Examination of the Independent and Interactive Effects of Coach and Peer Influence Toward Need Satisfaction of High School Athletes in Urban Communities

Dissertation

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Abstract

Individuals in the United States face a variety of physical, social, emotional, and cognitive changes as they transition into adolescence (Kim, Oesterle, Catalano, & Hawkins, 2015). The period of adolescence has been corresponded with negative outcomes, including physical inactivity, obesity, and psychological disorders (Troiano et al., 2008). Adolescents from urban communities are often exposed to enhanced challenges, faced with discrimination and racism (Byrd & Carter Andrews, 2006).

Sport programs are one of many extracurricular activities designed to promote adolescent development. Emotional, intellectual, physical, psychological, and social benefits have been attributed to adolescent sport participation (Anderson-Butcher et al., 2016). However, rates of sport participation and physical activity among adolescents have continued to decline precipitously (Brownson, Boehmer, & Luke, 2005; Sporting Goods Manufacturers Association, 2012). Time constraints, limited resources, and insufficient social support have presented as barriers toward adolescent sport participation (Casey, Eime, Payne, & Harvey, 2009). Ultimately, motivation has been observed to strongly relate to adolescents’ intentions to commit to sport programs (e.g., Amorose, Anderson-Butcher, & Cooper, 2009; Tsonbatzoudis, Alexandris, Zahariadis, &
Grouios, 2006). Therefore, the current study was conducted to explore the influence of social agents toward high school athletes’ perceptions of motivation.

Self-Determination Theory (SDT; Deci & Ryan, 2000) was utilized as the theoretical framework for the current study. This theory promotes that motivation is dependent upon satisfaction of the basic psychological needs of autonomy, competence, and relatedness (Deci & Ryan, 2000). Previous studies (e.g., Mack et al., 2011; Ntoumanis & Standage, 2009) have reported that need satisfaction is corresponded with well-being. Furthermore, need satisfaction has been noted to correspond with levels of need support from coaches and peers (e.g., Amorose & Anderson-Butcher, 2007; Conroy & Coatsworth, 2007). The current study expanded on these results by measuring the independent and interactive effects of coach and peer support toward athletes’ perceptions of need satisfaction.

In order to explore these relationships, three separate hierarchical regression analyses were conducted. In study # 1, perceived autonomy was strongly influenced by coach-autonomy support and minimally related to peer-autonomy support. The interaction term of coach x peer autonomy support was not statistically significant. Study # 2 measured the influence of coach-competence support, peer-competence support, and coach x peer competence support. Peer-competence support was influential toward athletes’ competence levels, while coach-competence support was not a significant predictor. Coach x peer competence support was not a statistically significant interaction
term. Lastly, perceived relatedness was explored as an outcome of coach-relatedness support, peer-relatedness support, and coach x peer relatedness support. Coach-relatedness support and peer-relatedness support were both substantially influential toward athletes’ perceptions of relatedness. The interaction of coach x peer relatedness support was the only significant term. The regression plot revealed that as the amount of peer-relatedness support rose, the effect of coach-autonomy support decreased. These results highlight the importance of need satisfaction within high school sport programs.
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Chapter 1: Introduction

As illustrated by Hui and Tsang (2012), “Adolescence is a critical phase of life during which young people face physical, psychological, intellectual, and emotional concerns and challenges, search for self-identity, explore new roles, and deal with transition to secondary schools and later from school to work and adulthood” (Hui & Tsang, 2012, p. 1). McDavid, Cox, and Amorose (2012) added that adolescence provides the opportunity to teach healthy behaviors that extend into adulthood. Despite these observations, Adams (2005) noted that a universal definition of adolescence does not exist. Conceptions of adolescence vary due to gender, economic, religious, and political differences (Adams, 2005).

Although scholars commonly state that adolescence begins between the ages of 10-12 for females and 12-14 for males, a specific age range for adolescence has not been ubiquitously accepted (Adams, 2005). Rather, Spear and Kulbok (2004) conceptualized adolescence as a transitional developmental stage in which individuals seek independence and make impactful decisions. Therefore, for the purposes of this study, adolescence is defined as a stage of life initiated by puberty until the period in which individuals gain adult rights and responsibilities (Adams, 2005).

In the United States, adolescents are affected by physical, social, emotional, and cognitive changes (Kim, Oesterle, Catalano, & Hawkins, 2015). Scholars (e.g., Kimm et
al., 2002; Troiano et al., 2008) have observed that a variety of negative outcomes are apparent during adolescence. In particular, physical inactivity, obesity, and psychological disorders occur frequently during this transitional period. Each of these issues is associated with short-term and long-term ramifications. The following section presents the previously mentioned negative outcomes that afflict adolescents and their associated harmful impacts.

One of the most detrimental consequences involves the lack of physical activity among adolescents (Troiano et al., 2008). The Centers for Disease Control and Prevention have recommended that adolescents in the United States engage in at least 60 minutes of physical activity each day (Troiano et al., 2008). Among adolescents between 12-19, the percentage of individuals who comply with this recommended guideline is 8% (Troiano et al., 2008). Research indicates large differences in physical activity levels among age groups. Approximately 42% of youth aged 6-11 are physically active for 60 minutes daily (Troiano et al., 2008). Therefore, physical inactivity appears to be a more pervasive issue among adolescents than youth. Results have also revealed differences in physical activity levels due to gender and race/ethnicity. Female adolescents face a wider variety of deterrents to physical activity (Kimm et al., 2002). African American females reported lower rates of physical activity due to pregnancy, while Caucasian females noted that cigarette smoking promoted physical inactivity (Kimm et al., 2002).

In many instances, physical activity is supplanted by sedentary behaviors. A nationwide survey of high school students (grades 9-12) demonstrated that 24.7% of adolescents watch a minimum of three hours of television per day for non-educational
purposes (Kann et al., 2016). While a common occurrence for adolescents from all
 genders, races, and ethnicities, this percentage is highest among Black females (41.5%)
 (Kann et al., 2016). Furthermore, 41.7% of all students spent three or more hours daily on
the computer or playing video games (Kann et al., 2016). The numbers speak for
themselves: Adolescents are often replacing physical activities with sedentary behaviors.
The implications of this issue are that lack of physical activity is linked with Type 2
diabetes, heart disease, hypertension, stroke, and cancer (Troiano et al., 2008).

The epidemic of obesity is another negative outcome that plagues adolescents.
The aforementioned lack of physical activity is positively correlated with increased
obesity rates (Troiano et al., 2008). Ogden et al. (2016) painted a grim picture of the
increase in obesity from 1988-2014. Over this time period, national obesity rates among
the adolescent population increased from 10.5% to 20.6% (Ogden et al., 2016). In
general, minority adolescents were afflicted with obesity more commonly than White
adolescents (Wickrama, Wickrama, & Bryant, 2006). Obesity rates for Whites, African
Americans, and Hispanics were 10.31%, 13.88%, and 13.31%, respectively (Wickrama et
al., 2006). Obesity has corresponded with deleterious outcomes, including coronary heart
disease (De Schutter, Lavie, & Milani, 2014) and diminished work productivity (Barkin,
Heerman, Warren, & Rennhoff, 2010).

Clinical psychological disorders have also represented an emerging issue for
adolescents. Among 13-17 year-olds, 6.7% of males and 6.8% of females are diagnosed
with Major Depressive Disorder (Roberts & Bishop, 2005). This number is nearly double
the depression rate of youth aged 6-11 (Roberts & Bishop, 2005). Scholars have recently
recognized a growth of Post-Traumatic Stress Disorder (PTSD) among adolescents, reaching up to 6.3% (Kruczek, Salsman, & Vitanza, 2005). Symptoms of adolescent PTSD, which are similar to adult manifestations, include re-experiencing trauma(s), avoiding related stimuli, and hyper-arousal (Kruczek et al., 2005). Most alarmingly, suicide rates expanded exponentially from 1980-2000 (Kalafat, 2005). Nationally, suicide rates among 10-14 year-olds rose by 99%, as well as by 11% for those between 15-19 (Kalafat, 2005). In fact, 17.7% of adolescents revealed that they had seriously contemplated suicide within the previous 12 months (Kalafat, 2005).

As is evident from the aforementioned studies, adolescents in the United States face a number of problems. These may cause harmful physical and/or psychological conditions, and, in some cases, fatality. Distressingly, it is apparent that the occurrences of negative outcomes due to these conditions are on the rise. The next section examines the reality that developmental issues are multiplied among adolescents from vulnerable populations.

**Issues for Adolescents from Vulnerable Populations**

Adolescent development for those from vulnerable circumstances presents additional adversity (O’Connor, Hill, & Robinson, 2009). According to Aday (2001), vulnerable populations include “the economically disadvantaged, racial and ethnic minorities, the uninsured, low-income children, the elderly, the homeless, those with human immunodeficiency virus (HIV), and those with other chronic health conditions, including severe mental illness” (Aday, 2001, p. 1). Adolescents from vulnerable populations are more commonly subjected to negative physical, psychological, and social
outcomes (Aday, 2001). The current study focuses on the vulnerable population of economically disadvantaged high school student-athletes. Often, the underlying causes that restrict adolescent development are poverty, discrimination, and, racism. Unfortunately, the inability of society to root out these negative factors has harmed social development of adolescents.

One of the chief deterrents of adolescent development is poverty. McBride, Berkel, Gaylord-Harden, Copeland-Linder and Nation (2011) explained that rates of poverty among adolescents rose by 21% between 2000-2008. Furthermore, these rates remain stratified by race and ethnicity (McBride et al., 2011). Poverty rates of African American (34%) and Hispanic (31%) adolescents triple the 11% poverty rate among their White peers (McBride et al., 2011). Living in poverty diminishes adolescents’ ability to receive basic nutrients, as evidenced by Middaugh, Fisk, Brunt, and Rhee’s (2012) observation that adolescents from lower socioeconomic status were significantly less likely to consume fruits and vegetables. Adolescents from families below the poverty line averaged 202.0 grams of fruits and vegetable intake, compared to 256.6 grams among those at greater than 400% of the poverty line (Middaugh et al., 2012).

Social conditions have also been associated with problem behaviors (Singh & Ghandour, 2012). In this national study of adolescents, those from neighborhoods with high safety concerns, poor housing, and vandalism were more likely to demonstrate serious problem behaviors (Singh & Ghandour, 2012). Of these concerns, dilapidated housing represented the most substantial negative outcomes. Adolescents from decrepit homes displayed 1.8 times higher odds of behavioral problems than peers from sound
residence (Singh & Ghandour, 2012). Furthermore, adolescents from families living below the poverty line were 3.7 times more likely to demonstrate serious problem behaviors (Singh & Ghandour, 2012). Based on these results, it is clear that poverty demoralizes adolescent development.

Another underlying cause of limited adolescent development is discrimination. Brown and Bigler (2005) explained that discrimination involves a wide range of negative actions (e.g., exclusion, physical harm) against another due to their association with a particular group. Discrimination has corresponded with an inability for adolescents from low-income neighborhoods to engage in extracurricular activities (Byrd & Carter Andrews, 2016).

As a result, development of those facing discrimination is often stunted (Byrd & Carter Andrews, 2016). Causes of discrimination are pervasive, as they have occurred based on the victim’s gender, race/ethnicity, religion, birthplace, or socioeconomic status (Brown & Bigler, 2005). Byrd and Carter Andrews (2016) examined the sources and forms of discrimination faced by middle- and high-school students. Their population sample was culturally diverse (52% White/Caucasian, 17% Other, 16% Black/African American, 12% Multiracial). Although slightly more than half of participants perceived that they had not been subjected to discrimination, examples of discrimination by those perceiving that they had been discriminated against were wide-ranging (Byrd & Carter Andrews, 2016). Examples of discrimination were based on race/ethnicity (16.4%), socioeconomic status (7.8%), gender (5.7%), religion (5.7%), disability (3.3%), and sexual orientation (3.1%) (Byrd & Carter Andrews, 2016). Sources of discrimination
involved peers (25.2%), teachers (11.2%), front office workers (8.2%), administrators (6.1%), and counselors (2.5%) (Byrd & Carter Andrews, 2016). These were manifested through name-calling (16.0%), exclusion from social groups (11.4%), unfair punishment (10.4%), avoidance by teachers (5.0%), and exclusion from academic opportunities (4.2%) (Byrd & Carter Andrews, 2016).

In terms of implications, Russell, Sinclair, Poteat, and Koenig (2012) observed that biased-based discrimination was especially hurtful to adolescents. Those that faced harassment based on sexual orientation, race/ethnicity, gender, and disability were more prone to various negative outcomes than those who reported general harassment (Russell et al., 2012). These negative consequences included substance abuse, risk behaviors, and decreased academic outcomes (Russell et al., 2012). For example, while adolescents who had suffered from general harassment were 2.45 times more likely to suffer from depression, those who were harassed due to their race or ethnicity were 3.75 times more likely to be depressed (Russell et al., 2012). Simply, sources of discrimination are negatively impactful toward adolescent development.

Of the forms of discrimination, racism remains one of the most prevalent and destructive. Coker et al. (2009) defined racism as “unfair, differential treatment based on race or ethnicity” (Coker et al., 2009, p. 878). As previously noted by Byrd and Carter Andrews (2006), racism is the most widespread form of discrimination. In a study conducted by Coker et al. (2009), 15% of middle-school students felt that racism existed at their schools. Black (20%) and Hispanic (15%) students were more convinced than White (7%) students that their lives were impacted by racism (Coker et al., 2009). Along
with the extensiveness of racism toward adolescents is the range of negative impacts. With a sample population of 84 African Americans between the ages of 10-15, Nyborg and Cury (2003) observed the debilitating effects of racism. Respondents who had personally experienced racism were significantly more inclined to exhibit hostility, anxiety, and hopelessness (Nyborg & Cury, 2003).

In many domains (e.g., academic performance, obesity, violent and deviant behavior), adolescents from which these negative circumstances exist have faced enhanced challenges. Minority groups, especially Blacks and Latinos, have been considered at-risk for negative academic outcomes (O’Connor et al., 2009). Resources (i.e., library books, laboratory equipment) at predominantly Black schools are substandard as compared to institutions serving White adolescents (O’Connor et al., 2009). Another study revealed that academic performance (i.e. grades, standardized test scores) was observed to correspond to socioeconomic status (Fryer & Levitt, 2006). Young Black students from the lower economic category performed worse in reading and math courses than their peers from higher socioeconomic statuses (Fryer & Levitt, 2006). Furthermore, the gap in levels of achievement stratified by socioeconomic status widened throughout their academic careers (Fryer & Levitt, 2006).

Obesity is another negative outcome that plagues adolescents from vulnerable communities. While certainly a problem for the general population, obesity is more pervasive within vulnerable communities. As previously noted, adolescent obesity rates have risen by more than 10% in the past two decades (Ogden et al., 2016). Compounding the issue is the reality that adolescents from impoverished communities were more
susceptible to obesity (Wickrama et al., 2006). Across the majority of races and ethnicities (i.e., White, African American, Hispanic, Native American), United States adolescents from poor communities were more likely to suffer from obesity than their peers from non-poor communities (Wickrama et al., 2006). Interestingly, these discrepancies were not universal, as the Asian American population was the only segment to demonstrate the inverse relationship (Wickrama et al., 2006).

Another outcome that is more commonly associated with adolescents from vulnerable backgrounds is violent and deviant behavior. Oliver (2006) explained that the lure of gang involvement offers an alternative socialization institution for young Black males with limited access to resources. Without positive development outlets, adolescents from vulnerable circumstances may resort to joining street gangs. “The streets”, which are reinforced through hip hop culture and peer socialization, have encouraged destructive behavior as a method toward earning respect (Oliver, 2006). Glorification of these personas has been a measure toward creating a disconnection from employment opportunities, abdication of fatherhood responsibilities, interpersonal conflict and violence, and high rates of incarceration (Oliver, 2006).

In summary, adolescents from the United States are challenged by a substantial number of issues. The majority of these concerns are enhanced for those from vulnerable circumstances. Due to these factors, scholars and practitioners have collaborated to uncover mechanisms for adolescent development.
Making a Difference Through Sport

In order to combat these (and other) challenges, a variety of extracurricular activities have been utilized to promote adolescent development (Eccles & Barber, 1999). As explained by Lerner, Bowers, Geldhoff, Gestsdottir, and DeSouza (2012), the goals of these developmental programs include enhancing competence, confidence, character, caring, and connection.

Among other extracurricular activities (e.g., church and volunteer activities, performing arts, school-based activities), sport has emerged as a popular developmental domain. Sport has been defined as “organized, recreational, and skillful physical activity that has an element of competition” (Anderson-Butcher, 2011, pp. 2835-2836). Sport can be manifested through recreational games, physical education classes, organized sport leagues, sporting events, fitness programs, play-based therapeutic strategies, and extracurricular activities (Anderson-Butcher, 2011).

The specific venue to be covered in this study is interscholastic (high school) sport. Sport participation is crucial because it has the capacity to provide adolescents the opportunity to develop a variety of skills. The widespread extent of involvement in sport illustrates the significant potential to make a positive impact on the lives of adolescents. The following section offers empirical evidence of the benefits associated with adolescent sport participation.

Benefits of Adolescent Sport Participation

A comprehensive list of the benefits of sport participation was offered by Anderson-Butcher et al. (2016). Thirty-three documented positive outcomes were
categorized into five areas of growth (Anderson-Butcher et al., 2016). Categories included emotional, intellectual, physical, psychological, and social development (Anderson-Butcher et al., 2016). These areas, examined in the following section, display the importance of sport participation for adolescents.

A myriad of emotional skills can be enforced through sport involvement. Bonnette, McBride, and Tolson (2001) measured whether sport participation influenced critical thinking and self-esteem of early adolescents from at-risk communities. Student-centered initiative games, which included sport skills instruction, inspired critical thinking capabilities (Bonnette et al., 2001). During a sport-based summer camp for youth from vulnerable populations, Anderson-Butcher, Riley, Amorose, Iachini, and Wade-Mdivanian (2014) observed that involvement promoted significant growth in sport competence as well as desired social competence (i.e., self-control, effort, teamwork, social responsibility).

Athletic participation can lead to intangible and tangible improvements in the academic setting (Fredricks & Eccles, 2006; Marsh & Kleitman, 2003). Over a three-year period, Fredricks and Eccles (2006) observed that participation in sport among those in grades 7-12 was positively correlated with perceptions of school belonging. The oldest cohort, who had participated in organized sport for three years, exhibited the highest perceived school belonging (Fredricks & Eccles, 2006). Marsh and Kleitman (2003) selected student-athletes through the National Center for Educational Statistics database to participate in a six-year longitudinal study. In this study, high school athletic
participation promoted academic grades, educational aspirations, coursework completion, self-esteem, and future college enrollment (Marsh & Kleitman, 2003).

Perhaps expectedly due to the nature of sport, involvement has been observed to promote physical development. In addition to growth in social competence, belonging, and general athletic competence, participants in a sport-based development program perceived improvement in all eight featured sports (i.e., volleyball, football, swimming, aerobics, soccer, track and field, wiffleball, basketball) (Anderson-Butcher et al., 2013). Another indicator of physical development is motor skill growth. Participants in a physical activity intervention demonstrated enhanced motor skills, as well as decreased Body Mass Index rates (Cliff, Wilson, Okely, Mickle, & Steele, 2007).

The influence of sport toward psychological well-being has also been observed (Greenleaf, Boyer, & Petrie, 2009). Among 260 first semester college students, participants reported that their previous participation in high school sport promoted enhanced body image and self-esteem (Greenleaf et al., 2009). In the past century, scholars and practitioners have espoused sport participation as a mechanism toward character development. Camire and Trudel (2010) investigated this relationship among high school student-athletes. These participants acknowledged enhanced social character (teamwork, perseverance, and loyalty) as well as moral character (honesty and respect) through sport participation (Camire & Trudel, 2010). Athletic competition was observed as a context to learn and/or apply moral and social values (Camire & Trudel, 2010).

Additionally, youth sport involvement has fostered positive social outcomes. Warner and Dixon (2011) examined the perspectives through which adolescent athletes...
experience a sense of community. One of the prime channels was perception of care and concern from their coaches and administrators (Warner & Dixon, 2011). The ability to serve in leadership capacities offered athletes additional sense of community (Warner & Dixon, 2011). Lastly, the nature of competition instilled a sense of community among participants (Warner & Dixon, 2011).

Susceptibility to problem behaviors can also be minimized through sport participation. Anderson-Butcher and Cash (2010) analyzed the impact of involvement in sport programs through the Boys & Girls Clubs of America toward problem behaviors (i.e., academic failure, drug and alcohol abuse, gang involvement). These 297 adolescents, primarily from vulnerable circumstances, reported that these detrimental behaviors were negatively associated with sport participation (Anderson-Butcher & Cash, 2010).

These results emphasize the ability of sport to foster adolescent development. Importantly, skills learned on athletic fields are largely transferable to other contexts. However, there is a documented lack of sport participation and physical activity involvement in the United States. As crucial as it is to champion the benefits of sport, it is equally instructive to acknowledge the reasons for lack of participation and dropout. The following section highlights areas in which involvement and participation can be enhanced.

**Lack of Involvement/Barriers to Sport Participation**

Although many adolescents are involved in and reap the benefits of participation, a large percentage of this population consciously chooses to drop out of sport. Many
formerly active youth discontinue sport participation during adolescence. Sport dropout rates can reach up to 35% annually (Nache, Bar-Eli, Perrin, & Laurencelle, 2005). Gould, Udry, Tuffey, and Loehr (1996) determined that highly competitive junior tennis players who had removed themselves from involvement were unlikely to return to competition. Those that rejoined active competition pursued less demanding competitive levels (Gould et al., 1996). These results demonstrate the substantial and long-term impact of sport discontinuation.

Data have shown a downward trend in involvement in certain organized sports among adolescents. Between 2007-2011, participation in touch football, wrestling, and cheerleading all decreased (Sporting Goods Manufacturers Association, 2012). These decreases ranged from 26.8%-40% (Sporting Goods Manufacturers Association, 2012). In terms of general physical activity, rates of physical inactivity rose from 24.3% to 38.9% over high school students’ tenures (Brownson, Boehmer, & Luke, 2005).

In addition to those who select to discontinue sport, many are restricted from initiating involvement. Discrepancies based upon socioeconomic status have been observed to impact levels of participation (Anderson-Butcher et al., 2014). Sport participation rates of adolescents from financially disadvantaged neighborhoods are lower than their peers (Anderson-Butcher et al., 2014). As identified in previous research (Anderson-Butcher et al., 2014; Riley & Anderson-Butcher, 2012), adolescent development tends to occur more significantly among individuals from vulnerable circumstances. Through a sport-based summer camp, participants that entered with the lowest economic indicators and social skills displayed the largest amount of social
development (Anderson-Butcher et al., 2014). Therein lies the issue: Adolescents from vulnerable backgrounds have the widest potential to improve themselves through sport, yet are often deterred from accomplishing this goal.

The benefits of extracurricular activities were articulated by Cosden, Morrison, Albanese, and Macias (2001). These authors noted that extracurricular activities serve four primary functions: (a) increase safety and supervision for participants, (b) promote community and cultural identification, (c) foster social skills and competencies, and (d) enhance academic achievement (Cosden et al., 2001). In their study, adolescents with low socioeconomic indicators exhibited improvements in effort in language, math, and reading, social skills, and study habits (Cosden et al., 2001). However, Lauer et al. (2006) expanded upon the paradox of extracurricular activities for adolescents from poverty. While adolescents from low-income homes gain more from involvement, they often lack access to these activities (Lauer et al., 2006). Results demonstrated that adolescents from impoverished homes participated in extracurricular activities at much lower rates than their more affluent peers (Lauer et al., 2006).

Particularly related to sport and physical activity, the root causes of lack of participation are primarily attributed to socioeconomic status (Dollman & Lewis, 2010). Voss, Hosking, Metcalf, Jeffery, and Wilkin (2008) reported that access to sport facilities was dependent on socioeconomic status. Adolescents from wealthier families participated in a significantly higher amount of extracurricular sport activities than those from financially disadvantaged homes (Voss et al., 2008). Among a population of middle school boys in the Midwestern United States, Robbins, Talley, Wu, and Wilbur (2010)
observed that limited access to equipment and the presence of drugs and violence in the community were deterrents to their physical activity (Robbins et al., 2010). Holt, Kingsley, Tink, and Scherer (2011) reported other problematic barriers toward sport participation among adolescents and parents from low-income families. These deterrents included time management and scheduling issues, financial barriers to becoming involved, and the financial strains of continued participation (Holt et al., 2011). Parents explained that financial obligations related to sport participation became more cumbersome as their child excelled (Holt et al., 2011). The unfortunate reality is that parents realized that their children would flourish through sport involvement and wanted to support their participation, but that the previously noted barriers constrained these opportunities (Holt et al., 2011).

Through a population of middle school girls from rural communities, Casey, Eime, Payne, and Harvey (2009) observed a variety of interpersonal, intrapersonal, and environmental barriers to physical activity. Participants reported that their peers did not create a supportive environment, which diminished their perceptions of self-competence (Casey et al., 2009). Females noted that their enjoyment of sport was restricted by overly competitive and insensitive male physical education teachers (Casey et al., 2009). From the organizational perspective, opportunities were restricted to those from a rural community (Casey et al., 2009). On the other hand, these females were more apt to pursue physical activity if they felt that the activity was enjoyable, if they felt involved with peers, and if their families initiated a supportive atmosphere (Casey et al., 2009).
Essentially, a number of constraining factors and barriers continue to restrict sport and physical activity participation among adolescents. These negative outcomes often relate to non-intrinsic motivational orientations, negative social influence, and limited access to opportunities. Continued emphasis should be placed upon the goal of understanding how to foster sport motivation among adolescents, especially for those from vulnerable communities.

Despite the prevalence of sport participation in the United States, a large segment of the adolescent population fails to garner the wide range of benefits through sport due to a lack of involvement. Participation is particularly diminished among adolescents from vulnerable circumstances. Efforts should be continued to increase sport participation rates among adolescents, and more so among those from vulnerable backgrounds. Two common antecedents of sport participation among adolescents are intrinsic motivation and social influence from coaches, parents/caregivers, and peers. These concepts are introduced in the following section and expanded upon in Chapter 2.

**Factors Promoting Participation**

A number of factors influence adolescents’ likelihood to participate in sport. Most importantly, initial and continued involvement in sport is shaped by the individual’s motivational orientation and factors related to interpersonal socialization. Athletes who are motivated through an intrinsic orientation, which involves natural enjoyment of their sport, are more likely to continue participation. Furthermore, individuals supported by those around them are more apt to participate in sport.
In the past century, motivation has emerged as a prime antecedent of sport participation. Several studies (e.g., Amorose, Anderson-Butcher, & Cooper, 2009; Garcia-Mas et al., 2010; Tsorbatzoudis, Alexandris, Zahariadis, & Grouios, 2006; Ullrich-French & Smith, 2009) have observed the applicability of motivational orientations toward continued sport participation and developmental outcomes. Tsorbatzoudis et al. (2006) deciphered that increased levels of intrinsic motivation fostered continued sport participation. Perceived competence, widely considered a critical element of motivation, has also been correlated with continued involvement (Ullrich-French & Smith, 2009). In addition to encouraging participation, intrinsic motivation has facilitated positive developmental outcomes. Amorose et al. (2009) determined that intrinsic motivation was positively related to well-being and negatively related to burnout. Garcia-Mas et al. (2010) observed that intrinsic motivation was strongly positively correlated with soccer players’ commitment and enjoyment.

Interpersonal socialization is another crucial antecedent of adolescent sport participation. Parental (e.g., Fredricks & Eccles, 2005), peer (e.g., Joesaar, Hein, & Hagger, 2012), and coach (e.g., Amorose & Anderson-Butcher, 2007) influence have been deemed impactful toward youth athletes’ motivational orientations and sport experiences. Childrens’ participation in and enjoyment of sport were fostered through tangible (i.e., equipment purchase) and intangible (i.e., encouragement, perceptions of competence) support from parents (Fredricks & Eccles, 2005). Peer support for skill development encouraged athletes’ intrinsic motivation and persistence (Joesaar et al., 2012). Amorose and Anderson-Butcher (2007) concluded that autonomy-support from
coaches was indicative of intrinsic motivation among high school and college athletes. Despite the wealth of knowledge that has been generated toward social influence, the vast majority of these studies have investigated the independent effects of one selected social agent. The base of literature can be enhanced through observation of the interactive effects of dual social agents (i.e., coach-peer, coach-parent/caregiver, peer-parent/caregiver).

In explaining the most instrumental determinants of athletic participation among adolescents, Weiss and Ferrer-Caja (2002) aligned these concepts with motivation and interpersonal socialization. The authors identified four factors toward promotion of sport participation, including (1) Improving physical competence, which involves learning and improving skills while achieving goals, (2) Seeking social acceptance and recognition from peers and adults, (3) Enhancing their physical appearance and levels of fitness, and (4) Enjoying the sport experience through fun, challenge, and excitement (Weiss & Ferrer-Caja, 2002). Therefore, adolescents become and remain active in sport participation based upon a variety of factors. These largely relate to an intrinsic motivational orientation and perceptions of support from coaches, peers, and parents/caregivers. The aforementioned studies demonstrate that adolescents who enjoy their sport and are supported by relevant social agents more commonly devote their time to sport.

The previous sections have highlighted the period of adolescence, benefits of sport and physical activity, as well as perceived barriers to involvement. In these sections, the topic of motivation has often been prioritized. Therefore, this study examines the
process of motivation among high school athletes from vulnerable populations. The following section provides a brief overview of the guiding theoretical framework of Self-Determination Theory (SDT; Deci & Ryan, 2000).

**Introduction to Theoretical Framework**

As the present study is guided by Self-Determination Theory, through its subtheory of Basic Psychological Needs Theory, it is imperative to introduce this theoretical framework. The following section provides a brief overview of the central tenets of the theory. More specific detail, in addition to a review of related literature, is presented in Chapter 2. Self-Determination Theory (SDT; Deci & Ryan, 2000) has become a popular set of principles toward understanding individuals’ motivational orientations in a variety of contexts. SDT theorizes that motivation exists along a continuum from amotivation to intrinsic motivation (Deci & Ryan, 2000). The theory was developed based on the belief that intrinsic motivation, involving natural enjoyment of an activity, promotes continued pursuit of that behavior (Deci & Ryan, 2000).

On the other end of the spectrum, amotivation constitutes a lack of motivation toward a particular activity and indicates a scarcity of satisfaction of the basic psychological needs of autonomy, competence, and relatedness (Deci & Ryan, 2000). In between intrinsic motivation and amotivation lies extrinsic motivation, which represents when behavior is controlled by external factors (e.g., avoidance of punishment, social pressure, pursuit of rewards) (Deci & Ryan, 2000). While more internalized than amotivation, the distinction between extrinsic motivation and intrinsic motivation is that
extrinsically motivated individuals have not incorporated their activity as part of their identity (Deci & Ryan, 2000).

A subtheory of SDT, Basic Psychological Needs Theory (BPNT; Deci & Ryan, 2008), surmises that perceptions of motivation relate to satisfaction (or lack thereof) of the basic psychological needs of autonomy, competence, and relatedness (Deci & Ryan, 2000). Autonomy involves “the experience of integration and freedom” (Deci & Ryan, 2000, p. 231). Competence refers to “a propensity to have an effect on the environment as well as to attain valued outcomes within it” (Deci & Ryan, 2000, p. 231). Relatedness is defined as “the desire to feel connected to others” (Deci & Ryan, 2000, p. 231). Satisfaction of these basic psychological needs has been associated with positive outcomes, including increased motivation toward sport (Amorose & Anderson-Butcher, 2007) and well-being (Conroy & Coatsworth, 2007).

Since the inception of SDT, scholars have begun to apply the theory to motivational orientations by measuring the influence of relevant social agents. Numerous studies (e.g., Conroy & Coatsworth, 2007; Joesaar, Hein, & Hagger, 2011; Sheldon & Watson, 2011) have examined the influence of coaches, peers, and parents/caregivers toward adolescent athletes’ motivational orientations. Results of these studies have emphasized the importance of social influence from coaches, peers, and parents/caregivers toward athletes’ motivational orientations. Notably, the majority of these studies have focused on a sole social agent. For example, Conroy and Coatsworth (2007) measured the influence of coaching strategies toward perceptions of motivation among adolescent swimmers. Results of this study depicted that perceptions of supportive
coaching behaviors were affiliated with athletes’ need satisfaction and reductions in fear of failure (Conroy & Coatsworth, 2007).

However, in a unique study that evaluated the influence of both peers and parents, Ullrich-French and Smith (2009) determined that combined effects were more impactful than a single social agent. In slight variation to the current study, Ullrich-French and Smith (2009) focused on the behaviors of friendship quality and acceptance from parents and peers. Despite this difference, their study presents a promising argument in favor of measurement of interactive effects of multiple social agents. The current study provides high school athletes from vulnerable neighborhoods the opportunity to reflect upon their perceptions of satisfaction of these three needs based upon social influence from their coaches and peers. A more expanded description of SDT, along with associated empirical evidence, is presented in Chapter 2.

Statement of the Problem

Adolescents in the United States are impacted by negative health and developmental outcomes (Kim et al., 2015). These consequences are generally more harmful for adolescents from vulnerable populations (Anderson-Butcher et al., 2016). One of the prime settings designed to minimize these consequences and to promote adolescent development is through sport and physical activity. While sport has been observed to foster beneficial outcomes, a large segment of this population is not involved. Sport dropout rates approach 35% annually and are highest during the period of adolescence (Fraser-Thomas, Cote, & Deakin, 2008). Adolescents from financially disadvantaged circumstances participate in sport less frequently than their peers, largely
due to their limited ability to access opportunities (Anderson-Butcher, 2005). Individuals from vulnerable backgrounds also perceive limited benefits associated with athletic involvement (Dollman & Lewis, 2010). Identifying motivational tendencies among the adolescent population, especially for those from vulnerable communities, remains a crucial objective to be addressed in this study.

Fortunately, the topic of motivation has received an increasing amount of focus from the scholarly community. However, certain aspects of this topic remain understudied. Notably, the amount of research toward psychological need satisfaction and motivational orientations of high school student-athletes in the United States has been limited. Results have depicted that coaches, parents/caregivers, and peers maintain significant influence over the motivational orientations of adolescent athletes (e.g., Bhalla & Weiss, 2010; Gould & Carson, 2010; Joesaar et al., 2012). While scholars (e.g., Amorose & Anderson-Butcher, 2007; Duncan, Duncan, & Strycker, 2005; Fredricks & Eccles, 2005) have investigated the independent effects of these social agents, the potential interaction among sources of social influence has not been accounted for. More effective sport programming could be achieved if knowledge of sport socialization and motivation are enhanced. This research initiative attempts to address these problems.

An important component of developing the purpose of this study was to identify the limitations and gaps of existing literature. The following section illustrates these limitations articulated by previous authors. These existing limitations, combined with the need for understanding the motivational orientations of adolescent athletes, provide a justification for this study.
Limitations of Existing Literature/ Gaps in Literature

Many of the previous studies related to SDT in the context of sport have independently examined the consequences of social influence toward motivational orientations. Studies have individually measured social influence from coaches (e.g., Amorose & Anderson-Butcher, 2007), parents (e.g., Gagne, Ryan, & Bargmann, 2003), or peers (Joesaar et al., 2011). Results of these studies have often highlighted the importance of social agents toward adolescent athletes’ experiences. For example, Joesaar et al. (2011) focused specifically on the peer-oriented climate. This study revealed that persistent athletes perceived higher levels of support from peers (Joesaar et al., 2011). Meanwhile, Amorose and Anderson-Butcher (2007) observed need satisfaction based on the coach-athlete relationship and determined that autonomy-support from the coach was related to need satisfaction.

While these results have yielded valuable conclusions, the need for measurement of the interaction of influence from dual social sources remains. Although scholars have begun to simultaneously examine multiple relationships (e.g., Kipp & Weiss, 2015; Riley & Smith, 2011), they have yet to account for the interaction among these relationships. Ullrich-French and Smith (2009) suggested that future investigations incorporate measurement of a plurality of relevant social agents, which would generate a more comprehensive knowledge of need satisfaction and motivation. As previously noted, the most meaningful social agents are coaches, peers, and parents/caregivers. Opportunities exist to expand knowledge in each of these areas. During athletic practice and competition, participants engage in various interactions with coaches and peers.
Separately, scholars have highlighted the importance of influence from coaches (Quested & Duda, 2010) and peers (Hodge & Gucciardi, 2015). Knowledge of the combined level of influence between these two important social agents is limited. Initiatives to account for the interaction of influence from coaches and peers would contribute to the literature base. Therefore, this study explores the interaction of social influence from coaches and peers toward adolescent athletes’ perceptions of psychological need satisfaction.

A variety of settings have been selected for studies involving SDT and sport, including recreational sport (i.e., Gonzalez-Cutre & Sicilia, 2012; Quested & Duda, 2010; Tzorbatzoudis et al., 2006), elite youth sport leagues (i.e., Balaguer et al., 2012; Garcia-Mas et al., 2010; Kipp & Weiss, 2015; Rottensteiner, Happonen, & Konttinen, 2015), middle school sport (i.e., McDavid et al., 2012), high school athletics (i.e., Boiche & Sarrazin, 2007; Koh, Wang, Erickson, & Cote, 2012), and college sport (i.e., Choi, Cho, & Huh, 2013; Hodge & Gucciardi, 2015; Hodge & Lonsdale, 2011; Kingston, Horrocks, & Hanton, 2006; Mack et al., 2011).

Despite the significant growth of SDT-based research within sport, a limited amount of studies have investigated the topic among high school student-athletes in the United States. Scholars have examined motivation of high school participants in other countries (i.e., Boiche & Sarrazin, 2007; Koh et al., 2012) and high school-aged athletes involved in club programs (i.e., Amorose et al., 2009). Yet, Amorose and Anderson-Butcher (2007), Kipp and Amorose (2008), and Riley and Smith (2011) represent the only studies conducted among high school sport in the United States. Results from these studies dictated that the influence of social agents is related to need satisfaction and
motivational orientation. Further discussion of these results is presented in Chapter 2.

This dearth of research establishes the need for further examination within the population of interscholastic athletes.

Another opportunity for scholars is to select participants from a variety of sports. Often, study participants have represented a single team or individual sport, such as basketball (i.e., Riley & Smith, 2011) or golf (i.e., Spray, Wang, Biddle, & Chatzisarantis, 2006). Athletes in individual sports practice and compete independently, requiring few task interactions and communications (Colman & Carron, 2001).

Meanwhile, individuals in team sports compete dependently and establish group norms based on task-related interactions and communication (Colman & Carron, 2001). Lockhart, Black, and Vincent (2010) observed that team sport athletes perceived higher levels of self-esteem than individual sport athletes. As explained by Garcia-Mas et al. (2010), whose study measured one sport (i.e., soccer) in one location (i.e., Balearic Islands), this reflects a limitation toward generalizability. Therefore, as adopted by Lockhart et al. (2010), athletes participating in baseball, basketball, cheerleading, field hockey, football, lacrosse, soccer, softball, or volleyball were classified as team sport athletes. Conversely, those involved in cross country, track and field, and golf were categorized as individual sport athletes.

Gender selection has also presented as a limitation of previous studies. Some studies (e.g., Amorose et al., 2009; Gagne et al., 2003) have been restricted by including only females in their sample, while others (e.g. Fenton et al., 2006; Garcia-Mas et al., 2010) have invited a male-only sample. Therefore, as adopted in certain studies (e.g.,
Amorose & Anderson-Butcher, 2007; Tsorbatzoudis et al., 2006; Standage, Duda, & Ntoumanis, 2005), this inquiry measures the motivational orientations of males and females.

Related to the topic of SDT in sport, the majority of studies have sought participation from a predominantly Caucasian/White population. In fact, Kingston et al. (2006) has been the only study that has included a representatively proportional distribution among races and ethnicities. Conversely, participants in this study reflect a diverse population. The convenience sampling approach has enabled the author to purposefully select schools that offer participants from a wide range of races and ethnicities.

Lastly, as explained by Riley and Anderson-Butcher (2012), sport-based programs are especially impactful for adolescents from disadvantaged backgrounds. However, SDT-based studies have not emphasized need satisfaction among these participants. In this study, high school student-athletes from vulnerable neighborhoods will reflect on their relationships with coaches and peers. Indicators of socioeconomic status were collected in order to distinguish among participants. The approach of this study can enable sport management professionals to comprehend the influence of need satisfaction in destitute areas.

A study conducted by Sarrazin, Guillet, and Cury (2001) provided a thorough illustration of the limitations that have restricted the generalizability of studies related to this topic. As their sample included adolescent female handball players from a low competitive level, the generalizability of their results was restricted. Because of their
sample limitations, these conclusions could not be appropriately applied to male handballers, elite athletes, and participants in other sports (Sarrazin et al., 2001). By accounting for multiple sources of social influence, type of sport, gender, race and ethnicity, and socioeconomic status, and incorporating the previously underutilized setting of high school sport, this study is devoted to previously understudied elements. Addressing the problem statement and the limitations of previous literature constitute the purpose of this study.

**Purpose of the Study**

Broadly, the purpose of this study is to develop a stronger comprehension of the factors that motivate adolescents, especially those from vulnerable circumstances, to participate in sport. Observing the techniques through which sport is constructed assists in this initiative. Previous literature related to this topic has espoused the importance of social influence from coaches, parents/caregivers, and peers within this process. In continuation of this line of research, the specific purpose of this study is to examine the (a) main effects and (b) interactive effects of social influence from peers and coaches toward the motivational orientations of high school student-athletes from vulnerable areas.

The independent influences of both peers and coaches have been highlighted, especially among adolescents. While these results have contributed to the field of sport management, a gap exists pertaining to interaction among sources of influence. A limited amount of studies have broached the topic of interaction among dual sources of influence, and none have focused on the combination of coach and peer influence within a
population of high school athletes. This study attempts to address that gap by measuring the interactive effects of influence from coaches and peers toward adolescent athletes’ motivational orientations. Results that provide information toward the combined effects of coach and peer influence would offer a greater connection between SDT and sport socialization. Ultimately, this could enhance adolescent participation rates and afford them the opportunity to reap the benefits of sport. In accordance with the purposes of this study, four research questions have been generated to examine these phenomena.

**Research Questions**

Based on a review of literature involving adolescence, sport and physical activity, motivation, interpersonal socialization, and adolescents from vulnerable populations, the following research questions have been designed:

1. What are overall perceptions of psychological need satisfaction (i.e., autonomy, competence, relatedness) among high school student-athletes from vulnerable populations?

2. What are the (a) main effects and (b) interactive effects of coach and peer autonomy support toward perceived autonomy among high school student-athletes from vulnerable populations?

3. What are the (a) main effects and (b) interactive effects of coach and peer competence support toward perceived competence among high school student-athletes from vulnerable populations?
4. What are the (a) main effects and (b) interactive effects of coach and peer relatedness support toward perceived relatedness among high school student-athletes from vulnerable populations?

Initially, the researcher developed these research questions based on the categorization of included high schools as representative of vulnerable communities. After data collection, it was determined that the sample population did not constitute a largely vulnerable community. Rather, a more accurate description is to emphasize these locations as urban. As explained by Bernhard et al. (2013), urban communities are signified by a large percentage of minority residents and high poverty levels. According to the Department of Education (2013), the schools that participated in this study operated within urban communities. Thus, for the remainder of the document, participants are referenced as representative of urban populations and the research questions were adjusted to reflect this change.

**Definitions**

Several terms noted in this study required constitutive definitions, which are provided below. Operational definitions are listed in Chapter 3.

**Adolescence**- a stage of life beginning with puberty through the time in which individuals incur adult rights and responsibilities (Adams, 2005).

**Amotivation**- “a state in which people lack the intention to behave, and thus lack motivation as that term is defined in the cognitive-motivational tradition” (Deci & Ryan, 2000, p. 237).

**Autonomy**- “the experience of integration and freedom” (Deci & Ryan, 2000, p. 231).
Coach- a person who trains an athlete or a team of athletes.

Competence- “a propensity to have an effect on the environment as well as to attain valued outcomes within it” (Deci & Ryan, 2000, p. 231).

Extrinsic Motivation- controlled behavior that is based upon an external locus of causality (Deci & Ryan, 2000).

Individual Sport Athlete- athletes that practice and compete independently, requiring few task interactions and communications (Colman & Carron, 2001).

Influence- the capacity to have an effect on the character, development, or behavior of someone or something, or the effect itself.

Intrinsic Motivation- “active engagement with tasks that people find interesting and that, in turn, promote growth” (Deci & Ryan, 2000).

Need Satisfaction- the perception of the ability, or lack thereof, that a basic psychological need has been satisfied.

Peer- a person of the same age, status, or ability as another specified person.

Relatedness- “the desire to feel connected to others” (Deci & Ryan, 2000, p. 231).

Social Agent- an interpersonal or environmental association which influences the behavior of an individual.

Team Sport Athlete- athletes that compete dependently and establish group norms based on task-related interactions and communication (Colman & Carron, 2001).

Urban Areas- locations defined by large minority populations and high poverty rates (Bernhard et al., 2013).
Vulnerable Communities - “the economically disadvantaged, racial and ethnic minorities, the uninsured, low-income children, the elderly, the homeless, those with human immunodeficiency virus (HIV), and those with other chronic health conditions, including severe mental illness” (Aday, 2001).

Overview of Remaining Chapters

The remainder of this document is organized into four chapters. Chapter 2 represents a review of the literature involving SDT and sport socialization. The methodology utilized to complete the study (research design, population demographics, instrument description, data collection, and analysis procedures) is explained in Chapter 3. Chapter 4 offers the results observed through the study. Discussion of results and recommendations for future research is covered in Chapter 5.
Chapter 2: Review of Literature

The following chapter presents a review of literature related to adolescence and affiliated outcomes, motivation in adolescent contexts (including sport), interpersonal socialization, and the implications for sport programming. The chapter commences with a description of the outcomes faced by adolescents, with special attention to those from vulnerable backgrounds. Following a brief summary of the purpose of adolescent sport, the focus then shifts to the topic of motivation. The theoretical concepts of SDT and BPNT are explained. Thereafter, empirical evidence related to the theory applied to adolescent domains and sport is depicted. Additionally, the connection between adolescent athletes’ levels of motivation and need support received from social agents (i.e., coaches, parents/caregivers, peers) is discussed. Also, more general sport-based SDT studies are discussed. Lastly, the ramifications of sport programming for adolescents, particularly for those from vulnerable communities, are examined.

Adolescent Outcomes

Adolescents from the United States face a variety of physical and mental challenges that threaten to restrict their development (e.g., physical inactivity, obesity, psychological disorders). One of the pressing issues involving adolescents is an overall lack of physical activity. In a national study of adolescents, 24.2% of male students and 37.9% of female students were classified as physically inactive (Brownson et al., 2005). This categorization was based on the percentage of high school students who attended
daily physical education classes and exercised vigorously for 20 minutes each day (Brownson et al., 2005). Alarmingly, lack of physical activity is positively correlated with diabetes, heart disease, and cancer (Brownson et al., 2005). While outside the purview of the current study, scholars and practitioners would be well served to place increased emphasis on the topic of lack of physical activity among adolescents.

Obesity is another negative outcome that plagues adolescents. Johnson et al. (2009) determined that adolescents in the United States were susceptible to the risk factors for obesity. These four risk factors were elevated triglyceride levels, low cholesterol, high blood pressure, and elevated glucose rates (Johnson et al., 2009). In this study of 2,456 adolescents between the ages of 12-19, 42% displayed at least one of these factors (Johnson et al., 2009). Daratha and Bindler (2009) added that adolescents’ waist circumference measurements have increased. These rates have particularly spiked among female adolescents (Daratha & Bindler, 2009).

Adolescents have also been susceptible to mental health disorders. Trosper, Whitton, Brown, and Pincus (2012) noted that 46.9% of participants maintained four or more diagnoses related to anxiety or depression. The most common disorders were generalized anxiety disorder, social phobia, separation anxiety disorder, and obsessive-compulsive disorder (Trosper et al., 2012). Similarly, Small et al. (2008) observed that 51.7% of their adolescent sample population presented with a minimum of one psychiatric disorder. These included anxiety disorders, disruptive behavior disorders, generalized anxiety disorders, and attention deficit hyperactive disorder (Small et al., 2008).
A variety of negative outcomes related to physical and mental health afflict adolescents. Unfortunately, these outcomes appear to be more deleterious for adolescents from vulnerable populations. The following section presents evidence of the debilitating effects of negative outcomes for adolescents from vulnerable circumstances.

**Outcomes for Adolescents from Vulnerable Circumstances**

Certain challenges (e.g., academic performance, obesity, violent and deviant behavior) are more problematic for adolescents from vulnerable communities. Brown (2009) analyzed the presence of academic persistence in the face of economic challenges. Academic persistence was conceptualized as the willingness and ability to overcome challenges to complete a moderately difficult task. Children from the Head Start program ($n = 103$) demonstrated that socioeconomic indicators were related to academic persistence (Brown, 2009). Adolescents from poverty, those with attention problems, and non-autonomous participants were significantly less likely to remain persistent (Brown, 2009).

Rates of obesity are often tied to differences in socioeconomic status. Adolescents below the poverty line maintained an obesity rate of 23%, as compared to 8% among peers at or above 300% of the federal poverty level (Babey, Hastert, Wolstein, & Diamant, 2010). Tate, Dillaway, Yarandi, Jones, and Wilson (2015) focused on obesity rates of African American adolescents from a rural community. Responses from 145 participants revealed that adolescents from lower socioeconomic classifications were more likely to have higher rates of body mass index (Tate et al., 2015).
Another outcome that is related to socioeconomic status is the propensity toward violent and deviant behavior. Among 576 middle school students, Moren-Cross, Wright, LaGory, and Lanzi (2006) investigated the relationship between socioeconomic variables and problem behavior. Two measures of socioeconomic status were included in their study: poverty rate and mother’s education level (Moren-Cross et al., 2006). Poverty was significantly correlated with propensity for problem behavior, while higher rates of academic accomplishment by participants’ mothers corresponded with lower problem behaviors (Moren-Cross et al., 2006). Furthermore, the amount of social cohesion with peers substantially limited the extent of problem behavior (Moren-Cross et al., 2006).

The aforementioned results reflect a wide range of obstacles faced by adolescents. These challenges are particularly daunting for those from less fortunate circumstances. Partially to mitigate these consequences, administrators have initiated a range of extracurricular activities to promote positive adolescent development.

**Adolescent Sport Involvement and Outcomes**

Organized sport has emerged as a popular context for adolescent development. The emerging field of sport for development has been conceptualized as “the use of sport to exert a positive influence of public health, the socialization of children, youths and adults, the social inclusion of the disadvantaged, the economic development of regions and states, and on fostering intercultural exchange and conflict resolution (Lyras & Welty Peachey, 2011, p. 311). A variety of benefits toward adolescent development (e.g., emotional, intellectual, physical, psychological, social) have been associated with sport participation. However, a large segment of the adolescent population does not take
advantage of these opportunities. In the United States, adolescent participation in touch football, wrestling, and cheerleading decreased between 27-40% from 2007-2011 (Sporting Goods Manufacturers Association, 2012).

Sport programs display the potential to inspire positive changes for citizens from marginalized communities (Sherry, 2010). Members of the Street Socceroos Cape Town Homeless World Cup Team, designed to promote inclusion and develop social capital, observed the potential for success through participation (Sherry, 2010). This initiative enabled team members to believe that their situations were not helpless, and by extension, improved their motivation and persistence (Sherry, 2010).

However, inspiring sport participation from adolescents in financially disadvantaged neighborhoods presents a challenge for sport management professionals (Anderson-Butcher, 2005). Scholars (e.g., Anderson-Butcher, 2005; Anderson-Butcher et al., 2014; Hartmann, 2003; McDonough, Ullrich-French, Anderson-Butcher, Amorose, & Riley, 2013; Riley & Anderson-Butcher, 2012; Ullrich-French & McDonough, 2013) have closely examined sport-based development programs for vulnerable adolescents. The importance of this issue is reflected in the finding that sport participation is especially impactful for adolescents form disadvantaged backgrounds (Riley & Anderson-Butcher, 2012). This study examined the effects of a sport-based summer camp for adolescents from vulnerable backgrounds based in the mission of increasing social competence of participants, increasing self-control, effort, teamwork, and social responsibility, encouraging a sense of belonging and connection, and exposing adolescents to college life (Riley & Anderson-Butcher, 2012). Parents reported that their
children benefitted from biopsychosocial development, including ability to form friendships and social skills (Riley & Anderson-Butcher, 2012). Positive family and community impacts were also observed (Riley & Anderson-Butcher, 2012). Lastly, due to their children’s involvement with the program, parents’ minds were eased (Riley & Anderson-Butcher, 2012).

Similarly, Hartmann (2003) analyzed a case study of a Chicago-based PYD program. This initiative, created by Larry Hawkins, incorporates educational components to synthesize sport-based and non-sport activities. The program has demonstrated success in combining a multi-faceted approach (Hartmann, 2003). Ullrich-French and McDonough (2013) identified that camp participants with lowered Body Mass Index (BMI) and higher attendance rates were more apt to continue involvement. Anderson-Butcher et al. (2014) concluded that within a population of disadvantaged youth, promotion of a sense of belonging is critical to participants. Therefore, administrators must foster this sense of connection through peers, coaches, and other relevant social agents (Anderson-Butcher et al., 2014). McDonough et al. (2013) also examined the outcomes of sport-based programs for disadvantaged adolescents. Their results depicted that peer and adult social responsibilities influenced development of social responsibility. Sport programs can be utilized to promote development of adolescents from diverse backgrounds.

As observed in the previous sections, the concept of motivation is relevant toward adolescent athletes’ experiences. The following section presents a brief overview of the
importance of motivation. Thereafter, the theoretical framework of SDT is explained and examined.

**Importance of Motivation**

One of the primary factors related to the decision-making process involves the extent to which individuals maintain motivation for the activity. Examination and development of theories of motivation have evolved greatly over the course of the past century. The following section presents a brief historical overview of examination of motivation.

As late as the end of the 19th century, the concept of motivation was ignored within the scientific community (Mowrer, 1952). Instead, topics such as instinct, reason, and repetition were prioritized (Mowrer, 1952). Among the seminal scholars to examine motivation was Calvin L. Stone. Stone (1934) defined motivation as “a complex of dynamic factors by which an organism is aroused to perform specific reactions toward stimuli or objects of its environment” (Stone, 1934, p. 75). These stimuli were referred to as incentives and internal needs (Stone, 1934).

Citing the lack (and difficulty) of creating a universal definition of motivation, Kleinginna and Kleinginna (1981) categorized a list of motivation definitions developed between 1970-1981. These definitions were ascertained from texts and articles in the fields of motivation, psychology, and animal behavior (Kleinginna & Kleinginna, 1981). Table 1 presents a summary of the categories and descriptions of these definitions.
Table 1

Definitions of Motivation from 1970-1981

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenomenological</td>
<td>Need, desire, and affect</td>
</tr>
<tr>
<td>Physiological</td>
<td>Physical processes and needs</td>
</tr>
<tr>
<td>Energizing</td>
<td>Arousal and maintenance of motivation</td>
</tr>
<tr>
<td>Directional</td>
<td>Direction and strength of goal orientation</td>
</tr>
<tr>
<td>Vector</td>
<td>Energy arousal and direction of orientation</td>
</tr>
<tr>
<td>Temporal-restrictive</td>
<td>Determinants of behavior</td>
</tr>
<tr>
<td>Process-restrictive</td>
<td>Differentiating motivation from other concepts</td>
</tr>
<tr>
<td>Broad/balanced</td>
<td>Definitions with various elements</td>
</tr>
<tr>
<td>All-inclusive</td>
<td>Determinants and causality of motivation</td>
</tr>
</tbody>
</table>


Of 124 definitions of motivation from 1970-1981, the highest amount of definitions \((n = 30)\) were placed in the vector category. Therefore, during this period, motivation was most commonly defined as a combination of energy arousal and acknowledgment of the direction of motivation. The thorough analysis conducted by Kleinginna and Kleinginna (1981) highlighted the various ways in which motivation is defined and measured.

More recently, scholars have defined motivation by the factors that shape the process (Jang, Conradi, McKenna, & Jones, 2015). The six concepts that were noted to constitute motivation are attitudes, interests, values, self-efficacy, self-concept, and goals (Jang et al., 2015). Attitudes were defined as a set of developed feelings that promote a certain behavior (Jang et al., 2015). Interests were reflected as a positive orientation toward a particular topic (Jang et al., 2015). Values referred to the extent to which an
activity is found enjoyable or worthwhile (Jang et al., 2015). Self-efficacy was defined as an individual’s belief in their ability to accomplish a specific task (Jang et al., 2015). Self-concept involved a person’s perception of their competence within an activity (Jang et al., 2015). Lastly, goals were determined to be an orientation and intention toward a behavior (Jang et al., 2015).

As the concept of motivation has gained increasing attention, scholars have developed theories to examine motivational orientations. One of the most popular motivational theories is Self-Determination Theory (SDT; Deci & Ryan, 2000). The following sections present the elements of SDT. The theoretical framework of SDT, in particular its application within sport, guides the current study.

**Self-Determination Theory**

In many contexts, SDT (Deci & Ryan, 2000) has been the most commonly utilized theoretical framework to examine motivation. SDT has often been adopted to measure motivational orientations in adolescent settings (e.g., school, physical education, sport). Evidence of this research, focused primarily on the sport domain, is offered following a theoretical examination of SDT and BPNT. Due to these advances, the theoretical framework of SDT is used in this study to measure motivational orientations of high school athletes. As such, the principles of SDT are outlined in the following section.

SDT is a macrotheory that incorporates human motivation, wellness, and development (Deci & Ryan, 2008). This theory conceptualizes humans as “active, growth-oriented organisms, that innately seek and engage challenges in their
environments, attempting to actualize their potentialities, capacities, and sensibilities” (Deci & Ryan, 2002, p. 8). SDT theorizes that the prime basic psychological needs are universal, innate requirements that remain consistent across cultures and contexts (Deci & Ryan, 2002). The four mini-theories within SDT are Cognitive Evaluation Theory, Organismic Integration Theory, Causality Orientations Theory, and Basic Psychological Needs Theory (Deci & Ryan, 2002). This study focuses on Basic Psychological Needs Theory (BPNT), which is explained following description of the SDT continuum.

The unique aspect of SDT is that it accounts for types of motivation, rather than simply recording the amount of overall motivation (Deci & Ryan, 2008). Since its development in the mid-1980s, SDT has demonstrated empirical value in a variety of contexts (Deci & Ryan, 2008). The prime element of this theory states that individuals’ motivational orientations exist along a continuum of amotivation, extrinsic motivation, and intrinsic motivation (Deci & Ryan, 2000). The segments of this continuum are explained in the following sections.

**Motivation Continuum- Amotivation**

Amotivation has been classified as “a state in which people lack the intention to behave, and thus lack motivation…” (Deci & Ryan, 2000; p. 237). For example, a youth who perceives that exercise is no longer worthwhile would be categorized as amotivated (Vallerand, 2001). It has been theorized that individuals adopting a profile of amotivation are susceptible to dissatisfaction and burnout (Deci & Ryan, 2000).
Motivation Continuum- Extrinsic Motivation

Extrinsic motivation corresponds to completion of an activity with an external locus of control (Deci & Ryan, 2000), meaning that the individual perceives that outcomes in their lives are determined by external influences (Wang, Bowling, & Eschleman, 2010). Examples of extrinsic motivation include behavior in pursuit of rewards or to seek external approval (Deci & Ryan, 2000). SDT posits that extrinsically motivated individuals have not internalized their behavior, which limits their motivation as compared to intrinsic motivation (Deci & Ryan, 2000). However, unlike the standardized concepts of amotivation and intrinsic motivation, the motivation continuum distinguished between four methods of extrinsic motivation (i.e., external regulation, introjected regulation, identified regulation, integrated regulation) (Deci & Ryan, 2000). External regulation and introjected regulation were categorized as truly external behavior. External regulation is represented as either a pursuit of a reward or avoidance of punishment (Deci & Ryan, 2000). An example would be an athlete attending practice so that their coach would allow them to play in the upcoming game (Vallerand, 2001). Introjected regulation was considered somewhat external, as individuals ascribe their self-worth to their success in the activity (Deci & Ryan, 2000). An individual participating in sport to avoid feelings of guilt would demonstrate this behavior (Vallerand, 2001).

Identified regulation, a somewhat internal process, is based on the acknowledgment that the activity is beneficial (Deci & Ryan, 2000). For instance, an athlete may decide to attend practice in order to enhance their skills (Vallerand, 2001).
Integrated regulation was determined to be the most internal method of extrinsic regulation. (Deci & Ryan, 2000). While not fully intrinsic behavior, this would include athletic competition based on the belief that it corroborates with other aspects of their life (Vallerand, 2001). For example, an athlete who believes that sport is important to staying healthy would be categorized by integrated regulation (Vallerand, 2001). These disparities have led to divergent hypotheses in terms of the outcomes of extrinsic motivation.

**Motivation Continuum- Intrinsic Motivation**

Lastly, intrinsic motivation involves an internal locus of causality in which individuals have fully integrated their behavior within their identities (Deci & Ryan, 2000). More specifically related to the concept of an internal locus of causality, these actions occur when an individual believes that they are in control of their own lives (Wang, Bowling, & Eschleman, 2010). SDT suggests that individuals acting for the purposes of intrinsic motivation, thus demonstrating pure enjoyment of the activity, will maintain enhanced rates of motivation (Deci & Ryan, 2000). Vallerand (2001) noted that intrinsic motivation incorporates motivation to know (i.e., learning), motivation to accomplish (i.e., skill mastery), and motivation to experience stimulation. An athlete who takes pleasure in skill development and participating in their sport would be classified as intrinsically motivated (Vallerand, 2001).

**Basic Psychological Needs Theory**

A subtheory of SDT is Basic Psychological Needs Theory (BPNT; Deci & Ryan, 2000). BPNT states that individuals’ placement along the amotivation-extrinsic
motivation-intrinsic motivation continuum relates to their satisfaction of three basic psychological needs: autonomy, competence, and relatedness. Ryan and Deci (2002) theorized that these three psychological needs must be met in order for a being to thrive. BPNT also accounts for contextual factors, in that external factors (e.g., environment, family, friends) either promote or thwart need satisfaction (Ryan & Deci, 2002). The framework of BPNT guides the current study. The following sections outline the theoretical aspects of these three psychological needs. Empirical data related to these topics are detailed later in Chapter 2.

**Autonomy**

The first fundamental need promoted through SDT is autonomy. This psychological nutrient refers to “the experience of integration and freedom” (Deci & Ryan, 2000, p. 231). Autonomous behavior includes any activity in which an individual identifies their behavior as an expression of themselves and maintains the ability to act of their own volition (Deci & Ryan, 2002). An athlete with the capacity to determine their type and level of involvement in sport would be considered autonomous. Despite the necessity for autonomous behavior to ultimately occur through the manifestation of the person’s desires, their actions may be influenced by others (Deci & Ryan, 2002). Therefore, contrary to the belief of some, autonomy is not synonymous with independence (Deci & Ryan, 2002). Social agents may support (or thwart) individuals’ levels of autonomy (Deci & Ryan, 2002).
**Competence**

Competence has been defined as “a propensity to have an effect on the environment as well as to attain valued outcomes within it” (Deci & Ryan, 2000, p. 231). Within SDT, competence is expressed as a sense of confidence toward an action rather than a specific achievement (Deci & Ryan, 2002). BPNT (Deci & Ryan, 2000) suggested that feedback is crucial toward individuals’ perceptions of competence. The pursuit of competence encourages individuals to identify optimal challenges and improve skills and competencies (Deci & Ryan, 2002). An example of competence in youth sport would be observed through a soccer player who displays confidence in their ability.

**Relatedness**

Relatedness involves “the desire to feel connected to others” (Deci & Ryan, 2000, p. 231). This psychological need promotes the importance of caring for and receiving care from others, as well as maintaining a sense of belonging within one’s community (Deci & Ryan, 2002). According to SDT, the need for relatedness would not be satisfied though assignment of a formal level of status (Deci & Ryan, 2002). Rather, individuals may perceive satisfaction of relatedness through a general sense of acceptance within their community (Deci & Ryan, 2002). Through sport, participants spend the majority of their time with coaches and peers. Those that perceive positive relationships with coaches and peers would depict satisfaction of the need for relatedness. Therefore, it is relevant to examine athletes’ perceptions of relatedness based upon their relationships with these social agents.
In a variety of adolescent contexts, including sport, outcomes are related to the individual’s motivational orientation (Ceci & Kumar, 2016; Deci & Ryan, 2000; Tsorbatzoudis et al., 2006). Prior to delving into sport-based motivation, it is beneficial to examine motivation of adolescents in other relevant contexts. Two of the most crucial adolescent development contexts, besides organized sport, are school and physical education. The following sections examine the influence of motivation toward these areas.

**School-Based Motivation**

Failures to promote academic motivation can lead to harmful consequences, including dropout from school (Scheel, Madabhushi, & Backhaus, 2009). In fact, lack of academic motivation was commonly cited as a prime antecedent by school dropouts (Scheel et al., 2009). Vallerand, Fortier, and Guay (1997) observed that school dropout was predicted by a lack of intrinsic motivation. Specifically, dropouts revealed that their disinclination to attend school was influenced by a lack of competence and autonomy to make their own decisions (Vallerand et al., 1997). In many cases, dropouts reported that parents, teachers, and administrators failed to support their academic accomplishments (Vallerand et al., 1997).

Fortunately, Scheel et al. (2009) determined that academic motivation can be enhanced. Methods of accomplishing this goal include promoting self-efficacy, realizing a purpose of school, positive family influences, prosocial peer relationships, counselor influence, and school structure (Scheel et al., 2009). Family influences include support from parents, siblings, and grandparents (Scheel et al., 2009). School relationships...
include the learning environment created by peers and teachers (Scheel et al., 2009). School structure, such as providing incentive for achievement, diminished dropout (Scheel et al., 2009). Ceci and Kumar (2016) conducted a correlational analysis to measure the influences of motivation, happiness, and stress toward creative capacity. Among 420 undergraduate students, intrinsic motivation was strongly positively correlated with subjective well-being and positive affect (Ceci & Kumar, 2016).

Through an SDT perspective, Taylor, Lekes, Gagnon, Kwan, and Koestner (2012) measured the influence of work and school experiences toward school engagement. These secondary school students \( (n = 3,248) \) reported that dropout intentions were negated by school need satisfaction and work need satisfaction (Taylor et al., 2012). These findings demonstrate the importance of developing academic motivation among students, and the influence of socialization toward this process.

**Motivation in Physical Education**

Beyond organized sport, SDT has also been incorporated within the context of physical education (e.g., McDavid et al., 2012; Standage et al., 2005). McDavid et al. (2012) measured the contributions of autonomy support, involvement, and modeling from parents and physical education (PE) teachers toward leisure-time physical activity motivation (McDavid et al., 2012). Participants included 162 middle school students (90% Caucasian) between 10-15 years old that reported exercising approximately three times per week. All behaviors (autonomy support, involvement, and modeling from mothers, fathers, and PE teachers) significantly predicted self-determined motivation toward leisure-time physical activity (McDavid et al., 2012). Furthermore, in all
instances, self-determined motivation led to actual physical activity in leisure time (McDavid et al., 2012).

Among 950 (490 male, 443 female) secondary school students, Standage et al. (2005) explored the influence of the PE and measurement variance based on gender toward need satisfaction. In accordance with SDT, need support was positively correlated with intrinsic motivation and introjected regulation and negatively correlated with extrinsic regulation and amotivation (Standage et al., 2005). Furthermore, autonomy-support, competence-support, and relatedness-support were all predictive of need satisfaction (Standage et al., 2005). Other than introjected regulation, in which females reported higher scores, females and males maintained similar rates of motivation (Standage et al., 2005).

**Self-Determination Theory in Sport**

The upcoming sections report and analyze empirical evidence pertaining to SDT within sport. SDT promotes that motivation exists along a continuum of amotivation-extrinsic motivation-intrinsic motivation that are influenced by satisfaction of the basic psychological needs of autonomy, competence, and relatedness (Deci & Ryan, 2000). Furthermore, satisfaction of these psychological needs are influenced by interactions with social agents (Deci & Ryan, 2000). Many studies have investigated motivational orientations of athletes based upon an SDT perspective. The purposes of these studies were to evaluate dimensions of the coach-athlete relationship (e.g., Adie, Duda, & Ntoumanis, 2012; Adie & Jowett, 2010), the relationship between motivation and continuing sport participation (i.e., Gucciardi & Jackson, 2013; Tsorbatzoudis,
Alexandris, Zahariadis, & Grouios, 2006), need satisfaction toward well-being (e.g., Amorose, Anderson-Butcher, & Cooper, 2009; Quested & Duda, 2010), motivation and burnout (i.e., Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002), differences in motivation based on competitive level (i.e., Kingston et al., 2006), and relationship among sport and other contexts (Boiche & Sarrazin, 2007).

Settings in which these studies were conducted included high school and college sport (e.g., Amorose & Anderson-Butcher, 2007; Gucciardi & Jackson, 2013), leisure-time recreational sport (e.g., Gonzalez-Cutre & Sicilia, 2012; Tsorbatzoudis et al., 2006), secondary schools participants (e.g., Viira & Koka, 2012; Wang & Liu, 2009), club programs (e.g., Coatsworth & Conroy, 2009; Joesaar et al., 2012), middle-school sport (i.e, McDavid et al., 2012), athletic clubs (e.g., Adie & Jowett, 2010; Bhatnagar & Karageorghis, 2008), elite youth sport leagues (e.g., Garcia-Mas et al., 2010; Rottensteiner et al., 2015), high school sport (i.e., Boiche & Sarrazin, 2007; Koh et al., 2012), health clubs (i.e., Vlachopolous & Karageorghis, 2005), university and international athletes (i.e., Ntoumanis & Standage, 2009; Gillet, Vallerand, Amoura, & Baldes, 2010), college sport (Chian & Wang, 2008; Mack et al., 2011), club, university, and international level (i.e., Felton & Jowett, 2013), and middle-and high-school athletes (i.e., Riley & Smith, 2011). Many of the previous studies that have utilized an SDT framework in the sport setting have focused specifically on satisfaction of basic psychological needs. Therefore, the following three sections present findings empirical data involving the psychological needs of autonomy, competence, and relatedness in the context of sport.
**Autonomy**

A total of 19 studies in sport realm have examined the antecedents and consequences of perceived autonomy. The following section is divided into three areas. This section begins with results of nine studies through which autonomy satisfaction was measured as an outcome. Thereafter, data is presented from studies ($n = 6$) involving autonomy as an antecedent. Lastly, results are presented from the four studies in which satisfaction of autonomy has served as both an outcome and antecedent.

Two studies (i.e., Amorose & Anderson-Butcher, 2007; Conroy & Coatsworth, 2007) examined autonomy as an outcome based on coach-autonomy support. Of the three psychological needs, Amorose and Anderson-Butcher (2007) noted that the strongest relationship toward need satisfaction occurred between autonomy-supportive coaching and autonomy ($\beta = .81$) Participants’ perceptions of autonomy were also higher than their estimates of competence and relatedness (Amorose & Anderson-Butcher, 2007). Essentially, athletes whose coaches afforded them opportunities to make their own choices felt the freedom to act of their own volition. Conroy and Coatsworth (2007) determined that perceived autonomy was fostered through autonomy-supportive coaching behaviors (i.e., interest in athlete’s input, praising autonomous behavior). These gains in autonomy applied to their need satisfaction in relation to coaches, but also improved their general need satisfaction in life (Conroy & Coatsworth, 2007).

Similarly, Quested and Duda (2010) deciphered multiple outcomes of perceived autonomy pertaining to the climate established by their coach. Among dancers, both autonomy support from coaches and task-involving climate were predictive of athletes’
perceptions of autonomy (Quested & Duda, 2010). Autonomy was also significantly positively associated with positive affect (Quested & Duda, 2010).

A slightly different approach was taken by Choi et al. (2013), who measured correlations of commitment, closeness, and complementarity with coaches toward athletes’ perceptions of autonomy. The psychological need of autonomy was positively associated with all three of these coaching behaviors (Choi et al., 2013).

A study conducted by Matosic and Cox (2014) investigated autonomy as an outcome of psychological need satisfaction or thwarting. Results demonstrated that autonomy was significantly positively related to autonomy support and competence (Matosic & Cox, 2014). On the other hand, autonomy demonstrated a negative correlation with controlling use of rewards, negative conditional regard, intimidation, and excessive personal control (Matosic & Cox, 2014).

Through a longitudinal study, Sarrazin et al. (2001) investigated the relation between autonomy and the motivational climate. Postseason autonomy was significantly positively related to preseason autonomy, preseason relatedness, midseason perception of a task-oriented climate, and postseason competence (Sarrazin et al., 2001). Conversely, postseason autonomy was negatively associated with an ego-involved motivational climate (Sarrazin et al., 2001). Furthermore, Kipp and Weiss (2015) observed the longitudinal predictors of need satisfaction and well-being. The most significant relationship involving autonomy indicated the correlation between preseason perceived autonomy to postseason perceived autonomy (Kipp & Weiss, 2015).
Evaluation of autonomy as an outcome of need satisfaction and well-being was conducted by Adie et al. (2012). Among elite soccer participants, Adie et al. (2012) measured the concept of autonomy through a longitudinal study. Postseason autonomy was positively associated with autonomy support, competence, relatedness, and subjective vitality, while negatively related to exhaustion (Adie et al., 2012).

The final study that utilized autonomy as an outcome was implemented by Viira and Koka (2012). This study compared perceptions of autonomy based on amount of sport experience. Athletes that had participated in afterschool sport for more than four years reported higher rates of autonomy (4.67) than those from younger cohorts (Viira & Koka, 2012). Participants involved for three months or those had mean scores of autonomy of 3.62, while those involved for 1-4 years reported autonomy scores of 4.31 (Viira & Koka, 2012).

As previously noted, perceived autonomy has also been tracked as an antecedent. Mack et al. (2011) examined the influence of psychological need satisfaction toward well-being among collegiate volleyball players. Results reflected enhanced perceptions of autonomy were associated with positive affect and vitality (Mack et al., 2011). While autonomy was valuable toward well-being, participants reported lower levels of autonomy than of competence and relatedness (Mack et al., 2011). Amorose et al. (2009) measured autonomy as an antecedent of need satisfaction and well-being. Over the course of a competitive season, Amorose et al. (2009) determined that satisfaction of the need for autonomy at postseason was significantly positively related to postseason perceived competence. These volleyball players also reported that, among the three needs,
postseason autonomy had the largest negative correlation with burnout (Amorose et al., 2009).

In terms of general motivation and actual performance, Spray et al. (2006) observed the capacities of golfers. Participants were randomly assigned to groups based on autonomous/controlling conditions. The autonomous condition led to athletes’ perceptions of greater choice and responsibility, while promoting better performance (Spray et al., 2006). Furthermore, during a free-choice period, athletes from the autonomous group more frequently continued the golf putting task (Spray et al., 2006). The authors concluded that autonomous conditions were especially relevant toward enhancing intrinsic motivation (Spray et al., 2006).

Two studies (i.e., Chian & Wang, 2008; Koh et al., 2012) measured autonomy as an antecedent of quality of sport experiences. Chian and Wang (2008) examined the influence of motivational orientations toward cognitive, behavioral, and affective outcomes among junior college athletes. Those with high rates of perceived autonomy also held the highest rates of sport competence, enjoyment, and effort (Chian & Wang, 2008). Through a cluster analysis of 1250 high school athletes, Koh et al. (2012) deciphered that autonomy was associated with positive experiences. Enhanced rates of autonomy promoted positive intrapersonal (e.g., strong sense of identity) and interpersonal (e.g., positive relationship with coaches) factors (Koh et al., 2012).

In a broader context, Ntoumanis and Standage (2009) explored the relation of autonomy to sportspersonship and antisocial attitudes. Results displayed that autonomy was strongly positively related to sportspersonship and negatively related to antisocial
attitudes. These adolescent and young adult athletes demonstrated the capacity for sport to instill prosocial values.

While the aforementioned studies have measured autonomy as either an outcome or an antecedent, certain studies have incorporated autonomy in both fashions. Joesaar et al. (2011) observed autonomy as an outcome of the team climate that had been established, after which autonomy served as an antecedent of motivation and persistence. Perceived autonomy was significantly positively related to a task-oriented climate, in which athletes focused on skill development (Joesaar et al., 2011). In turn, autonomy facilitated intrinsic motivation and persistence (Joesaar et al., 2011).

Other studies have investigated the influence of coach-related behaviors toward autonomy and future actions. Kipp and Amorose (2008) measured the influence of motivational climate toward self-determined motivation of 200 female athletes from club sport programs in the United States. Results revealed that perceived autonomy was dictated by the climate established by the coach. Mastery-oriented climates were attributed to high perceived autonomy, while lower rates of autonomy corresponded with ego-involved climates (Kipp & Amorose, 2008). Of the three needs, autonomy held the highest relationship toward athletes’ self-determined motivation (Kipp & Amorose, 2008). Hodge and Gucciardi (2015) conducted a multifaceted study related to psychological need satisfaction. Among the three psychological needs, autonomy had the most meaningful relationship (31% of variance) in relation to autonomy support (Hodge & Gucciardi, 2015). Perceived autonomy was also positively attributed to prosocial behavior toward teammates and opponents, and negatively related to moral
disengagement, antisocial behavior toward teammates, and antisocial behavior toward opponents (Hodge & Gucciardi, 2015).

Perceived autonomy has also been linked to elements of the coach-athlete and peer-athlete relationships (Riley & Smith, 2011). Autonomy was significantly correlated with a positive coach-athlete relationship and peer acceptance, and related slightly to positive friendship quality (Riley & Smith, 2011). Expectedly, autonomy was significantly positively related to self-determined motivation (Riley & Smith, 2011).

**Competence**

Other studies ($n = 19$) have evaluated perceptions of competence through a population of athletes. The following section uses the same approach, describing competence as an outcome, antecedent, and both. A total of 10 studies have looked at competence as an outcome.

Three studies (i.e., Amorose & Anderson-Butcher, 2007; Coatsworth & Conroy, 2009; Conroy & Coatsworth, 2007) examined competence as an outcome based on coach-autonomy support. The potential relationship between autonomy-supportive coaching behaviors and athletes’ competence was examined by Amorose and Anderson-Butcher (2007). While not as strong as the relationship between autonomy support and the other needs of autonomy and relatedness, competence was also positively impacted by coach-autonomy support ($\beta = .22$) (Amorose & Anderson-Butcher, 2007). Coatsworth and Conroy (2009) focused on the relationship between coach-autonomy support behaviors (i.e., interest, praise) and perceived competence among swimmers. Results revealed that competence was slightly positively influenced by coaches’ interest in their
participation and significantly affected by praise from coaches (Coatsworth & Conroy, 2009). A population of 165 swimmers in a recreational league reported that satisfaction of the need of competence was significantly related to perceived autonomy, and also positively correlated with autonomy-supportive coaching (Conroy & Coatsworth, 2007).

The extent to which well-being/ill-being indicators were dictated by perceived competence was examined by Quested and Duda (2010). Results demonstrated that competence was positively related to positive affect and inversely associated with negative affect (Quested & Duda, 2010).

Athletes’ perceptions of competence in relation to dimensions of the coach-athlete relationship were examined by Choi et al. (2013). Similar to the relationship with autonomy, commitment, closeness, and complementarity in the coach-athlete relationship were significantly indicative of competence (Choi et al., 2013). These results depict a strong impact of coach behaviors toward athletes’ abilities.

A cluster analysis presented by Matosic and Cox (2014) showed the debilitating effects of controlled motivation toward competence. Athletes’ perceptions of competence were minimized by controlling use of rewards, negative conditional regard, intimidation, and excessive personal control (Matosic & Cox, 2014). These results highlight the importance of promoting supportive environments in athletic competition.

The outcomes of competence in relation to need satisfaction and climate were examined by Sarrazin et al. (2001). In this study, Sarrazin et al. (2001) examined changes in competence for female handball players. Postseason competence was significantly altered ($R^2 = .23$) by motivational climate established by the coach (Sarrazin et al., 2001).
These included a positive relationship with task-climate and negative correspondence with ego-oriented climate (Sarrazin et al., 2001). Kipp and Weiss (2015) determined that adolescent gymnasts’ perceptions of competence served as a mediator of the relationship between coaches’ behaviors and athletes’ well-being (Kipp & Weiss, 2015). The most impactful behaviors toward perceived competence were coach-autonomy support and establishment of a performance climate (Kipp & Weiss, 2015).

Other studies (i.e., Adie et al., 2012; Viira & Koka, 2012) have observed the outcomes related to competence. Adie et al. (2012) examined the outcomes of basic psychological need satisfaction. In terms of subjective vitality, there were significant differences among participants due to perceived competence (Adie et al., 2012). Viira and Koka (2012) observed that perceptions of competence were increased by amount of involvement in afterschool sport. Athletes who had competed in sport for four or more years reported higher levels of perceived competence than their novice peers (Viira & Koka, 2012). Partially due to these results, this group demonstrated the highest rates of identified regulation (Viira & Koka, 2012).

Alternatively, five studies have included competence as an antecedent. Amorose et al. (2009) measured postseason competence of volleyball players in relation to other outcomes. Perceived competence at the end of the competitive season was slightly positively correlated with preseason self-esteem (Amorose et al., 2009). Satisfaction of the psychological need for competence has been linked with well-being (Mack et al., 2011). Of the psychological needs, competence displayed the strongest ability to predict positive affect (Mack et al., 2011).
Through a cluster analysis, Chian and Wang (2008) measured the antecedents of highly motivated college athletes. The highly motivated group reported enhanced sport competence, in addition to higher enjoyment and effort (Chian & Wang, 2008). Fortunately, the “highly motivated” segment represented the largest percentage of the population (Chian & Wang, 2008). Koh et al. (2012) noted that high school athletes with the highest levels of intrinsic motivation felt that their need for competence had been satisfied. This inclination toward competence limited stress and social exclusion (Koh et al., 2012).

A final measurement of competence as an antecedent was illustrated by Ntoumanis and Standage (2009). This study investigated the influence of competence on behavior toward teammates. Perceived competence was significantly positively related to sportspersonship and negatively correlated with antisocial attitudes (Ntoumanis & Standage, 2009).

In addition to studies that have measured competence as an outcome or an antecedent, others have examined both tendencies. Joesaar et al. (2011) measured the relationships among peer-oriented motivational climate, perceived competence, and intrinsic motivation. Perceived competence was significantly positively influenced by task-oriented peer climate and negatively related to ego-oriented peer-oriented climate (Joesaar et al., 2011). Additionally, perceptions of competence had the strongest relationship of the three needs with intrinsic motivation (Joesaar et al., 2011).

Multiple motivational relationships have also been observed. Kipp and Amorose (2008) evaluated the predictors of perceived competence, as well as the influence of
competence toward self-determined motivation. The foremost predictor of competence was effort and improvement. Expectedly, athletes’ perceptions of competence were likely to enhance self-determined motivation (Kipp & Amorose, 2008).

The influence of satisfaction of the need for competence toward prosocial and antisocial behaviors were measured by Hodge and Gucciardi (2015). Competence was positively associated with prosocial behaviors (i.e., congratulating teammates, helping injured opponents) and negatively related to antisocial behaviors (i.e., verbally abusing teammates, intimidating opponents) (Hodge & Gucciardi, 2015).

Lastly, Riley and Smith (2011) investigated the relationships between competence and dimensions of the coach-athlete and peer-athlete bonds. Competence was significantly positively related to all relationship variables (i.e., coach-athlete relationship, positive friendship quality, peer acceptance) (Riley & Smith, 2011). Perceived competence also demonstrated a positive association with autonomy (Riley & Smith, 2011).

**Relatedness**

Seventeen scholarly initiatives have ascertained athletes’ pursuits of satisfaction of the basic psychological need of relatedness. In an analysis of high school and college athletes’ experience, Amorose and Anderson-Butcher (2007) measured athletes’ levels of relatedness in relation to autonomy-supportive coaching. Results noted a significantly positive relationship ($\beta = .51$) between coach-autonomy support and relatedness. Conroy and Coatsworth (2007) examined the role of coach-autonomy support toward recreational swimmers’ perceptions of competence. Need satisfaction of relatedness was strongly

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influenced by autonomy-supportive coaching behaviors (Conroy & Coatsworth, 2007). Specifically, these were interest in athletes’ input and praising autonomous behavior (Conroy & Coatsworth, 2007). Notably, participants’ feelings of relatedness were the highest among the three psychological needs (Conroy & Coatsworth, 2007).

Satisfaction of the basic need for relatedness is conducive to well-being and ill-being behaviors (Quested & Duda, 2010). Perceived relatedness showed an especially strong negative correlation with ego-oriented climates (Quested & Duda, 2010). In turn, relatedness was positively predictive of positive affect and negatively indicative of negative affect (Quested & Duda, 2010).

Patterns between perceived relatedness and three distinct coaching behaviors were explored by Choi et al. (2013). While autonomy and competence were significantly related to commitment, closeness, and complementarity, relatedness did not display the same relationship (Choi et al., 2013). In particular, the lack of significance between relatedness and closeness opposed the study’s hypothesis.

Coaching behaviors are pertinent to athletes’ senses of relatedness (Matosic & Cox, 2014). In this study, relatedness was the psychological need most improved through autonomy-support (Matosic & Cox, 2014). On the other hand, all four measured controlling coach behaviors (i.e., controlling use of rewards, negative conditional regard, intimidation, and excessive personal control) served to diminish relatedness (Matosic & Cox, 2014).

Longitudinal analysis of the influence of the environment established by the coach toward psychological need satisfaction was conducted by Sarrazin et al. (2001).
Perceived relatedness had the largest growth over the course of a handball season (Sarrazin et al., 2001). In accordance with the study’s hypothesis, relatedness demonstrated a positive relationship with task-oriented climate and negative correlation with mastery-based environment (Sarrazin et al., 2001).

A few meaningful relationships involving relatedness were noted by Kipp and Weiss (2015). Gymnasts’ perceptions of relatedness with their coach at the beginning of the season were consistent with relatedness with the coach at postseason (Kipp & Weiss, 2015). Relatedness with teammates displayed a similar pattern (Kipp & Weiss, 2015). These results emphasize the stability of relatedness with valued social agents.

Adie et al. (2012) explored the long-term effects of need satisfaction through a population of elite adolescent soccer players. After two competitive seasons, players stated that their levels of relatedness had increased (Adie et al., 2012). Postseason relatedness was also strongly positively associated with vitality and inversely correlated with exhaustion (Adie et al., 2012).

Relatedness can be expanded throughout an athlete’s tenure (Viira & Koka, 2012). Boys in an afterschool sport program reported enhanced rates of relatedness from peers as they gained multiple years of participation in sport (Viira & Koka, 2012). This led them to perceive overall gains in feelings of relatedness after more than four years of involvement (Viira & Koka, 2012).

In four studies, athletes’ feelings of relatedness were measured as antecedents. Mack et al. (2011) identified the influence of relatedness toward psychological outcomes. Volleyball players reported that their level of satisfaction of the need for relatedness was
higher than those of autonomy and competence (Mack et al., 2011). These respondents also believed that relatedness was supportive of positive affect (Mack et al., 2011). Amorose et al. (2009) examined the influence of relatedness satisfaction toward well-being among 93 adolescent female volleyball players. At the end of their competitive season, athletes’ perceptions of relatedness were significantly positively related to postseason autonomy and competence (Amorose et al., 2009). However, unlike the two other psychological needs, relatedness did not influence postseason self-esteem (Amorose et al., 2009).

Perceptions of relatedness are correlated with a wide range of interpersonal outcomes (Koh et al., 2012). The most significant positive relationship in their study was between perceived relatedness and social capital, while relatedness was most oppositional to social exclusion (Koh et al., 2012). Ntoumanis and Standage (2009) conducted a study that included athletes’ levels of relatedness and associated behaviors. Of the three psychological needs, relatedness held the strongest positive relationship with sportspersonship (Ntoumanis & Standage, 2009). Satisfaction of relatedness also displayed a significant relationship with antisocial attitudes (Ntoumanis & Standage, 2009).

Four other studies have measured relatedness as both an outcome and an antecedent. Kipp and Amorose (2008) utilized an SDT framework to explore relationships among perceived motivational climates, need satisfaction, and self-determined motivation. As an outcome, relatedness was enhanced by having an important role on the team and was minimized by punishment of mistakes (Kipp & Amorose,
The authors noted that contrary to expectations, intra-team rivalry did not influence feelings of relatedness (Kipp & Amorose, 2008). Furthermore, the need for relatedness was not observed to be a significant predictor of self-determined motivation (Kipp & Amorose, 2008). This reflects the possibility that relatedness is the most distal among the three needs.

Adolescents aged 11-16 from basketball, soccer, and volleyball clubs demonstrated the importance of satisfaction of relatedness (Joesaar et al., 2011). In this study, athletes’ perceptions of relatedness were higher than those of autonomy and competence (Joesaar et al., 2011). Additionally, those with heightened senses of relatedness had increased propensity for intrinsic motivation and persistence within sport (Joesaar et al., 2011).

The effects of perceived relatedness have also been identified toward athletes’ behaviors (Hodge & Gucciardi, 2015). Relatedness was strongly positively correlated with prosocial attitudes toward teammates, and, to a lesser extent, associated with prosocial actions toward opponents (Hodge & Gucciardi, 2015). On the other hand, athletes with higher levels of relatedness were less prone toward antisocial behaviors toward teammates and opponents (Hodge & Gucciardi, 2015).

In a study conducted by Riley and Smith (2011), relatedness was associated with need support and self-determined motivation. Basketball players (n = 211) perceived that relatedness was fostered through coach-athlete relationships, positive friendship quality, and peer acceptance (Riley & Smith, 2011). These gains in feelings of relatedness also promoted participants’ self-determined motivation (Riley & Smith, 2011).
While the theory of SDT is largely composed of the importance of psychological need satisfaction, results have also reported the influence of social agents. The following section discusses results related to this topic.

**Influence of Relevant Social Agents**

Implicit within SDT and BPNT is the belief that relevant social agents influence the behavior of young athletes. Scholars that have examined the importance of social influence have identified the relevance of motivational climates. Prior to evaluating the effects of specific social agents, it is crucial to distinguish among motivational climates. Boyce, Gano-Overway, and Campbell (2009) described the differences in motivational outcomes based on sport-oriented climates. Task-oriented climates revolve around pursuit of skill development (Boyce et al., 2009). On the other hand, ego-oriented climates emphasize physical superiority and interpersonal competition (Boyce et al., 2009).

Results have demonstrated differences in motivational orientations based on the motivational climate. Among 128 middle school student-athletes, perceptions of a task-involved climate assisted in athletes’ development of task-orientation (Boyce et al., 2009). Essentially, athletes involved in a climate based on skill development were more motivated to improve their athletic skills (Boyce et al., 2009). Ultimately, task-involved climates fostered enhanced rates of athletic competence (Boyce et al., 2009). Similarly, Gould, Flett, & Lauer (2012) examined the impact of motivational climates on middle- and high-school athletes. Task-oriented climates were predictive of social capital, teamwork and social skills, and initiative (Gould et al., 2012). Conversely, ego-oriented climates were associated with stress, social exclusion, and negative peer interactions.
(Gould et al., 2012). Allen (2003) explored goal orientations, as well as perceptions of belonging, through a population of female adolescent athletes. Related to interpersonal outcomes, task-oriented climates corresponded with social recognition and perceived belonging (Allen, 2003). Furthermore, task-oriented climates were associated with perceived ability and sport enjoyment, while ego-oriented climates demonstrated the opposite relationship (Allen, 2003). The question remains: How are social agents influential toward these motivational climates and therefore motivational orientations of athletes? The present study intends to offer enhanced information toward this inquiry.

Specifically, coach (e.g., Amorose & Anderson-Butcher, 2007), peer (e.g., Joesaar et al., 2012), and parent (e.g., Fredricks & Eccles, 2005) influence have been deemed influential toward adolescent athletes’ motivational orientations and sport experiences. The following sections present evidence related to the influence of coaches, peers, and parents/caregivers toward athletes’ motivational orientations. This data demonstrates the merit of continued analysis toward the level of influence from coaches and peers.

**Coach Influence**

In the past few decades, scholars have increasingly focused on the influence of coaches toward athletes’ motivational orientations and experiences. A total of 18 studies have investigated coach-athlete relationships within an SDT framework. Amorose and Anderson-Butcher (2007) evaluated the influence of coaches toward athletes’ perceptions of psychological need satisfaction. It is important to note that autonomy-support was the only coaching behavior under investigation. Their sample included 581 high school and college athletes (85% Caucasian) in the Midwest region of the United States. In
accordance with their hypotheses, coach-autonomy support was strongly positively related to athletes’ perceptions of autonomy, competence, and relatedness (Amorose & Anderson-Butcher, 2007). Also notable was that females reported high levels of need satisfaction while college athletes believed that their coaches provided less autonomy support (Amorose & Anderson-Butcher, 2007).

Similarly, through a study of 335 high school athletes, Amorose, Anderson-Butcher, Newman, Fraina, and Iachini (2016) observed the influence of coach-autonomy support toward participants’ motivational orientations. In accordance with the tenets of BPNT, coach-autonomy support was positively associated with athletes’ self-determined motivation (Amorose et al., 2016).

Coach-established motivational climates have demonstrated a high degree of stability over a one-year period (Joesaar et al., 2012). In this study, coach-autonomy support positively influenced task-oriented peer climate (Joesaar et al., 2012). More importantly, motivational climate established by the coach maintained a significant influence on the athletes’ levels of motivation (Joesaar et al., 2012). Autonomy support from the coach was strongly positively related to athletes’ intrinsic motivation (Joesaar et al., 2012).

The influence of coach-autonomy support and coach involvement toward need satisfaction of gymnasts was identified by Gagne et al. (2003). From strongest to weakest, coach-autonomy support was positively correlated with autonomy, relatedness, and competence (Gagne et al., 2003). The relationship between coach-autonomy support and competence was the only non-significant correlation (Gagne et al., 2003). Coach
involvement was significantly positively correlated with autonomy, relatedness, and competence (Gagne et al., 2003).

Focused solely on coach behaviors, Fenton et al. (2014) measured their influence toward physical activity behaviors. Among male youth (aged 10-16) from football clubs, perceived controlling coach behavior was positively associated with extrinsic motivation and negatively related to intrinsic motivation (Fenton et al., 2014). Additionally, intrinsic motivation promoted daily moderate-to-vigorous physical activity and limited sedentary time (Fenton et al., 2014).

Among recreational swimming participants, Conroy and Coatsworth (2007) examined the influence of coach-autonomy support toward need satisfaction and fear of failure. These athletes, between the ages of 7-18, responded that coaches’ input and praise were crucial supportive behaviors. Furthermore, coaches utilizing these strategies were less inclined to demonstrate blame and punitive control. These swimmers affirmed the relationship between psychological need satisfaction and fear of failure (Coatsworth & Conroy, 2007). Youth who had received the least criticism from coaches and coach-autonomy support limited fear of failure (Coatsworth & Conroy, 2007). In a separate study, Coatsworth and Conroy (2009) observed that praise from coaches was positively associated with need satisfaction. Through this study, end-of-season perceived competence was predicted by beginning-of-season perceived competence and competence need satisfaction (Coatsworth & Conroy, 2009).

The social influence of the coach toward goal adoption was examined by Adie and Jowett (2010). Through a collaboration of SDT and achievement goal theory, the
authors measured the relationships among coach behaviors, goal adoption (i.e., mastery-approach, mastery-avoidance, performance-approach, performance-avoidance), and athletes’ motivation. Participants included male and female track athletes that had played for their coaches for an average of 3.6 years. Positive perceptions of the coach-athlete relationship led to development of mastery-performance goals, while low-functioning relationships corresponded with the performance-avoidance approach (Adie & Jowett, 2010). Also, the mastery-approach was correlated with intrinsic motivation (Adie & Jowett, 2010).

The potential influence of the coach toward demonstration of morality was investigated by Ntoumanis and Standage (2009). In this study, 314 individual and team sport athletes from various universities were surveyed as to the extent that coaches may influence sportspersonship and antisocial behavior. While perceptions of autonomy support predicted need satisfaction and, thus, autonomous motivation, competence also predicted controlled motivation (Ntoumanis & Standage, 2009). In terms of consequences, antisocial behaviors were positively predicted by controlled motivation and negatively predicted by autonomous motivation (Ntoumanis & Standage, 2009). Meanwhile, sportspersonship was positively predicted by autonomous motivation and negatively predicted by controlled motivation (Ntoumanis & Standage, 2009). Overall, these results support utilization of autonomy-supportive behaviors.

Through measurement of BPNT, Sarrazin et al. (2001) examined the influence of coach-established climate toward athletes’ satisfaction of basic psychological needs. The sample population of this study included 236 female handball players between 13-15.
Expectedly, satisfaction of the needs for autonomy, competence, and relatedness were promoted through a task-oriented climate and diminished by ego-oriented climates (Sarrazin et al., 2001).

A combined model based on SDT and a hierarchical model of intrinsic and extrinsic motivation (HMIEM) was examined by Gillet et al. (2010). This model purports that coach-autonomy support facilitates youth athletes’ motivation through affective, cognitive, and behavioral consequences (Gillet et al., 2010). To study this model, the authors surveyed 101 male and female judokas between 14-43 regarding their perceptions of coach autonomy support and motivational profiles. In terms of the coach-athlete relationship, perceptions of coach autonomy supported positively depicted self-determined motivation (Gillet et al., 2010). The consequence of these behaviors was that increased self-determined motivation was predictive of better performances (Gillet et al., 2010).

Perceptions of coach-autonomy support have differed based on competitive level (Sheldon & Watson, 2011). Within a single university in the Midwestern United States, the authors compared experiences among recreational sport participants, club sport participants, and varsity sport participants. A variety of relevant conclusions emerged in the study. Women reported higher rates of identified motivation and positive appraisal from their coaches (Sheldon & Watson, 2011). In terms of competitive level, the lowest rates of intrinsic motivation were observed among varsity participants (Sheldon & Watson, 2011). Participants also supported the positive link between coach-autonomy support and intrinsic motivation (Sheldon & Watson, 2011). Lastly, the amount of
autonomy support received from the coach influenced the extent of the athlete’s participation.

Three concepts from the coach-athlete relationship were introduced by Choi et al. (2013) in order to measure their influence toward psychological need satisfaction. The three dimensions included commitment, closeness, and complementarity within the coach-athlete relationship. Commitment, closeness, and complementarity were all significantly correlated with autonomy and competence, yet none of these relationships corresponded with relatedness (Choi et al., 2013). This led the authors to surmise that relatedness represents the least impactful of the three psychological needs (Choi et al., 2013).

The interaction of coach-autonomy support and coach involvement toward athletes’ psychological need fulfillment was studied by Reynolds and McDonough (2015). Respondents included 142 (106 female, 36 male) participants in community-based youth recreational programs in a Midwestern and Northeastern city in the United States. Athletes included 84% Caucasians that had been playing sports for an average of 7 years. The interaction model (autonomy support x involvement) did not moderate the indirect effect of the model (Reynolds & McDonough, 2015). Essentially, autonomy support from the coach was beneficial only if the amount of coach involvement was high (Reynolds & McDonough, 2015). These results support the collaboration of coach-autonomy support and coach involvement.

One of the elements of a study conducted by Kipp and Weiss (2015) was to assess the influence of coaching actions toward athletes’ need satisfaction. The strongest
relationships existed between coach-autonomy support and competence as well as performance climate established by the coach toward competence (Kipp & Weiss, 2015). Due to these results, Kipp and Weiss (2015) emphasized the importance for coaches to promote athletes’ competence.

A longitudinal study over a two-season period was conducted by Adie et al. (2012) to determine the extent to which the perceived coach climate influenced emotional functioning among young elite soccer players aged 11-18. Results demonstrated that autonomy support received from the coach was predictive of changes in subjective vitality and perceptions of autonomy, competence, and relatedness (Adie et al., 2012).

The results of psychological need satisfaction and thwarting based on autonomy-supportive vs. controlling coach behaviors were compared by Balaguer et al. (2012). They sought to examine motivational implications for elite soccer players aged 11-14 in Spain. Over the course of one soccer season, participants perceived that supportive behaviors from the coach were more common than controlling practices (Balaguer et al., 2012). However, coach-autonomy support decreased and athlete burnout emerged (Balaguer et al., 2012). Efforts can be enhanced to ensure stability of autonomy support throughout a competitive season.

Similarly, Hodge and Lonsdale (2011) evaluated the influence of coaching styles (autonomy-supportive vs. controlling) and individual factors (intrinsic vs. extrinsic motivation) toward prosocial and antisocial behaviors. The behaviors under review included actions toward teammates and moral disengagement. Competitive winter sport athletes (175 females, 114 males, mostly Caucasian) reported that coach-autonomy
support was moderately positively predictive of intrinsic motivation and negatively correlated with extrinsic motivation (Hodge & Lonsdale, 2011). Furthermore, while intrinsic motivation enhanced prosocial behavior toward teammates, actions toward opponents were not influenced (Hodge & Lonsdale, 2011). Future study may investigate methods through which behaviors toward opponents can improve.

Outcomes related to the coach-athlete relationship have been a major emphasis within the sport literature. As compared to examination of social influence from other sources (e.g., parents/caregivers, peers), the amount of attention toward influence from coaches has been higher. The combination of this evidence supports the importance of the coach-athlete relationship. Behaviors of the coach are influential toward the climate created within the team, which affects athletes’ levels and types of motivation. These interactions with the coach also extend to athletes’ actions toward their teammates, opponents, and communities. In certain instances, coach behaviors have influenced young athletes’ development of morality. Empirical data relating to coach-athlete relationships is overwhelmingly supportive of the usefulness of the theoretical framework of SDT.

Despite these observations, opportunities exist to expand the base of literature related to influence of coaches toward athletes’ motivational orientations. Inquiry into this topic area has ignored certain populations. Most noticeably, scholars have failed to utilize a sample population of high school student-athletes in the United States. Examination in this area has lagged behind evaluation of athletes in club programs and elite youth athletes. Only Amorose and Anderson-Butcher (2007), Amorose et al. (2016),
and Riley and Smith (2011) have explored athletes’ perceptions of coach influence from high school student-athletes in the United States. This presents an issue, as the highest rate of sport participation in the United States occurs through interscholastic sport (Howard & Crompton, 2014). Furthermore, the amount of diversity within sample populations could be enhanced. Related to the topic of coach influence, the majority of studies have measured a population of largely White/Caucasian athletes and ignored the influence of socioeconomic factors. Also, much of the research related to coach influence has examined the provision of autonomy-support. Opportunities abound to simultaneously explore the extent to which coaches offer support of competence and relatedness. Lastly, the entirety of research involving the influence of coaches toward athletes’ motivational orientations has issued a quantitative methodology. Perhaps, future study could measure this phenomenon through a qualitative perspective.

**Peer Influence**

While fewer studies have examined the role of peers toward athletes’ levels of motivation, they have yielded valuable conclusions. The social influence of peers has also been examined toward the sport socialization process (Duncan, Duncan, & Strycker, 2005; Joesaar et al., 2012). The following section presents results from the seven studies that measured peer influence through an SDT framework. These results support future investigation of the topic. However, prior to delving into the studies specifically related to peer influence through a SDT framework, it is crucial to examine team dynamics and interpersonal relationships.
One area which has received scholarly attention is the relationship of team
dynamics toward athletes’ motivational orientations. Smith, Ullrich-French, Walker, and
Hurley (2006) observed this relationship with a sample of adolescent sport camp
participants. Self-determined motivation was significantly positively related to positive
friendship quality, peer acceptance, and perceived competence (Smith et al., 2006).
Surprisingly, motivation was unaffected by friendship conflict (Smith et al., 2006). One
other notable result was that positive friendship quality was higher among females than
males (Smith et al., 2006). Similarly, Vazou, Ntoumanis, and Duda (2005) conducted
focus groups to examine dimensions of peer climate toward motivation. Among 11
dimensions, 5 were identified by at least 90% of participants (Vazou et al., 2005). These
were: (a) support for improvement through praise and feedback, (b) equal treatment, (c)
relatedness support, (d) encouragement after making mistakes, and (e) cooperation
through helping others and working together (Vazou et al., 2005). Keegan, Spray,
Harwood, and Lavallee (2010) noted that participants’ motivation was enhanced through
friendship, affiliation, group identity, and social belonging. Furthermore, collaboration
and altruism existed through offering help and advice, extra practice, and collaborative
play (Keegan et al., 2010). On the other hand, motivation was diminished through peers’
boasting, pressure, rivalry, conflict, and discriminatory behaviors (Keegan et al., 2010).

Another source of measurement of team dynamics is through cohesion. Patterson,
Carron, and Loughead (2005) explored the interrelationships among team norms,
cohesion, motivation, and performance. Enhanced cohesion was indicative of increased
motivation and self-reported performance (Patterson et al., 2005). Warner, Bowers, and
Dixon (2012) examined development of cohesion through efficacy, trust, friendship, and advice. Efficacy, friendship, and advice increased continuously throughout the season, while trust remained relatively consistent (Warner et al., 2012). Of the basketball team sampled in this study, cohesion among starting players was higher than for bench players (Warner et al., 2012).

Peer climate can also be impactful toward adolescent athletes’ development of leadership skills (Price & Weiss, 2011). In a study of adolescent female soccer players, Price and Weiss (2011) observed that prosocial leadership was significantly positively correlated with perceived soccer competence, peer acceptance, task cohesion, and social cohesion. From a motivational perspective, intrinsic motivation was associated with behavioral conduct and prosocial leadership.

One negative outcome related to sport is athlete burnout. Smith, Gustafsson, and Hassmen (2010) measured dimensions of the peer motivational climate toward athlete burnout. Participants reported that symptoms of burnout were enhanced by intra-team competition and intra-team conflict (Smith et al., 2010). However, peer climates involving improvement, relatedness support, and effort were correlated with lower burnout rates (Smith et al., 2010).

Two studies (Joesaar et al., 2011; Joesaar et al., 2012) have examined the effects of the motivational climate instituted by peers. Joesaar et al. (2012) observed the importance of peer-created motivational climate through a longitudinal analysis. Postseason intrinsic motivation was positively correlated with task-involving peer motivational climate at preseason and postseason (Joesaar et al., 2012). Joesaar et al.
focused on the level of peer influence toward adolescent athletes’ need satisfaction, intrinsic motivation, and sport persistence. Expectedly, the perception that peers facilitated a task-oriented motivational climate encouraged athletes’ feelings of autonomy, competence, and relatedness (Joesaar et al., 2011). These enhancements of psychological need satisfaction promoted intrinsic motivation and led athletes to remain persistent (Joesaar et al., 2011).

Social influence from peers has been observed to influence adolescent athletes’ sport continuation rates (Gucciardi & Jackson, 2013). In a study of 292 male and female athletes, subjective norms from peers contributed a substantial amount ($R^2 = .18$) of the variability in sport continuation rates (Gucciardi & Jackson, 2013).

In a study conducted by Kipp and Weiss (2015), friendship quality was noted to be an impactful peer behavior. Results reflected that friendship quality was slightly positively correlated with satisfaction of the needs for autonomy and competence (Kipp & Weiss, 2015). The most meaningful relationship occurred between friendship quality and participants’ relatedness with teammates (Kipp & Weiss, 2015). Hodge and Gucciardi (2015) assessed the implications of autonomy-support from peers. Teammate-autonomy support was significantly positively related to athletes’ satisfaction of autonomy, competence, and relatedness (Hodge & Gucciardi, 2015). Conversely, controlling teammate behaviors negatively correlated with need satisfaction (Hodge & Gucciardi, 2015).

Through a population of afterschool sport participants, Viira and Koka (2012) examined the impacts of perceived need support from peers. Participants were divided
into three groups. Group one involved participants with less than three months of experience. The second group included athletes that had played sports from between three months to four years. Group three joined participants with four or more years of athletic involvement. Interestingly, peer-autonomy support, peer-competence support, and peer-relatedness support were highest among the middle group (Viira & Koka, 2012).

Among adolescent basketball players in the United States, Riley and Smith (2011) evaluated two peer-related behaviors (i.e., positive friendship quality, peer acceptance) toward their perceptions of need satisfaction. Satisfaction of the needs of autonomy, competence, and relatedness were positively related to peer acceptance and, to a lesser extent, positive friendship quality (Riley & Smith, 2011).

The results presented in this section denote the growth of research toward the influence of peers within sport. However, many of the same gaps that have limited study of coach influence also affect this topic area. Examination of high school athletes in the United States has been extremely limited. In fact, the previously mentioned study conducted by Riley and Smith (2011) represents the only attempt to measure the influence of peers on high school athletes with an SDT framework. Additionally, studies in this area are relatively heterogeneous. Future studies may explore this topic with a more diverse population and reach into impoverished communities. Another area for growth related to peer influence is through a more comprehensive evaluation of peer behaviors. Much of the existing literature has measured peer influence through friendship quality and peer acceptance. Scholars may adopt a framework of SDT to investigate the functions of peer-competence and peer-relatedness support. Lastly, a gap in literature
relates to evaluation of the outcomes of peer influence. Gucciardi and Jackson (2013) conducted a study involving the influence of peers toward adolescent athletes’ sport continuation rates. Research of this nature should be duplicated with other populations.

**Parent Influence**

As previously noted, the study current study involves the influence of coaches and peers toward athletes’ levels of motivation. However, it is important to note that parental influence also influences the process of motivation. The following three studies measured the effects of parent behaviors toward sport experiences.

The properties of the parent-athlete relationship were examined by Felton and Jowett (2013). Need satisfaction from parents illustrated a wide range of positive effects. These included increased vitality, self-esteem, positive affect, skill self-concept, and performance self-concept (Felton & Jowett, 2013). Similarly, Gagne et al. (2003) determined that parent-autonomy support and parent involvement were positively indicative of athletes’ perceptions of autonomy, competence, and relatedness. Among these variables, the strongest correlations were between parent-autonomy support and relatedness as well as parent involvement and relatedness (Gagne et al., 2003).

Utilizing an SDT framework, Amorose et al. (2016) assessed the influence of parent-autonomy support toward high school athletes’ levels of motivation. In this study, the authors separately measured the effects of autonomy support from mothers and fathers. Nonetheless, both mother-autonomy support and father-autonomy support promoted self-determined motivation (Amorose et al., 2016).
Despite the growth of research toward the importance of social influence, observation of the role of parents remains limited. As compared to research involving coaches and peers, few studies have deciphered athletes’ perceptions of parent behaviors through the framework of SDT. Further inquiry into this topic among youth and adolescents is essential, as athletes in this age group spend much time in their home environment. Another critical area is to determine the effects of socioeconomic status toward athletes’ perceptions. Previous research related to parental influence has occurred in generally affluent locations. This would shed light upon the barriers toward physical activity. Furthermore, longitudinal analysis of parental influence would benefit scholars and practitioners. Multi-year analysis would identify the processes and impacts of parents as their children mature from youth to adolescence. The limited research toward parental influence offers exciting opportunities for future inquiry.

As scholars have identified that coaches, peers, and parents/caregivers are the most influential social agents, they have measured the psychological outcomes of behaviors attributed to these social agents. However, they have often measured the independent effects of a single social agent. Few studies have ventured into the topic of interaction among multiple sources of social influence within the sport context. The following section presents the empirical evidence generated toward this topic.

**Interactive Effects of Social Influence**

The conclusions retrieved through previous research have supported the meaningful nature of social influence toward athletes’ types and levels of motivation. Yet, the vast majority of research has corresponded to the independent effects of a sole
social agent. Only three studies (i.e., Amorose et al., 2016; Riley & Smith, 2011; Ullrich-French & Smith, 2009) have examined the interactive effects of multiple sources of social influence. Amorose et al. (2016) evaluated two-way and three-way interactions of coach, mother, and father autonomy support toward high school athletes’ rates of self-determined motivation. Coach, mother, and father autonomy support were all significant independent predictors of self-determined motivation (Amorose et al., 2016). More importantly based on the goals of the study was that the interaction among coach-autonomy support, mother-autonomy support, and father-autonomy support was significant (Amorose et al., 2016). Riley and Smith (2011) measured interactions of coach-peer influence. In this study, the interaction among coach-athlete relationship, peer acceptance, and positive friendship quality was non-significant (Riley & Smith, 2011). Ullrich-French and Smith (2009) observed that the three-way interaction of mother relationship quality, peer acceptance, and friendship quality contributed significantly to athletes’ motivational orientations.

Clearly, the work in this area is just beginning. Sport is a unique and complex domain, especially for youth and adolescents. Independently, coaches, parents/caregivers, and peers have demonstrated strong influence toward the decision-making processes of adolescents. However, exploration of the potential for additional contributions through combined influence is valuable. For example, athletes may find themselves supported by parents/caregivers, yet under the influence of an unsupportive coach. Scholars have the ability to identify the types of reactions that occur in these situations. To date, this has rarely been explored. Similar to other topics, measurement of interaction among multiple
sources of influence can include participants from more diverse populations. Of the three studies that have measured the implications of interactions among multiple social agents, two (i.e., Amorose et al., 2016; Riley & Smith, 2011) have utilized a population of high school athletes. The other (i.e., Ullrich-French & Smith, 2009) included a population of youth soccer players. These studies were completed in areas of favorable economic conditions. Application of this concept to additional populations would generate a more complete understanding of social influence within sport.

The groundbreaking efforts of these researchers have depicted the merit of measuring the interactive effects of dual social agents. Results have offered the conclusion that additional sources of social influence may supersede the ability of single social agent. However, as mentioned throughout this review of literature, the majority of studies have independently examined one of the three relevant social agents. The path has remained consistent: Need support from coaches, parents/caregivers, and peers is indicative of athletes’ need satisfaction, which in turn foster motivation and positive outcomes. Despite the depth of evidence toward social influence, measurement of interaction among these social sources (i.e., coaches, parents/caregivers, peers) remains relatively uncovered. Scholars that have completed examination of an independent social agent (e.g., Amorose & Anderson-Butcher, 2007; Vlachopolous & Karageorghis, 2005) have indicated the need for calculation of interactive effects. The current study attempts to address this issue by exploring the interactive effects of coach and peer influence toward athletes’ motivational orientations. Of the three previously mentioned studies that have accounted for two- and three-way interactions of social influence, the current study
is most similar to the study conducted by Riley and Smith (2011). However, the two studies focus on different behaviors from the social agents. While the Riley and Smith (2011) study pertained to the coach-athlete relationship, peer acceptance, and positive friendship quality, the current inquiry relates to autonomy, competence, and relatedness support from coaches and peers.

**Other Related Studies**

The current study focuses specifically on the three psychological needs of autonomy, competence, and relatedness presented within SDT and BPNT. While the majority of sport-based studies using the framework of SDT have measured these three needs, certain studies have developed other objectives. It is crucial to present results of these studies. That goal is accomplished in the following sections.

**Analysis of Need Satisfaction Toward Well-Being**

Without accounting for the influence of social agents, studies have utilized SDT to measure athletes’ motivational orientations. Amorose et al. (2009) gained the perspectives of 93 adolescent (13-18 year old) female volleyball players from a competitive club in United States. The purpose of this study was to determine whether adjustments in need satisfaction over the course of a competitive season were predictive of athletes’ global self-esteem and burnout level. Results demonstrated that satisfaction of psychological needs depicted in SDT (i.e., autonomy, competence, relatedness) was generally positively related to well-being and negatively related to burnout (Amorose et al., 2009). More specifically, changes in perceptions of autonomy and competence, but not relatedness, were indicative of alterations of well-being (Amorose et al., 2009).
Goal orientations and motivational profiles of 303 junior college athletes in Singapore were evaluated by Chian and Wang (2008). Through a cluster analysis, the highest amount of athletes \((n = 113)\) were classified as “highly motivated” (Chian & Wang, 2008). Higher levels of enjoyment, effort, and perceived mastery climate were observed in this cluster (Chian & Wang, 2008). The least amount of participants \((n = 21)\) were categorized in the “amotivated” group (Chian & Wang, 2008). These individuals demonstrated high scores in amotivation, low task- and ego-orientation, perceived incremental beliefs, and sport competence (Chian & Wang, 2008). These results provide a promising interpretation of SDT and achievement goal theory.

A large-scale study of the relationship between sport experiences and motivation was conducted by Koh et al. (2012). The population included 1,250 high school students (aged 13-18, 740 males, 509 females). The authors calculated a cluster analysis based on the athletes’ developmental experiences. Of the six clusters, 250 were categorized by high positive experiences and low negative experiences (Koh et al., 2012). These included basic skills and positive relationships with limited stress and negative influences (Koh et al., 2012). Most of the athletes \((n = 333)\) scored in the moderate range on positive and negative developmental experiences.

The influence of motivation toward sport enjoyment and commitment was measured by García-Mas et al. (2010). The population involved in this study was 454 youth male elite soccer players. Through this analysis, intrinsic motivation was significantly positively related with enjoyment and commitment (García-Mas et al.,
While extrinsic motivation had moderate positive correlations with enjoyment and commitment, amotivation was negatively related (Garcia-Mas et al., 2010).

Similarly, Rottensteiner et al. (2015) evaluated the influence of motivational type (i.e., autonomous vs. controlled) toward physical competence, amount of practice, and enjoyment. Based in SDT, this study incorporated 1,936 youth soccer, ice hockey, and basketball players aged 14-15. Via a cluster analysis, the most common results (689 youth athletes) were moderate autonomous and controlled motivation (Rottensteiner et al., 2015). Approximately 18% ($n = 352$) were minimally motivation due to low autonomous and low controlled motivation (Rottensteiner et al., 2015). While there were no differences in type of motivation based on gender, boys perceived more competence and practiced more than girls (Rottensteiner et al., 2015).

Through a population of health club participants, Vlachopolous and Karageorghis (2005) examined their level of exercise enjoyment. Specifically, the study investigated the interaction of external, introjected, and identified regulation with intrinsic motivation. Participants ranged from 18-64 and 90% were Caucasian. Exercisers participated at various intensities (11% low, 60% moderate, 29% high). The interaction between intrinsic motivation and identified regulation was strong, meaning that higher levels of identified regulation corresponded with higher rates of motivation (Vlachopolous & Karageorghis, 2005).

Overall, regardless of the source, need satisfaction and motivation are critical toward youth athletes’ experiences. Autonomy and competence are especially indicative of sport-related behaviors and commitment. These results have often extended to the
domain of physical activity. The theories of SDT and Basic Psychological Needs Theory have largely been supported within sport.

**Motivation Toward Intention and Continuing Sport Participation**

Through an integration of Basic Psychological Needs Theory and the Theory of Planned Behavior, Gucciardi and Jackson (2013) sought to determine the extent to which need satisfaction from adults and peers influenced intention (i.e., attitudes, subjective norms, perceived behavioral control). Participants included 292 male and female competitive athletes between 17-21 years old. Need satisfaction from adults and peers was moderately correlated with intention to participate (Gucciardi & Jackson, 2013). Therefore, the authors promoted education of program leaders and peers as to how to encourage need satisfaction (Gucciardi & Jackson, 2013).

The influence of motivation toward sport intention was also investigated by Tsorbatzoudis et al. (2012). To examine this relationship, the authors conducted a household survey in northern Greece as to their involvement in leisure-time recreational sport. Though these 257 participants were not adolescents (average age of 31), the relevant topic of motivation was analyzed. SDT was partially supported as intrinsic motivation encouraged sport participation while external motivation and amotivation discouraged future participation (Tsorbatzoudis et al., 2012). However, sport participation was positively related to two forms of extrinsic motivation (i.e., identified regulation, introjected regulation) (Tsorbatzoudis et al., 2012). Although it seems possible for certain individuals to remain motivated through external practices, intrinsic processes are more sustainable.
**SDT and Burnout**

Athlete burnout is one of the most distressing problems for sport programmers and coaches. Raedeke (1997) classified athlete burnout as a process of withdrawal based on feelings of emotional/physical exhaustion, sport devaluation, and reduced sense of accomplishment. Following this definition, scholars (e.g., Amorose et al., 2009; Lonsdale, Hodge, and Rose, 2009) have begun to examine the relationship between motivation and burnout.

Four of these studies have investigated this topic through the motivational continuum proposed by Deci and Ryan (2000). Lonsdale et al. (2009) observed that their sample of elite athletes maintained high levels of intrinsic motivation. Furthermore, exhaustion, devaluation, and reduced sense of accomplishment were significantly negatively correlated with intrinsic motivation (Lonsdale et al., 2009). Holmberg and Sheridan (2013) noticed similar results among college athletes. Of these relationships, intrinsic motivation was most strongly negatively correlated with sport devaluation (Holmberg & Sheridan, 2013). In general terms, motivation accounted for large amounts of variance toward physical/emotional exhaustion ($R^2 = .27$), reduced sense of accomplishment ($R^2 = .31$), and sport devaluation ($R^2 = .47$). With a population of competitive club swimmers, Harris and Watson (2014) measured the relationships of amotivation, extrinsic motivation, and intrinsic motivation toward burnout. Amotivation and, to a lesser extent, extrinsic motivation, were positively associated with burnout (Harris & Watson, 2014). Meanwhile, intrinsic motivation demonstrated a significant negative relationship with burnout (Harris & Watson, 2014). Cresswell and Eklund
(2005) explored motivation and burnout among college athletes, amateur rugby participants, and professional rugby players. Of these groups, amateur rugby and professional rugby athletes had equally high perceptions of intrinsic motivation (Cresswell & Eklund, 2005). However, professional athletes had heightened senses of exhaustion, reduced sense of accomplishment, and sport devaluation (Cresswell & Eklund, 2005). In terms of their relationship, intrinsic motivation was negatively associated with all three symptoms of burnout (Cresswell & Eklund, 2005).

Other studies (i.e., Hodge, Lonsdale, & Ng, 2008; Raedeke, 1997) have focused on the relationships between need satisfaction of autonomy, competence, and relatedness toward burnout. Hodge et al. (2008) measured these relationships among elite New Zealand rugby players. Results depicted that autonomy and competence were strongly negatively correlated with burnout, while relatedness was slightly negatively associated with burnout (Hodge et al., 2008). In terms of the three dimensions of burnout, sport devaluation and reduced sense of accomplishment were strongly related to psychological need satisfaction (Hodge et al., 2008). Raedeke (1997) formed a cluster analysis to analyze the antecedents of burnout through a sample of 236 male and female swimmers from the Oregon Swimming program. These athletes ranged from 13-18 years old and had competed in organized swimming for an average of six years. Malcontented swimmers displayed increased propensity toward burnout, reporting low enjoyment and weak swim identity (Raedeke, 1997). Meanwhile, enthusiastic participants were unlikely to become averse to their sport and were successful in fulfillment of basic psychological needs (Raedeke, 1997).
Another area of interest has been longitudinal examination of burnout tendencies. Quested and Duda (2011) measured changes in burnout of vocational dancers at three time points during their school year. Unfortunately, dancers reported higher rates of emotional/physical exhaustion at the final evaluation point (Quested & Duda, 2011). In terms of relationships, athletes’ perceptions of changes in competence were most strongly related to burnout rates (Quested & Duda, 2011). Similarly, Amorose et al. (2009) examined changes in adolescent volleyball players’ well-being over a competitive season. In this study, psychological need satisfied was strongly related to burnout. Athlete burnout was strongly negatively predicted by autonomy (β = -.38), relatedness (β = -.21), and competence (β = -.20). Sarrazin et al. (2002) studied motivation and burnout of female handball players over 21 months. Expectedly, dropout players demonstrated less intrinsic motivation and more amotivation than persistent players (Sarrazin et al., 2002). Additionally, players suffering from burnout perceived less autonomy, competence, and relatedness than their involved peers (Sarrazin et al., 2002).

On this topic, one study (Isoard-Gautheur, Guillet-Descas, and Lemyre (2012) explored the influence of coaching style toward burnout. Respondents were 514 elite French handball players who reflected on their coach’s interpersonal qualities, perceived handball competence, autonomy, relatedness, overall motivation, and burnout. Autonomy-supportive coaching styles were negatively related to reduced sense of accomplishment and sport devaluation, but positively correlated with exhaustion (Isoard-Gautheur et al., 2012). As expected, controlling coaching styles were positively correlated with all symptoms of burnout (Isoard-Gautheur et al., 2012).
Through a longitudinal study, Amorose et al. (2009) observed the evolving influence of need satisfaction toward burnout. Results revealed that postseason burnout was not greatly correlated with preseason autonomy, competence, and relatedness (Amorose et al., 2009). However, postseason burnout rates displayed a strong negative correlation with postseason need satisfaction (Amorose et al., 2009). Therefore, it appears that modifications in need satisfaction influence athletes’ burnout rates.

In summary, burnout remains a confounding problem for scholars and practitioners. However, recent research toward the relationships between motivation and burnout has been promising. Based on the evidence presented in this section, environments that foster intrinsic motivation seem to be the most appropriate method toward combatting burnout. It is thus essential that administrators, coaches, and parents/caregivers instill these values within sport programs.

**Motivational Determinants**

Analysis of sport motivation based on competitive level and gender was conducted by Kingston et al. (2006). Among student-athletes in the United States, this study examined whether competitive level (scholarship vs. non-scholarship) and gender impacted levels of motivation. This sample represented a more diverse population (53% White American, 25% Black American, 7% European, 4% Hispanic). Intrinsic motivation levels of scholarship athletes were lower, but higher external regulation and introjected regulation than non-scholarship athletes (Kingston et al., 2006). Also, males demonstrated higher levels of external regulation than females (Kingston et al., 2006).
Based on these results, efforts can be improved to promote intrinsic motivation among scholarship athletes and males.

**Relationship of Sport to Other Contexts**

A study implemented by Boiche and Sarrazin (2007) measured whether motivation for school complemented or conflicted with other contexts (i.e., school, friendship). High school students between the ages of 11-17 explained their motives for sport, school, and friendship. Contrary to their hypothesis, the correlation between sport and school was positive (Boiche & Sarrazin, 2007). Essentially, those motivated for both sport and academics for self-determined motives accomplished increased academic outcomes (Boiche & Sarrazin, 2007). These participants revealed that intrinsic motivation for sport can foster benefits beyond the athletic fields.

**Research Synthesis**

Adolescents in the United States face a variety of challenges (e.g., physical inactivity, psychological disorders) that threaten their personal development. These have often resulted in negative outcomes, such as obesity and poor academic performance. Negative outcomes have occurred more frequently and with more harmful results for adolescents from vulnerable populations. In an effort to promote positive adolescent development, administrators have installed a variety of extracurricular activities. Among these options, sport has emerged as a popular developmental context. However, the topic of motivation has emerged as a critical point of evaluation toward the effectiveness of sport programs.
In recent decades, scholars have increasingly explored the unique nature of adolescent athletes’ motivational orientations. Often utilizing a theoretical framework of SDT (Deci & Ryan, 2000), studies have examined motivation as both an outcome and an antecedent. One of the most popular topics has been related to the importance of social influence. Many scholars have independently measured the influence of need support from coaches, peers, and parents/caregivers toward athletes’ levels of motivation. Results have demonstrated that autonomy-support, competence-support, and relatedness-support from these relevant social agents promote athletes’ psychological need satisfaction and motivation.

However, gaps in literature related to this topic still exist. Previous studies have often focused on the independent effects of one social agent (either coach, peer, or parent/caregiver). Few studies (i.e., Amorose et al., 2016; Riley & Smith, 2011; Ullrich-French & Smith, 2009) have measured interactions among multiple social agents. None of these three studies have accounted for potential interactions between coach and peer influence. In more general terms, the amount of research involving high school student-athletes is limited. Lastly, scholars have largely ignored vulnerable populations. The current study attempts to address these research gaps. The following research questions have been designed to serve this purpose:

1. What are overall perceptions of psychological need satisfaction (i.e., autonomy, competence, relatedness) among high school student-athletes from vulnerable populations?
2. What are the (a) main effects and (b) interactive effects of coach and peer autonomy support toward perceived autonomy among high school student-athletes from vulnerable populations?

3. What are the (a) main effects and (b) interactive effects of coach and peer competence support toward perceived competence among high school student-athletes from vulnerable populations?

4. What are the (a) main effects and (b) interactive effects of coach and peer relatedness support toward perceived relatedness among high school student-athletes from vulnerable populations?
Chapter 3: Methods

The purpose of this study is to examine the independent and interactive effects of autonomy, competence, and relatedness support from coaches and peers toward perceptions of satisfaction of the psychological needs of autonomy, competence, and relatedness among high school student-athletes from urban communities. The following chapter explains the methodological approach utilized in this study to achieve this objective. This chapter is developed into six sections: (a) Research design, (b) Data collection procedures, (c) Research context/sample characteristics, (d) Instrumentation, (e) Strategies to enhance validity and reliability, and (f) Data analysis procedures.

**Research Design**

**Type of Research**

Adopting a theoretical framework of SDT, the current study explored the influence of coaches and peers toward high school student-athletes’ perceptions of need satisfaction and motivational orientations. In order to investigate these variables, this study employs quantitative methodology with a cross-sectional research design. The drawbacks of cross-sectional research have been well-chronicled (McDavid et al., 2012). Although calculating data at a single time point inhibits the researcher’s ability to determine the causality of relationships among variables (McDavid et al., 2012), a cross-sectional design was selected due to the advantages of high response rates, low costs, and ability for group administration (Fraenkel & Wallen, 1996). Data was collected through a
49-item survey instrument, which is detailed in the Instrumentation section.

**Sampling Technique**

The sampling method used in this study is a convenience sample, a method of nonrandom sampling. As noted by Fraenkel and Wallen (1996), “Many times it is extremely difficult (sometimes even impossible) to select either a random or a systematic nonrandom sample” (p. 99). This impediment is often related to the size of the target population, a problem that is certainly observed in this study. More specifically, a convenience sample involves selecting an accessible population based on geographic proximity (Fraenkel & Wallen, 1996). While the prime weakness of the convenience sampling approach is that participants may not be representative of the target population, the feasibility of data collection has led the technique to becoming the most popular approach in sport management research (Andrew, Pedersen, & McEvoy, 2011). Based on this factor, the convenience sampling method was used in this study. The Midwestern United States served as the region selected for this convenience sample.

**Data Collection Procedures**

The researcher commenced the data collection process by fulfilling the requirements of the university’s Institutional Review Board (IRB). As required, the co-investigator had previously completed his background check, Collaborative Institutional Training Initiative (CITI) training, and Conflict of Interest form. Following receipt of IRB approval, the researcher initiated contact with administrators from high schools in the Midwestern United States. The researcher identified 38 high schools located in urban areas within the Midwestern United States.
The 38 schools identified for study inclusion represented 5 districts. Therefore, researcher sent an email request for a letter of support to each of these 5 district coordinators. All 5 district coordinators provided a letter of support on behalf of the 38 high schools. The email sent to these district coordinators is presented in Appendix A. Signed letters of support from district coordinators were added as amendments to the IRB application.

Following receipt of approval from the district coordinators, contact was initiated through an email simultaneously sent to each school’s principal and athletic director. In accordance with the IRB protocol, a site was included only if both the principal and athletic director provided signed approval. The emails sent to each principal and athletic director are offered in Appendix B. The researcher made two attempts to contact principals and athletic directors through emails and phone calls. Of the 38 high schools, 20 failed to respond to either email or phone call. The principal and/or athletic director of 10 schools did not agree to study participation. The principal and athletic director at eight schools returned a signed letter of support on behalf of their institutions. The study was conducted at these eight locations.

Based upon the similarities in study purposes and population characteristics, this study adopted procedures utilized by Amorose and Anderson-Butcher (2007). Upon approval to conduct the study from a school’s principal and athletic director, the researcher communicated with the coaches to arrange data collection. As the IRB mandated approval of the principal and athletic director, verbal approval from coaches was deemed sufficient. However, one district coordinator required that participating
coaches signed the letter of support. As previously mentioned, existing literature has been limited by selection of a specific group (e.g., varsity athletes, team sport athletes, male athletes). The current study attempted to expand these results by adopting more comprehensive inclusion criteria. All male and female student-athletes on junior varsity or varsity teams were recruited to participate. At each institution, the athletic director provided a list of athletic coaches. These coaches were contacted via email to request study involvement from their athletes. Among the 8 schools, a total of 15 teams participated in the study. An initial meeting with study participants occurred at a regularly scheduled practice at the location of their activity (e.g., baseball field, track).

At one location, all team’s practices were cancelled due to weather. Instead, the teams gathered in the school’s cafeteria at the end of the school day. The researcher visited the practices of approved teams to provide a brief description of the study to potential participants and request their participation. A sample script for this presentation is added in Appendix C. Athletes were notified that they were not required to participate in the study, and that no consequences would occur if they chose not to complete the study. At this introductory meeting, the researcher distributed parental consent forms (Appendix D) to all athletes.

As required by the university’s IRB, all participants under the age of 18 were required to produce signed parental consent on the date of data collection. Athletes were responsible for taking the forms to their homes, procuring signed approval from a parent/caregiver, and returning the signed form to the researcher on the date of data collection. Participants were informed that if their parents/caregivers were unwilling to
document their approval, they would not be allowed to participate in the study. Athletes were also notified that they must complete an assent form on the data collection date in order to be eligible for study participation. The researcher requested that all willing participants produce a signed parental consent form at a future practice session. The researcher stated that he would return at the previously arranged practice session to conduct the study.

Similarly, the data collection session was conducted at the beginning of the team’s practice at their practice location. The coach and researcher agreed upon the date of data collection. All individuals that had not received parental consent were allowed to return to the practice. Study participants gathered at a location separate from their teammates. The researcher provided writing utensils for each of these participants. Prior to completing the survey instruments, athletes signed either a participant consent form (Appendix E) or assent form (Appendix F). Participants aged 18 and above completed the participant consent form (Appendix E). Those under the age of 18 signed the assent form (Appendix F). The parental consent and participant consent/assent forms explained that respondents would not receive incentives for participation. The researcher ensured that all parental consent, participant consent, and participant assent forms were completed in entirety before administering the survey.

In order to avoid undue influence, the researcher arranged participants in a location separate from their coaching staffs. All participants and coaches were informed that coaches would not be involved in any aspect of the data collection process. The researcher instructed participants that all forms and surveys would be returned only to the
researcher. Also, any questions were directed to the researcher. The 49-item survey instrument (Appendix G) was distributed to all athletes with proper documentation. Participants were asked to complete the survey completely and honestly. Participants were explicitly asked to answer questions based on the sport they were currently playing. If their team was out of season, they were instructed to report on the sport whose season had concluded most recently. The researcher remained in the survey area to answer any questions. The duration of data collection was approximately 20 minutes. The documents were examined to certify that participants did not provide identifying information. Athletes were thanked for their participation and allowed to return to the practice session. Across all eight schools that agreed for participation from their student-athletes, the researcher recruited 246 potential participants. Of these, 144 returned signed parental consent forms.

As athletes dispersed, the researcher notified the coach that all participants had completed the study. The researcher and coach then determined whether it was necessary for the researcher to return to collect missing data. This only occurred if multiple athletes were absent on the date of data collection and expected to return the following day. All completed surveys, consent, and assent forms were placed immediately in a locked container. Forms will be held by the principal investigator for five years and are only to be removed for the purpose of data analysis.

**Research Context/Sample Characteristics**

Based on the review of literature, there exists a dearth of research toward the perceptions of psychological need fulfillment among high school student-athletes.
Interscholastic athletics offer a combination of sport programs for males and females within high schools. For the purposes of this study, the target population was high school student-athletes from urban locations in the Midwestern United States. Sport participation is limited for youth from disadvantaged backgrounds, often in favor of unstructured activities (Anderson-Butcher, 2005). Also, athlete burnout among youth from these circumstances is frequent (Cresswell, 2009). Therefore, this study examined the perceptions of need satisfaction among these athletes and their dependence on relationships with coaches and peers.

In accordance with the approach of convenience sampling, the researcher sought participation from high school student-athletes within the five most proximate districts that serve urban populations. As previously noted, eight schools allowed at least one of their teams to participate in the study. While involvement from spring sport participants was prioritized, the researcher accepted any participants that were willing to grant access. The sole requirement was that the participant be enrolled in high school and compete in interscholastic athletics. The researcher recruited both male and female participants from junior varsity and varsity teams. A total of 144 high school athletes completed the study. Table 2 presents the demographic background in terms of each of the four demographic variables.
Table 2

Demographic Breakdown

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>102</td>
<td>75.0</td>
</tr>
<tr>
<td>Female</td>
<td>34</td>
<td>25.0</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>102</td>
<td>75.0</td>
</tr>
<tr>
<td>Black/African American</td>
<td>22</td>
<td>16.2</td>
</tr>
<tr>
<td>Mixed Race</td>
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<td>7.4</td>
</tr>
<tr>
<td>Hispanic</td>
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<td>0.7</td>
</tr>
<tr>
<td>Native American</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Socioeconomic Status</strong></td>
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<td></td>
</tr>
<tr>
<td>Full Price Lunch</td>
<td>93</td>
<td>68.4</td>
</tr>
<tr>
<td>Free or Reduced Lunch</td>
<td>29</td>
<td>21.3</td>
</tr>
<tr>
<td>Unsure</td>
<td>14</td>
<td>10.3</td>
</tr>
<tr>
<td><strong>Type of Sport</strong></td>
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<td></td>
</tr>
<tr>
<td>Team Sport</td>
<td>126</td>
<td>92.6</td>
</tr>
<tr>
<td>Individual Sport</td>
<td>10</td>
<td>7.4</td>
</tr>
</tbody>
</table>

*Note.* Team sports included football \((n = 36)\), lacrosse \((n = 24)\), soccer \((n = 22)\), basketball \((n = 21)\), baseball \((n = 10)\), softball \((n = 2)\), volleyball \((n = 2)\), and field hockey \((n = 1)\). Individual sports included track and field \((n = 8)\) and cheerleading \((n = 2)\).

In order to gain a more complete demographic profile of participants, cross tabulations of gender were generated across the other three demographic variables. Tables 3-5 report the results of this analysis.
Determination of the necessary sample size relates to the desired power, alpha level, expected effect size, amount of survey items, and number of independent variables (Tabachnick & Fidell, 2013). In this study, these values have been established a priori. Statistical power involves the probability of correctly rejecting the null hypothesis (Cohen, Cohen, West, & Aiken, 2003). According to Cohen et al. (2003), an acceptable
level of power would typically be .80. Notably, the process of establishing a sufficient power value in order to detect interaction effects is more complex (Cohen et al., 2003). In accordance with the recommendation of Cohen et al. (2003), the level of power was set at .80.

Another value that was established a priori was the alpha level, or $\alpha$. This value pertains to the probability of incorrectly rejecting the null hypothesis (Type I error) (Tabachnick & Fidell, 2013). The most common alpha level in research, especially within the social sciences, is .05 (Tabachnick & Fidell, 2013). At this value, the potential for incorrectly rejecting the null hypothesis is no more than 5% (Tabachnick & Fidell, 2013). Researchers have consistently determined that an alpha level of .01 is too stringent, while values at approximately .10 enhance the likelihood of Type I error. Based upon these observations, the researcher has selected $\alpha = .05$ for this study.

In order to determine the expected effect size, the researcher consulted two similar studies (Gillison, Standage, & Skevington, 2008; Medic, Mack, Wilson, & Starkes, 2007). Effect size examines the proportion of variance within the dependent variable through association with an independent variable (Tabachnick & Fidell, 2013). In a study designed to explore the perceptions of need satisfaction among 63 secondary school students, the effect sizes included autonomy (.23), competence (.45), and relatedness (.29; Gillison et al., 2008). On the topic of motivation among scholarship and non-scholarship athletics, Medic et al. (2007) observed effects in the range of .19-.20. Based upon these reports, the effect size established for this study was .30. According to the calculations of Cohen et al. (2013), this would be a moderate effect size.
Having established the level of the power, alpha level, and effect size, the researcher may examine the properties of this study. The entire research instrument consists of 49 items. In addition to the social influence variables, four demographic variables were added as predictors. Therefore, there were 13 independent variables in the current study. However, the overall study was designed into three separate studies, each utilizing seven predictor variables. Lomax and Hahs-Vaughn (2013) recommended the program G*Power for a priori calculation of the acceptable same size. G*Power reported that with an anticipated effect size of .30, \( \alpha \) level of .05, power rate of .80, and 7 predictors, the minimum acceptable sample size is 72.

According to Cohen et al. (2003), the researcher must develop a plan a priori to account for missing data. The approach to encounter missing data in this study was listwise deletion. This tactic involves eliminating subjects with missing data and conducting the analysis on the remainder of the sample (Peugh & Enders, 2004). Listwise deletion is recommended in situations in which the proportion of subjects is limited enough, with a large sample, to diminish the difference between the cases that are maintained as opposed to eliminated (Cohen et al., 2003). Eight of the 144 respondents did not answer at least one question on the survey. As per the listwise deletion approach to missing data, these participants were removed from data analysis. Therefore, the final sample size in this study was 136 participants.
Instrumentation

Variable Selection/Scale Measurement

In order to address the research questions, a set of 16 variables have been selected. These included three dependent variables (i.e., perceived autonomy, perceived competence, perceived relatedness). A total of 13 independent variables (i.e., coach-autonomy support, coach-competence support, coach-relatedness support, peer-autonomy support, peer-competence support, peer-relatedness support, coach x peer autonomy support, coach x peer competence support, coach x peer relatedness support, gender, race/ethnicity, socioeconomic status, type of sport) were included. To distinguish among the three psychological needs, three separate analyses were conducted for autonomy, competence, and relatedness. Each analysis included only the variables associated with that particular need in addition to the demographic predictors. Therefore, despite the presence of 13 independent variables, 7 were adopted in each study. Tables 6-8 present the three separate models. Consistent with the approach of Hutchinson (2004), type of sport (i.e., individual, team) was entered among the demographic variables. A 49-item survey instrument has been developed based on a set of existing scales. The definitions and scale description of each of these variables is presented in the following paragraphs. Reliability values observed in the previous studies are reported within these sections. Reliability values for the current study are provided following reporting of the previous studies.
Table 6

*Autonomy Model*

**Dependent Variable: Perceived Autonomy**

| Block 1: Gender, Race/Ethnicity, Socioeconomic Status, Type of Sport |
| Block 2: Coach-Autonomy Support |
| Block 3: Peer-Autonomy Support |
| Block 4: Coach x Peer-Autonomy Support |

Table 7

*Competence Model*

**Dependent Variable: Perceived Competence**

| Block 1: Gender, Race/Ethnicity, Socioeconomic Status, Type of Sport |
| Block 2: Coach-Competence Support |
| Block 3: Peer-Competence Support |
| Block 4: Coach x Peer-Competence Support |

Table 8

*Relatedness Model*

**Dependent Variable: Perceived Relatedness**

| Block 1: Gender, Race/Ethnicity, Socioeconomic Status, Type of Sport |
| Block 2: Coach-Relatedness Support |
| Block 3: Peer-Relatedness Support |
| Block 4: Coach x Peer-Relatedness Support |

**Independent Variable Definitions/Measurement**

The first of 13 independent variables is coach-autonomy support. This variable measures participants’ perceptions of the extent to which coaches enable them to act of their own volition (Amorose & Anderson-Butcher, 2007). The scale used to identify coach-autonomy support is the six-item version of Sport Climate Questionnaire (SCQ).
While the researcher was unable to locate the author(s) of this scale, it is presented on the official site of Self-Determination Theory (http://www.selfdeterminationtheory.org/pas-sport-climate/). In terms of validity and reliability, this scale achieved $\alpha = .85$ in the similar context of physical education (Standage, Duda, & Ntoumanis, 2006). This level of psychometric value was determined in a study through which 394 British secondary school students (204 boys, 189 girls) between the ages of 11-14 reported their perceptions of need support and satisfaction (Standage et al., 2006). Items are measured through a seven-point Likert-type responses scale, ranging from “Strongly Disagree” to “Strongly Agree”. In its initial form, the questionnaire measures the perception of the coach’s ability to foster need fulfillment. The longer version of the scale contains 15 items, while the 6-item version presents items # 1, 2, 4, 7, 10, and 14. Both versions have demonstrated acceptable validity and reliability. In the current study, the six-item version was used. Sample items for the coach-autonomy support scale include (a) “I feel that my coach provides me choices and options,” (b) “I feel understood by my coach”, and (c) “My coach conveys confidence in my ability to do well at athletics.”

Another independent variable is coach-competence support. According to Ntoumanis and Standage (2009), this variable was defined as participants’ perceptions of the extent to which coaches support their belief of their own ability. To measure athletes’ perceptions of coach-competence support, the researcher employed the need support scale developed by Standage et al. (2005). In a study of 950 British secondary school students (490 female, 443 male), the alpha coefficient was .85 (Standage et al., 2005). The scale includes four items that are assessed through a 7-point Likert-type response
scale, ranging from “Strongly disagree” to “Strongly agree”. Higher scores correspond with higher perceptions of competence support from coaches. For each of the items, the phrase “PE teacher” was modified to “coach”. Sample items for the coach-competence scale include (a) “My coach helps me improve at sports”, (b) “My coach makes me feel like I am good at sports”, and (c) “I feel that my coach likes me to do well at sports”.

The final coach-related variable is coach-relatedness support. This term refers to participants’ perceptions of their sense of belonging and connectedness to their coach (Ntoumanis & Standage, 2009). Similarly, the scale for coach-relatedness support is the need support scale developed by Standage et al. (2005). The reliability of this scale, as seen in the Standage et al. (2005) study, was $\alpha = .85$. Development of this scale was similar to the process for the competence support items (Standage et al., 2005). The relatedness support scale contains five items that are assessed through a 7-point Likert scale, ranging from “Strongly disagree” to “Strongly agree”. Higher scores correspond with higher perceptions of relatedness support from PE teachers. In the current study, the phrase “PE teacher” was replaced by “coach”. The entire need support scale, consisting of autonomy support, competence support, and relatedness support, demonstrated an alpha level of .96 (Standage et al., 2005). Sample items for coach-relatedness support involve (a) “My coach supports me playing sports”, (b) “My coach encourages me to work with others when playing sports”, and (c) “My coach has respect for me”.

Transitioning to peer influence, the fourth independent variable is peer-autonomy support. As noted by Joessar et al. (2011), this variable evaluates participants’ perceptions of the extent to which peers support their ability to make their own choices.
Similar to coach-autonomy support, peer-autonomy support was measured with the six-item version of Sport Climate Questionnaire (SCQ) (http://www.selfdeterminationtheory.org/pas-sport-climate/). The alpha coefficient of peer-autonomy support in the context of secondary school physical education was .80 (Standage et al., 2006). Scores for the SCQ are calculated for both versions by developing a weighted average of the individual item scores. Results are measured through a seven-point Likert-type response scale, ranging from “Strongly Disagree” to “Strongly Agree”. In its initial form, the questionnaire measures the perception of the coach’s ability to foster need fulfillment. For the purpose of this study, in this section (i.e., peer-autonomy support), the word “coach” was replaced by “peer”. The longer version of the scale contains 15 items, while the 6-item version presents items # 1, 2, 4, 7, 10, and 14. Sample items include (a) “I feel that my peers provide me choices and options”, (b) “I feel understood by my peers”, and (c) “My peers convey confidence in my ability to do well at athletics.”

Another independent variable is peer-competence support, referring to participants’ perceptions of the extent to which peers support their belief in their own ability (Joesaar et al, 2011). The selected scale is the need support scale developed by Standage et al. (2005). Related to British secondary students’ perceptions of competence support in the context of physical education, $\alpha = .84$ (Standage et al., 2005). The scale includes four items that are assessed through a 7-point Likert scale, ranging from “Strongly disagree” to “Strongly agree”. Higher scores correspond with higher perceptions of competence support from peers. For each of the items, the phrase “PE
teacher” was modified to “peer”. Sample items for peer-competence support include (a) “My peers help me improve at sports”, (b) “My peers make me feel like I am good at sports”, and (c) “I feel that my peers like me to do well at sports”.

The final variable solely related to peer influence is peer-relatedness support. Joesaar et al. (2011) explained this variable as participants’ perceptions of their sense of belonging and connectedness to their peers. The need support scale developed by Standage et al. (2005) was also used to measure peer-relatedness support. The alpha coefficient for this variable was .88 (Standage et al., 2005). Itemization of this scale was similar to the process for the competence support items (Standage et al., 2005). The relatedness support scale contains five items that are assessed through a 7-point Likert scale, ranging from “Strongly disagree” to “Strongly agree”. Higher scores correspond with higher perceptions of relatedness support from peers. The entire need support scale, consisting of autonomy support, competence support, and relatedness support, demonstrated an alpha level of .96 (Standage et al., 2005). Sample items include (a) “My peers support me playing sports”, (b) “My peers encourage me to work with others when playing sports”, and (c) “My peers have respect for me.”

In order to account for the interactive effects of these variables, three separate two-way interaction terms were created. This involved multiplying the main effects of coach-autonomy support x peer-autonomy support, coach-competence support x peer-competence support, and coach-relatedness support x peer-relatedness support. These interaction terms were all centered, as recommended by Aiken and West (1991). In the analysis of perceived autonomy, the independent variables were coach-autonomy
support, peer-autonomy support, and coach x peer-autonomy support. Three independent variables (i.e., coach-competence support, peer-competence support, coach x peer-autonomy support) were used to measure perceived competence. Perceived relatedness was explored through the independent variables of coach-relatedness support, peer-relatedness support, and coach x peer relatedness support.

Lastly, four demographic items completed the survey. Items 46-49 were designed to ascertain participants’ gender, race/ethnicity, socioeconomic status, and type of sport. The variables of gender, race/ethnicity, and socioeconomic status were assessed through multiple choice items. Participants were provided two options in terms of gender: (a) Male or (b) Female. For race/ethnicity, athletes were requested to select one of a possible six categories: (a) White/Caucasian, (b) Black/African American, (c) Hispanic, (d) Asian/Pacific Islander, (e) Native American, or (f) Mixed Race. The socioeconomic status item was measured through three options: (a) Yes, (b) No, or (c) Not sure. The variable of type of sport was examined through an open-ended question. Respondents were asked “What sport(s) do you play?” and offered the form to respond. Similar to the approach of Lockhart et al. (2010), athletes participating in baseball, basketball, cheerleading, field hockey, football, lacrosse, soccer, softball, or volleyball were categorized as team sport athletes. Cross-country runners, track and field athletes, and golfers were classified as individual sport athletes (Lockhart et al., 2010). These demographic variables were included to measure their potential influence on the relationship of coach and peer influence toward need satisfaction. In each analysis, these four variables were entered in the first block.
Dependent Variable Definitions/Measurement

The three dependent variables (i.e., perceived autonomy, perceived competence, perceived relatedness) were measured through subscales of the Basic Needs Satisfaction in Sport Scale (Ng, Lonsdale, & Hodge, 2011). The psychometric properties of this scale were measured in a study of 273 college athletes in Hong Kong. Initially, the Basic Needs Satisfaction in Sport Scale contained 32 items. Following review from a Panel of Experts, 15 items were maintained in this scale. These 15 items (5 autonomy, 5 competence, 5 relatedness) were used to measure need satisfaction in this study. Alpha coefficients for autonomy, competence, and relatedness were .83, .87, and .80, respectively.

According to Amorose and Anderson-Butcher (2007), perceived autonomy refers to participants’ perceptions of their ability to control their own actions. This variable was examined through the autonomy subscale (5 items) from the Basic Needs Satisfaction in Sport Scale (Ng et al., 2011). In their study, the alpha coefficient of this subscale was .83. Sample items include (a) “In my sport, I get opportunities to make choices”, (b) “In my sport, I have a say in how things are done”, and (c) “In my sport, I feel free to express my ideas.” The method selected to calculate the factor scores was through sum scores (DiStefano, Zhu, & Mindrila, 2009).

Perceived competence pertains to participants’ perceptions of their ability to complete an action (Amorose & Anderson-Butcher, 2007). This variable was examined through the competence subscale (5 items) from the Basic Needs Satisfaction in Sport Scale (Ng et al., 2011). In their study, the alpha coefficient of this subscale was .87.
Sample items include (a) “I can overcome challenges in my sport”, (b) “I am skilled at my sport”, and (c) “I feel I am good at my sport.” Similarly, factor scores were calculated through a sum of scores (DiStefano et al., 2009).

The final dependent variable, perceived relatedness, was explained by Amorose and Anderson-Butcher (2007) as participants’ perceptions of their ability to feel a sense of belonging and connectedness to others. This variable was examined through the relatedness subscale (5 items) from the Basic Needs Satisfaction in Sport Scale (Ng et al., 2011). In their study, the alpha coefficient of this subscale was .80. Sample items include (a) “In my sport, I feel close to other people”, (b) “I show concern for others in my sport”, and (c) “There are people in my sport who care about me.” The factor scores were determined through the sum scores method (DiStefano et al., 2009).

Reliability

Reliability corresponds to “the consistency of the scores obtained- how consistent they are for each individual from one administration of an instrument to another and from one set of items to another” (Fraenkel & Wallen, 1996, p. 160). The strategy to be used toward enhancing the reliability of this instrument was measurement of Cronbach’s alpha levels. This statistic is a measure of internal consistency reliability and determines whether a set of variables or items measure a single, unidimensional construct (Andrew et al., 2011). Cronbach’s alpha examination creates a correlation between all items in a designated questionnaire that are intended to measure the same construct (Andrew et al., 2011).
Values to be calculated include all individual items as well as the constructs of perceived autonomy (5 items), perceived competence (5 items), perceived relatedness (5 items), coach autonomy support (6 items), peer autonomy support (6 items), coach competence support (4 items), peer competence support (4 items), coach relatedness support (5 items), and peer relatedness support (5 items). Cronbach’s alpha levels, which range from 0 to 1, should fall between 0.7-0.9 (Nunnally & Bernstein, 1994). However, as explained by Ary et al. (1996), there is not a universal standard for appropriate alpha levels. Essentially, “the degree of variability needed in a measure depends to a great extent on the use that is to be made of the results” (Ary et al., 1996, p. 287). For research purposes involving results regarding a population, a lower Cronbach’s alpha value (.50-.60) is tolerable (Ary et al., 1996). However, individually based decisions (often medical-related issues) mandate alpha levels in the .90 range (Ary et al., 1996). The researcher reviewed the Cronbach’s alpha values for each item and scale in order to determine whether the measure was maintained in the study. Based on the recommendation of Ary et al. (1996), any item or scale receiving an alpha value below .50 would be removed from the analysis.

Before initiating the analysis, all Cronbach’s alpha levels were inspected. As seen in Table 9, all Cronbach’s alpha levels were above 0.9. According to Nunnally and Bernstein (1994), these are adequate rates of reliability. Therefore, all items and scales were maintained in the preliminary and primary analyses.
Table 9

*Cronbach’s alpha levels*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach's alpha</th>
<th>Number of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy</td>
<td>.915</td>
<td>5</td>
</tr>
<tr>
<td>Competence</td>
<td>.916</td>
<td>5</td>
</tr>
<tr>
<td>Relatedness</td>
<td>.907</td>
<td>5</td>
</tr>
<tr>
<td>Coach-Autonomy Support</td>
<td>.928</td>
<td>6</td>
</tr>
<tr>
<td>Coach-Competence Support</td>
<td>.923</td>
<td>4</td>
</tr>
<tr>
<td>Coach-Relatedness Support</td>
<td>.925</td>
<td>5</td>
</tr>
<tr>
<td>Peer-Autonomy Support</td>
<td>.925</td>
<td>6</td>
</tr>
<tr>
<td>Peer-Competence Support</td>
<td>.904</td>
<td>4</td>
</tr>
<tr>
<td>Peer-Relatedness Support</td>
<td>.917</td>
<td>5</td>
</tr>
</tbody>
</table>

**Validity**

Establishing validity and reliability are essential components of conducting research. Validity refers to the extent to which an instrument measures its intended target in order to decipher whether the instrument addressed its specified purpose (Andrew et al., 2011). More specifically, validity procedures examine “the appropriateness, meaningfulness, and usefulness of the specific inferences researchers make based on the data they collect” (Fraenkel & Wallen, 1996, p. 153).
In order to enhance the validity of this instrument, the researcher conducted a readability examination with participants that are representative of the sample population. The instrument was provided to six high school students that the researcher is acquainted with through involvement in a youth sport development program. These individuals were asked to offer feedback related to the clarity of the survey. As these individuals reported that the survey was understandable for a representative population, no adjustments were made to the scales. Although the original scales used to measure these variables were modified, these changes were relatively minor. For example, the title of the relevant social agent was changed from PE teacher to coach. Due to the limited effects of these revisions, it was determined that no further tests of validity were necessary.

**Data Analysis**

All data were inputted via IBM SPSS version 21. A template for scanning the data was developed a priori. Descriptive statistics (means, frequencies, and standard deviations) were reported. The main analysis includes three separate hierarchical regression analyses. Each regression analysis contained one outcome variable (i.e., autonomy, competence, relatedness), one block entry of demographic variables, one block entry with the independent effects of coach influence along with the demographic variables, one block entry containing the independent effects of peer influence, and one final block entry with potential two-way interactions.

According to Cohen et al. (2003), the researcher must develop a plan a priori to account for missing data. As previously mentioned, the approach to encounter missing data in this study was listwise deletion. This tactic involves eliminating subjects with
missing data and conducting the analysis on the remainder of the sample (Cohen et al., 2003). This resulted in removal of eight participants from the study.

The five assumptions of regression that must be tested are independence, homogeneity of variance, linearity, normality, and multicollinearity (Lomax & Hahs-Vaughn, 2013). The assumption of independence was observed through visual inspection of a scatterplot. Observation of the scatterplot was also used to test the assumption of homogeneity of variance. As the range of residual values was distributed fairly evenly across the unstandardized predicted values, the assumption of homogeneity of variance appears to have been met. Linearity was measured through visual inspection of the partial regression plots generated for each independent variable. Each chart depicted a relatively linear progression, offering demonstration of linearity. In terms of normality, skewness and kurtosis tests were conducted to determine whether they fall within the acceptable range of -2 to 2 (Lomax & Hahs-Vaughn, 2013). Of the 16 variables, 14 had skewness rates between -2 and 2. Only race/ethnicity (Skewness = 2.70) and coach x peer competence support (Skewness = 4.99) had values slightly outside of the suggested range. It was deemed that these violations were not sufficient to harm the results of the study. The assumption of multicollinearity was measured through tolerance and VIF scores. As per Lomax and Hahs-Vaughn (2013), tolerance scores lower than .10 and VIF scores above 10 indicate potential multicollinearity problems. Across all three analyses, all tolerance and VIF statistics were acceptable. Therefore, the assumption of multicollinearity appeared to have been satisfied. As the method of analysis did not attribute responses to the related coach, a potential clustering effect could occur (Osborne
& Waters, 2002). This would appear to violate the assumption of independence. This potential violation would not seem to nullify the interpretation of the results. Otherwise, the assumptions of regression analysis appear to have been met.

Also, data was screened for potential outliers through Mahalanobis distances. With an alpha level of .05, one dependent variable, and three independent variables, there were four degrees of freedom in each analysis. Therefore, each chi-square value was 9.49 (Lomax & Hahs-Vaughn, 2013). As none of the Mahalanobis distance rates exceed this chi-square value, there appeared to be no outliers in the analysis.

Research question 1 states: What are the perceptions of psychological need satisfaction (i.e., competence, autonomy, relatedness) among high school student-athletes from vulnerable backgrounds? In order to answer this question, descriptive statistics of the BPNS were analyzed. Mean scores and correlation coefficients were examined to determine the extent to which participants perceive satisfaction of basic psychological needs.

The second research question is: What are the (a) main effects and (b) interactive effects of coach and peer autonomy support toward perceptions of autonomy among high school student-athletes from vulnerable backgrounds? To answer this question, a hierarchical regression analysis was conducted. Block 1 includes the demographic variables of gender, race/ethnicity, socioeconomic status, and type of sport. Block 2 adds the main effects of coach-autonomy support toward perceived autonomy. Block 3 adds the main effects of peer-autonomy support toward perceived autonomy. Following this step, at Block 4, two-way interactions between coach and peer autonomy support were
assessed. The purpose of accounting for the interactive effects of these social agents is to determine the combined effects of social influence (i.e., coach x peer autonomy support).

Research question 3 asks: What are the (a) main effects and (b) interactive effects of coach and peer competence support toward perceptions of competence among high school student-athletes from vulnerable backgrounds? A similar hierarchical regression procedure attempts to uncover the main effects of competence support from demographic variables (Block 1), coach-competence support (Block 2), peer-competence support (Block 3) followed by the two-way interaction (coach x peer competence support) at Block 4.

The final research question was addressed thereafter: What are the (a) main effects and (b) interactive effects of coach and peer relatedness support toward perceptions of relatedness among high school student-athletes from vulnerable backgrounds? Block 1 introduces the effects of gender, race/ethnicity, socioeconomic status, and type of sport. Block 2 adds the main effects of coach-relatedness support. Block 3 adds the independent effects of peer-relatedness support. Block 4 adds the interaction product of coach x peer relatedness support.

Measurements including $R^2$, $R^2$ change, and significance values determine the extent to which psychological need satisfaction is predicted by the supportive behaviors of peers and coaches and any potential two-way interactions. Studies have investigated the relationship between individual needs and satisfaction, as well as the influence of social agents, but analysis of individual needs according to interaction of social influence from coaches and peers represents a unique study.
Chapter 4: Results

The following chapter presents the results generated in the current study related to psychological need satisfaction and need support. The approach used to examine the results involved separate examination of each of the four research questions. Section #1 provides the results in relation to research question #1. In this section, descriptive statistics and correlations are presented in relation to student-athletes perceptions of psychological need satisfaction. Section #2 offers the results observed in response to research question #2. This includes a block-entry regression analysis to measure the influence of demographic variables, coach-autonomy support, peer-autonomy support, and coach x peer autonomy support toward participants’ perceptions of autonomy. The model summary, ANOVA table, coefficients, and regression plots are provided and discussed. Section #3 presents the findings related to research question #3. This involves a block-entry regression analysis to measure the influence of demographic variables, coach-competence support, peer-competence support, and coach x peer competence support toward participants’ perceptions of competence. The model summary, ANOVA table, and coefficients are provided and analyzed. Section #4 provides the results observed in response to research question #4. This includes a block-entry regression analysis to measure the influence of demographic variables, coach-relatedness support, peer-relatedness support, and coach x peer relatedness support toward participants’
perceptions of relatedness. The model summary, ANOVA table, coefficients, and regression plots are provided and discussed. All data was inputted into SPSS version 21.

**Power Analysis**

A post-hoc power analysis was conducted through G*Power statistical software. Through an effect size of .30, alpha level of .05, sample size of 136, and seven predictors, the observed power was .75. While this value was below the level suggested by Cohen et al. (2003), Lomax and Hahs-Vaughn (2013) reported that power levels between .60-.80 are acceptable in the social sciences.

**Research Question # 1**

As a measure toward understanding the influence of coaches and peers toward need satisfaction among high school athletes from urban communities, it is essential to determine participants’ levels of need satisfaction. Therefore, research question # 1 is as follows: What are overall perceptions of psychological need satisfaction (i.e., autonomy, competence, relatedness) among high school student-athletes from urban populations? Athletes’ perceptions of need satisfaction were assessed through descriptive statistics (i.e., mean scores, standard deviations) and correlations.

**Descriptive Statistics**

Table 10 provides the ranges, mean scores, and standard deviations of each of the three need satisfaction and six need support variables. The possible range for each of the three psychological needs was between 5-35. The highest mean scores were achieved by relatedness, with a summed score of 30.30 (SD = 4.77). Perceptions of competence were slightly lower at 29.65 (SD = 4.89). Athletes’ mean scores of autonomy were more
limited, with a value of 24.70 ($SD = 7.01$). In order to more thoroughly compare need satisfaction scores, percentages were tabulated based on the achieved score divided by the possible score. The percentage of perceived autonomy was 70.6% (24.70/35). For competence, satisfaction of this psychological need equated to 84.7% (29.65/35). The percentage of relatedness satisfaction was 86.6% (30.30/35). This process highlighted a fairly large gap among need satisfaction. Seemingly, athletes felt high levels of self-efficacy within their sport and a level of social connectedness with others. However, participants reported a limited ability to act of their own volition.

Descriptive statistics in terms of need support illustrated a similar picture to that of need satisfaction. Similar to the process of comparing rates of need satisfaction, percentages of need support were calculated according to the achieved score divided by the potential score. Of the coach influence variables, mean scores for autonomy-support, competence-support, and relatedness-support were 31.96 ($SD = 8.15$) out of 42, 23.68 ($SD = 5.15$) of a possible 28, and 30.12 ($SD = 6.01$) of 35. Evaluation of percentages revealed that perceptions of coach-autonomy support, coach-competence support, and coach-relatedness support equated to 76.1%, 84.6%, and 86.1%, respectively. As was the case through the process of need satisfaction, relatedness-support from the coach exceeded distribution of coach-autonomy support.

In terms of peer-oriented variables, autonomy-support, competence-support, and relatedness-support totaled 32.95 ($SD = 6.74$) out of 42, 23.29 ($SD = 4.31$) of a possible 28, and 29.85 ($SD = 4.97$) of a potential 35. Similarly, percentages were tabulated through dividing the received score by the possible score. For peer-autonomy support,
peer-competence support, and peer-relatedness support, this corresponded to 78.5%, 83.2%, and 85.3%. While the discrepancies were compacted, support for the need of relatedness again emerged as the most supported need.

Table 10

*Descriptive Statistics*

<table>
<thead>
<tr>
<th>Variable</th>
<th>(N)</th>
<th>Range</th>
<th>Mean</th>
<th>(SD)</th>
</tr>
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<tbody>
<tr>
<td>Autonomy</td>
<td>136</td>
<td>5-35</td>
<td>24.70</td>
<td>7.01</td>
</tr>
<tr>
<td>Competence</td>
<td>136</td>
<td>5-35</td>
<td>29.65</td>
<td>4.89</td>
</tr>
<tr>
<td>Relatedness</td>
<td>136</td>
<td>5-35</td>
<td>30.30</td>
<td>4.77</td>
</tr>
<tr>
<td>Coach Autonomy Support</td>
<td>136</td>
<td>6-42</td>
<td>31.96</td>
<td>8.15</td>
</tr>
<tr>
<td>Coach Competence Support</td>
<td>136</td>
<td>4-28</td>
<td>23.68</td>
<td>5.15</td>
</tr>
<tr>
<td>Coach Relatedness Support</td>
<td>136</td>
<td>5-35</td>
<td>30.12</td>
<td>6.01</td>
</tr>
<tr>
<td>Peer Autonomy Support</td>
<td>136</td>
<td>6-42</td>
<td>32.95</td>
<td>6.74</td>
</tr>
<tr>
<td>Peer Competence Support</td>
<td>136</td>
<td>4-28</td>
<td>23.29</td>
<td>4.31</td>
</tr>
<tr>
<td>Peer Relatedness Support</td>
<td>136</td>
<td>5-35</td>
<td>29.85</td>
<td>4.97</td>
</tr>
<tr>
<td>Valid (N) (listwise)</td>
<td>136</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* The final sample size was determined following the listwise deletion approach to address missing data (Peugh & Enders, 2004).

Additionally, follow-up analyses were conducted to compare group differences among demographic groups. Tables 11 and 12 display the differences in autonomy based gender through an independent samples \(t\)-test. There was a significant difference in
autonomy scores for males ($M = 23.82, SD = 7.41$) and females ($M = 27.32, SD = 4.83$); $t (87.41) = -.32, p < .001$. Results suggest that females perceive higher autonomy scores than males.

Table 11

*Group Statistics*

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy_Total</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>102</td>
<td>23.82</td>
<td>7.41</td>
<td>0.73</td>
</tr>
<tr>
<td>Female</td>
<td>34</td>
<td>27.32</td>
<td>4.83</td>
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</table>

Table 12

*Independent Samples- Autonomy*

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test</th>
<th>t-test</th>
<th>Sig. (2-tailed)</th>
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</thead>
<tbody>
<tr>
<td>Equal variances assumed</td>
<td>$F$</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>6.55</td>
<td>0.01</td>
<td>-2.6</td>
</tr>
<tr>
<td></td>
<td>-3.2</td>
<td></td>
<td>87.41</td>
</tr>
</tbody>
</table>

Tables 13 and 14 display the differences in competence based gender through an independent samples $t$-test. There was a non-significant difference in competence scores for males and females.

Table 13

*Group Statistics*

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
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<th>Std. Error Mean</th>
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<tr>
<td>Competence_Total</td>
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<td></td>
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<tr>
<td>Male</td>
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<td>0.52</td>
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<tr>
<td>Female</td>
<td>34</td>
<td>30.50</td>
<td>3.59</td>
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</table>
Table 14

*Independent Samples - Competence*

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test</th>
<th>t-test</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>8.24</td>
<td>0.01</td>
<td>-1.2</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>-1.4</td>
</tr>
</tbody>
</table>

Tables 15 and 16 display the differences in relatedness based gender through an independent samples *t*-test. There was a significant difference in relatedness scores for males ($M = 29.82, SD = 4.95$) and females ($M = 31.74, SD = 3.88$); $t (134) = -.20, p = .04$. Results suggest that females perceive higher relatedness scores than males.

Table 15

*Group Statistics*

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatedness_Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>102</td>
<td>29.82</td>
<td>4.95</td>
<td>0.49</td>
</tr>
<tr>
<td>Female</td>
<td>34</td>
<td>31.74</td>
<td>3.88</td>
<td>0.67</td>
</tr>
</tbody>
</table>

Table 16

*Independent Samples - Related*

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test</th>
<th>t-test</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>1.94</td>
<td>0.17</td>
<td>-2.0</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>-2.3</td>
</tr>
</tbody>
</table>
Tables 17 and 18 represent the follow-up one-way ANOVA to measure group differences in autonomy based on race/ethnicity. This analysis revealed significant differences in autonomy scores based on race/ethnicity.

Table 17

*Descriptive Statistics*

<table>
<thead>
<tr>
<th>Autonomy</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>White/Caucasian</td>
<td>102</td>
<td>23.77</td>
<td>6.88</td>
<td>0.68</td>
</tr>
<tr>
<td>Black/AA</td>
<td>22</td>
<td>29.32</td>
<td>6.05</td>
<td>1.29</td>
</tr>
<tr>
<td>Mixed Race</td>
<td>10</td>
<td>25.00</td>
<td>6.53</td>
<td>2.07</td>
</tr>
<tr>
<td>Total</td>
<td>136</td>
<td>24.70</td>
<td>7.01</td>
<td>0.60</td>
</tr>
</tbody>
</table>

Table 18

*ANOVA*

<table>
<thead>
<tr>
<th>Autonomy</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>696.05</td>
<td>4</td>
<td>174.01</td>
<td>3.84</td>
<td>0.006</td>
</tr>
<tr>
<td>Within Groups</td>
<td>5934.59</td>
<td>131</td>
<td>45.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6630.64</td>
<td>135</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tables 19 and 20 represent the follow-up one-way ANOVA to measure group differences in competence based on race/ethnicity. This analysis revealed significant differences in competence scores based on race/ethnicity.
Table 19

*Descriptive Statistics*

<table>
<thead>
<tr>
<th>Competence</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>White/Caucasian</td>
<td>102</td>
<td>28.84</td>
<td>4.71</td>
<td>0.47</td>
</tr>
<tr>
<td>Black/AA</td>
<td>22</td>
<td>33.68</td>
<td>2.19</td>
<td>0.47</td>
</tr>
<tr>
<td>Mixed Race</td>
<td>10</td>
<td>28.70</td>
<td>6.99</td>
<td>2.21</td>
</tr>
<tr>
<td>Total</td>
<td>136</td>
<td>29.65</td>
<td>4.89</td>
<td>0.42</td>
</tr>
</tbody>
</table>

Table 20

*ANOVA*

<table>
<thead>
<tr>
<th>Competence</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>440.39</td>
<td>4</td>
<td>110.10</td>
<td>5.184</td>
<td>0.001</td>
</tr>
<tr>
<td>Within Groups</td>
<td>2782.36</td>
<td>131</td>
<td>21.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3222.76</td>
<td>135</td>
<td>21.24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tables 21 and 22 represent the follow-up one-way ANOVA to measure group differences in relatedness based on race/ethnicity. This analysis revealed non-significant differences in relatedness scores based on race/ethnicity.

Table 21

*Descriptive Statistics*

<table>
<thead>
<tr>
<th>Relatedness</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>White/Caucasian</td>
<td>102</td>
<td>30.01</td>
<td>4.63</td>
<td>0.46</td>
</tr>
<tr>
<td>Black/AA</td>
<td>22</td>
<td>31.77</td>
<td>4.78</td>
<td>1.02</td>
</tr>
<tr>
<td>Mixed Race</td>
<td>10</td>
<td>30.30</td>
<td>5.81</td>
<td>1.84</td>
</tr>
<tr>
<td>Total</td>
<td>136</td>
<td>30.30</td>
<td>4.77</td>
<td>0.41</td>
</tr>
</tbody>
</table>
Table 22

ANOVA

<table>
<thead>
<tr>
<th>Relatedness</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>118.68</td>
<td>4</td>
<td>29.67</td>
<td>1.32</td>
<td>0.266</td>
</tr>
<tr>
<td>Within Groups</td>
<td>2947.96</td>
<td>131</td>
<td>22.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3066.64</td>
<td>135</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tables 23 and 24 represent the follow-up one-way ANOVA to measure group differences in autonomy based on socioeconomic status. This analysis revealed significant differences in autonomy scores based on socioeconomic status.

Table 23

Descriptive Statistics

<table>
<thead>
<tr>
<th>Autonomy</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>FreeReduced Lunch</td>
<td>29</td>
<td>27.93</td>
<td>6.79</td>
<td>1.26</td>
</tr>
<tr>
<td>FullPriceLunch</td>
<td>93</td>
<td>23.62</td>
<td>6.97</td>
<td>0.72</td>
</tr>
<tr>
<td>UnsureLunch</td>
<td>14</td>
<td>25.14</td>
<td>5.92</td>
<td>1.58</td>
</tr>
<tr>
<td>Total</td>
<td>136</td>
<td>24.70</td>
<td>7.01</td>
<td>0.60</td>
</tr>
</tbody>
</table>

Table 24

ANOVA

<table>
<thead>
<tr>
<th>Autonomy</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>413.24</td>
<td>2</td>
<td>206.62</td>
<td>4.42</td>
<td>0.014</td>
</tr>
<tr>
<td>Within Groups</td>
<td>6217.40</td>
<td>133</td>
<td>46.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6630.64</td>
<td>135</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tables 25 and 26 represent the follow-up one-way ANOVA to measure group differences in competence based on socioeconomic status. This analysis revealed significant differences in competence scores based on socioeconomic status.

Table 25

*Descriptive Statistics*

<table>
<thead>
<tr>
<th>Competence</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>FreeReducedLunch</td>
<td>29</td>
<td>31.97</td>
<td>4.34</td>
<td>0.81</td>
</tr>
<tr>
<td>FullPriceLunch</td>
<td>93</td>
<td>28.89</td>
<td>4.90</td>
<td>0.51</td>
</tr>
<tr>
<td>UnsureLunch</td>
<td>14</td>
<td>29.93</td>
<td>4.60</td>
<td>1.23</td>
</tr>
<tr>
<td>Total</td>
<td>136</td>
<td>29.65</td>
<td>4.89</td>
<td>0.42</td>
</tr>
</tbody>
</table>

Table 26

*ANOVA*

<table>
<thead>
<tr>
<th>Competence</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>209.94</td>
<td>2</td>
<td>104.97</td>
<td>4.63</td>
<td>0.011</td>
</tr>
<tr>
<td>Within Groups</td>
<td>3012.82</td>
<td>133</td>
<td>22.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3222.76</td>
<td>135</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tables 27 and 28 represent the follow-up one-way ANOVA to measure group differences in relatedness based on socioeconomic status. This analysis revealed significant differences in relatedness scores based on socioeconomic status.
Table 27

Descriptive Statistics

<table>
<thead>
<tr>
<th>Relatedness</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>FreeReducedLunch</td>
<td>29</td>
<td>32.07</td>
<td>5.04</td>
<td>0.94</td>
</tr>
<tr>
<td>FullPriceLunch</td>
<td>93</td>
<td>29.63</td>
<td>4.58</td>
<td>0.47</td>
</tr>
<tr>
<td>UnsureLunch</td>
<td>14</td>
<td>31.07</td>
<td>4.70</td>
<td>1.26</td>
</tr>
<tr>
<td>Total</td>
<td>136</td>
<td>30.30</td>
<td>4.77</td>
<td>0.41</td>
</tr>
</tbody>
</table>

Table 28

ANOVA

<table>
<thead>
<tr>
<th>Relatedness</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>140.28</td>
<td>2</td>
<td>70.14</td>
<td>3.19</td>
<td>0.044</td>
</tr>
<tr>
<td>Within Groups</td>
<td>2926.36</td>
<td>133</td>
<td>22.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3066.64</td>
<td>135</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Correlations

Prior to centering the predictor variables, all possible correlations were examined. Correlations among variables are presented in Table 29. Every correlation among need satisfaction and need support variables was significant and positive. The psychological needs of autonomy, competence, and relatedness were moderately positively correlated with each other. The strongest correlation was between competence and relatedness \((r = .51)\), while the weakest was between competence and autonomy \((r = .35)\).

Satisfaction of these three psychological needs were also correlated with the amount of need satisfaction received from coaches and peers. The strongest correlation was between coach-competence support and coach-relatedness support \((r = .83)\). The
The weakest positive correlation occurred between competence and coach-relatedness support ($r = .22$). Surprisingly, the correlation between competence and coach-competence support was minimal ($r = .24$). This was the second least impactful relationship, behind that of competence and coach-relatedness support.

Table 29

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

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

*Note.* Auto = Autonomy, Comp = Competence, Relat = Relatedness, CAS = Coach-Autonomy Support, CCS = Coach-Competence Support, CRS = Coach-Relatedness Support
Support, PAS = Peer-Autonomy Support, PCS = Peer-Competence Support, PRS = Peer-Relatedness Support.

Primary Analyses

The primary objective of the current study was to measure the independent and interactive effects of influence from coaches and peers toward high school athletes’ perceptions of psychological need satisfaction. Research questions # 2-4 are analyzed separately in the following sections. In order to evaluate the model fit of each model (i.e., autonomy, competence, relatedness), each Model Summary table was reviewed. Thereafter, each ANOVA table was consulted to determine the significance of each block. Lastly, the Coefficients table was examined in relation to each of the independent variables.

Research Question #2

The next research question specifically analyzes the basic psychological need of autonomy. Officially, research question # 2 states: What are the (a) main effects and (b) interactive effects of coach and peer autonomy support toward perceived autonomy among high school student-athletes from urban areas? Through a hierarchical regression approach, autonomy was considered the dependent (outcome) variable. In order to distinguish among the three psychological needs, only the autonomy-related variables are added to the demographic variables. The seven independent (predictor) variables were entered in four separate blocks. Block one introduced the four demographic variables (i.e., gender, race/ethnicity, socioeconomic status, type of sport). Block two contained the independent effects of coach-autonomy support. The third block issued the independent
effects of peer-autonomy support. Block four added the interaction of coach x peer
autonomy support. The following section reports the results generated through this
regression analysis.

Table 30 supplies the model summary for the regression analysis involving
autonomy (Autonomy_Total). In the first step of the hierarchical regression analyses,
gender, race/ethnicity, socioeconomic status, and type of sport were entered. These four
demographic variables explained 19.8% in the variance in autonomy. As noted in Table
31, this model was statistically significant ($F (8, 127) = 3.92, p < .001$).

Table 32 offers the coefficient results for this analysis. After dummy-coded
variables were created, selected variables were entered into the regression analysis. For
gender, the variable female was entered and male served as the reference point. The
coefficient for female participants was statistically significant ($p = .002$). In comparison
to males, the predicted autonomy scores for females would be 4.17 points higher.

Following a review of the population sample, it was noted that there were only
one Hispanic and one Native American participant. Due to this occurrence, it would not
be feasible to determine whether there were significant differences based on
race/ethnicity for these categories. While these two participants were included in the final
analysis, their race/ethnicity was excluded from the statistical comparison of races and
ethnicities. Therefore, for race/ethnicity, the variables Black/African American
(Black/AA) and mixed race (MixedRace) were entered and White/Caucasian served as
the reference point. The coefficient of Black/African American ethnicity was statistically
significant ($p = .015$). In comparison to White/Caucasian athletes, the predicted
autonomy scores of Black/African Americans would be 4.88 points higher. The coefficient of mixed race ethnicity was not statistically significant ($p = .870$).

As the item measuring free or reduced lunch was the only item to include an “Unsure” option, results were analyzed based on the recommendation of Krosnick et al. (2001). This process involves reporting only the substantive responses when reviewing statistical significance, thus excluding those unsure about their lunch payment (UnsureLunch). Therefore, Full Paid Lunch (FullPaidLunch) was entered and Free or Reduced Lunch served as the reference point. The coefficient of student-athletes who paid full price for lunch was not statistically significant ($p = .230$).

Based on the procedure utilized by Hutchinson (2014), the variable type of sport was divided into team sport athletes (Teamsport) (i.e., baseball, basketball, cheerleading, field hockey, football, lacrosse, soccer, softball, volleyball) and individual sport athletes (i.e., cross country, track and field, golf). Team sport participants were entered and individual sport athletes served as the reference point. The coefficient of team sport athletes was not statistically significant ($p = .148$).

Referring back to Table 3, the effects of social influence were then accounted for. After entry of coach-autonomy support (Coach-Autonomy) at Step 2, the total variance explained by the model as a whole was 47.3% ($F(9, 126) = 12.55, p < .001$). The introduction of coach-autonomy support explained an additional 27.5% of variance in perceived autonomy, after controlling for gender, race/ethnicity, socioeconomic status, and type of sport ($F(1, 126) = 65.63, p < .001$).
After entry of peer-autonomy support (Peer-Autonomy) at Step 3, the total variance explained by the model as a whole was 47.9% ($F(10, 125) = 11.47, p < .001$). The addition of peer-autonomy support explained an additional .6% of variance in perceived autonomy, after controlling for gender, race/ethnicity, socioeconomic status, type of sport, and coach-autonomy support ($F(1, 125) = 1.42, p = .236$).

After entry of the two-way interaction between coach x peer autonomy support (Coach x Peer-Auto) at Step 4, the total variance explained by the model as a whole was 48.8% ($F(11, 124) = 10.74, p < .001$). The addition of coach x peer autonomy support explained an additional .9% of variance in perceived autonomy, after controlling for gender, race/ethnicity, socioeconomic status, type of sport, coach-autonomy support, and peer-autonomy support ($F(1, 124) = 2.26, p = .136$). In total, gender, race/ethnicity, socioeconomic status, type of sport, coach-autonomy support, peer-autonomy support, and coach x peer autonomy support explained 48.8% of the variance in athletes’ perceptions of autonomy.

In the final model, three of the seven variables (i.e., gender, race/ethnicity, coach-autonomy support) were statistically significant predictors of autonomy. The other four variables (i.e., socioeconomic status, type of sport, peer-autonomy support, coach x peer autonomy support) did not make a unique significant contribution.
Table 30

*Model Summary - Autonomy*

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>$R^2$</th>
<th>Adj. $R^2$</th>
<th>$R^2$ Change</th>
<th>F Change</th>
<th>df1</th>
<th>df2</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.445</td>
<td>0.198</td>
<td>0.148</td>
<td>0.198</td>
<td>3.92</td>
<td>8</td>
<td>127</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>2</td>
<td>0.688</td>
<td>0.473</td>
<td>0.435</td>
<td>0.275</td>
<td>65.63</td>
<td>1</td>
<td>126</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>3</td>
<td>0.692</td>
<td>0.479</td>
<td>0.437</td>
<td>0.006</td>
<td>1.45</td>
<td>1</td>
<td>125</td>
<td>0.236</td>
</tr>
<tr>
<td>4</td>
<td>0.699</td>
<td>0.488</td>
<td>0.442</td>
<td>0.009</td>
<td>2.26</td>
<td>1</td>
<td>124</td>
<td>0.136</td>
</tr>
</tbody>
</table>

Model 1: Predictors: (Constant), Teamsport, MixedRace, NativeAmerican, Hispanic, BlackAA, UnsureLunch, Female, FullPaidLunch

Model 2: Predictors: (Constant), Teamsport, MixedRace, NativeAmerican, Hispanic, BlackAA, UnsureLunch, Female, FullPaidLunch, Coach-Autonomy

Model 3: Predictors: (Constant), Teamsport, MixedRace, NativeAmerican, Hispanic, BlackAA, UnsureLunch, Female, FullPaidLunch, Coach-Autonomy, Peer-Autonomy

Model 4: Predictors: (Constant), Teamsport, MixedRace, NativeAmerican, Hispanic, BlackAA, UnsureLunch, Female, FullPaidLunch, Coach-Autonomy, Peer-Autonomy, CoachxPeer-Auto

Dependent Variable: Autonomy_Total
Table 31

ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>1313.06</td>
<td>8</td>
<td>164.13</td>
<td>3.92</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>5317.58</td>
<td>127</td>
<td>41.87</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6630.64</td>
<td>135</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Regression</td>
<td>3134.27</td>
<td>9</td>
<td>348.25</td>
<td>12.55</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>3496.37</td>
<td>126</td>
<td>27.75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6630.64</td>
<td>135</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Regression</td>
<td>3173.43</td>
<td>10</td>
<td>317.34</td>
<td>11.474</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>3457.22</td>
<td>125</td>
<td>27.66</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6630.64</td>
<td>135</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Regression</td>
<td>3235.16</td>
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Table 32

**Coefficients**

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Dependent Variable: Autonomy_Total
In summary, each of the four statistical models was significant. Among the demographic variables, gender and race/ethnicity were significant. The independent variable which explained the most variance in autonomy was coach-autonomy support ($R^2$ change = .275). The interactive effects were non-significant, as coach x peer autonomy support explained only .9% of the variance in athletes’ autonomy. Related to athletes’ perceptions of autonomy, the extent to which autonomy-support is provided by coaches was the most influential predictor of satisfaction of this basic psychological need.

**Research Question # 3**

In the next research question, the basic psychological need of competence was examined. Specifically, research question # 3 asks: What are the (a) main effects and (b) interactive effects of coach and peer competence support toward perceived competence among high school student-athletes from urban populations? Through another hierarchical regression, competence (Competence_Total) was measured as the dependent (outcome) variable. The seven independent (predictor) variables were entered in four separate blocks. In order to distinguish among the three psychological needs, only the competence-related variables are added to the demographic variables. Block one introduced the independent demographic variables (i.e., gender, race/ethnicity, socioeconomic status, type of sport). Block two added the independent effects of coach-competence support. The third block analyzed the independent effects of peer-competence support. Block four included the interaction of coach x peer competence
support. The following section reports the results generated through this regression analysis.

Table 33 offers the model summary of the competence regression analysis. In the first step of the hierarchical regression analyses, gender, race/ethnicity, socioeconomic status, and type of sport were entered. This model explained 18.4% in the variance in competence. As demonstrated through Table 34, this model was statistically significant ($F (8, 127) = 3.57, p = .001$).

The coefficient chart is presented in Table 35 to examine the significance of each variable. For gender, the variable female was entered and male served as the reference point. The coefficient of females was statistically significant ($p = .022$). In comparison to males, the predicted competence scores for females were 2.20 points higher.

As there were not a sufficient amount of Hispanic or Native American participants to determine statistical significance, the variables Black/African American and mixed race were entered and White/Caucasian served as the reference point. While the Hispanic and Native American respondent were included in the final analysis, their race/ethnicities were excluded from the statistical comparison of races and ethnicities. The coefficient of Black/African American (Black/AA) ethnicity was statistically significant ($p = .001$). In comparison to White/Caucasian athletes, the predicted competence scores of Black/African American athletes were 4.73 points higher. The coefficient of mixed race (MixedRace) ethnicity was not statistically significant ($p = .782$).
As recommended by Krosnick et al. (2001), Full Paid Lunch (FullPaidLunch) was entered and Free or Reduced Lunch (FreeReducedLunch) served as the reference point. The coefficient of student-athletes who paid full price for lunch was not statistically significant ($p = .473$).

To measure the statistical significance through type of sport, the variable was divided into team sport athletes (Teamsport) (i.e., baseball, basketball, cheerleading, field hockey, football, lacrosse, soccer, softball, volleyball) and individual sport athletes (i.e., cross country, track and field, golf). Team sport participants were entered and individual sport athletes served as the reference point. The coefficient of team sport athletes was not statistically significant ($p = .150$).

Table 33 portrays the remaining elements of the model. After entry of coach-competence support (Coach-Comp) at Step 2, the total variance explained by the model as a whole was 21.4% ($F (9, 126) = 3.81, p < .001$). The introduction of coach-competence support explained an additional 3.0% of variance in perceived competence, after controlling for gender, race/ethnicity, socioeconomic status, and type of sport ($F (1, 126) = 4.84, p < .001$).

After entry of peer-competence support (Peer-Competence) at Step 3, the total variance explained by the model as a whole was 37.6% ($F (10, 125) = 7.53, p < .001$). The addition of peer-competence support explained an additional 16.2% of variance in perceived competence, after controlling for gender, race/ethnicity, socioeconomic status, type of sport, and coach-competence support ($F (1, 125) = 32.47, p < .001$).
After entry of the two-way interaction between coach x peer competence support (CoachxPeer Com) at Step 4, the total variance explained by the model as a whole was 37.7% ($F(11, 124) = 6.82, p < .001$). The addition of coach x peer competence support explained an additional .1% of variance in perceived competence, after controlling for gender, race/ethnicity, socioeconomic status, type of sport, coach-competence support, and peer-competence support ($F(1, 124) = .19, p = .662$). In sum, the combination of gender, race/ethnicity, socioeconomic status, type of sport, coach-competence support, peer-competence support, and coach x peer competence support explained 37.7% of the variance in perceived competence.

In the final model, four of the seven variables (i.e., gender, race/ethnicity, coach-competence support, peer-competence support) were statistically significant. The other three variables (i.e., socioeconomic status, type of sport, coach x peer competence support) did not make a unique significant contribution.
Table 33

Model Summary- Competence

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<th>F Change</th>
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<th>df2</th>
<th>Sig. F Change</th>
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<td>0.184</td>
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Model 1: Predictors: (Constant), Teamsport, MixedRace, NativeAmerican, Hispanic, BlackAA, UnsureLunch, Female, FullPaidLunch

Model 2: Predictors: (Constant), Teamsport, MixedRace, NativeAmerican, Hispanic, BlackAA, UnsureLunch, Female, FullPaidLunch, Coach-Comp

Model 3: Predictors: (Constant), Teamsport, MixedRace, NativeAmerican, Hispanic, BlackAA, UnsureLunch, Female, FullPaidLunch, Coach-Comp, Peer-Competence

Model 4: Predictors: (Constant), Teamsport, MixedRace, NativeAmerican, Hispanic, BlackAA, UnsureLunch, Female, FullPaidLunch, Coach-Comp, Peer-Competence, CoachxPeerCom

Dependent Variable: Competence_Total
Table 34

ANOVA

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<th>Mean Square</th>
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<th>Sig.</th>
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Table 35

Coefficients

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</table>

Dependent Variable: Competence_Total
The hierarchical regression analysis of competence depicted that each model was statistically significant. In the model of demographic variables, gender and race/ethnicity were significant. The foremost predictor of athletes’ levels of competence was peer-competence support ($R^2$ change = .162). Similarly, the two-way interaction between coach x peer competence support was not statistically significant. This relationship explained only .1% of the variance in athletes’ competence. In the analysis of satisfaction of the psychological need for competence, support from peers was prioritized.

**Research Question #4**

The final research question pondered: What are the (a) main effects and (b) interactive effects of coach and peer relatedness support toward perceived relatedness among high school student-athletes from urban populations? In order to distinguish among the three psychological needs, only the relatedness-related variables are added to the demographic variables. Through a hierarchical regression approach, relatedness (Relatedness_Total) was measured as the dependent (outcome) variable. The seven independent (predictor) variables were entered in four separate blocks. Block one introduced the four demographic variables (i.e., gender, race/ethnicity, socioeconomic status, type of sport). Block two included the independent effects of coach-relatedness support. The third block analyzed the independent effects of peer-relatedness support. Block four included the interaction of coach x peer relatedness support. The following section reports the results generated through this regression analysis.

Table 36 presents the model summary for the relatedness regression. In the first step of the hierarchical regression analysis, gender, race/ethnicity, socioeconomic status,
and type of sport were entered. This model explained 11.9% in the variance in relatedness. Through Table 37, it was observed that this model was statistically significant \( (F(8, 127) = 2.14, p = .037) \).

As was the case for the autonomy and competence evaluations, the coefficient chart for relatedness was computed. This document is offered in Table 38. For gender, the variable female was entered and male served as the reference point. The coefficient of females was statistically significant \( (p = .013) \). In comparison to males, the predicted relatedness scores for females were 2.42 points higher.

As there were only one Hispanic and one Native American participant, these participants were not examined related to this variable. While these two participants were included in the final analysis, their race/ethnicities were excluded from the statistical comparison of races and ethnicities. Therefore, for race/ethnicity, the variables Black/African American (Black/AA) and mixed race (MixedRace) were entered, and White/Caucasian served as the reference point. The coefficient of Black/African American ethnicity was not statistically significant \( (p = .061) \). The coefficient of mixed race ethnicity was not statistically significant \( (p =.700) \).

In accordance with the approach suggested by Krosnick et al. (2001), Full Paid Lunch (FullPaidLunch) was entered and Free or Reduced Lunch (FreeReducedLunch) served as the reference point. The coefficient of student-athletes who paid full price for lunch was not statistically significant \( (p = .074) \).

To measure the differences through type of sport, the variable was divided into team sport athletes (Teamsport) (i.e., baseball, basketball, cheerleading, field hockey,
football, lacrosse, soccer, softball, volleyball) and individual sport athletes (i.e., cross
country, track and field, golf). Team sport participants were entered and individual sport
athletes served as the reference point. The coefficient of team sport athletes was not
statistically significant ($p = .163$).

Table 36 continues the analysis of the model summary. After entry of coach-
relatedness support (Coach-Relate) at Step 2, the total variance explained by the model as
a whole was 28.7% ($F (9, 126) = 5.64, p < .001$). The introduction of coach-relatedness
support explained an additional 16.9% of variance in perceived relatedness, after
controlling for gender, race/ethnicity, socioeconomic status, and type of sport ($F (1, 126)
= 29.82, p < .001$).

After entry of peer-relatedness support (Peer-Relate) at Step 3, the total variance
explained by the model as a whole was 46.8% ($F (10, 125) = 10.98, p < .001$). The
addition of peer-relatedness support explained an additional 18.0% of variance in
perceived relatedness, after controlling for gender, race/ethnicity, socioeconomic status,
type of sport, and coach-relatedness support ($F (1, 125) = 42.34, p < .001$).

After entry of the two-way interaction between coach x peer relatedness support
(CoachxPeerRelate) at Step 4, the total variance explained by the model as a whole was
50.5% ($F (11, 124) = 11.50, p < .001$). The addition of coach x peer relatedness support
explained an additional 3.7% of variance in perceived relatedness, after controlling for
gender, race/ethnicity, socioeconomic status, type of sport, coach-relatedness support,
and peer-relatedness support ($F (1, 124) = 9.45, p = .003$). In total, gender, race/ethnicity,
socioeconomic status, type of sport, coach-relatedness support, peer-relatedness support, and coach x peer relatedness support explained 50.5% of the variance in relatedness.

Table 36

Model Summary for Relatedness

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>$R^2$</th>
<th>Adj. R</th>
<th>$R^2$ Change</th>
<th>F Change</th>
<th>df1</th>
<th>df2</th>
<th>Sig. F Change</th>
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</thead>
<tbody>
<tr>
<td>1</td>
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<td>0.119</td>
<td>0.063</td>
<td>0.119</td>
<td>2.13</td>
<td>8</td>
<td>127</td>
<td>0.037</td>
</tr>
<tr>
<td>2</td>
<td>0.536</td>
<td>0.287</td>
<td>0.236</td>
<td>0.169</td>
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<td>1</td>
<td>126</td>
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<tr>
<td>3</td>
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<td>0.425</td>
<td>0.181</td>
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<td>&lt; .001</td>
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<tr>
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<td>0.461</td>
<td>0.037</td>
<td>9.34</td>
<td>1</td>
<td>124</td>
<td>0.003</td>
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</tbody>
</table>

Model 1: Predictors: (Constant), Teamsport, MixedRace, NativeAmerican, Hispanic, BlackAA, UnsureLunch, Female, FullPaidLunch

Model 2: Predictors: (Constant), Teamsport, MixedRace, NativeAmerican, Hispanic, BlackAA, UnsureLunch, Female, FullPaidLunch, Coach-Relate

Model 3: Predictors: (Constant), Teamsport, MixedRace, NativeAmerican, Hispanic, BlackAA, UnsureLunch, Female, FullPaidLunch, Coach-Relate, Peer-Relate

Model 4: Predictors: (Constant), Teamsport, MixedRace, NativeAmerican, Hispanic, BlackAA, UnsureLunch, Female, FullPaidLunch, Coach-Relate, Peer-Relate, CoachxPeer-Relate

Dependent Variable: Relatedness_Total
Table 37

**ANOVA**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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</thead>
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<td>.037</td>
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<td></td>
</tr>
<tr>
<td>2 Regression</td>
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<td>9</td>
<td>97.90</td>
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<tr>
<td>3 Regression</td>
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<tr>
<td>4 Regression</td>
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Table 38

Coefficients

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<th>Upper</th>
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<td>0.01</td>
<td>0.003</td>
<td>-0.05</td>
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</tbody>
</table>

Dependent Variable: Relatedness_Total
The examination of relatedness revealed that coach x peer relatedness support demonstrated a statistically significant interaction effect. Based on the recommendation of Aiken and West (1991), regression lines were plotted to further observe these relationships. Peer-relatedness support was categorized into low, moderate, and high support participants. Figure 1 reflects the interaction of coach x peer relatedness support toward relatedness. The correlation between relatedness and coach-relatedness support was .60 for those with low peer-relatedness support. The correlation between relatedness and coach-relatedness support was .04 for those with moderate peer-relatedness support. The correlation between relatedness and coach-relatedness support was .20 for those with high peer-relatedness support. For athletes with moderate or high levels of peer-relatedness support, the influence of coach-relatedness support was less important. However, for those perceiving low-peer relatedness, the influence of coach-relatedness support was greatly enhanced.
In the final model, five of the seven variables (i.e., gender, socioeconomic status, coach-relatedness support, peer-relatedness support, coach x peer relatedness support) were statistically significant. The other two variables (i.e., race/ethnicity, type of sport) did not make a unique significant contribution.

In summary, all statistical models exploring relatedness were significant. In Model 1, gender and socioeconomic status were significant. Peer-relatedness support explained the most variance in relatedness ($R^2$ change = .180). However, coach-relatedness support was only slightly lower at 16.9%. Both coaches and peers were meaningful predictors of athletes’ feelings of relatedness. Furthermore, among the three psychological needs, the interaction of coach x peer relatedness support contributed the
greatest amount \((R^2\) change = .037). Coaches, peers, and the interaction between these social agents were significant predictors of athletes’ perceptions of relatedness.
Chapter 5: Discussion

The current study was designed to examine the independent and interactive effects of social influence from coaches and peers toward perceptions of psychological need satisfaction among high school athletes from urban backgrounds. More comprehensive understanding of these topics would assist administrators and coaches in facilitating effective sport programs. Therefore, the following chapter offers a discussion of the findings generated in response to the four research questions. In order to explore the unique properties of autonomy, competence, and relatedness, the findings related to the four research questions are presented separately. Implications for relevant stakeholders are also discussed. Limitations of the current study and directions for future research are identified.

**High School Athletes’ Perceptions of Psychological Need Satisfaction**

As identified in SDT (Deci & Ryan, 2000), individual’s motivational orientations are influenced by satisfaction of the psychological needs of autonomy, competence, and relatedness. With the purpose of continuing the application of SDT toward sport, research question #1 measures: What are overall perceptions of psychological need satisfaction (i.e., autonomy, competence, relatedness) among high school student-athletes from urban populations?
**Autonomy**

The first of the three essential psychological needs explained in SDT is autonomy. The psychological need of autonomy involves “the experience of integration and freedom” (Deci & Ryan, 2000, p. 231). Autonomy is demonstrated through the ability of individuals to act of their own volition. In the sport context, this would relate to the athlete’s ability to control their own actions and express their opinions within the sport domain. Previous studies (e.g., Joesaar et al., 2011; Riley & Smith, 2011) have indicated that increased autonomy is associated with enhanced levels of intrinsic motivation toward sport. Satisfaction of the need for autonomy has also been correlated with well-being (Mack et al., 2011) and sportspersonship (Ntoumanis & Standage, 2009). Based on these studies’ results, it is arguable that there is value in establishing autonomy among adolescent athletes.

In the current study, participants’ autonomy scores were generally above average. Based on this finding, it is possible that high school athletes are typically afforded the opportunity to act of their own volition during sport activities. Through further inspection of the results, it was observed that participants recorded especially high responses to the items “In my sport, I get opportunities to make choices” and “In my sport, I feel free to express my ideas.” While these findings illustrated a positive assessment of autonomy satisfaction, there were other results that seem to contradict this determination. Most notably, two participants reported the lowest possible amount of need satisfaction of autonomy. Seemingly, an emphasis on promoting autonomy is not prioritized in all situations.
The results retrieved from the current study align strongly with previous findings observed by Amorose and Anderson-Butcher (2007) and Riley and Smith (2011). In both of these studies, similar to the current study, high school athletes’ levels of autonomy were moderately favorable. Among high school athletes, it is possible that perceptions of autonomy satisfaction are moderately high. Yet, as presented in the results section, levels of perceived autonomy seem to fall below those of competence and relatedness. Therefore, the potential may exist for athletes’ autonomy levels to be enhanced. As previous studies (e.g., Joesaar et al., 2011; Mack et al., 2011) have indicated the benefits of increased autonomy levels, it may be worthwhile to emphasize autonomy satisfaction.

The current study also revealed the importance of demographic variables toward perceived autonomy, as Model 1 accounted for 19.8% of the variance. In particular, gender and race/ethnicity were significant. Results of the current study provided that females maintained higher senses of autonomy than males. The studies conducted by Joesaar et al. (2011) and Mack et al. (2011) failed to display significant differences based on gender. In the present study, Black/African American athletes were more autonomous than White/Caucasian participants. Joesaar et al. (2011) did not measure differences according to race/ethnicity. Mack et al. (2011) observed that White/Caucasian athletes, which comprised a large percentage of the sample population, perceived higher levels of autonomy.

**Competence**

Another psychological need depicted through SDT is competence (Deci & Ryan, 2000). Competence refers to “a propensity to have an effect on the environment as well
as to attain valued outcomes within it” (Deci & Ryan, 2000, p. 231). Previous studies have demonstrated a variety of positive outcomes attributable to high levels of competence. Similar to satisfaction of autonomy, higher competence levels were indicative of increased intrinsic motivation (e.g., Chian & Wang, 2008; Koh et al., 2012). Quested and Duda (2010) noted that competence is indicative of positive affect while creating an inverse relationship with negative affect. Essentially, a variety of positive outcomes are achievable through enhancements of athletic competence.

In the current study, athletes’ perceptions of competence were highly favorable. This detection would seem to indicate that these high school athletes were competent in their sport. Closer scrutiny of these findings revealed positive responses to items such as “I can overcome challenges in my sport” and “I have the ability to perform well in my sport”.

These findings related to competence displayed similarities to previous findings of Amorose and Anderson-Butcher (2007) and Riley and Smith (2011). In congruence with the results of the current study, findings from Amorose and Anderson-Butcher (2007) and Riley and Smith (2011) revealed substantial levels of competence among high school athletes. The sum score of competence in the current study was 29.65, with a possible range of 5-35. In Amorose and Anderson-Butcher’s (2007) study, average competence scores of high school students equated to 3.68 on a scale of 1-5. Riley and Smith (2011) observed average scores of 5.61 on a 1-7 scale. The similarity of these findings supports the ability of athletic environments to foster perceptions of competence. With the existing findings that have highlighted the advantages of competence
satisfaction (e.g., Chian & Wang, 2008; Quested & Duda, 2010), it may be beneficial to establish competence-supportive environments.

The current study provided findings in relation to gender and race/ethnicity. Competence levels were significantly higher among females than males. This was not the case in the study completed by Amorose and Anderson-Butcher (2007). In that study, males’ competence levels were 3.91 as compared to 3.80 of females. Also, in the current study, results revealed higher levels of competence among Black/African American athletes than White/Caucasian and Mixed Race participants.

Relatedness

The final psychological need emphasized in SDT is relatedness, which corresponds to “the desire to feel connected to others” (Deci & Ryan, 2000, p. 231). Naturally, involvement in sport presents opportunities for close interactions. In particular, it is important to measure relatedness to coaches and peers in this domain. While the need for relatedness has received slightly less scholarly attention than autonomy and competence, results have indicated the merits of encouraging satisfaction of this psychological need. In a study of handball players, Sarrazin et al. (2011) observed that perceptions of relatedness saw the largest gains of the three psychological needs. Studies (e.g., Kipp & Amorose, 2008; Riley & Smith, 2011) have documented the link between feelings of relatedness and levels of intrinsic motivation. Positive outcomes, such as vitality, have also been enhanced through satisfaction of the need for relatedness (Adie et al., 2012). Based on these results, it is a worthy exercise to foster perceptions of relatedness within athletic teams.
In the current study, participants’ perceptions of relatedness exceeded those of autonomy and competence. Among the relatedness items, athletes responded favorably to the following statements: “In my sport, there are people who I can trust” and “I have close relationships with people in my sport.” This would seem to indicate that the environment of sport promotes relatedness.

These findings toward the psychological need for relatedness align with similar studies conducted by Amorose and Anderson-Butcher (2007) and Riley and Smith (2011). In the current study, through a sum score, relatedness scores 30.30 of a total 35. Amorose and Anderson-Butcher (2007) noted overall relatedness scores of 5.54 on a 7-point Likert scale. Similarly, Riley and Smith (2011) observed average relatedness scores of 5.35 out of 7. In each of these three studies, perceptions of relatedness exceeded those of autonomy and competence. Perhaps, through multiple years of interactions with coaches and peers, athletes are able to build social connections. Based on the findings from these three studies, it is possible that perceptions of relatedness are especially high among high school athletes. With previous evidence in support of the valuable consequences of relatedness (e.g., Adie et al., 2012; Kipp & Amorose, 2008), it may be beneficial to promote climates of relatedness within sport.

**Comparison of Psychological Need Satisfaction**

In the current study, as well as other related studies, high school athletes generally report satisfactory levels of autonomy, competence, and relatedness. Previous studies toward this topic (e.g., Amorose & Anderson-Butcher, 2007; Riley & Smith, 2011) have reached similar conclusions. Therefore, it appears that interscholastic programs are
offering opportunities for psychological need satisfaction. Due to the widespread positive
effects of psychological need satisfaction (e.g., Conroy & Coatsworth, 2007; Standage et
al., 2005) this is a promising conclusion. Results generated through these 136 high school
athletes showed higher levels of relatedness than autonomy and competence. This also
aligns with similar studies conducted by Amorose and Anderson-Butcher (2007) and
Riley and Smith (2011). As a whole, it seems that sport programs are offering athletes an
environment in which they feel socially connected to others. The most area for growth
relates to the need for autonomy. These results seem to support the conception that high
school athletes are not afforded the freedom to act of their volition. Coaches and
administrators need to continuously improve structures of autonomy within athletic
programs.

Influence of Coaches and Peers Toward Athletes’ Perceptions of Autonomy

Research question # 2 examined the following subject matter: What are the (a)
main effects and (b) interactive effects of coach and peer autonomy support toward
perceived autonomy among high school student-athletes from urban populations? The
following section presents an interpretation of the results of the current study and
compares these results to previous studies.

In the current study, the sum of the demographic variables (i.e., gender,
race/ethnicity, socioeconomic status, type of sport) explained a significant amount of the
variance in autonomy. Of these, gender and race/ethnicity were statistically significant.
Females reported higher levels of autonomy satisfaction than males. Black/African
American athletes perceived higher rates of autonomy than White/Caucasian and mixed
race participants. While their results were non-significant, those from lower socioeconomic status (i.e., receiving free or reduced lunch) sensed higher levels of autonomy. Lastly, athletes participating in individual sports (i.e., cross country, track and field, golf) felt more autonomous than team sport athletes, although in a non-significant manner.

The addition of the variables related to autonomy-support revealed that the contributions of coach-autonomy support were related to athletes’ perceptions of autonomy. Conversely, the independent effects peer-autonomy support did not explain a significant amount of variance in perceived autonomy. Furthermore, the calculation of combined influence from both coaches and peers through their interaction term was not significant. Ultimately, autonomy-support from coaches, but not peers, was significant toward athletes’ perceptions of autonomy. This would seem to create an increased responsibility for coaches to promote autonomy among their athletes.

The combination of all seven variables entered at Model 4 explained 48.8% of the variance in perceived autonomy. Therefore, gender, race/ethnicity, socioeconomic status, type of sport, coach-autonomy support, peer-autonomy support, and coach x peer autonomy support explained nearly half of the variance in athletes’ perceptions of autonomy. The strongest predictor of autonomy was coach-autonomy support. Observation of the interactive effects of coach x peer autonomy support failed to reveal significant results. Based on these results, the independent effects of social agents, especially coach-autonomy support, exceeded the influence of coach x peer autonomy support.
Findings of the current study support previous research by Amorose and Anderson-Butcher (2007) and Conroy and Coatsworth (2007) in that coach-autonomy support is crucial to need satisfaction of high school athletes. The literature base involving peer autonomy-support is extremely limited. In fact, Viira and Koka (2012) conducted the only study to examine the importance of peer-autonomy support. For this reason, results of the current study are compared to results generated by Viira and Koka (2012). In the study conducted by Viira and Koka (2012), the role of peers toward furthering athletes’ levels of autonomy was meaningful. However, in the current study, results failed to demonstrate the importance of peer-autonomy support. Within the current study, it appears that high school athletes’ perceptions of autonomy were more related to coach-autonomy support than peer-autonomy support. It is necessary for additional research toward the influence of peer-autonomy support among other populations of athletes, as well as continued examination of the interactive effects of coach and peer-autonomy support. Previous studies of peer behaviors (i.e., Kipp & Weiss, 2015; Riley & Smith, 2011; Vazou et al., 2005) focused on positive friendship quality, peer acceptance, and task-oriented peer climates. In each of these studies, these three behaviors were influential toward athletes’ perceptions of need satisfaction and motivation. Perhaps, positive friendship quality, peer acceptance, and task-oriented peer climates are more related to athletes’ experiences than peer-autonomy support.

**Influence of Coaches and Peers Toward Athletes’ Perceptions of Competence**

Research question # 3 is as follows: What are the (a) main effects and (b) interactive effects of coach and peer competence support toward perceived competence
among high school student-athletes from urban populations? The following section reports the nature of the observed findings in relation to previous literature.

In the analysis of competence, the demographic variables (i.e., gender, race/ethnicity, socioeconomic status, type of sport) accounted for a significant percentage of the variance in competence satisfaction (18.4%). Among the demographic variables, gender and race/ethnicity were significant predictors. Results demonstrated that perceptions of competence were higher among females than males. Black/African American athletes perceived significantly higher rates of competence than White/Caucasian and mixed race participants. While not statistically significant, student-athletes receiving free or reduced lunch reported enhanced rates of competence. Another non-significant result was that team-oriented athletes (i.e., football, lacrosse, soccer, basketball, baseball, softball, volleyball, cheerleading, field hockey) felt more athletically competent than individual sport athletes. Based on these findings, it may be feasible to provide efforts to enhance competence among male, White/Caucasian, individual sport athletes, and those from higher socioeconomic status.

The combination of all seven variables entered at Model 4 explained 37.7% of the variance in perceived competence. Therefore, gender, race/ethnicity, socioeconomic status, type of sport, coach-competence support, peer-competence support, and coach x peer competence support explained almost 38% of the variance in athletes’ perceptions of competence. The strongest predictor of competence was the sum of the demographic variables, followed closely by peer-competence support. Observation of the interactive effects of coach x peer competence support failed to reveal significant results. Based on
these results, participants’ demographic backgrounds and the independent effects of social agents, especially peer-competence support, exceeded the influence of coach x peer competence support.

Unlike the findings generated through evaluation of perceived autonomy, athletes’ perceptions of competence were minimally related to competence-support from coaches. Peer-competence support was more prominently related to perceived competence. The approach to account for a combined level of influence related to competence-support from coaches and peers did not substantially influence participants’ levels of competence.

The results of the competence study were virtually opposite of the previous examination of autonomy. In this case, peers were very important toward establishing a sense of competence among others. As previously mentioned, positive friendship quality, peer acceptance, and task-oriented peer climates have been associated with high levels of autonomy (Kipp & Weiss, 2015; Riley & Smith, 2011). Potentially, supportive behaviors from peers are also related to enhanced senses of competence.

On the other hand, results revealed that coach-competence support explained a small percentage (3%) of the variance in perceived competence. This would seem to contradict previous findings noted by Standage et al. (2005) and Viira and Koka (2012). Both Standage et al. (2005) and Viira and Koka (2012) observed that coach-competence support was highly correlated with athletes’ perceptions of competence. In the current study, results failed to indicate a significant relationship between competence support from the coach and athletes’ levels of competence. Similarly to the evaluation of autonomy, the interactive effects of coach x peer competence support toward perceived
competence were not significant. Future studies may examine the reasons in which coach-competence support did not generate similar results as observed in the Standage et al. (2005) and Viira and Koka (2012) studies. As this was a surprising result, it is difficult to theorize why coach-competence support was not strongly related to perceived competence. Possibly, as athletes transition into adolescence, it is not as necessary for coaches to offer positive reinforcement.

**Influence of Coaches and Peers Toward Athletes’ Perceptions of Relatedness**

The final research question explored: What are the (a) main effects and (b) interactive effects of coach and peer relatedness support toward perceived relatedness among high school student-athletes from urban populations? The following section examines the findings generated in response to this research question.

In the analysis of relatedness, Model 1 (i.e., gender, race/ethnicity, socioeconomic status, type of sport) was significant in terms of athletes’ perceptions of relatedness. Among these, gender and socioeconomic status were significant predictors. Females reported significantly higher levels of competence satisfaction than males. Athletes that receive free or reduced lunch felt significantly higher senses of relatedness than those paying full price or unsure about their status. Though non-significant, Black/African Americans perceived higher relatedness levels than White/Caucasian and mixed race participants. Another non-significant result was that athletes participating in team sports held higher ratings of relatedness satisfaction than individual sport participants.

The findings of the current study supported the importance of coach-relatedness support toward establishing perceptions of relatedness, which accounted for 16.9% of the
variance in perceived relatedness. Athletes’ levels of relatedness were influenced by relatedness support from peers (18.0% of variance).

The combination of all seven variables entered at Model 4 explained 50.5% of the variance in perceived relatedness. Therefore, gender, race/ethnicity, socioeconomic status, type of sport, coach-relatedness support, peer-relatedness support, and coach x peer relatedness support explained more than half of the variance in athletes’ perceptions of relatedness. The strongest predictor of relatedness was peer-relatedness support, which slightly eclipsed coach-relatedness support. Of the three models, relatedness was the only variable in which the interactive effects of coach x peer influence were significant predictors of relatedness. Despite this significant result, the interaction of coach x peer relatedness support added only 3.7% of variance. Thus, it appears that the independent effects of coach-relatedness support and peer-relatedness support were stronger predictors of relatedness than coach x peer relatedness support. Visual inspection of the regression lines revealed that for athletes with moderate or high levels of peer-relatedness support, the influence of coach-relatedness support was less important. However, for those perceiving low-peer relatedness, the influence of coach-relatedness support was greatly enhanced.

Summary of Conclusions

Results from the three hierarchical regression analyses showed a significant influence of certain demographic variables. Gender was deemed a significant predictor of autonomy, competence, and relatedness. Females reported higher levels of autonomy, competence, and relatedness than males. Race/ethnicity was a significant predictor of
autonomy and competence, yet was non-significant in relation to relatedness. Among racial/ethnic groups, the highest levels of autonomy and competence were observed among Black/African American athletes. The other demographic variables (i.e. socioeconomic status, type of sport) failed to display the same levels of significance. Only perceived relatedness was significantly predicted by socioeconomic status, with athletes receiving free or reduced lunch maintaining the highest levels of relatedness.

The three psychological needs (i.e., autonomy, competence, relatedness) were differently related to influence from coaches. Coach-autonomy support accounted for 27.5% of the variance in perceived autonomy, which was the most significant predictor among all independent variables. Conversely, coach-competence support contributed only 3.0% of the variance in perceived competence. Addition of coach-relatedness support resulted in 16.9% of variance within perceived relatedness. Based on these results, it is apparent that coach-autonomy support and coach-relatedness support, but not coach-competence support, are related to need satisfaction.

Peer influence variables also revealed inconsistent conclusions. Peer-autonomy support accounted for only .6% of the variance in perceived autonomy. Therefore, there was almost a 27% difference between coach-autonomy support and peer-autonomy support. Peer-competence support was more significantly related to perceived competence, accounting for 16.2% of the variance. Lastly, peer-relatedness support accounted for 18.0% of the variance in perceived relatedness. These findings seem to indicate a significant relationship between peer-competence support and competence as
well as peer-relatedness support and relatedness, but not for peer-autonomy support toward autonomy.

The current study uniquely measured the interaction between coach x peer influence toward psychological need satisfaction. The only significant interaction effect was through coach x peer relatedness support. Coach x peer autonomy support accounted for .9% of the variance in perceived autonomy. The product of coach x peer competence support contributed .1% of the variance in perceived competence. Coach x peer relatedness support accounted for a larger value of 3.7% of variance in perceived relatedness. Upon inspection of the regression plot, it appeared that as the amount of peer-relatedness support rose, the effect of coach-autonomy support decreased.

**Implications for Sport Programming**

The current study uncovers new information related to social influence and need satisfaction within high school sport. The ability to generate a stronger understanding of the importance of social influence and motivational orientations would be greatly beneficial to sport administrators, managers, and coaches. As observed in many studies, intrinsic motivation is associated with continued sport participation (e.g., Gucciardi & Jackson, 2013; McDavid et al., 2012; Tsorbatzoudis et al., 2006) and well-being indicators (e.g., Amorose et al., 2009; Quested & Duda, 2010). Therefore, the current study intended to identify the determinants of motivation. In the following section, as per the method of the study, implications of psychological need satisfaction and need support are discussed. Results related to the research question involving overall need satisfaction offer ramifications in many categories: (a) Adolescent development, (b) Development of
adolescents from urban communities, (c) Motivation in sport, (d) Levels of physical activity, and (e) Health outcomes.

Psychological Need Satisfaction in High School Sport

The conclusion reached through research question #1 was that high school athletes generally perceive satisfaction of the basic psychological needs of autonomy, competence, and relatedness. In terms of average scores, athletes perceived the highest level of relatedness, followed by competence and autonomy. These were fairly consistent with results garnered through perceived examination of psychological need satisfaction among high school athletes (Amorose & Anderson-Butcher, 2007; Riley & Smith, 2011). The findings of the Amorose and Anderson-Butcher (2007) study produced the same relationship to the current study, in which perceived relatedness slightly exceed competence and greatly eclipsed autonomy ratings. The only slight variation from the Riley and Smith (2011) study was that competence outpaced perceived relatedness.

In the current study, females reported significantly higher levels of autonomy, competence, and relatedness than males. Perhaps, coaches and administrators could review the model of sport programming for females in order to transfer successful elements to sport programs for males. Additionally, Black/African American athletes perceived substantially higher levels of autonomy and competence than White/Caucasians. Similarly, programs may emphasize need satisfaction among White/Caucasian participants.

It appears, therefore, that programs are offering their athletes opportunities to gain a sense of relatedness and feel competent. Certain relatedness items such as “In my sport,
there are people I can trust” and “I have close relationships with people in my sport” produced especially high responses. As high levels of relatedness have corresponded with positive outcomes (e.g., Amorose et al., 2009; Standage et al., 2005), it appears beneficial for administrators and particularly coaches to continue promoting environments of trust and closeness.

In terms of competence, mean scores demonstrated high levels of need satisfaction. Two items (i.e., “I can overcome challenges in my sport”, “I have the ability to perform well in my sport”) offered exceptionally high ratings. Based on previous evidence of the benefits associated with competence satisfaction (e.g., Koh et al., 2012; Sarrazin et al., 2001), efforts should be continued to ensure well-established levels of competence within high school athletes.

If there were one area for improvement, it would be related to satisfaction of the need for autonomy. As previously mentioned, autonomy scores were substantially lower than those of competence and relatedness. These are comparable to previous observations of Amorose and Anderson-Butcher (2007) and Riley and Smith (2011). In both of these studies, similar to the current study, autonomy was the least satisfied need in the interscholastic athletic setting. Amorose et al. (2016) similarly noted mean scores of 4.96 (on a scale of 1-7) regarding high school athletes’ perceptions of coach-autonomy support. Participants’ notions of coach-autonomy support were less than mother-autonomy support and father-autonomy support (Amorose et al., 2016). This presents a dilemma, as coaches are responsible for establishing a structure of authority. Yet, these results illustrate that coaches are providing virtually no opportunity to offer input into
their performance. The serious implication is that high rates of autonomy are associated with positive sport experiences (i.e., Chian & Wang, 2008; Koh et al., 2012). For this reason, it is necessary to continue to examine mechanisms to appropriately provide opportunities for autonomy among athletes within structured programs.

In terms of overall adolescent development, individuals face a multitude of challenges. Kim et al. (2015) noted that physical, social, emotional, and cognitive changes are more drastic during adolescence than youth and adulthood. Negative consequences, in particular obesity and psychological disorders, have grown through developmental difficulties (Kim et al., 2015). Through ongoing efforts to facilitate adolescent development, administrators have established extracurricular activities (Eccles & Barber, 1999). Organized sport has become one of the most popular developmental contexts (Anderson-Butcher, 2011). The evidence in favor of associated benefits increases the emphasis on proper administration of sport programs to encourage adolescent development. Studies have shown that need satisfaction in sport is associated with positive developmental outcomes, including positive affect (Mack et al., 2011) and sense of identity (Koh et al., 2012). Thus, it is encouraging that the current study resulted in favorable impressions of need satisfaction. Coaches and administrators must remain steadfast in promoting relatedness and competence, while seeking alternative methods to encourage autonomy. The current study identified areas of improvement within need satisfaction, which would have a profound impact on adolescent development.

Studies (e.g., Aday, 2001; O’Connor et al., 2009) have emphasized that adolescent development is more challenging within urban locations. These areas are
categorized by high rates of Black/African American residents (O’Connor et al., 2009). Black/African American and Hispanic adolescents suffer from higher rates of poverty than their White/Caucasian peers (McBride et al., 2011). Furthermore, adolescents from underprivileged communities are more commonly subjected to discrimination and racism (Byrd & Carter Williams, 2016). However, Riley and Anderson-Butcher (2012) noted that sport programs provide enhanced benefits for adolescents from urban communities. The current study provided promising results for high school student athletes from urban communities. Black/African American respondents reported higher perceptions of autonomy, competence, and relatedness than White/Caucasian participants. Perhaps, those in urban communities establish better connections with coaches and peers. Efforts should continue to foster need satisfaction through sport programs in racially diverse areas.

The current study is beneficial toward evaluating motivation in sport, particularly among adolescents. The benefits of sport participation have been well-documented (Anderson-Butcher et al., 2013; Greenleaf et al., 2009). Thus, results from the current study are encouraging in that generally strong levels of need satisfaction were observed. Based on these findings, it is apparent that sport programs are offering opportunities for athletes to feel socially connected to others and competent. Due to observances that autonomy scores were minimized, it is conceivable that administrators can provide autonomy-supportive environments to a greater extent.

As explained by Troiano et al. (2008), physical activity rates are lowest among the adolescent population. Lack of physical activity has been correlated with sedentary
behaviors (Kann et al., 2016) and obesity (Ogden et al., 2016). Organized sport can be a viable avenue toward enhancing levels of physical activity. To accomplish this goal, administrators must continue to address the confounding problem of athlete burnout. While Smith et al. (2010) reported that burnout rates are especially higher among the adolescent population, Amorose et al. (2009) discovered that need satisfaction is the most effective method toward discouraging burnout. Thus, by displaying adequate need satisfaction, participants in the current study demonstrate the potential for a more physically active community.

Lastly, the current study may provide beneficial information toward health outcomes. Need satisfaction and motivation have been associated with well-being (Mack et al., 2011) and self-esteem (Amorose et al., 2009). Those involved in sport program administration should be comforted that high school athletes in the current study perceived high levels of need satisfaction. These findings resembled those of Amorose and Anderson-Butcher (2007) and Riley and Smith (2011). Thus, it seems that high school sport programs may promote positive health outcomes.

**Influence of Coaches and Peers in High School Sport**

Based upon a general analysis of the level of need satisfaction received by high school athletes, the current study extended to review of the influence of coaches and peers. The next research question pondered the extent of autonomy-support from coaches and peers toward athletes’ levels of autonomy. The amount of variance accounted for by coach-autonomy support and peer-autonomy support were substantially different. Coach-autonomy support was more predominant as an influence toward athletes’ perceptions of
autonomy than peer-autonomy support. In fact, the presence of coach-autonomy support was the most meaningful contributor among all sources of social influence. Due to this disparity, the combined effects of coach and peer autonomy support were not impactful.

These results emphasize the importance for coaches to offer autonomy support to their athletes. Previous studies (i.e., Amorose & Anderson-Butcher, 2007; Conroy & Coatsworth, 2007) have focused on coach-autonomy support, reaching similar conclusions that this behavior maintains a strong influence on athletes’ autonomy levels. As the current study adds more evidence toward the importance of coach-autonomy support, it is necessary to continue to investigate this topic. Of the three psychological needs, the current study joins previous similar studies (i.e., Amorose & Anderson-Butcher, 2007; Riley & Smith, 2011) in reporting that athletes perceive less satisfaction of the need for autonomy. In addition to continued evaluation of the importance of coach-autonomy support, attention should be devoted to the desired autonomy-supportive behaviors.

On the other hand, results failed to support the influence of peer-autonomy support. Autonomy was minimally predicted by peer-autonomy support. It would seem, therefore, that athletes do not value support from their peers in order to act of their own volition. Perhaps, as Viira and Koka (2012) is the only study to officially measure peer-autonomy support, these values have not been instilled within athletes. In the Viira and Koka (2012) study, peer-autonomy support was meaningful toward athletes’ perceptions of autonomy. Conversely, the current study did not detect a significant relationship between peer-autonomy support and perceived autonomy. Further inquiry may be
beneficial toward determining the potential impact of peer-autonomy support.

Nonetheless, it appears that related to the psychological need of autonomy, provisions of support from the coach are more meaningful. Programs, especially at the high school level, should afford more opportunities and incentive for coaches to demonstrate autonomy-supportive behaviors.

Results generated in response to research question #3 also yielded intriguing conclusions. While coach-autonomy support was the foremost determinant of athletes’ levels of perceived autonomy, the evidence in favor of coach-competence support was less convincing. Regarding this psychological need, peers were substantially more impactful toward fostering perceptions of competence. Again, the combined effects of coach and peer competence support were not significant predictors of athletes’ competence levels.

Therefore, in the current study, the importance of coach-competence support was minimized. As Standage et al. (2005) and Viira and Koka (2012) observed that coach-competence support was influential toward athletes’ competence levels, the results of the current study were surprising. Despite the fact that athletes attributed a smaller amount of importance to coach-competence support, it was notable that participants’ competence rates were generally high. It may be possible that athletes’ competence perceptions were unconsciously enhanced through coaches’ behaviors. It would be interesting to explore the value of more explicit competence-supportive actions from coaches.

Unlike the relationship involving autonomy, peer-competence support was greatly impactful toward athletes’ competence levels. These results were more aligned with Viira
and Koka’s (2012) conclusions. Similar to the findings of the current study, Viira and Koka (2012) observed that athletes’ perceptions of competence were heavily influenced by peer-competence support. Within the current population, athletes were reliant on their peers to foster their own perceptions of competence. Based on these results, further inquiry is essential toward the types of peer behaviors that would promote athletes’ senses of competence. As this topic has received limited coverage, the area of competence support and satisfaction presents a ripe opportunity for additional research. Potentially, administrators and coaches could instruct athletes of the importance and methods of peer-competence support.

In the final research question, the topic of perceived relatedness was examined. As noted in the previous section, athletes’ perceptions of relatedness were higher than those of autonomy and competence. Research question # 4 was developed to examine the extent to which relatedness support from coaches and peers caused satisfaction of the need for relatedness. Coach-relatedness support was strongly related to athletes’ perceptions of relatedness. Unlike the relationships between social influence and the other psychological needs, coach-relatedness support and peer-relatedness support were similarly impactful toward athletes’ perceptions of relatedness. Furthermore, there appeared to be a significant result of combining these two measures of social influence. Upon further inspection, it was observed that as the amount of peer-relatedness support rose, the effect of coach-autonomy support decreased.

These results depict the fairly strong influence of coach-relatedness support. Representation of this relationship supports previous examination of this topic (i.e., Kipp
& Weiss, 2015; Standage et al., 2005; Viira & Koka, 2012). Toward this end, these conclusions emphasize the necessity for coaches to create an environment in which their athletes perceive a sense of social connection. While the psychological need of relatedness has received less scholarly attention than autonomy and competence, the nature of its relationship with coach-relatedness support was promoted in the current study. With this in mind, additional focus should be placed toward ensuring that coaches enable a level of relatedness within their teams.

Another practical implication of this section is the importance of peer-relatedness support toward relatedness satisfaction. Especially within team sports, the ability to form social relationships is valuable. Previous studies related to this topic (i.e., Kipp & Weiss, 2015; Viira & Koka, 2012) reached similar conclusions. Based on the combination of these results, it would be fruitful to determine the methods through which peers can learn and display relatedness-supportive behaviors.

The primary unique concept of the current study was to interpret the potential interactions of coach and peer influence toward athletes’ perceptions of psychological need satisfaction. Notably, the two-way interaction of coach x peer relatedness support was the only significant interaction effect among the three basic psychological needs. Based on a review of the regression plots, as the amount of peer-relatedness support increases, the effect of coach-relatedness was diminished. This result provides initial support toward the extended value of peer-relatedness support.

Ultimately, the results for each of these three psychological needs were very different. Related to autonomy, the influence of coach-autonomy support substantially
superseded autonomy support from peers. The addition of coach x peer autonomy support failed to offer significant value. In terms of competence, results displayed the opposite results. While coach-competence support established a relatively small amount of variance toward athletes’ competence levels, peer-competence support was significantly important. Again, the interaction effect of coach x peer competence support was not a statistically significant predictor. The final dependent variable, relatedness, was nearly equivalently predicted by coach-relatedness support and peer-relatedness support. This analysis provided the only significant interaction effect. The regression plot illustrated that in the high peer-relatedness group, the effect of coach-relatedness support lessened.

Similar to examination of need satisfaction, evaluation of need support from coaches and peers can offer recommendations in five distinct areas: (a) Adolescent development, (b) Development of adolescents from urban communities, (c) Motivation in sport, (d) Levels of physical activity, and (e) Health outcomes.

Adolescent development can be encouraged or constrained by many different factors. Developmental outcomes have been associated with the nature of relationships formed with others (Hartmann, 2003). Anderson-Butcher (2013) emphasized the ability of these relationships to extend to the sport context. Thus, the current study can be utilized to examine developmental outcomes based on the nature of social influence. Coach-autonomy support, but not peer-autonomy support, was found to influence athletes’ perceptions of autonomy. As autonomy has been correlated with positive developmental outcomes such as positive affect and vitality (Mack et al., 2011), it appears beneficial for coaches to provide autonomy-support as a method toward
adolescent development. The analysis of competence revealed that peer-competence support was more influential toward participants’ perceptions of competence. Since studies have noted the relationship between competence and prosocial behaviors (Hodge & Gucciardi, 2015), adolescents are seemingly capable of fostering development of their peers through competence-supportive behaviors. Results of the current study indicated that relatedness-support from both coaches and peers influenced athletes’ senses of relatedness. Based on the observation that relatedness was corresponded with psychological well-being (Amorose et al., 2009), it appears possible for coaches and peers to affect adolescent development through support of the need for relatedness.

More specifically, development of adolescents from urban communities presents additional challenges. Adolescents from these neighborhoods, composed largely of Black/African American and Hispanic descent, are faced with higher levels of discrimination and poverty (Byrd & Carter Andrews, 2016). Results from the current study reflect their ability to seek social support from coaches and peers. Black/African American athletes perceived significantly higher rates of coach-autonomy and competence support than their White/Caucasian and Mixed Race counterparts. While the margin was smaller for relatedness, Black/African Americans nonetheless perceived higher levels of need satisfaction. This is a promising indicator toward need support to adolescents from urban communities. Based on these findings, it may be necessary to further evaluate and implement need support measures within urban communities.

Similar to need satisfaction, levels of need support have facilitated increases in motivation. For example, Spray et al. (2006) identified that satisfaction of the
psychological needs of autonomy, competence, and relatedness produced higher levels of motivation. In the current study, results depicted generally strong levels of motivation among athletes. Within the analysis, this was likely due to their receptiveness of need support from coaches and peers. In particular, coach-autonomy support and peer-competence support were indicative of need satisfaction. Based on the results of the current study, in conjunction with previous findings, it is possible that athletes are dependent upon need support to promote motivation.

The current study seems to indicate that need support within the sport context may encourage physical activity. Among adolescents, especially from urban communities, levels of physical activity are low (Troiano et al., 2008). Sport can be used to combat this trend, but must overcome high rates of burnout. Similar to the examination of need satisfaction, results in terms of need support reflected substantial levels of motivation. According to these findings, need satisfaction from coaches and peers may encourage physically active behaviors.

Ultimately, results from the current study note the capacity for need support to foster healthy outcomes among adolescents. Obesity is a chief concern in terms of adolescent development (Ogden et al., 2016). In response, sport has the unique opportunity to promote positive outcomes while discouraging unhealthy behaviors. For this to occur, athletes must feel motivated and supported by coaches and peers. Results provided by the current study seem to indicate that this is a common occurrence.

These results promote the distinguishable nature of the three psychological needs of autonomy, competence, and relatedness. Based solely on the results of this study, it
would seem advisable for coaches to offer autonomy to their athletes, athletes to provide competence-support to their teammates, and both coaches and peers to enhance perceptions of relatedness among team members.

Limitations

While the current study was developed in pursuit of practical findings, it is imperative to acknowledge the study’s limitations. The following section outlines the limitations that affected the implementation of the current study. Recommendations for future research are presented thereafter.

Similar to many other studies, the utilization of a cross-sectional design limits the interpretability of the results. As articulated in other studies (e.g., Amorose et al., 2016; Fenton et al., 2014), the selection of this research design restricts determinations of the causality of the relationships. Perhaps, as pondered by Fenton et al. (2014), athletes’ demonstrations of autonomy, competence, and relatedness impacted the actions of their coaches and peers.

Within the structure of the convenience sampling approach, the researcher sought to collect data at all consenting locations. The districts in which the majority of research was conducted offers 22 sport options. Of these, six (i.e., men’s tennis, women’s tennis, swimming, wrestling, women’s soccer, bowling) were either out-of-season or unwilling to grant access to their athletes. Although the current study included participants from an array of sports, the researcher was not able to gain access into all potential sport programs.
The institutional approval process created other limitations. Initially, the intention was to collect all data at the end of the competitive seasons for spring sport athletes. Following these competitive seasons, the researcher determined that the sample size was insufficient to generate meaningful conclusions. Therefore, the deadline for data collection was extended into the summer. While this provided the opportunity to gain a new range of participants, the decision created an issue. These teams were not actively involved in competition, thus their interactions with their coaches and peers may have been different. Also, collecting the data at the beginning of a team’s athletic season may not have offered them enough opportunity to reflect on psychological need satisfaction and support from coaches and peers.

Additionally, the presence of multi-sport athletes created a limitation to the current study. A large segment of the sample population (89 of 136 participants) competed in various sports throughout the year. Athletes were explicitly asked to reflect upon their experiences during the current season. However, within the structure of data collection, it was difficult to ensure this process. Athletes that had recently competed for three different coaches and with three unique sets of teammates may have incorporated those experiences within those responses. It is common practice for an athlete to compete under the same coach for three seasons of track and field (i.e. cross country, indoor track, outdoor track). Their interactions with coaches and peers may change over the course of this time period, which is challenging to account for in the current study. Unfortunately, there does not appear to be a simple solution to this limitation.
The disparity of participation between individual and team sport participants limited the ability to measure group differences of the type of sport variable. As noted, 126 of the participants were involved in team sports, as compared to 10 participants in individual sports. Future studies can more equally stratify this variable in order to compare group differences.

The justification for selection of the sample population used in this study was that few previous studies have measured social influence and psychological need satisfaction among high school athletes in the United States. As mentioned throughout this document, only three studies (i.e., Amorose & Anderson-Butcher, 2007; Amorose et al., 2016; Riley & Smith, 2011) have examined the topic among school-based athletic participants within the interscholastic domain. As there is great opportunity to expand the base of literature in this area, replication of studies of this nature with different age groups would be greatly beneficial.

The current study was designed to delve into examination of social influence and need satisfaction through a population of student-athletes from financially disadvantaged communities. At the inception of the study, the researcher identified a convenience sample based on the most geographically proximate school district. The socioeconomic status of student-athletes in this district is lower than in other local districts. Unfortunately, only 2 of the 16 institutions in this district provided approval of the study. Therefore, other locations were added in order to generate a larger sample size. The addition of schools from more affluent neighborhoods restricted the amount of participants from urban circumstances.
As explained in Chapter 3, the power analysis conducted a priori reflected an adequate level of statistical power. Yet, the level of power fell short of Cohen et al.’s (2003) recommendation of .80. This reality would seem to minimize the certainty of properly rejecting the null hypothesis.

In terms of the data collection instrument, the current study relied upon previously developed scales. Each of the selected scales was calculated through self-report responses. For certain variables (i.e., coach-competence support, coach-relatedness support, peer-competence support, peer-relatedness support), there were no available scales that had analyzed these topics within organized sport. Therefore, measurement was conducted with need support scales developed by Standage et al. (2005). As these scales were created for the purpose of identifying the importance of influence from PE teachers, the current study implemented the process of changing the term “PE teacher” to either “coach” or “peer”. The concern of transferability was largely eased by observation of sufficient Cronbach’s alpha values among all scales. However, further psychometric measurement of these scales within the realm of sport may be necessary.

In measuring assumptions, the researcher noted a potential violation of independence. This was due to the clustering effect within participation from various members of a particular team. Future studies may account for coach effects and school effects in order to minimize potential violations of the assumption of independence.

The final limitation of the current study is the scope of variable measurement. The focus of the current study was narrow in identifying the extent of influence from coaches and peers. Potentially, other sources, such as parental influence, may be incorporated
within future studies. In terms of outcomes, psychological need satisfaction has been previously associated with well-being (e.g., Gagne et al., 2003; Kipp & Weiss, 2015). Future research may extend into analysis of the interactive effects of social influence toward these positive outcomes.

**Directions for Future Research**

Particularly due to limitations of the current study and previous literature, there are many areas for further research inquiry. As mentioned in the limitations section, usage of a cross-sectional research design restricted determinations of causality among variables. McDavid et al. (2012) recommended future longitudinal research that would measure high school athletes’ perceptions of social support and related outcomes over the course of one or multiple athletic seasons. Multi-year evaluation of a youth or adolescent would provide a more comprehensive evaluation of the temporal properties of psychological need satisfaction and social influence. Perhaps, the emphasis placed on a particular psychological need or source of influence would change over time. This could only be measured through longitudinal examination of young athletes.

Continued research involving other sources of social influence is warranted. Coaches, peers, and parents/caregivers have been the most commonly measured social agents. However, the current study is one of few attempts to account for multiple sources of social influence. Future studies may evaluate additional combinations of interaction between social agents (e.g. parents/caregivers-coaches, parents/caregivers-peers).

Exploration of other sport-related outcomes would contribute to the literature base. Continued sport participation, and conversely, burnout, have been prioritized by
sport management scholars and administrators. These outcomes were not assessed in the current study, thus future studies may delve into the interaction of sources of social influence toward these variables. Potential exists to measure the perceptions of non-motivated youth and adolescents as well. Implicit within the current study was that participants were actively involved in sport. Further examination of those that had dropped out of sport programs may offer conclusions for program modifications.

Another limitation of the current study was that the researcher was unable to gain access to all sport programs at participating locations. These were either related to logistical concerns or lack of consent from an individual coach. Future research related to this topic should continue to pursue data collection among an extensive list of sports. The sample characteristics of participants can be altered in future studies. In the current study, the researcher intended to gather information from adolescents within vulnerable populations. Administrators at these institutions were less willing to approve of research, necessitating expansion to more affluent communities. Future studies that intend to access participants from vulnerable communities must remain steadfast to that goal. Development of inclusion and exclusion criteria based on socioeconomic indicators, and adherence to those requirements, would benefit future studies.

Within the timeframe of data collection, there were difficulties in terms of participant involvement. Based on previous literature, it was determined that seeking participation from in-season athletes would be preferable. However, as data collection occurred over the spring and summer, non-active athletes were included. In the future,
researchers should prescribe a uniform timeline for data collection in order to more adequately compare results.

The particular sample of this study was purposefully selected due to the dearth of research related to need support and need satisfaction among high school athletes. While this provides new findings within this population, the limitations to the sample deter further interpretation. Replication of studies of this nature with different age groups may contribute to the literature base.

Lastly, the current study focused on the relationship between need support and psychological need satisfaction. In previous studies (e.g., Conroy & Coatsworth, 2007; Ntoumanis & Standage, 2009), need satisfaction has been associated with positive outcomes. Future research could be informative as to the relationships among social influence and social outcomes within a population of high school athletes. Outcomes such as self-esteem, confidence, and cognitive abilities can be measured through their relationship with social influence within the sport domain.

Conclusion

In conclusion, the current study displays the importance of influence from coaches and peers toward psychological need satisfaction among high school athletes. Previous studies have highlighted the influence of coaches, peers, and parents/caregivers toward athletes’ perceptions of autonomy, competence, and relatedness. In the current study, results demonstrated the unique properties of each psychological need.

The analysis of autonomy revealed the significant importance of coach-autonomy support. As compared to competence and relatedness, athletes generally perceived lower
satisfaction of the need for autonomy. Due to the observation that the independent effects of peer-autonomy support and the interaction of coach x peer autonomy support were less influential, increased focus should be placed upon strengthening coach-autonomy supportive behaviors. Based on these results, coaches should be tasked with promoting environments in which athletes are entitled to act of their own volition.

Observations of need support and satisfaction of competence favored the value of peer-competence support. The current study revealed that athletes substantially benefit from associations with peers who support their belief in their ability. While also a statistically significant predictor, coach-competence support accounted for less of the variance in athletes’ perceptions of competence. As examined in this model, the interaction of coach x peer competence support was not statistically significant. Therefore, measures should be enacted to provide environments in which athletes’ can support each other’s growth.

In the final analysis of relatedness, results supported the importance of both coach-relatedness support and peer-relatedness support. The interaction term of coach x peer relatedness support was the only statistically significant measure of combined influence. Further examination of this relationship depicted that conditions of high peer-relatedness support lessened the necessary for coach-relatedness support. Nonetheless, the overall results displayed the value of generating social connectedness among athletes and to their coaches.

The current study continues the line of research into the influence of need support and need satisfaction among athletes. There are many areas to continue along this path
and improve sport programming. Scholars and practitioners alike should continue to examine the nature of sport development in order to continuously serve the emerging athletes.
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Appendix A: Email to District Coordinator
March 9, 2016

Dear District Coordinator,

I am writing to request your approval to conduct a research study of high school student-athletes in the __________ school district. This study will be conducted to fulfill the requirements of my dissertation at The Ohio State University. The title of this study is “Examination of the Independent and Interactive Effects of Coach and Peer Influence Toward Need Satisfaction of High School Athletes.” The purpose of this study is to measure (a) main effects and (b) interactive effects of coach and peer influence on athletes’ perceptions of autonomy, competence, and relatedness. Research has demonstrated the importance of sport socialization and benefits of sport participation. Conclusions generated in this area will provide practical recommendations to administrators, coaches, and parents.

Institutional Review Board (IRB) review of this study is pending. The protocol submitted to the IRB is attached. The survey instrument is also enclosed. Participants would complete a survey, which will last approximately 20 minutes. Data collection would occur at the beginning of a regularly scheduled practice session at the end of athletes’ competitive seasons. There would be no interruption to any school scheduling. The study will only be conducted at institutions in which the principal, athletic director, and coach have all consented to the study. Additionally, parental consent and assent would be collected from all participants. Survey participants will be asked to reflect on the support they receive from peers and coaches as well as their perceptions of psychological need satisfaction.

If you are willing to consent to this study, please provide a letter of support on behalf of the district. If you have any questions, please contact Michael Fraina via the contact information below. Thank you for your assistance with this crucial stage of research.

Sincerely,

Donna Pastore, Ph.D.  
Professor, The Ohio State University  
614-247-8400  
pastore.3@osu.edu

Michael Fraina, Ph.D. Candidate  
Graduate Student, The Ohio State University  
914-262-3422  
fraina.1@osu.edu
March 9, 2016

Dear Principal and Athletic Director,

I am writing to request your approval to conduct a research study of high school student-athletes at your institution. This study will be conducted to fulfill the requirements of my dissertation at The Ohio State University. The title of this study is “Examination of the Independent and Interactive Effects of Coach and Peer Influence Toward Need Satisfaction of High School Athletes.” The purpose of this study is to measure (a) main effects and (b) interactive effects of coach and peer influence on athletes’ perceptions of autonomy, competence, and relatedness. Research has demonstrated the importance of sport socialization and benefits of sport participation. Conclusions generated in this area will provide practical recommendations to administrators, coaches, and parents.

The study will entail approval from the Institutional Review Board (IRB) and the research coordinator of your district. Participants would complete a survey, which will last approximately 20 minutes. Data collection would occur at the beginning of a regularly scheduled practice session at the end of athletes’ competitive seasons. There would be no interruption to any school scheduling. Parental consent and assent would be collected from all participants. Survey participants will be asked to reflect on the support they receive from peers and coaches as well as their perceptions of psychological need satisfaction.

If you are willing to consent to this study, please provide a letter of support on behalf of your school. If you have any questions, please contact Michael Fraina via the contact information below. Thank you for your assistance with this crucial stage of research.

Sincerely,

Donna Pastore, Ph.D.                        Michael Fraina, Ph.D. Candidate
Professor, The Ohio State University       Graduate Student, The Ohio State University
614-247-8400                                914-262-3422
pastore.3@osu.edu                           fraina.1@osu.edu
Appendix C: Script of Meeting with Athletes
“Hi Athlete, my name is Mickey Fraina. I am a graduate student at Ohio State. I am conducting a research study to examine motivation among high school student-athletes based on your relationships with coaches and peers. If you are willing to participate in this study, please have your parents sign this form and bring it back to practice tomorrow. There will be no punishment if you decide not to participate. I will be here at the beginning of practice to give the survey. The survey should take 20 minutes, and that is all that is needed for you to participate in this study. Your participation in this study would be greatly helpful toward improving sport programs at the high school level.”
Appendix D: Parental Consent Form
The Ohio State University Parental Consent
For Child’s Participation in Research

Title: Examination of the Independent and Interactive Effects of Coach and Peer Influence Toward Need Satisfaction of High School Athletes

Principal Investigator: Donna Pastore, Ph.D.

Student Principal Investigator: Michael Fraina, Ph.D. Candidate

This is a parental permission form for research participation. It contains important information about this study and what to expect if you permit your child to participate. Your child’s participation is voluntary.

Please consider the information carefully. Feel free to discuss the study with your friends and family and to ask questions before making your decision whether or not to permit your child to participate. If you permit your child to participate, you will be asked to sign this form and will receive a copy of the form.

Purpose:
I am conducting a study to learn about how peers and coaches influence youth toward playing sports. Your child’s participation would be beneficial to the study.

Procedures/Tasks:
If you agree, your child will complete this survey, lasting approximately 20-30 minutes. All of their answers will remain confidential, meaning I will not share any of their answers with anyone.

Duration:
Your child may leave the study at any time. If you or your child decides to stop participation in the study, there will be no penalty and neither you nor your child will lose any benefits to which you are otherwise entitled. Your decision will not affect your future relationship with The Ohio State University.

Risks and Benefits:
We do not anticipate that your child will face any additional risks from participating in this study. Your child will not benefit from this study personally.

Confidentiality:
Efforts will be made to keep your child’s study-related information confidential. However, there may be circumstances where this information must be released. For
example, personal information regarding your child’s participation in this study may be disclosed if required by state law. Also, your child’s records may be reviewed by the following groups (as applicable to the research):

- Office for Human Research Protections or other federal, state, or international regulatory agencies;
- The Ohio State University Institutional Review Board or Office of Responsible Research Practices;
- The sponsor, if any, or agency (including the Food and Drug Administration for FDA-regulated research) supporting the study.

Incentives:
There will not be any incentives provided for participating in the study.

Participant Rights:

You or your child may refuse to participate in this study without penalty or loss of benefits to which you are otherwise entitled. If you or your child is a student or employee at Ohio State, your decision will not affect your grades or employment status.

If you and your child choose to participate in the study, you may discontinue participation at any time without penalty or loss of benefits. By signing this form, you do not give up any personal legal rights your child may have as a participant in this study.

An Institutional Review Board responsible for human subjects research at The Ohio State University reviewed this research project and found it to be acceptable, according to applicable state and federal regulations and University policies designed to protect the rights and welfare of participants in research.

Contacts and Questions:

For questions, concerns, or complaints about the study, or you feel your child has been harmed as a result of study participation, you may contact Michael Fraina or Donna Pastore at (614) 247-8400 or pastore.3@osu.edu.

To discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Signing the parental permission form

I have read (or someone has read to me) this form and I am aware that I am being asked to provide permission for my child to participate in a research study. I have had the
opportunity to ask questions and have had them answered to my satisfaction. I voluntarily agree to permit my child to participate in this study.

I am not giving up any legal rights by signing this form. I will be given a copy of this form.

Printed name of subject

Printed name of person authorized to provide permission for subject  
Signature of person authorized to provide permission for subject

Relationship to the subject  
Date and time

**Investigator/Research Staff**

I have explained the research to the participant or his/her representative before requesting the signature(s) above. There are no blanks in this document. A copy of this form has been given to the participant or his/her representative.

Printed name of person obtaining consent  
Signature of person obtaining consent

AM/PM  
Date and time
Appendix E: Participant Consent Form
The Ohio State University Consent to Participate in Research

**Study Title:** Examination of the Independent and Interactive Effects of Coach and Peer Influence Toward Need Satisfaction of High School Athletes

**Principal Investigator:** Donna Pastore, Ph.D.

**Student Principal Investigator:** Michael Fraina, Ph.D. Candidate

This is a consent form for research participation. It contains important information about this study and what to expect if you decide to participate.

**Your participation is voluntary.**

Please consider the information carefully. Feel free to ask questions before making your decision whether or not to participate. If you decide to participate, you will be asked to sign this form and will receive a copy of the form.

**Purpose:** The purpose of this study is to examine how peers, and coaches influence youths’ motivation toward playing sports. As a youth athlete, I want to know more about your experiences.

**Procedures/Tasks:** You are being asked to complete this survey, lasting about 20-30 minutes. All of your answers will remain confidential, meaning I will not share any of your answers with anyone.

**Duration:** You may leave the study at any time. If you decide to stop participating in the study, there will be no penalty to you, and you will not lose any benefits to which you are otherwise entitled. Your decision will not affect your future relationship with The Ohio State University.

**Risks and Benefits:** You may stop being in the study at any time. There are no consequences for leaving the study. I do not believe, however, there is much risk to your involvement. You will simply answer basic questions about your sport participation.

**Confidentiality:** Efforts will be made to keep your study-related information confidential. However, there may be circumstances where this information must be released. For example, personal information regarding your participation in this study may be disclosed if required by state law. Also, your records may be reviewed by the following groups (as applicable to the research):

- Office for Human Research Protections or other federal, state, or international regulatory agencies;
• The Ohio State University Institutional Review Board or Office of Responsible Research Practices;
• The sponsor, if any, or agency (including the Food and Drug Administration for FDA-regulated research) supporting the study.

Incentives: There will not be any incentives provided for participants in this study.

Participant Rights: You may refuse to participate in this study without penalty or loss of benefits to which you are otherwise entitled. If you are a student or employee at Ohio State, your decision will not affect your grades or employment status.

If you choose to participate in the study, you may discontinue participation at any time without penalty or loss of benefits. By signing this form, you do not give up any personal legal rights you may have as a participant in this study.

An Institutional Review Board responsible for human subjects research at The Ohio State University reviewed this research project and found it to be acceptable, according to applicable state and federal regulations and University policies designed to protect the rights and welfare of participants in research.

Contacts and Questions: For questions, concerns, or complaints about the study, or you feel you have been harmed as a result of study participation, you may contact Michael Fraina or Donna Pastore at (614) 247-8400 or pastore.3@osu.edu.

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.
**Signing the consent form**

I have read (or someone has read to me) this form and I am aware that I am being asked to participate in a research study. I have had the opportunity to ask questions and have had them answered to my satisfaction. I voluntarily agree to participate in this study.

I am not giving up any legal rights by signing this form. I will be given a copy of this form.

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**Investigator/Research Staff**

I have explained the research to the participant or his/her representative before requesting the signature(s) above. There are no blanks in this document. A copy of this form has been given to the participant or his/her representative.

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<th>Signature of person obtaining consent</th>
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Appendix F: Assent Form
The Ohio State University Assent to Participate in Research

Study Title: Examination of the Independent and Interactive Effects of Coach and Peer Influence Toward Need Satisfaction of High School Athletes

Principal Investigator: Donna Pastore, Ph.D.

Student Principal Investigator: Michael Fraina, Ph.D. Candidate

1. What is this about?

I am conducting a study to learn about how peers, and coaches influence youth toward playing sports. As a youth athlete, I want to know more about your experiences.

2. What will I need to do if I am in this study?

You are being asked to complete this survey, lasting about 20-30 minutes. All of your answers will remain confidential, meaning I will not share any of your answers with anyone.

3. How long will I be in this study?

If you decide to participate, you will complete the brief survey.

4. Can I stop being in this study?

You may stop being in the study at any time. There are no consequences for leaving the study. I do not believe, however, there is much risk to your involvement. You will simply answer basic questions about your sport participation.

5. What bad things might happen to me if I am in this study?

We do not believe that you will face any risks by being in this study.

6. What good things might happen to me if I am in this study?

You will not receive any benefits for participating. I will benefit greatly from your participation.
7. Will I be given anything for participating in this study?

You will not be given anything for participating in this study.

8. Who can I talk to about being in this study?

For questions, concerns, or complaints about the study, or if you feel you have been harmed as a result of study participation, you may contact Michael Fraina or Donna Pastore at (614) 247-8400 or pastore.3@osu.edu. To discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Sincerely,

Donna Pastore, Ph.D.
Professor, The Ohio State University
614-247-8400
pastore.3@osu.edu

Michael Fraina
Graduate Student, The Ohio State University
914-262-3422
fraina.1@osu.edu

ASSENT

Signing the assent form

I have read (or someone has read to me) this form. I have had the opportunity to ask questions and have had them answered to my satisfaction. I want to be in this research study.

_____________________________  ________________________AM/PM

Name of subject  Time and date

Investigator/Research Staff

I have explained the research to the participant before requesting the signature(s) above. A copy of this form has been given to the participation or his/her representative.

_____________________________  ________________________

Printed name of person obtaining assent  Signature of person obtaining assent  ________________________AM/PM

Date and time

226
Appendix G: Survey
Youth Sport Motivation Survey

Instructions: Fill in each circle completely using the following example

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<th>Somewhat true</th>
<th>Very true</th>
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<td>Question</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Please answer the following questions according to this scale</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

1. I can overcome challenges in my sport.  
   O O O O O O O O

2. I am skilled at my sport.  
   O O O O O O O O

3. I feel I am good at my sport.  
   O O O O O O O O

4. I get opportunities to feel that I am good at my sport.  
   O O O O O O O O

5. I have the ability to perform well in my sport.  
   O O O O O O O O
### Perceived Autonomy

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all</th>
<th>Somewhat</th>
<th>Very</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Please answer the following questions according to this scale</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1. In my sport, I get opportunities to make choices.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>2. In my sport, I have a say in how things are done.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>3. In my sport, I feel free to express my ideas.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>4. In my sport, I can take part in the decision making process.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>5. In my sport, I get opportunities to make decisions.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

### Perceived Relatedness

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all</th>
<th>Somewhat</th>
<th>Very</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Please answer the following questions according to this scale</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1. In my sport, I feel close to other people.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>2. I show concern for others in my sport.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>3. There are people in my sport who care about me.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>4. In my sport, there are people who I can trust.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>5. I have close relationships with people in my sport.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
## Coach Competence Support

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all true</th>
<th>Somewhat true</th>
<th>Very true</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please answer the following questions according to this scale</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. My coach helps me improve at sports.</td>
<td>O O O O O O O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. My coach makes me feel like I am good at sports.</td>
<td>O O O O O O O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I feel that my coach likes me to do well at sports.</td>
<td>O O O O O O O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. My coach makes me feel like I am able to play sports.</td>
<td>O O O O O O O</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Coach Autonomy Support

<table>
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<th>Very true</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please answer the following questions according to this scale</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I feel that my coach provides me choices and options.</td>
<td>O O O O O O O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I feel understood by my coach.</td>
<td>O O O O O O O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. My coach conveys confidence in my ability to do well at athletics.</td>
<td>O O O O O O O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. My coach encourages me to ask questions.</td>
<td>O O O O O O O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. My coach listens to how I would do things.</td>
<td>O O O O O O O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. My coach tries to understand how I see things before suggesting a new way to do things.</td>
<td>O O O O O O O</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Coach Relatedness Support**

<table>
<thead>
<tr>
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<th>Very true</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please answer the following questions according to this scale</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1. My coach supports me playing sports.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>2. My coach encourages me to work with others when playing sports.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>3. My coach has respect for me.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>4. My coach is interested in my sport participation.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>5. I feel that my coach is friendly toward me.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

**Peer Competence Support**

<table>
<thead>
<tr>
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<th>Not at all true</th>
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<th>Very true</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please answer the following questions according to this scale</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1. My peers help me improve at sports.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>2. My peers make me feel like I am good at sports.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>3. I feel that my peers like me to do well at sports.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>4. My peers make me feel like I am able to play sports.</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
### Peer Autonomy Support

<table>
<thead>
<tr>
<th>Question</th>
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<th>Somewhat</th>
<th>Very true</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please answer the following questions according to this scale</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I feel that my peers provide me choices and options.</td>
<td>O  O  O  O  O  O  O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I feel understood by my peers.</td>
<td>O  O  O  O  O  O  O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. My peers convey confidence in my ability to do well at athletics.</td>
<td>O  O  O  O  O  O  O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. My peers encourage me to ask questions.</td>
<td>O  O  O  O  O  O  O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. My peers listen to how I would do things.</td>
<td>O  O  O  O  O  O  O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. My peers try to understand how I see things before suggesting a new way to do things.</td>
<td>O  O  O  O  O  O  O</td>
<td></td>
<td></td>
</tr>
</tbody>
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### Peer Relatedness Support

<table>
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<td></td>
<td></td>
</tr>
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<td>1. My peers support me playing sports.</td>
<td>O  O  O  O  O  O  O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. My peers encourage me to work with others when playing sports.</td>
<td>O  O  O  O  O  O  O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. My peers have respect for me.</td>
<td>O  O  O  O  O  O  O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. My peers are interested in my sport participation.</td>
<td>O  O  O  O  O  O  O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I feel that my peers are friendly toward me.</td>
<td>O  O  O  O  O  O  O</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Demographics**

Please read each statement and fill in the circle that best shows your answer.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. What is your gender?</strong></td>
<td>O Male</td>
</tr>
<tr>
<td></td>
<td>O Female</td>
</tr>
<tr>
<td><strong>2. What is your race/ethnicity?</strong></td>
<td>O White/Caucasian</td>
</tr>
<tr>
<td></td>
<td>O Black/African American</td>
</tr>
<tr>
<td></td>
<td>O Hispanic</td>
</tr>
<tr>
<td></td>
<td>O Asian/Pacific Islander</td>
</tr>
<tr>
<td></td>
<td>O Native American</td>
</tr>
<tr>
<td></td>
<td>O Mixed Race</td>
</tr>
<tr>
<td><strong>3. Do you receive free or reduced lunch?</strong></td>
<td>O Yes</td>
</tr>
<tr>
<td></td>
<td>O No</td>
</tr>
<tr>
<td></td>
<td>O Not sure</td>
</tr>
<tr>
<td><strong>4. What sport(s) do you play?</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>