

Effects of Sport Career Termination and Transition on Self-Determined Exercise  
Motivation and Athletic Identity of College-Aged Female Students

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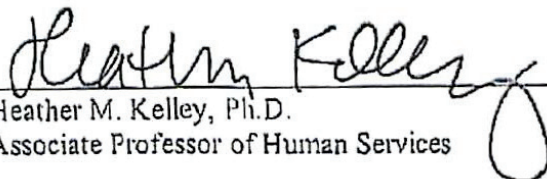
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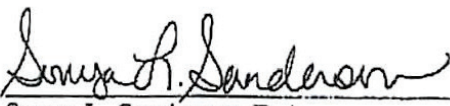
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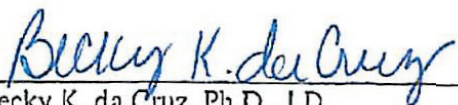
  
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## ABSTRACT

The purpose of this study was to investigate the effects of sport career termination and postsecondary transition on self-determined exercise motivation and athletic identity of college-aged female students who were competitive athletes in high school. This study sought to explore the gap in existing research addressing the impact that the change in athletic identity and the transition for high school to college have on the self-determined exercise motivation of female students. To gain a deeper understanding of the relationship between athletic identity and self-determined exercise motivations for this population, 121 female first-year college students who participated in competitive athletics in high school and were also competing at various levels of sport in college, were surveyed at two universities.

Data was collected through the Athletic Identity Measurement Scale (AIMS) and the Behavior Regulations in Exercise Questionnaire (BREQ-3). The overarching question that this study attempted to answer was “To what extent do the termination of competitive sports careers and the transition to college affect the self-determined exercise motivation and athletic identity of first-year female college students who were competitive athletes in high school?” The results of the study indicated a positive correlation between athletic identity and self-determined exercise motivations for female students who had recently transitioned from high school to college and were participating at various level of competitive athletics.

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## DEDICATION

This dissertation is dedicated to my wife, Kelly, and to my parents, Joyce and Terry.

Kelly - Your patience made the accomplishment of this dissertation possible.

Mom and Dad – Your love and guidance while growing up instilled in me a desire to strive for high goals and the will to achieve them.

A special dedication goes to my son. Quinnlan, you are the reason I want to be a better man each and every day. I want to set an example that makes you proud to call me daddy. I love you! Boom, Bam, Shaa-kisshhh!!!

## CHAPTER I

### INTRODUCTION

In 2015, nearly 3.3 million female high school student athletes participated in athletics (National Federation of State High School Associations [NFSH], 2015). Furthermore, just over 200,000 female college students competed in sports sanctioned by the National Collegiate Athletic Association (NCAA, 2015), meaning approximately 3.1 million female student athletes will see their competitive sports careers end once they leave high school. This transition from a specific role can have an impact one's athletic identity. How individuals handle such a major life transition has been an area of much study (Baillie & Danish, 1992; Coakley, 1983; Kipp & Amorose, 2008; McKnight et al., 2009; Wylleman & Lavallee, 2004). Many of these student athletes will face other life transitions as they leave high school, including but not limited to entering higher education. Although this transition also has received the attention of researchers (Bray & Born, 2004; Chemers, Hu, & Garcia, 2001; Kilpatrick, Hebert, & Bartholomew, 2005; Kwan & Faulkner, 2011; Wengreen & Moncur, 2009), there has been very little research on the effect of the combination of ending one's sport career and the transition to college life on physical well-being, despite the vast amount of research each area has received individually.

Extensive research has targeted the motivational factors that affect exercise adherence (Douthitt, 1994; Fischer, 2005; Kilpatrick et al., 2005), whereas other studies have focused on the effects of sports career termination (Lavallee, 2005; McKnight et al.,

2009; Wylleman, Alfermann, & Lavalley, 2004; Wylleman & Lavalley, 2004). Other researchers have delved into the challenges of the transition from high school to college by female students (Han et al., 2008; Parade, Leerkes, & Nayena-Blankson, 2010; Wengreen & Moncur, 2009). However, no known research has addressed the motivations for exercise adherence for female athletes transitioning to college combined with the effects of ending one's athletic career.

Many college students, female students in particular, do not engage in regular physical activity. Racette, Deusinger, Strube, Highstein, and Deusinger (2005) asserted that participation in physical activity among U.S. college students has been inadequate. The American College Health Association (2013) supported this statement, noting 44.2% of the female subgroup studied did not engage in vigorous-intensity exercise for a minimum of 20 minutes per week. These exercise habits, or lack thereof, developed in college do not seem to improve as students move into adulthood. In fact, research indicates the number of individuals who participate in appropriate amounts of physical activity have declined greatly (Booth & Chakravarthy, 2002; Physical Activity Council, 2016). Booth and Chakravarthy (2002) stated at the time of their study, more than 66% of U.S. adults were living a sedentary lifestyle. More recently, the Physical Activity Council (2016) found approximately 68% of U.S. citizens over the age of six years do not participate in a healthy level of high-calorie burning activities

Participation in athletics plays a positive role in the mental well-being of an athlete; just as the physical benefits of exercise and physical activity do. (Gore, Farrell, & Gordon, 2001; Lavalley, 2005; Petitpas, Van Raalte, Cornelius, & Presbrey, 2004; Steiner, McQuivey, Pavelski, Pitts, & Kraemer, 2000). Specifically citing athletics,

Steiner et al. (2000) mentioned that female competitive sports participants experience fewer mental health issues than nonathletes. Depression is one of the mental health issues, that Gore et al. (2001) states that females may be protected from if they are athletes.

Several reasons have been proposed to explain how participation in competitive team sports might lead to positive mental health. Gore et al. (2001) argued participation in athletic activity can result in positive self-esteem for numerous young people. Petitpas et al. (2004) suggested that athletes involved in team sports gain a sense of identity strongly associated with group membership. An additional possible benefit of participating in team sports is the development of strong social networks. Broh (2002) identified engagement in frequent interactions with teammates as a factor leading to stronger social support networks.

Several studies have associated academic achievement with competitive team athletics. Eccles and Barber (1999) identified a positive relationship between high school athletic participation and higher grades and test scores. Troutman and Dufur (2007) supported this research with their finding suggesting an increase in the educational attainment of high school female students who participate in sports. High school female student who participate in team sports have higher grade point averages (GPAs) than female students who are not on sports teams (Fox, Barr-Anderson, Neumark-Sztainer, & Wall, 2010). These benefits, namely, higher grades, test scores, and GPAs, might combine to create another benefit at the end of the athletes' high school years. As suggested by Eccles and Barber (1999), high school athletes have a higher probability than their nonathlete classmates of attending college. Female students who play on sports



teams in high school also might be more likely to graduate from college. Evidence indicates the likelihood of obtaining a bachelor's degree within six years of completing high school is significantly higher for athletes than for nonathletes (Troutman & Dufur, 2007).

### **Statement of the Problem**

Kim and Cho (2013) reported physical strength is at its highest when individuals are in their twenties. This is followed by a gradual decline in physical strength across the lifespan. Kim and Cho (2013) noted an individual's health status during one's twenties greatly impacts personal health throughout the entire lifespan. They found that establishing healthy exercise habits is important during the college years has created the need to conduct research to determine whether certain transitions into adulthood have an impact on the level of motivation to exercise. In addition, with the transition from adolescence to adulthood, athletic identity should be studied to determine its impact on levels of self-determined exercise motivation.

Despite all of the benefits associated with participation in team sports in high school, there has been little research on the effect of the termination of high school sport careers has on long-term exercise habits of former student athletes. Carlson, Scott, Planty, and Thompson (2005) found the percentage of high school student athletes enrolling in postsecondary schools is higher than the percentage of nonathlete students enrolling in postsecondary schools. During the 2014-2015 school year, 212,454 female students competed in intercollegiate athletics (NCAA, 2015). In the same school year, the number of female high school students who were athletes tallied 3,287,735 (NFSH, 2015). With such a large reduction in team sport participation in a population of this size, research

was needed to investigate the effect of ending one's sports career has on self-determined exercise motivation and athletic identity for females transitioning from high school to college.

Over the next four years, slightly fewer than 3.1 million young women (high school freshmen, sophomores, juniors, and seniors) will end their competitive sports careers as they finish high school (NFHS, 2015). Many of these young women are likely to take on new life challenges, which may include selecting vocations or transitioning into higher education. The most current research information available has not addressed this specific population. Several studies have been conducted that researched sports career termination, transition to college, motivation to exercise, and athletic identity have all been conducted (Brewer, Van Raalte, & Linder, 1993; Deci & Ryan, 2000; González-Cutre & Sicilia, 2012; Kipp & Amorose, 2008; Wylleman & Lavallee, 2004). Currently, no research has been found addressing the relationship between self-determined exercise motivation and athletic identity for female students transitioning to college, who were previously team sports athletes in high school, needs to be addressed due to the impact that the ending of a sports career and transition to college have on exercise habits (Kwan & Faulkner, 2011; McKnight et al., 2009).

### **Purpose of the Study**

The purpose of this study was to determine whether the termination of competitive sports careers in high school has an effect on the level of exercise motivation on the self-determined motivation continuum and overall athletic identity of college-aged female students who are transitioning to college. The study also intended to identify possible interactions between the level of exercise motivation on the self-determined

motivational continuum and overall athletic identity of first-year female college students who were athletes in high school. By exploring the relationships among sports career termination, self-determined exercise motivation, athletic identity, and the transition to college, this study sought to increase awareness of possible changes in self-determined exercise motivation for former female high school student athletes.

### **Research Questions**

In light of these purposes, this study was designed to answer the following overarching research question (RQ): To what extent do the termination of competitive sports career and the transition to college affect the self-determined exercise motivation and athletic identity of first-year female college students who were competitive athletes in high school? Three subquestions supported the overarching RQ:

1. Are there statistically significant mean differences in the self-determined exercise motivation of first-year female college students who are intercollegiate athletes, club sport athletes, or noncompetitive students who were competitive athletes in high school?
2. Are there statistically significant mean differences in the level of athletic identity of first-year female college students who are intercollegiate athletes, club sport athletes, or noncompetitive students who were competitive athletes in high school?
3. Is there a statistically significant relationship between self-determined exercise motivation and overall athletic identity for first-year female college students who are intercollegiate athletes, club sport athletes, or noncompetitive students who were competitive athletes in high school?

## **Procedures**

This study followed specific research procedures. All potential participants received the same information and instructions about the study. Communication between the researcher and the participants was limited to e-mail correspondence, unless any participants preferred to contact the researcher by phone. All collected data were treated uniformly. All data were analyzed using statistical methodologies appropriate for the types of data collected as related to answering the RQs posed. The data were secured using digital storage and hard copy storage protocols. These data were secured in a locked filing cabinet and will be properly disposed of three years after completion of the study. By securing all of the collected data, any personal data were protected at all times. Following these accepted study protocols minimized the variability of the data and data collection errors.

## **Importance of the Study**

Many young women receive psychological and physical benefits from participating in team sports. Gore et al. (2001) asserted that engaging in sport activities may lead to higher self-esteem. Further, the higher self-esteem could be vital to the welfare of young women due to the elevated rate of depressed mood during adolescence being much higher among females (Gore et al, 2001). Beyond enhancing self-esteem and decreasing levels of depressed mood, physical activity has some obvious physical health benefits. Harvard Medical School (2014) reported several ways in which exercise protects physical health. These included lowering blood pressure; lowering low-density lipoprotein (LDL) cholesterol levels and raising high-density lipoprotein (HDL) cholesterol levels, and reducing the risk of heart disease, stroke, and Type 2 diabetes.

Regular exercise is necessary to improve young women's physical health (Kim & Cho, 2013). In addition to the previously reported positive health factors are associated with physical activity, Harvard Medical School (2014) reported evidence linking regular physical activity to a reduction in the risk of breast cancer. This finding is especially of interest to women. While men can develop breast cancer, of the 271,270 estimated new cases in 2019, over 99% will be female (American Cancer Society, 2019). Female students, including those with athletic backgrounds, could reap these benefits, but they must be motivated enough to pursue physically active lifestyles.

Participation in team sports may be a major avenue to becoming and remaining physically active (Fox et al., 2010). Since there has been a steady increase in the number of female athletes participating in team sports at the intercollegiate level (Muller, Gorrow, & Schneider, 2009), this could lead to a higher number of physically active female students in college. However, there has been limited research to determine whether the same levels of self-determined motivation are driving female college students to participate in team sports.

Motivation to engage in sports and exercise can vary greatly. Koivula (1999) offered various motives for participation in sports, including competition, physical health benefits, and stress management. However, once competitive careers are over, the motivations for physical activity could begin to change as well. If the identities of former student athletes change after sports career termination, the value they had once placed on exercise might also change. Downs and Ashton (2011) noted a positive correlation between the weakening of athletic identity and a significant decrease in physical activity among female college students. However, the researchers did not consider the level of

self-determined exercise motivation associated with different levels of athletic identity when reporting the results of the study. Exercise motivation is the “whys” of behaviors associated with exercise (Haber, 1966). Self-determined exercise motivation examines the “whys” through the lens of self-determination theory (SDT). SDT is a theory of “human motivation and personality in social contexts that differentiates motivation in terms of being autonomous and controlled” (Deci & Ryan, 2011, p. 416).

Due to the lack of research concerning the connection between self-determined exercise motivation and athletic identity, this research was conducted to add to the literature regarding the effect of one area on the other. Given the decline in team sports activities during the transition from high school to college, education policymakers and college health officials need to be informed of the possible impact on mental and physical well-being of sports career termination on former female high school student athletes.

### **Definitions of Terms**

Following are the operational definitions of key terms used in this study.

**Athletics/Sport:** A contest requiring physical exertion, skills, and training.

**Athletic Identity:** “The degree to which an individual identifies with the athlete role, within the framework of a multidimensional self-concept” (Brewer et al., 1993, p. 237).

**Club Sport Student Athlete:** An athlete who competes in any sport offered by a college to compete against other colleges, but not regulated by the NCAA.

**High School Student Athlete:** For purposes of this study, a high school student is defined as an athlete if the student participates (or participated) in a team sport sanctioned by the NFSH.

**Intercollegiate Sport Student Athlete:** According to the Sports Agent Responsibilities and Trust Act, 15 USCS § 7801 (6) (2004), “The term ‘intercollegiate sport’ means a sport played at the collegiate level for which eligibility requirements for participation by a student athlete are established by a national association for the promotion or regulation of college athletics.”

**Motivational Climate:** The structure of the social environment in regard to the way that it influences individuals’ motivation and motivational processes (“Motivational Climate,” n.d.).

**Noncompetitive Student:** For purposes of this study, a student is considered noncompetitive if the student does not represent her school on the intercollegiate or club sports level of competition.

**Non-Varsity Student Athlete:** A student athlete who competes at a level other than the intercollegiate level. Club sport athletes, intramural athletes, and recreational athletes are considered non-varsity student athletes (“Non-Varsity Student-Athletes.” n.d.).

**Physical Activity:** “Any bodily movement produced by skeletal muscles that results in energy expenditure” (Caspersen, Powell, & Christenson, 1985, p. 126).

**Student Athlete:** For purposes of this study, a student athlete is defined as an individual who is enrolled in a school, high school or college, and represents the school in athletic competition.

### **Assumptions**

Several assumptions about the sample and the statistical tests were made during the data analysis. The researcher assumed the sample would meet the assumption of normality, meaning the distribution of the sample’s mean is normal or the distribution of

means across all samples is normal. Although the sample was assumed to be normally distributed, the statistical procedures were tested for normality.

The researcher also assumed the respondents would answer survey questions truthfully and accurately. Another assumption was the participating colleges and universities would provide contact information of first-year female students, who comprised the target population. Statistical assumptions for the Kruskal-Wallis H tests, the Mann-Whitney U test, and the Spearman's rho ( $r_s$ ) analysis are addressed in Chapter 3.

### **Summary**

Some former high school female athletes transition to college as intercollegiate student athletes; some choose to become club sport athletes; and others enter college as regular students, or noncompetitive students. Club sport athletes and noncompetitive students face a dual adjustment during this transitional phase of their lives. They have to adjust not only to college life but also to life after being involved in varsity athletics. This change in athletic status can lead to changes in athletic identity. Just as athletic identity might have a positive connection to participation in physical activity, a weakened athletic identity could result in decreased engagement in physical activity.

The rationale for conducting the study was to identify the effects and relationships among athletic identity and self-determined exercise motivation of female first-year college students who are intercollegiate athletes, club sport athletes, and noncompetitive students who were competitive athletes in high school. The statement of the problem expressed concern about the lack of studies examining the relationship of athletic identity and self-determined exercise motivation on this specific population during the transitional



period from high school. This concern was related directly to the purpose of the study, which was to explore the effects of the transition to college and sports career termination on the well-being of female former high school athletes currently enrolled in college.

The following is an overview of the other chapters contained in this study. Chapter 2 reviews past research that dealt with specific aspects of this study, including the SDT, sports career termination, self-determined exercise motivation, and athletic identity. Chapter 3 describes the methodology of this quantitative study. The researcher used two ordered response scales, the Behavior Regulations in Exercise Questionnaire-BREQ-3 (Markland & Tobin, 2010; Wilson, Rodgers, Loitz, & Scime 2006; see Appendix A) and the Athletic Identity Measurement Scale - AIMS (Brewer, Cornelius, Stephan, & Van Raalte, 2010; see Appendix B). The data obtained from these scales were statistically analyzed. The results of these analyses are detailed in Chapter 4. The study's final chapter, Chapter 5, provides interpretations of the results, possible implications of the study, and recommendations for future research based on the results of this study.

## CHAPTER II

### REVIEW OF THE LITERATURE

The available research has been solid in its foundation in the variables of sports career termination, transition from high school to college, self-determined exercise motivation, and athletic identity of female athletes. However, no known literature exploring the effects of sports career termination has on self-determined exercise motivations and one's athletic identity of female athletes transitioning from high school to college has been available. Most of the research on sports career termination has focused on male and female elite or professional athletes; however, one study addressed sports career termination for both male and female athletes from a longitudinal perspective. Greendorfer and Blinde (1985) found a significant drop in the importance of participation in sports to female students between their high school careers and their first year of college. The number of female participants who rated sports as "very" important decreased during their freshmen year of college from 90% during high school to 79% (Greendorfer & Blinde, 1985). These data supported further study into the effect of sports career termination on former high school students who were athletes.

Literature on the termination of sports careers for high school athletes has been limited. However, the research focusing on self-determined exercise motivation, specifically stated that of female athletes, has been abundant (Fischer, 2005; Frederick & Ryan, 1993; Horn, 2000; Kipp & Amorose, 2008; Lindstrom & Lease, 2005). Many studies have been conducted to assess the motivations of female athletes and nonathletes over various age groups, including the high school age group. Fischer (2005) conducted

an analysis of original data and other studies to suggest possible strategies for improving female athletes' adherence to exercise programs. Kilpatrick et al. (2005) examined male and female motives for participation in sports and exercise. Both studies noted that motives changed not only by gender but also by type of physical activity. Kipp and Amorose (2008) connected self-determined motivations to the perceived motivational climate of female high school athletes. In the following section, theories and concepts foundational to the current study are discussed: sports career termination, transition to college, self-determined exercise motivation, and athletic identity.

## **Theoretical Overview**

### **Self-Determination Theory (SDT)**

Motivation is a fundamental component of adherence to exercise programs (Vallerand, 1997). Motivation, as defined by González-Cutre and Sicilia (2012), “determines the initiation, maintenance, and completion of the relevant behaviors” (p. 319). Analyzing self-determined exercise motivation could be key to understanding exercise adherence.

The SDT is a theory of “human motivation and personality in social contexts that differentiates motivation in terms of being autonomous and controlled” (Deci & Ryan, 2011, p. 416). Because of its focus on personal motivations, the SDT was an appropriate framework for research focusing on exercise motivation. Like other theories of motivation, the SDT focuses on goal-directed behaviors; however, the SDT distinguishes between the content of the goals themselves and the regulatory processes through which these goals are pursued. By distinguishing between goals content and specific regulatory processes, predictions about content and processes can be made (Deci & Ryan, 2000).

The SDT attempts to account for the processes that facilitate motivational development (Wilson, Mack, & Grattan, 2008). These processes stem from three innate psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 1985; Ryan & Deci, 2000a, 2002).

**Autonomy.** Autonomy has been studied more than the other basic psychological needs associated with the SDT (Wilson et al., 2008). Autonomy is the source of one's own behavior or the feeling of choice in one's own actions. It also has the potential to fulfill other psychological needs, including feeling of competence and a sense of belonging and connection (Ryan, Williams, Patrick, & Deci, 2009). Markland and Ingledew (2007) identified a positive link between exercise behavior and relative sense of autonomy.

Wilson et al. (2008) found that increased levels of self-determined motivation, including the need for autonomy, result in increased engagement in physical activity by female college students. The level of autonomy can be affected by the motivational climate in which the exercise activity occurs. A reward/punishment motivational climate can lead to decreased autonomy (Ryan et al., 2009). This motivational climate can be external, such as a coach praising results, or internal, such as a personal weight loss goal. The focal concepts of autonomy are personal choice and enjoyment of participating in an activity.

**Competence.** Competence relates to the ability or the perceived ability to achieve desired outcomes relevant to the specific tasks to be completed (Ryan & Deci, 2000a). This ability or perceived ability often is associated with the desire of individuals to improve. The more positive feedback individuals receive from coaches, parents, friends,

or others, the more it can enhance the individuals' levels of competence and increase their motivation (Ryan et al., 2009). However, the opposite is also true: Individuals who receive ongoing negative feedback can experience decreased levels of competence and reduce their motivation.

**Relatedness.** Relatedness refers to the need to feel connected to valued individuals in one's life (Taylor & Ntoumanis, 2007). Relatedness might have the strongest relationship to motivational climate of the three basic psychological needs, but it also might have the weakest connection to self-determined motivation. Kipp and Amorose's (2008) results did not find an association of relatedness with self-determined motivation. However, the researchers did note that previous research had identified relatedness as the weaker determinant of motivation when compared to the other two needs. In opposition to Kipp and Amorose's findings, other researchers (e.g., Ryan et al., 2009; Standage, Duda, & Ntoumanis, 2003) have argued relatedness is a major component of the SDT. The researchers' argument has focused on personal connections and motivational climate being significant components of relatedness.

Relatedness is the desire to forge connections with other people in social contexts. These connections strengthen self-determined motivation (Standage et al., 2003). Relatedness is reinforced by the warmth and care that others deliver (Ryan et al., 2009). This support reflects the desire for positive reinforcement (i.e., competence) and a positive motivational climate.

The SDT is a macro-theory of human motivation. It is an overarching theory that holds six mini-theories: cognitive evaluation theory (CET), organismic integration theory (OIT), causality orientations theory (COT), basic psychological needs theory (BPNT),

goal contents theory (GCT), and relationships motivation theory (RMT). Each of these mini-theories was developed in order explain various facets of motivation (Deci & Ryan, 2015). Additionally, each mini-theory addresses at least one of the three psychological needs (i.e., autonomy, competence, and relatedness).

CET concerns the effect of interpersonal relationships and social climates on intrinsic motivation (Deci & Ryan, 1985; Frederick & Ryan, 1995; Ryan, 2009; Ryan & Deci, 2000b). This theory also relates to the psychological need for competence and autonomy. Specifically, it addresses the effects of social contexts on intrinsic motivation and its role in fostering intrinsic motivation (Ryan & Deci, 2000a). CET explains the role that intrinsic motivation has in both physical activity and sport participation (Ryan et al., 2009).

OIT is different from the CET in that the former theory deals with extrinsic motivation and breaks it down into a four-part continuum, integrated regulation, identified regulation, introjected regulation, and external regulation, (Wininger, 2007). This continuum addresses internalization of motivation. Deci and Ryan (1985) developed OIT to describe the different forms of extrinsic motivation and identify factors that either stimulate or impede internalization. The various forms of extrinsic motivation are relative to the psychological need for autonomy. The greater the extrinsic motivation is internalized, the more autonomous the individual will become while engaging in the behaviors (Deci & Ryan, 2015).

COT describes the ways in which individuals react to various environmental factors to help to regulate their behaviors (Ryan, 2009). This theory posits individuals interpret social cues in their own way and this interpretation affects behavior initiation

and regulation (Brunet & Sabiston, 2009). Wilson et al. (2008) suggest COT aims to explain individual personality differences in how people are oriented towards self-determined. In other words, the COT might explain how various stimuli affect an individual's motivation.

BPNT posits each psychological need influences wellness and behaviors independently (Reinboth & Duda, 2006; Ryan & Deci, 2002; Wilson et al., 2008). As conceptualized by SDT, competence, autonomy and relatedness are the fundamental human psychological needs (Deci & Ryan, 1985; Ryan & Deci, 2000a, 2002). If not met, an individual will seek new behaviors in order to meet these needs, even if the new behaviors are harmful to the individual. Gunnell et al. (2013) offer support for BPNT; reporting the hindrance of psychological needs that predicts a lack of well-being.

Goals focus on what an individual expects to achieve through engagement in a behavior or action while motivational regulations emphasize the reason why the individual person carries out the behavior or task (Gunnell, Crocker, Mack, Wilson, & Zumbo, 2014). Vansteenkiste, Niemiec, & Soenens (2010) state GCT suggests "intrinsic and extrinsic goal contents differentially predict satisfaction of the basic psychological needs, which accounts for the differential relations of goal contents to psychological, physical, and social wellness" (p. 150). GCT posits the intrinsic goals are more likely to lead psychological need satisfaction than are extrinsic goals. Deci and Ryan (2000) developed the theory to understand how the content of a goal can lead to differing outcomes that affect behavior regulations (Deci & Ryan, 2000).

RMT suggests the basic psychological need for relatedness is what motivates individuals to pursue high-quality, satisfying relationships (Deci & Ryan, 2014).

Specifically, the theory explores the impact of interpersonal relationships on this psychological need. RMT is concerned about close personal relationships. The theory suggests that some personal interactions are not only desirable, but are essential for psychological well-being as these close personal relationships satisfy the need for relatedness (Deci & Ryan, 2015).

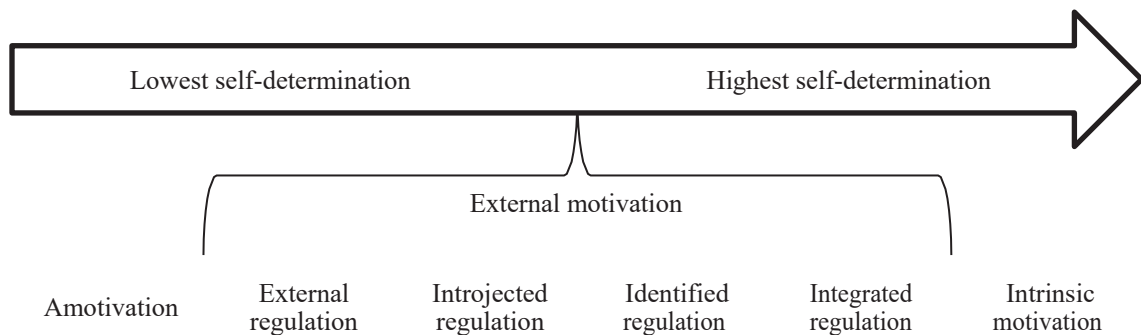
The three innate psychological needs of autonomy, competence, and relatedness have a direct influence on the level of self-determination. The greater the extent to which these psychological needs are met, the higher the level of self-determination will be for the individual. The result is a higher level of pursuit of an activity and more frequent engagement in that activity. Addressing these psychological needs in physical activity situations can have a positive impact on the motivation of students in physical education classes. For example, an autonomy-supportive environment can enhance students' intrinsic motivation in regard to physical activity (Taylor & Ntoumanis, 2007). A basic tenet of the SDT is that two types of motivation (e.g., extrinsic and intrinsic) influence adherence. Further, the lack of motivation is known as amotivation (Ryan et al., 2009). In SDT, internalization is seen as a continuum (Ryan & Deci, 2000b). It describes how people's motivation varies from amotivation to external motivation regulations to intrinsic motivation.

### **Continuum of Self-Determination**

Self-determination, or motivation, to engage in activities falls along a continuum ranging from amotivation to intrinsic motivation (see Figure 1). Between amotivation and intrinsic motivation lies extrinsic motivation, which comprises four forms of regulation: external regulation, introjected regulation, identified regulation, and integrated regulation



(Holmberg & Sheridan, 2013). The self-determination continuum also applies to exercise (Sidman, Fiala, & D’Abunda, 2011). The continuum is based on the perceived locus of causality, or regulatory motives, and the level of autonomy over activities (Ingledeu, Markland, & Ferguson, 2009; Ryan & Deci, 2000b).



*Figure 1.* Self-determined motivational continuum.

Adapted from “Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being,” by Ryan, R. M. & Deci, E. L., 2000b, *American Psychologist*, 55(1), 68-78.

**Intrinsic motivation.** The highest level of self-determined behavior is intrinsic motivation, and unlike extrinsic motivation, it has no focus on rewards other than enjoyment of participation. Ryan et al. (2009) stated intrinsic motivation relates to physical activity engagement because inherent pleasures and satisfactions are provided. In terms of separable outcomes, there are not any. Intrinsically motivated individuals are willing to receive positive or negative feedback that might help them better perform their selected activities. They do not view feedback as either a reward or a punishment; rather, they see it as information that might enhance their competence and enjoyment of participating in the activities. Individuals who are intrinsically motivated participate in activities for the sake of the activities alone; they desire no other outcomes. In other words, the activities themselves are the reason for participating.

Physical activity can be rewarding and contribute to personal life satisfaction (Ryan & Frederick, 1997). This satisfaction is considered an example of intrinsic motivation. According to Ryan, Frederick, Lepes, Rubio, and Sheldon (1997), intrinsic motivation is critical for adherence to physical activity participation. Frederick-Recascino and Schuster-Smith (2003) supported this statement by asserting intrinsic motivation can have a positive correlation with increased participation (i.e., more hours and days per week) in exercise activities.

González-Cutre and Sicilia (2012) defined intrinsic motivation as the “concept that reflects a behavior motivated by the inherent fun and enjoyment of the activity” (p. 320). When individuals find physical activities to be challenging, interesting, and fun, they are likely to be intrinsically motivated to continue to engage in them (Frederick & Ryan, 1995). Ryan et al. (2009) addressed intrinsic motivation by stating it occurs within the relation between an individual and the chosen activity. Some activities will intrinsically motivate some individuals, but not others.

Taylor and Ntoumanis (2007) remarked that autonomy, which refers to being the foundation of one’s own behavior, is related directly to self-determined behavior. Therefore, autonomy is directly related to intrinsic motivation. When individuals are, or feel as if they are, in control of activity choices, they might stay committed to those activities. This assertion was supported by the previously mentioned positive correlation between intrinsic motivation and increased participation in activities.

**Extrinsic motivation.** While intrinsic motivation is based on enjoyment of the activities, extrinsic motion is fueled by other factors. This does not mean extrinsic motivation cannot be enjoyable (e.g. most athletes find winning to be enjoyable). It

means that individuals are motivated by a combination of intrinsic and extrinsic motivations. Ryan and Deci (2000a) referred to extrinsic motivation as participating in an activity because it leads to a desired outcome. These separable outcomes can include rewards, punishment avoidance, or goals related to the outcomes of the activities (Ryan et al., 1997).

The goals associated with these outcomes are sometimes identified by others (e.g., coaches) and are known as external regulation factors (Vallerand, 1997). However, the goal outcomes also can come from the individuals themselves. This fact is salient to self-determined exercise motivation because these participants in physical exercise have body-related goals (e.g., weight loss or improved fitness) and are considered principally extrinsically focused, since the overarching goals are focused on extrinsic of outcomes the activity (Ryan et al., 1997). This assertion is especially important when studying the self-determined exercise motivation of women. Frederick and Ryan (1993) stated the women in their study, more often than the men, reported appearance and fitness as motivating them to exercise. Because individuals have control over certain types of extrinsic factors such as physical appearance or weight loss goals, autonomy can be very high even for extrinsic motives.

Ingledeu et al. (2009) suggested where motivation lies on the self-motivation continuum might determine the value of the perceived rewards. The more individuals feel controlled by others, the more they might value the external rewards. Conversely, the more autonomous they feel, the less they might value the rewards. Levels of autonomy, therefore, divide the extrinsic motivation part of the continuum. External and introjected regulations have low levels of autonomy; identified and integrated regulations have

higher levels of autonomy. Because of these differences in autonomy levels, identified regulation and integrated regulation are closer to intrinsic motivation on the self-determined motivational continuum than introjected regulation and external regulation.

***Integrated regulation.*** An internal perceived locus of causality and a high level of autonomy are the aspects of regulation that separate integrated regulation from the other regulations comprising the extrinsic motivation part of the self-determination continuum. According to Milroy, Orsini, D'Abundo, Sidman, and Venezia (2015), individuals whose Self-determined exercise motivation is regulated through integration highly value physical activity and willingly participate in that physical activity. Through integrated regulation, exercise behaviors are integrated into lifestyle. An individual's behavior is created in association with the other principles, values, and needs of one's personality (González-Cutre & Sicilia, 2012). Integrated regulation shares many attributes with intrinsic motivation. However, because the separable outcomes (e.g., health benefits) are seen as a motivational factor, integrated regulation is considered a highly autonomous and highly self-determined form of extrinsic motivation.

***Identified regulation.*** Identified and integrated regulations are relatively autonomous forms of exercise regulatory motives (Ingledeew et al., 2009). Individuals who place meaningful value on activities are considered regulated through identification. This conscious valuing of the benefits of activities places personal importance on participation in the activities, thus creating a somewhat internal perceived locus of causality (Ryan & Deci, 2000b). At this stage of exercise regulation, individuals begin to internalize their motivation as well as their self-determination (Frederick-Recascino & Schuster-Smith, 2003). The researchers noted individuals are motivated through their

own interests and their desire to reach self-determined goals at the identified regulation level.

***Introjected regulation.*** Introjected regulation is driven by internal rewards and can be controlled by feelings of guilt (e.g., “If I don’t go to the gym, I’ll feel guilty”). This type of internal punishment is relevant to introjected regulation (Taylor & Ntoumanis, 2007). Improving feelings of self-worth or enhancing one’s ego are considered forms of internal reward (Ryan et al., 2009). Although these aspects of control are internal, they remain associated with rewards and punishment that cause the perceived locus of causality to be somewhat external (Ryan & Deci, 2000b). “Introjection involves taking a regulation, but not fully accepting it as one’s own” (Ryan & Deci, 2000b, p. 72). This type of motivation regulation has been associated with increased participation in exercise (Thøgersen-Ntoumani & Ntoumanis, 2006). Introjected regulation also has been found to have a greater effect on participation in exercise by female college students than by male college students (Milroy, Orsini, D’Abundo, Sidman, & Venezia 2015; Wilson & Rodgers, 2004; Wilson, Rodgers, Fraser, & Murray, 2004).

***External regulation.*** Defined as a completely external perceived locus of causality, external motivation provides individuals with no autonomy and few self-determined behaviors (Milroy et al., 2015; Ryan & Deci, 2000b). Participating in any task because the individual is being told to do so by someone in a position of authority is considered an example of external regulation. Although compliance with authority to avoid negative consequences is a form of reward, positive rewards also can be associated with external regulation. González-Cutre and Sicilia (2012) commented external

recognition by others (e.g., individuals wanting to be told that they are attractive) is a type of reward that might contribute to external regulation.

**Amotivation.** The lowest amount of self-determination is amotivation, which has been described as the complete lack of desire to engage in any activity or the absence of motivation to act (Gao, Podlog, & Harrison, 2012; Holmberg & Sheridan, 2013). Amotivated individuals exhibit a lack of interest in activities and show no, or few, signs of purpose regarding the activities (Vallerand, 1997). Another sign of amotivation is boredom in regard to participation in physical activities (Standage et al., 2003). A possible reason for amotivation related to engagement in physical activities is that the individuals might not perceive positive correlations between the activities and the desired outcomes (Wang & Biddle, 2001). An individual with amotivation might view the activity as not valuable and a waste of time and effort. Ryan and Deci (2000b) suggested amotivation is the result of an impersonal perceived locus of causality and an extremely low level of autonomy. Furthermore, in the completion of a low-autonomic task, the lack of autonomy might result in the individual being emotionally disconnected from the task.

### **Sports Career Termination**

Sports career termination has been studied extensively. As noted by McKnight et al. (2009), termination of athletic careers is very different from occupational retirement, perhaps because many athletes complete their athletic careers at much earlier ages that can lead to disruptions to their identities. This identity disruption is partly the result of changes in the former athletes' social networks, especially in regard to the removal of coaches and teammates (Wylleman & Lavallee, 2004). The removal of positive constructs also can affect former athletes. The concept of cooperative learning, similar to

the one occurring in team sports, has a positive impact on the self-determined motivations of athletes (Kipp & Amorose, 2008).

Although sports career termination has been the focus of much research, the investigative focus has been on professional, or elite, male and female athletes. As Baillie and Danish (1992) noted, researchers have tended to direct their attention toward a small number of athletes in the professional arena of athletic competition. Despite the privileged nature of this population of athletes, certain aspects can be applied to athletes at multiple levels of competition. One of these aspects relates to changes in their social networks.

For athletes, their social networks comprise their coaches, parents, and peers (Wylleman & Lavallee, 2004). Smith, Smoll, and Smith (1989) termed these social networks *athletic triads*. Once athletes discontinue their sports careers, these social networks change, and the athletic triangles break apart. The former athletes lose the athlete-coach relationship and the familiar peer groups begin to change. Peer relationships play an important role in the athletic triads; the roles of parents and coaches also are central to these specific social networks (Wylleman & Lavallee, 2004). Another factor that might contribute to the challenges of dealing with sports career termination is the change in rigid personal schedules. Many athletes at the end of their sports careers are not prepared for the increased amount of free time available to them after they leave the competitive sports environment (Baillie & Danish, 1992).

Just as some researchers have concentrated on the athlete-coach relationship, others have focused on the undercurrents of the social structure component of sports career termination. Coakley (1983) stated the process of retirement from sport is

grounded in the context of the social structural during the time in which the retirement is taking place. Coakley (1983) suggested withdrawal from sports after leaving high school and entering college is part of normal development, unless the individuals involved were outstanding male athletes in major sports during their high school years. Coakley (1983) downplayed the role of female high school athletes, commenting, “Young women in most intercollegiate sports would be less likely to have their status and their relationships directly linked to their sport involvement” (p. 3).

However, more recent studies have contradicted the statement regarding the lack of significance that athletic participation has on female high school athletes. Lindstrom and Lease (2005), for example, found a significant correlation existed between peer status and the majority of athletic skill measures for athletic skill for both males and females. Their research found a moderately strong relation between athletic variables and peer status for female adolescents. The peer status of female athletes in high school is an important factor in their self-identity.

Understanding the importance of athletic identity is crucial to understanding the difficulty of sports career termination. The loss of athletic identity had been shown to be a major factor in the stress associated with sports career termination (McKnight et al., 2009). Their extended commitment to athletics can nurture athletes’ identities, providing them with stronger self-identity in the role of athlete. Pascarella and Smart (1991) associated positive and negative qualities with the development of strong athletic identities. A few positive aspects of athletic identity are higher levels of self-confidence, increased social interactions, and more participation in exercise and physical activities (Brewer et al., 1993).



In contrast to these findings, the loss of athletic identity might not be the driving force that makes sports career termination a difficult process. Instead, withdrawal from specific sports settings might have more of an impact than the actual loss of the role of athlete on former athletes (Greendorfer & Blinde, 1985). The sports setting can be associated with peer, coach, and parent interactions, as mentioned by Wylleman and Lavallee (2004), or something more individualized, such as the development of personal time management skills. As noted earlier, Baillie and Danish (1992) stated, often times athletes are not adequately prepared for the amount of off time associated with event of retirement from sports. This off time can lead to a sense of failure and a loss of social significance (Kleiber, Greendorfer, Blinde, & Samdahl, 1987).

Whether the causes of difficulty associated with sports career termination are related to the loss of athletic identity or the athlete-coach relationship, changes in the former athletes' social networks, changes in peer status, or a lack of skills not associated with athletics, the retiring athletes need to make adjustments to cope with this transition. These adjustments might be even more relevant to student athletes because of the additional impact of academic stressors.

The use of interventions to create a positive experience of the transition from an athletic career to a nonathletic career has been studied. Wylleman et al. (2004) stated athletic life skills programs and transition interventions might help athletes to cope with sports career termination. Lavallee (2005), who discussed the potential for sports psychologists to enhance the transition adjustment through the fostering of personal life skills, supported this statement. Lavallee found a significant difference between groups of career-transitioning athletes who received life development interventions and those who

did not receive the interventions. Young athletes might face more challenges in sports career transitioning because they sometimes self-identify only with their role as athlete, as opposed to self-identifying with multiple roles such as student athlete or member of a non-sport peer group. (McKnight et al., 2009).

### **Transitioning to College**

Many studies regarding the transition from high school to college have examined such social issues as attachment to parents, whereas others have addressed changes in physical activity (Parade et al., 2010). The study that most closely matched this study was conducted by Han et al. (2008). The researchers noted that this area of study (i.e., changes in physical activity patterns among female students during the transition to college) was unique because of the scant amount of research on the topic. Han et al. (2008) targeted first-year female college students, who completed a questionnaire twice, once at the beginning of their first year in college and once at the beginning of their sophomore year. Results showed a significant decline in physical activity between the beginning of the first and second years of college.

Another study with characteristics similar to those of the current research was conducted by Lubker and Etzel (2007). They delved into the ending of sports careers in high school and the transition to college. Lubker and Etzel focused on adjustments to the social and academic aspects of college life, not the effects of these transitions on physical health. They found former high school student athletes with varying levels of athletic identity (high, moderate, low) in high school did not differ in their social, or emotional, adjustment to college. However, the study did not differentiate between male and female student athletes.

Some studies have explored physical health changes during the transition from high school to college. Armstrong et al. (2018) reported a drop in the percentage (78%) of adolescent-age (12-17) females participating in moderate to vigorous physical activity when compared to the percentage (62%) of young adult (18-24) females participating in moderate to vigorous physical activity. These data might offer an explanation to why nearly a quarter of first-semester female college students gain a significant amount of weight. Wengreen and Moncur (2009) noted of the first-year female college students in their study who gained more than five percent in body weight, more than 60% reported a decrease in physical activity from when they were in high school.

Decreases in physical activity might have more of an effect on female students than on male students. Jung, Bray, and Ginis (2008) noted the transition to college from high school might disrupt the dietary and physical activity patterns of young women. While the cause of this disruption were not investigated, they noted 66% of young women who gained weight throughout their first year of college reported a decrease their levels of physical activity. These results were supported by Han et al. (2008), who studied physical activity patterns among female students during their transition to college from high school. Han et al. reported a significant decline in physical activity from high school to college, with the summer between high school and college being the time period of the greatest decrease.

Harrison and Lawrence (2004) state students entering college face unique challenges as they transition from high school, including adjustment to new physical and time demands and the possible changes in one's support network (e.g. moving out of their parents' home). These changes can be very stressful on new college students as they

attempt to negotiate this new stage of their life. Gall, Evans, and Bellerose (2000) asserted the greatest strain on well-being occurs during students' first year in college. In fact, the students in their study reported more negative occurrences, as measured through the Life Events Inventory (LEI), during the first year of college than during any other year. The LEI assesses four event categories: academic, financial, interpersonal, and personal.

Researchers have noted these barriers are associated with a decrease in physical activity during the transition from high school to college. The challenges of transitioning from high school to college can become barriers to students remaining physically active. The barriers can range from personal (inter- and intrapersonal) to environmental/community (Kwan & Faulkner, 2011). For example, Parade et al. (2010); Van Dyck, De Bourbeaudhuij, Deliens, and Deforche (2015); and Wengreen and Moncur (2009) all indicated similar barriers (e.g., intrapersonal barriers, interpersonal barriers, and community/environmental barriers) can affect students' transition to college. Negative incidents, based on 21 health symptoms, also have been found to lead to more negative moods and an increased number of health problems (Pritchard, Wilson, & Yamnitz, 2007).

### **Intrapersonal Barriers**

Although young adults may be excited to begin this new chapter of their lives that includes more autonomy and responsibility, many of these students can be overwhelmed by the transition to college. Kwan and Faulkner (2011) asserted the new found independence of college life resulted in many students feeling lost, especially concerning the concept of time management. The concept of time management has had a tremendous

impact on the decreased amount of physical activity of first-year college students. Van Dyck et al. (2015) explained the time-related barriers experienced by college students by suggesting time management becomes a factor for college students in terms of prioritizing physical activity.

The aspect of moving away from home also can impact first-year college students. Dyck et al. (2015) commented that suddenly a high level of independence is expected by students to be able to address several academic challenges, at the same time they are leaving their parent's home and moving into a new residence. Giacobbi et al. (2004), in a study of first-year college female student athletes, asserted being away from home was a common source of stress for the students. According to Bray and Born (2004), living somewhere other than the familial home for the first time can change the reference point that is central to personal identity and can lead to more stress. Adlaf, Gliksman, Demers, and Newton-Taylor (2001) noted first-year college students, in comparison to other undergraduate students, had the highest levels of psychological distress. Makrides, Vienot, Richard, McKee, and Gallivan (1998) reported almost 60% of new college students ranked their stress level as high to very high. Campbell, Svenson, and Jarvis (1992) reported the undergraduate female students in their study shared experiencing unacceptable levels of stress as self-identified by the participants.

Moving away from home for the first time is only one factor affecting the intrapersonal barriers to a successful transition into college. This transition, which can be termed *emerging adulthood*, is the time between adolescence and full adulthood. Emerging adulthood is a phase of personal identity exploration and transition (Arnett,

2000). Regardless of any challenges that arise during this period of emerging adulthood, students must adapt to these changes to be successful (McNamara, 2000).

Chemers et al. (2001) believe self-efficacy has a strong impact on the ability to transition to college successfully. Bandura (1997) identified self-efficacy as “the belief in one’s capabilities to organize and execute courses of action required to produce given attainments” (p. 3). It is important to note that an individual’s self-efficacy beliefs are not an assessment of one’s abilities, but rather, a strongly held believe by the individual in their perceived abilities (Bandura, 1997).

Self-efficacy beliefs strongly influence an individual’s behavior when approaching, engaging, and completing a given activity. Individuals with high self-efficacy demonstrate a variable of core confidence, comprised of optimism, hope, resilience, and self-efficacy, in their abilities to successfully perform and complete an activity (Stajkovic, 2006). Persons that have high self-efficacy are reported to generally carry on with a task even when it becomes challenging, are more willing to attempt new activities, and they are also comfortable asking for help when needed. In comparison, low self-efficacy beliefs result to individuals avoiding difficult tasks, giving up quickly when a task becomes difficult, and not asking for help when needed (Bandura, 1997).

Students who begin college with confidence perform much better than students who lack confidence (Chemers et al., 2001). The researchers concluded academic self-efficacy has a significant and direct impact on academic expectations. Specific to former high school athletes, Raye (2010) stated former athletes who were looking forward to going to college regardless of whether or not they were participating in sports were more

successful adjusting to college life than former athletes who were not eager to be attending college because they could no longer participating in sports.

Yet another challenge for first-year college students is the increased rigor of academics. Almost 40% of first-year students have a difficult time developing successful study habits, as suggested by Liu, Sharkness, and Pryor (2008). This difficulty might be related to the change from an extremely structured schedule in high school to the flexible scheduling of the college environment (Raye, 2010). In addition to the stress associated with changes to their daily scheduling structure, Liu et al. (2008) found many first-year students struggle with irregular communication with professors and less participation in campus activities than they anticipated prior to their college experience.

### **Interpersonal Barriers**

Changes in social networks, including family support and friendship connections, are one of the major adjustments made during the transition from high school to college life. Gyuresik, Bray, and Brittain (2004) noted social invitations, along with high academic workloads, were identified by the first-year female college students as barriers to participation in vigorous exercise. College transition results in an adjustment in family relationships, reliance on family for support, and forming of new college friendships (Paul & Brier, 2001). These changes in one's support structure, along with the other challenges facing first-year college students, might have consequences beyond the classroom. This period of transition is most likely the time when students leave home for the first time, thus altering their relationships with their parents (Parade et al., 2010). The challenge of moving away from home and into an entirely new environment and culture can be even more daunting because of the loss of friendship networks from high school.

Ortez (1997) contended the challenges connected to the combination of a new environment and new academic stresses can make this developmental period exceptionally challenging. Since student athletes are a subgroup of the overall student population this phenomenon could also affect them.

While first-year college students are facing the loss of old friendship networks, they are actively forming new ones (Pittman & Richmond, 2008). As mentioned by Pittman and Richmond (2008), the quality of friendship networks is strongly associated with students' sense of school belonging. Paul and Brier (2001) introduced the term *friendsickness* to describe the grieving of the loss of friends (similar to homesickness). They found more than half of the participants in their study rated their friendsickness as moderate or high; only six percent reported having feelings of no friendsickness. These feelings of loss of friendship can have negative effects on the emotional wellbeing on individuals. Without their established friendship networks, many students find it difficult to form new ones (Bohnert, Aikins, & Edidin, 2007). Seeking to build new friendship networks can lead to negative health outcomes because of the amount of time engaging in social activities in an effort to establish these new networks.

### **Effects on Physical Activity**

Psychological and psychosocial development is impacted by the changes that are occurring during the transition to college (Brown et al., 2015). These changes can have an effect on mood as well as physical activity. According to Kwan, Bray, and Ginis (2009), past behavior can also be a significant predictor of planned physical activity. Students' changing psychological aspects might lead to changes in the completion of planned levels of physical activity. Van Dyck et al. (2015) stated changes in psychosocial



factors were a major factor that explains some of the decrease in leisure-time activities. Whether the change is psychological or psychosocial, transitional phases can precipitate changes in physical activity levels for first-year female college students.

Exercise motivation, which can be intrinsic or extrinsic, drives participation in physical activity (Egli, Bland, Melton, & Czech, 2011). According to Egli et al. (2011), female college students were motivated more by extrinsic factors than their male classmates were. Weight management seemed to be a major motivator for female college students. Kwan and Faulkner (2011) designed a study to explore the relationship between physical activity and the transitional experiences entering college for the first time. The study identified a clear association between a decline in physical activity and an increase in autonomy and independence. The results also were consistent with other studies associating the transition from high school to college to a decline in physical activity (Bray, 2007; Kwan et al., 2009). The effects of a decline in physical activity, combined with the challenges associated with the interpersonal and intrapersonal barriers to the transition to college from high school, might be magnified by the experience of sports career termination at the same time. All of these combined factors might have an impact on students' motivation to participate in vigorous exercise or to adhere to exercise programs.

### **Self-Determined Exercise Motivation**

Fortier, Duda, Guérin, and Teixeira (2012); Gillison, Standage, and Skevington (2006); and Ryan and Deci (2000a) reported self-determined exercise motivation has a positive impact on health-related behavior outcomes. One of these positive behavior outcomes is adherence to exercise. There are several motivational relationships among

exercise dependence variables (González-Cutre & Sicilia, 2012). These relationships and variables are as diverse as the numerous reasons individuals choose to exercise (Kipp & Amorose, 2008). Certain combinations of various relationships and variables can have negative effects, including quitting an exercise program. Dropping out of exercise programs can be attributed partially to decreasing self-determined exercise motivation (Thøgersen-Ntoumani & Ntoumanis, 2006). Changes in lifestyle, environment, or career might lead to changes in self-determined exercise motivation.

The motivation to exercise can be altered with changes in an individual's circumstances. The current study focused on the influence that each setting might have on self-determined exercise motivation. Several settings, including transition to college, sports career termination, and various levels of competition, can affect first-year female college students.

### **Self-Determined Exercise Motivation and Transition to College**

Researchers have concentrated on the perceived barriers to physical activity by college students after they made the transition to college. Kwan and Faulkner (2011) suggested the transition from high school to college is linked to a significant decline in leisure time. Arzu, Tuzun, and Eker (2006) identified lack of time as the most significant barrier to participation in physical activities. Other barriers have included a lack of motivation, a lack of energy, and boredom (Jonsson & Lidén, 2012).

Although lack of time has been a recurring theme in the literature, barriers such as the increased stress resulting from the pressure of studying and the lack of social support also have been identified (Gómez-López, Gallegos, & Extremera, 2010). Though there are common barriers to physical activity, there are also common motivations as well.

These common motivations can include health improvements, increased physical strength to remain in good physical condition, fitness, fun, and enjoyment (Jonsson & Lidén, 2012). Jonsson and Lidén (2012) identified motivation to stay in good physical condition as the most common reason.

### **Self-Determined Exercise Motivation and Sports Career Termination**

Many athletes end their sports careers when it becomes necessary for them to pursue postathletic endeavors such as education or vocation (Lavallee & Wylleman, 2000). Lavallee and Wylleman (2000) argued sports career termination could have a psychological impact on athletes; in particular, it can result in added stress on student athletes who are retiring from sports and transitioning to college at the same time. As mentioned by Werthner and Orlick (1986), for all student athletes, sports career termination is inevitable; however, researchers have not agreed whether all former athletes have adjustment issues. Coakley (1983), Curtis and Ennis (1988), and Greendorfer and Blinde (1985) contended adjustment problems do not seem to be an issue for athletes, but other researchers have disagreed (Allison & Meyer, 1988; Kleiber & Brock, 1992; Werthner & Orlick, 1986).

Transitioning from high school to college, while dealing with sports career termination, can be difficult for some student athletes because of their youth and the inevitable changes in identity. Coakley (1983) noted leaving competitive sports resulted in changes in the educational careers for most interscholastic athletes. Because these events, that is, sports career termination and educational transition, can occur simultaneously, it is difficult to determine which effects on student athletes are related to

each transition individually (Coakley, 1983). However, some researchers have focused only on transition.

For example, Wylleman et al. (2004) concluded professional athletes who have retired from sports have coped with psychological and psychosocial changes. Student athletes, prior to transitioning from high school to college, have built and have relied on social networks comprising coaches, parents, and peers (Wylleman & Lavallee, 2004). The disruptions to or loss of these social networks can have negative effects. Greendorfer and Blinde (1985) noted the change associated with sports career termination require some social psychological adjustment.

These adjustments have an impact on student athletes. According to McKnight et al. (2009), former athletes might even demonstrate a lack of interest in nonsporting activities such as vigorous physical activity or moderate levels of exercise. In a synthesis of 11 studies examining stressful reactions to sports career termination, Grove, Lavallee, Gordon, and Harvey (1998) found more than 19% of the athletes underwent a considerable emotional disturbance associates with the termination of their sport career.

These emotional disturbances had the potential to impact the individuals' identities. Greendorfer and Blinde (1985) reported the percentage of high school female student athletes who had retired from competitive sports and who also had rated athletics extremely important fell from 90% in high school to 79% during their first year of college. The percentage declined every year through their senior year of college to 56% (Greendorfer & Blinde, 1985). This change in the perceived value of sport, coupled with the stress of transitioning to college, might have led to a decrease in physical activity. The impact of this decrease could have lasting effects on former student athletes. College

is a time when lifelong habits can be formed. Just as positive physical activity habits can be established, negative physical activity habits also begin (Allom, Mullan, Cowie, & Hamilton, 2016).

### **Self-Determined Exercise Motivation and Level of Competition**

The research on self-determined exercise motivation and level of competition of sport has been inconsistent based on the specific level of competition. Studies investigating the self-determined exercise motivation of intercollegiate athletes have been limited, with most studies focusing on sports motivation (Medic, Mack, Wilson, & Starkes, 2007).

The same cannot be said for studies focusing on noncompetitive (i.e., general population) college students (Racette et al., 2005). As for research related to student athletes and the club sport competition level, virtually no researchers have focused on this specific population. In fact, the researcher of the current study was unable to identify any studies involving club sport athletes in the United States. The exclusion of these student athletes in the literature was a gap that needed to be addressed.

**Intercollegiate sport student athletes.** Through the lens of the SDT, involvement in competitive sports has been categorized as extrinsic motivation. Subcategories of extrinsic motivation include external regulation, introjected regulation, identified regulation, and integrated regulation; however, the loss of autonomy prevents the participation motivation of student athletes from being categorized as intrinsic (Frederick-Recascino & Schuster-Smith, 2003). Fortier, Vallerand, Briere, and Provencer (1995) reported the competitive athletes in their study, unlike the recreational athletes,

manifested lower levels of intrinsic motivation and higher levels of amotivation. Results indicated a competitive environment might be detrimental to internal motivation.

The sources of this type of environment can be external or internal to the student athletes themselves. Scholarships and feedback from coaches are just two examples of external factors that lead to extrinsic motivation. However, competition also can be a factor in extrinsic motivation. According to Frederick-Recascino and Schuster-Smith (2003), the focusing on the outcome of winning by competitive athletes establishes an environment of personal control and a locus of causality that is external. Vallerand and Losier (1999) who argued the focus is not on participating in the activity itself, but on defeating the opponents, supported the notion of competition being a factor in extrinsic motivation.

Beyond the competitive aspects of motivation, tangible incentives for some student athletes, such as athletic scholarships, are external motivators. Vallerand (1997) described scholarships as a type of reward that is presented for the duration of the athlete's collegiate athletic career. Based on this reward, student athletes might feel pressured to perform more to justify receiving the scholarships than to enjoy the sports themselves. These thoughts can result in much lower levels of intrinsic motivation.

**Club sport student athletes.** Literature on the motivation of club sport athletes has been almost nonexistent. Club sports are quite different from intercollegiate sports. Although club sport teams play other schools' club sport teams, the participants have different motives for playing on the teams. Club sport student athletes participate for several reasons, including socializing and engaging in fitness activities and competitive sports. Curry and Weiss (1989) suggested students relate to club sports with for multiple

purposes, with fitness and social aspects, as opposed to competition, being priorities for participation.

Curry and Weiss (1989) concluded the motivation for fitness is higher among club sport athletes than among intercollegiate athletes. Although club sports are competitive, the structure of the setting is not the same as that of intercollegiate athletics. The competitive structure difference between club sports and intercollegiate sports might have an impact on internal motivation. Fortier et al. (1995) asserted participants in less competitive structures reported lower levels of the loss of motivation for fitness than those reported by highly competitive athletes, such as intercollegiate sports.

**Noncompetitive students.** College is a pivotal time for the development of healthy exercise patterns. Many female college students, for example, do not participate in regular physical activity (Milroy et al., 2015). Milroy et al. (2015) stated college-age females are the greatest risk for a deficiency of physical activity. A positive correlation exists between history of engagement in physical activity and maintenance of physical activity later in life (Keating, Guan, Piñero, & Bridges, 2005). Therefore, exercise patterns formed during the college years might be important to future exercise habits and well-being (Allom et al., 2016). However, health reasons are not the major motivating factor for many college students to participate in physical activities. Kulavic, Hultquist, and McLester (2013) identified the most significant motivators to participate in physical activities among college students as social experience, enjoyment, and improvement of personal appearance. Keating et al. (2005) hypothesized both male and female college students might not be concerned about the health benefits of exercise because they are still so young.

The rate of participation in regular exercise is not high among college students, male or female. Pauline (2013) reported only 17.6% of female college students in the study engaged in at least 30 minutes of physical activity five or more days per week. This percentage was lower than the 18.2% of female college students who did not participate in any moderate or vigorous physical activity (Pauline, 2013). Nelson, Gortmaker, Sabramanian, and Wechsler (2007) found the male college students in their study tended to choose more vigorous physical activities and that the female students participated in significantly more moderate exercise.

Researchers also noted women have cited weight management as a much higher motivator to engage in physical activity than men have reported. (Jonsson & Lidén, 2012; Kilpatrick et al., 2005; Pauline, 2013). The number of first-year college female student who are considered sedentary might be more drastic than the college female population as a whole. In a limited study, Foster (2008) found 42% of the first-year female college students were considered sedentary.

### **Athletic Identity**

Before discussing the concepts of athletic identity, it is important to explore the components of self-identity. Self-identity, or self-concept, refers to an individual's self-perception or self-definition that one applies to one's self as a result of the role the individual associates with on a regular basis (Biddle, Bank, & Slavings, 1987). According to Schutte and McNeil (2015), self-identity can comprise diverse roles and characteristics (Schutte & McNeil, 2015). Self-identity can also be defined as the adoption of specific roles (e.g. "I am an athlete") or traits (e.g. "I am athletic") by an individual as part of one's overall self-concept (Fleming & Petty, 2000; Tajfel & Turner, 2004).



Self-identity has a direct influence on levels of physical activity. Reifsteck, Gill, and Labban (2016) stated self-identity has a major influence on the participation in physical activity. The higher motivation of individuals is self-determined. If the reasons for participation are self-imposed, the more likely the individual is to continue with their exercise behaviors. Self-identity can impact the images that individuals hold about themselves (Benson, Evans, Surya, Martin, & Eys, 2015). Two identities that are highly associated with exercise and physical activity behaviors are athletic identity and exercise identity.

### **Athletic Identity Versus Exercise Identity**

The magnitude to which individuals identify with the role of athlete is a specific type of self-identity known as athletic identity (Reifsteck, Gill, & Brooks, 2013). Hogg and Terry (2000) posited a strong self-identity could be a powerful motivator that directs how individuals think and behave. Unlike individuals who have athletic identities and are highly motivated by sports, individuals with exercise identities are not motivated by sports.

Although both are related to physical activity, exercise identity refers only to participation in physical activity for its own benefits (Schutte & McNeil, 2015). Athletics are based on completion and are prepared for through sport specific training methods and practices. Participation in specific sports training, as opposed to general exercise, is a behavior exhibited by individuals with strong athletic identities (Reifsteck et al., 2016). Brewer et al. (1993) noted strong athletic identities are associated with positive and negative consequences. Positive consequences include opportunities for social interaction, confidence building, and increased self-esteem. Regarding negative

consequences, Abbott, Weinmann, Bailey, and Laguna (1999) argued strong athletic identities might lead to exclusivity of identity, resulting in the neglect of other areas of life.

One aspect of athletic identity is the social dimension that comes with being an athlete. The role of athlete is important to the social aspect of self-concept, consequently affecting experiences; associations with others (e.g., teammates, friends, fans); and the quest of athletic goals (Cornelius, 1995). Heyman (1986) supported this idea by stating athletic identity might be strengthened by the influences of family members, coaches, friends, and the media. Griffith and Johnson (2002) mentioned that student athletes' families, friends, and teachers all support their role and identification as athletes.

The social aspect of athletic identity can have a negative effect on student athletes. Although significance and value are placed on athletic accomplishments, when goals are not reached, student athletes might not only feel internal disappointment but also experience negative external consequences. Athletes often carry shared burdens because others' self-esteem may be dependent on the performance of the athletes (Nasco & Webb, 2006). These internal and external pressures are sources of positive and negative stress.

Individuals with stronger athletic identities participate in sports and exercise more frequently than individuals with weaker athletic identities (Anderson, 2004; Schutte & McNeil, 2015). These physical activities can have positive physical and mental effects. Strong athletic identities can have negative effects if the identities are so strong that they inhibit the development of other identities. This effect is termed *identity foreclosure*. Young and Bursik (2000) described individuals with foreclosed identities as being

dedicated to specific positions, attitudes, and values. If these positions, attitudes, and values are taken to extreme levels, athletes can suffer the effects now and into the future.

Student athletes who possess extreme levels athletic self-identity often engage in riskier sports behavior (Martin & Horn, 2013). These risky behaviors can include playing through injuries, such as concussions and overtraining, which can result in further injury. In addition, the negative effects of over-identifying as athletes are not limited to physical well-being. Exclusive and foreclosed athletic identities can have an inverse relationship to future career planning (Lavallee, Gordon, & Grove, 1997; Murphy, Petitpas, & Brewer, 1996), such as not being prepared to enter the workforce. However, this inverse relationship can apply to high school student athletes who are preparing to transition to their college careers.

Athletic identity and exercise identity are similar because both involve a desire to engage in physical activity (Schutte & McNeil, 2015). For example, softball players might relate their physical activity to their athletic identities, whereas individuals in a yoga class might connect this activity to their exercise identities. Some research has connected strong athletic identities to high levels of physical activity outside of athletics. Downs and Ashton (2011), for example, concluded college students' athletic identities have a stronger correlation to physical activity than to actual sport participation.

Although athletic identities are rooted in athletic competition, these identities can be maintained once athletic careers are over. In this situation, individuals who are no longer competing but have strong athletic identities might consider themselves athletic, not athletes. Anderson (2004) suggested individuals who consider themselves athletic are committed to participating in exercise and physical activity. This change of focus away

from competition allows other identities to develop, thus ending the exclusivity of the athletic identity (Anderson, 2004). Individuals then might begin to identify themselves as runners, golfers, and so on. These activities also begin to take on more of a leisurely or social component that was lacking in past athletic pursuits. These new benefits and perspectives could lead to the development of long-term exercise habits.

### **Athletic Identity in a Variety of Settings**

As with any personal identity, athletic identity adapts to the circumstances that the individual might be experiencing at any given time. For purposes of this study, the focus was on the impact of each of the following settings on athletic identity: transition to college, sports career termination, and various levels of competition.

**Athletic identity and transition to college.** The research linking athletic identity and the transition to college has not been substantial. Most studies involving athletic identity have focused on intercollegiate, elite, or professional athletes (Allison & Meyer, 1988; Curtis & Ennis, 1988; Griffith & Johnson, 2002; Kleiber et al., 1987; Lavalley & Wylleman, 2000; Reifsteck et al., 2016). However, the literature focused on several benefits of athletic identity and physical activity. For example, Miller, Melnick, Barnes, Farrell, and Sabo (2005) noted one such benefit was that female student athletes reported higher grades than female nonathletes.

Specific to athletic and exercise identities, Soukup, Henrich, and Barton-Weston (2010) concluded student athletes in high school have greater exercise identities than high school nonathletes and that these identities become stronger the longer the athletes are involved in competitive sports. Athletic identity becomes stronger throughout adolescence, and remains high as long as participation in competitive sports continues

(Houle, Brewer, & Kluck, 2010). Upon the transition to college, many high school student athletes become noncompetitive students (NCAA, 2015). This change can result in a decline in athletic and exercise identities, leading to decreased physical activity. Reifsteck et al. (2013) stated former athletes whose athletic or exercise identity has weakened after transitioning out of a sport no longer maintain their previous level of physical activity.

The transition from high school to college might result in physical and mental issues for students who also are transitioning out of competitive athletics. Downs and Ashton (2011) suggested a decrease in physical activity appears to result in negative consequences for mental and physical well-being. Brewer et al. (1993) noted as students mature, they are exposed to various activities and influences that might result in a decrease in athletic identity and a subsequent decrease in physical activity.

**Athletic identity and sports career termination.** The effect of sports career termination on athletic identity is complex. Brewer et al. (1993) identified a positive relationship between athletic identity and physical activity. Anderson (2004) found prolonged engagement in physical activities by some of the participants in her study was related to stronger athletic identities. However, former college student athletes in the study by Reifsteck et al. (2013) reported stronger athletic identities than nonathletes, despite the former student athletes not being significantly more physically active. In the same study, the former student athletes reported greater decreases in physical activity after college than the nonathlete peers reported.

Reifsteck et al. (2016) suggested that because of the intrinsic motivations associated with exercise and the extrinsic factors linked to athletics, the transition from

athletic activities to exercise or fitness activities might be somewhat difficult for some former athletes. Some possible reasons exist for such contradictory findings. Although former student athletes have reported stronger athletic identities than nonathletes, the saliency of the athletic identities might have decreased. Houle et al. (2010) suggested after sports career termination, athletes experience a decline in the saliency of their athletic identities. Therefore, even though the athletic identities might be strong, this identification may not have much of an effect on physical activity if the individuals do not rate their athletic identities as very important.

There are physical health implications associated with sports career termination, as well as issues regarding psychological well-being (Grove, Lavalley, & Gordon, 1997; Lally, 2007; Lavalley et al., 1997; Stambulova, Alfermann, Statler, & Cote, 2009; Taylor & Ogilvie, 1994). Individuals who have exclusive athletic identities are at higher risk of jeopardizing their psychological health during the sports transition period (Griffith & Johnson, 2002). The athletes that were more effective at making the transition away from their athletic role were the ones who were engaged in other activities that were nonathletic in nature (Griffith & Johnson, 2002). The psychological difficulties associated with the transition might be the result of athletes not having developed any other identities (e.g., social or personal) outside of their chosen sports.

Pearson and Petitpas (1990) asserted the transition could disrupt self-identity, especially among individuals with strong athletic identities. As suggested by Lubker and Etzel (2007), students who were athletes in high school but are noncompetitive students in college “may need to be considered an in-between subgroup who might differ in

identity formation/exploration than the historical dichotomous” groups of athletes and nonathletes during their initial transition to college from high school (p. 471).

At the expense of the development of other identities, some athletes become so immersed in competitive athletics that they groom only their athletic identities (Reifsteck et al., 2013). Neglecting to develop other identities can result in a poor transition from athletics. Benson et al. (2015) stated prioritizing other identities and nonathletic goals could be to the benefit of athletes. These benefits may include the new identities and goals playing more significant roles in the future of the individual. The researchers also noted that evidence supported the notion that by having exclusively athletic identities, athletes might not be prepared for life beyond athletics. Other researchers have come to the same conclusions. Erpič, Wylleman, and Zupančič (2004) found athletes with strong athletic identities experienced more problems than athletes with weaker athletic identities following sports career termination. These transition difficulties can be long-term problems for some athletes. Results of a study of intercollegiate athletes whose athletic careers were terminated by injury indicated these athletes had lower life satisfaction after college than athletes whose sport careers had not been ended by injury (Kleiber et al., 1987).

Recent researcher has suggested strategies be developed to support student athletes in their transition out of sports (Benson et al., 2015; Lally, 2007; Reifsteck et al., 2013, 2016). The development of other identities might be of benefit student athletes after sports career termination. By creating and cultivating other identities, student athletes can become better prepared to accept the eventual end of athletic competition (Benson et al., 2015). These identities should be in addition to athletic identity, not a

replacement for it. Reifsteck et al. (2016) argued that completely abandoning athletic identity would be harmful to the development of future exercise and physical activity habits. Lally (2007) suggested slower disengagement from athletic identities could prevent future identity crises and could benefit the physical well-being of former student athletes.

**Athletic identity and level of competition.** Specific to amateur athletes, nearly all of the literature focused on intercollegiate student athletes or former intercollegiate athletes. The vast majority of research has focused on student athletes transitioning out of college. Studies addressing athletic identity and club sport athletes (and nonathletes) have been sparse but insightful.

*Intercollegiate student athletes.* Higher physical activity levels have been related to higher athletic identity scores based on the AIMS (Reifsteck et al., 2013). The researchers also reported the relationship between levels of physical activities and athletic identity was stronger among former athletes than among nonathletes. However, they also mentioned gender differences in the effects of athletic status and levels of exercise and physical activity. Specifically, it was noted that the levels of physical activity were stronger among male athletes than female athletes at the Division III level (Reifsteck et al., 2013).

In contrast to these findings, Reifsteck et al. (2013) also reported their study revealed no statistically significant differences were found in physical activity levels between male and female Division I athletes. These findings suggest athletic identity might affect levels of physical activity as the levels of competition increase. However, Griffith and Johnson (2002) found the opposite, noting that although not expected,



Division III athletes reported significantly stronger athletic identities than athletes who competed at the Division I level. The inconsistent findings might indicate that regardless of the level of competition, intercollegiate athletes have different levels of athletic identity.

One aspect of intercollegiate athletics that might contribute to the different levels of athletic identity is related to the physical and psychological demands placed on the athletes. In addition to these demands, the amount of time required to train, practice, and compete limits athletes' opportunities to explore aspects of college outside of sport, a situation that can lead to foreclosed identities (Murphy et al., 1996). Good, Brewer, Petitpas, Van Raalte, and Mahar (1993) defined identity foreclosure as "a construct used to describe people who have committed to an occupation or an ideology without first engaging in exploratory behavior" (p. 2). This identity foreclosure does not appear to be different between genders. Brewer et al. (1993) found female athletes had weaker athletic identities, but Good et al. (1993) found no difference in identity foreclosure between male athletes and female athletes. This foreclosure of identity could lead to a decrease in postathletic career physical activity.

***Club sport student athletes.*** As with self-determined exercise motivation, the literature available on club sport student athletes has been very limited. However, the research available has compared non-varsity student athletes to varsity student athletes at the college level. Ryan et al. (2009) argued non-varsity student athletes are more intrinsically motivated to pursue physical activity, resulting in less identity foreclosure because of the lack of external pressures. According to Murphy et al. (1996), non-varsity student athletes had weaker athletic identities than varsity student athletes did, an

outcome that could allow club sport athletes to explore other identities. In order for more student athletes to have access to programs that will keep athletic identity strong and support high levels of engagement in physical activity, colleges could fund club sports. This would result in these opportunities not being cost prohibitive to many would-be student athletes (Downs & Ashton, 2011).

*Noncompetitive students.* Not surprisingly, much of the research on athletic identity has focused on athletes, meaning that very little literature concerning the relationship between athletic identity and noncompetitive college students has been available. In fact, the only literature this researcher could find dealt with comparisons between athletes and nonathletes. Reifsteck et al. (2013), for example, noted college athletes were more active than the general student population. In a more detailed study on athletic identity among college athletes and nonathletes, Young and Bursik (2000) found student athletes had significantly higher identity status than nonathletes. They also found significant differences between athletes and nonathletes regarding self-esteem with the athlete group reporting higher scores. This last finding could be important in regard to the previously mentioned psychological problems faced by many former student athletes after their sports careers have ended.

### **Relationship Between Self-Determined Exercise Motivation and Athletic Identity**

Athletic identity and exercise identity are not interchangeable terms. Although both have been positively related to physical activity and interacted significantly in the forecast of physical activity participation (Reifsteck et al., 2016), these two types of motivation associated with each identity are not the same. Motivational factors for

athletic identity are more extrinsic, whereas the motivational factors for exercise identity are more intrinsic (Schutte & McNeil, 2015).

The stronger the associated identity the higher the probability individuals will participate in the associated behaviors (Reifsteck et al., 2016). However, identities are not permanent and can change over time. Burke and Reitzes (1991) suggested that as one's identity becomes less important, the behaviors connected to that identity also might begin to change. This reasoning could explain why former athletes are not more physically active than nonathletes. Reifsteck et al. (2013) noted after college, former athletes who used to be very active in college are no more physically active than their nonathletic peers. Reifsteck et al.'s (2013) results supported Burke and Reitzes's (1991) suggestion by noting that although former athletes have stronger athletic identities than nonathletes, the associated behaviors diminish as the strength of the identities decreases.

In regard to athletic identity, Anderson (2004) asserted the strength of athletic identity could be related to the frequency of participation in exercise and sports; that is, the stronger the athletic identity, the higher the frequency of participation. Although athletic identity has a strong correlation to engagement in physical activity, the relationship is even greater between exercise identity and physical activity. Schutte and McNeil (2015) stated, "Facets of athletic identity were also associated with higher levels of negative affect" (p. 247). Negative effects of strong athletic identities might explain the difference between athletic identity and exercise identity in regard to participation in physical activity.

## Summary

Students transitioning from high school to college are going through a major life change. Young adults experience challenges such as leaving home for the first time and increased independence during the transition from high school to college. For student athletes leaving competitive high school athletics behind at the beginning their college careers, they could face a dual transition that may have many physical and psychological effects. Some of the difficulties faced by these former athletes might be the result of a crisis of athletic identity. Athletic identity can have a positive influence on well-being, but if the identity is too strong and physically and emotionally exclusive, the effects can become negative.

Research on the effects of a changing athletic identity on self-determined exercise motivation has almost exclusively focused on professional athletes. Considering that athletic identity is formed and reinforced during adolescence, the researcher undertook the effort to study student athletes who are coping with sports career termination and the transition from high school to college. Because of this unique situation, former high school student athletes transitioning to college might need some type of assistance to ease the adjustment to postathletic college lives (Lubker & Eztel, 2007).

In addition to studying nonathlete students, the researcher investigated the levels of athletic identity and self-determined exercise motivation of first-year female college students who were athletes in high school based on their level of competition in college. Researchers have studied nonathletes and intercollegiate athletes, but club sport athletes belong to a subgroup that has received very little attention from researchers. This study inquired into these variables in an effort to increase current understanding of the

combined effects of athletic identity and self-determined exercise motivation on first-year female college students who were athletes in high school.

Chapter 3 describes the methodology for this study. The selected research design, including a rationale as to why the particular research design was chosen, is provided. Also included in Chapter 3 are descriptions of the target population, demographics, data collection procedures, and data analysis procedures. The data gathering instruments and the statistical procedures are also detailed in Chapter 3.

## CHAPTER III

### METHODOLOGY

Several researchers have investigated sport career termination and the personal effects associated with it (Baillie & Danish, 1992; Coakley, 1983; Greendorfer & Blinde, 1985; Wylleman & Lavalley, 2004). Other researchers have studied the impact of the transition from high school to college on students' physical well-being (Bray & Born, 2004; Brown et al., 2015; Elgi et al., 2011; Van Dyck et al., 2015). There have been vast amounts of research on athletic identity and self-determined exercise motivation connected to either sports career termination or the transition to college (Frederick & Ryan, 1993; Horn, 2000; Kipp & Amorose, 2008; Lindstrom & Lease, 2005). This study sought to investigate how the combination of sports career termination and the transition to college could influence the athletic identity and self-determined exercise motivation of female first-year college students who were athletes in high school.

#### **Research Design**

The purpose of this study was to investigate the level of self-determined exercise motivation and athletic identity of female first-year college students who were athletes in high school. To answer the research questions (RQ), a quantitative survey research design was chosen. Quantitative research attempts to establish relationships and connections (Fraenkel & Wallen, 2003). Quantitative analysis further requires that validity, the degree to which accurate inferences can be deduced based on the data collected from an instrument, and internal reliability, the degree to which the results gathered from an

instrument are consistent across measurement items, are critical to the proper implementation of this type of research design (Fraenkel & Wallen, 2003).

Dimitrov (2012) stated:

An ordinal scale is one in which the magnitudes of the variable (trait, property) being measured are ordered in the same way as the numbers assigned to these magnitudes. Thus, an ordinal scale possesses the characteristics of distinctiveness and ordering. (p. 6)

Ordinal data do not meet the same assumptions as interval or ratio data used in parametric statistical procedures, so nonparametric statistical procedures were used for the data analysis.

An analysis of the Behavior Regulations in Exercise Questionnaire (BREQ-3) (Markland & Tobin, 2010; Wilson et al., 2006) was conducted using the Kruskal-Wallis H test and the Mann-Whitney U test in order to answer RQ1 (i.e., Are there statistically significant mean differences in the self-determined exercise motivation of first-year female college students who are intercollegiate athletes, club sport athletes, or noncompetitive students who were competitive athletes in high school?). Prior to conducting these tests, the shapes of the distributions of the data were compared to determine if the distributions had the same variability. These nonparametric statistical procedures were used to compare the differences in the independent variables (IVs), that is, the three levels of competition (i.e., intercollegiate student athletes, club sport student athletes, and noncompetitive students) when using self-determined exercise motivation as the dependent variable (DV). Statistically significant results of the Kruskal-Wallis H test indicate at least one of the samples is different from the other samples. However, the

difference(s) that occur are not identified with the Kruskal-Wallis H test (Corder & Foreman, 2011). To find actual differences between specific IV subgroups, the Mann-Whitney U test was conducted.

In order to answer RQ2 (i.e., Are there statistically significant mean differences in the level of athletic identity of first-year female college students who are intercollegiate athletes, club sport athletes, or noncompetitive students who were competitive athletes in high school?), a Kruskal-Wallis H test and a Mann-Whitney U test were used to analyze these data. Similar to the procedures used in the RQ1 analyses, the selected statistical tests were used to identify any differences in the levels of competition subgroups (IVs) and athletic identity (DV). Athletic identity was measured by the Athletic Identity Measurement Scale (AIMS) (Brewer et al., 1993).

Spearman's  $r_s$  was the correlational analysis selected to identify the relationship between the two DVs of self-determined exercise motivation and athletic identity for the purpose of answering RQ3 (i.e., Is there a statistically significant relationship between self-determined exercise motivation and overall athletic identity for first-year female college students who are intercollegiate athletes, club sport athletes, or noncompetitive students who were competitive athletes in high school?). Statistically significant correlations were evaluated to determine whether the level of athletic identity of an individual is related to specific self-determined exercise motivation regulations.

Quantitative methods emphasize objective measurement and the statistical analysis of data gathered through questionnaires or surveys (Babbie, 2010). The use of quantitative survey design provided a numeric description of trends of the population focused on by this study through examination of a sample of this population (Creswell,



2009). This case study, a type of survey-designed study that selects participants from a small geographical area or a very limited sample size, used a convenience sample (Zainal, 2007). A survey-designed study defines the problem of a specific target population, determines the data collection methods, selects the sample, decides on the appropriate measurements, administers the instruments, and reports the data (Fraenkel & Wallen, 2003).

### **Target Population**

Purposive sampling was used to obtain the sample. Participants were selected based on specific criteria: They had to be self-identified female first-year college students who competed in high school sports during the 2017-2018 academic year. It was possible for individuals who were not female by sex but who self-identified as female to be included in the sample. Although this datum might have an impact on the data analysis, the data could not be disaggregated and, thus, remained in the study. The researcher collected data from two institutions located in the southeastern United States. Given this research was a case study, to provide practitioners and researchers with the opportunity to replicate the study; the researcher provides summary information about the procedures that were followed.

The institutions of higher learning were contacted via their respective registrars' offices to solicit permission to access their e-mail distribution lists of female first-year students. However, neither institution could provide e-mail distribution lists based on gender or year of enrollment. Therefore, the researcher used an e-mail distribution list that included all undergraduate students provided by the one institution; the researcher also used an e-mail distribution list that included all students enrolled at the other

institution. Once the researcher obtained the distribution lists, a general e-mail soliciting participation in the study was sent to the students on the lists. Further information about the purpose of the study and the data collection process was sent by e-mail. A hyperlink to the online survey also was included.

The hyperlink distribution and data output for this research were generated using Qualtrics software, Version 3.18 Copyright © 2018. Students who voluntarily agreed to participate in the study were given access to the online survey through the link provided. The instruments, namely, the BREQ-3 (see Appendix A), the AIMS (see Appendix B), the demographics questionnaire (see Appendix C), and an informed consent (see Appendix D) were administered as a single survey to facilitate ease of completion. The link to the survey remained active for 60 days. The survey was designed to be completed in a single online session. To ensure the anonymity of the participants, no survey items requested any information that could have identified them.

Regarding participation in high school athletics, only sports included in the list of athletics developed by the NFSH (2015) were used for analysis purposes. Only members of sports teams who represented their schools in interscholastic competitions were considered high school athletes. Participants were selected from two universities located in the southeastern United States, but the participants' high school experiences potentially could have occurred outside of this geographic area.

Purposeful sampling was used to identify and recruit the participants. This type of sampling allows researchers to select participants based on the particular purposes of their studies or sets of characteristics (Creswell, 2005; Tashakkori & Teddlie, 2003). In addition to having been athletes in high school, the participants were categorized as

intercollegiate student athletes, club sport student athletes, or noncompetitive student (i.e. students who no longer participated in competitive athletics). These levels of competition were the IVs. Overall, athletic identity and levels of self-determined motivation were the DVs. Differences in self-determined exercise motivation and athletic identity were calculated for the three IV subgroups, as well as any relations between self-determined exercise motivation and athletic identity.

### **Instruments**

The study used two quantitative measures, the BREQ-3 and the AIMS. Both of these instruments use ordered response scales. The data from each instrument were collected simultaneously with the information for the demographics questionnaire.

**BREQ-3.** With self-determined exercise motivation being a central construct of this research, a valid and reliable measure was needed. The Behavioral Regulation in Exercise Questionnaire (BREQ) was developed to measure participants' self-determined motivational regulations for exercise engagement (Mullan, Markland, & Ingledew, 1997). The 15-item BREQ assessed external regulation, introjected regulation, identified regulation, and intrinsic motivation. Responses to items were scored on a 5-point ordered response scale ranging from 0 (*not at all true*) to 4 (*very true*). Scores were derived for each self-determined motivational regulation by calculating the mean scores for each set of items specific to each self-determined motivational regulation. The purpose of the BREQ was to test Deci and Ryan's (1991) continuum of behavioral regulation in exercise contexts (Mullan et al., 1997). Although the BREQ only assessed four regulations (external regulation, introjected regulation, identified regulation, and intrinsic regulation), the results of the research demonstrated the suitability of the BREQ to assessing exercise

motivation regulations based on the previously mentioned continuum of behavioral regulation (Mullan, et al., 1997).

The BREQ-2 (Markland & Tobin, 2004) aimed to more complete measure for the continuum of behavioral regulation for exercise. To that end the researchers added four items to the BREQ to assess amotivation. The result was the 19-item BREQ-2 which considered amotivation, external regulation, introjected regulation, identified regulation, and intrinsic motivation. Markland and Tobin (2010), along with Wilson, Rodgers, Blanchard, and Gesell (2003), reported the internal reliability of the scales of amotivation ( $\alpha = .83$ ), external regulation ( $\alpha = .79$ ), introjected regulation ( $\alpha = .80$ ), identified regulation ( $\alpha = .73$ ), and intrinsic motivation ( $\alpha = .86$ ). Convergent validity for the BREQ-2 was supported by correlations between identified regulation ( $p = .70$ ) and intrinsic motivation ( $p = .90$ ) (Wilson, Rodgers, & Fraser, 2002).

However, the BREQ-2 did not assess integrated regulation. In order to expand the BREQ measurement, Wilson et al. (2006) recommended the addition of four items to the BREQ-2 to assess integrated motivation and one item to assess introjected regulation. Magnus, Kowalski, and McHugh (2010) reported as acceptable the internal reliability for integrated regulation ( $\alpha = .85$ ); Wilson et al. (2006) found high test-retest reliability ( $p = .84$ ). These new items were added to the BREQ-2 to create the 24-item BREQ-3 (see Appendix A), which assessed each of the six self-determined motivational regulations: amotivation (q2, q8, q14, q20), external regulation (q6, q12, q18, q24), introjected regulation (q4, q10, q16, q22), identified regulation (q1, q7, q13, q19), integrated regulation (q5, q11, q17, q23), and intrinsic motivation (q3, q9, q15, q21). By adding a measurement of integrated regulation, this expanded BREQ-3 model is consistent with

guiding frameworks of this study, the self-determined exercise motivation continuum and SDT (Deci & Ryan, 1985, 2002; Ryan & Deci, 2000b).

**AIMS.** Athletic identity was another primary construct of the study. The AIMS is a 10-item quantitative inventory measuring level of athletic identity (Brewer et al., 1993). The AIMS uses a 7-point ordered response scale of responses ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores indicating stronger athletic identities. For example, two items on the AIMS asks participants to rate their agreement with the statements “I consider myself an athlete” and “I would be very depressed if I were injured and could not compete in sport.” By adding the scores of all 10 items, a total score indicating the overall strength of a participant’s athletic identity is obtained. The items were designed “to be a face valid representation of the social, cognitive, and affective aspects of athletic identity” (Brewer et al., 1993, p. 242).

Brewer and Cornelius (2001) indicated the AIMS is internally consistent ( $\alpha = .93$ ) and shows high test-retest reliability ( $p = .89$ ). This instrument has been shown to be a valid, reliable, and consistent measure of athletic identity. The AIMS has sound convergent validity with concepts correlated to athletic identity and divergent validity with concepts correlated to dissimilar athletic identity (Brewer et al., 1993).

**Demographics.** A demographics questionnaire was included as part of the survey. To determine eligibility to join the study, potential participants were required to provide information about the colleges that they were attending, gender, sport(s) participation in high school, specific sport(s) played during high school, high school graduation semester and year, current sport(s) participation, and current level(s) of competition, and if they were a first-year college student. In addition, the demographics questionnaire was used to

disqualify participants if any of the following conditions were not met or reported:

1. Be identified as former high school athletes.
2. Be willing to complete the AIMS and the BREQ-3.
3. Be female.
4. Be current first-year college students.
5. Transitioned from high school to college within the past 12 months.

These demographics were used to eliminate individuals who did not meet the criteria to participate and to divide the sample into the three IV subgroupings identified for the research.

### **Data Collection**

Before beginning data collection, Institutional Review Board (IRB) approval to conduct the study was obtained from Valdosta State University (see Appendix E). The researcher also obtained approval of the instruments, the demographic questions, the informed consent forms, and the research design. The original recruitment process was completed through an e-mail distribution of written solicitation information. The students at the participating schools received an e-mail with a link to the survey. At one school, the e-mail was sent through the school's student announcements distribution list; at the other school, the e-mail distribution was sent by the researcher to all e-mail addresses provided by the school for its undergraduate students.

Information about the study was disseminated via e-mail and included details about its purpose and methodology, along with the personal contact information of the researcher for potential participants to discuss the procedures of the study and to answer any questions about participating in the study. Data collection took place during the 2018

spring semester. Participants were first-year college students who were former high school female athletes who were within one year of graduating from high school.

### **Data Analysis**

The data from the BREQ-3 were analyzed to identify the self-determined exercise motivation along the self-determined continuum for female college students; data from the AIMS were analyzed to identify the athletic identities of the same participants. The data also were analyzed for the specific subgroups of intercollegiate athletes, club sport participants, and nonathletes in order to determine variance within and among the subgroups. Statistical Package for the Social Sciences version 25 (SPSS v.25) was used to analyze the data. The BREQ-3 and the AIMS data were analyzed using the Kruskal-Wallis H test, Mann-Whitney U test, and Spearman's  $r_s$ .

The Kruskal-Wallis H test was used to identify differences based on various competition levels of the self-determined exercise motivation of the participants and any differences in the participants' college athletic identities based on the same criteria. The Mann-Whitney U test analyzed specific subgroup median, or mean rank, differences depending on the shapes of the distributions of the IVs being compared (Corder & Foreman, 2011). The results of the Kruskal-Wallis H test and the Mann-Whitney U test were useful in identifying the strength of athletic identity and patterns of exercise motivation along the self-determined continuum among the participants.

### **Assumptions of Statistical Procedures**

**Assumptions for the Kruskal-Wallis H test.** According to Laerd Statistics (2013a), four assumptions must be made when using the Kruskal-Wallis H test. The first assumption is that the DVs are measured at the ordinal level. The BREQ-3 and the AIMS

data were collected from ordered response instruments using ordinal data, thus ensuring this assumption was met. The second assumption was that the IV subgroups were categorical and independent. The IVs were, as stated earlier, the current levels of competition. Each of the three subgroups was categorical, so the second assumption was met.

The next assumption was the independence of observations. This meant that no participants could have been in more than one IV subgroup. The participants categorized themselves into one of the three levels of competition. No individual was able to identify with more than one subgroup; thus, the assumption of independence of observations was met.

The fourth assumption dealt with the distribution of the target population of intercollegiate student athletes, club sport student athletes, and noncompetitive students from which the participants were selected. Since the Kruskal-Wallis H test is a nonparametric statistical procedure, the data is not required to fit a normal distribution (Corder & Foreman, 2011; Sheskin, 2011). However, it must be determined if distribution of scores for each IV subgroup have the same shape or a different shape. This is referred to as the assumption of similarly shaped distributions and was not considered met until the Kruskal-Wallis H test had been conducted on the data for the medians for each subgroup (Laerd Statistics, 2013a). If the shapes of the distributions are similar, median scores are used for comparing the subgroups. When the distributions shapes of the DV's were not the same, the assumption of similarly shaped distributions is violated, mean rank scores were used for analysis (Corder & Foreman, 2011; Laerd Statistics,

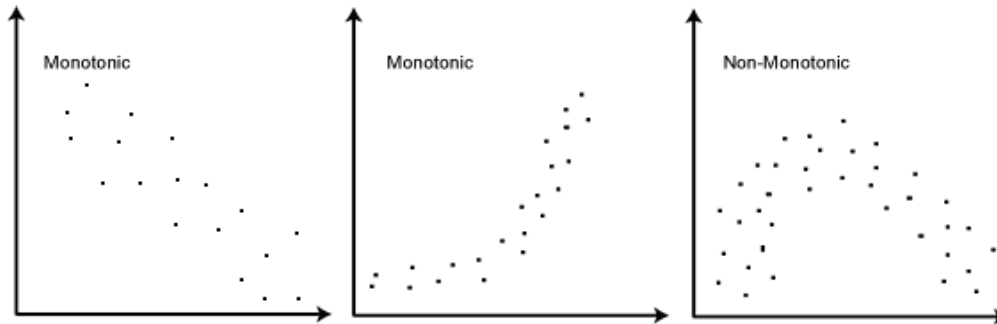


2013b). The shape of the distribution of scores for the Kruskal-Wallis H tests were conducted by a visual examination of boxplots after the test had been completed.

**Assumptions for the Mann-Whitney U test.** For both measures, the AIMS and the BREQ-3, the first three assumptions for the Mann-Whitney U test were the same as the Kruskal-Wallis H test, and were met as discussed in the Kruskal-Wallis H test assumptions. The fourth assumption addressed the shapes of the distributions of the DVs within each IV group pairing. For the Mann-Whitney U test, the distributions did not need to be normally distributed. However, the shapes of the distributions of the DVs within each IV group pairing had to be the same for proper interpretation using the group mean (Laerd Statistics, 2013b). A visual examination of a population pyramid was completed to compare the distribution shapes of the DVs. When the distributions shapes of the DV's were not the same, mean rank scores were used for analysis (Corder & Foreman, 2011; Laerd Statistics, 2013b).

**Assumptions for the Spearman's rank-order correlation.** Only two assumptions were made with Spearman's rank-order correlation, also known as Spearman's  $r_s$ . As with the first two tests, the first assumption was that the data were ordinal. The second assumption dealt directly with the relationship between the DVs. The two DVs within each IV group pairing had to have a monotonic relationship. In other words, they needed to have a direct relationship (i.e., when one increases, the other also increases) or an indirect relationship (i.e., when one DV increases, the other DV decreases; Laerd Statistics, 2013c). The concept of a monotonic relationship is represented in a scatter plot (see Figure 2). The assumption of a monotonic relationship was not considered met until a scatter plot was constructed using the collected data.

Figure 2 provides examples of scatterplots representing both monotonic and non-monotonic relationships.



*Figure 2.* Examples of monotonic relationships.

Source: Laerd Statistics. (2013c). Spearman's rank-order correlation using SPSS statistics. Retrieved from <https://statistics.laerd.com>

In this study, the role of the researcher was dictated by the fundamentals of quantitative research methods. When implementing a quantitative research design, the researcher must remain independent from the participants and must be engaged in the chosen data collection method, providing consistent e-mailed instructions to ensure consistent communications with all participants (Creswell, 2009). By using an online survey to collect the data, as opposed to a face-to-face survey, unnecessary dialogue was avoided for the majority of the group and limited to time when the participants felt the need to request further clarification from the researcher, thus helping to reduce the risk of the researcher's personal beliefs and values biasing the participants' responses. Only one possible participant e-mailed the researcher. The potential participant wanted to know if any compensation or reward was associated with the survey. The individual was informed that no compensation or reward was associated with the research.

## **Research Permission and Ethical Considerations**

The researcher received approval for this study from the IRB at Valdosta State University (Appendix E). In compliance with the IRB's approval process, the researcher submitted a detailed description of the study that included the purpose of the study, duration of the study, estimated number of participants, and research protocols. The individuals who took part in the study were 18 years of age or older, so parental consent was not necessary. In regard to the participants, the researcher submitted information about selection requirements, informed consent, risks and benefits of participation, and privacy and confidentiality procedures to the IRB. In addition, information about the ways the research materials would be securely stored and appropriately disposed of was included in the IRB application. The researcher expects the results of the study will be published in educational journals or presented at educational meetings, sessions, or conferences.

### **Summary**

The purpose of this chapter was to describe the methods used for this study. Included was the rationale for the data collection and analysis methods. Reasons for selecting the data collection instruments was included in the chapter as well. Also provided was an overview of how the study was conducted based on the selected research design. This included descriptions of the target populations and demographics.

Chapter IV presents the results of the study. These results include descriptive statistics for the BREQ-3 and AIMS instruments. Data analyses of the Kruskal-Wallis H test and Mann-Whitney U test are detailed. Lastly, Spearman's  $r_s$  results are reported.

## CHAPTER IV

### RESULTS

Determining the relationship among athletic identity, self-determined exercise motivations, and current level of athletic completion for female first-year college students who participated in sports in their senior year of high school was the purpose of this study. In Chapter 3, the methods of data collection and analysis were delineated. The purpose of this chapter is to report and describe the results of the data analysis. Descriptive statistics are presented in the next section. Following the descriptive statistics, the results of the data analysis are reported for each research question (RQ). A summary concludes Chapter 4.

#### **Results**

##### **Sample**

The participants ( $N = 121$ ) were female first-year college students who were team sports athletes in high school. Participants were selected using specific criteria. Each participant had to be self-identified female first-year college students who competed in high school sports during the 2017-2018 academic year. One hundred twenty-four (124) individuals qualified for the study based on the demographics questionnaire. However, three individuals did not complete the BREQ-3 or AIMS and their data was removed from the study. All other surveys were completed with no missing data. The sample was collected from two public institutions located in the southeastern United States. Qualified participants were selected based on their answers to the demographics questions provided during the online survey. Of the 121 participants, 14 (12%) competed at the

intercollegiate athletic level, 38 (31%) competed at the club sport level, and 69 (57%) did not compete in athletic competition in college.

### **Descriptive Statistics for Data Collection Instruments**

**BREQ-3.** The regulations (amotivation, external regulation, introjected regulation, identified regulation, and intrinsic motivation) of self-determined motivational exercise engagement were assessed using the BREQ-3. Based on the data gathered for this study, the internal reliability of the scales of amotivation ( $\alpha = .80$ ), external regulation ( $\alpha = .81$ ), introjected regulation ( $\alpha = .81$ ), identified regulation ( $\alpha = .78$ ), integrated regulation ( $\alpha = .87$ ), and intrinsic motivation ( $\alpha = .91$ ) remained acceptable. These alpha results were similar to those previously reported by the survey developers. The alpha results indicate good internal consistency of the items in the BREQ-3.

The descriptive statistics for the regulations of self-determined exercise motivations for the intercollegiate student athlete group (Table 1), the club sport student athlete group (Table 2), and the noncompetitive students (Table 3) are provided. The tables report the mean ( $M$ ) scores of the BREQ-3 for each of the self-determined exercise motivation regulations for each subgroup. The median ( $Mdn$ ) scores for each regulation is reported as well for each subgroup. Scores for each self-determined motivational regulation were obtained by computing the mean scores for each set of items of the BREQ-3 (see Appendix A): amotivation (q2, q8, q14, q20), external regulation (q6, q12, q18, q24), introjected regulation (q4, q10, q16, q22), identified regulation (q1, q7, q13, q19), integrated regulation (q5, q11, q17, q23), and intrinsic motivation (q3, q9, q15, q21).

The mean scores for the identified regulation, the integrated regulation, and intrinsic motivation were the highest of the six regulations for the intercollegiate student athlete and club sport athlete subgroups. These three regulations are associated with high levels of self-determined exercise motivation. For the noncompetitive student subgroup, the highest three mean scores were for the introjected regulation, the identified regulation, and intrinsic motivation. Amotivation scores were the lowest of all self-determined exercise motivation regulation scores. Further, most participants from the intercollegiate student athlete and club sport student athlete subgroups reported no level of amotivation. The median score of amotivation for these subgroups was zero. Amotivation for the noncompetitive student subgroup was low as well; with a median score of 1.00. These data indicate many female former high school student athletes are motivated by self-determined factors to participate in physical activities and that most of the participants' exercise engagement choices are rooted in high levels of self-determined motivation. Results of the comparisons for the intercollegiate student athlete subgroup, club sport student athlete subgroup, and noncompetitive student subgroup are reported in the RQ1 portion of the Data Analysis section.

Table 1

*Self-Determined Exercise Motivation Regulations: BREQ-3 Descriptives for Intercollegiate Student Athletes*

Motivation regulation	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>
Amotivation	14	1.36	2.59	0
External regulation	14	4.79	3.22	4.50
Introjected regulation	14	10.29	4.01	10.00
Identified regulation	14	13.50	2.96	14.50
Integrated regulation	14	10.64	4.11	11.00
Intrinsic motivation	14	12.00	3.57	12.50

Table 2

*Self-Determined Exercise Motivation Regulations: BREQ-3 Descriptives for Club Sport Student Athletes*

Motivation regulation	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>
Amotivation	38	1.32	1.99	0
External regulation	38	5.18	3.93	4.00
Introjected regulation	38	11.42	3.61	12.00
Identified regulation	38	13.61	2.64	14.00
Integrated regulation	38	12.26	3.50	13.00
Intrinsic motivation	38	11.97	2.85	12.00

Table 3

*Self-Determined Exercise Motivation Regulations: BREQ-3 Descriptives for Noncompetitive Students*

Motivation regulation	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>
Amotivation	69	1.16	1.42	1.00
External regulation	69	5.57	3.60	6.00
Introjected regulation	69	10.33	3.52	11.00
Identified regulation	69	12.99	2.55	13.00
Integrated regulation	69	10.10	3.94	10.00
Intrinsic motivation	69	10.81	3.87	11.00

**AIMS.** Athletic identity was measured using the AIMS. Using the current sample, reliability was examined for this study. Using Cronbach's alpha, an internal consistency ( $\alpha = .91$ ) was found for the AIMS. These results indicate a high level of internal consistency of the scale. The descriptive statistics for the AIMS scores for the competitive level subgroups are as follows: intercollegiate student athlete group ( $n = 14$ ,  $M = 45.64$ ,  $SD = 13.21$ ,  $Mdn. = 47.00$ ), club sport student athlete group ( $n = 38$ ,  $M = 42.61$ ,  $SD = 9.01$ ,  $Mdn. = 42.50$ ), and noncompetitive student group ( $n = 69$ ,  $M = 31.13$ ,  $SD = 12.00$ ,  $Mdn. = 30.00$ ). Comparisons of the intercollegiate student athlete group, club sport student athlete group, and noncompetitive student group are reported in the RQ2 portion of the Data Analysis section.

## Data Analysis

**RQ1.** Are there statistically significant mean differences in the self-determined exercise motivation of first-year female college students who are intercollegiate athletes, club sport athletes, or noncompetitive students who were competitive athletes in high school? A Kruskal-Wallis H test was conducted to determine if there were differences in BREQ-3 scores among the groups based on their level of athletic competition in college: intercollegiate student athletes ( $n = 14$ ), club sport student athletes ( $n = 38$ ), and noncompetitive students ( $n = 69$ ). Each self-determined exercise motivation regulation (amotivation, external, introjected, identified, integrated, and intrinsic motivation) was tested. The results of these tests are provided in Table 4. The table reports the Kruskal-Wallis H test ( $H$ ) score for each regulation, along the statistical significance ( $p$ ) of the test results. Only the integrated motivation regulation was found to be statistically significant at the 95% confidence level. The shapes of the distributions of BREQ-3 scores were not the same for all groups, as assessed by visual inspection of a boxplot (see Appendix F, Figure 3). Being a nonparametric procedure and, thus, much less sensitive to outliers than other tests, outliers were not removed from analysis of the Kruskal-Wallis H test (Laerd Statistics, 2013a). However, since the assumption of similarly shaped distributions was violated, the mean ranks of the BREQ-3 scores were used for comparison.



Table 4

*Self-Determined Exercise Motivation Regulations: BREQ-3 Mean Ranks by Competition Level*

Motivation regulation	Competition level	<i>n</i>	Mean Rank	KWH	
				<i>H</i>	<i>p</i>
Amotivation	ISA	14	53.79	1.23	.542
	CSSA	38	53.17		
	NCS	69	63.47		
External regulation	ISA	14	56.14	.971	.615
	CSSA	38	57.92		
	NCS	69	63.68		
Introjected regulation	ISA	14	57.96	2.50	.287
	CSSA	38	68.41		
	NCS	69	57.54		
Identified regulation	ISA	14	66.54	2.75	.252
	CSSA	38	67.18		
	NCS	69	56.47		
Introjected regulation	ISA	14	61.32	8.82	.012*
	CSSA	38	74.47		
	NCS	69	53.51		
Intrinsic motivation	ISA	14	69.29	3.45	.178
	CSSA	38	67.17		
	NCS	69	55.92		

Note. \*Significant at .05 alpha level

To discover which group(s) were different to which other group(s) for the integrated motivation regulation, a series of Mann-Whitney U tests were run. Similar to the Kruskal-Wallis H test, the Mann-Whitney Test U test is robust against outliers as they do not modify the likelihood of errors of the Mann-Whitney (Zimmerman, 1994). Prior to the Mann-Whitney U tests being conducted, the assumption of similarly shaped distributions was assessed by visual inspection of population pyramids for integrated motivation regulation (see Appendix F, Figures 5-10). This visual inspection indicted the shapes of the distributions of BREQ-3 scores were not similar for all groups. Therefore, the mean ranks of BREQ-3 scores were analyzed for comparisons.

The BREQ-3 score results showed statistically significant differences between the club sport student athlete subgroup and the noncompetitive student subgroup at the 95% level of confidence. For the club sport student athlete group (mean rank = 65.25) and the noncompetitive student group (mean rank = 47.80), the Mann-Whitney U test for the integrated regulation showed the difference in the mean ranks were statistically significant,  $U = 883.500$ ,  $z = -2.795$ ,  $p = .005$ .

The results of the Mann-Whitney U test indicated the mean rank for the club sport student athlete group (28.21) was higher than the mean rank for the intercollegiate student athlete group (21.86). However, the results were not statistically significant at the  $\alpha = 0.05$  level of significance. Data for the intercollegiate student athlete group and the noncompetitive student group Mann-Whitney U test indicated the intercollegiate student athlete group (46.25) had higher mean rank for the integrated motivation than the mean rank for the noncompetitive student group (41.14). The findings were not statistically significant at the 95% level of confidence. The Mann-Whitney U test results for the integrated motivation regulation among the three competitive levels of the groups are shown in Table 5. The table states the results for the three Mann-Whitney U tests conducted. The mean rank, the Mann-Whitney U ( $U$ ) score,  $z$  score, and statistical significance ( $p$ ) are reported.

Table 5

*Integrated Motivation Regulation: BREQ-3 Mean Ranks by Competition Level*

Competition level	<i>n</i>	Mean Rank	MWU		
			<i>U</i>	<i>z</i>	<i>p</i>
ISA	14	21.86	201.00	-1.351	.177
CSSA	38	28.21			
ISA	14	46.25	423.50	-.726	.468
NCS	69	41.14			
CSSA	38	65.25	833.50	-2.795	.005*
NCS	69	47.80			

*Note.* \*Significant at .05 alpha level; intercollegiate student athlete (ISA), club sport student athlete (CSSA), noncompetitive student (NCS)

In summary, one of the six motivation regulations resulted in statistically significant differences between the competition level groups. The integrated regulation was the only regulation to show a statistically significant difference at the 95% level of confidence. For the amotivation, external regulation, introjected regulation, identified regulation, and intrinsic motivation, there were no significant statistical differences found between the competition level groups at the  $\alpha = 0.05$  level of significance.

**RQ2.** Are there statistically significant mean differences in the level of athletic identity of first-year female college students who are intercollegiate athletes, club sport athletes, or noncompetitive students who were competitive athletes in high school? To determine if there were differences in AIMS scores among the three groups based on their level of athletic competition in college (i.e., intercollegiate student athlete, club sport student athlete, and noncompetitive student subgroups), a Kruskal-Wallis H test was conducted. The shapes of the distributions of AIMS scores were not similar for all groups, as assessed by visual inspection of a boxplot (see Appendix F, Figure 3).

Therefore, the mean ranks of AIMS scores were analyzed for comparisons. The

difference in the mean ranks of AIMS scores was statistically significant at the  $\alpha = 0.05$  level of significance as reported in Table 6.

Table 6

*AIMS Mean Ranks by Competition Level*

Competition level	<i>n</i>	Mean Rank	KWH	
			<i>H</i>	<i>p</i>
ISA	14	84.64	29.51	<.001*
CSSA	38	79.47		
NCS	69	46.03		

*Note.* \*Significant at .05 alpha level

As a result of the statistically significant finding of the Kruskal-Wallis H test, a series of Mann-Whitney U tests were conducted to determine which group or groups were different to which other group or groups. Two of the Mann-Whitney U tests revealed statistically significant differences at the 95% level of confidence. Because of the failure to achieve the assumption of similarly shaped distributions for the subgroups (see Appendix F, Figure 4), the mean ranks of AIMS scores were used.

The Mann-Whitney U test was conducted to determine if there were differences in athletic identity between the intercollegiate and club sport competitive groups. The difference in the mean rank for intercollegiate student athletes (29.89) was not statistically significant at the  $\alpha = 0.05$  level of significance than for the club sport student athletes (25.25),  $U = 218.50$ ,  $z = -.981$ ,  $p = .327$ . The other two Mann-Whitney U tests did result in significant statistical differences at the  $\alpha = 0.05$  level of significance. The difference in AIMS mean rank for intercollegiate student athletes (62.25) was statistically significant from the lower mean rank for noncompetitive students (37.89),  $U = 199.50$ ,  $z = -3.450$ ,  $p = .001$ . Lastly, there was a statistically significant difference at the  $\alpha = 0.05$

level of significance in the AIMS mean ranks between the club sport student athletes (73.72) and noncompetitive students (43.14),  $U = 561.50$ ,  $z = -4.882$ ,  $p < .001$ .

To summarize, the results Kruskal-Wallis H test indicated a statistically significant difference, at the 95% confidence level, among the three groups based on their level of athletic competition in college. Therefore, a series of Mann-Whitney U tests were conducted. The two student athlete groups showed statistically significant differences of the AIMS mean ranks as compared to the AIMS mean rank of the noncompetitive student group at the  $\alpha = 0.05$  level of significance. Both student athlete subgroups had higher AIMS mean rank than the noncompetitive student subgroup. The mean rank of the intercollegiate student athlete group was higher than the mean ranks of either of the other two groups.

**RQ3.** Is there a statistically significant relationship between self-determined exercise motivation and overall athletic identity for first-year female college students who are intercollegiate athletes, club sport athletes, or noncompetitive students who were competitive athletes in high school? A series of Spearman's  $r_s$  was computed to assess the relationship between self-determined exercise motivation regulations and overall athletic identity for first-year female college students who are intercollegiate athletes, club sport athletes, or noncompetitive students who were competitive athletes in high school. Preliminary analysis of scatterplots for the series of Spearman's  $r_s$  showed the relationship to be monotonic for correlations between athletic identity and each of the self-determined exercise motivation regulations (except for amotivation for intercollegiate student athletes), for each competitive level subgroup, as assessed by visual inspection of the scatterplots (Appendix F, Figures 11-16 for intercollegiate

student athletes, Figures 17-22 for club sport student athletes, Figures 23-28 for noncompetitive students).

For the intercollegiate student athlete subgroup, the Spearman's  $r_s$  reported a statistically significant positive correlation between three self-determined exercise motivation regulations (introjected regulation, integrated regulation, and intrinsic motivation), as measured by the BREQ-3, and athletic identity, as measured by AIMS. Table 7 indicates a moderate positive correlation among athletic identity and introjected regulation, identified regulation, integrated regulation, and intrinsic motivation. A weak positive correlation was found among athletic identity and external regulation. While not statistically significant, there was an inverse correlation between amotivation and athletic identity.

Table 7

*Correlations Between AIMS and BREQ-3 for Intercollegiate Student Athletes*

Motivation regulation	<i>n</i>	<i>Spearman's r<sub>s</sub></i>	<i>P</i>
Amotivation motivation	14	-.149	.612
External regulation	14	.162	.581
Introjected regulation	14	.545	.044*
Identified regulation	14	.416	.139
Integrated regulation	14	.538	.047*
Intrinsic motivation	14	.566	.035*

*Note.*\*Significant at .05 alpha level

A positive correlation was found between two self-determined exercise motivation regulations (integrated regulation and intrinsic motivation), as measured by the BREQ-3, and athletic identity, as measured by AIMS the club sport student athlete subgroup. A moderate positive correlation among athletic identity and integrated regulation and intrinsic motivation (see Table 8). A weak positive correlation was found

among athletic identity and introjected regulation and identified regulation. Although not statistically significant, there was an inverse correlation between amotivation and extrinsic regulation and athletic identity. As with the intercollegiate student athlete subgroup, stronger athletic identity was consistently associated with greater self-determined motivation for club sport student athletes.

Table 8

*Correlations Between AIMS and BREQ-3 for Club Sport Student Athletes*

Motivation regulation	<i>n</i>	<i>Spearman's r<sub>s</sub></i>	<i>P</i>
Amotivation motivation	38	-.186	.067
External regulation	38	-.296	.071
Introjected regulation	38	.116	.488
Identified regulation	38	.299	.068
Integrated regulation	38	.405	.012*
Intrinsic motivation	38	.410	.011*

*Note.* \*Significant at .05 alpha level

A statistically significant positive correlation between three self-determined exercise motivation regulations (identified regulation, integrated regulation, and intrinsic motivation), as measured by the BREQ-3, and athletic identity, as measured by AIMS, for the noncompetitive student subgroup. The results of the Spearman's  $r_s$ , shown in Table 9, indicate a moderate positive correlation among athletic identity and introjected regulation, identified regulation, integrated regulation, and intrinsic motivation. A weak positive correlation was found among athletic identity and external regulation for the noncompetitive student subgroup. For all three subgroups (intercollegiate student athletes, club sport student athletes, and noncompetitive students), stronger athletic identity was consistently associated with greater self-determined motivation. The opposite was true for the correlation between athletic identity and amotivation. While not

statistically significant, the series of Spearman's  $r_s$  revealed an inverse correlation between amotivation and athletic identity for all three subgroups.

Table 9

*Correlations Between AIMS and BREQ-3 for Noncompetitive Students*

Motivation regulation	<i>n</i>	<i>Spearman's r<sub>s</sub></i>	<i>P</i>
Amotivation motivation	69	-.185	.129
External regulation	69	.051	.679
Introjected regulation	69	.136	.264
Identified regulation	69	.303	.011*
Integrated regulation	69	.375	.001*
Intrinsic motivation	69	.332	.005*

*Note.*\*Significant at .05 alpha level

### Summary

The purpose of this chapter was to present the results and analysis of the data. The results were reported based on the RQs for which the data were specifically related. BREQ-3 data presented for the DV of self-determined exercise motivation; whereas AIMS data was reported for the DV of athletic identity. The IVs for the study were grouped by level of competition (intercollegiate student athletes, club sport student athletes, and noncompetitive students). Results of differences among the groups and correlations between motivation regulations and athletic identity were provided in this chapter. For RQ1, the integrated regulation showed a statistically significant based on the BREQ-3 Mann-Whitney U test results. For RQ2, both student athlete subgroups, the intercollegiate student athlete subgroup and the club sport student athlete subgroup, showed statistically significant differences of the AIMS mean ranks as compared to the AIMS mean rank of the noncompetitive student subgroup. The high mean rank of three subgroups belonged to the intercollegiate student athlete subgroup. The series of



Spearman's  $r_s$  used to answer RQ3 indicated stronger athletic identity was consistently associated with greater self-determined motivation regulations, integrated regulation and intrinsic motivation, for all three subgroups (intercollegiate student athletes, club sport student athletes, and noncompetitive students).

Chapter 5 discusses the study's findings, presented in Chapter 4, in relation to relevant literature. Chapter 5 focuses on the researcher's interpretations of the results and implications of the study. Chapter 5 includes a discussion of significant findings as related to the literature on self-determined theory, self-determined exercise motivation, athletic identity, and the relationship between self-determined exercise motivation and athletic identity. A discussion of the implications the findings of this study may have on programs offered by high schools and colleges related to athletics, suggestions of future research possibilities, and a brief summary will be presented.

## CHAPTER V

### DISCUSSION

#### **Overview**

This study determined whether the level of exercise motivation on the self-determined continuum and overall athletic identity of college-aged female students who are transitioning to college were affected by the ending of competitive sports careers in high school. This work addressed a gap in the current literature and targeted a population that seemed to be underrepresented in the current literature. As stated in Chapter 1, the percentage of high school student athletes enrolling in college is higher than the percentage of high school students who are not athletes enrolling in college (Carlson et al., 2005). The study addressed the self-determined exercise motivations of first-year female college students who were athletes in high school.

Included in this chapter are a discussion of significant findings as related to the literature on self-determined theory and self-determined exercise motivation, athletic identity, and the relationship between exercise motivation and athletic identity. A discussion of the limitations of the study, what implications these finding may have on programs offered by high schools and colleges related to athletics, suggestions future research possibilities, and a brief summary will be presented in this chapter.

#### **Summary of Literature**

Self-determination theory (SDT), a theory regarding personal motivations affected by levels of autonomy and control (Deci & Ryan, 2011), was a fitting framework for this study. Personal goal-directed behaviors are the primary focus of SDT. The theory

attempts to explain the processes that enable the development of one's self-determined motivation (Wilson et al., 2008). One's self-determined motivation for physical activity may result in higher levels of physical activity. Wilson et al. (2008) found female college students who exhibited increased levels of self-determined exercise motivation engaged in increased levels of physical activity. Certain psychological needs (autonomy, competence, and relatedness) are the processes that promote this self-determined motivational development (Deci & Ryan, 1985; Ryan & Deci, 2000a, 2002). These psychological needs contribute directly to increased self-determined motivation.

The feeling of choice regarding one's own actions, autonomy, has been associated with positive exercise behaviors (Markland & Ingledew, 2007). The motivational climate in which physical activity occurs can influence levels of autonomy. Enjoyment of engaging in a physical activity of one's own choosing can lead to increased levels of autonomy; whereas, a reward/punishment motivational climate may result in loss of control and lower autonomy (Ryan et al., 2009).

The capacity, or self-perceived capacity, to accomplish specific outcomes is competence. This level of competence one has in a chosen physical activity has an impact of the motivational climate. Individuals who receive positive feedback regarding specific tasks can feel higher levels of competence. This increase in a feeling of competence may result in increased self-determined exercise motivation (Ryan et al., 2009). This suggests that one's social network of friends, coaches, and parents can have an effect on one's motivation.

Of the three basic psychological needs, relatedness, the need to relate with other people socially, might have the strongest connection to motivational climate (Taylor &

Ntoumanis, 2007). However, literature is unclear regarding relatedness' effect on self-determined exercise motivation. Kipp and Amorose (2008) reported a weak connection between relatedness and motivation; whereas, other research indicates relatedness has a strong influence on self-determined motivation (Ryan et al., 2009; Standage et al., 2003). The research identifying a strong relationship between relatedness and motivational climate seems to be supported by Ryan et al.'s (2009) findings concerning the connections between motivational climates, increased competence, and increased self-determined exercise motivation.

Self-determined motivation falls along a continuum. Sidman et al., (2011) noted the self-determined continuum pertains to various motivations, including exercise motivation. The lowest end of this continuum is amotivation and the highest end is intrinsic motivation. Between the two extremes of the continuum, there are four categories of regulation. These are, from the lower end of the continuum to the higher end of the continuum, external regulation, introjected regulation, identified regulation, and integrated regulation.

Intrinsic motivation is the highest level of self-determined behavior. With this type of motivation, the participant is only focused of enjoyment of the activity and not on any reward or outcome (Ryan et al., 2009). Intrinsic motivation is directly related to high participation adherence (Frederick-Recascino & Schuster-Smith, 2003; Ryan et al., 1997). The higher motivation regulations of self-determined motivation, integrated regulation and identified regulation are associated with external rewards and outcomes. However, these rewards and outcomes are highly autonomous, self-regulated goals. This

level of autonomy may lead to an individual being more willing to participate in physical activity (Milroy et al., 2015).

As an individual's self-determined regulation moves down the continuum, loss of autonomy leads to a decrease in self-determined behaviors (Milroy et al., 2015; Ryan & Deci, 2000b). The regulations at the lower end of the spectrum (introjected regulation and external regulation) are associated more with external motivations (praise from others or punishment avoidance) than from internal one, such as the enjoyment of participation (Ryan et al., 1997). For example, participants may perform a physical activity only to please someone in an authoritative position (e. g. a coach, parent, or instructor).

Sport career termination has an impact on the sources of exercise motivation. Once an athlete has been removed from sport participation, the athlete may face lifestyle changes that will affect self-determined exercise motivation. Disruption of one's identity has been noted as one reason for this change. Wylleman and Lavalle (2004) stated the removal of teammates and coaches from an athlete's social network might lead to identity disruption. Baillie and Danish (1992) suggested moving from a rigid personal schedule, including both academic and athletic responsibilities, to a schedule with increased amounts of free time may be challenging for former athletes.

Along with the ending of a sports career, student-athletes transitioning from high school to college face additional changes and challenges. One of these changes is a substantial decline in physical activity. The reduction in physical activity has been studied in students transitioning from high school through their first year of college. Kilpatrick et al. (2005) studied individuals leaving high school and individuals leaving college in order to gauge changes the vigorous physical activity behaviors of each group.

The decline in participation in vigorous physical activities by individuals leaving high school (65%) was reported to be much higher than the decline in participation of individuals leaving college (38%). These findings were supported by other research. Han et al., (2008) reported a significant drop in engagement in physical activity for females during their first-year of college. The same study revealed the largest decrease in physical activity transpired during the summer during which students were transitioning from high school to college. Similar to retirement from sport, the factors of independent time management and social network changes have been suggested as possible challenges face by students during the transitional period (Kwan & Faulkner, 2011; Parade et al., 2010).

Research addressing self-determined exercise motivation and varying level of sport competition has been limited. Studies on intercollegiate student athletes indicated this population exhibit higher level of extrinsic motivation with scholarships, positive feedback from coaches, and the outcome of winning being the external factors (Frederick-Recascino & Schuster-Smith, 2003; Vallerand (1997); Vallerand & Losier, 1999). Limited research on self-determined exercise behavior among club sport student athletes had indicated higher levels of fitness motivation for this population when compared to intercollegiate student athletes (Curry & Weiss, 1989), Likewise, Fortier et al. (1995) stated less competitive athletes (i.e. club sport student athletes) maintained higher levels of motivation for fitness than those reported by highly competitive athletes, such as intercollegiate student athletes.

While no studies were found addressing the physical activity behaviors specific to noncompetitive students, much research has been conducted on the general population of female college students. As a subgroup of college students, female students are at the

greatest risk for physical inactivity (Milroy et al., 2015). This risk might be greater for first-year female college students. Foster (2008) found the rate of first-year female college students that were considered sedentary was 42%. Additional research noted only 17.6% of female college students participated in at least 30 minutes of physical activity five or more days a week (Pauline, 2013).

Retirement from sport and the transition from high school to college have an effect of self-identity, including athletic identity. Individuals who identify themselves as athletes are motivated to engage in physical activity by sports; whereas individuals possess an exercise identity are not motivated by sports (Hogg & Terry, 2000). Athletic identity has a strong correlation to participation in physical activity. Among college students, those who consider themselves athletic exhibit a high level of commitment to exercise and physical activity (Anderson, 2004; Downs & Ashton, 2011). This commitment to exercise might lead to long-term exercise habits being formed.

At the end of high school, many student athletes will end their sport careers as they transition to college (NCAA, 2015). A decline in athletic identity might result from this life change. This decreased athletic identity can lead to a decrease in engagement in physical activity. Houle et al. (2010) reported as long as participation in sports continues, the athletic identity of the individual will remain high. This change in athletic identity can be attributed to various factors. During the transition to college, students become exposed to new activities and new social influences (Brewer et al., 1993). These new experiences have an effect on changes in self-identity.

The level of competition affects one's athletic identity. Extrinsic rewards and the amount of time required in order to participate in intercollegiate athletics can strengthen

athletic identity. As a result of higher athletic identity, higher levels of physical activity has been reported (Reifsteck et al., 2013). Research indicates these factors associated can foreclose the identity of athletes (Murphy, et al., 1996). This athletic identity foreclosure leads to increased levels of physical activity but might result in a decrease in exercise participation after the retirement from sports.

Athletic identity foreclosure is not as high for club sport athletes as it is intercollegiate athletes. Nonvarsity athletes (i.e. club sport athletes) display more intrinsic motives for engaging in physical activity and less athletic identity foreclosure (Ryan et al., 2009). Due to lower athletic identities, club sport athletes are free to explore other self-identities (Murphy et al., 1996). The option of club sport participation offers student athletes to opportunity to maintain high level of athletic identity while not limiting other self-identities.

The relationship between self-determined exercise motivation and athletic identity has an impact on the amounts of physical activity and exercise behaviors in which one engages. Self-identities change over time; therefore, they are not permanent. As one's self-identities change, so do the behaviors associated with those identities (Burke & Reitzes, 1991). Thus, as an athlete's, (or former athlete's) athletic identities changes, the exercise behaviors will also change. After ending their sport careers, former athletes displayed no more physical activity when compared to their nonathletic peers, even though the former athletes engaged in a very active lifestyle prior to sport retirement (Reifsteck et al., 2013).



## Methodology

A quantitative survey research design was selected to answer the RQs. Likert-type scales were used for data collection. Since these types of scales were used, the data collected was ordinal in nature; therefore, the data did not meet assumptions for interval or ratio data. Due to the use of ordinal data, data analysis was conducted using nonparametric statistical procedures. To answer RQ1 and RQ2, the Kruskal-Wallis H test and the Mann-Whitney U test were used for data analysis. For RQ3, Spearman's  $r_s$  was selected.

For RQ 1, an analysis of the Behavior Regulations in Exercise Questionnaire (BREQ-3) (Markland & Tobin, 2010; Wilson et al., 2006) was conducted to determine if any significant results existed. Significant results of the Kruskal-Wallis H test indicated some samples were different from the other samples. However, the specific difference(s) that occur cannot be identified using the Kruskal-Wallis H test (Corder & Foreman, 2011). The Mann-Whitney U test was conducted to identify actual differences between specific the various level of competition groups.

An analysis of the Athletic Identity Measurement Scale (AIMS) (Brewer et al., 1993) was conducted in order to answer RQ2. As with the analysis of the BREQ-3, the AIMS results were found by conducting both the Kruskal-Wallis H test and the Mann-Whitney U test. The same process was preformed: analysis of the Kruskal-Wallis H test, followed by the conduction of the Mann-Whitney U test. The Mann-Whitney U test was conducted due to significantly statistical results.

Lastly, Spearman's  $r_s$  was conducted in order to answer RQ3. This correlational analysis was selected to identify the relationships between self-determined exercise

motivation and athletic identity. Correlation results were evaluated to determine whether the relationship between the level of athletic identity of an individual and specific exercise motivation regulations were statistically significant. The strength of the correlation data was also analyzed and reported.

The sample for this study was obtained using purposive sampling. Initial recruitment of participants was conducted through an e-mail distribution of written solicitation information. Specific criteria were used to select the participants. Data collection took place during the 2018 spring semester. Each participant had to be a female first-year college student who competed in high school sports during the 2017-2018 academic year. The participants for the study were not randomly selected. The participants were identified and recruited through the use of purposeful sampling methods.

### **Summary of Findings**

The following discussion and possible future research opportunities examined the study's overarching research question and the supporting research questions: To what extent do the termination of a competitive sports career and the transition to college affect the self-determined exercise motivation and athletic identity of first-year female college students who were competitive athletes in high school? Three research questions supported the overarching question:

**RQ1:** Are there statistically significant mean differences in self-determined exercise motivation for female college students who are intercollegiate athletes, club sport athletes, or noncompetitive students who were competitive athletes in high school?

Issues related to self-determined exercise motivation and level of competition in college for female first-year college students who were high school athlete was one focus of this study. The results did not indicate statistically significant differences in the level of competition and self-determined exercise motivation with the exception of the integrated regulation between club sport athletes and nonathlete students. However, integrated regulation is an important indicator of intrinsic motivation; as integrated regulation is located on the higher end of the self-determined continuum. Frederick-Recascino and Schuster-Smith (2003) and Ryan et al. (1997) noted increased self-determined motivation is directly related to high participation adherence.

The difference in integrated motivation regulation between club sport athletes and nonathlete students indicated that self-determined exercise motivation for club sport student athletes was higher on the self-determined motivational continuum than the self-determined exercise motivation for nonathlete students. The integrated motivation regulation is associated with intrinsic motivation and higher levels of autonomy of exercise activities (Ingledeu et al., 2009; Ryan & Deci, 2000b). Rewards, such as scholarships, reduce one's autonomy of participation; thus, reduce the self-determined exercise motivation of the student athlete. The feeling of choice regarding one's own actions, autonomy, has been associated with positive exercise behaviors (Markland & Ingledeu, 2007).

The results of this study support the findings of Ryan et al. (2009) that state the pursuit of physical activity in nonvarsity student athletes is more intrinsically motivated than that of other student groups. Higher levels of intrinsic motivation lead to increased satisfaction with exercise activities. Increased satisfaction has a positive correlation with

increased participation in exercise activities (Frederick-Recascino & Schuster-Smith, 2003). The finding of higher levels of intrinsic motivation for club sport student athletes as compared to nonathlete students was the only statistically significant result differentiating the two groups. However, it was not the only one worth mentioning. While the lack of significant differences between some groups may be attributed to the small sample size and resulting low effect size on the current study, it is important to mention that the club sport student athletes' levels of the integrated motivation regulation were not significantly different than the levels of the same regulation for intercollegiate student athletes. The lack of difference between the intercollegiate student athlete group and the club sport student athlete group should be noted as an area for further investigation. While not a significant statistic, this data suggests that participating in club sport activities may have a positive correlation to higher levels of autonomy associated with exercise engagement increased intrinsic motivation to engage in exercise behavior. This is data is supported by Wilson et al. (2008) whose study reported female college student athletes engaged in increased physical activity.

**RQ2:** Are there statistically significant mean differences in the level of athletic identity for female college students who are intercollegiate athletes, club sport athletes, or noncompetitive students who were competitive athletes in high school?

Significant differences were found in the levels of athletic identity between the noncompetitive student group and intercollegiate student athlete group, as well as between the noncompetitive student group and the club sport athlete group. The findings of the present study support Houle et al.'s (2010) findings of athletic identity remaining high as long as participation in competitive sports continued. The current research also

had similar findings to Young and Bursik's (2000) study. Their research found significant statistical differences in athletic identity between athletes and nonathletes. While the results showing the significant differences between the two student athlete groups and the noncompetitive students were not unexpected, the relatively quick (within 12 months of graduating high school) decrease in the athletic identity for noncompetitive students was somewhat surprising. The causes, or reasons, for these differences is in need of further study in order to give perspective to findings of this study.

It is also important to note that there was a lack of difference in athletic identity between intercollegiate student athletes and club sport student athletes. As noted by Reifsteck et al. (2013), there is a decrease of physical activity for former athletes when their athletic identity begins to weaken. Further, athletic identity continues to increase the longer one participates in athletics and increased athletic identity was associated with greater exercise identity (Houle et al., 2010; Soukup et al., 2010). When the findings of the current study were compared with the previously mentioned findings (Anderson, 2004; Burke & Reitzes, 1991; Reifsteck et al., 2013) regarding noncompetitive students' lower athletic identity, the results indicated the participation in a club sport may help transitioning students retain their athletic identity. As with the findings for RQ1, these results demonstrate a reasoning for exploration of the creation, or expansion, of new club sport programs for female students by colleges and universities.

**RQ3:** Is there a statistically significant relationship between self-determined exercise motivation and overall athletic identity for female college students who are intercollegiate athletes, club sport athletes, or noncompetitive students who were competitive athletes in high school?

The relationship between the two highest regulations of self-determined exercise motivation (integrated regulation and intrinsic motivation) and overall athletic identity for female college students for all three groups of competition level (intercollegiate student athletes, club sport student athletes, and noncompetitive students) were statistically significant. As has been previously discussed, the data collected for the AIMS and the BREQ-3 show increased athletic identity and the more intrinsically self-determined exercise motivation regulations are consistently and positively associated with each other. There does appear to be a positive correlation between these two factors, this would suggest, as noted by Anderson (2004) and Taylor and Ntoumanis (2007), increase in both athletic identity and intrinsic motivation can lead to a high frequency of participation in exercise activities. When combined with the results of RQ1 and RQ2, the relationship between integrated regulation and intrinsic motivation self-determined exercise motivation and overall athletic identity for female college students show further justification for colleges and universities to consider the positive impact a quality club sports program could have on the health and wellness of their female students.

### **Limitations**

The following limitations highlighted the ways that this study was narrowed in scope by defining boundaries. The study was confined to two universities in a single state in the southeastern United States. The research might be difficult to reproduce in other states or regions of the United States because of possible cultural differences.

Participation was restricted to first-year college students.

The study had several limitations. First, participants were drawn from a two universities in the Southeastern United States. Cultural expectations and norms in this

region could result in the sample not being representative of the target population and therefore, affecting generalizability of the findings. To address this limitation, future studies should be designed to assess female college student who are former high school athletes from a range of colleges and universities across the United States. Next, the inability to disaggregate any data related to individuals who were not female by sex but self-identified as female could have resulted in the participants not being representative of the target population. Another limitation of the study is the variability among the participants (e.g., types of athletic career experiences in high school) could have decreased the independence of the survey data. Also, the diversity in individual high school cultures and sport-specific cultures may have led to former student athletes undergoing dissimilar transitional experiences. Further, the diversity of the sports that the student athletes participated in during high school might have resulted in their inability to share similar transitional experiences that would have affected the degree of relevance of the data used in this study. The quantitative nature of the research did not take into account the athletic, or transitional, experiences of the individual participants. Lastly, there was a limitation in the design of data collection survey. The survey used for the study did not separate first-year college students until the end of the demographics question. This made calculating a response rate not possible. This should be corrected in any future research.

### **Implications**

The results of this study have implications for potential positive organizational level on both high school and college campuses, including counseling or transitional services provided for this specific population and an increase in the number of club sports

colleges and universities offer female student athletes. Given the positive benefits of increased physical activity and apparent increase of intrinsic motivation for female students associated with club sports, colleges and universities should explore the creation, or expansion, of new club sport programs for female students. Personal life satisfaction can be influenced by intrinsically rewarding physical activity (Ryan & Frederick, 1997). Choice of activities is also a vital component of continued engagement in exercise activity. Frederick and Ryan (1997) report individuals are more likely to be intrinsically motivated to engage in specific physical activities when they find participating in the physical activities to be interesting and fun. The available options and the freedom of whether or not to be involved in exercise activities have influenced the higher level of intrinsic motivation through increased autonomy and may have influenced the higher level of intrinsic motivation for club sport student athletes when compare to the other two competitive level groups. Club sports provide additional options for participation beyond that of intercollegiate athletics.

For female students who no longer want to compete athletically, high school curriculum directors and guidance counselors, as well as college health program directors, may use this research to justify the development of intervention protocols and programs for high school student athletes transitioning out of sport while transitioning into college, especially former high school female student athletes. These interventions could aid the former student athletes by providing a new awareness of changing identities and changing motivations for exercise. An awareness of these changes may lead to students learning to seek out various exercise options for the enjoyment of the chosen physical activities. This awareness may lead to female students learning to seek out



various exercise options only for the enjoyment of the activities without rewards being attached to the participation in the activities. The motivational climate in which physical activity occurs can influence levels of autonomy. Enjoyment of engaging in a physical activity of one's own choosing can lead to increased levels of autonomy; whereas, a reward/punishment motivational climate may result in loss of control and lower autonomy (Ryan et al., 2009).

Colleges and universities could use these findings to support the establishment, or expansion, of club sports offered by the institution. Due to the positive health benefits associated with participation in physical activities (Harvard Medical School, 2014; Kim & Cho, 2013), these programs could receive support from institutions' health and wellness programs. This support could offset some of the cost of participation in club sport activities and provide increased opportunities for more female student athletes to participate.

This study focused on the effects of sport career termination and transition on exercise motivation and athletic identity of female freshmen college students who were athletes in high school based on current competition levels. Based on the finding of this study (e.g. the difference in integrated motivation regulation between club sport athletes and nonathlete students, positive correlation between the increase in athletic identity and the more intrinsically self-determined exercise motivation regulations), further research to gain more insight into the impact these variables have on the exercise behaviors of this population is warranted. The following discussion includes suggestions for further research associated with the findings of this study.

## **Recommendations for Future Research**

More information is needed on the reasons female high school student athletes do not continue to participate in athletic competition after high school. These reasons could lead to recommendations for increased opportunities for these female student athletes. For example, if a major purpose for the retirement from sports by female student athletes is the lack of opportunities to participate in structured athletic competition, universities and colleges could explore the possibility of adding additional club sports for female students.

Some findings may apply to interventions at the high school level before the student athletes' transition to college. A change in female athletic identity could be occurring prior to leaving athletic competition in high school due to the anticipation of the transition to college. If this were found to be a reason for loss of athletic identity, high school athletic and counseling departments may choose to develop and provide transition counseling programs to their female student athletes in order to stem the decrease in exercise activity participation during the transition to college.

A second area of research should explore the degree to which any decreases of female athletic identity affect the shift in self-determined exercise motivation and any change in exercise behavior on more personal level. Further research on this specific population is needed in order to see if, or how, female attitudes toward exercise participation change during the transition period from high school to college. A qualitative study could produce a more comprehensive picture regarding these personal reasons for any fluctuations in attitudes toward female self-determined exercise motivations and any fluctuations in female exercise habits and choices.

Yet another possible area of study could focus on the effects that female intermural sport participation has on changes in female athletic identity and self-determined exercise motivation. It would be worth exploring the impact these activities have on students and their attitudes toward exercise. While it could have less of an impact on drastic changes in female athletic identity, exercise motivations, and habits than intercollegiate and club sport participation, it may be able to show benefits to female students who are ending their more competitive athletic careers. The possibility that female athletes maintain their athletic identity while competing in sport, regardless of the competitive level, warrants future investigation.

Lastly, a longitudinal study could be conducted to explore the changes in female athletic identity and self-determined exercise motivations throughout the entire transition process starting while the student is actively preparing for upcoming participation in a competitive sport season. Future studies could include pre- and post-study surveys and interviews to accurately gauge the changes that the members of the population undergo through the entire process of transitioning from high school to college while also dealing with sport career termination.

### **Conclusion**

This study was designed to address the impact of disengagement from athletic competition on female former high school athletes who were transitioning to college. In pursuing this objective, the present research affords a foundation of understanding of how female former high school athletes deal with changes in athletic identity and self-determined exercise motivations while transitioning to their first year of college. The finding was our participants experienced these changes somewhat differently based on

their level of athletic competition at the collegiate level. These findings may be of importance to female high school student athletes, their parents, and their high school coaches, each of whom would be able to aid the young women's development of skills to be able to successfully navigate the transition to college. Moreover, at the collegiate level, these findings may also inform student affairs officials to attempt to better address some of the potential barriers to competitive sport participation for female first-year college students. The results of this research offer some insight into the effects of sport career termination on female students, who were student athletes in high school, and their transition to becoming college students with regard to their motivation to exercise.

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APPENDIX A

BEHAVIORAL REGULATION IN EXERCISE QUESTIONNAIRE (BREQ-3)

Please circle your response to each item.

Questionnaire item	Not true for me	Sometimes true for me			Very true for me
		0	1	2	
1. It's important to me to exercise Regularly	0	1	2	3	4
2. I don't see why I should have to exercise	0	1	2	3	4
3. I exercise because it's fun	0	1	2	3	4
4. I feel guilty when I don't exercise	0	1	2	3	4
5. I exercise because it is consistent with my life goals	0	1	2	3	4
6. I exercise because other people say I should	0	1	2	3	4
7. I value the benefits of exercise	0	1	2	3	4
8. I can't see why I should bother Exercising	0	1	2	3	4
9. I enjoy my exercise sessions	0	1	2	3	4
10. I feel ashamed when I miss an exercise session	0	1	2	3	4
11. I consider exercise part of my Identity	0	1	2	3	4
12. I take part in exercise because my friends/family/partner say I should	0	1	2	3	4
13. I think it is important to make the effort to exercise regularly	0	1	2	3	4
14. I don't see the point in exercising	0	1	2	3	4
15. I find exercise a pleasurable activity	0	1	2	3	4
16. I feel like a failure when I haven't exercised in a while	0	1	2	3	4
17. I consider exercise a fundamental part of who I am	0	1	2	3	4
18. I exercise because others will not be pleased with me if I don't	0	1	2	3	4
19. I get restless if I don't exercise Regularly	0	1	2	3	4
20. I think exercising is a waste of time	0	1	2	3	4
21. I get pleasure and satisfaction from participating in exercise	0	1	2	3	4
22. I would feel bad about myself if I was not making time to exercise	0	1	2	3	4
23. I consider exercise consistent with my values	0	1	2	3	4
24. I feel under pressure from my friends/family to exercise.	0	1	2	3	4

APPENDIX B

ATHLETIC IDENTITY MEASUREMENT SCALE (AIMS)

Please circle your response to each item.

AIMS item	Strongly disagree		Neutral				Strongly agree
	1	2	3	4	5	6	7
1. I consider myself an athlete.	1	2	3	4	5	6	7
2. I have many goals related to sport.	1	2	3	4	5	6	7
3. Most of my friends are athletes.	1	2	3	4	5	6	7
4. Sport is the most important part of my life.	1	2	3	4	5	6	7
5. I spend more time thinking about sport than anything else.	1	2	3	4	5	6	7
6. I need to participate in sport to feel good about myself.	1	2	3	4	5	6	7
7. Other people see me as an athlete.	1	2	3	4	5	6	7
8. I feel bad about myself when I do poorly in sport.	1	2	3	4	5	6	7
9. Sport is the only important thing in my life.	1	2	3	4	5	6	7
10. I would be very depressed if I were injured and could not compete in sport.	1	2	3	4	5	6	7



APPENDIX C:  
DEMOGRAPHICS QUESTIONNAIRE

1. University/College Attending:  
Georgia Institute of Technology Valdosta State University

2. Gender: Male Female

3. Were you a member of a high school athletic team? Yes No

If yes to Question 3, did you participate during your senior year? Yes No

If yes to Question 3, what sport(s) did you play?

Basketball Bowling Cheerleading Field Hockey Football Golf

Gymnastics Ice Hockey Lacrosse Softball Soccer Swimming & Diving

Tennis Track & Field/Cross County Volleyball Water Polo Wrestling

4. Are you participating in athletics at your college? Yes No

If yes to Question 4, at what level are you competing? Intercollegiate Club

5. Are you a first year college student? Yes No

APPENDIX D:  
CONSENT FORM

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**VALDOSTA STATE UNIVERSITY**  
**Consent to Participate in Research**

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You are being asked to participate in a research project entitled “*Effects of Sport Career Termination and Post-Secondary Transition on Exercise Motivation and Athletic Identity of College-Aged Female Students.*” This research project is being conducted by Brian McMichael, a student in Curriculum, Leadership, and Technology at Valdosta State University. The researcher has explained to you in detail the purpose of the project, the procedures to be used, and the potential benefits and possible risks of participation. You may ask the researcher any questions you have to help you understand this project and your possible participation in it. A basic explanation of the research is given below. Please read this carefully and discuss with the researcher any questions you may have. The University asks that you give your signed agreement if you wish to participate in this research project.

---

**Purpose of the Research:** This study involves research. The purpose of the study is to determine whether the ending of competitive sports careers in high school has an effect on the level of exercise motivation on the self-determined continuum and overall athletic identity of college-aged female students who are transitioning to college.

**Procedures:** You will complete a demographic questionnaire and two surveys. The demographic questionnaire will be used to select participants based on specific criteria. The surveys are the 24-question Behavioral Regulation in Exercise Questionnaire (BREQ-3) and the 10-question Athletic Identity Measurement Scale (AIMS). There are no alternatives to the experimental procedures in this study. The only alternative is to choose not to participate at all. Your participation in this study is voluntary. You will not receive class credit, or any other benefits, from participating in this research.

You will be asked to complete the demographic questionnaire and both surveys in one session. Generally, please allow about 30 minutes to complete the entire survey.

**Possible Risks or Discomfort:** Although there are no known risks associated with these research procedures, it is not always possible to identify all potential risks of participating in a research study. However, the University has taken reasonable safeguards to minimize potential but unknown risks.

By agreeing to participate in this research project, you are not waiving any rights that you may have against Valdosta State University for injury resulting from negligence of the University or its researchers.

**Potential Benefits:** Although you may not benefit directly from this research, your participation will help the researcher gain additional understanding of the interaction of level of exercise motivation and athletic identity for female college freshmen students who were athletes in high school. Knowledge gained may contribute to addressing the reduction of physical activity for this specific population.

**Costs and Compensation:** There are no costs to you and there is no compensation provided (no money, gifts, or services) for your participation in this research project.

**Assurance of Confidentiality:** Valdosta State University and the principal investigator will keep your information confidential to the extent allowed by law. Members of the Institutional Review Board (IRB), a university committee charged with reviewing research to ensure the rights and welfare of research participants, may be given access to your confidential information.

You will not be asked any personal information that would be used to personally identify you. You are asked not you include your name, school, or any contact information on any of the data collecting instruments, including the demographics questionnaire. Information that is gathered will be protected. All data will be stored on the principal investigator's personal computer and an external hard drive. It will only be accessible by the researcher, and will be destroyed by deleting all demographic and survey information after the dissertation has been accepted and approved.

**Voluntary Participation:** Your decision to participate in this research project is entirely voluntary. If you agree now to participate and change your mind later, you are free to exit the study at any time. Your decision not to participate at all or to stop participating at any time in the future will not have any effect on any rights you have or any services you are otherwise entitled to from Valdosta State University.

You may skip any questions that you do not want to answer

**Information Contacts:** Questions regarding the purpose or procedures of the research should be directed to the IRB Administrator at 229-333-7837 or [irb@valdosta.edu](mailto:irb@valdosta.edu). This study has been approved by the Valdosta State University Institutional Review Board (IRB) for the Protection of Human Research Participants. The IRB, a university committee established by Federal law, is responsible for protecting the rights and welfare of research participants. If you have concerns or questions about your rights as a research participant, you may contact the IRB Administrator at 229-333-7837 or [irb@valdosta.edu](mailto:irb@valdosta.edu)

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**Agreement to Participate:** The research project and my role in it have been explained to me, and my questions have been answered to my satisfaction. I agree to participate in this study. By electronically agreeing, through the Qualtrics software, to participate in this study, I am indicating that I am 18 years of age or older and that I have received a copy of this consent form. If you want a hard copy of this form you may contact the principal investigator at [bmmcmichael@valdosta.edu](mailto:bmmcmichael@valdosta.edu) to request a copy.

APPENDIX E:  
INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL



**Institutional Review Board (IRB)  
For the Protection of Human Research Participants  
PROTOCOL EXEMPTION REPORT**

---

**PROTOCOL NUMBER:** 03433-2016      **INVESTIGATOR:** Mr. Brian McMichael  
**SUPERVISING FACULTY:** Dr. Heather Kelley  
**PROJECT TITLE:** *Effects of Sport Career Termination and Postsecondary Transition on Exercise Motivation and Athletic Identity of College-Aged Female Students.*

---

**INSTITUTIONAL REVIEW BOARD DETERMINATION:**

This research protocol is **Exempt** from Institutional Review Board (IRB) oversight under Exemption **Category 2**. You may begin your study immediately. If the nature of the research project changes such that exemption criteria may no longer apply, please consult with the IRB Administrator ([irb@valdosta.edu](mailto:irb@valdosta.edu)) before continuing your research.

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**ADDITIONAL COMMENTS:**

- **Compiled data (email correspondence, email lists, transcripts, etc.) must be securely maintained for a minimum of three years and then destroyed.**
- If this box is checked, please submit any documents you revise to the IRB Administrator at [irb@valdosta.edu](mailto:irb@valdosta.edu) to ensure an updated record of your exemption.**

**Elizabeth W. Olphie**

**02/01/2018**

*Thank you for submitting an IRB application.*  
Elizabeth W. Olphie, IRB Administrator      Date  
[irb@valdosta.edu](mailto:irb@valdosta.edu) or 229-259-5045.

*Please direct questions to*

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Revised: 06.02.16



APPENDIX F:

FIGURES

Figure 3

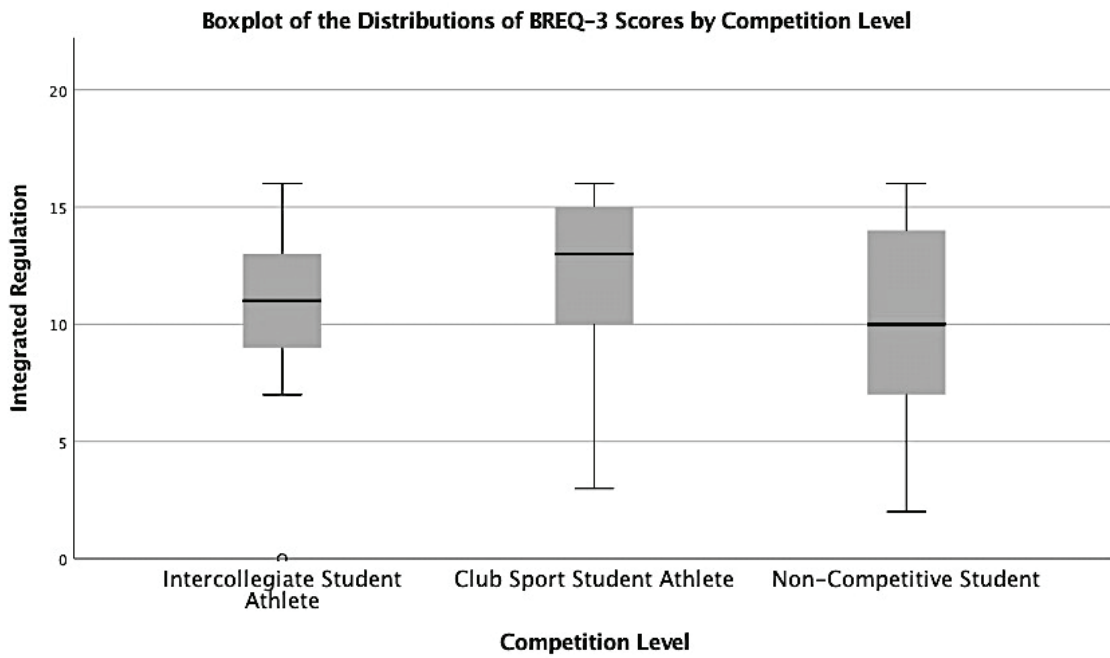


Figure 4

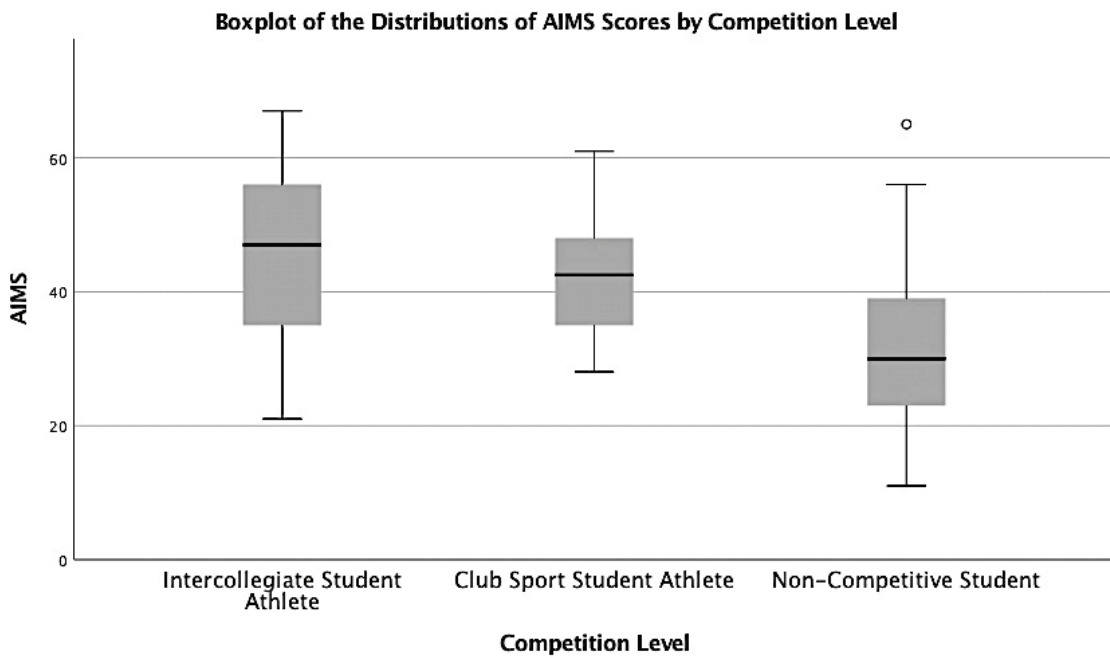


Figure 5

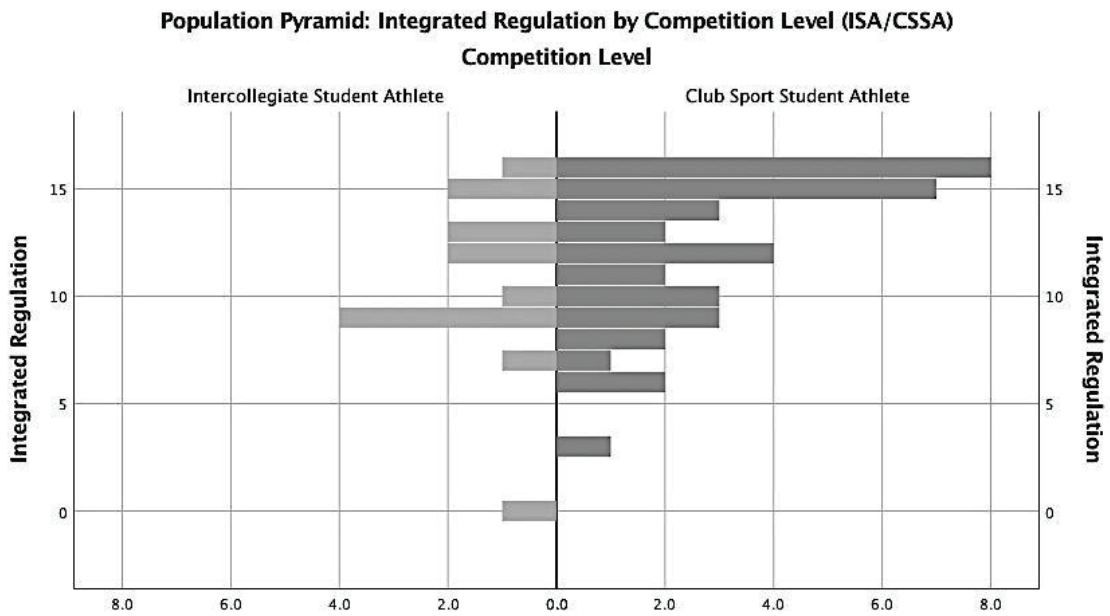


Figure 6

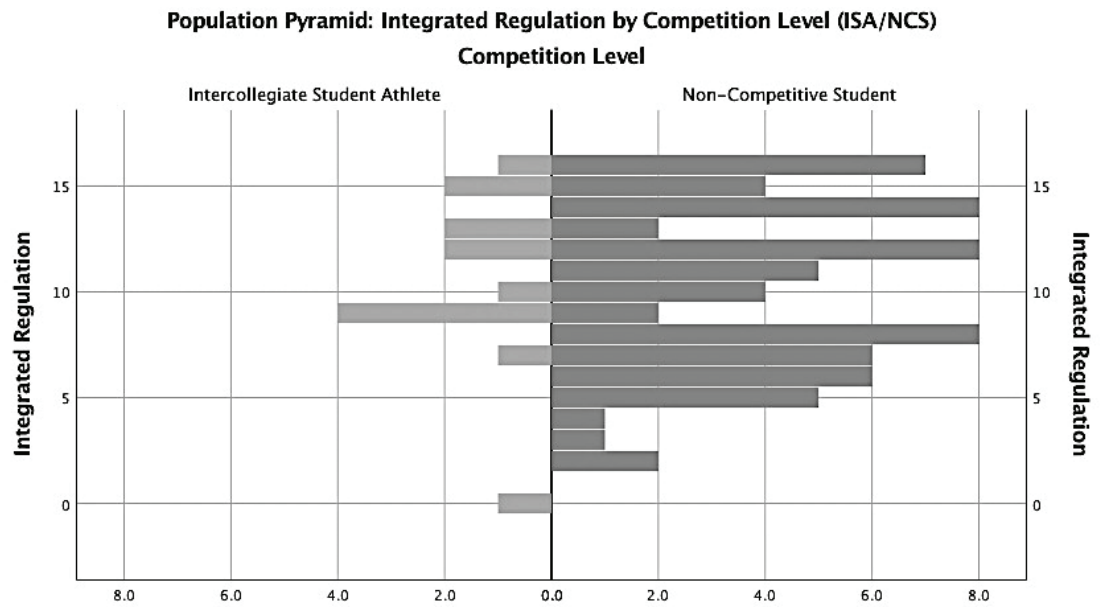


Figure 7

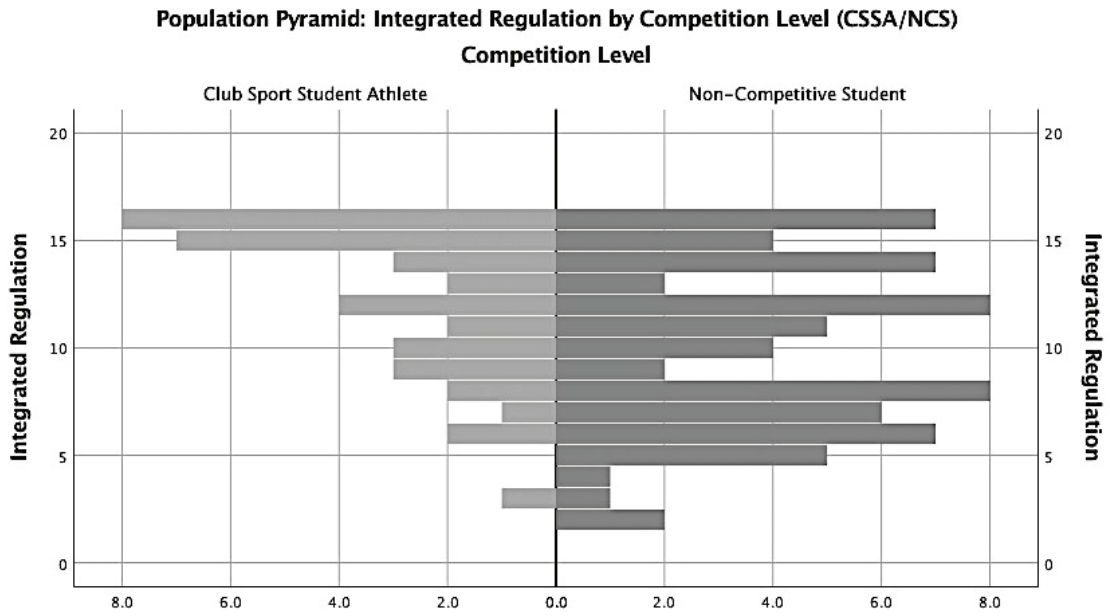


Figure 8

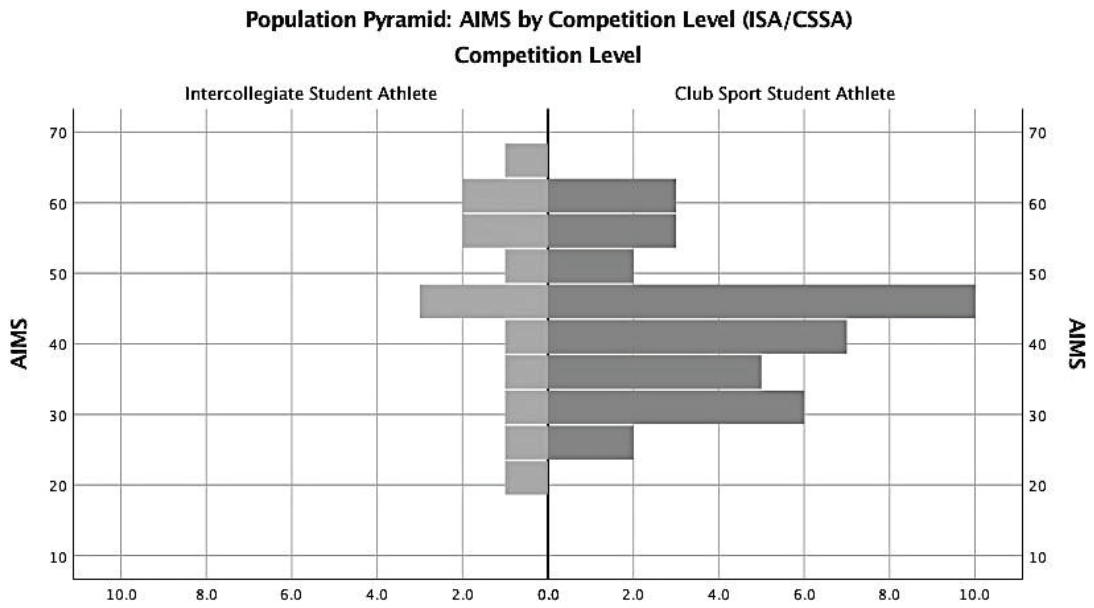


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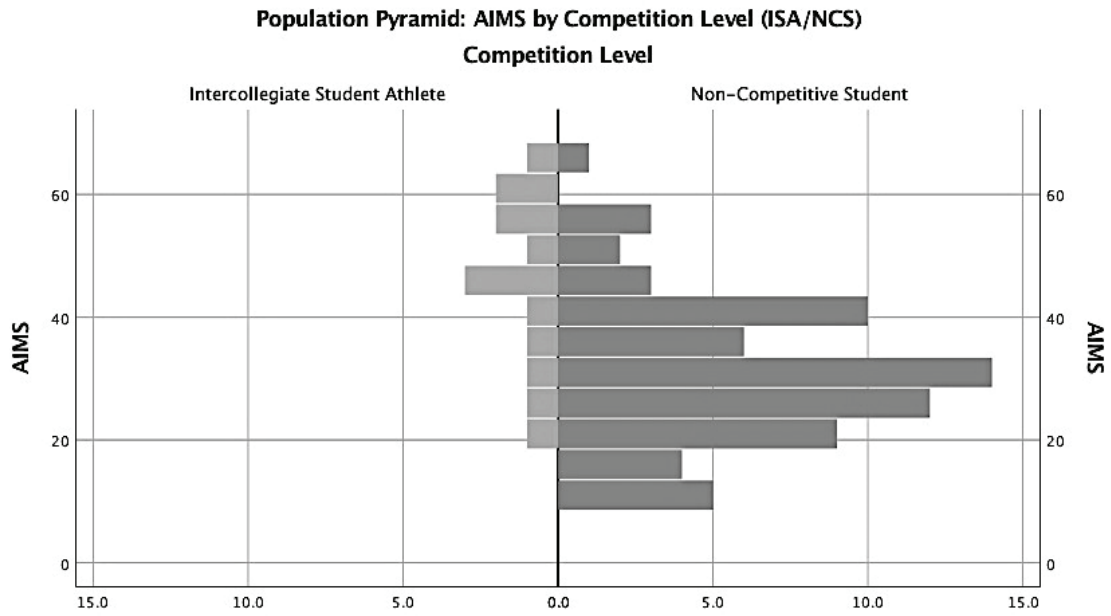


Figure 10

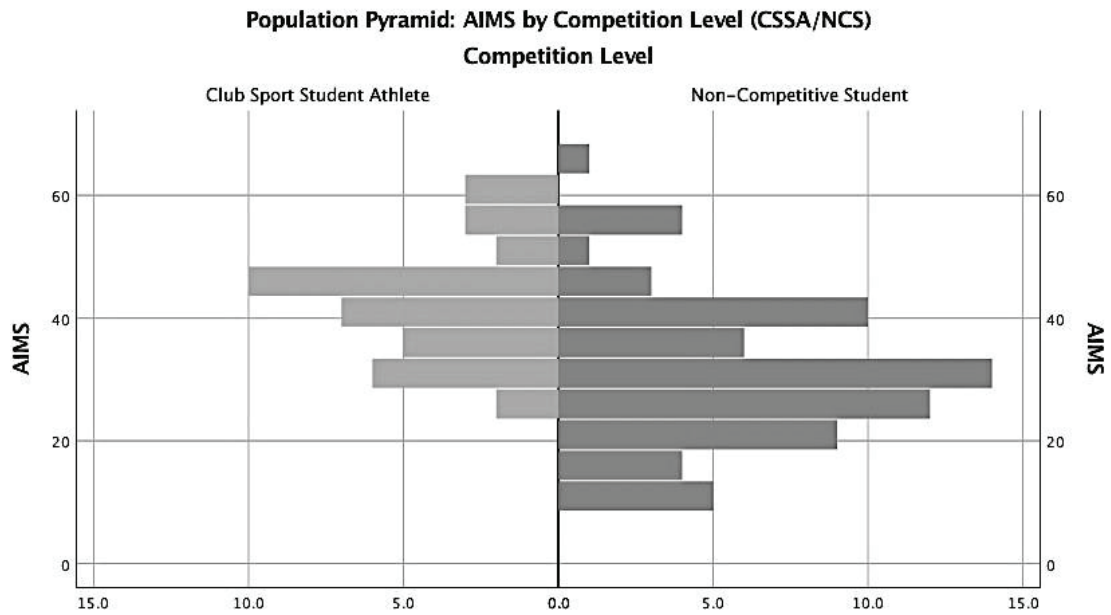


Figure 11

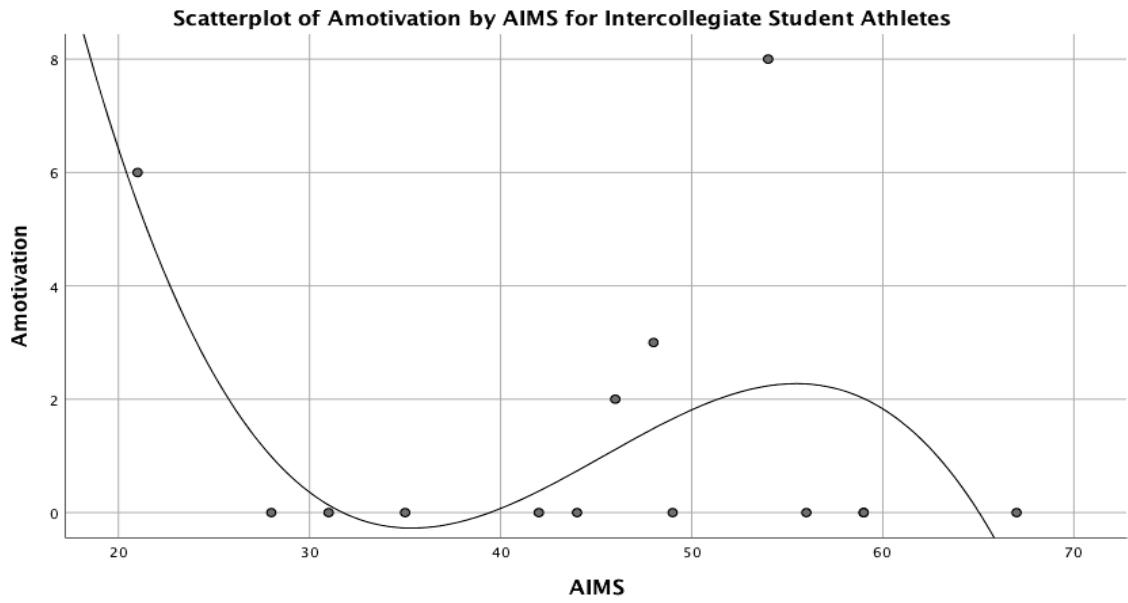


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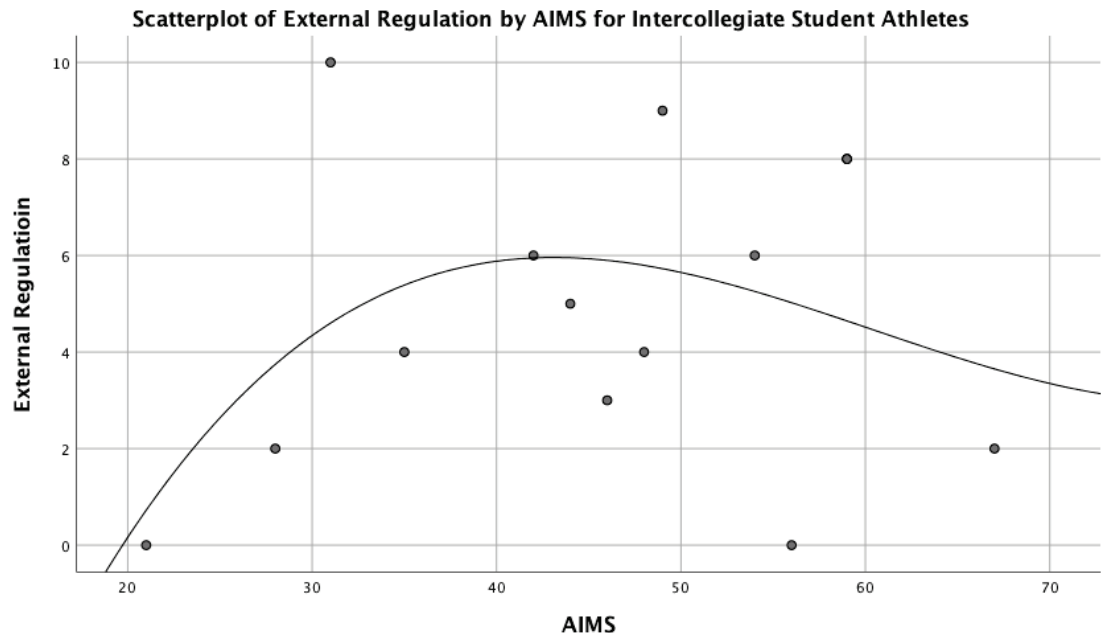


Figure 13

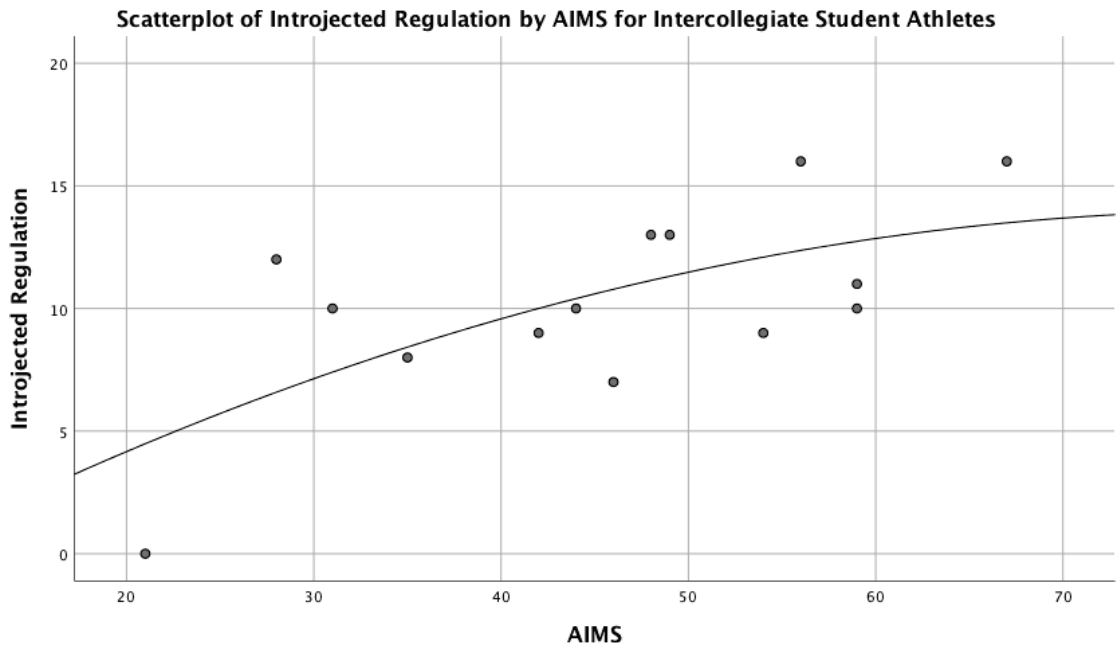


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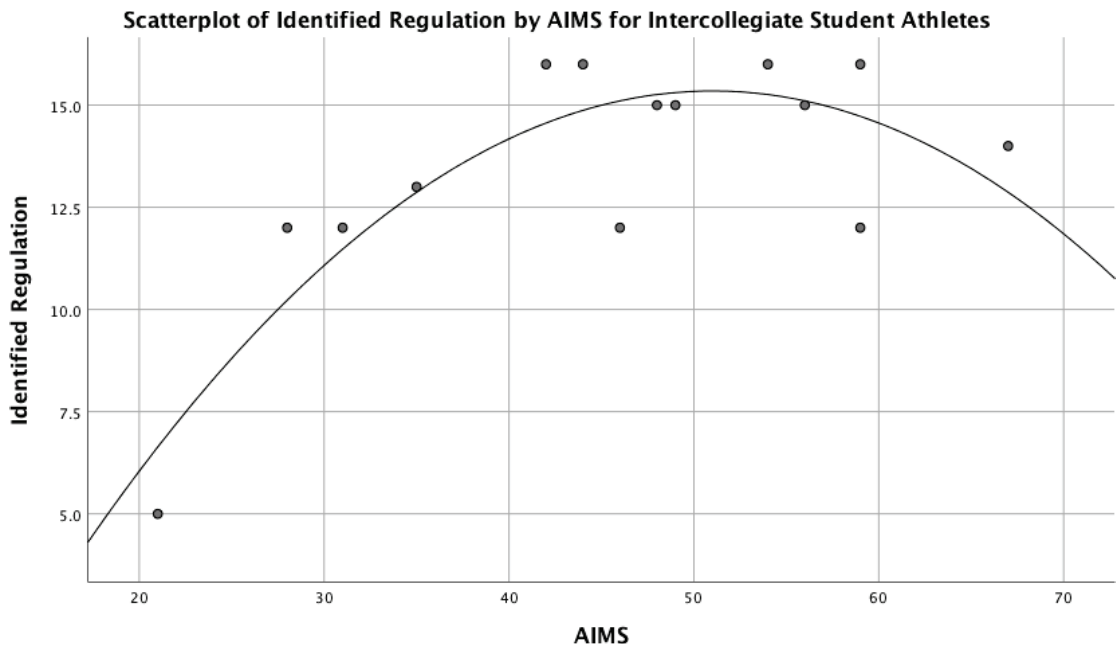


Figure 15

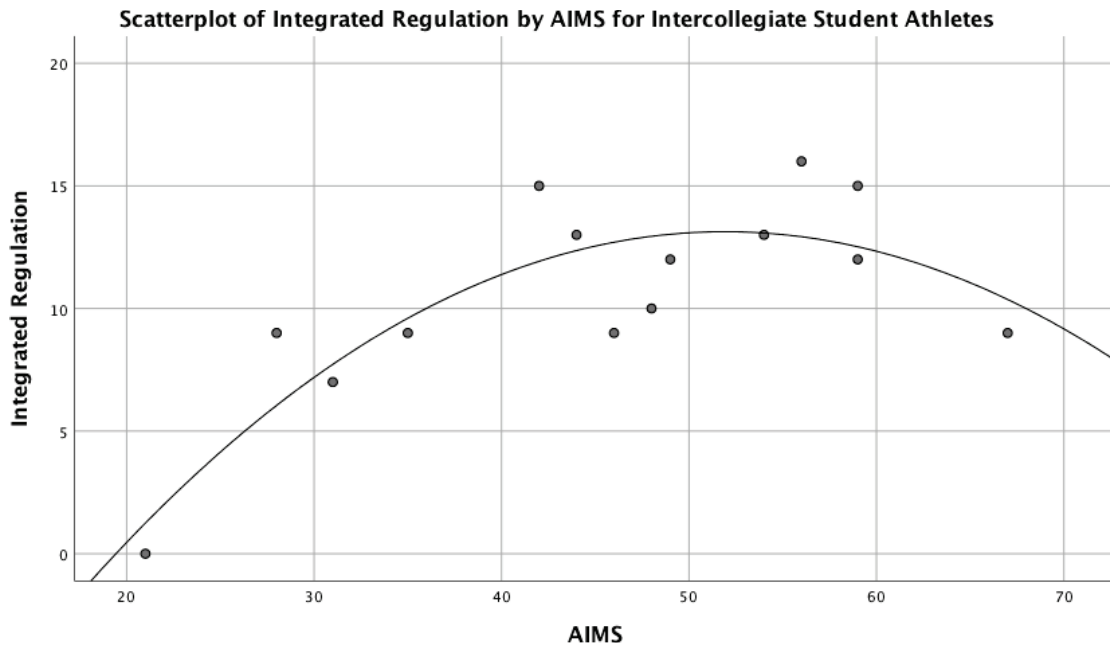


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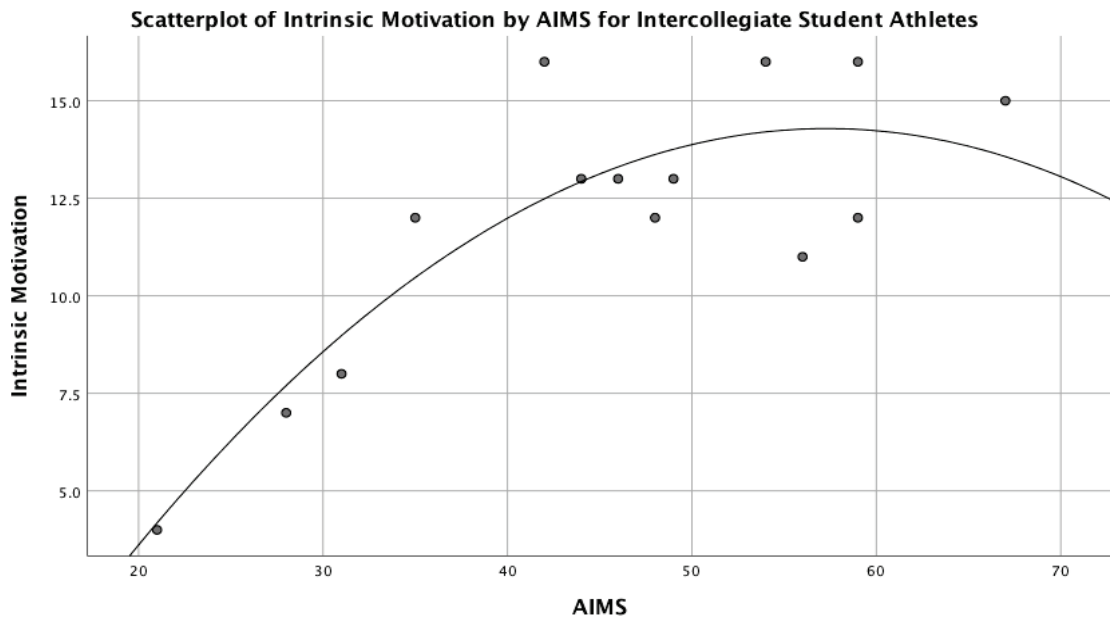




Figure 17

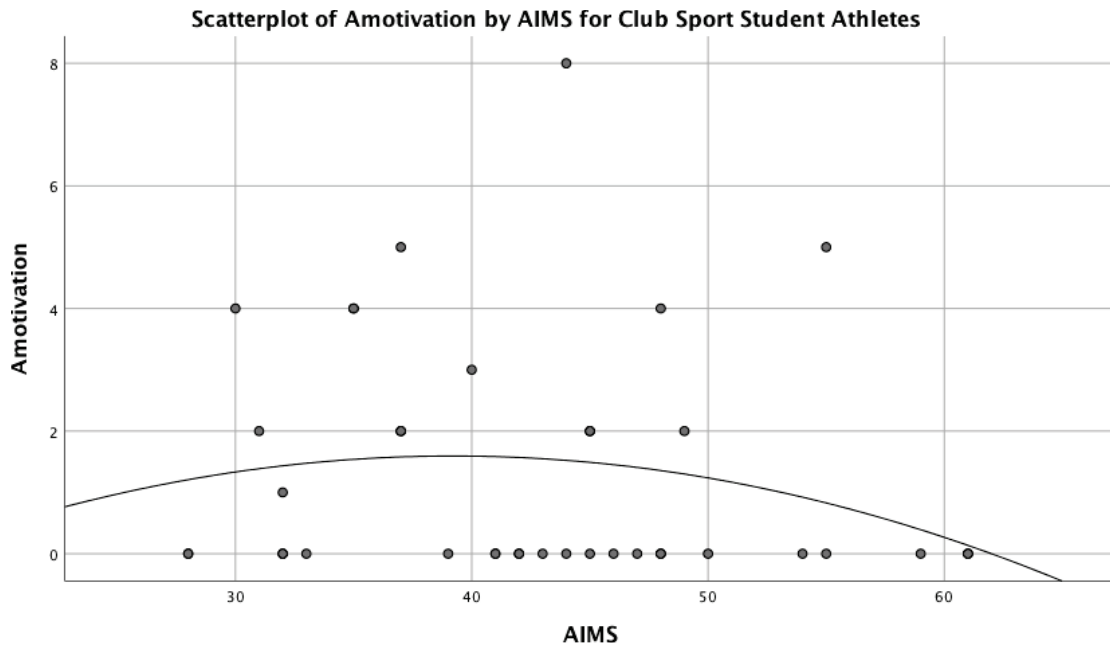


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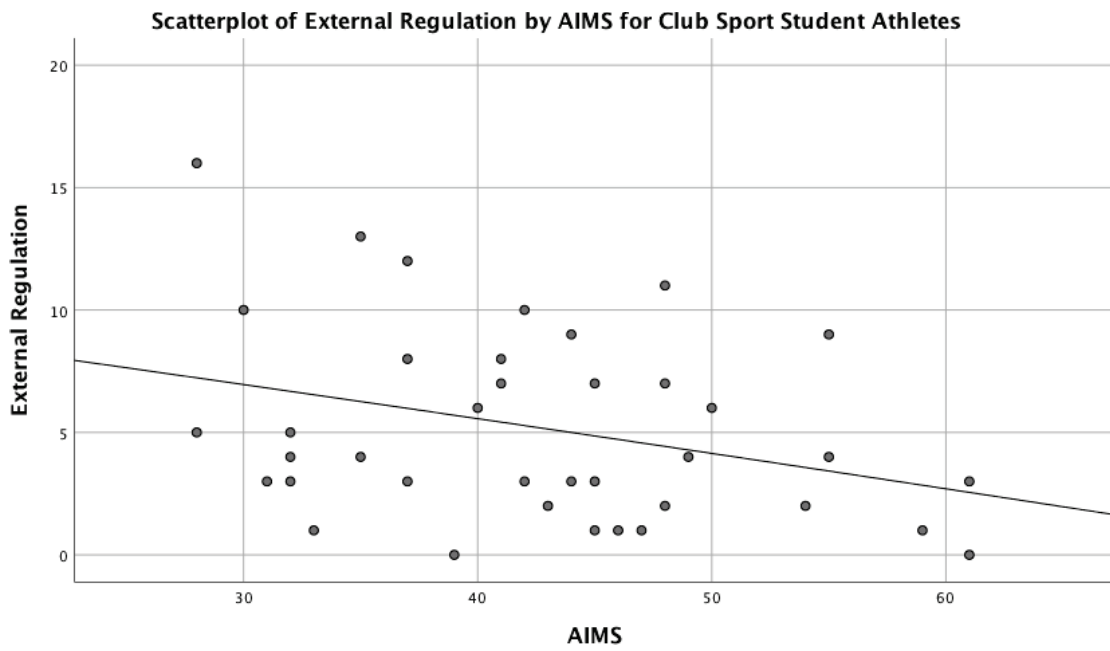


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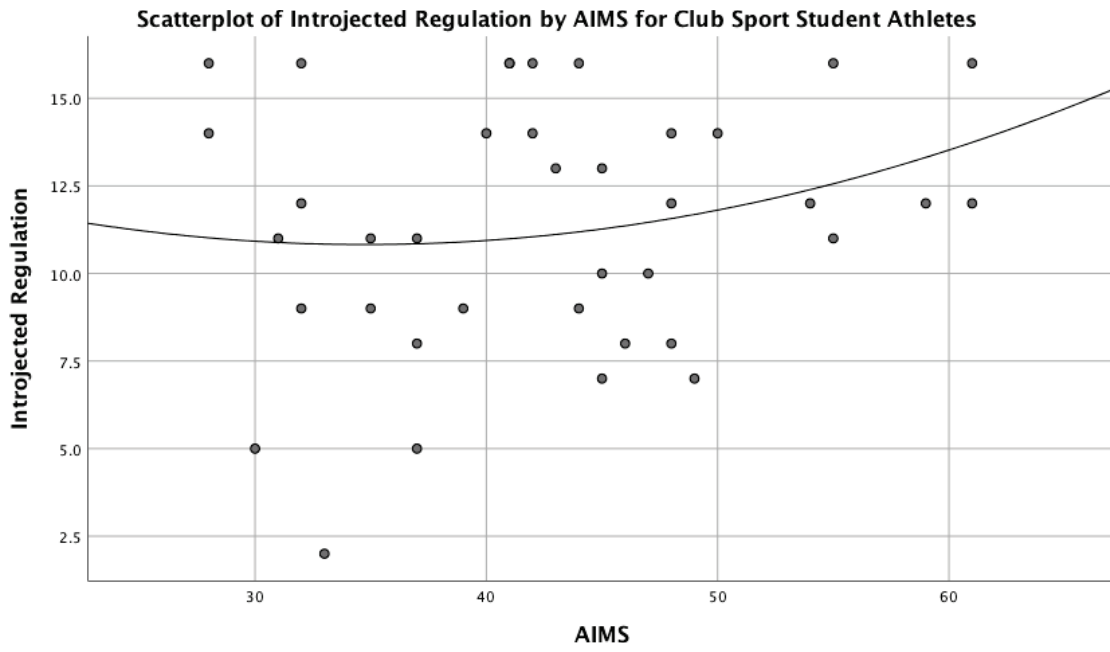


Figure 20

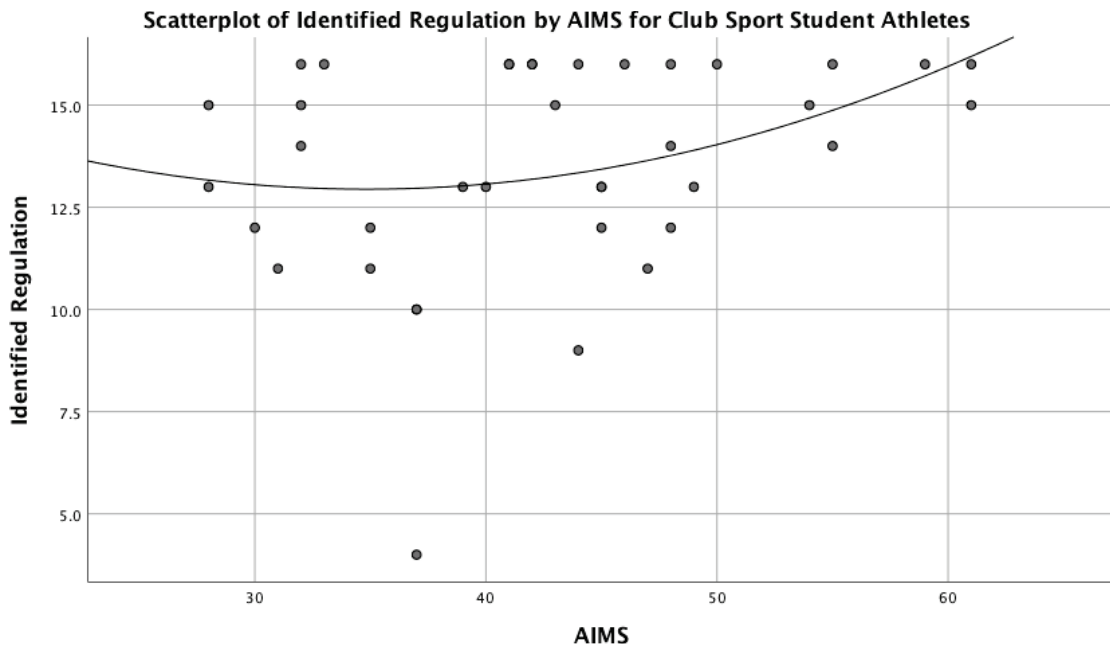


Figure 21

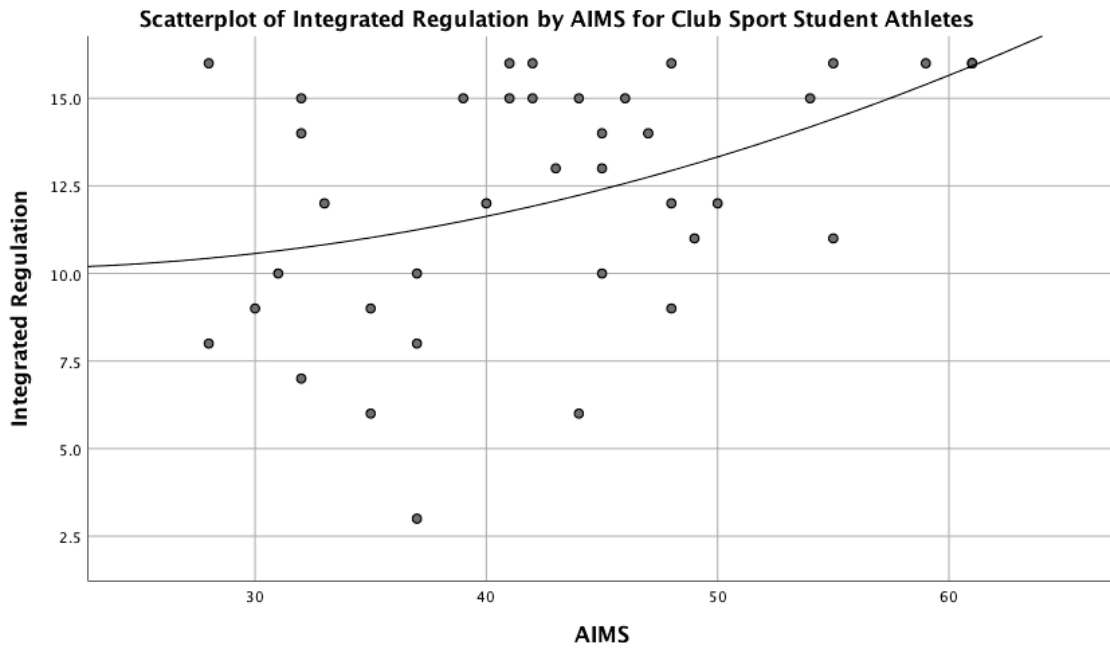


Figure 22

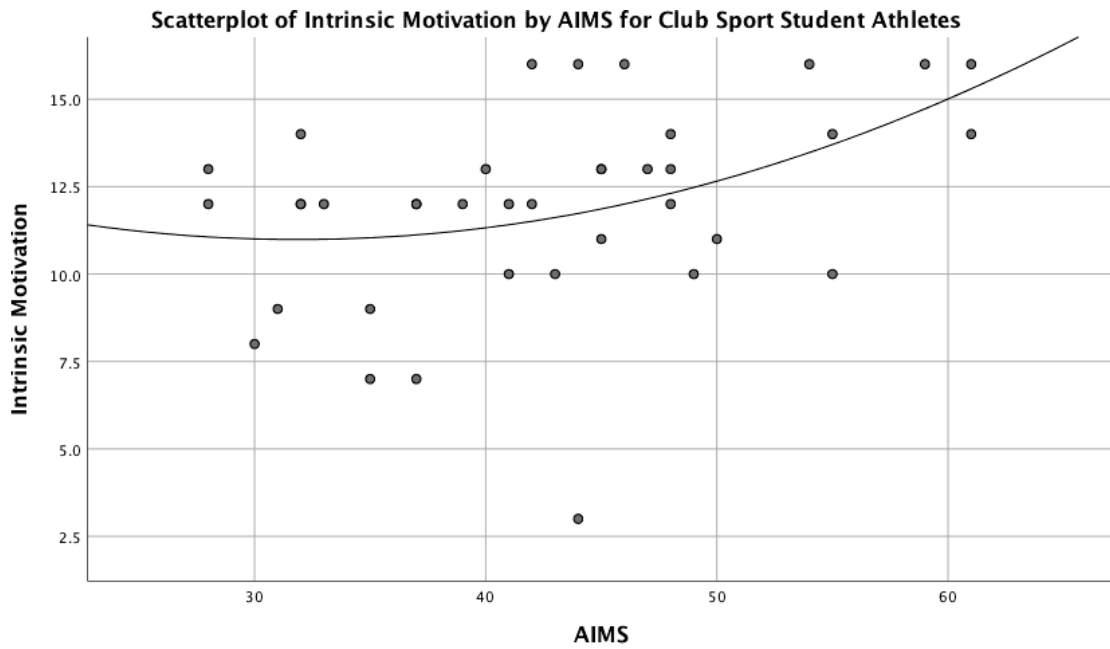


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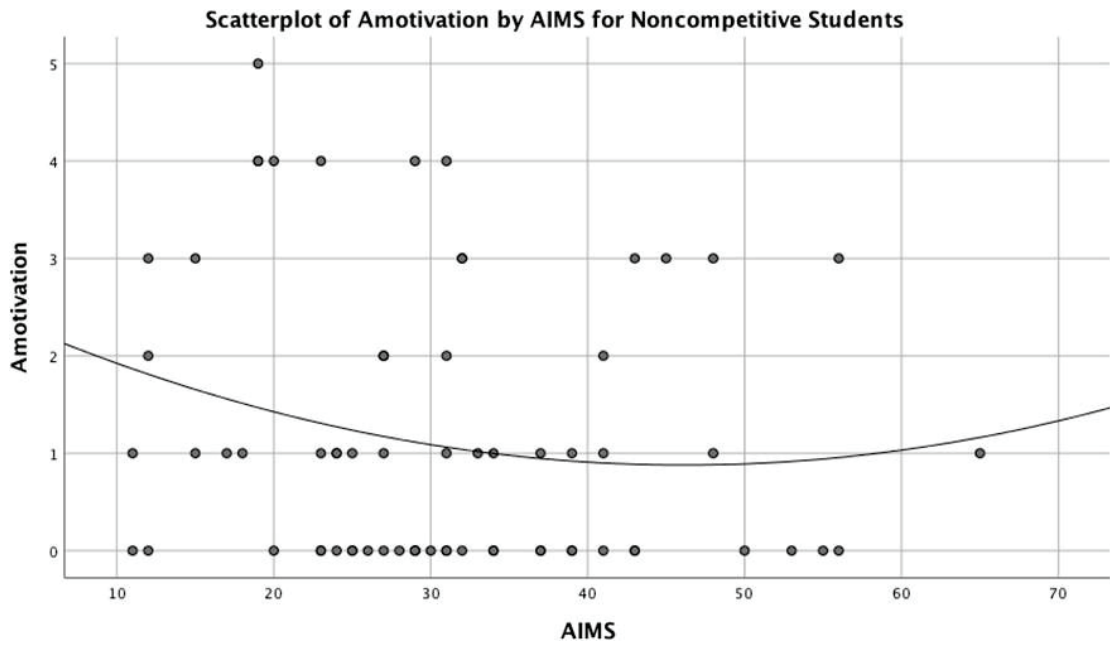


Figure 24

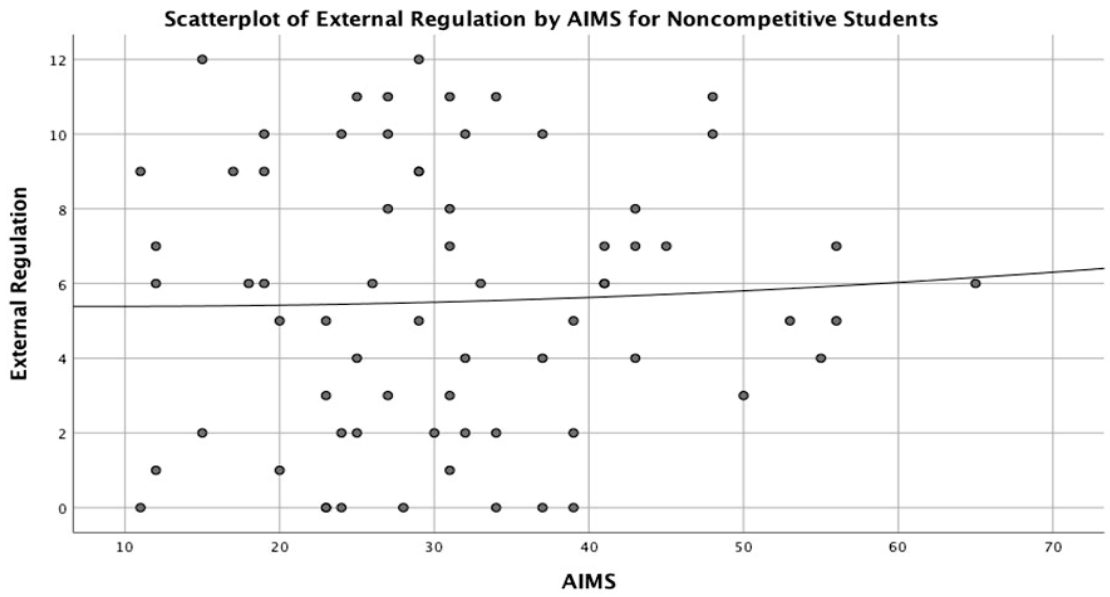


Figure 25

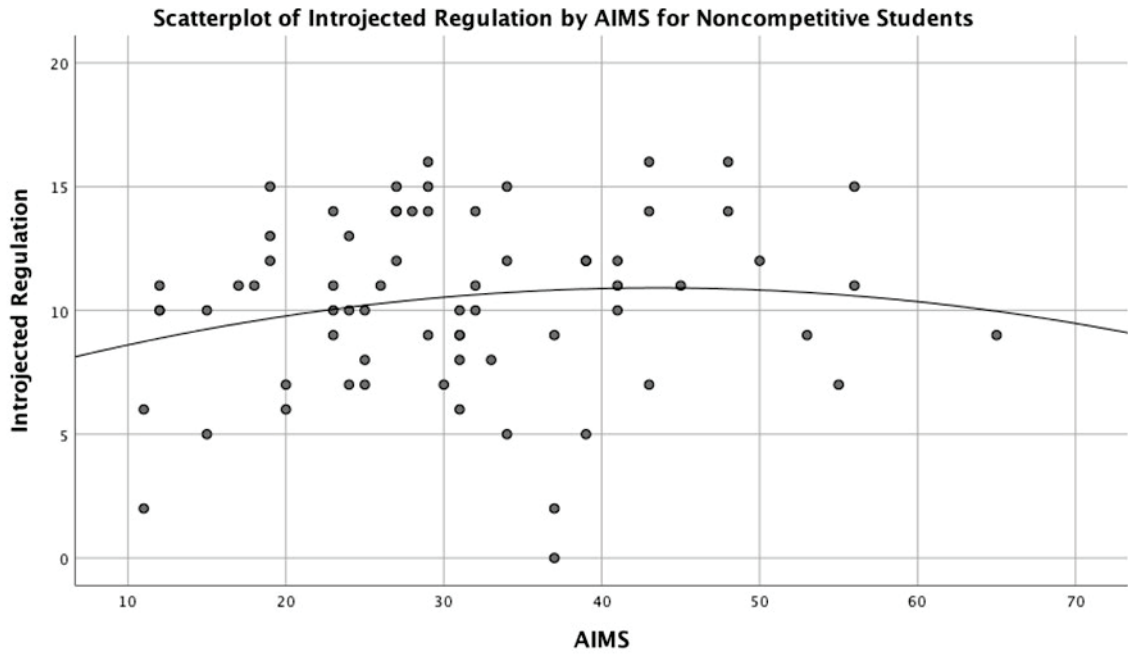


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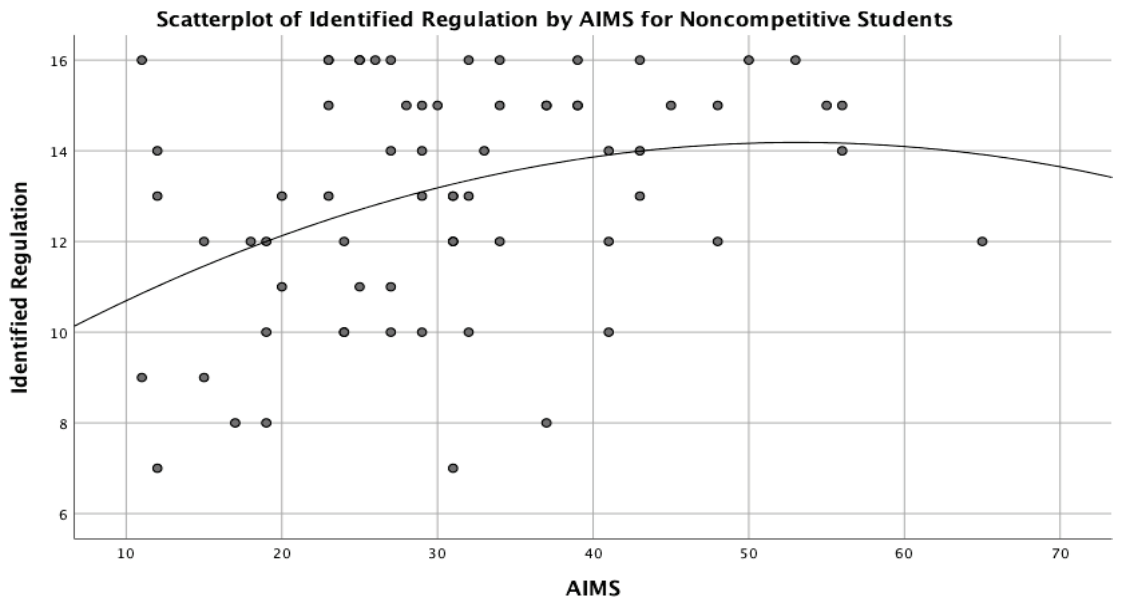


Figure 27

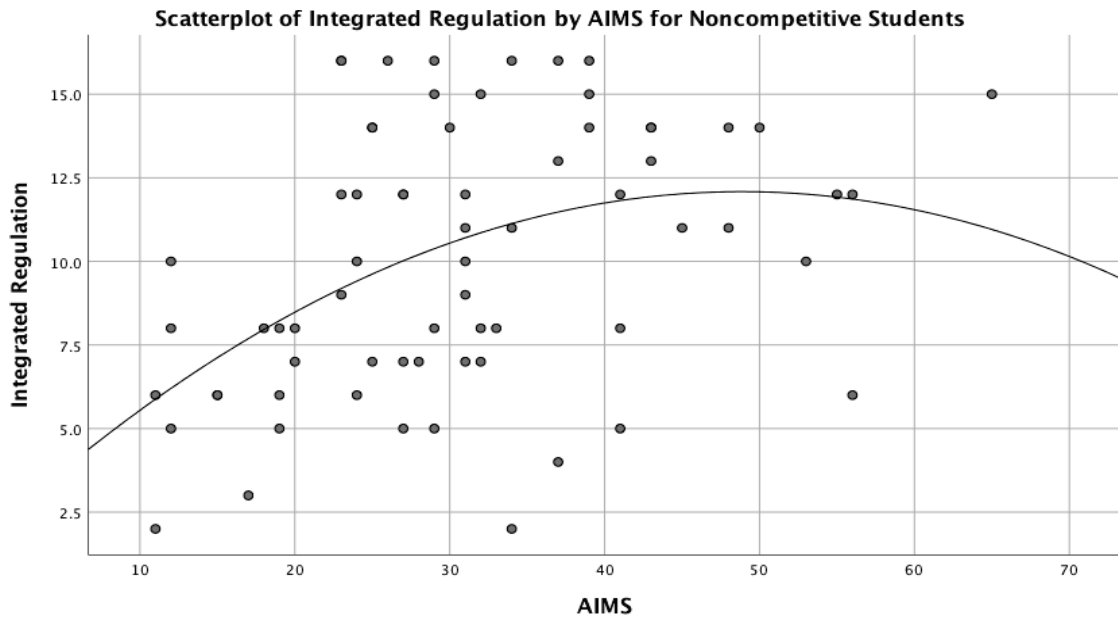


Figure 28

