further investigation into these findings might be to study the differences in Separate and Connected Knowing styles of the WWK model and Body Ideal Internalization among college students and college student-athletes, with potential hypotheses drawn from the current investigation that Connected Knowers would be more likely to internalize pressures to adhere to body ideals and that those knowers are more often female than male.

Though Reflective Judgment moderated the relationship between Sociocultural Pressures and Body Ideal Internalization for the female college student-athlete sample, Reflective Judgment moderated the relationship between Body Ideal Internalization and Body Dissatisfaction for the male college student-athlete sample. This would suggest that the process for females would be to utilize Reflective Judgment to consider societal messages prior to internalization but that the process for males would be to utilize reflective judgment after internalization has already occurred but before this internalization leads to body dissatisfaction. It is recommended that further research be open to consider that Reflective Judgment may play a role before or after Body Ideal Internalization rather than the original hypotheses of this investigation, which expected that it would only play a role prior to internalization.

Another potential area of further research would be to investigate the correlation between Reflective Judgment and feminist identity development and the relationship between these constructs and Body Ideal Internalization among female college student athletes. If Reflective Judgment and feminist identity development were correlated as suggested by previous research, it would be worthwhile to investigate what happens to female college student-athletes who are in the middle stages of the feminist identity development model that would parallel the Quasi-Reflective level of the Reflective Judgment model. Based on the findings in the current study, it would be expected that these models would not have similar relationships with Body Ideal Internalization in these middle stages. Perhaps, including a moderating variable of Separate or Connected Knowing styles might reveal that feminist identity development aligns more with the Separate Knowing style, as would be expected due to its emphasis on critical thinking (Downing, 1985).

A final area of future research would be to test these final models with non-athlete samples, as the Reflective Judgment model is certainly not restricted to college student-athletes. Previous research on college student-athletes' cognitive development highlighted in Chapter Two, though limited, tends not to be favorable of college student-athletes in comparison to non-athletes, suggesting that the college athletic environment may not offer opportunities for adequate intellectual challenge and support for cognitive development (Howard-Hamilton & Sina, 2001). One finding that is in support of these claims from previous research was that the more males perceived there to be pressures in their sport environment to adhere to body ideals, the lower their reflective judgment scores were. However, the current investigation did not find mean differences between

males and females nor between the overall sample and Owen's (2011) norm sample of college students on the RCI. At least for the student-athletes that voluntarily chose to participate in the investigation, there were not differences in this measure of cognitive development from what would be expected of undergraduate students in general.

Perhaps a larger study comparing student-athletes and non student-athletes on the RCI with recruitment intended to include students such as those who may have chosen to opt out of the current investigation across class years might reveal differences in expected development of RCI scores between the groups.

Implications for Practice

Prevention and intervention programming. Cognitive Dissonance-Based programs encourage participants to engage in critical thinking in order to reject societal and sport pressures to adhere to unrealistic and unhealthy body ideals to ultimately reduce body ideal internalization. This has been found to lead to significant reductions in body dissatisfaction and eating pathology among college students and female college athletes (Becker et al., 2012; Stice et al., 2013). Previous research has found feminist identity development to be a protective factor to body ideal internalization among college women, resulting in Murnen and Smolak's (2009) suggestion to adapt prevention and intervention programming, like Cognitive Dissonance-Based programs, to purposefully facilitate participants' feminist consciousness. The findings in the current investigation suggest that prevention and intervention programming for male college student-athletes would benefit from intentionally facilitating male college athletes' Reflective Judgment, not for the purpose of reducing Body Ideal Internalization, but for protecting males from subsequent Body Dissatisfaction. The current investigation's findings that Sport

Pressures had a significant, negative effect on male college student-athletes' Reflective Judgment also point to this suggestion. Dissonance-based programming infused within a Deliberate Psychological Education model framework designed to intentionally encourage undergraduate and graduate students' cognitive development may meet this aim (Sprinthall & Mosher, 1978). The necessary components of a program that meets a DPE framework are: a) a balance between action and reflection; b) a balance between challenge and support, c) opportunities for continued guided reflection; d) opportunities for qualitatively new role taking experiences; and e) continuity over the course of several months time (Sprinthall & Mosher, 1978).

The finding that female college student-athletes' Reflective Judgment had a significant, positive effect on Body Ideal Internalization is concerning. As this investigation looked more deeply into this relationship, it appeared that this was true for those in the Quasi-Reflective level of the Reflective Judgment model. This is no less concerning, as the majority of female undergraduate students are categorized as most often operating from this level. This suggests that a relatively cognitively complex female college student-athlete appears to be at risk for internalizing body ideals and developing subsequent body dissatisfaction and eating pathology. Though promoting these college student-athletes' feminist identity and critical thinking has been clearly indicated by both research into the Cognitive Dissonance-Based programs as well as research into feminist identity developments' protective properties, ultimately encouraging these female college student-athletes' to operate from a stage of Reflective Thinking within the Reflective Judgment model would be indicated by the findings in the

current investigation. However, like all developmental stage theories, one would need to pass through the earlier stages before operating from a stage of Reflective Thinking.

Ultimately, responsibility lies with the sources in the external environment that continue to promote these messages for female and male college student-athletes to adhere to unrealistic and unhealthy body ideals. The Quasi-Reflective thinking female college-athlete may view these messages as idiosyncratic and subsequently may find little evidence not to internalize. On college campuses this would mean that it would be important for authority figures, such as college counselors, coaches, and higher educators be able to operate from positions of Reflective Thinking. Authority figures need to be able to reflectively think about messages and practices in and out of the sport environment that place pressure on college student-athletes to adhere to unrealistic body ideals. Additionally, these authority figures must also take measures to reduce the intensity of these messages and pressures on the students and student-athletes who may be operating from Reflective Judgment positions that make it more difficult not to internalize these pressures.

Counseling and therapeutic intervention. In terms of clinical intervention, college counselors working with female student-athletes operating from within the Quasi-Reflective Judgment stage with body image and eating concerns might consider beginning with strategies to help facilitate the client's ability to externalize these pressures that have been internalized. Some counseling approaches that may be indicated in order to do so include feminist, narrative, or Adlerian theory. In addition, because Quasi-Reflective Thinkers operate under the assumption that knowledge is idiosyncratic, a next step for working with a female college student-athlete with high body ideal

internalization, body dissatisfaction, and eating concerns, would be to encourage her ability to view herself and her body as a knower. Supporting the client to develop a connection to herself and her body's needs may be one major way to help her move from viewing knowledge claims, particularly about her own body, as idiosyncratic but instead as contextualized in society with herself and her body as the ultimate experts.

Mindfulness-based approaches, relational and relational cultural approaches, and interpersonal process approaches are some counseling approaches that may be indicated in order to help her do so.

College counselors working with male college student-athletes struggling with eating and body image concerns might consider focusing more exclusively on promoting reflective judgment on the pressures received within the sport environment, as the final male model suggest that the more male student-athletes perceived there to be sport pressures to adhere to body ideals, the less they internalized the general male body ideal but the lower their reflective judgment, which was found to have a direct, positive effect on body image dissatisfaction. Promoting male college student-athletes' abilities to think more flexibly about the pressures they receive and have internalized from their sport and sociocultural environments may reduce the degree to which this internalization leads to subsequent body dissatisfaction. The difference between the two models suggests that while female college student-athlete's reflective judgment mediates the relationship between pressures to adhere to body ideals and body ideal internalization leading to body dissatisfaction, male college student-athletes may internalize these pressures to adhere to body ideals from sport and society but this does not necessarily lead to higher body dissatisfaction, with higher reflective judgment mediating this relationship. This suggests

that a male college athlete who presents to counseling with body image and eating concerns may benefit from engaging in reflective thinking regarding the pressures to adhere to body ideals and body ideal internalization in therapy and how engaging in unhealthy behaviors to reduce body dissatisfaction may jeopardize their full participation in their sport and out of sport relationships. The ultimate goal would be to help the male student-athlete participate more meaningfully in these activities that matter to him.

Conclusion

The current study investigated whether or not Sociocultural and Sport Pressures to adhere to body ideals, Body Ideal Internalization, and Body Dissatisfaction may be moderated by Reflective Judgment among female and male college student-athletes. Multi-sample SEM revealed significant differences between the relationships among these factors for male and female college student-athletes in the sample. Reflective Judgment was found to play a significant, yet different role in the development of Body Dissatisfaction among male college student-athletes and the development of Body Dissatisfaction among female college student-athletes. Reflective Judgment was found to moderate the relationship between Body Ideal Internalization and Body Dissatisfaction among male student-athletes in the sample, with higher Reflective Judgment associated with lower Body Ideal Internalization and Body Dissatisfaction. Reflective Judgment was found to moderate the relationship between Sociocultural Pressures to adhere to body ideals and Body Ideal Internalization among female student-athletes in the sample, with higher Reflective Judgment associated with higher Body Ideal Internalization and Body Dissatisfaction among female student-athletes in the sample. However, this was not found for female college student-athletes operating from within the highest Reflective

Judgment model level (Reflective Thinking). These findings point to considerations for modifying, or encouraging the development of, prevention programming for male college student-athletes that intentionally encourages the development of Reflective Judgment. These findings also point to areas for future research into differences, potentially explained by the WWK model's Connected and Separate Knowing styles, that may account for these major differences in the relationship between Reflective Judgment and Body Ideal Internalization and Body Dissatisfaction between the genders.

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Appendix A

Study Recruitment Email to Coaches at University A

Dear Coach XXXXX,

You may have received [your athletic director]'s email yesterday about me contacting you to request support with asking your student-athletes to participate in my dissertation on body ideal internalization among college athletes. The study asks participants to take a few online surveys (about 25-30 mins) at their leisure. One survey requires they enter a unique ID code that I will provide them, so unfortunately I need to be able to contact athletes individually rather than all at once.

There are one of two ways that I could get in touch with your athletes who are interested in participating:

1. If you would be willing to provide me with an email roster list I would send all of your athletes' individual emails with unique ID codes. This would be the easiest way for me to recruit the athletes. They would not be obligated to complete the surveys in anyway, participation is entirely voluntary.
2. If you would prefer that I contact only athletes who express an interest, you may send them this link where they can enter their email address and I will contact them shortly after. You may copy and paste this entire blurb into an email to the student-athletes if you wish:

"Catie Greene, a doctoral student in the counselor education program at William & Mary, has requested your participation in her dissertation research about student athletes' body ideal internalization and body satisfaction. This would require you to take a few online surveys that should take between 25-30 minutes of your time. If you are interested in voluntarily participating, please enter your email into this online sign up and Catie will contact you shortly with directions on how to complete the surveys:

<http://www.signupgenius.com/go/10c054ea4ac23abfb6-participation>

I have attached to this email a further description of the study if you would like to have some more information. I am also happy to answer any and all questions you may have. Thank you so much for your support, I really appreciate it.

Appendix B

Study Recruitment Emails to Student-Athletes at University A

Hello!

I received your email address from your coach and athletic department in support of my dissertation research studying the way student-athletes internalize body ideal messages and how this impacts their body satisfaction.

I would be so grateful if you would be willing to participate in my research. It would require from you to take two separate online questionnaires and should take anywhere between **25-30 minutes** of your time. For your athletic department's support of my research, I have provided the department with a donation to show my appreciation for participation.

Below are the directions if you are willing to participate:

Your Unique ID code is: **cgwmXXX**

Directions:

1. Click on this survey link to complete the first half of the assessments: https://qtrial2013.qualtrics.com/SE/?SID=SV_bxEij49UyxDJ43z

*This part includes a consent form and some simple questions that you should be able to answer somewhat quickly

2. Enter your ID code above where it asks for it (cgwmXXX)

***3. When you are finished with the first half you will be immediately directed to:**<http://reflectivejudgment.org/>

4. Where it says Select Institution, select: XXXX

5. Enter the password: XXXX

6. Enter the same User ID that you entered in the first half (cgwmXXX).

*This part should take a longer amount of time and thought. The survey asks you to think critically about several different problems.

**If you accidentally exit this page, don't worry, just come back to this email and click on the link provided.

Please feel free to email with any and all questions or concerns you have while taking the surveys!!!

Attached are some resources that you might find helpful if you are considering exploring body image or eating concerns with a counselor.

Appendix C

Study Recruitment Email to Athletic Director to Forward to Student-Athletes at

University B

Dear XXX student-athlete,

This is an invitation to participate in a research study on **Thursday August 27th** on your campus for a **chance for you to win one of several \$50.00 Amazon Gift cards.**

Where: Goolrick Hall rm 205

What: Complete a series of surveys on body image, body ideals, and reflective judgment

What do I need to bring: Your Laptop or *Smart Phone

How long will it take me?: Each person will take approximately 60-75 minutes to complete

When: Any block of time between 4 - 7 pm

Click on this link to sign up for a time slot ahead of time:

www.SignUpGenius.com/go/10C054EA4AC23ABFB6-study

You will be asked to enter your name and email address that others will not be able to see. This information will not be connected to your survey data at all.

*lap top is recommended but it is possible to complete on smart phone

Please see attached:

1. A copy of the consent form providing information about the study that you will sign electronically before you participate
2. A list of resources in your area that provide counseling or other treatment for body image concerns and eating disorders.
- 3.

Please feel free to contact me at this email with any questions you may have about the study or about your participation. I greatly appreciate your help!!!

Appendix D

Study Recruitment Emails to Student-Athletes at University B

Hello!

I received your email address due to your willingness to participate in my research for a chance to win a \$50.00 Amazon.com gift card to be announced on November 6th. Thank you so much for your time and willingness to participate in this study!

Your Unique ID code is: **cgwmXXX**

Directions:

1. Click on this survey link to complete the first half of the assessments: https://qtrial2013.qualtrics.com/SE/?SID=SV_bxEij49UyxDJ43z

*This part includes a consent form and some simple questions that you should be able to answer somewhat quickly

2. Enter your ID code above where it asks for it (cgwmXXX)

***3. When you are finished with the first half you will be immediately directed to:**<http://reflectivejudgment.org/>

4. Where it says Select Institution, select: XXXXX

5. Enter the password: XXXX

6. Enter the same User ID that you entered in the first half (cgwmXXX).

*This part should take a longer amount of time and thought. The survey asks you to think critically about several different problems.

**If you accidentally exit this page, don't worry, just come back to this email and click on the link provided.

Attached are some resources that you might find helpful if you are considering exploring body image or eating concerns with a counselor.

Appendix E

Study Recruitment Email to Athletic Director Forwarded to Coaches at University C

Catie Greene, a counseling PhD student at William & Mary, has requested your participation in her dissertation research about pressures student athletes face to internalize of body ideal and body satisfaction.

This will require you to take two online surveys that will take approximately 30 mins of your time. Please enter your email into this online signup and Catie will contact you shortly with directions on how to complete the surveys:

<http://www.signupgenius.com/go/10c054ea4ac23abfb6-dissertation>

Thank you!!!

Appendix F

Study Recruitment Email to Student-Athletes at University C

Hello!

I received your email address due to your willingness to participate in my research for a chance to win a \$50.00 Amazon.com gift card. Thank you so much for your time and willingness to participate in this study!

Your Unique ID code is: **cgwmXXX**

Directions:

1. Click on this survey link to complete the first half of the assessments: https://wmsurveys.qualtrics.com/SE/?SID=SV_3rYBgBzhcs491Xv

*This part includes a consent form and some simple questions that you should be able to answer somewhat quickly

2. Enter your ID code above where it asks for it (cgwmXXX)

***3. When you are finished with the first half you will be immediately directed to:**<http://reflectivejudgment.org/>

****PLEASE DO NOT FORGET THIS PART!****

4. Where it says Select Institution, select: XXXX

5. Enter the password: XXXX

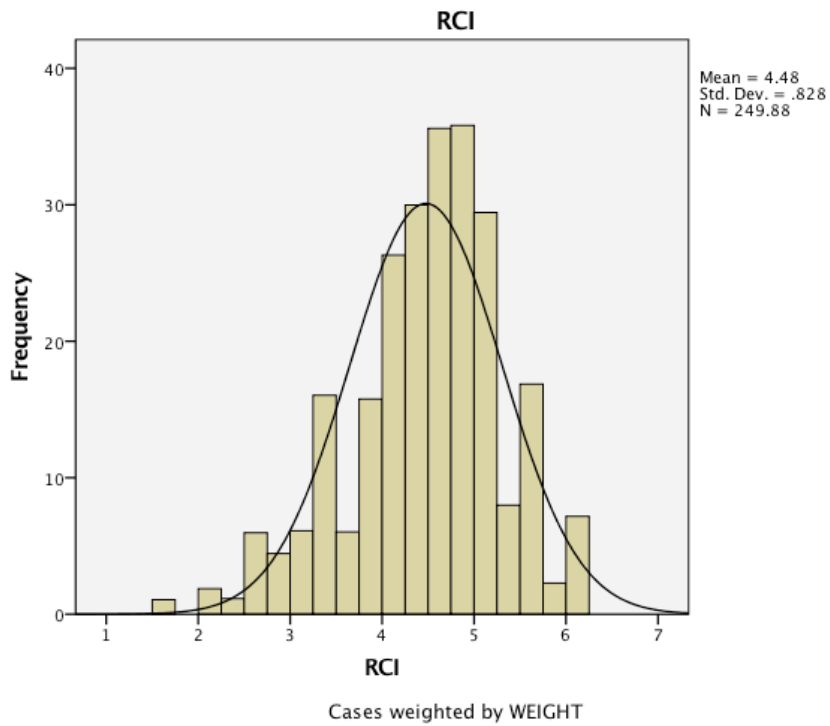
6. Enter the same User ID that you entered in the first half (cgwmXXX).

*This part should take a longer amount of time and thought. The survey asks you to think critically about several different problems.

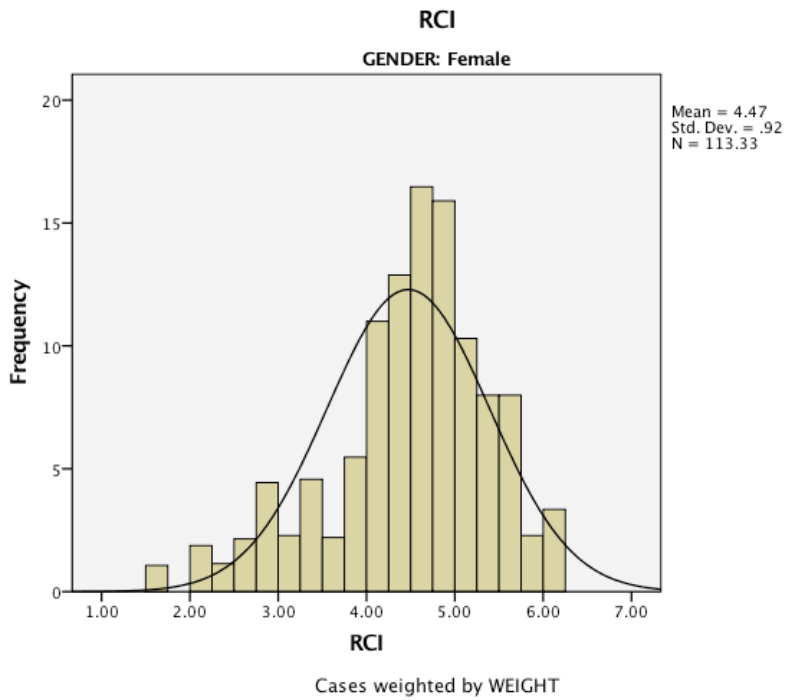
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Attached is the debriefing statement and some resources that you might find helpful if you are considering exploring body image or eating concerns with a counselor.

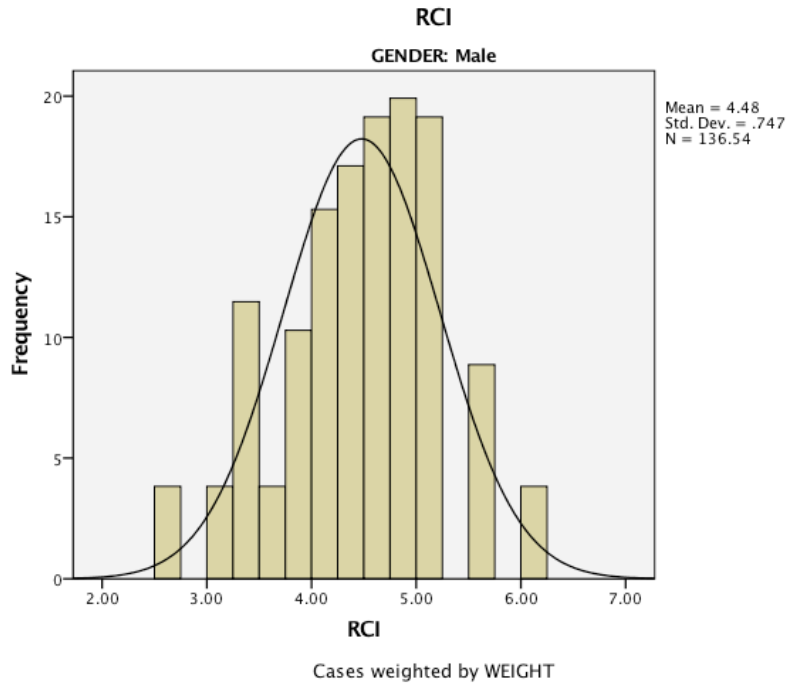
Appendix G
Frequency Distributions Among the Variables
Reflective Judgment (RCI) male and female frequency distribution.



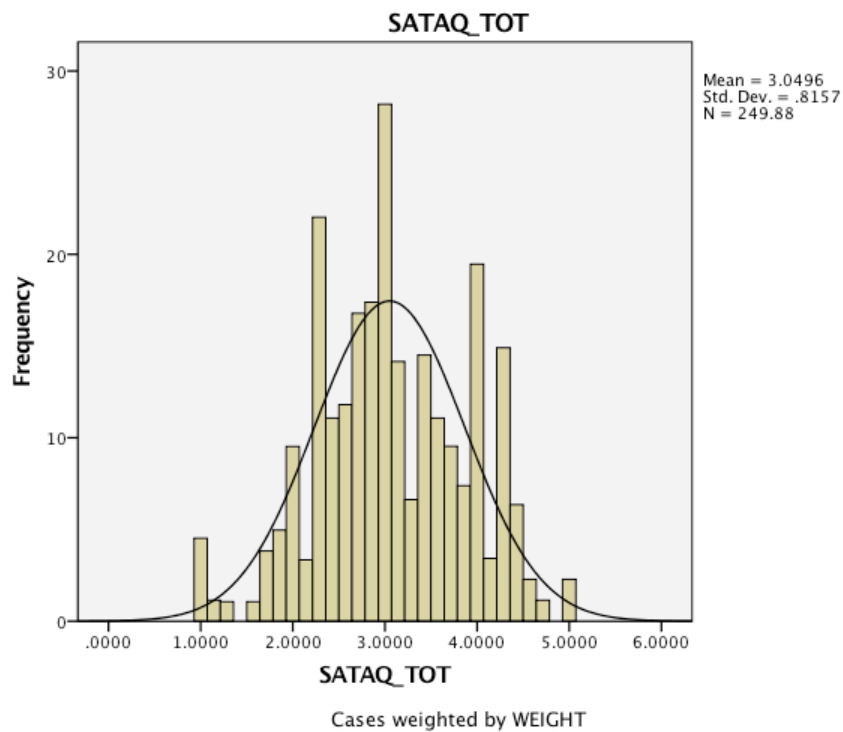
Reflective Judgment (RCI) female only frequency distribution.



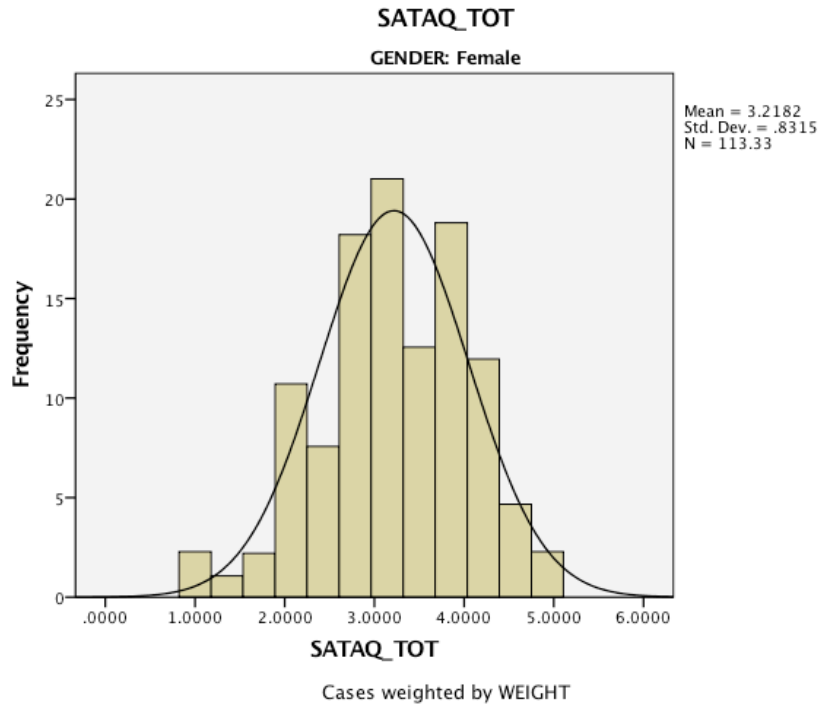
Reflective Judgment (RCI) male only frequency distribution.



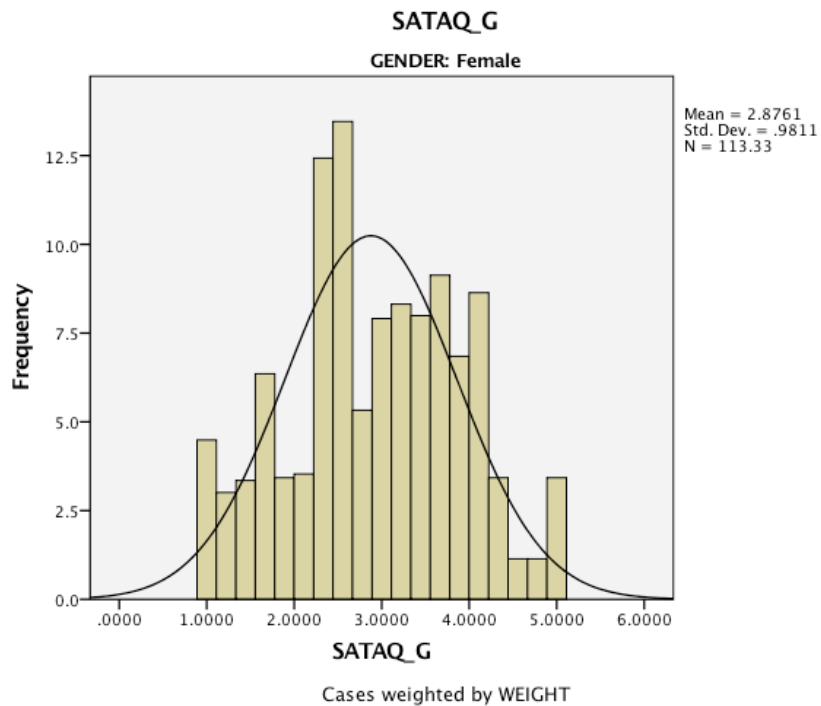
Body Ideal Internalization (SATAQ_TOT) male and female frequency distribution.



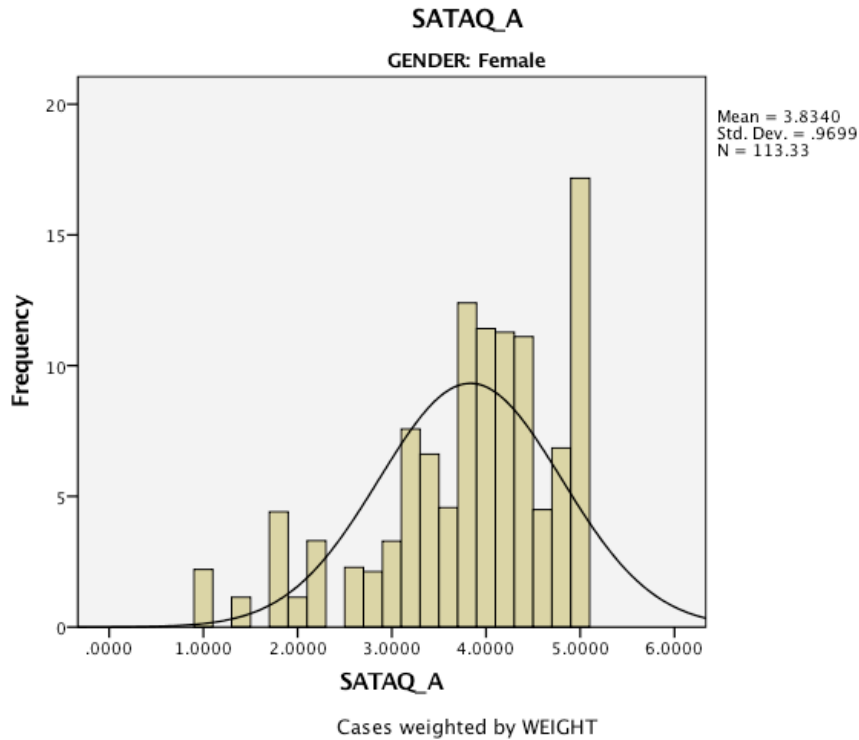
Body Ideal Internalization (SATAQ_TOT) female only frequency distribution.



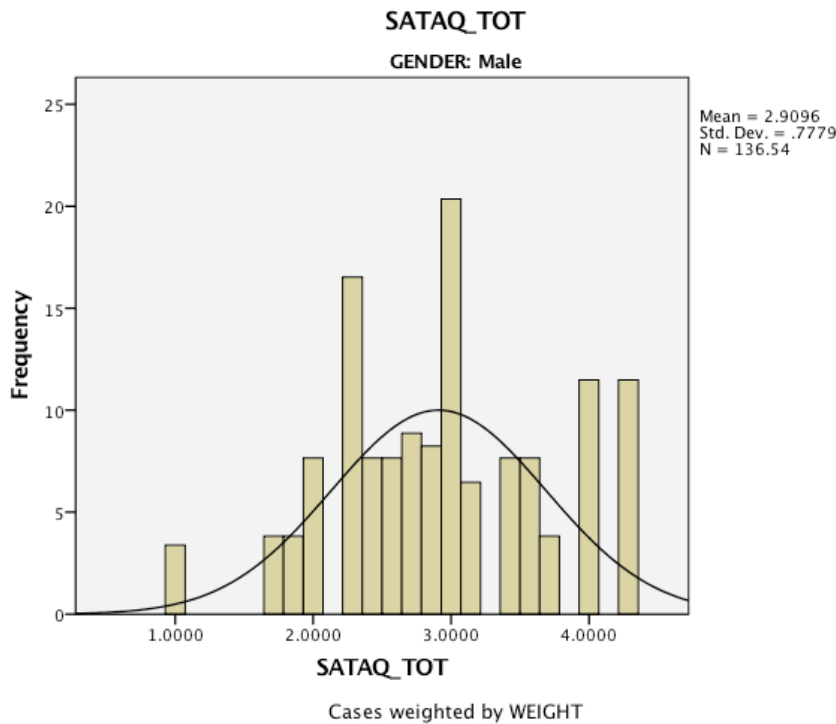
Body Ideal Internalization - General Factor (SATAQ_G) female only frequency distribution.



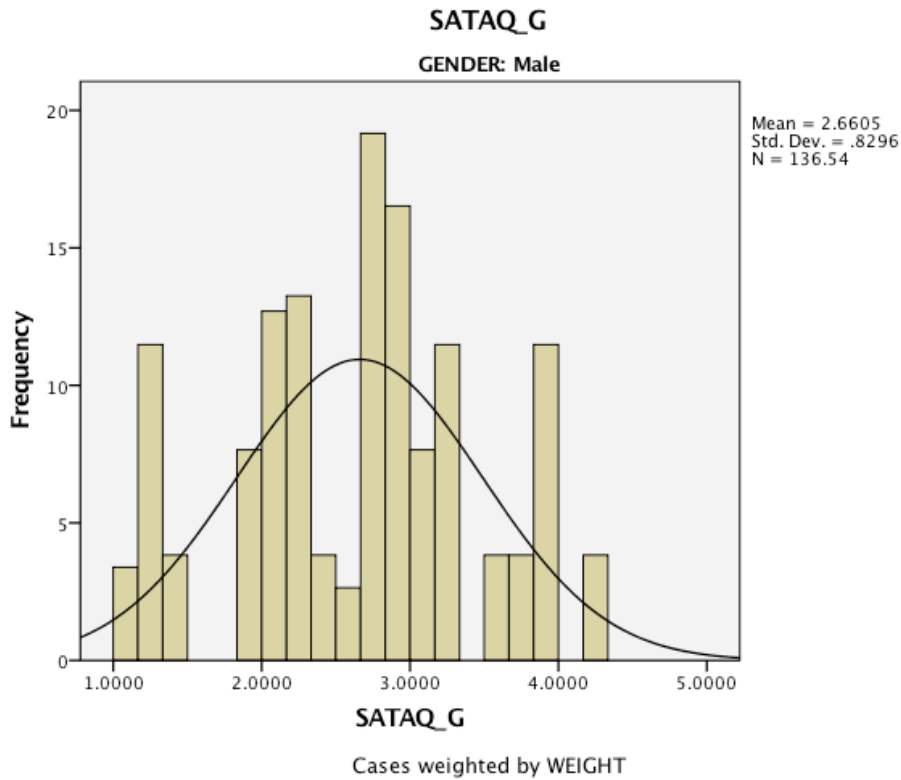
Body Ideal Internalization - Athlete Factor (SATAQ_A) female only frequency distribution.



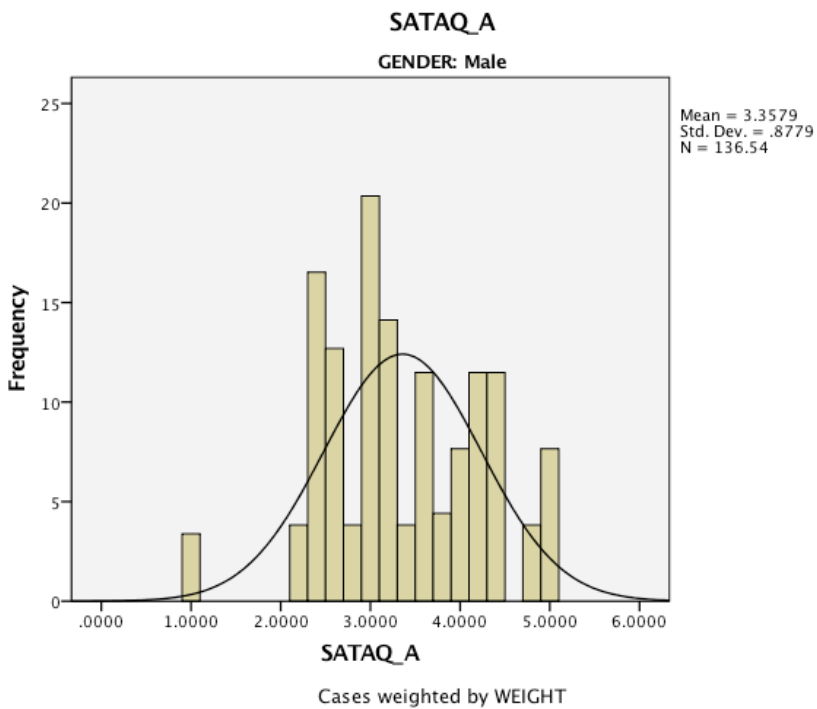
Body Ideal Internalization (SATAQ_ToT) male only frequency distribution.



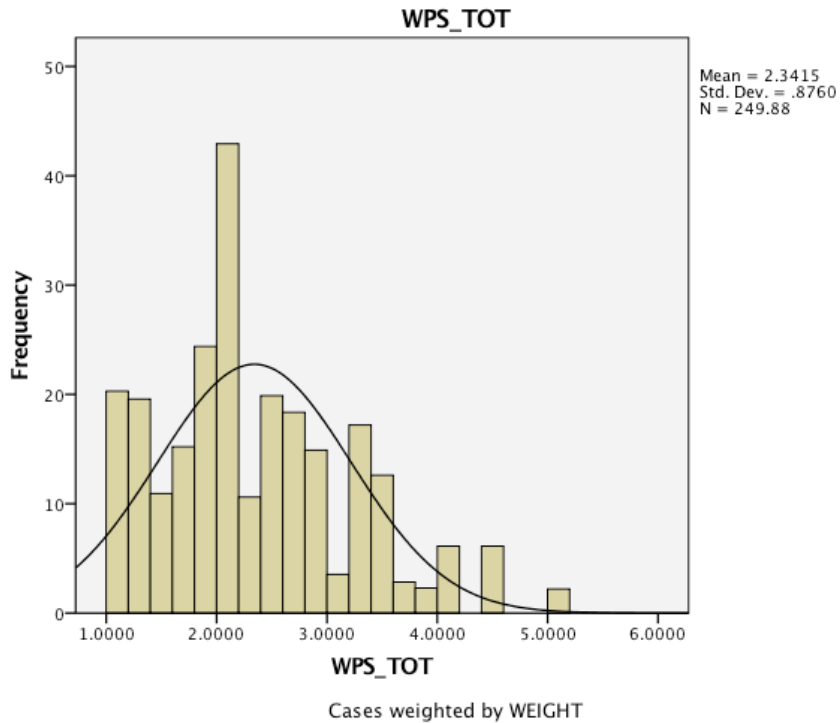
Body Ideal Internalization - General Factor (SATAQ_G) male only frequency distribution.



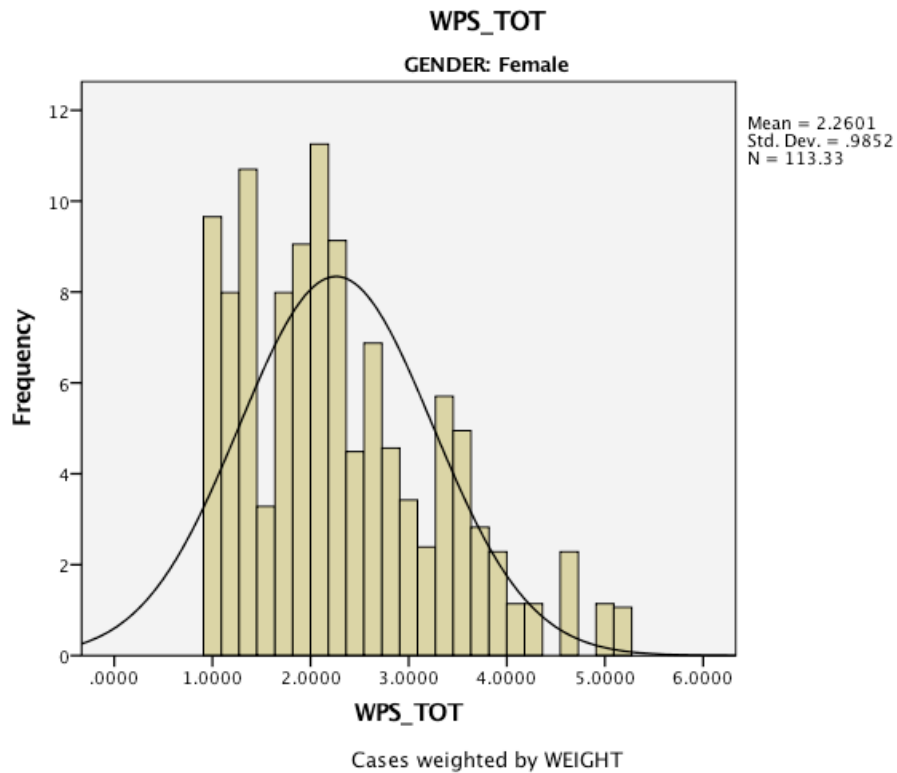
Body Ideal Internalization – Athlete Factor (SATAQ_A) male only frequency distribution.



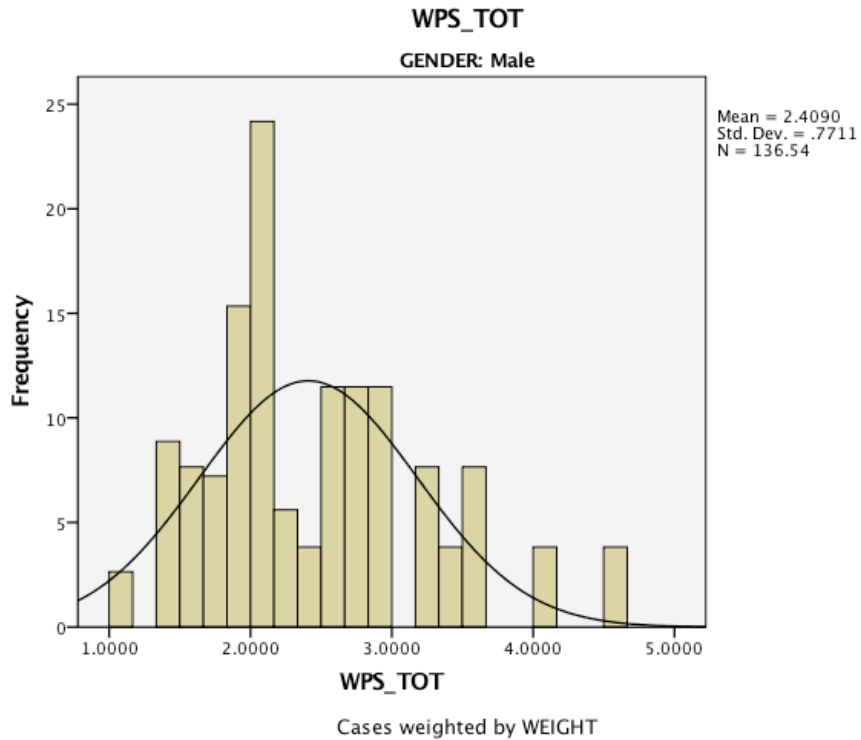
Sport Pressures (WPS_TOT) male and female frequency distribution.



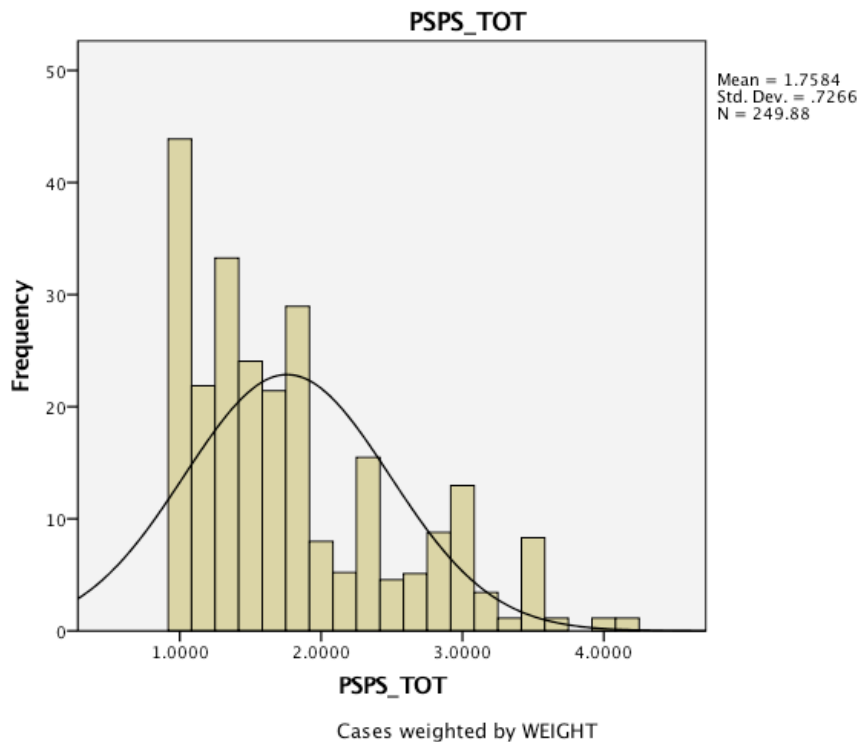
Sport Pressures (WPS_TOT) female only frequency distribution.



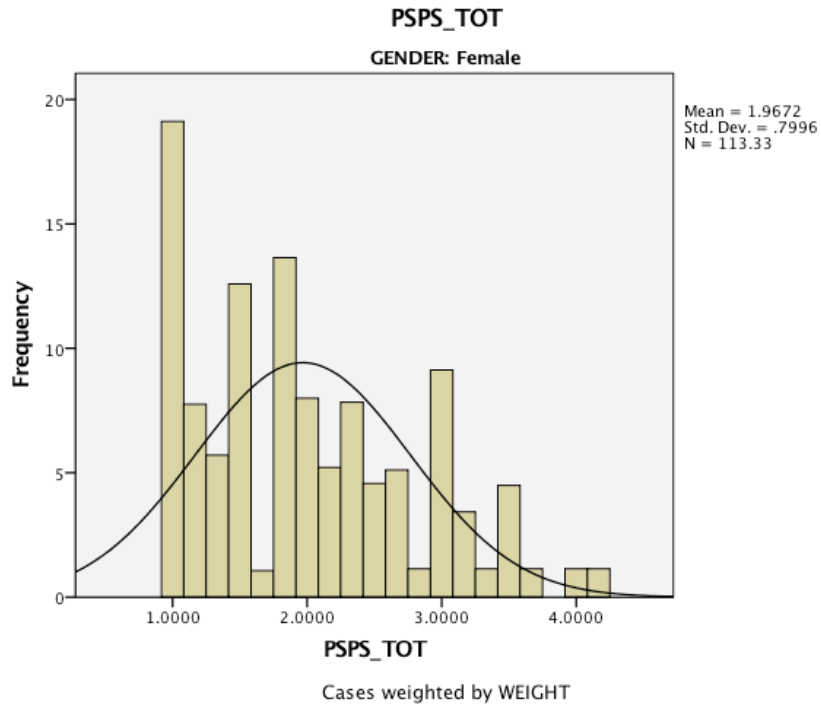
Sport Pressures (WPS_TOT) male only frequency distribution.



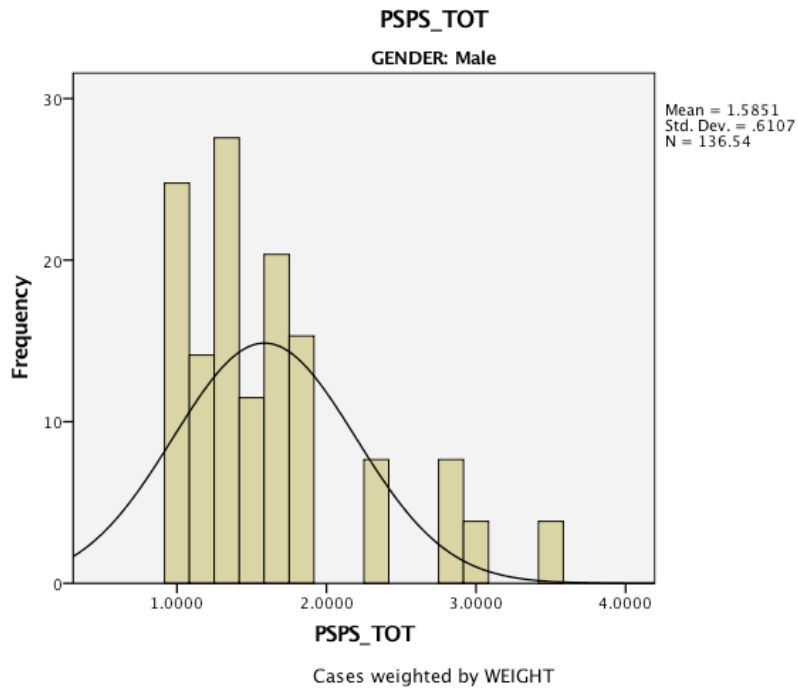
Sociocultural Pressures (PSPS_TOT) male and female frequency distribution.



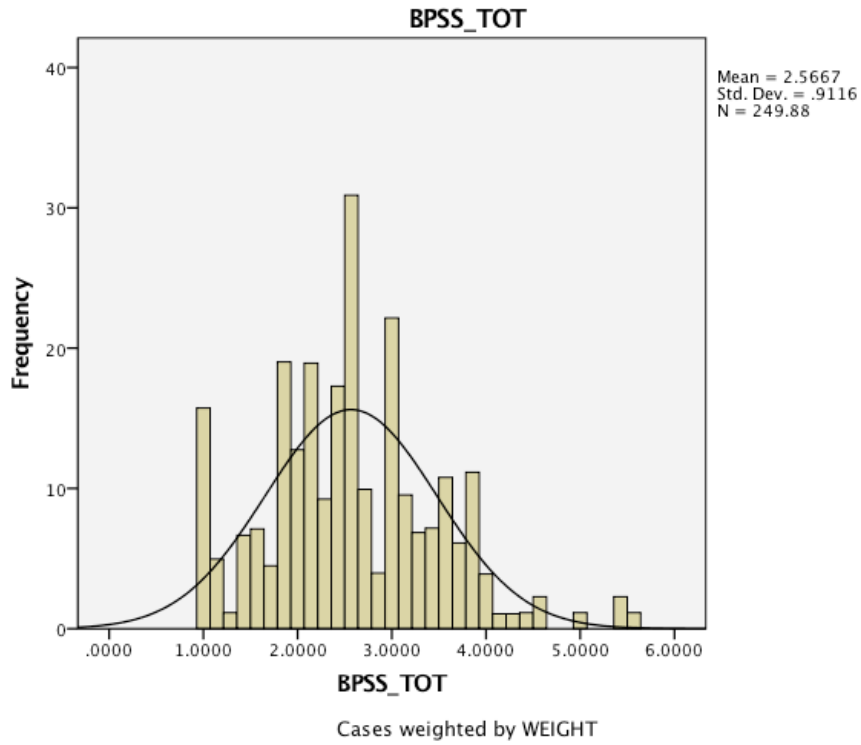
Sociocultural Pressures (PSPS_TOT) female only frequency distribution.



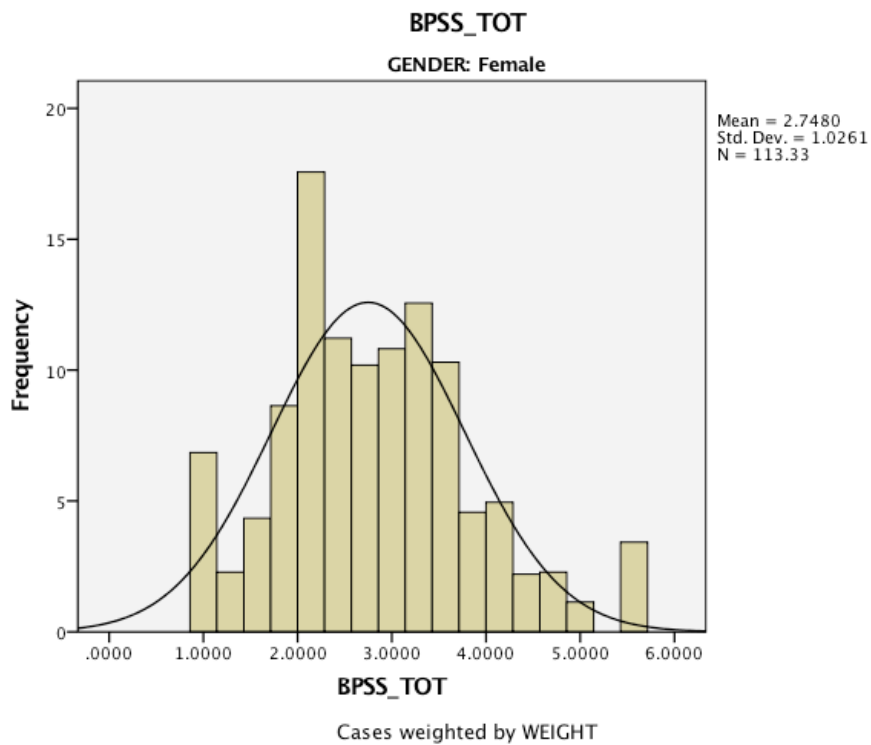
Sociocultural Pressures (PSPS_TOT) male only frequency distribution.



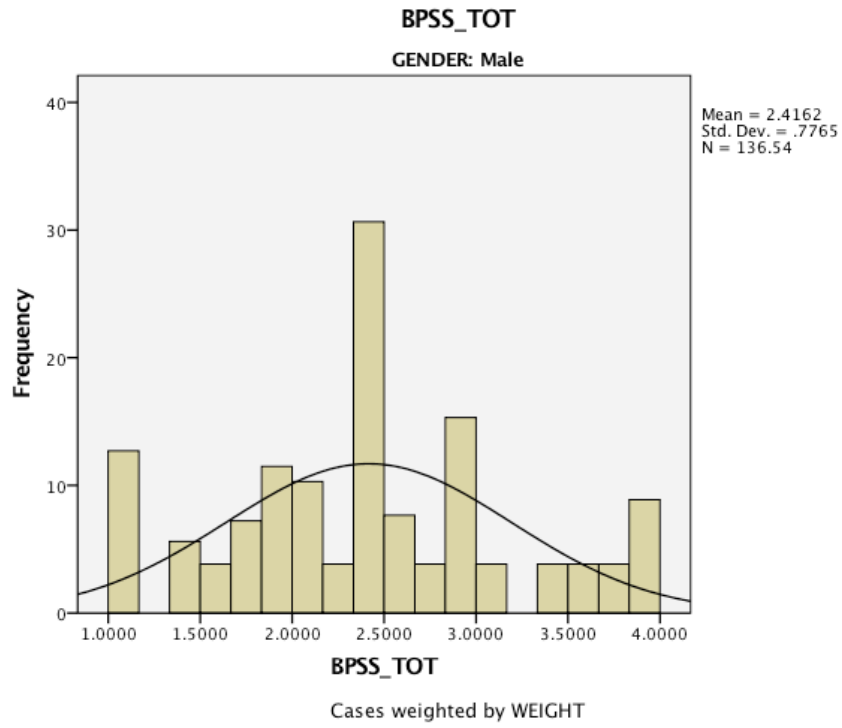
Body Dissatisfaction (BPSS) female and male frequency distribution.



Body Dissatisfaction (BPSS) female frequency distribution.



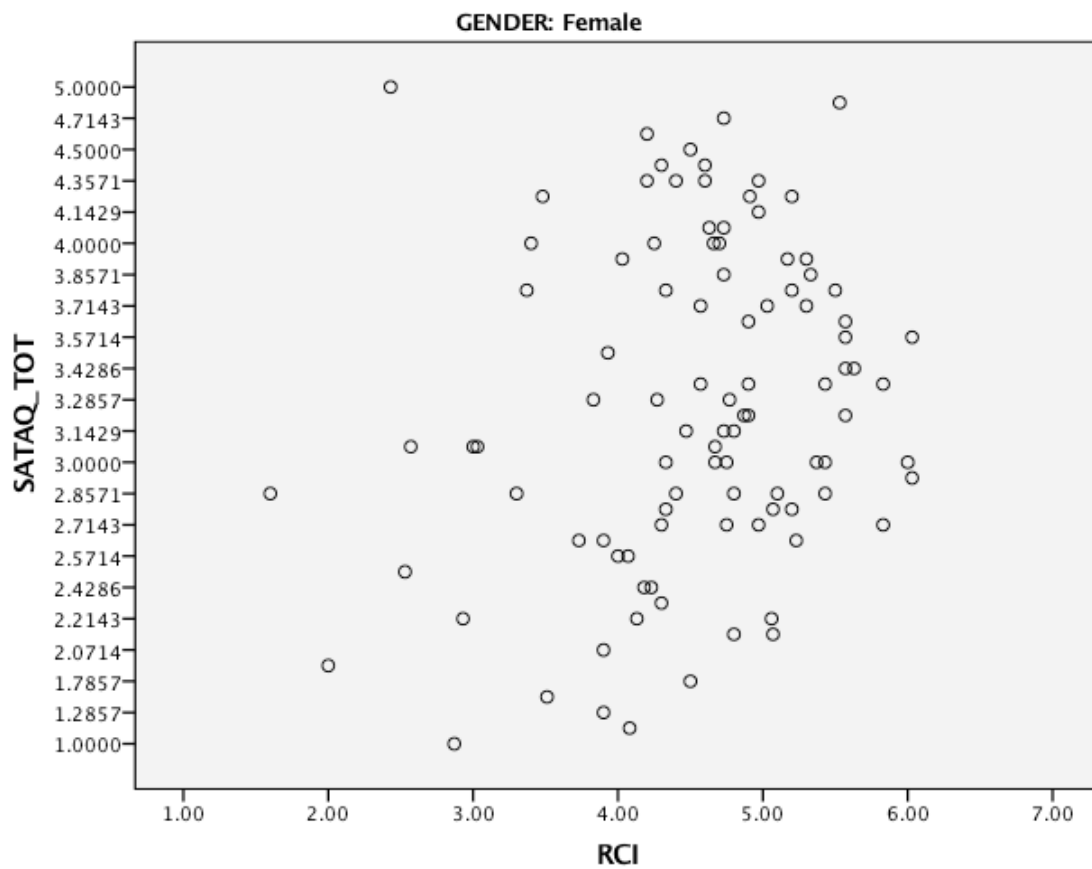
Body Dissatisfaction (BPSS) male frequency distribution.



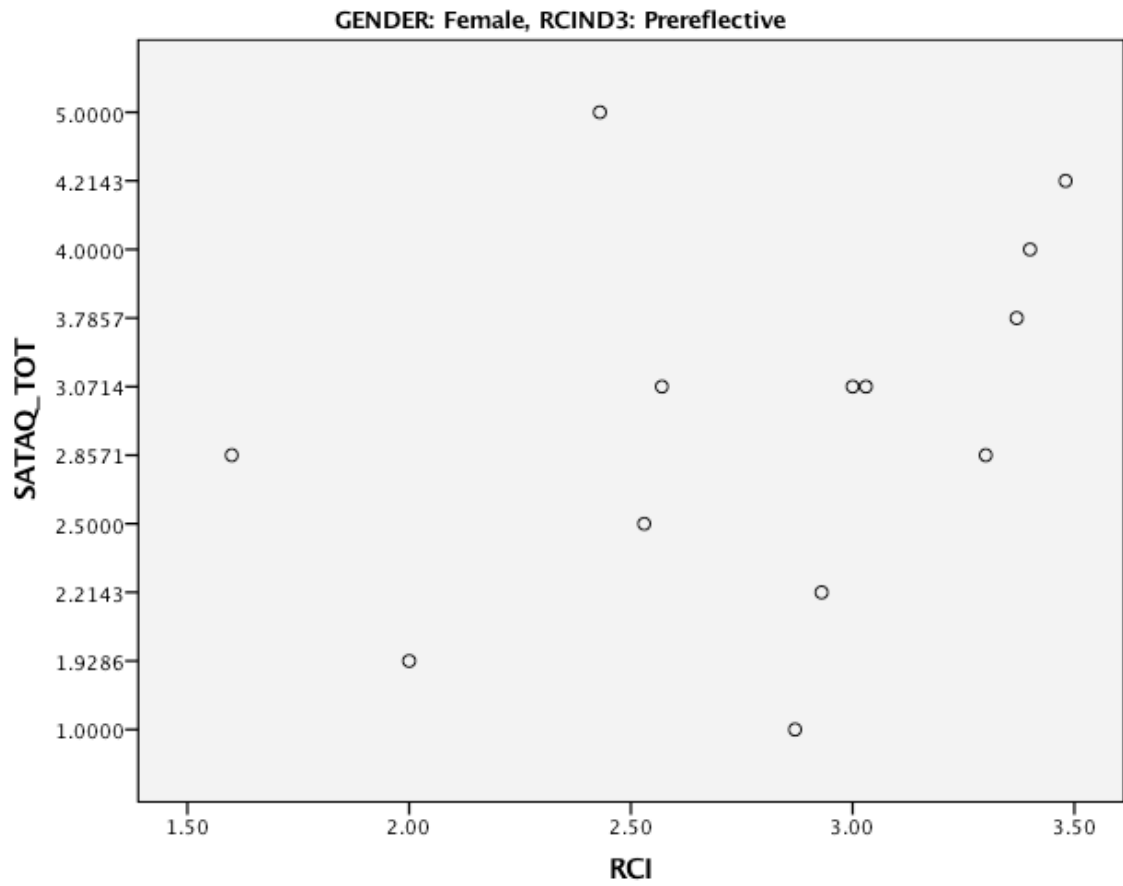
Appendix H

Bivariate Correlations Between Reflective Judgment and Body Ideal Internalization for
Females

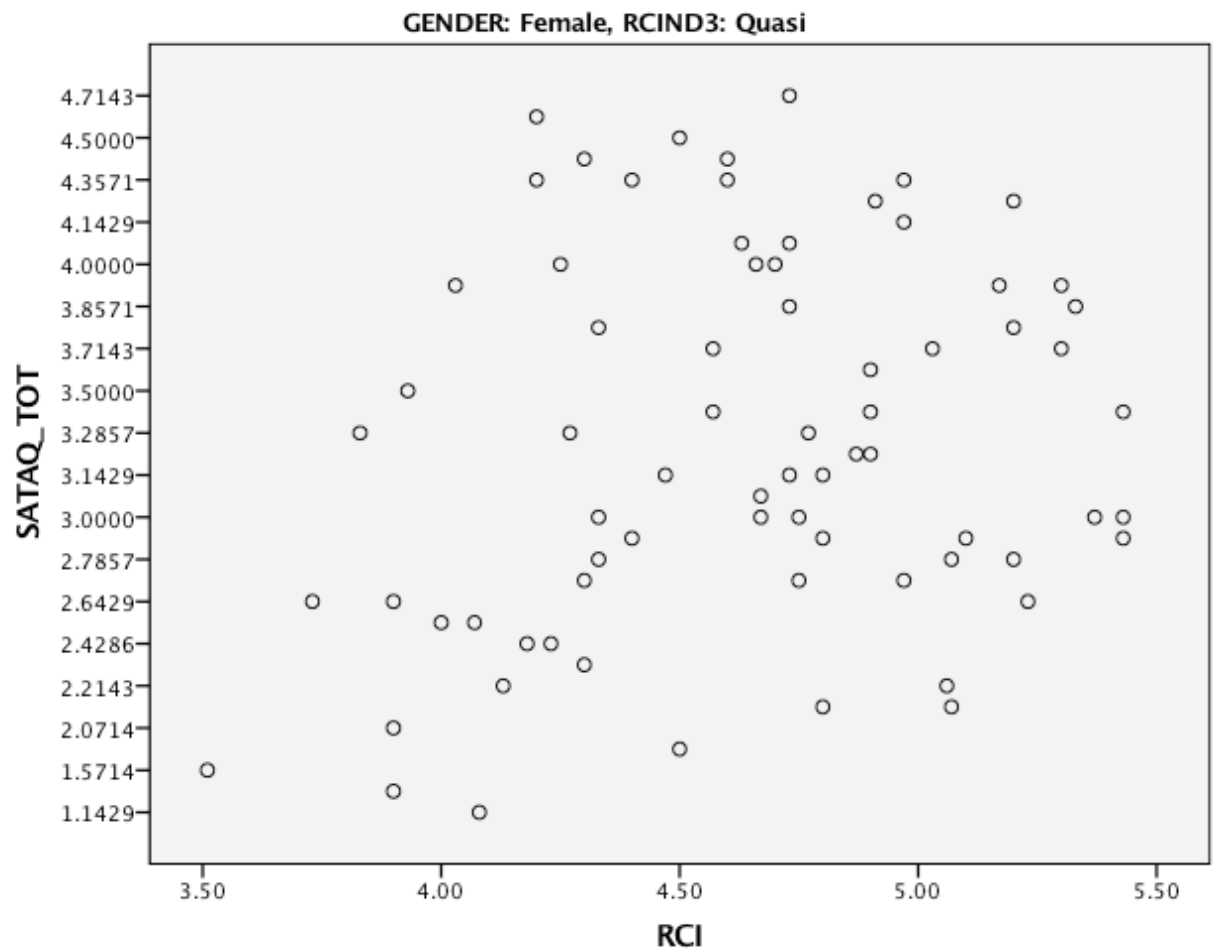
Reflective Judgment (RCI) x Body Ideal Internalization for Females.



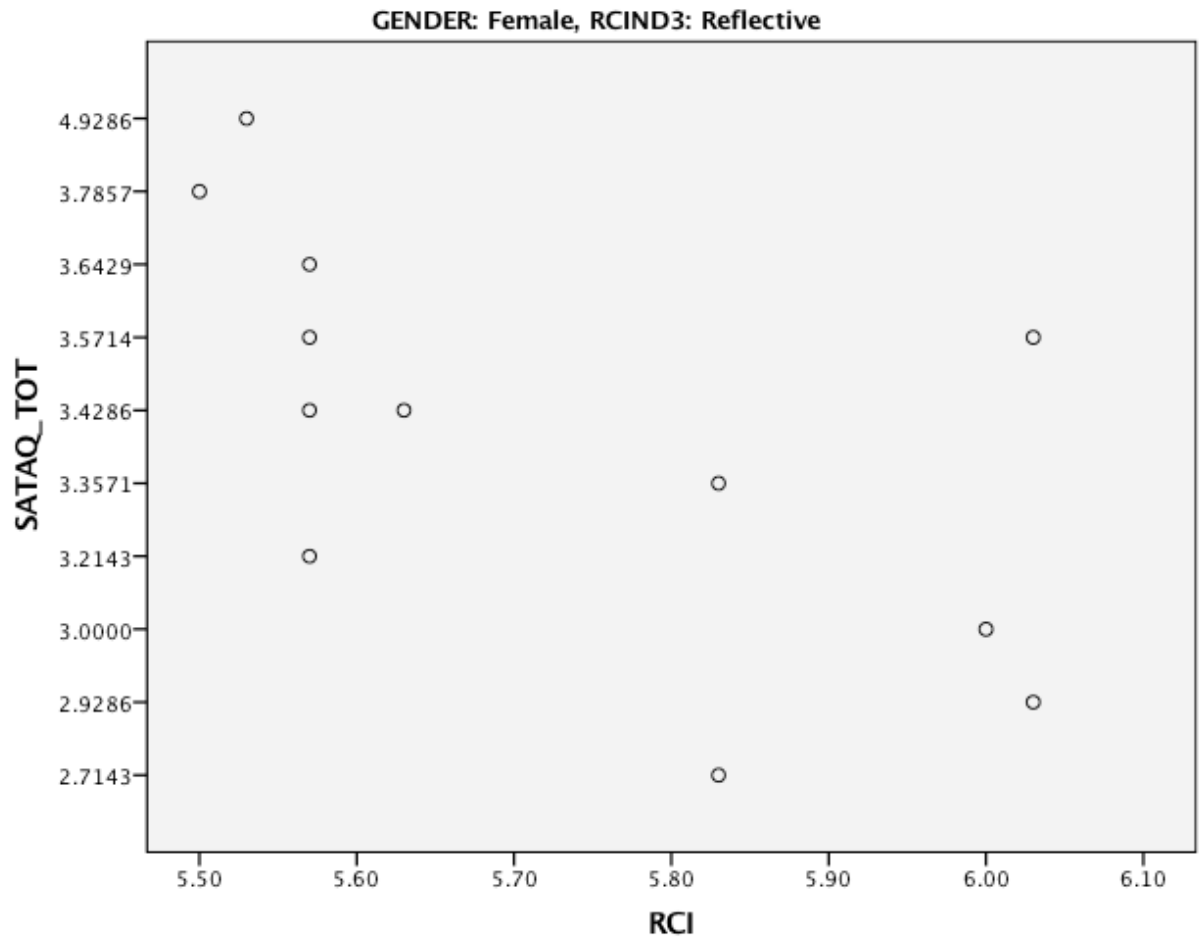
Reflective Judgment (RCI) x Body Ideal Internalization for Females in the Pre-Reflective Stage.



Reflective Judgment (RCI) x Body Ideal Internalization for Females in the Quasi-Reflective Stage.



Reflective Judgment (RCI) x Body Ideal Internalization for Females in the Reflective Stage.



Vitae

Catherine (Catie) A. Greene
Birthplace: Islip Terrace, NY

EDUCATION

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Cognate: Addictions Counseling & College Student Development
Dissertation: *College Athletes' Reflective Judgment: A Moderator Between Sport and Sociocultural Pressures, Body Ideal Internalization, and Body Dissatisfaction*
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PUBLICATIONS

- Greene, C. A.** (*in press*). A culturally sensitive approach to substance use counseling on campus. *Journal of College Counseling*.
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