

PSYCHOSOCIAL DEVELOPMENT IN COLLEGE STUDENTS: A CROSS-SECTIONAL
COMPARISON BETWEEN ATHLETES AND NON-ATHLETES

By

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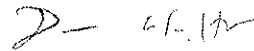
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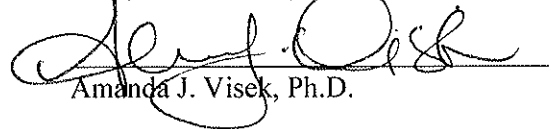
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DEDICATION

To my dear grandmother, Elizabeth Ryan Metz

I know you would have been the first one, outside of my committee,
to read each and every word of this document.

Thank you for instilling me with the values of family and education.
I miss you and I love you.

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ABSTRACT

Empirical research findings suggest that the college environment promotes intellectual advancement and occupational preparation, as well as the development of psychosocial strengths such as self-awareness, interpersonal skills, morality, and general health and well-being (Arnett, 2000; Pascarella & Terenzini, 2005). However, all students do not experience college in this same way, nor do they all reap the same benefits (King, 1994; Montgomery & Côté, 2003). For example, college student-athletes must manage the developmental challenges and stressors that all college students face, in addition to those imposed by the requirements and expectations of their athletic departments, coaches, teammates, and the NCAA. Although sport participation has the potential to promote the development of psychosocial skills (Potuto, 2007; Wright & Côté, 2003), evidence suggests that Division I intercollegiate athletic competition may interfere with students' adjustment to college (Downey, 2005), and with their transition out of college (Martens & Cox, 2000). Therefore, the purpose of this study was to examine differences in psychosocial development between varsity student-athletes ($n = 235$) and non-athlete students ($n = 154$) enrolled at Division I universities; post-hoc, recreational student-athletes ($n = 59$) were included as a third comparison group. Male ($n = 195$) and female ($n = 253$) freshmen, sophomores, juniors, and seniors ($N = 448$) responded to measures of demographic information, psychosocial skills, athletic identity, parental and peer attachment, hyper-competitiveness, and depressive symptoms.

MANOVA results indicated small to moderate, statistically significant differences in the reported psychosocial skills of varsity student-athletes, recreational student-athletes, and non-athlete students ($F(12, 864) = 13.50, p < .001, \eta^2 = .158$). Specifically, compared to non-athlete students, recreational student-athletes reported greater problem-solving ($F(2, 436) = 3.76, p = .024, \eta^2 = .017$); varsity and recreational student-athletes reported greater health maintenance ($F(2, 436) = 44.76, p < .001, \eta^2 = .170$) and greater hyper-competitiveness ($F(2, 436) = 15.09, p < .001, \eta^2 = .065$); and varsity and recreational student-athletes reported fewer depressive symptoms ($F(2, 436) = 6.41, p = .002, \eta^2 = .029$). Findings are discussed in the context of participants' athletic identity, race, gender, and parental and peer attachment patterns. Theoretical approaches to college students' psychosocial development are also addressed.

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CHAPTER 1

INTRODUCTION

American colleges and universities focus on students' educational advancement and occupational preparation, but college life also presents students with many opportunities for personal growth (Pascarella & Terenzini, 2005). Several theorists have claimed that college is a time for students to explore and develop psychosocial strengths such as self-awareness, interpersonal skills, morality, and general health and well-being (Arnett, 2000; Chickering & Reisser, 1993; Medalie, 1981). However, students experience college in different ways, and the college environment has different effects on students' development (King, 1994; Montgomery & Côté, 2003; Pascarella & Terenzini, 2005).

Several studies have indicated that student-athletes are one group that may struggle with various aspects of their development as a result of their unique college experience. For instance, Blann (1985) compared athletes and non-athletes, upperclassmen and underclassmen, and found that among males, upperclassmen and non-athlete students reported significantly greater educational and career development than underclassmen and student-athletes, respectively. More recently, Downey (2005) found that compared to non-athlete freshmen, Division I freshmen student-athletes were significantly less committed to earning an undergraduate degree. Furthermore, during their first semester, freshmen student-athletes reported a decline in their academic and personal-emotional adjustment compared to increased adjustment reported among their non-athlete counterparts (Downey, 2005).

While the majority of studies that indicate developmental delays or deficits among college student-athletes have focused on academic or career-related outcomes, Downey's study is one of an emerging body of research that addresses psychosocial outcomes as well. Still, no known studies have examined or compared psychosocial "development" (i.e., positive change over several years) among college student-athletes and non-athlete college students. Given that psychosocial development is one of the primary tasks facing college students, this represents a significant gap in the current knowledge.

Therefore, the current investigation was designed to contribute to the existing literature by (a) focusing on psychosocial outcomes including, but not limited to: communication skill, problem-solving, health maintenance, and identity development, and (b) aiming to address the issue of "development" through a cross-sectional comparison that included male and female college student-athletes and non-athlete college students who were freshmen, sophomores, juniors, and seniors of various racial backgrounds. The researcher also designed this investigation with the intent to inform the work of mental health practitioners by identifying specific psychosocial strengths and challenges that are most salient for college students, depending, in particular, on their athletic status, athletic identity, and class year.

In order to provide a basis for understanding the motivation behind this investigation, the following literature review addresses the current knowledge base regarding the experiences of college students and college student-athletes, including: (a) theories of psychosocial development, (b) psychosocial development of students during their college years, and (c) the college student-athlete experience.

Theories of Psychosocial Development

Medalie (1981) and Chickering and Reisser (1993) each offer a compelling framework for the specific processes and tasks that are essential for adolescents and young adults to achieve

an age-appropriate level of psychosocial skill. In addition, Medalie's (1981) "mini-life cycle" and Chickering and Reisser's (1993) "seven vectors of psychosocial development" each propose that students work through various psychosocial tasks during their college years and achieve a sense of identity and/or purpose towards the end of their undergraduate careers. In a slightly different vein, Arnett's (2000) contemporary theory of "emerging adulthood" suggests that throughout college, students remain in a period of self-exploration, and may not have an established sense of identity until later in their 20s. While the tenets of Chickering and Reisser's theory provided the basis for the current hypotheses that self-reported psychosocial skills would be greater among students at each consecutive year, Medalie's (1981) and Arnett's (2000) theories provide additional context as other paradigms, one older and one more recent, which have guided research in this field.

Medalie's Mini-Life Cycle

Medalie (1981) describes the college environment as a socially sanctioned place where students learn about their interests, enjoy intellectual stimulation, test out their identities, and experiment with relationships. Similar to Erikson's stages (1968) (see Table 1 for a summary), Medalie's series of psychosocial tasks is based on the assumption that during freshmen, sophomore, junior and senior year, students face a different, central developmental issue that is relevant to the needs and transitions associated with that class year. Specifically, the freshman's task is to divest childhood ties and to invest in college life; the sophomore's task is to consolidate separation and choose interests and goals; the junior's task is to master and commit to educational work; and, the senior's task is to anticipate and prepare for his/her future after college. According to Medalie, if students fail to accomplish each task in a sequential and timely manner, they become vulnerable to maladaptive coping styles that can interfere with future psychosocial development. If students are successful, however, their social and intellectual experiments during

college should lead to specific, established interests; and, further investment in those interests should then lead students to feel committed, satisfied, and purposeful in their personal and professional lives.

Table 1.

Erikson's (1968) Stages of Psychosocial Development

Stage	Conflict
Infancy	Trust vs. Mistrust
Early Childhood	Autonomy vs. Shame and Doubt
Preschool	Initiative vs. Guilt
School Age	Industry vs. Inferiority
Adolescence	Identity vs. Role Confusion
Young Adulthood	Intimacy vs. Isolation
Middle Adulthood	Generativity vs. Stagnation
Maturity	Ego Integrity vs. Despair

Medalie's theory provides a linear stage model for college-students' psychosocial development. While it suggests some fluidity across tasks, her model maintains a temporal structure based on the premise that if a student has not successfully accomplished the task of one year, the student cannot effectively address the task of a later year. Chickering and Reisser's (1993) theory also proposes specific processes by which college students develop psychosocial skills, but in contrast to Medalie, their theory posits that development can occur in more dynamic and variable ways.

Chickering and Reisser's Seven Vectors
of Psychosocial Development

Chickering and Reisser's (1993) theory of college-student development proposes seven focal areas, or "vectors": (a) developing competence, (b) managing emotions, (c) moving through

autonomy toward interdependence, (d) developing mature interpersonal relationships, (e) establishing identity, (f) developing purpose, and (g) developing integrity (Chickering & Reisser, 1993; see Table 2 for a description). This theory shares Medalie's focus on several psychosocial skills or tasks, but each task is not tied to a specific year of college. Rather, Chickering and Reisser conceptualize the first four vectors as specific processes that contribute to the core developmental task for all college students – establishing identity. As a student develops a more cohesive sense of him/herself, s/he gradually develops personal purpose and integrity as well. Accordingly, development within the first four vectors may occur in different combinations, and at different rates and times. However, the theory does presume that during college students' undergraduate careers, they should achieve positive change, gaining awareness, skill, and confidence, as well as a more integrated sense of oneself and one's purpose.

Arnett's Theory of Emerging Adulthood

In contrast, Arnett's (2000) recent conceptualization of emerging adulthood suggests that psychosocial gains (in particular, identity development), are not necessarily achieved by the time students graduate from college. He describes emerging adulthood as a distinct developmental period of life – an age of possibilities, self-exploration, and instability (Arnett, 2007). Arnett highlights the fact that in industrialized nations, normative expectations for post-graduate events such as employment, marriage, and parenthood have become more variable, and that young adults tend to reach these milestones in their later 20s and older (Schwartz, Côté, & Arnett, 2005). Thus, college students are often free and encouraged to continue exploring themselves and their seemingly infinite possibilities. Arnett suggests that, as a result, is it likely that college students will not have resolved major psychosocial decisions regarding their roles in work, love, and life by the time they complete their undergraduate careers (Arnett, 2000). Furthermore, for some students, the increased freedom comes with increased anxiety about the future (Arnett, 2007).

Table 2.

Chickering and Reisser's (1993) Seven Vectors of College Student Psychosocial Development

Vector	Description
Developing Competence	Includes intellectual, physical, and interpersonal competence. Intellectual competence refers to skill and sophistication with comprehending, analyzing, and synthesizing information, as well as the ability to take multiple perspectives regarding one's observations and experiences. Physical competence refers to athletic and artistic achievement that may reflect strength, creativity, and self-discipline. Interpersonal competence refers to skill in listening, cooperating, and communicating, as well as in negotiating roles and goals in a group setting.
Managing Emotions	A process of increasing awareness of one's range of emotional experiences. It involves the ability to find an appropriate balance between expression and control of positive and negative feelings in a way that shows respect to the self and others.
Moving through Autonomy towards Interdependence	Involves emotional and instrumental independence, as well as recognition and acceptance of interdependence. This means becoming more self-sufficient, feeling free from needs for reassurance and approval, standing by convictions, translating ideas to focused action, and self-directing, all while revising and developing reciprocal relationships among family, peers, community, society and the world.
Developing Mature Interpersonal Relationships	Involves tolerance and appreciation of differences as well as the capacity for intimacy. Tolerance should be seen in intercultural and interpersonal contexts, evidenced by increased openness, curiosity, and empathy, and decreased bias and ethnocentrism. The capacity of healthy intimacy should be seen in the choice of committed relationships based on honesty, responsiveness, unconditional regard, and interdependence.
Establishing Identity	A process of discovering comfort with one's body, appearance, gender and sexual orientation, a sense of self in multiple contexts, a self-concept based on one's roles and lifestyle, self-acceptance and self-esteem, and personal stability and integration. The process may involve reflecting on one's family of origin, race and ethnicity, religious or cultural traditions, and the self within a social and historical context in order to uncover genuine expressions of the self that promote self-definition.
Developing Purpose	Entails the ability to integrate priorities and to exercise intentional action regarding vocational aspirations, personal interests, and family commitments. Clear values assist in the process of making decisions and compromises.
Developing Integrity	Involves three sequential but overlapping stages: humanizing values, personalizing values, and developing congruence. These stages refer to a shift away from rigid and toward relativistic thinking, the adoption of flexible guidelines that suit one's personal lifestyle, and the achievement of behavior that is consistent with one's personal values.

Chickering and Reisser's (1993) model of college student development was chosen as the theoretical basis for the current investigation because it posits that the college years are a time of complex developmental transition (King, 1994; Thomas & Kuh, 1982), rather than a series of definitive stages, as suggested by Medalie's (1981) temporally-framed model. Because Chickering and Reisser's (1993) seven vector model grants more flexibility than Medalie's (1981), and because it is more concrete than Arnett's (2000) largely theoretical work, Chickering and Reisser's (1993) model may be most applicable to the study of psychosocial development among an increasingly diverse college student population (Grayson, 2006). Research has indicated that the processes by which males and females develop identity differ (Hodgson & Fischer, 1979; Jones, 1997; Josselson, 1987;), and that individuals with minority backgrounds often experience different developmental processes in order to reconcile their identities within the majority culture (Cross, 1971; Kalsner & Pistole, 2003; Pope 1998; Stevens, 2004, Torres, 2003). Accordingly, Chickering and Reisser (1993) identified common, developmental themes across gender and culture, and used these themes as the foundation for their seven vectors. As a result, their model has been used extensively as the basis for research (Pascarella & Terenzini, 2005).

Thus, Chickering & Reisser's (1993) theory provides a basis for this study's hypothesis that each consecutive class of students would report greater psychosocial development than the previous class. The researcher recognized, however, that it is not possible, based on the results of this cross-sectional study, to support or refute any developmental theory that proposes change over time. Nevertheless, the three theories presented here are relevant because they illustrate the variety of ways in which college student development has been conceptualized, from specific stage models to broader theoretical paradigms. Therefore, they will be considered in the context of the current findings.

Because the primary aim of this investigation was to examine the proposed influence of Division I varsity athletic participation on college students' development, a review of the literature that suggests reasons why college student-athletes may be "less developed" than their non-athlete counterparts is necessary. As a basis for comparison, we provide, first, a review of: (a) psychosocial developmental outcomes among college students, and (b) personal factors that impact college students' development, including parental attachment, race, and gender, as well as symptoms of depression. Of note, each of these factors was measured and analyzed in the current investigation in order to determine their individual and combined influence on college students' overall psychosocial development, and to help the researcher decipher whether the predicted psychosocial differences between college student-athletes and non-athlete students were related to athletic status, or another (combination of) factor(s).

Psychosocial Development Among College Students

Psychosocial development has been defined as "a series of tasks or stages, including qualitative changes in thinking, feeling, behaving, valuing, and relating to others and to oneself," (Chickering & Reisser, 1993, p. 2). In order for college students to master these tasks, they must resolve personal, biological, and psychological changes that are associated with the transition to adulthood. These processes should involve self-exploration and the use of life skills to arrive at meaningful life decisions (Arnett, 2000; Grotevant & Cooper, 1986).

Indication of Change

As Chickering and Reisser's (1993) and Medalie's (1981) theories would predict, empirical research has indicated that college students display increases in academic and social self-concepts, as well as in self-esteem as they progress through college (Pascarella & Terenzini, 2005). For instance, Zuschlag and Whitbourne (1994) studied three cohorts of college students

over three decades and found that seniors reported uniformly greater psychosocial development than younger classes. Other cross-sectional research has also indicated that upperclassmen report greater educational involvement, career planning, lifestyle planning, and emotional autonomy than freshmen (Jones & Watt, 2001). Furthermore, there is evidence that majority percentages (75-79%) of students report “quite a bit” or “very much progress” in their perceived personal-social development during college (Pascarella & Terenzini, 2005).

Importantly, longitudinal research has supported findings from cross-sectional studies. For instance, a large-scale longitudinal investigation including 25,000 students in the Cooperative Institutional Research Program (CIRP) indicated that compared to freshman-year ratings, senior-year ratings reflected increases in the percentages of students who reported being “above average” and “in the highest 10 percent” for academic ability, self-confidence, leadership, and drive to achieve (Astin, 1993). One earlier and one more recent longitudinal study also supported this trend. Terenzini and Wright (1987) found consistent increases in students’ academic and social skills over four years time, and Foubert, Nixon, Sisson, and Barnes (2005) found significant increases from the beginning of freshmen year to the end of senior year in students’ psychosocial development (i.e., interdependence in peer relationships; acceptance and respect for students with different backgrounds; academic autonomy; and personal sense of purpose).

It is evident from the studies reported above that various aspects of students’ development are inter-related. Moreover, research has indicated that many aspects of students’ development are associated with experiences that are afforded to them during college (Arnold, Kuh, Vesper, & Schuh, 1993; Astin, 1993; Flowers, 2004; Hu & Kuh, 2003; Niles, Sowa, & Laden, 1994; Reason, Terenzini, & Domingo, 2007; Terenzini & Wright, 1987). For instance, Terenzini and Wright (1987) assessed students’ academic and social integration by the number of hours they reported spending in self-initiated interaction with faculty and the number of hours

they reported spending in organized extra-curricular activities, respectively. They found that during students' four years of college, students' academic and social investments had direct effects on their academic skill development. In addition, results from Arnold et al. (1993) indicated that students' personal and peer involvement on campus had a positive impact on both their academic and psychosocial adjustment. More recently, research has indicated that students attributed their personal gains to a supportive college environment in which they had opportunities for higher-order thinking, as well as for social interactions with diverse people and ideas (Reason, et al., 2007). Chickering and Reisser (1993) stated that "human development should be the organizing principle of higher education" (p. 265). Results of these studies suggest that college does offer students a rich environment for personal growth, and that when students choose to engage in the opportunities, they benefit from personal gains.

There have been reports, however, in which overall gains are not consistent. For instance, research has indicated that college students' ratings of their academic and social self-concepts dropped during college, but increased again before graduation (Arnold, 1993; Hesse-Biber & Marino, 1991). In a slightly different vein, the longitudinal investigation cited earlier, which indicated that senior college students reported significantly greater academic ability, intellectual self-confidence, social self-confidence, leadership, and drive to achieve than they reported as freshman, also indicated that seniors reported poorer physical and emotional health than they had as freshmen (Astin, 1993). Similarly, cross-sectional data from Flowers (2002a) found that while seniors reported greater organization and commitment to future vocational pursuits compared to freshmen, seniors were no more confident in their vocational abilities than freshmen. It seems that as students progress through college, some may feel increasingly uncertain about their future plans, which causes more anxiety and a lower sense of self-efficacy. It was due to these

inconsistencies in the literature that the researcher considered other theories of student development, particularly Arnett's (2000), in addition to Chickering and Reisser's (1993).

Parental Attachment During College

It is agreed that college students are a population that face frequent stressors and change (Arnett, 2000; Chickering & Reisser, 1993; Medalie, 1981), and since parental attachment patterns tend to be activated in times of stress and life change (Armsden & Greenberg, 1987; Lopez & Gormley, 2002; Papini & Roggman, 1992), the nature of a student's early parental attachment¹ can have particularly salient effects on his or her development during the college years. Empirical findings have indicated that early attachment to parents affects college students in at least two significant ways: (a) early attachment patterns tend to be stable, and therefore the secure or insecure attachment continues to affect the student over time (Lopez & Gormley, 2002; Rice, FitzGerald, Whaley, & Gibbs, 1995; Sun, Bell, Feng, & Avery, 2000), and (b) early attachment patterns act as the working model from which students develop future relationships with peers, mentors, and intimate partners (Benson, McWey, & Ross, 2006; Laible, Carlo, & Raffaelli, 2000; Meeus, Oosterwegel, & Vollebergh, 2002). Therefore, parental attachment has direct and indirect effects on whether or not students develop mature, respectful, and trusting interdependent relationships.

In a longitudinal study, Sun et al. (2000) found no significant change in college students' perceptions of their relationships with their parents from their freshman to senior years. In addition, this finding (i.e., the perception of stability in the secure (or insecure) quality of the

¹ Attachment is considered to be an internal emotional state (Bowlby, 1988), which has either a secure or insecure function (Ainsworth, 1989). An infant forms a secure attachment when s/he feels confident in his/her parent's accessibility and responsiveness to his/her needs. The trust and security of the attachment facilitate the infant's exploration of his/her external world, as s/he begins to discover competence, self-worth, and well-being. Alternatively, an insecure attachment occurs when the infant senses that his/her parent is unresponsive or inconsistent in responding to his/her needs. As a result, these infants have more difficulty separating and individuating from their parents (Ainsworth, 1989).

parental attachment) has been indicated for both males and females (Rice et al. 1995; Sun et al., 2000). Furthermore, as mentioned above, there appears to be an indirect effect of parental attachment on the development of peer relationships. Through discriminant function analyses, research has shown that secure attachments to parents and peers serve similar roles in facilitating students' adjustment (Laible et al., 2000). Furthermore, Benson et al.'s (2006) large meta-analysis, which included over 12,000 participants from 53 studies, found that secure parental attachment had consistent, moderate, positive correlations with both social competence and friendship quality among peers. Thus, it seems that college students' early parental attachment patterns persist in their own right, as well as through peer relationships, thereby serving to support students' attachment needs even after they have moved away from home.

It is relevant to note that parental attachment has implications for not only interpersonal development, but also academic outcomes and personal-emotional adjustment (Fraser & Tucker, 1997; Lapsley & Edgerton, 2002; Mattanhan et al., 2004; McCarthy, Moller, & Fouladi, 2001; Rice et al., 1995; Skowron, Wester, & Axen, 2004). In particular, Mattanhan (2004) tested a mediational model, which demonstrated that secure attachment served as a foundation for separation-individuation, which then predicted superior academic, social, and personal-emotional adjustment among students during college.

Given the empirical findings that indicate the importance of parental attachment in students' future relational patterns and psychosocial development, mother, father, and peer attachment styles were considered in the current investigation for their impact on the aspects of students' development under investigation. In addition, because race and gender are two factors that are inextricably tied to the empirical study of group differences, they were considered, in

combination with athletic status (discussed further below), as factors that might impact students' psychosocial development.

Race Differences

Similar to the research reviewed above, empirical findings have indicated that experiences both in- and out-of the classroom are directly related to academic, personal, and social gains among African-American college students, in particular (Flowers, 2004). Furthermore, diversity experiences have been shown to have positive effects on diversity competence, general education, and personal and intellectual development for male and female college students of African-American and White backgrounds (Hu & Kuh, 2003). These results suggest that regardless of race and gender, students generally experience developmental gains as a result of college experiences that offer exposure to and interaction with a diversity of cultures.

However, other research has indicated that African-American college students experience greater academic and social gains in the context of attending a historically black college or university (Flowers, 2002b; Winston, Miller, & Prince, 1987). Predominantly White institutions can be isolating environments for African-American students, and may leave them feeling limited in terms of their options for developing relationships. This belief was supported by Taub and McEwen (1991) who found that compared to White college females, African-American college females (in a predominantly White institution) reported poorer development in terms of interpersonal relationships and intimacy. Thus, while diversity experiences seem to facilitate many college students' psychosocial development, it also seems that being a racial minority in these experiences may present a developmental challenge.

Gender Differences

According to Gilligan (1982), females may fundamentally differ from males in their developmental paths, such that males develop a moral responsibility to support basic individual rights, while adult females develop an ethic of care, or a moral responsibility to support relationships. Therefore, it seems that female college students would exhibit greater development than their male counterparts in terms of maturity in relationships and understanding themselves and others. Research has suggested this is true. For instance, Zuschlag and Whitebourne (1994) found a uniform pattern of greater psychosocial development among females compared to males, and more recently Jones and Watt (2001) confirmed this result, finding that female college students reported greater educational involvement and instrumental autonomy; greater tolerance and respect for diverse others; and more developed lifestyle plans and healthier lifestyle practices. Interestingly, Samuolis, Layburn, and Schiaffino (2001) found that females not only exhibited higher levels of both identity exploration and commitment than males, but also that secure parental attachment style was associated with females', and not males', identity development. These results support the belief that males and females may have different needs for connectedness and independence as factors that influence their psychosocial development (Armsden & Greenberg, 1987; Benson et al., 2006; Gilligan, 1982; Rice et al., 1995).

Depression

Depression may be either a cause or result of students' psychosocial struggles. Unfortunately, even though the research reviewed previously provides encouraging findings regarding the positive trajectory of psychosocial development among college students, recent research has indicated that the continuous state of academic and social competition on college campuses can create a spiral of negative consequences including social withdrawal, substance abuse, low self-esteem and academic and relationship problems (Michael, Huelsman, Gerard,

Gilligan, & Gustafson, 2006). Moreover, it seems that the number of students who are suffering, and the severity of their struggles, have been increasing. Benton, Robertson, Tseng, Newton and Benton (2003) reported that between 1988 and 2001, the number of students treated in counseling centers for depression doubled (from 20 to 40%), and the number of students reporting suicidal ideation tripled (from 3 to 10%). Recent statistics from the American College Health Association (ACHA, 2008) provided corroborating evidence: nearly 50% of students reported that during their previous 12 months they had felt overwhelming anxiety; 90% reported that they did not get enough sleep to feel rested; and 30% reported that they had felt so depressed it was difficult to function.

Many students try to cope on their own and may turn to alcohol or other maladaptive means (Michael, et al., 2006), which, in combination with stress and lack of sleep, has been shown to exacerbate depression (Voelker, 2004). Research has indicated that depressed college students also tend to report other issues, including academic difficulty, relationship problems, stress and anxiety, drug and alcohol use, disordered eating, and physical ailments (Benton, et al., 2003; Grayson, 2006). Naturally, these conditions interfere with the positive trajectory of psychosocial development that is expected of college students.

It is important to note that empirical findings regarding gender differences in depression and well-being have been inconsistent. For instance, some research has indicated that compared to males, females have lower depression and higher sympathy and sensitivity towards others (Laible et al., 2000), as well as greater social competence and well-being (Kenny & Donaldson, 1991). However, other research has indicated that females have higher depression and anxiety (Lopez & Gormley, 2002; Vivona, 2000), more fragile self-concepts (Armsden & Greenberg, 1987), and poorer overall self-image (O’Koon, 1997). Still, other studies of undergraduate students have indicated no gender differences in rates of depressed mood (Gladstone & Koenig,

1994; Grant et al., 2002). These inconsistent reports may be due to variation in factors that were not measured in these studies. Given the well-established link between exercise participation and positive mood (Alfermann & Stoll, 2000; McAuley et al., 2000), it seems that one possible intervening factor could be students' athletic participation, which was of primary consideration in the current investigation.

The College Student-Athlete Experience

According to the National Collegiate Athletic Association (NCAA, 2008), over 400,000 students participate in organized intercollegiate athletic programs, and those numbers continue to increase every year. While research has suggested that organized activities facilitate social interaction and improve friendship quality, while buffering against feelings of depression, loneliness, and social dissatisfaction (Bohnert, Aikins, & Edidin, 2007; Pratt et al., 2000), the impact of intercollegiate sport on college student-athletes' psychosocial development is a topic of continued debate. For example, some researchers have suggested that intercollegiate sport has the potential to help student-athletes develop psychosocial skills such as leadership, teamwork, and time-management (Danish, 1983; Danish, Petitpas, & Hale, 1990; Potuto, 2007; Wright & Côté, 2003). Other research has indicated that skills learned in the sport context only contribute to students' overall development when students are specifically taught how to apply their sport-related skills to other life domains (Danish et al., 1990; Gould, Collins, Lauer, & Chung, 2006; Harris, Altekruze, & Engels, 2003; Petitpas, Danish, McKelvain, & Murphy, 1992; Stone & Strange, 1989).

Alternatively, a large body of research suggests that college student-athletes may be "at-risk" for developmental delays or deficits because, in addition to facing the same developmental challenges and stressors that non-athlete students do, they are also required to uphold the demands of their athletic departments, coaches, and teammates, as well as the rules and

regulations of the NCAA. They must manage the stress of dual roles, such as completing academic requirements and maintaining a minimum grade point average, all under the time constraints and physical and mental exhaustion of their formal and informal athletic commitments (Chartrand & Lent, 1987; Etzel, Watson, Visek, & Maniar, 2006; Ferrante, Etzel & Lantz, 1996; Fletcher, Benshoff, & Richburg, 2003; Parham, 1993; Pinkerton, Hinz, & Barrow, 1989; Watson & Kissinger, 2007). Research has indicated that as a result of these stressors, college student-athletes may have difficulty with some expected gains. For instance, Martens and Cox (2000) found that college student-athletes had significantly lower career development scores than non-athlete students, and that among college student-athletes, those with stronger athletic identity perceived more barriers to their career development. Sowa and Gressard (1983) also found that compared to non-athlete students, student-athletes scored significantly lower on measures of their educational plans, career plans, and mature relationships. These differences suggest that there may be similarly lower levels of other aspects of psychosocial development among college student-athletes compared to non-athlete college students. In addition, factors beyond athletic status, such as athletic identity, the sport climate, race, gender, and parental support are likely to contribute to significant variation in psychosocial development within the student-athlete population. Therefore, each of these factors was measured and analyzed in the current investigation.

Athletic Status and Athletic Identity

Athletic status. Research has indicated that being a college student-athlete does not necessarily lead to delayed psychosocial development. In one national study of 18 Division 1A schools, many groups (i.e., male/female, African-American/White, team/individual sport, revenue/non-revenue) of college student-athletes regarded their sport participation as highly positive, and reported that sport instilled in them values and skills that they did not derive from

other college experiences (Potuto, 2007). Other studies have supported this positive perception, indicating that athletic status was related to increased self-esteem, confidence, athletic performance, and social networks (Brewer, Van Raalte, & Linder, 1993; Danish, 1983; Danish et al., 1990; Horton & Mack, 2000; Petitpas, 1978).

For some student-athletes, however, the pressure to succeed athletically and academically can cause psychological role conflict (Chartrand & Lent, 1987; Ferrante et al., 1996; Fletcher et al., 2003; Lance, 2004; Pinkerton, et al. 1989). Although the typical recruiting speech suggests that college student-athletes are “students first and athletes second,” athletic responsibilities are often prioritized over academic responsibilities, causing student-athletes to view themselves as “athletes first and students second” (Blann, 1985; Watson & Kissinger, 2007).

Athletic identity. Athletic identity is the degree to which an athlete identifies with the athlete role (Brewer & Cornelius, 2001). Empirical studies have indicated that among college student-athletes, strength of athletic identity is directly associated with anxiety about career exploration, difficulty with decision-making (Brown, Glastetter-Fender, & Shelton, 2000; Grove, Lavelle, & Gordon, 1997), poorer career development (Martens & Cox, 2000; Murphy, Petipas, & Brewer, 1996), deferment of social and academic roles (Miller & Kerr, 2003), and the desire for less complex life plans (Young & Bursik, 2000). The desire for less complex life plans is reflected in the fact that historically, college student-athletes have been a population that is vulnerable to identity foreclosure² around the athlete role (Chartrand & Lent, 1987; Pearson & Petitpas, 1990; Murphy et al. 1996). The schedule of a college student-athlete is highly-structured, and even though the majority recognize and accept the fact that they will not play

² According to James Marcia (1966), identity foreclosure refers to the adoption of others’ values as a basis for identity commitment without personal exploration. His other three identity statuses are: (a) moratorium, which refers to the expected process of identity exploration that should occur before reaching commitment or identity achievement (b) achievement, which occurs as a result of reaching a commitment via moratorium, and (c) diffusion, which suggests the absence of exploration or commitment.

sport professionally in the future (Brown et al., 2000), research has indicated that most student-athletes feel they have neither the time nor the need to explore other possible identities (Good, Brewer, Petitpas, Van Raalte, & Mahar, 1993; Kennedy & Dimick, 1987; Pearson & Petitpas, 1990). Given evidence of this disconnect, Pearson and Petitpas (1990) suggested that college student-athletes may lack awareness about the ways in which their athletic commitment limits their exploration, and thus, hinders their opportunities for broader psychosocial development. Therefore, a review of the literature regarding personal and environmental factors such as hyper-competitiveness, the intercollegiate sport climate versus the recreational sport environment, racial and gender discrimination, and parental support is provided below.

Hyper-competitiveness

Athletes with high athletic identity exhibit more aggression in sport (Vissek et al., 2010), and the attitude that is likely to precede aggressive behavior is hyper-competitiveness. Hyper-competitiveness, defined as “an indiscriminant need by individuals to compete and win (and to avoid losing) at any cost as a means of maintaining or enhancing feelings of self-worth, with attendant orientations of manipulation, aggressiveness, exploitation, and derogation of others across a myriad of situations” (Ryckman, Hammer, Kaczor, & Gold, 1990, p. 630), was originally theorized as a maladaptive way of coping with feelings of mistrust, powerlessness, and low self-esteem (Horney, 1937). Because this win-at-all costs attitude is becoming increasingly prevalent in intercollegiate sport (Eitzen & Sage, 2003), it seems that college student-athletes may be particularly vulnerable to developing a hyper-competitive attitude. However, no studies have addressed differences in hyper-competitiveness between college student-athletes and non-athlete students. Thus, it seems a relevant and worthy measure of psychosocial development in the current investigation.

In non-athlete populations, empirical research has supported the intuition that hyper-competitive individuals should experience more interpersonal difficulties and poorer personal-emotional adjustment than individuals who are not hyper-competitive. For instance, Ryckman et al. (1990) found that among college students, hyper-competitiveness was directly correlated with greater neuroticism, dogmatism, and mistrust, as well as lower self-esteem and depressed psychological health. Hyper-competitiveness has also been positively associated with narcissism (Ryckman, Thompson & Butler, 1994), need for power, (Ryckman, Libby, Borne, Gold & Lindner, 1997), and interpersonal conflict (Ryckman, Thornton, Gold, & Burckle, 2002), and negatively associated with social desirability (Ryckman, Thornton, & Butler, 1994), perspective-taking (Ryckman et al., 2002), and positive self-regard (Ryska, 2002). Specifically, Ryckman et al. (1997) found that individuals who endorsed either hyper-competition or “personal development competition,” which is considered an adaptive attitude focused on competition as a means towards personal growth (Ryckman, Hammer, Kaczor, & Gold 1996), were similar in their endorsement of individualistic values. However, hyper-competitiveness was also associated with value in power over others and lack of social concern, a finding supported more recently by Dru (2003). In contrast, personal development competitiveness was associated with self-sufficiency, social concern, and subordination of self to group. This finding highlights lack of social concern as a key feature of hyper-competitiveness that can have negative implications for students’ psychosocial development. In fact, hyper-competitiveness has been negatively correlated with age among the college student population (Ryckman et al., 2002), which suggests a possible gain in students’ psychosocial skill with age. Of note, it has also been documented that males have higher hyper-competitiveness than females (Ryckman et al., 2002).

The Environment

The sport environment directly affects student-athletes' sport experience, and may indirectly affect personal factors, such as their athletic identity and hyper-competitive attitude. For example, while recreational sport may facilitate the development of students' psychosocial skills, the hyper-competitive climate of NCAA Division I athletic competition may contribute negatively to students' overall psychosocial development.

Recreational sport. For instance, in a sample of male and female recreational student-athletes, strength of athletic identity³ was positively associated with skill in managing relationships, time, and obligations (Cornelius, 1995). The fact that recreational athletes must organize the logistics of their sport participation, such as the time and location for practices and competitions, may promote this kind of psychosocial development. However, these students reported spending an average of six hours per week on sport, in comparison to the 20+ hours per week invested by varsity student-athletes (Grosvum, 2008), which suggests that they may not experience the same degree of psychological, physical, and time-related stressors that are hypothesized to interfere with varsity student-athletes' psychosocial development.

Intercollegiate sport climate. In contrast, with Division I intercollegiate athletics becoming increasingly elitist, the big-business, money-oriented sport climate may contribute to student-athletes' hyper-competitiveness, and have a negative impact on their psychosocial development. For instance, the NCAA recruits athletes with only the best sport-specific skills and physicality. Thus, while those who meet or surpass expectations are rewarded with praise and recognition, the pressure to win has also encouraged coaches to dehumanize players, particularly those performing below the gold standard. In either case, the mentality is that athletic success is

³ Athletic identity was measured by the AIMS. Average AIMS scores in this study were 31.82 and 35.4 for females and males, respectively, which are notably lower than the AIMS norms for athletes, which are 38 and 39 for females and males, respectively (Brewer & Cornelius, 2001).

of primary importance, even more so than the athlete him/herself (Eitzen & Sage, 2003; Ferrante, et al., 1996). In this kind of environment, college student-athletes may feel exploited by the university, misunderstood and/or resented by their non-athlete peers (Pinkerton, et al., 1989; Watston & Kissinger, 2007), and susceptible to increased psychological and physical stress (Hinkle, 1996; Stone & Strange, 2000).

College student-athletes' stress may be compounded by the fact that athletic departments often operate independently from the university. The department itself may be physically separated from other student activity and service departments on campus, which can cause student-athletes to feel isolated and estranged from the larger campus community (Lubker, 2006; Pinkerton et al., 1989). As a result, student-athletes may be more likely to struggle with academic, social, and emotional adjustment. In fact, Downey (2005) and Monda (2008) found decreases in freshmen student-athletes' academic and personal-emotional adjustment during their first semester at college. In comparison, Downey also found that among non-athlete freshmen, adjustment increased or remained stable. Therefore, it is of particular concern that college student-athletes tend not to initiate counseling on their own (Pearson & Petitpas, 1990; Pinkerton et al., 1989; Watson, 2006; Watson & Kissinger, 2007), and moreover, that coaches and athletic department directors often have difficulty recognizing mental health issues in their student-athletes (Mentink, 2002).

While these aspects of intercollegiate sport culture can increase the potential for its negative impact on student-athletes psychosocial development, there are many potential rewards of participating in sports, including learning to win, lose, and compromise; practicing patience and discipline; traveling to new places and meeting new people; discovering talents, creativity, and limitations; and having fun (Danish, 1983). The fact that sport is associated with "play" makes it an appealing avenue toward physical fitness and health as well. Indeed, it has been

documented that college student-athletes have significantly greater physical self-concepts compared to non-athlete students (Marsh & Jackson, 1986; Marsh, Perry, Horsely, & Roche, 1995). Therefore, the current investigation included self-report measures of students' perceived physical and mental health in order to assess this as a unique psychosocial strength among college student-athletes.

Discrimination

Race. Relevant to the debate over the cost and benefits of Division I intercollegiate competition is the issue of race. A long history of racial segregation and discrimination has impacted college student-athletes in terms of eligibility requirements, compensation, and opportunities for advancement into management and administration (Fletcher et al., 2003). While inequalities affect student-athletes of many racial minority backgrounds, research has focused on African-American males. For instance, the fact that African-American males are under-represented in the majority of sports, and over-represented in high-profile, revenue-producing sports reflects differential treatment and consideration. This is relevant because the psychosocial challenges associated with college sport participation may be particularly problematic for student-athletes participating in revenue-producing sports, such as football and basketball (Eitzen & Sage, 2003; Kennedy & Dimick, 1987; Murphy et al., 1996). In fact, Murphy et al. (1996) found that male college student-athletes competing in revenue-producing sports demonstrated higher identity foreclosure and lower career maturity than male athletes competing in non-revenue-producing sport. Furthermore, the fact that males with foreclosed identities also tend to have an authoritative relational style, immature moral and ego development, external locus of control, and low levels of autonomy (Petitpas, 1978) may make them additionally vulnerable to decreased exploratory behavior and poor self-efficacy regarding eventual career decisions.

Gender. In the battle against gender discrimination, female athletes have been positively impacted by the enactment of Title IX. Recent research has called attention to the fact that, in the 1970s, this new law brought about a 600% increase in athletic opportunities for females (Kaestner & Xu, 2010). Because research has indicated improved education and employment rates (Stevenson, 2010), as well as greater physical well-being (Kaestner & Xu, 2010) among women who participated in recreational sport as adolescents, gender equality in sport opportunities has important implications for the female population's livelihood. However, as discussed above, there are differences between the impact of recreational and intercollegiate sport-participation, and the evidence is mixed in terms of how the level of competition affects female-athletes' well-being. For instance, one study indicated that among female college students, student-athletes reported greater self-esteem, more social connectedness, and fewer depressive symptoms than non-athlete students (Armstrong, 2007). Another study indicated more depressive symptoms and social anxiety among college female athletes compared to all other groups, including female non-athletes, male athletes, and male non-athletes (Storch & Storch, 2005).

Parental Support

Also, as discussed above, parental support can have a significant impact on college students' psychosocial development, and perhaps even more so for student-athletes. Parents tend to be the primary socializing agents for their children's entrance into, and experience of, sport culture since they often introduce their children to sport, provide the monetary and moral support, travel to practices and games, discuss challenges and successes, play sport together, and assist with important sport-related decisions (Wright & Côté, 2003). Thus, parents who are supportive and encouraging of their young student-athlete provide a base from which the student-athlete begins to explore his or her talent and gain a sense of personal competence and mastery in sport (Wright & Côté, 2003). Indeed, empirical findings have indicated that student-athletes' personal

expectations of success in sport were directly correlated with the expectations they perceived their parents held of them, and these personal and parental expectations were directly correlated with student-athletes' confidence (Collins & Barber, 2005).

Summary

Intercollegiate sport participation is both a stress-reliever and a stress-inducer for college student-athletes (Kimball & Freysinger, 2003), which reflects the debate over the psychosocial costs and benefits of participating in Division I intercollegiate athletic competition. Despite the fact that sport participation may promote a wide variety of social and physical skills, intense participation in Division I intercollegiate athletic competition may also isolate student-athletes, decrease their opportunities for diverse peer interactions (Pearson & Petipas, 1990), and prevent them from participating in all other types of activities, such as working on campus and taking on student leadership (Stone & Strange, 1989), activities that have been associated with psychosocial gains (Niles et al., 1994; Terenzini et al., 1999). Moreover, while the development of all college students depends on factors such as class year, race, gender, and parental attachment, the college student-athlete's experience is additionally complicated by issues related to athletic identity, the intercollegiate sport environment, and racial and gender discrimination. It seems that the pressure of intercollegiate athletics may heighten the aspect of hyper-competition and diminish the aspect of play, thereby compromising the rewards typically associated with recreational athletic activity.

Purpose

Given that students are faced with mastering many critical psychosocial tasks during college, it is important to understand the factors and types of experiences that may bring certain psychosocial issues to the foreground. Previous research has pointed to several reasons why college student-athletes may lag behind non-athlete college students on various indices of

psychosocial development. However, few investigations have provided a comparative analysis that measures these potential differences across both class year and athletic status. Therefore, this project aimed to examine the impact of class year and athletic status, as well as parental attachment, race, gender, and athletic identity on college students' psychosocial development. Psychosocial development was measured by the following six dependent variables: (a) interpersonal communication skill, (b) problem-solving, (c) health maintenance, (d) identity development, (e) hyper-competitiveness, and (f) depressive symptoms. For the purpose of this study, greater psychosocial development was indicated by greater interpersonal communication skill, greater problem-solving, greater health maintenance, greater identity development, lower hyper-competitiveness, and fewer depressive symptoms.

The knowledge gained from this investigation adds to the current literature by indicating differences in specific aspects psychosocial development among male and female college student-athletes and non-athlete college students who are freshmen, sophomores, juniors, and seniors of White and non-White racial backgrounds. The findings of this investigation are also important because understanding the variation in psychosocial development among college students by gender, race, class year, and athletic status/identity can help guide professionals who work in undergraduate education, including professors, coaches, counselors, and administrative staff, develop interventions that serve the unique needs of these specific groups. As a result, these interventions may help college students and college student-athletes increase their own awareness about the impact of their college experience on their adjustment, adopt realistic expectations for their athletic, academic, and personal achievements, and enable them to initiate appropriate help-seeking behavior when needed.

Hypotheses

The guiding hypotheses were:

- I. Aspects of psychosocial development, including communication skill, problem-solving, health maintenance, and identity development would be significantly and positively correlated with each other; significantly and positively correlated with parent and peer attachment; and significantly and negatively correlated with hyper-competitiveness and depressive symptoms;
- II. Upperclassmen would report greater psychosocial development than underclassmen;
- III. Compared to non-athlete students, college student-athletes would report:
 - poorer communication skill, problem-solving, and identity development, as well as greater depressive symptoms; and,
 - greater health maintenance and greater hyper-competitiveness;
- IV. Among college student-athletes, sophomore and junior student-athletes would report greater athletic identity than freshmen college student-athletes;
- V. Among college student-athletes, highly-identified athletes would report greater hyper-competitiveness and poorer general identity development than lowly-identified athletes;
- VI. Among college student-athletes:
 - female college student-athletes would report greater psychosocial development than male college student-athletes; and,
 - minority male athletes playing revenue-producing sports would report the lowest psychosocial development among all college student-athletes;
- VII. Students with secure parental and peer attachments would report greater psychosocial development than students with insecure parental attachments;

VIII. Finally, based on the literature that has indicated differences in psychosocial development based on gender, race, class standing, athlete status, parental and peer attachment, and depressive symptoms, it was hypothesized that these factors would be predictive of college students' overall psychosocial development.

Two exploratory issues were also raised:

- I. Are measures of academic achievement related to college students' psychosocial skills?
Are there differences between college student-athletes' and non-athlete students' academic achievement scores?
- II. Do college students who invest comparable time (i.e., 16-20+ hours) to non-NCAA extra-curricular activities differ from NCAA varsity student-athletes in psychosocial development? Do either of these groups of students differ in psychosocial development from students who spend less time in athletic or non-athletic extra-curricular activities?

CHAPTER 2

METHOD

Study Design

This study employed a descriptive, developmental, cross-sectional survey design. There were six main independent, categorical variables: gender, race, class year, athletic status, athletic identity, and parental attachment. There were seven main dependent, continuous variables: communication skill, problem-solving, health maintenance, identity development, hyper-competitiveness, depressive symptoms, and athletic identity. Recruitment and data collection took place between September and November of the 2009 academic semester.

Participants

The researcher aimed to recruit a sample of 400 participants, balanced with regard to gender, class year, athletic status, and sport played. This sample size was determined based on sample-size estimation guidelines for achieving a small to moderate effect size with a $\beta = 0.8$ and a two-tailed $\alpha = 0.05$ (Thomas, Lochbaum, Landers, & He, 1997). A total of 457 full-time college students participated in the study. They were recruited from one public and three private Division I institutions located in the Mid-Atlantic region of the United States.

Instrumentation

Five self-report measures were utilized, including a 13-item demographic questionnaire. The demographic questionnaire always appeared first, and the remaining measures were counter-balanced to prevent order effects. The demographic measure assessed participant characteristics

including: gender, age, race/ethnicity, parental marriage status, family income, class year, residence, grade point-average, SAT scores, scholarship status, athletic status, sport played, and non-NCAA extracurricular activities (see Appendix F).

Life Skills Development Inventory

Psychosocial development was measured by the Life Skills Development Inventory – College Form (LSDI-CF), an 88-item, self-report, paper-and-pencil questionnaire, which was designed to assess life-skills mastery among college students aged 17 to 24 years (Picklesimer & Miller, 1998; see Appendix G). Participants rated each of the 88 statements using a four-point Likert scale, ranging from 1 (*completely disagree*) to 4 (*completely agree*); twenty-six items were reverse-scored. The full-scale score ranges from 88 to 352.

The LSDI-CF comprises four aspects of development: (a) interpersonal communication and human relations (LSDI-IC), which assesses for skill in establishing relationships, participating in community activities, managing personal intimacy, and articulating clear expression of thoughts and opinions; scores range from 25-125, and sample items include: “*I can accept different values in people my age,*” and “*If I have a different opinion from what is being said, I am afraid to express my views*” (reverse-scored); (b) problem-solving and decision-making (LSDI-PS), which assesses for skill in analyzing information, identifying and solving problems, setting goals, managing time, and resolving conflicts; scores range from 23 to 92, and sample items include: “*I understand how emotions influence my decisions and actions,*” and “*There is no role model for me to look to in order to find out about the kind of work I might like to do*” (reverse-scored); (c) physical fitness and health maintenance (LSDI-HM), which assesses for skill in nutritional maintenance, weight control, physical fitness, selecting leisure time activity, and managing sexuality; scores range from 20 to 80, and sample items include: “*I am aware of methods to control stress,*” and “*I do not actively pursue my interests and hobbies*”

(reverse-scored); and (d) identity development and purpose in life (LSDI-ID), which assesses for skill in developing awareness of personal and emotional identity, maintaining one's self-esteem, clarifying values, establishing moral dimensions of sexuality, and developing meaning in life; scores range from 20 to 80, and sample items include: "*When I interact with people, I am able to be myself,*" and "*Life is boring and I cannot get really excited about it*" (reverse-scored). Cronbach's alpha for the full scale has been reported at .94, and for the subscales, Cronbach's alpha has ranged from .77 (HM) to .85 (PS) (Picklesimer & Miller, 1998). In this sample, Cronbach's alpha for the full scale was .93, and for the communication skill, problem-solving, health maintenance, and identity development subscales, Cronbach's alpha was .78, .86, .79, .82, respectively. Test-retest validity for the full scale has been reported as acceptable at .85, with subscale validity ranging from .77 to .84 (Picklesimer & Miller, 1998). The scale has reported concurrent validity with both the Student Developmental Task and Lifestyle Assessment (Winston, Miller, & Prince, 1987) and the Ego Identity Scale (Erwin, 1977).

Athletic Identity Measurement Scale

Athletic identity was measured by the Athletic Identity Measurement Scale (AIMS). The AIMS is a seven-item, self-report, paper-and-pencil questionnaire, which was designed to measure an individual's level of identification with the athlete role (Brewer & Cornelius, 2001; see Appendix H). Participants rated each of the seven statements on a seven-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), resulting in scores ranging from 7 to 49. The seven items represent three first-order factors – social identity, exclusivity, and negative affectivity – which are directly related to one higher-order factor – athletic identity. This structure was recently tested and confirmed (Vissek, Hurst, Maxwell, & Watson, 2008). Sample items include: "*I consider myself an athlete,*" and "*I spend more time thinking about sport than anything else.*" Both the derivation and validation samples showed acceptable fit. The seven-item

AIMS is highly correlated with the original 10-item version (Brewer et al., 1993). Internal consistency has been reported as adequate, between .76 and .83 (Vissek, et al., 2001). For this sample, Cronbach's alpha was .93.

The Inventory of Parent and Peer Attachment

Parent and peer attachment was measured by a modified version of The Inventory of Parent and Peer Attachment (IPPA), a self-report, paper-and-pencil questionnaire (Armsden, 1986; see Appendix I). Like the original version (Armsden & Greenberg, 1987), this version was designed to assess adolescents' perceptions of three affective/cognitive dimensions of their relationships with their parents and close friends including: (a) degree of mutual trust, (b) the quality of communication, and (c) the extent of anger and alienation. This original version consisted of 28 parent-items and 25 peer-items; the current, modified version consisted of 25 items for each of the mother, father, and peer sections. Participants in this study completed each of these three 25-item sections, responding to each of the 75 items using a five-point Likert scale, ranging from 1 (*almost never or never true*) to 5 (*almost always or always true*). Four of the 25 items in the parent sections were reverse-scored, and one item in the peer section was reverse-scored.

The mother and father sections contain identical items, while the peer section contains similar, but different items. Sample items from the IPPA mother/father sections include: from the trust subscale: *"My mother/father accepts me as I am"*; from the communication subscale: *"I feel it is no use letting my feelings show around my mother/father"* (reverse-scored); and from the alienation subscale: *"I get upset a lot more than my mother/father knows about."* Sample items from the IPPA peer section include: from the trust subscale: *"I wish I had different friends"* (reverse scored); from the communication subscale: *"I like to get my friends' points of views on things I'm concerned about"*; and from the alienation subscale: *"Talking over my problems with*

my friends makes me feel ashamed or foolish.” The scores for the IPPA subscales range between 10 to 50 (mother/father trust); 9 to 45 (mother/father communication); 6 to 30 (mother/father alienation); 10 to 50 (peer trust); 8 to 40 (peer communication); and 7 to 35 (peer alienation). Participants are given an attachment score for mother, father, and peer by subtracting the alienation score from the sum of the communication and trust scores. In this study, participants also received three attachment classifications, defining their attachments to their mother, father, and peers as either “*secure*” or “*not secure*”⁴. Internal consistencies for the IPPA subscales have been documented as adequate, ranging from .72 to .91 (Armsden & Greenberg, 1987). For this sample, Cronbach’s alpha for mother trust, communication, and alienation were .81, .91, and .80, respectively; Cronbach’s alpha for father trust, communication, and alienation were .92, .91, and .82, respectively; and Cronbach’s alpha for peer trust, communication, and alienation were .92, .90, and .73, respectively. Three-week test-retest reliability for the parent (mother and father combined), and peer sections have been reported as acceptable at 0.93 and 0.86, respectively (Armsden & Greenberg, 1987). Acceptable construct and convergent validity have been demonstrated by IPPA correlations with measures of family conflict, support, cohesion, well-being, self-esteem, life-satisfaction, and affective status (Armsden & Greenberg, 1987). The IPPA has been reported as the most widely-used instrument because of its high reliability estimates and robust effect sizes (Benson et al., 2006).

Hypercompetitive Attitude Scale

Hyper-competitiveness was measured by the Hypercompetitive Attitude Scale (HCA).

The HCA is a 26-item, self-report, paper-and-pencil questionnaire, which assesses an individual’s

⁴ The IPPA permits assigning respondents into secure and insecure attachment categories based on a series of logical rules (see Armsden & Greenberg, 1987 or Vivona, 2000). In brief, score distributions for each subscale are divided into thirds (low, medium, high). The rules define secure attachment as not “high alienation” and at least “medium trust” and “medium communication,” and insecure attachment as “low trust,” “low communication,” and “medium” or “high” alienation.

need to compete and win at all costs, so to achieve a sense of self-worth, as well as the manipulation, aggressiveness, exploitation, and denigration of others (Ryckman, Hammer & Gold, 1990; see Appendix J). Participants rated each of the 26 statements on a five-point Likert scale, ranging from 1 (*never true for me*) to 5 (*always true for me*). Half the responses were reverse-scored. Scores range from 26 to 130 with greater scores indicating greater hyper-competitiveness. Sample items from the HCA include: “*I cannot stand to lose an argument*” and “*Winning in competition does not give me a greater sense of worth*” (reverse scored). Internal consistency has been documented for both athlete and non-athlete samples between .65 and .85 (Ryska, 2002). For this sample, Cronbach’s alpha was also acceptable at .86. Test-retest reliability has been documented as adequate at .81 (Ryckman et al., 1990). The HCA has been positively correlated with the Neuroticism Scale (Eysenck & Eysenck, 1975) and negatively correlated with the Marlow-Crowne Social Desirability Scale (Crowne & Marlowe, 1964) and the Self-Esteem Scale (Rosenberg, 1965).

Center for Epidemiologic Studies Depression Scale

Depressive symptoms were measured by the Center for Epidemiologic Studies Depression Scale (CES-D), a 20-item, self-report, paper-and-pencil questionnaire, which has been used among adolescents, young adults and older adults to assess the frequency of depressive symptoms during their previous week (Radloff, 1977; Radloff, 1991; see Appendix K). Participants rated each of the 20 statements on a four-point Likert-type scale, ranging from 0 (*rarely or none of the time; less than 1 day a week*) to 3 (*most or all of the time; 5-7 days a week*). There are 16 negative items, which assess depressed affect, somatic and retarded activities, and interpersonal relations. There are four positive items, which were reverse-scored. Scores range from 0 to 60, with higher scores indicating greater depressive symptoms. A cut-off score of 16 has been used to classify respondents as depressed (scores ≥ 16) or non-depressed (scores < 16).

(Radloff, 1991). Sample items include: *“I felt that I am just as good as other people,” “I felt that everything I did was an effort,” “People were unfriendly,”* and *“I felt hopeful about the future”* (reverse scored). Internal consistency has been documented as adequate, ranging from .79 to .87 (Radloff, 1991). For this sample Cronbach’s alpha was also adequate at .89. Test-retest reliability has been documented as acceptable, ranging from .51 to .67 (Radloff, 1977). Concurrent validity has also been established (Radloff, 1991).

Procedure

Institutional Review Board Approval

Prior to pilot testing, recruiting, and collecting data, approval for this study was obtained from the Institutional Review Boards for the Protection of Human Subjects at each participating university⁵.

Pilot testing

The researcher piloted the full battery described above on a group of twenty 18-22 year olds. The pilot participants did not report any confusion or difficulty with the questionnaires. All pilot participants completed the battery within 20-30 minutes.

Recruitment and Data Collection

Formal recruitment and data collection for this study began in the beginning of September of the 2009-2010 academic year. Varsity student-athletes were recruited through requests to the varsity head coaches in the athletic departments of the four participating

⁵ One participating university approved the study and offered the doctoral student-author access to their Psychology Department’s online system for undergraduate research participation. Thus, the doctoral student-author uploaded the full battery to the university’s “SONA” system, which allowed undergraduate students at this one university to sign up and participate in the study online. One hundred and fifteen students participated in this way. These students were granted extra credit for their Psychology courses by their Psychology Department. A *t*-test indicated no significant differences between students who completed the measures online versus on paper ($p < .05$).

universities. Other students were recruited through requests to professors of upper- and lower-level courses in various academic departments at the researcher's home university, as well as through an online recruitment and study administration process at another university, mentioned above. Copies of recruitment communication to coaches and professors are available in Appendices A and B, respectively. Professors and coaches were also given the option to e-mail or post an advertisement for participants to the students in their classes. Copies of these e-mails and advertisements are available in Appendix C.

The researcher arranged to meet at a time that was mutually convenient with each athletic team, class section, and individual who responded to the advertising. At the meeting, the researcher briefly introduced herself and provided an overview of the study, including the expected time commitment of 20-30 minutes. Participants who attended the home university of the researcher and who were enrolled in Psychology courses that offered extra credit for research participation were reminded that they could earn this credit by turning in a yellow card signed by the researcher to their professors. Participants who were not varsity student-athletes were also reminded of their option to enter a raffle drawing as compensation for their time and effort. They were informed that there would be a drawing for six \$50 prizes at the end of the data collection period. NCAA regulations prohibit this incentive option for varsity student-athletes, and thus the recruitment letter to coaches (see Appendix A) explained that the researcher would offer a free sport psychology workshop to participating teams as compensation for their time and effort.

The researcher then distributed the research materials including: (a) a separate cover sheet, which served as the raffle entry for non-varsity athlete students, (b) a separate informed consent form, and (c) a stapled questionnaire packet. Participants were asked to complete the cover sheet by providing their e-mail address; this served as their raffle entry (see Appendix D). They were also asked to sign the letter of informed consent, which explained the purpose of the

study and the participants' rights (Appendix E⁶). The researcher then called attention to the questionnaires in the packet including a demographic questionnaire, the LSDI-CF, the AIMS, the IPPA, the HCA, and the CES-D (see Appendices F – K). Instructions regarding the completion of the questionnaires were provided, and questions were addressed. When participants finished completing the questionnaires, they handed their cover sheet (if applicable), informed consent, and questionnaire packet to the researcher. They were thanked for their time and encouraged to contact the researcher if they had questions in the future.

Data Management

After participants handed in their materials, the researcher filed the cover sheet and informed consent separately in a secure, locked file cabinet. In order to ensure anonymity and confidentiality, each completed packet of questionnaires was assigned a unique identification code, and it was also filed separately in a secure, locked file cabinet. The raw data from the questionnaires was entered into an electronic statistical software program, the Statistical Package for the Social Sciences (SPSS, 18.0). The entire data set was double-checked to ensure accuracy. No personal identifying information was included in this electronic file.

⁶ This form was altered for use at each university so that it reflected the name of the institution where data was being collected. In addition, one university did not approve the use of incentives; thus, the six participants from this university were not offered the option to enter the raffle or to earn extra credit for their psychology courses.

CHAPTER 3

RESULTS

The following results are primarily based on data from 448 participants. Nine of the 457 original participants were eliminated due to one or more scores that fell outside the bell curve of the normal distribution for the LSDI-CF, the IPPA, or the CES-D; there were no outliers identified for the AIMS or HCA. See Table 3 for the current sample's means and standard deviations on these five measures. Alpha was set at .05 for all analyses, unless otherwise stated.

Although the researcher attempted to recruit varsity student-athletes from revenue-producing programs, only one student-athlete participant fit this category. Thus, the varsity-student athlete group is considered to be a non-revenue-producing sport sample. In addition, because the researcher was able to obtain a sizable sample of students who reported participation in club or intramural athletics, recreational student-athletes ($n = 59$) were considered, post-hoc, a separate group from varsity student-athletes ($n = 235$) and non-athlete students ($n = 159$) for many of the analyses. See Table 4 for complete demographic information. See Table 5 for gender by sport demographics.

Relationships Among Variables

Hypothesis I: Psychosocial Outcomes

A Pearson product moment correlation matrix confirmed statistically significant, large positive correlation coefficients among the four psychosocial outcomes measured by the LSDI-CF (Picklesimer & Miller, 1998): communication skill, problem-solving, health maintenance, and identity development. These four outcomes variables also shared statistically significant, small to moderate positive correlation coefficients with parental attachment; statistically significant,

Table 3.

Descriptive Data for Study Measures

	<i>N</i>	<i>M</i>	<i>SD</i>
LSDI-CF:			
communication subscale	448	82.49	7.16
problem-solving subscale	448	73.23	8.02
health maintenance subscale	448	64.76	6.97
identity development subscale	448	66.74	6.45
full scale score	448	287.23	24.12
IPPA:			
mother attachment	448	65.20	16.89
father attachment	448	61.12	18.60
peer attachment	448	60.49	13.69
HCA: hyper-competitiveness	448	74.99	12.76
CESD: depressive symptoms	448	13.42	9.08
*AIMS: athletic identity	235	36.45	6.72
highly-identified athletes	51	44.71	1.63
lowly-identified athletes	41	25.95	4.48

*The sample means provided for AIMS include the mean for the varsity student-athlete population, as well as the mean for each the highly- and lowly-identified sub-samples.

Table 4.

Sample Demographic Characteristics

	Varsity Student-Athletes (<i>n</i> = 235)		Recreational Student-Athletes (<i>n</i> = 59)		Non-Athlete Students (<i>n</i> = 154)		Total (<i>n</i> = 448)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Gender								
Male	114	48.5	34	57.6	47	30.5	195	43.5
Female	121	51.5	25	42.4	107	69.5	253	56.5
Class								
Freshmen	63	26.8	26	44.1	50	32.5	139	31.0
Sophomore	76	32.3	16	27.1	47	30.5	139	31.0
Junior	54	23.0	10	16.9	33	21.4	97	21.7
Senior	42	17.9	7	11.9	24	15.6	73	16.3
Age								
18	53	22.6	26	44.1	47	30.5	126	28.1
19	84	35.7	14	23.7	45	29.2	144	31.9
20	39	16.6	13	22.0	34	22.1	86	19.2
21	45	19.1	5	8.5	19	12.3	69	15.4
22	12	5.1	1	1.7	5	3.2	18	4.0
Older than 22	2	0.9	0	0.0	4	2.4	6	1.3
Race								
Black	15	6.4	4	6.8	6	3.9	25	5.6
Native American	2	0.9	0	0.0	0	0.0	2	.04
Asian American	6	2.6	6	10.2	18	11.8	30	6.7
Hispanic/Latino(a)	6	2.6	0	0.0	6	3.9	12	2.7
White	198	84.6	45	76.3	115	75.2	358	79.9
Other	7	3.0	4	6.8	8	5.2	19	4.2
Parents								
Married	207	88.5	49	83.1	120	77.9	376	83.9
Divorced	23	9.8	8	13.6	23	14.9	54	12.1
Separated	1	0.4	1	1.7	4	2.6	6	1.1
Other	3	1.3	1	1.7	7	4.5	112	2.7
Income								
Over \$100,000	136	64.5	42	76.4	68	48.9	246	54.9
\$75,000 - \$99,999	29	13.7	6	10.9	28	20.1	63	14.1
\$50,000 – \$74,999	28	13.3	2	3.6	27	19.4	57	12.7
\$25,000 - \$49,999	9	4.3	3	5.5	10	7.2	22	4.9
Less than \$25,000	9	4.3	2	3.6	6	4.3	17	3.8
Housing								
On campus	139	59.1	48	81.4	110	71.4	298	66.3
Off campus	95	40.4	11	18.6	40	26.0	146	32.6
With guardians	1	0.4	0	0.0	4	2.6	5	1.1
Institution								
Private	206	87.7	59	100.0	154	100.0	419	93.5
Public	29	12.3	0	0.0	0	0.0	29	6.5

Table 5.

Sample Demographic Characteristics by Sport

	Males		Females	
	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Varsity				
Basketball	17	65.4	9	34.6
Field Hockey	--	--	23	100.0
Lacrosse	--	--	41	100.0
Swimming	15	46.9	17	53.1
Tennis	4	66.7	2	33.3
Soccer	--	--	2	100.0
Wrestling	43	100.0	--	--
Squash	6	100.0	--	--
Track	11	100.0	--	--
Cheerleading	--	--	2	100.0
Sailing	17	42.5	24	57.5
*Football	1	100.0	--	--
Golf	--	--	1	100.0
Recreational				
Various	34	57.6	25	42.3
TOTAL	148	50.6	146	49.4

*Considered to be a revenue-producing athletic program, based on sport and institution.

moderate to large positive correlation coefficients with peer attachment; and statistically significant, moderate to large negative correlation coefficients with depressive symptoms. Interestingly, hyper-competitiveness shared statistically significant, small negative correlation coefficients with communication skill, problem-solving, health maintenance, identity development, and peer attachment among varsity and recreational student-athletes, while these correlations were not statistically significant among non-athlete students. Thus, overall, the data confirmed the hypothesized inter-relationships among the six psychosocial dependent variables, though the significant, negative correlations between hyper-competitiveness and communication skill, problem-solving, health maintenance, and identity development were indicated for varsity and recreational student-athletes only (see Table 6 for correlations among varsity student-athletes; see Table 7 for correlations among recreational student-athletes and non-athlete students).

Group Comparisons

Hypotheses II & III: Class Year and Athletic Status

A 4 (class year) x 3 (athletic status) two-way multivariate analysis of variance (MANOVA) was performed to assess interaction and main effects on six psychosocial outcomes: communication skill, problem-solving, health maintenance, identity development, hyper-competitiveness, and depressive symptoms. Results of the two-way MANOVA indicated that the interaction between class year and athletic status was not statistically significant for any of the six psychosocial outcomes (Pillai's Trace = 0.10, $F(36, 2616) = 1.23, p = .160, \eta^2 = .017$). However, results indicated a statistically significant main effect for class year (Pillai's Trace = 0.08, $F(18, 1299) = 2.08, p = .005, \eta^2 = .028$), and a statistically significant main effect for athletic status (Pillai's Trace = 0.32, $F(12, 864) = 13.50, p < .000, \eta^2 = .158$).

Table 6.

Pearson-Product Moment Correlations

	1	2	3	4	5	6	7	8	9	10	11
1. Communication	---	.68**	.53**	.74**	.28**	.40**	.56**	-.27**	-.51**	-.09	-.18
2. Problem Solving		---	.55**	.72**	.25**	.27**	.39**	-.13*	-.47**	-.12	-.17
3. Health			---	.63**	.32**	.29**	.34**	-.14*	-.44**	.06	.07
4. Identity				---	.28**	.36**	.50**	-.20**	-.57**	-.12	-.21*
5. Mother Attachment					---	.44**	.36**	.10	-.29**	.12	.17
6. Father Attachment						---	.35**	-.04	-.34**	.05	.04
7. Peer Attachment							---	-.15*	-.47**	-.04	-.13
8. Hyper-competitiveness								---	.18**	.50**	.59**
9. Depression									---	.01	.03
10. Athletic Identity (AI)										---	.95**
11. AI High-Low*											---

Note. Correlation coefficients for varsity student-athletes ($n = 235$). * $p < .05$. ** $p < .01$.

*Point biserial correlation (High AI, $n = 51$; Low AI, $n = 41$)

Table 7.

Pearson-Product Moment Correlations

	1	2	3	4	5	6	7	8	9	10
1. Communication	---	.54**	.55**	.68**	.32**	.30**	.51**	.00	-.29**	.16*
2. Problem Solving	.64**	---	.54**	.76**	.35**	.24**	.31**	.14	-.35**	.08
3. Health	.52**	.49**	---	.62**	.39**	.35**	.38**	.09	-.35**	.26**
4. Identity	.75**	.73**	.52**	---	.45**	.33**	.46**	-.07	-.46**	.04
5. Mother Attachment	.46**	.27*	.00	.39**	---	.42**	.30**	-.15	-.30**	.04
6. Father Attachment	.39**	.36**	.12	.45**	.55**	---	.28**	-.16*	-.21**	-.31
7. Peer Attachment	.63**	.47**	.38**	.54**	.39**	.50**	---	-.07	-.26**	.08
8. Hyper-competitiveness	-.28*	-.15	-.29*	-.27*	-.13	-.27*	-.30*	---	.13	.31**
9. Depression	-.54**	-.31*	-.27*	-.44**	-.41**	-.48**	-.62**	.22	---	-.05
10. Athletic Identity (AI)	-.09	-.03	.31*	-.12	-.24	-.15	-.19	-.36**	.02	---

Note. Correlation coefficients for non-athlete students ($n = 154$) are above the diagonal (upper right triangle), and below the diagonal (lower left triangle) for recreational student-athletes ($n = 59$) * $p < .05$. ** $p < .01$

Class year. Specifically, the two-way MANOVA indicated that class year had statistically significant main effects on identity development ($F(3, 436) = 3.31, p = .020, \eta^2 = .022$) and depressive symptoms ($F(3, 436) = 3.24, p = .022, \eta^2 = .022$). There were no statistically significant main effects for class year on communication skill ($F(3, 436) = 1.59, p = .191, \eta^2 = .011$); problem-solving ($F(3, 436) = 2.02, p = .111, \eta^2 = .014$); health maintenance ($F(3, 436) = 0.71, p = .546, \eta^2 = .005$); or hyper-competitiveness ($F(3, 436) = 1.51, p = .212, \eta^2 = .010$). In the post-hoc analyses, Tukey's Honestly Significant Difference (HSD) comparison indicated that, counter to the hypothesis, freshmen reported significantly greater identity development than juniors ($d = 0.37, p = .029$). This was a small to moderate effect. There were no statistically significant differences in identity development between freshmen and sophomores ($p = .094$), freshmen and seniors ($p = .874$), sophomores and juniors ($p = .909$), sophomores and seniors ($p = .646$), or juniors and seniors ($p = .345$). Tukey's HSD comparison also indicated a nearly significant result for fewer depressive symptoms among freshmen compared to sophomores ($d = -0.29, p = .055$). There were no statistically significant differences between freshmen and juniors ($p = .800$), freshmen and seniors ($p = .409$), sophomores and juniors ($p = .503$), sophomores and seniors ($p = .944$), or juniors and seniors ($p = .909$). Overall, the main effect for class year on psychosocial outcomes did not support the researcher's hypothesis (see Table 8 for a comprehensive comparison).

Athletic status. In addition, the two-way MANOVA indicated that athletic status had a statistically significant main effect on health maintenance ($F(2, 436) = 44.76, p < .001, \eta^2 = .170$); hyper-competitiveness ($F(2, 436) = 15.09, p < .001, \eta^2 = .065$); depressive symptoms ($F(2, 436) = 6.41, p = .002, \eta^2 = .029$) and problem-solving ($F(2, 436) = 3.76, p = .024, \eta^2 = .017$).

Table 8.

Psychosocial Comparison by Class Year

	Freshmen		Sophomores		Juniors		Seniors		Total	
	<i>n</i> = 139		<i>n</i> = 139		<i>n</i> = 97		<i>n</i> = 73		<i>n</i> = 448	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Communication	83.28	6.95	82.60	7.42	80.90	7.17	82.93	6.86	82.49	7.16
Problem-solving	73.40	7.79	73.16	7.93	72.32	8.36	74.24	8.18	73.23	8.02
Health	64.98	6.53	64.45	7.45	64.45	7.43	65.33	6.26	64.76	6.97
Identity	67.92 _a	5.96	66.14	6.63	65.58 _b	6.78	67.22	6.28	66.74	6.45
Hyper-competitiveness	73.46	12.57	75.20	11.73	75.21	11.88	77.19	15.70	74.99	12.76
Depression	12.02 ₂	7.89	14.74 ₁	10.42	13.09	7.78	14.02	9.81	13.42	9.08

Note. Subscripts are utilized to indicate differences between means. Within any given row, (a) is significantly greater than (b) at $p < .05$. Also, (1) is nearly significantly greater than (2) at $p = .055$

There was no statistically significant main effect for athletic status on communication skill ($F(2, 436) = 1.57, p = .210, \eta^2 = .007$) or identity development ($F(2, 436) = 2.57, p = .078, \eta^2 = .012$). In the post-hoc analyses, Tukey's HSD comparison was utilized to delineate mean comparisons between varsity student-athletes, recreational student-athletes, and non-athlete students. As predicted, mean comparisons indicated a large effect for significantly greater health maintenance among varsity student-athletes compared to non-athlete students ($d = 1.01, p < .001$). There were also moderate effects for significantly greater health maintenance among varsity student-athletes compared to recreational student-athletes ($d = 0.43, p = .018$), and among recreational student-athletes compared to non-athlete students ($d = 0.63, p < .001$). Also as predicted, mean comparisons indicated moderate effects for significantly lower hyper-competitiveness among non-athlete students compared to both varsity student-athletes ($d = -0.58, p < .001$) and recreational student-athletes ($d = -0.49, p = .002$). There was no statistically significant difference in hyper-competitiveness between varsity and recreational student-athletes ($p = .918$). In addition, mean comparisons indicated moderate effects for significantly greater depressive symptoms among non-athlete students compared to both varsity student-athletes ($d = 0.34, p < .003$) and recreational student-athletes ($d = 0.42, p = .014$). Again, there was no statistically significant difference in depressive symptoms between varsity and recreational student-athletes ($p = .825$). Finally, despite MANOVA results that indicated a significant effect for athletic status on problem-solving, Tukey's HSD indicated no statistically significant differences in problem-solving between varsity and recreational student-athletes ($p = .426$), recreational student-athletes and non-athlete students ($p = .065$), or varsity student-athletes and non-athlete students ($p = .263$). This significant main effect for athletic status on psychosocial outcomes supported the researcher's hypothesis regarding health maintenance and hyper-competitiveness, but did not

support the hypothesis regarding communication skill, problem-solving, and identity development, and depressive symptoms (see Table 9 for a comprehensive comparison).

Hypothesis IV: Athletic Identity and Class Year

An ANOVA was performed to examine the effect of class year on athletic identity among varsity student-athletes. Results indicated a statistically significant omnibus F -test ($F(3, 231) = 3.52, p = .016$). Tukey's HSD comparison confirmed the researcher's hypothesis, indicating significantly greater athletic identity among juniors ($M = 38.07, SD = 6.46$) compared to freshmen ($M = 34.37, SD = 7.48; d = 0.51, p = .019$), a moderate effect. Finally, as expected, there was no statistically significant difference in athletic identity between sophomores ($M = 36.24, SD = 6.45$) and juniors ($p = .404$), sophomores and seniors ($M = 37.74, SD = 5.63, p = .640$), freshmen and seniors ($p = .066$), or juniors and seniors ($p = .995$).

Hypothesis V: Athletic Identity, General Identity, and Hyper-Competitiveness

Because a large sample of varsity student-athletes was obtained, the researcher sought to partition the data in such a way to isolate highly- and lowly-identified varsity student-athletes. This procedure allowed the researcher to assess differences in general identity development and hyper-competitiveness between student-athletes at the high and low ends of the athletic identity spectrum.

High and low athletic identity was defined as one standard deviation above and below the athletic identity mean for the varsity student-athlete group, resulting in a highly-identified group ($n = 51; M = 44.71, SD = 1.63$) and a lowly-identified group ($n = 41; M = 25.95, SD = 4.48$). A point biserial correlation matrix including athletic identity (as a dichotomous variable), general identity development, and hyper-competitiveness (both continuous variables) indicated a

Table 9.

Psychosocial Comparison by Athletic Status

	Varsity Athletes		Recreational Athletes		Non-Athlete Students	
	<i>n</i> = 235		<i>n</i> = 59		<i>n</i> = 154	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Communication	82.80	7.12	83.31	7.49	81.71	7.07
Problem-solving	73.48	7.41	74.93	8.65	72.19	8.56
Health	67.35 _{aj}	5.77	64.85 _{by}	5.82	60.76 _{kz}	7.19
Identity	67.43	6.35	66.57	6.43	65.76	6.52
Hyper-competitiveness	77.51 _a	11.79	76.80 _j	13.45	70.44 _{bk}	12.75
Depression	12.46 _b	8.57	11.69 _k	9.16	15.56 _{aj}	9.45

Note. Subscripts are utilized to indicate differences between means. Within any given row, (a) is significantly greater than (b), (j) is significantly greater than (k), and (y) is significantly greater than (z) at $p < .05$.

statistically significant, small negative correlation coefficient between athletic identity and general identity development ($r = -.21, p = .045$), as well as a statistically significant, large positive correlation coefficient between athletic identity and hyper-competitiveness ($r = .59, p < .001$). Next, as an exploratory analysis, the researcher performed a point biserial correlation between athletic identity (as a dichotomous variable) and the other psychosocial outcome variables: communication skill, problem-solving, health maintenance, and depression. The results indicated no statistically significant correlation coefficients ($p > .05$) (refer back to Table 6 for a summary).

In support of these findings, a MANOVA of psychosocial outcomes by athletic identity indicated a statistically significant omnibus F -test (Pillai's Trace = 0.44, $F(6, 85) = 11.17, p < .001, \eta^2 = .441$). Specifically, results indicated a statistically significant main effect for athletic identity on general identity development ($F(1, 90) = 4.12, p = .045, \eta^2 = .044$), and on hyper-competitiveness ($F(1, 90) = 46.93, p < .001, \eta^2 = .343$). Highly-identified student-athletes ($M = 66.36, SD = 7.03$) reported significantly poorer identity development than lowly-identified student-athletes ($M = 69.10, SD = 5.57, d = -0.43$; a moderate effect). Highly-identified student-athletes also reported significantly greater hyper-competitiveness ($M = 84.87, SD = 9.13$) than lowly-identified student-athletes ($M = 69.12, SD = 12.89, d = 1.41$; a large effect). Thus, the data confirmed the prediction that among varsity student-athletes, highly-identified athletes would report poorer general identity development and greater hyper-competitiveness than their lowly-identified counterparts. Of note, the data did not indicate an association between high athletic identity and communication skill, problem-solving, health maintenance, or depressive symptoms ($p > .05$).

Hypothesis VI: Athletic Status, Race and Gender

Because varsity and recreational student-athletes only differed moderately on one of the six psychosocial outcomes (health maintenance), these two groups were collapsed into one group for the next analysis. A 2 (athletic status) x 2 (gender) x 2 (race, White and non-White) two-way MANOVA was performed to assess interaction and main effects of race and gender on the six psychosocial outcomes, as well as interaction effects including athletic status. While the researcher had intended to assess for differences between student-athletes who compete in revenue- versus non-revenue-producing sports, only one of the participants qualified for the revenue-producing sport category. Results of the 2 x 2 x 2 two-way MANOVA indicated a statistically significant omnibus F -test for a main effect for gender (Pillai's Trace = 0.03, $F(6, 433) = 2.34, p = .031, \eta^2 = .031$). There were also statistically significant omnibus F -tests for the interactions between gender and race (Pillai's Trace = 0.03, $F(6, 433) = 2.24, p = .038, \eta^2 = .030$); between gender and athletic status (Pillai's Trace = 0.04, $F(6, 433) = 3.22, p = .004, \eta^2 = .043$); and between race and athletic status (Pillai's Trace = 0.03, $F(6, 433) = 2.46, p = .024, \eta^2 = .033$). However, for gender x athletic status, none of the univariate F -tests were statistically significant: communication skill ($F(1, 438) = 1.98, p = .160, \eta^2 = .004$); problem-solving ($F(1, 438) = 2.13, p = .145, \eta^2 = .005$); health maintenance ($F(1, 438) = 1.12, p = .290, \eta^2 = .003$); identity development ($F(1, 438) = 2.14, p = .144, \eta^2 = .005$); hyper-competitiveness ($F(1, 438) < 0.00, p = .983, \eta^2 < .001$); or depressive symptoms ($F(1, 438) = 2.83, p = .093, \eta^2 = .006$). Similarly, none of the univariate F -tests were statistically significant for gender x race: communication skill ($F(1, 438) = 1.50, p = .221, \eta^2 = .003$); problem-solving ($F(1, 438) = 2.42, p = .120, \eta^2 = .005$); health maintenance ($F(1, 438) = 1.27, p = .260, \eta^2 = .003$); identity development ($F(1, 438) = 0.14, p = .705, \eta^2 < .001$); hyper-competitiveness ($F(1, 438) = 0.45, p = .499, \eta^2 = .001$); depressive symptoms ($F(1, 438) = 0.10, p = .756, \eta^2 < .001$). Finally, although

results of the MANOVA did indicate that the interaction of race x athletic status was statistically significant for problem-solving ($F(1, 438) = 4.08, p = .044, \eta^2 = .009$), and nearly significant for identity development ($F(1, 438) = 3.74, p = .054, \eta^2 = .008$), the researcher chose not to interpret the findings based on the inadequate power generated by the analyses ($\beta = .522$ and $.488$, respectively). Finally, the main effect for race was not statistically significant (Pillai's Trace = $0.01, F(6, 433) = 0.61, p = .008, \eta^2 = .720$). Therefore, only the main effect for gender is reported below.

Gender. Specifically, the MANOVA indicated a statistically significant main effect for gender on hyper-competitiveness ($F(1, 438) = 4.89, p = .027, \eta^2 = .011$), such that males ($M = 78.00, SD = 12.81$) reported significantly greater hyper-competitiveness than females ($M = 72.66, SD = 12.25; d = 0.43$), a moderate effect. Gender did not have statistically significant main effects on communication skill ($F(1, 438) = 0.01, p = .917, \eta^2 < .000$); problem-solving ($F(1, 438) = 0.50, p = .478, \eta^2 = .001$); health maintenance ($F(1, 438) = 0.47, p = .493, \eta^2 = .001$); identity development ($F(1, 438) = 0.31, p = .577, \eta^2 = .001$); or depressive symptoms ($F(1, 438) = 2.58, p = .109, \eta^2 = .006$). These findings support the hypothesis that female-athletes would report greater psychosocial development than male-athletes), though it was only for this one aspect of psychosocial development. Overall, because of poor power and the absence of participants in revenue-producing sports, the researcher's hypothesis could not be tested; thus, these findings neither support nor refute the prediction.

Hypothesis VII: Parental and Peer Attachment

Utilizing parental and peer attachment as categorical variables⁷, the main effects for parental attachment and peer attachment on students' psychosocial outcomes was analyzed. Results of the MANOVA for parental attachment indicated a statistically significant omnibus F -test (Pillai's Trace = 0.23, $F(12, 882) = 9.71, p < .001, \eta^2 = .117$). Specifically, the MANOVA indicated a statistically significant main effect for parental attachment on communication skill ($F(2, 445) = 29.26, p < .001, \eta^2 = .116$), problem-solving ($F(2, 445) = 26.99, p < .001, \eta^2 = .108$), health maintenance ($F(2, 445) = 42.32, p < .001, \eta^2 = .160$), identity development ($F(2, 445) = 33.76, p < .001, \eta^2 = .132$), and depressive symptoms ($F(2, 445) = 38.01, p < .001, \eta^2 = .146$). There was no statistically significant main effect for parental attachment on hyper-competitiveness ($F(2, 445) = 1.00, p = .368, \eta^2 = .004$). Unless otherwise indicated, Tukey's HSD comparison was used in post-hoc analyses to delineate differences between students with (a) secure attachments to both mother and father, (b) one secure attachment to either mother or father, and (c) no secure parental attachments.

Communication skill. Mean comparisons indicated significantly greater communication skill among students with both secure attachments compared to both those with only one secure attachment ($d = 0.36, p = .007$; a small to moderate effect), and compared to those with no secure attachments ($d = 0.87, p < .001$; a large effect). Mean comparisons also indicated significantly

⁷ The researcher followed the rules for categorization set forth by Armsden & Greenberg (1987). In this sample, mother and father trust scores less than 28 were "low," between 28 and 39 (inclusive) were "medium," and greater than 39 were "high;" mother and father communication scores less than 23 were "low," between 23 and 34 (inclusive) were "medium," and greater than 34 were "high;" mother and father alienation scores less than 13 were "low," between 13 and 20 (inclusive) were "medium," and greater than 20 were "high;" peer trust scores below 32 were "low," between 32 and 42 (inclusive) were "medium," and greater than 43 were "high;" peer communication scores less than 23 were "low," between 23 and 32 (inclusive) were "medium," and greater than 41 were "high;" peer alienation scores less than 13 were "low," between 13 and 21 (inclusive) were "medium," and greater than 21 were "high." The rules define secure attachment as not "high alienation" and at least "medium trust" and "medium communication."

greater communication skill among students with one secure attachment compared to those with no secure attachments ($d = 0.49, p < .001$; a moderate effect).

Problem-solving. Mean comparisons indicated significantly greater problem-solving among students with both secure attachments compared to those with only one secure attachment ($d = 0.34, p = .006$; a small to moderate effect), and compared to those with no secure attachments ($d = 0.79, p < .001$; a large effect). Mean comparisons also indicated significantly greater problem-solving among students with one secure attachment compared to those with no secure attachments ($d = 0.45, p < .001$; a moderate effect).

Health maintenance. Mean comparisons indicated significantly greater health maintenance among students with both secure attachments compared to those with only one secure attachment ($d = 0.32, p = .017$; a small to moderate effect), and compared to those with no secure attachments ($d = 1.03, p < .001$; a large effect). Mean comparisons also indicated significantly greater health maintenance among students with one secure attachment compared to those with no secure attachments ($d = 0.67, p < .001$; a moderate effect).

Identity development. Mean comparisons indicated significantly greater identity development among students with both secure attachments compared to those with only one secure attachment ($d = 0.38, p = .006$; a small to moderate effect), and compared to those with no secure attachments ($d = 0.91, p < .001$; a large effect). Mean comparisons also indicated significantly greater identity development among students with one secure attachment compared to those with no secure attachments ($d = 0.53, p < .001$; a moderate effect).

Depressive symptoms. Results of the MANOVA indicated that Levene's homogeneity of variances was violated for this variable, therefore, Tamhane's T2 was used in post-hoc testing. Mean comparisons indicated significantly fewer depressive symptoms among students with both secure attachments compared to those with only one secure attachment ($d = 0.45, p = .001$; a

moderate effect), and compared to those with no secure attachments ($d = 0.99, p < .001$; a large effect). Mean comparisons also indicated significantly fewer depressive symptoms among students with one secure attachment compared to those with no secure attachments ($d = 0.52, p < .001$; a moderate effect). Thus, the results supported the researcher's hypothesis, indicating statistically significant differences between all three groups on five of the six psychosocial outcome variables (see Table 10 for a comprehensive comparison).

Peer attachment. Results of the MANOVA for peer attachment indicated a statistically significant, moderate omnibus F -test (Pillai's Trace = 0.23, $F(6, 441) = 21.46, p < .001, \eta^2 = .226$). There was a main effect for peer attachment on communication skill ($F(1, 446) = 78.87, p < .001, \eta^2 = .150$); problem-solving ($F(1, 446) = 54.91, p < .001, \eta^2 = .110$); health maintenance ($F(1, 446) = 43.73, p < .001, \eta^2 = .089$); identity development ($F(1, 446) = 87.36, p < .001, \eta^2 = .164$); and depressive symptoms ($F(1, 446) = 81.69, p < .001, \eta^2 = .155$). There was no statistically significant main effect for peer attachment on hyper-competitiveness ($F(1, 446) = 0.33, p = .568, \eta^2 = .001$). Specifically, students who reported secure peer attachments reported significantly greater communication skill ($M = 87.51, SD = 5.72, d = 1.04$), problem-solving ($M = 78.02, SD = 6.64, d = 0.86$), health maintenance ($M = 68.52, SD = 5.66, d = 0.78$), and identity development ($M = 71.46, SD = 4.68, d = 1.12$), as well as fewer depressive symptoms ($M = 6.97, SD = 5.44, d = -1.13$) than students who reported non-secure peer attachments: communication skill ($M = 80.96, SD = 6.86$); problem-solving ($M = 71.76, SD = 7.84$); health maintenance ($M = 63.61, SD = 6.93$); identity development ($M = 65.30, SD = 6.23$); depressive symptoms ($M = 15.40, SD = 9.06$). These were all large effects (see Table 10 for a comprehensive comparison).

Regression Analyses

Hypothesis VIII: Predicting Psychosocial Outcomes

Based on the literature that has indicated differences in psychosocial development based on gender, race, class year, athletic status, parental and peer attachment, and depressive symptoms, as well as on the results of the current study, which have indicated group differences based on these factors, each of these variables was entered into a standard stepwise multiple regression analysis to test the best fit model for predicting overall psychosocial development among this sample of college students. Overall psychosocial development was quantified by the full-scale score of the LSDI-CF (Picklesimer & Miller, 1998), which is the composite of subscale scores for communication skill, problem-solving, health maintenance, and identity development. Results of the standard stepwise multiple regression analysis indicated a best-fit regression model that included depressive symptoms, peer attachment, father attachment, mother attachment, and athletic status, and accounted for 42.8% (a significant proportion) of the variance in students' psychosocial development, ($F(5, 440) = 65.81, p < .001$); gender, race, and class year were excluded from the model.

Specifically, depressive symptoms made the greatest contribution to the model ($\beta = -.31, p < .001$); this was a negative effect, such that fewer depressive symptoms predicted greater psychosocial development. The next greatest contribution was peer attachment ($\beta = .30, p < .001$), followed by, in descending order, father attachment ($\beta = .14, p = .001$), mother attachment ($\beta = .11, p = .009$), and athletic status ($\beta = .08, p = .025$). Thus, peer, mother, and father attachments each had a positive effect, and athletic status had an effect that favored varsity student-athletes.

Post-hoc Analyses

Frequency of Secure Parental and Peer Attachment by Athletic Status

Given the findings that (a) students with secure parental and peer attachments reported significantly greater psychosocial development than students with one or no secure parental attachments, and (b) in some aspects, varsity and/or recreational student-athletes reported significantly greater psychosocial development than non-athlete students, it was speculated that, in the current sample, secure parental and/or peer attachment might occur more frequently among varsity student-athletes and recreational student-athletes than among non-athlete students. Thus, a 2 (athletic status) x 3 (parental attachment) Pearson chi-square analysis was performed. Results indicated a statistically significant, small association between athletic status and parental attachment ($\chi^2 (2, N = 448) = 25.03, p < .001, C = .230$).

In order to avoid inflating the overall type I error rate in the three post-hoc tests, the researcher performed a Bonferroni correction by dividing alpha by 3, and resetting to $\alpha = .02$ for the post-hoc analyses. Results of the post-hoc chi-square analyses indicated that compared to non-athlete students, student-athletes were significantly more likely to report secure attachments to both parents than to report no secure attachments ($\chi^2 (1, N = 316) = 25.08, p < .001$). Moreover, student-athletes were more likely than non-athlete students to report secure peer attachments than non-secure peer attachments ($\chi^2 (1, N = 448) = 14.28, p < .001, C = .176$), a small effect. Thus, the data confirmed the researcher's post-hoc prediction that varsity and recreational student-athletes were more likely than non-athlete students to report secure parental and peer attachments (see Table 11 for frequency data).

Table 11.

Frequency of Secure Attachment by Athletic Status

	Student-Athletes		Non-Athlete Students		Total	
	<i>n</i> = 294		<i>n</i> = 154		<i>N</i> = 448	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Parental Attachment						
Both secure	131	44.6 _a	36	23.4 _b	167	37.3
One secure	86	29.3	46	29.9	132	29.5
Neither secure	77	26.2 _b	72	46.8 _a	149	33.3
Peer Attachment						
Secure	85	28.9 _a	20	13.0 _b	105	23.4
Not secure	209	71.1 _b	134	87.0 _a	343	76.6

Note. Using a Bonferroni correction, alpha was reset at .02 for multiple chi-square analyses. Subscripts indicate differences between groups. In each row, (a) is significantly greater than (b) at $p < .001$.

Interestingly, 2 x 2 Pearson chi-square analyses also indicated that student-athletes were more likely than non-athlete students to (a) report that their parents are married versus separated or divorced ($\chi^2 (1, N = 447) = 6.75, p = .009, C = .122$; a small effect), and (b) report a family income over \$75,000/year versus under \$75,000/year ($\chi^2 (1, N = 405) = 6.12, p = .013, C = .122$; a small effect) (see Table 12 for frequency data).

Table 12.

Frequency of Marital Status and Family Income by Athletic Status

	Student-Athletes		Non-Athlete Students		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Parents' Marital Status ¹						
Married	256	87.4 _a	120	77.9 _b	376	84.1
Not married	37	12.6 _b	34	22.1 _a	71	15.9
Family Income/year ²						
Over \$75,000	213	80.1 _a	96	69.1 _b	309	76.3
Under \$75,000	53	19.9 _b	43	30.9 _a	96	23.7

¹ Based on $N = 447$; ² Based on $N = 405$. Subscripts indicate differences between groups. In each row, (a) is significantly greater than (b) at $p < .05$.

Psychosocial Comparison, covaried by
Parental and Peer Attachment

Because the current results indicated that parental and peer attachment styles were related to athletic status, the researcher chose to next, examine differences in psychosocial outcomes through a multivariate analysis of covariance (MANCOVA), with athletic status as the independent variable and parental and peer attachment as covariates. The results of this analysis indicated that, in general, the previously-reported statistically significant differences among varsity student-athletes, recreational student-athletes, and non-athlete students were no longer statistically significant: problem-solving ($F(2, 443) = 1.40, p = .249, \eta^2 = .006$) and depressive symptoms ($F(2, 443) = 1.41, p = .244, \eta^2 = .006$). Communication skill ($F(2, 443) = 0.63, p =$

.535, $\eta^2 = .003$), and identity development ($F(2, 443) = 0.23, p = .792, \eta^2 = .001$) remained non-significant. The only statistically significant findings that remained based on athletic status were for health maintenance ($F(2, 443) = 34.96, p < .001, \eta = .136$; a moderate effect), and hyper-competitiveness ($F(2, 443) = 18.88, p < .001, \eta = .079$; a small effect).

Based on these findings, the researcher examined parental and peer attachment as covariates of class year in its effect on psychosocial outcomes. Once again, there were no differences among class years on communication skill ($F(3, 442) = 1.90, p = .129, \eta^2 = .013$); problem-solving ($F(3, 442) = 0.99, p = .398, \eta^2 = .007$); health maintenance ($F(3, 442) = 0.45, p = .718, \eta^2 = .003$); identity development ($F(3, 442) = 2.07, p = .104, \eta^2 = .014$); hyper-competitiveness ($F(3, 442) = 1.30, p = .275, \eta^2 = .009$); and depressive symptoms ($F(3, 442) = 1.30, p = .275, \eta^2 = .009$).

Exploratory Analyses

Relationship between Academic Achievement and Psychosocial Outcomes

It was speculated that psychosocial outcomes might be related to grade point average (GPA) and/or standardized test scores (SAT-Math, SAT-Verbal). Therefore, a Pearson product moment correlation was performed. Also, because correlations among dependent variables were found to be different based on athletic status in a previous analysis, separate correlation matrices were performed for varsity student-athletes, recreational student-athletes, and non-athlete students.

For varsity student-athletes, the results indicated a statistically significant, small positive correlation coefficient between GPA and problem-solving ($r = .22, p = .017$), and statistically significant, small negative correlation coefficients between GPA and hyper-competitiveness ($r = -.29, p = .001$), and between SAT-Verbal and hyper-competitiveness ($r = -.25, p = .006$). In

contrast, for non-athlete students, SAT-Math and SAT-Verbal scores each shared a statistically significant, negative correlation coefficient with depressive symptoms ($r = -.28, p = .000$; $r = -.38, p < .001$; a small and moderate effect, respectively). Finally, for recreational student-athletes, GPA shared a statistically significant, moderate positive correlation coefficient with communication skill ($r = .36, p = .040$), and statistically significant, moderate negative correlation coefficients with hyper-competitiveness ($r = -.37, p = .036$) and depressive symptoms ($r = -.36, p = .040$); recreational student-athletes' SAT-Verbal scores also shared a statistically significant, large negative correlation coefficient with hyper-competitiveness ($r = -.56, p = .001$). No other correlations between measures of academic achievement and psychosocial outcomes were statistically significant (see Table 13 for a summary).

Academic Achievement Comparison by Athletic Status

The researcher was also interested to explore whether varsity student-athletes, recreational student-athletes, and non-athlete students differed on measures of academic achievement, including grade point average (GPA) and standardized test scores (SAT-Math, SAT-Verbal). Results of a one-way MANOVA indicated a statistically significant omnibus F -test for athletic status (Pillai's Trace = .11, $F(6, 462) = 4.29, p < .001, \eta^2 = .053$), and statistically Tukey's HSD comparison indicated that varsity student athletes ($M = 630, SD = 84.47$) reported significantly lower SAT-Verbal scores compared to both recreational student-athletes ($M = 680, SD = 61.84; d = -0.68, p = .005$) and non-athlete students ($M = 670, SD = 97.15; d = -0.44, p = .001$); these were moderate effects as well. As with GPA, there was no statistically significant difference in SAT-

Table 13.

Psychosocial Correlates of Academic Achievement

	Varsity Student-Athletes <i>n</i> = 116			Recreational Student-Athletes <i>n</i> = 33			Non-Athlete Students <i>n</i> = 86		
	GPA	SAT-Math	SAT-Verbal	GPA	SAT-Math	SAT-Verbal	GPA	SAT-Math	SAT-Verbal
Communication	.15	.16	.16	.36*	.27	.27	.01	-.16	.06
Problem Solving	.22*	.12	.04	.20	.03	.00	.17	-.07	.11
Health	.03	.03	.00	.04	-.29	-.10	.19	-.09	.06
Identity	.12	.12	.07	.21	.12	.11	.17	-.06	.15
Hyper-competition	-.29**	-.07	-.25**	-.36*	.24	-.56**	.02	-.03	-.07
Depression	.00	-.11	.03	-.36*	-.25	-.15	-.16	-.28**	-.38**

Note. Because of missing data for GPA and SAT scores, these correlations are based on *n* = 116 for varsity student-athletes, *n* = 33 for recreational student-athletes and *n* = 86 for non-athlete students. **p* < .05 ***p* < .01.

Verbal scores between recreational student-athletes and non-athlete students ($p = .844$). (see Table 14 for a comprehensive comparison). Tukey's HSD comparison indicated that varsity student athletes ($M = 630$, $SD = 84.47$) reported significantly lower SAT-Verbal scores compared to both recreational student-athletes ($M = 680$, $SD = 61.84$; $d = -0.68$, $p = .005$) and non-athlete students ($M = 670$, $SD = 97.15$; $d = -0.44$, $p = .001$); these were moderate effects as well. As with GPA, there was no statistically significant difference in SAT-Verbal scores between recreational student-athletes and non-athlete students ($p = .844$) (see Table 14 for a comprehensive comparison).

Psychosocial Comparisons by Activity Type and Time

Finally, the researcher was interested to explore differences in the self-reported psychosocial development between students who participate in non-NCAA activities versus NCAA athletics, as well as between those who commit a great deal of time (i.e., 16-20 hours or more per week) versus less time. Because NCAA athletic participation requires 16-20 hours a week, 16 hours was chosen as the dividing criteria for time.

A 2 (activity type: athletic vs. non-athletic) x 2 (time: less than 16 hours vs. 16-20 or more hours per week) two-way MANOVA was performed to assess main and interaction effects for activity type and time on communication skill, problem-solving, health maintenance, identity development, hyper-competitiveness, and depressive symptoms. Results of the MANOVA indicated that the interaction of activity type x time was not statistically significant (Pillai's Trace = 0.01, $F(6, 439) = 0.87$, $p = .518$, $\eta^2 = .012$). However, there was a statistically significant, moderate main effect for activity type (Pillai's Trace = 0.16, $F(6, 439) = 13.56$, $p < .001$, $\eta^2 = .156$), and a statistically significant, small main effect for time (Pillai's Trace = 0.03, $F(6, 439) = 2.51$, $p = .021$, $\eta^2 = .033$). Specifically, the MANOVA indicated a statistically significant,

Table 14.

Academic Achievement Comparison by Athletic Status

	Varsity Athletes		Recreational Athletes		Non-Athlete Students	
	<i>n</i> = 116		<i>n</i> = 33		<i>n</i> = 86	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
GPA	3.34 _b	0.44	3.54 _a	0.25	3.47	0.37
SAT-Verbal	630 _{bz}	84.47	680 _a	61.84	670 _y	97.15
SAT-Math	650	73.37	690	63.04	660	105.16

Note. Because of missing data for GPA and SAT scores, these correlations are based on $n = 116$ for varsity student-athletes, $n = 33$ for recreational student-athletes and $n = 86$ for non-athlete students. SAT scores are rounded to the nearest 10; GPA is rounded to the nearest 100th. Subscripts are utilized to indicate significant differences between means. Within any given row, (a) is greater than (b) and (y) is greater than (z).

moderate main effect for activity type on health maintenance ($F(1, 444) = 46.99, p < .001, \eta^2 = .096$), and a statistically significant, small main effect for activity type on communication skill ($F(1, 444) = 4.15, p = .042, \eta^2 = .009$); hyper-competitiveness ($F(1, 444) = 14.30, p < .001, \eta^2 = .031$); and depressive symptoms ($F(1, 444) = 6.53, p = .011, \eta^2 = .014$). There was a nearly significant main effect for activity type on problem-solving ($F(1, 444) = 3.85, p = .051, \eta^2 = .009$), and no significant main effect for activity type on identity development ($F(1, 444) = 2.74, p = .099, \eta^2 = .006$). Compared to the non-athletic activity group, the athletic activity group reported significantly greater communication skill ($d = 0.21$), problem-solving ($d = 0.20$), and health maintenance ($d = 0.14$); these were small effects. Students in the athletic activity group also reported significantly fewer depressive symptoms ($d = -0.36$), as well as significantly greater hyper-competitiveness ($d = 0.58$), both moderate effects. In addition, the MANOVA indicated a statistically significant, small main effect for time on health maintenance only ($F(1, 444) = 4.62,$

$p = .032, \eta^2 = .010$), such that students who spent more than 16 hours per week in their activity ($M = 66.74, SD = 6.09$) reported significantly greater health maintenance than students who spent less than 16 hours per week in their activity ($M = 61.97, SD = 7.18; d = 0.72, p = .032$). This was a large effect; but, of note, 235 of the 262 students in the 16+ hours per week group were varsity student-athletes. There was no statistically significant main effect for time on communication skill ($F(1, 444) = 0.40, p = .528, \eta^2 = .001$); problem-solving ($F(1, 444) = 0.37, p = .542, \eta^2 = .001$); identity development ($F(1, 444) = 0.33, p = .563, \eta^2 = .001$); hyper-competitiveness ($F(1, 444) = 1.97, p = .162, \eta^2 = .004$); or depressive symptoms ($F(1, 444) = 0.26, p = .613, \eta^2 = .001$) (see Table 15 for means and standard deviations).

Table 15.

Psychosocial Comparison by Activity Type and Time

	Athletic Activity					Non-Athletic Activity					
	16-20+ hours		< 16 hours		total	16-20+ hours		< 16 hours		total	
	<i>n</i> = 235		<i>n</i> = 67		<i>n</i> = 302	<i>n</i> = 27		<i>n</i> = 119		<i>n</i> = 146	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Communication	82.80	7.12	83.65	7.34	82.99 _a	81.23	6.86	81.52	7.14	81.47 _b	7.07
Problem-solving	73.48	7.41	74.76	8.37	73.77 ₁	72.15	8.21	72.11	8.82	72.12 ₂	8.68
Health*	67.35	5.77	65.11	6.05	66.86 _a	61.37	6.30	60.21	7.19	60.42 _b	7.03
Identity	67.43	6.35	66.71	6.16	67.27 ₁	65.83	5.87	65.61	6.81	65.65 ₂	6.63
Hyper-competitiveness	77.51	11.79	76.81	12.98	77.36 _a	73.09	12.95	69.41	12.77	70.08 _b	12.84
Depression	12.46	8.57	11.96	8.93	12.35 _a	14.30	6.36	15.95	10.16	15.64 _b	9.57

Note. Subscripts are utilized to indicate difference between means at $p < .05$. Comparing the “total” columns, (a) is significantly greater than (b). Also, (1) is greater than (2) at $p < .10$. *Significant difference for time, such that students who spend 16-20+ hours per week reported significantly greater health maintenance. This effect was driven by the fact that 235 of the 262 students were varsity student-athletes.

CHAPTER 4

DISCUSSION

The purpose of the current investigation was to examine (1) psychosocial development, and its inter-related aspects in a cross-sectional comparison between student-athletes and non-athlete students who were freshmen, sophomores, juniors, and seniors at Division I universities, (2) the relationship between student-athletes' athletic identity, general identity development, and hyper-competitiveness, as well as differences in college student-athletes' athletic identity based on class year, (3) the interaction of athletic status, race, and gender on college students' psychosocial development, (4) differences in college students' psychosocial development based their perceived parental and peer attachment styles, and (5) the way in which gender, race, class year, athletic status, parental and peer attachment, and depressive symptoms contribute to college students' overall psychosocial development.

Results indicated that differences in psychosocial outcomes between varsity student-athletes, recreational student-athletes, and non-athlete students were largely related to co-variation in parental and peer attachment patterns, as well as depressive symptoms. Nevertheless, the finding that student-athletes scored significantly higher than their non-athlete counterparts on measures of health maintenance and hyper-competitiveness did appear to be related to their athletic status. In addition, the results indicated that within the varsity student-athlete group, being highly-identified (i.e., one standard deviation above the varsity student-athletes' mean AIMS score) was associated with specific psychosocial challenges including significantly poorer general identity development and significantly greater hyper-competitiveness. Furthermore, males, in general, reported greater hyper-competitiveness than female students. Also, among all students, parental and peer attachment were indicated as strong predictors of students' overall psychosocial

development, while class year was non-predictive, and largely unrelated to students' self-reported psychosocial development.

Relationships Among Variables

As predicted, statistically significant large positive relationships were found among communication skill, problem-solving, health maintenance, and identity development for the entire sample (r 's = .53 to .76). Also as predicted, statistically significant moderate to large positive relationships were found between each of these four psychosocial outcomes and parental (r 's = .24 to .40) and peer (r 's = .31 to .56) attachment for the entire sample. Finally, statistically significant moderate to large negative relationships were found between each of these four psychosocial outcomes and depressive symptoms (r 's = -.29 to -.57) for the entire sample.

Overall, these correlation analyses suggests that college students with greater psychosocial development in one area have greater psychosocial development in other areas. These results support previous studies that have indicated positive associations among multiple aspects of college students' development (Astin, 1993; King, 1994; Pascarella & Terenzini, 2005). In addition, the currently indicated inverse relationships between depressive symptoms and positive psychosocial outcomes add, by association, to research that has indicated positive relationships between depressive symptoms and adjustment problems including academic difficulty, relationship problems, stress and anxiety, drug and alcohol use, disordered eating, and physical ailments (Benton, et al., 2003; Grayson, 2006). Finally, these correlations evidence preliminary support for one tenet of Chickering and Reisser's (1993) seven vectors of college student development, specifically that progress in one psychosocial skill should relate to progress in other psychosocial skills.

Group Comparisons

Athletic Status and Parental & Peer Attachment

Results of a multivariate analysis indicated (a) significantly greater health maintenance among varsity and recreational student-athletes compared to non-athlete students, (b) significantly fewer depressive symptoms among varsity and recreational student-athletes compared to non-athlete students, and (c) significantly greater hyper-competitiveness among varsity and recreational student-athletes compared to non-athlete students. Except for the finding that varsity student-athletes reported greater health maintenance (a predicted psychosocial strength) and greater hyper-competitiveness (a predicted psychosocial challenge), the results did not support the researcher's hypothesis.

The analyses regarding parental and peer attachment shed light on these unpredicted findings. For instance, multivariate analyses that compared psychosocial outcomes based on parental and peer attachment styles indicated that, regardless of athletic status, college students with secure parental and peer attachments reported significantly greater communication skill, problem-solving, health maintenance, and identity development, as well as fewer depressive symptoms compared to students with non-secure parental and non-secure peer attachments. Specifically, significant differences were indicated between all three levels of parental attachment style (i.e., secure attachment to both parents; secure attachment to one parents; secure attachment to neither parent), and the large effect sizes for the differences between students with both secure attachments versus no secure attachments appeared to carry the most practical significance (see Table 11). These findings support previous research that has indicated a significant positive impact of secure parental and peer attachments on college students' adjustment and development (Mattanhan et al., 2004; Laible et al., 2000; McCarthy et al., 2001; Rice et al. 1995; Sun et al., 2000). Furthermore, in the context of the current hypotheses, it is relevant to note that these

findings suggest that variation in students' psychosocial development is more closely associated with their perceived parental and peer attachment than with their athletic status.

Interestingly, though, a series of chi-square analyses produced small, but statistically significant findings, which indicated that athletic status was confounded with parental and peer attachment, as well as with parents' marital status and family income (see Tables 11 and 12 for a summary), and prompted the researcher to examine parental and peer attachment as covariates of athletic status. In this multivariate analysis of variance in psychosocial outcomes, statistically significant psychosocial differences were indicated for greater health maintenance and greater hyper-competitiveness among varsity and recreational student-athletes, with small to moderate effect sizes. This particular psychosocial strength and psychosocial challenge were each an expected and logical finding given that student-athletes devote a great deal of time and energy to developing physical strength and endurance that will facilitate victory in competition. Therefore, while athletic status may be a primary factor influencing outcomes such as students' health-related lifestyle practices and competitive attitude, the data indicated that parental and peer attachment are important factors in students psychosocial development regarding communication skill, problem-solving, identity development, and depressive symptoms. While this finding has not been previously established for the college student-athlete population in particular, it is consistent with the literature regarding college student attachment and development (Mattanhan et al., 2004; Laible et al., 2000; McCarthy et al., 2001; Rice et al. 1995; Sun et al., 2000).

The reason student-athletes were more likely than non-athlete students to report secure parental and peer attachments cannot be determined based on the data collected. Still, the finding is noteworthy, and several possible explanations exist. For instance, it could be that varsity student-athletes are more likely to report secure parental attachments because even though they are away from their parents, they experience the presence of another attachment figure – their

coach. As a point of comparison, students who do not participate in extra-curricular activities, or those who participate in student-run activities, may have fewer opportunities to develop a close relationship with a parental figure similar to the relationship an athlete may develop with his or her coach. Therefore, the transference of a secure relationship may support student-athletes' attachment needs in a way that students who do not have a similar attachment figure cannot experience when they are away from home.

Another possible explanation is that participating in athletic activity may actually facilitate the development of secure parental attachment during childhood. As children enter sport culture and become increasingly competitive, they rely on their parents to provide not only equipment and transportation, but also emotional, and sometimes tactical, support. Parents of athletes may be athletic themselves, and they may have played the same sport that their child plays. Therefore, sport may offer the parent and child multiple opportunities for strong, shared experiences, thereby facilitating a secure attachment and subsequently, the child's positive psychosocial development. This possibility, as well as the possibility that college student-athletes' secure attachments are reactivated and enhanced by their relationships with their coaches, are interesting and important avenues for future research, discussed further below.

Athletic Status and Athletic Identity

In addition to finding that athletic status was confounded with students' reports of secure parental attachment, results from the analyses regarding student-athletes' athletic identity provided a more nuanced account of psychosocial development within the varsity student-athlete group. In brief: (a) an analysis of variance in athletic identity across the four class years indicated greater athletic identity among upperclassmen compared to underclassmen; (b) results from a multivariate analysis and a point biserial correlation including athletic identity, general identity development, and hyper-competitiveness supported the researcher's prediction regarding general

identity development (a small effect) and hyper-competitiveness (a large effect) as specific psychosocial challenges for highly-identified compared to lowly-identified varsity student-athletes; (c) separate correlational analyses among varsity student-athletes and non-athlete students indicated hyper-competitiveness as a negative correlate of psychosocial development, peer attachment, and academic achievement for student-athletes, but not for non-athlete students; and finally (d) a multivariate analysis supported the prediction that females would have greater psychosocial development than males.

Athletic Identity and Class Year Comparison. The current results indicated a moderate effect for significantly greater athletic identity among junior compared to freshmen varsity student-athletes. These results support the researcher's hypothesis, and previous research, which has indicated that as student-athletes become more experienced in their sport (i.e., as they play more years), they become more highly-identified with their athlete roles (Visek & Watson, 2005).

High and Low Athletic Identity. In addition, highly-identified varsity student-athletes reported significantly poorer general identity development and significantly greater hyper-competitiveness than lowly-identified varsity student-athletes. They did not differ, positively or negatively though, from their lowly-identified counterparts in terms of communication skill, problem-solving, or health maintenance. These results suggest that participation in intercollegiate athletics is not necessarily related to psychosocial deficits or delays, but being highly-identified as a varsity student-athlete may be associated with specific challenges. In particular, when an athletic identifies very strongly with his/her athletic identity, s/he may have difficulty with the development of alternative aspects of his/her identity. This finding supports previous research that has indicated that highly-identified student-athletes are more vulnerable to identity foreclosure, and therefore less likely to advance their psychosocial development through exploring other possible roles and identities (Brown et al., 2000; Chartrand & Lent, 1987; Good

et al. 1993; Miller & Kerr, 2003; Murphy, et al., 1996; Pearson & Petipas, 1990). Because these student-athletes with high athletic identity also reported greater hyper-competitiveness, they may have additional difficulty transitioning out of their athlete role and into new roles in which they are less experienced and proficient.

Psychosocial Correlates by Athletic Status. In fact, the correlational analyses including the six psychosocial outcomes, as well as parent and peer attachment scores, for all student-athletes (not only the highly- and lowly-identified ones) provided support for the potential negative impact of hyper-competitiveness on multiple aspects of student-athletes' development. Results indicated that hyper-competitiveness shared statistically significant small to moderate negative relationships not only with communication skill, problem-solving, health maintenance, and identity development, but also with peer attachment (r 's = -.13 to -.27). Interestingly, these correlations were not significant for non-athlete students. This may be due to the finding that student-athletes reported significantly greater hyper-competitiveness than non-athlete students, and at higher levels, hyper-competitiveness may have increasingly negative implications for students' psychosocial development.

Similarly, the exploratory correlational analysis between psychosocial outcomes and measures of academic achievement indicated different results based on athletic status. In particular, small to moderate effect sizes were indicated for the inverse relationship between hyper-competitiveness and academic achievement for varsity student-athletes (HCA with GPA, $r = -.29$; HCA with SAT-Verbal, $r = -.25$), while for non-athlete students, the relationship between hyper-competitiveness and academic achievement was not statistically significant. In addition, moderate effect sizes were indicated for the inverse relationship between depressive symptoms and academic achievement for non-athlete students (CES-D with SAT-Math, $r = -.28$; CES-D with SAT-Verbal, $r = -.38$), but the relationship between depressive symptoms and academic

achievement for varsity student-athletes was not statistically significant. For recreational student-athletes, two measures of academic achievement, SAT-Verbal and GPA, were negatively associated with hyper-competitiveness and depression, respectively (r 's = $-.58$ and $-.31$), with moderate to large effect sizes.

The fact that hyper-competitiveness was significantly and negatively correlated with psychosocial outcomes and measures of academic achievement for varsity and student-athletes, and not for non-athlete students, supports the researcher's prediction that varsity student-athletes and non-athlete students experience differences in their psychosocial development. While the researcher did not predict this particular difference, it is not a surprising finding. For instance, as mentioned above, it could be that, as a group, varsity student-athletes tend to be more hyper-competitive than non-athlete students, which the data indicated was true. At higher levels, hyper-competitiveness may have increasingly negative effects on psychosocial development. This notion was originally proposed by Horney (1937), and has been supported by research that has indicated that hyper-competitiveness is directly associated with aspects of intra- and interpersonal development, including lower self-esteem and depressed psychological health (Ryckman et al., 1990), lower positive self-regard (Ryska, 2003), interpersonal conflict (Ryckman et al., 2002), and lack of social concern (Dru, 2003). Of note, it is not possible to determine whether varsity student-athletes are more hyper-competitive because they play competitive sport, or if these student chose to play competitive sport because they are, by nature, hyper-competitive individuals.

Also notable are the findings that among recreational student-athletes and non-athlete students, academic achievement was significantly and negatively correlated with depressive symptoms, and among varsity student-athletes, academic achievement and depressive symptoms were not significantly related. It seems possible that poorer academic achievement (as observed in

the GPA and SAT-Math scores among the varsity student-athletes compared to recreational student-athletes and non-athlete students in this sample) may not have a negative impact on varsity student-athletes' mood because their dedication to athletic competition may provide them with an alternative sense of accomplishment and purpose. It could be that if varsity student-athletes are primarily focused on athletics, they may be less concerned about the way in which their academic performance may affect them in the future. This belief has been proposed previously in the literature (Brown et al., 2000; Pearson & Petipas, 1990). Conversely, non-athlete students, who are more focused on career development (Martens & Cox, 2000), may be more vulnerable to depressed mood if they feel they are not performing well-enough academically to meet their future career goals.

Gender comparison. The multivariate analysis indicated a significant main effect for gender on hyper-competitiveness, such that males reported significantly greater hyper-competitiveness than females, with a moderate effect size. This gender difference in hyper-competitiveness has been reported previously in the literature (Ryckman et al., 2002). Moreover, given the previous finding that male athletes who demonstrate their masculinity through aggression (a key element of hyper-competitive attitude) often gain recognition and status (Pappas, McKenry, & Cartlett, 2004), it makes sense that male students, and male student-athletes in particular, would be more hyper-competitive due to the perceived social rewards associated with this type of attitude and behavior. In addition, it is intuitive that female students would report lower hyper-competitiveness than male students, given that interpersonal relationships and the ethic of care have been indicated as important factors in females' psychosocial development (Gilligan, 1982, Josselson, 1987). Perhaps this interpersonal strength also serves to buffer females' feelings of depression. Notably, in the current sample, there was no difference between males' and females' depressive symptoms. This contradicts previous research

indicating that females have higher depression and anxiety (Lopez & Gormley, 2002; Vivona, 2000), more fragile self-concepts (Armsden & Greenberg, 1987), and poorer overall self-image (O’Koon, 1997). The current findings are congruent with another study’s results, which found no gender differences in undergraduates’ depressive symptoms (Grant, et al., 2002). This consistency in self-reported depressive symptoms among males and females may be unique to the college student population and should be researched further.

In summary, the statistical analyses indicated that, compared to non-athlete students varsity and recreational student-athletes reported significantly greater health maintenance and significantly greater hyper-competitiveness, as well as significantly fewer depressive symptoms. By analyzing differences in psychosocial outcomes among student-athletes based on athletic identity, class year, and gender, the researcher was able to determine that (a) varsity student-athletes in their junior year reported greater athletic identity than those in their freshmen year; (b) being highly-identified as a varsity student-athlete was associated with poorer identity development and greater hyper-competitiveness; and (c) males reported greater hyper-competitiveness than females.

Predicting Psychosocial Outcomes

Based on the strong statistical support for the role of parental and peer attachment in students’ psychosocial development in the current investigation and in previous research (Mattanhan et al., 2004; McCarthy et al., 2001), it was not surprising that the results of the regression analysis indicated these attachment factors as a statistically significant positive predictors of college students’ overall psychosocial development. The full model, which included depressive symptoms as the strongest (negative) predictor, followed by peer attachment, father attachment, mother attachment, and finally varsity athletic status, accounted for 42.8% of the variance in students’ psychosocial development, proving to be a strong model.

As mentioned in the literature review, depressive symptoms can be a cause or a consequence of psychosocial struggles. Here, depressive symptoms functioned as a strong negative predictor, such that fewer depressive symptoms predicted greater psychosocial development. This is certainly a logical finding since students with more positive mood and less depression are likely to have more energy and motivation to work through tasks related to their overall psychosocial development.

The prominent role of peer attachment in the model is also noteworthy and logical. Since college students live among their peers, it would seem that during college, peers exert an increasing amount of influence on each other, while parental influence may decline. Indeed, this pattern has been suggested by previous research (Laible et al., 2000). Considering that parental attachment serves as the foundation from which students build new relationships (Benson et al., 2006; Meeus et al., 2002), the moderate positive impact of parental attachment on psychosocial development (as highlighted in the preceding discussion, as well as in the results of the current regression) was also reflected through the strong and positive impact of peer attachment in the current regression model. Finally, the minor role of varsity athletic status in this model is notable, as this factor was confounded with parental and peer attachment.

Participation in Athletic or Other Extra-curricular Activities

An exploratory analysis was pursued in order to analyze psychosocial differences between student-athletes and non-athletes one step further. The researcher was interested in exploring whether the differences in self-reported psychosocial development between varsity student-athletes and non-athletes might be a function of (a) participation in athletics versus participation in non-athletic extra-curricular activity and/or (b) devoting a great deal of time (i.e., 16-20 or more hours per week) versus less time (i.e., less than 16 hours per week) to extra-

curricular activity. The analysis of variance indicated that students who participated in athletic versus non-athletic activity reported greater psychosocial development (i.e., greater communication skill, problem-solving, health maintenance, and identity development, as well as fewer depressive symptoms). There was also a small effect for time, but only for health maintenance. This confirmed the previous, logical and expected finding that varsity student-athletes reported greater health maintenance than student who are less, or not at all, involved in athletic activity. These findings suggest that the psychosocial benefits observed among student-athletes may be specific to the athletic nature of their extra-curricular involvement.

It is important to recognize unique psychosocial challenges that student-athletes may face due to their athletic status so that coaches, counselors, and parents can better predict and serve their special needs. Equally relevant are results of this investigation that suggest unique benefits that student-athletes may experience.

Cross Sectional Class Year Comparison

This review of the current investigation's results is not complete without attention to the cross-sectional class year comparison. As mentioned at the beginning of the discussion, the inter-correlations among the six psychosocial outcomes provided support for Chickering and Reisser's (1993) seven vectors of college student development by indicating that progress in one psychosocial skill is related to progress in other psychosocial skills. However, the cross-sectional class year comparison did not support the researcher's hypothesis based on developmental trajectory proposed by Chickering and Reisser. Specifically, upperclassmen did not report greater psychosocial development than underclassmen. In fact, the current data indicated no significant differences between freshmen, sophomores, juniors, and seniors on four of the six psychosocial outcome variables: communication skill, problem-solving, health maintenance, and hyper-competitiveness. In addition, the significant difference in identity development, and nearly-

significant difference in depressive symptoms, had small effects, which were nullified after accounting for parental and peer attachment. Notably, there was also no interaction to suggest that class year might have impacted psychosocial outcomes among student-athletes and non-athlete students differently.

The fact that there were unremarkable cross-class differences in psychosocial development does not indicate that the current findings are inconsistent with previous research, either cross-sectional or longitudinal, that has indicated positive development among students during their undergraduate years (Astin, 1993; Flowers, 2002a; Jones & Watt, 2001; Pascarella & Terenzini, 2005; Taub & McEwen, 1991; Zuschlag & Whitbourne, 1994). For one, the cross-sectional nature of the current investigation precludes the claim that students in this sample have not developed over time. Additionally, the fact that the mean scores for psychosocial development among current sample were consistent with, and in the case of the LSDI-CF, greater than, means reported in the literature (for LSDI-CF, Picklesimer & Miller, 1998; for HCA, Ryckman et al., 1990; Ryska, 2002; for CES-D, Radloff, 1991; Armstrong, 2007) may suggest these students have adequately developed psychosocial skills. In particular, the current student-athletes and non-athlete students reported markedly greater health maintenance scores than those reported by Picklesimer and Miller (1998). Furthermore, freshmen's, sophomores', juniors', and seniors' mean scores for communication skill, problem-solving, and identity development were all closer to the means reported by Picklesimer and Miller (1998) for individuals 23 years or older than for those in their respective class years.

The differences in the pattern of results indicated for the current and previous studies may be due to differences in the samples' characteristics. For instance, Flowers (2002a), Taub and McEwen (1991), and Picklesimer and Miller (1998) sampled participants from large, public universities, while the vast majority (93.5%) of the current sample comprised students from

private, elite universities. Thus, students in the current sample may represent a highly-educated and motivated group of students who may already have a greater sense of themselves and their future paths. In particular, these students may enter college with a greater sense of confidence, self-efficacy, and psychosocial well-being, either a cause of and/or consequence of their admission to an elite educational institution. This may explain the greater identity development and fewer depressive symptoms reported by college freshmen in the current sample.

Even though the data did not support the researcher's hypothesis regarding differences in psychosocial development based on class year, we cannot, due to the cross-sectional nature of the investigation, refute Chickering and Reisser's (1993) developmental model. Moreover, based the current sample's seemingly high LSDI-CF scores, it may be that these students are, in fact, focusing on and working through various developmental tasks, as proposed by Medalie (1981), Chickering and Reisser (1993), and Arnett (2000).

Limitations

This study was limited by one methodological factor – its cross-sectional, correlational design. As mentioned, the cross-sectional design limits the researcher's ability to delineate a cohort effect from a developmental conclusion. For example, it cannot be assumed that the seniors in this study have not progressed psychosocially simply because they did not score significantly higher than freshmen scored on the measures of psychosocial development. In order to draw that conclusion, the researcher would have had to collect longitudinal data, on a yearly basis, over students' undergraduate careers.

Attrition among college students presents another limitation to drawing conclusions about development in cross-sectional research. If we consider that some of the less resilient (i.e., academically and/or psychosocially) students drop out of college, then in a cross-sectional study, the senior cohort may evidence higher mean scores due to the fact that weaker students dropped

out sometime during their college career. In the case of this investigation, it is also important to recognize that some varsity student-athletes may have become recreational student-athletes or non-athlete students due to factors such as injury, ineligibility, or personal choice. Even though the universities from which the sample was recruited have relatively high 4-year graduation rates (greater than 75%, and as high as 94%, for both varsity student-athletes and non-athlete students), the impossibility of accounting for students who dropped out, transferred, or discontinued their athletic participation is a limitation in the current methodology.

The sample that was recruited for this study presents some limitations as well. While the varsity student-athlete group represented 13 different sports, only one of the student-athletes was a member of a Division I team that would be considered a “revenue-producing” program. As a result, there was not sufficient data to analyze the proposed differences between the psychosocial development of varsity student-athletes competing in revenue- versus non-revenue-producing sports.

Another sample-related limitation is its racial and geographic diversity. Although the demographic composition of the current sample was comparable to the demographic composition of the institutions from which the students were recruited, the race analyses did not generate adequate power to provide meaningful results.

Finally, since all the participants were recruited from four universities in a highly metropolitan area of the Mid-Atlantic region of the country, the results do not necessarily generalize to college student populations at other universities, in other regions of the United States, or in other countries.

Implications and Future Directions

The results of the current investigation have both specific and broad implications that can inform and/or affect sport scientists and psychology researchers conducting future investigations,

professionals who practice in sport psychology and college mental health, and individuals who are investing their time, energy, and sense of self in athletics.

Research

Future research should be designed to address the findings that students in the current sample (a) exhibited similarly above average scores on the Life Skills Development Inventory – College Form (Picklesimer & Miller, 1998) and (b) did not exhibit varying levels of psychosocial development according to their class year. For instance, researchers could examine the specificity and sensitivity with which the LSDI-CF is measuring psychosocial skills among college students of different class years. If this scale is unable to assess differences from one year to the next, the psychometric properties may need to be revised and tested further.

Because our sample comprised students from private, elite institutions, future research might seek to compare self-reported psychosocial skills among students who attend different types of undergraduate institutions, i.e., private versus public, elite versus non-elite, small liberal arts colleges versus large state schools, 2-year, junior, or community colleges versus traditional 4-year institutions. Longitudinal research might focus on examining if there are differences in the developmental trajectories of students who attend these different types of institutions in order to strengthen any claims about psychosocial development, or lack thereof. In light of potential results that fail to indicate development over time, it might be interesting to address the possibility that this pattern is the result of changes in social norms as suggested by Arnett (2000). Specifically, his theory suggests that, in industrialized cultures where, individuals of college age and older (late teens to late twenties), are afforded a prolonged stage of identity exploration. Because they are rarely expected to get married, start a family, and establish a career upon graduating from college, they do not have to master these psychosocial issues during their undergraduate career; instead, they can take a longer time to commit to major life decisions.

Perhaps future research could be designed to compare the results of these proposed, future studies with the bodies of research from other decades in order to identify the way in which specific political, societal, and environmental circumstances influence the theories and models of college student psychosocial development, as well as the ways in which they influence students' perceptions of their own psychosocial development.

For instance, it would be interesting to examine whether the strong, positive impact of secure parental attachment, as observed in the current study, would be lessened at a time when college students' job prospects were more promising. It seems that perceived security in the parental relationship might be particularly comforting and influential to college students who are feel anxious about separating and individuating during an economic crisis such as the current one. In other words, a secure parental attachment may, as theorized, encourage students' independent exploration and development, while simultaneously reassuring students that they do not have to make it on their own. At a time when college students' job prospects are poor, parental security could exert stronger influence on students' perceptions of themselves. However, it seems that parental security may be less important in students' developmental processes at a time when there is more security in the economy. If a student feels confident that s/he can gain employment and financial independence after graduation, s/he may focus less on the security offered by his/her parent and more on his/her own self-sufficiency.

Finally, future research efforts should prioritize recruitment of college student participants from various racial and ethnic backgrounds. These studies should focus specifically on race and ethnicity as factors in college students, and college student-athletes', development. For example, a study might examine the development of minority students who engage in athletic activity with primarily other minority students (thereby creating an environment that is more like a historically-black institution) compared to those who engage in athletic activity with

mostly other White students, and/or compared to those who engage with a racially diverse group of students. Research should be designed so that the results assist college administrators in designing and recommending the types of activities that may be most likely to facilitate minority students' psychosocial development in the context of a predominantly White institution.

Applied Practice

Based on the results of this investigation, coaches, trainers, and athletic department staff should understand that during their student-athletes' college careers, some student-athletes may need more help than others with developmental and adjustment issues. For instance, a freshmen or sophomore student-athlete who is motivated academically and talks about interests outside of sport may adjust to the life of a student-athlete more easily, whereas a student-athlete who exhibits a hyper-competitive attitude and has a very strong identification with the athlete role may have more difficulty managing dual roles, exploring other possible identities, and transitioning out of sport. Moreover, it is particularly important for coaches to recognize that hyper-competitive, highly-identified student-athletes may not present with depressed mood or appear to be struggling. Therefore, it is essential that they ask questions and encourage their student-athletes to seek holistic mentoring and counseling that supports their overall development and psychosocial well-being.

Naturally, these results have implications for mental health professionals who work with college student-athletes as well. For instance, while the analysis of psychosocial outcomes among highly- and lowly-identified student-athletes confirmed a phenomenon that was previously understood – that highly-identified varsity student-athletes are vulnerable to over-identification with the athlete role and under-identification with other roles – the current results suggest not only *which* student-athletes might be more vulnerable to high athletic identity (i.e., juniors), but also, a plausible reason *why* this may be the case – i.e., that because highly-identified student-

athletes are likely to be hyper-competitive, this hyper-competitive attitude may make their transition out of sport and into a new role additionally challenging. Health professionals may use this knowledge to inform not only their intervention strategies, but also their empathic stance, when working with student-athletes.

The group comparisons based on parental attachment may also provide professionals who work with college students and college student-athletes insight into their students' developmental strengths and challenges. For instance, based on the results that indicated greater psychosocial development among students with secure attachments, it seems that a skills-based, psycho-education group or process-oriented group therapy (a form of therapy that uses the group format to help participants better understand themselves in relation to others) may have the potential to benefit the psychosocial development of student-athletes and non-athlete students alike. In particular, students who have insecure parental attachments could learn, in the context of group therapy, to build trust and communication in relationships. However, given the counseling centers have limited staff and resources, it may be worthwhile for universities to focus on the use of faculty and/or peer mentoring as an essential, and perhaps required, component of students' undergraduate experience.

Students and Society

The current empirical investigation may be particularly timely as well, in light of a recent article in *The New York Times* by Jane Brody entitled "For Children in Sports, a Breaking Point," in which Mark Hyman, author of the book Until it Hurts: America's Obsession with Youth Sports and How It Harms Our Kids, reflects on his own experience as the father of a talented teenage athlete, and seems to place part of the blame on parents for being over-involved and for putting too much pressure on their children to obtain a college scholarship or make the Olympic team. This may be true for the highly elite athletes, but it is worth mentioning that Mr. Hyman's

suggestion seems inconsistent with the current findings that student-athletes tended to perceive their relationships with their parents as “secure” – characterized by high degrees of communication and trust, and low degrees of alienation. Thus, as discussed earlier, the study of parent-athlete relationships and their impact on various dimensions of the athletes’ development seems to be an area that is rich with possibilities for future research. For instance, future investigations could study the processes and conditions by which a young athlete’s sport participation may facilitate parental roles that are supportive and encouraging versus over-involved and demanding. In particular, such research should consider, as a variable, the level at which the student-athlete aims to complete. Furthermore, because coaches and teammates, along with parents, act as the student-athlete’s primary socializing agents within sport culture, future researchers may choose to study the quality and impact of student-athletes’ relationships with their coaches and teammates as well.

Finally, future studies on college student development and adjustment among student-athletes and non-athlete students should build on the limitations of the current investigation by aiming to recruit samples that include a wider variety of sports, greater ethnic and racial diversity, and more geographic locations in order to increase the scope and generalizability of the findings.

APPENDIX A

RECRUITMENT COMMUNICATION WITH ATHLETIC
DEPARTMENT COACHES

Dear Coach _____,

I am writing to ask your support for an empirical study, which I am conducting for my dissertation in Clinical Psychology at American University. This study is designed to explore how students adjust to life at college. I am particularly interested in the development of identity as well as in the development of practical life skills among the college student-athlete population.

I would like to ask for 30 minutes of your team's time, during which I would meet with the players, describe the study and its procedures, and give them the choice to participate. If any players agree to participate, they would be asked to complete the study's consent form and questionnaires at that time. If any players decline to participate, they would be free to leave. If the majority of your players agree, I would be pleased to facilitate a 30-minute workshop on a topic in sport psychology for the whole team in compensation for everyone's time and effort. We would, of course, arrange this workshop at a time that is convenient for you and the team.

The study's protocol will ensure that participants understand the nature of the study, as well as their rights, summarized below for your reference:

1. Their participation is voluntary, and they are free to withdraw participation at any time without question or penalty.
2. Although unlikely, some participants may have trouble answering some questions, and therefore they are free not to answer any question they wish not to answer. There are no physical risks involved in this study.
3. Participating in this study may help them gain a better understanding of themselves and their college experience, and this increased self-awareness may have positive implications for their development throughout life. They will also have the opportunity to learn about issues in sport psychology through the offered workshop.
4. Their collective participation will help to advance research in the field of sport psychology.
5. Study records will be kept confidential. Their names will not be attached to their data, and only aggregate data will be reported.

Please consider this opportunity to help advance important research that may have implications for the health and well-being of college student-athletes, like those on your team. If you are

interested and/or have any questions, please do not hesitate to call or e-mail me at your earliest convenience. I can be reached at any of the following: 773-960-0411, 202-758-2380, or sskopek@gmail.com.

APPENDIX B

RECRUITMENT COMMUNICATION WITH ACADEMIC
DEPARTMENT PROFESSORS

Dear Professor _____,

I am writing to ask your support for an empirical study, which I am conducting for my dissertation in Clinical Psychology at American University under the direction of Dr. Carol S. Weissbrod. This study is designed to explore how students adjust to life at college. I am particularly interested in the development of identity as well as in the development of practical life skills among the college student population.

I would like to ask for 30 minutes of your class time, during which I would meet with the students, describe the study and its procedures, and give them the choice to participate. If any students agree to participate, they would be asked to complete the study's consent form and questionnaires at that time (given that we are able to find a day on which that would not significantly disrupt the syllabus). If any students decline to participate, they could either stay in the room and wait, or they could leave and come back when the participants are finished. We could also discuss an alternative arrangement. For example, if it is not possible to take 30 minutes out of your class time, which I definitely understand, I could come in towards the end of class one day, describe the study and its procedures to the students, and then ask guide interested students through the protocol.

The study's protocol will ensure that participants understand the nature of the study, as well as their rights, summarized below for your reference:

1. Their participation is voluntary, and they are free to withdraw participation at any time without question or penalty.
2. Although unlikely, some participants may have trouble answering some questions, and therefore they are free not to answer any question they wish not to answer. There are no physical risks involved in this study.
3. Participating in this study may help them gain a better understanding of themselves and their college experience, and this increased self-awareness may have positive implications for their development throughout life. They can also opt to have their name entered in a raffle drawing for cash prizes.
4. Their collective participation will help to advance research in the field of college student development.
5. Study records will be kept confidential. Their names will not be attached to their data and only aggregate data will be reported.

Please consider this opportunity to help advance important research that may have implications for the health and well-being of college students, like those in your class. If you are interested and/or have any questions, please do not hesitate to call me at your earliest convenience. I can be reached on at any of the following: 773-960-0411, 202-758-2380, or sskopek@gmail.com.

Thank you for your time and consideration of my request. I look forward to hearing from you soon.

APPENDIX C

RECRUITMENT COMMUNICATION VIA E-MAIL AND
ELECTRONIC ADVERTISEMENT

Dear Student-Athlete,

This is an opportunity for you to help advance important research in the field of college student-athlete's health and well-being. Your participation will only take about 20-30 minutes, and if members from your team participate, I would be happy to offer your team a workshop on a topic in sport psychology that is of collective interest.

Please consider this opportunity to help out! If you are willing to participate and/or have any questions, please contact me at sskopek@gmail.com.

Sincerely,

Sarah Skopek Kohlstedt, M.A.
Ph.D. Candidate, Clinical Psychology
American University

Note: *The study's protocol ensures that participants understand the nature of the study, as well as their rights, summarized below:*

- 1. Participation is voluntary, and participants are free to withdraw from the study at any time without question or penalty.*
- 2. Although unlikely, some participants may have trouble answering some questions, and therefore they are free not to answer any question they wish not to answer. There are no physical risks involved in this study.*
- 3. Participating in this study may help participants gain a better understanding of themselves and their college experience, and this increased self-awareness may have positive implications for their development throughout life.*
- 4. The collective participation will help to advance research in the field of college student health and well-being.*
- 5. Study records will be kept confidential. Participant names will not be attached to their data and only aggregate data will be reported.*

Dear Student

This is an opportunity for you to help advance important research in the field of college students' health and well-being. Your participation will only take about 20-30 minutes, and in return, you will have the chance to enter a raffle for a prize of \$50 cash!

If you are interested and/or have any questions, please contact me at sskopek@gmail.com.

Sincerely,

Sarah Skopek Kohlstedt, M.A.
Ph.D. Candidate, Clinical Psychology
American University

Note: The study's protocol ensures *that participants understand the nature of the study, as well as their rights, summarized below:*

- 1. Participation is voluntary, and participants are free to withdraw from the study at any time without question or penalty.*
- 2. Although unlikely, some participants may have trouble answering some questions, and therefore they are free not to answer any question they wish not to answer. There are no physical risks involved in this study.*
- 3. Participating in this study may help participants gain a better understanding of themselves and their college experience, and this increased self-awareness may have positive implications for their development throughout life.*
- 4. The collective participation will help to advance research in the field of college student health and well-being.*
- 5. Study records will be kept confidential. Participant names will not be attached to their data and only aggregate data will be reported*

APPENDIX D

COVER SHEET

As compensation for your time and effort today, you can choose to participate in a raffle drawing for one of six \$50 prizes. If you would like to opt in, write your e-mail address clearly on the line provided. You will be notified in a few months via e-mail if you are one of the winners.

If you do choose to participate in the raffle by providing your e-mail address, please know that this sheet will be kept separate from your survey data to ensure confidentiality. If you have any questions, feel free to ask the research administrator at this time, or contact the research coordinator, whose information is below.

Your e-mail address: _____

Sarah Skopek Kohlstedt
Research Coordinator
Tel: 773-960-0411
E-mail: sskopek@gmail.com

APPENDIX E

INFORMED CONSENT

Dear Participant,

Purpose: The Sport and Exercise research group in the Department of Psychology at American University is conducting a study to explore how students adjust to life at college. We are particularly interested in the development of identity as well as in the development of practical life skills, and how these factors may be affected by interpersonal relationships.

Your Participation: Participation will involve completing several surveys including questions about your personal and family background, your college activities, your practical life-skills, your parental relations, your attitude about competition, and your mood. Participation in this study will take approximately 20-30 minutes of your time. You must be a full-time student at a Division I college or university. You must be at least 18 years of age to participate in this study.

Your participation is voluntary. Although your college, university, and/or department may have advertised this study, your participation is entirely voluntary. If you know you do not wish to participate at this time, please feel free to stop here. If you are still interested in participating, read the rest of this form, which includes more details about the study. If you decide to read on, but wish to stop at any point, you are free to do so without question or penalty. Your withdrawal from the study will also not affect the compensation stated below.

Risks: Although unlikely, there is a small chance that through answering questions about your sense of identity, life-skills, and interpersonal relationships, you may experience feelings or thoughts that are uncomfortable. Therefore, you are free not to answer any questions that you do not wish to answer, or to withdraw your participation from the study at any time. Again, while this risk is unlikely, please know that if you do experience discomfort, you may contact Sarah Kohlstedt (the research coordinator), and she will direct you to an appropriate service provider. Furthermore, some people may find that the personal data we are collecting would be embarrassing, if revealed. Your data, however, will be de-identified and locked in a secure location. After the data has been analyzed for the purposes of the study, it will be shredded.

Benefits: By participating, you could possibly gain a better understanding of yourself, your relationships with others, and your college experience. This increased self-awareness may have positive implications for your growth and development throughout your life. In addition, you may earn one (1) extra-credit for participating psychology courses. Feel free to ask if any of your courses qualify. Finally, you may opt in our raffle for a prize of \$50. Six of these \$50 prizes will be awarded. Your chance of winning the lottery is estimated at 1/50.

Note: because of NCAA regulations, NCAA student-athlete are not eligible to enter the raffle, our apologies. However, the research coordinator will offer a 40-minute sport psychology workshop to any team whose members participate in the study.

Confidentiality: Study records will be kept confidential. Study information will be coded and kept in a secure location. Only research personnel on this study will have access to the data. All results of the study are completely confidential and will be reported only as aggregate data from all participants studied; no individual data will be reported, and all data will be shredded after it has been analyzed for the purposes of the study. At a later date, the results of the study will be made available to you upon your request to the research coordinator or the Department of Psychology at American University.

This study has been approved by the American University's Institutional Review Board. If you have any questions about the study before participating, please feel free to contact the research administrator or the research coordinator, Sarah Skopek Kohlstedt, whose information is on the following page. If any questions arise later, or if you have a complaint about your participation in this project, you are welcome to contact the Institutional Review Board members listed on the following page.

1. I understand the purpose of the study, the procedures to be followed, and expected duration of my participation.

2. I consent to participate in research that addresses adjustment and development of college students.

3. I acknowledge that I have read and fully understand the consent form. I sign it freely and voluntarily.

Signature: _____ Date: _____

Printed Name: _____

Signature of Person Obtaining Consent: _____ Date: _____

Research Coordinator

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APPENDIX F

DEMOGRAPHIC QUESTIONNAIRE

Please X by one answer, or fill in the blank, where appropriate.

1. Sex: ☐ male ☐ female
2. Age: ☐ 18 ☐ 21
 ☐ 19 ☐ 22
 ☐ 20 ☐ other: _____
3. Race/ethnicity: ☐ African American or Black
 ☐ American Indian or Native American
 ☐ Asian or Asian American
 ☐ Hispanic or Latino/Latina
 ☐ Native Hawaiian or Pacific Islander
 ☐ White or European
 ☐ Other: _____
4. My parents are: ☐ Married ☐ Separated
 ☐ Divorced ☐ Other: _____
5. Family income: ☐ \$0 - \$24,999
 ☐ \$25,000 - \$49,999
 ☐ \$50,000 - \$74,999
 ☐ \$75,000 - \$99,999
 ☐ Over \$100,000
6. Class standing: ☐ Freshman ☐ Sophomore
 ☐ Junior ☐ Senior
 ☐ Other: _____
7. I live: ☐ On campus ☐ Off campus
 ☐ With parents or guardians
 ☐ Other: _____
8. GPA: _____ (round to nearest 10th)

APPENDIX G

LSDI-CF

Please read each statement carefully. Then use the scale below to indicate the degree to which you agree or disagree with each statement. Please answer honestly. Remember your answers are confidential.

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
	<i>completely disagree</i>	<i>mostly disagree</i>	<i>mostly agree</i>	<i>completely agree</i>
1.	If I have a different opinion from what is being said, I am afraid to express my views.			
	1	2	3	4
2.	I can accept different values in people my age.			
	1	2	3	4
3.	My feelings keep getting in the way when I relate to people.			
	1	2	3	4
4.	I have no problem saying "no" to friends and people my age.			
	1	2	3	4
5.	Laws are necessary but can be questioned if unjust.			
	1	2	3	4
6.	I am able to adapt to get along with different groups of people.			
	1	2	3	4
7.	I do not understand why people behave the way they do.			
	1	2	3	4
8.	I do not understand my parents.			
	1	2	3	4

9. When I listen to others, I am able to understand their feelings.
- 1 2 3 4
10. I get very little emotional support from people my own age.
- 1 2 3 4
11. I am able to maintain meaningful relationships (of any type) with members of the opposite sex.
- 1 2 3 4
12. When I am with people my own age, I feel like an outsider.
- 1 2 3 4
13. I maintain my independence within my friendships.
- 1 2 3 4
14. I choose my friends by the way they look.
- 1 2 3 4
15. I do not get along with most members of my family.
- 1 2 3 4
16. Other people can depend on me.
- 1 2 3 4
17. I have good relationships with my peers.
- 1 2 3 4
18. I am able to communicate my needs and wants to my peers.
- 1 2 3 4
19. I make new friends easily.
- 1 2 3 4

20. I respect people who have different backgrounds, habits, values, or appearances.
- 1 2 3 4
21. I am involved in community service.
- 1 2 3 4
22. I am able to manage any conflicts that might arise between home and school.
- 1 2 3 4
23. I am able to give to and receive from people.
- 1 2 3 4
24. I frequently discover important things by interacting with peers.
- 1 2 3 4
25. Being in groups is satisfying to me.
- 1 2 3 4
26. I am able to take directions and follow through on tasks.
- 1 2 3 4
27. I have set goals in life for myself.
- 1 2 3 4
28. I do not know which strengths to work on that will help me in the future.
- 1 2 3 4
29. There is no role model for me to look to in order to find out about the kind of work I might like to do.
- 1 2 3 4
30. I know how to find reliable information about jobs.
- 1 2 3 4
31. When solving problems, I am willing to explore multiple solutions.
- 1 2 3 4

32. I gather as much information as possible when making educational decisions.

1 2 3 4

33. I feel that I have to sacrifice my personal values when I make decisions.

1 2 3 4

34. Once I have made a decision, I do not usually change my mind.

1 2 3 4

35. I am able to use my experience in part-time work to help me decide my future occupation.

1 2 3 4

36. I know what steps to take to get the kind of job I want.

1 2 3 4

37. I do not have an effective way of making decisions.

1 2 3 4

38. I have made the right educational decisions so far.

1 2 3 4

39. I am able to handle my own money matters.

1 2 3 4

40. I have confidence in the decisions I make.

1 2 3 4

41. I can envision my future.

1 2 3 4

42. My emotions interfere with my ability to deal with the facts.

1 2 3 4

43. I know how to think clearly and solve problems in a crisis.
- 1 2 3 4
44. I am able to understand ideas and issues from different points of view.
- 1 2 3 4
45. I understand how emotions influence my decisions and actions.
- 1 2 3 4
46. I am able to use my problem-solving skills when encountering new situations.
- 1 2 3 4
47. I am able to resolve inner conflicts.
- 1 2 3 4
48. I think about the success or failure of my plans and goals.
- 1 2 3 4
49. I am unsure about what is normal in terms of sexual arousal and expression.
- 1 2 3 4
50. I do not like to participate in individual or team sports.
- 1 2 3 4
51. I have good health habits.
- 1 2 3 4
52. I exercise at least 20 minutes a day, three times per week.
- 1 2 3 4
53. I do not actively pursue my interests and hobbies.
- 1 2 3 4
54. I have satisfying leisure-time activities.
- 1 2 3 4

55. I understand the importance of choosing healthy foods.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
56. I do things regularly that help me keep fit and healthy.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
57. I practice preventive health measures such as exercising, managing stress, and maintaining a healthy diet.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
58. I am aware of methods to control stress.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
59. I have the willpower to eat unhealthy foods in moderation.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
60. I understand the effects of alcohol on the body.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
61. I understand how nicotine affects the body.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
62. I consume caffeine on a daily basis.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
63. I am aware of foods that are high in fat content.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
64. I limit the daily intake of sugar in my diet.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
65. I am overly concerned with my body weight.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|

66. I would like to have a "perfect body."
1 2 3 4
67. I realize the psychological benefits of maintaining an exercise program.
1 2 3 4
68. I understand how to prevent the spread of sexually transmitted diseases.
1 2 3 4
69. I have a positive attitude about work.
1 2 3 4
70. I get confused as to what is appropriate behavior for males and females.
1 2 3 4
71. When I interact with people, I am able to be myself.
1 2 3 4
72. I understand the role of sexual intimacy in a love relationship.
1 2 3 4
73. I want to be more independent but cannot do it without hurting others.
1 2 3 4
74. I understand there are broad ranges of differences among individuals.
1 2 3 4
75. My personal values guide me when I do things.
1 2 3 4
76. Everything considered, the way I am developing is fine.
1 2 3 4
77. Although I consider other people's ideas, I am not controlled by them.
1 2 3 4

78. I have a good sense of humor.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
79. I do not act responsibly in relationships.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
80. I have a specific career goal.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
81. I am bothered by the difference between what I believe and what society expects.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
82. I am able to deal positively with any frustrations and failures I face.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
83. The way I express my anger either hurts me or somebody else.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
84. Life is boring and I really cannot get excited about it.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
85. The way I handle my emotions often hurts me or somebody else.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
86. I am able to handle ambiguous situations.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
87. I often think and act on my own.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|
88. There are certain people besides teachers from whom I learn.
- | | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
|---|---|---|---|

APPENDIX H

AIMS

Please read each statement carefully. Then use the scale below to indicate the degree to which you agree or disagree with each statement regarding your sport participation. Please answer honestly. Remember your answers are confidential.

Strongly disagree 1 2 3 4 5 6 7 *Strongly agree*

1. I consider myself an athlete.

1 2 3 4 5 6 7

2. I have many goals related to sport.

1 2 3 4 5 6 7

3. Most of my friends are athletes.

1 2 3 4 5 6 7

4. Sport is the most important part of my life.

1 2 3 4 5 6 7

5. I spend more time thinking about sport than anything else.

1 2 3 4 5 6 7

6. I feel badly about myself when I do poorly in sport.

1 2 3 4 5 6 7

7. I would be very depressed if I were injured and could not compete in sport.

1 2 3 4 5 6 7

APPENDIX I

IPPA

The following statements ask about your relationship with your MOTHER. Please read each statement carefully. Then use the scale below to indicate how true the statement is for you now. Please answer honestly. Remember your answers are confidential.

If you do not have a relationship with your mother, please complete the items with respect to the person you consider to be your primary guardian. Indicate this person's relation to you here:

	<i>1</i> <i>almost never,</i> <i>or never true</i>	<i>2</i> <i>not often true</i>	<i>3</i> <i>sometimes true</i>	<i>4</i> <i>often true</i>	<i>5</i> <i>almost always,</i> <i>or always true</i>
1. My mother respects my feelings.	1	2	3	4	5
2. I feel my mother does a good job as my mother.	1	2	3	4	5
3. I wish I had a different mother.	1	2	3	4	5
4. My mother accepts me as I am.	1	2	3	4	5
5. I like to get my mother's view on things I am concerned about.	1	2	3	4	5
6. I feel it is no use letting my feelings show around my mother.	1	2	3	4	5
7. My mother can tell when I am upset about something.	1	2	3	4	

8. Talking over my problems with my mother makes me feel ashamed and foolish.

1 2 3 4 5

9. My mother expects too much from me.

1 2 3 4 5

10. I get upset easily around my mother.

1 2 3 4 5

11. I get upset a lot more than my mother knows about.

1 2 3 4 5

12. When we discuss things, my mother cares about my point of view.

1 2 3 4 5

13. My mother trusts my judgment.

1 2 3 4 5

14. My mother has her own problems, so I do not bother her with mine.

1 2 3 4 5

15. My mother helps me to understand myself better.

1 2 3 4 5

16. I tell my mother about my problems and troubles.

1 2 3 4 5

17. I feel angry with my mother.

1 2 3 4 5

18. I do not get much attention from my mother.

1 2 3 4 5

19. My mother helps me talk about my difficulties.

1 2 3 4 5

20. My mother understands me.
- 1 2 3 4 5
21. When I am angry about something, my mother tries to be understanding.
- 1 2 3 4 5
22. I trust my mother.
- 1 2 3 4 5
23. My mother does not understand what I am going through these days.
- 1 2 3 4 5
24. I can count on my mother when I need to get something off my chest.
- 1 2 3 4 5
25. If my mother knows something is bothering me, she asks me about it.
- 1 2 3 4 5

The following statements ask about your relationship with your FATHER. Please read each statement carefully. Then use the scale below to indicate how true the statement is for you now. Please answer honestly. Remember your answers are confidential.

If you do not have a relationship with your father, please complete the items with respect to the person you consider to be another guardian. Indicate this person's relation to you here:

_____.

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>almost never,</i> <i>or never true</i>	<i>not often true</i>	<i>sometimes true</i>	<i>often true</i>	<i>almost always,</i> <i>or always true</i>

1. My father respects my feelings.
- 1 2 3 4 5
2. I feel my father does a good job as my father.
- 1 2 3 4 5
3. I wish I had a different father.
- 1 2 3 4 5

4. My father accepts me as I am.
- 1 2 3 4 5
5. I like to get my father's view on things I am concerned about.
- 1 2 3 4 5
6. I feel it is no use letting my feelings show around my father.
- 1 2 3 4 5
7. My father can tell when I am upset about something.
- 1 2 3 4 5
8. Talking over my problems with my father makes me feel ashamed and foolish.
- 1 2 3 4 5
9. My father expects too much from me.
- 1 2 3 4 5
10. I get upset easily around my father.
- 1 2 3 4 5
11. I get upset a lot more than my father knows about.
- 1 2 3 4 5
12. When we discuss things, my father cares about my point of view.
- 1 2 3 4 5
13. My father trusts my judgment.
- 1 2 3 4 5
14. My father has his own problems, so I do not bother him with mine.
- 1 2 3 4 5
15. My father helps me to understand myself better.
- 1 2 3 4 5

16. I tell my father about my problems and troubles.
- 1 2 3 4 5
17. I feel angry with my father.
- 1 2 3 4 5
18. I do not get much attention from my father.
- 1 2 3 4 5
19. My father helps me talk about my difficulties.
- 1 2 3 4 5
20. My father understands me.
- 1 2 3 4 5
21. When I am angry about something, my father tries to be understanding.
- 1 2 3 4 5
22. I trust my father.
- 1 2 3 4 5
23. My father does not understand what I am going through these days.
- 1 2 3 4 5
24. I can count on my father when I need to get something off my chest.
- 1 2 3 4 5
25. If my father knows something is bothering me, he asks me about it.
- 1 2 3 4 5

The following statements ask about your relationship with close friends. Please read each statement carefully. Then use the scale below to indicate how true the statement is for you now. Please answer honestly. Remember your answers are confidential.

	<i>1</i> <i>almost never,</i> <i>or never true</i>	<i>2</i> <i>not often true</i>	<i>3</i> <i>sometimes true</i>	<i>4</i> <i>often true</i>	<i>5</i> <i>almost always,</i> <i>or always true</i>
1. I like to get my friends' points of view on things I'm concerned about.	1	2	3	4	5
2. My friends can tell when I'm upset about something.	1	2	3	4	5
3. When we discuss things, my friends care about my point of view.	1	2	3	4	5
4. Talking over my problems with my friends makes me feel ashamed or foolish.	1	2	3	4	5
5. I wish I had different friends.	1	2	3	4	5
6. My friends understand me.	1	2	3	4	5
7. My friends encourage me to talk about my difficulties.	1	2	3	4	5
8. My friends accept me as I am.	1	2	3	4	5
9. I feel the need to be in touch with my friends more often.	1	2	3	4	5
10. My friends don't understand what I'm going through these days.	1	2	3	4	5

11. I feel alone or apart when I am with my friends.
- 1 2 3 4 5
12. My friends listen to what I have to say.
- 1 2 3 4 5
13. I feel my friends are good friends.
- 1 2 3 4 5
14. My friends are fairly easy to talk to.
- 1 2 3 4 5
15. When I am angry about something, my friends try to be understanding.
- 1 2 3 4 5
16. My friends help me to understand myself better.
- 1 2 3 4 5
17. My friends care about how I am feeling.
- 1 2 3 4 5
18. I feel angry with my friends.
- 1 2 3 4 5
19. I can count on my friends when I need to get something off my chest.
- 1 2 3 4 5
20. I trust my friends.
- 1 2 3 4 5
21. My friends respect my feelings.
- 1 2 3 4 5
22. I get upset a lot more than my friends know about.
- 1 2 3 4 5

23. It seems as if my friends are irritated with me for no reason.

1 2 3 4 5

24. I can tell my friends about my problems and troubles.

1 2 3 4 5

25. If my friends know something is bothering me, they ask me about it.

1 2 3 4 5

APPENDIX J

HCA

Please read each statement carefully. Then use the scale below to indicate the degree to which each statement is true for you. Please answer honestly. Remember your answers are confidential.

	<i>1</i> <i>never true for me</i>	<i>2</i> <i>seldom true for</i> <i>me</i>	<i>3</i> <i>sometimes true</i> <i>for me</i>	<i>4</i> <i>often true for me</i>	<i>5</i> <i>always true for</i> <i>me</i>
1. Winning in competition makes me feel more powerful as a person.	1	2	3	4	5
2. I find myself being competitive even in situations that do not call for competition.	1	2	3	4	5
3. I do not see my opponents in competition as enemies.	1	2	3	4	5
4. I compete with others even if they are not competing with me.	1	2	3	4	5
5. Success in athletic competition does not make me feel superior to others.	1	2	3	4	5
6. Winning in competition does not give me a greater sense of worth.	1	2	3	4	5
7. When my competitors receive rewards for their accomplishments, I feel envy.	1	2	3	4	5
8. I find myself turning a friendly game or activity into a serious contest or conflict.	1	2	3	4	5

9. It's a dog-eat-dog world. If you do not get the better of others, they will surely get the better of you.
- 1 2 3 4 5
10. I do not mind giving credit to someone for doing something that I could have done just as well or better.
- 1 2 3 4 5
11. If I can disturb my opponent in some way in order to get the edge in competition, I will do so.
- 1 2 3 4 5
12. I really feel down when I lose in athletic competition.
- 1 2 3 4 5
13. Gaining praise from others is not an important reason why I enter competitive situations.
- 1 2 3 4 5
14. I like the challenge of getting someone to like me who is already dating someone else.
- 1 2 3 4 5
15. I do not view my relationships in competitive terms.
- 1 2 3 4 5
16. It does not bother me to be passed by someone while I am driving on the roads.
- 1 2 3 4 5
17. I cannot stand to lose an argument.
- 1 2 3 4 5
18. In school, I do not feel superior whenever I do better on tests than other students.
- 1 2 3 4 5
19. I feel no need to get even with a person who criticizes or makes me look bad in front of others.
- 1 2 3 4 5

20. Losing in competition has little effect of me.
- 1 2 3 4 5
21. Failure or loss in competition makes me feel less worthy as a person.
- 1 2 3 4 5
22. People who quit during competition are weak.
- 1 2 3 4 5
23. Competition inspires me to excel.
- 1 2 3 4 5
24. I do not try to win arguments with members of my family.
- 1 2 3 4 5
25. I believe that you can be a nice person and still win or be successful in competition.
- 1 2 3 4 5
26. I do not find it difficult to be fully satisfied with my performance in a competitive situation.
- 1 2 3 4 5

APPENDIX K

CES-D

Please read each statement carefully. Then use the scale below to indicate how often you have felt this way during the past week. Please answer honestly. Remember your answers are confidential.

<i>0</i> <i>rarely or</i> <i>none of the time</i> <i>(less than 1 day)</i>	<i>1</i> <i>some or a</i> <i>little of the time</i> <i>(1-2 days)</i>	<i>2</i> <i>occasionally or a</i> <i>moderate amount of</i> <i>time (3-4 days)</i>	<i>4</i> <i>most or</i> <i>all of the time</i> <i>(5-7 days)</i>
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During the past week ...

- | | | |
|----|--|--|
| 1. | I was bothered by things that do not usually bother me. | |
| | 0 1 2 3 | |
| 2. | I did not feel like eating; my appetite was poor. | |
| | 0 1 2 3 | |
| 3. | I felt that I could not shake off the blues even with help from my family and friends. | |
| | 0 1 2 3 | |
| 4. | I felt that I am just as good as other people. | |
| | 0 1 2 3 | |
| 5. | I had trouble keeping my mind on what I was doing. | |
| | 0 1 2 3 | |
| 6. | I felt depressed. | |
| | 0 1 2 3 | |
| 7. | I felt that everything I did was an effort. | |
| | 0 1 2 3 | |
| 8. | I felt hopeful about the future. | |
| | 0 1 2 3 | |

9. I thought my life had been a failure.
0 1 2 3
10. I felt fearful.
0 1 2 3
11. My sleep was restless.
0 1 2 3
12. I was happy.
0 1 2 3
13. I talked less than usual.
0 1 2 3
14. I felt lonely.
0 1 2 3
15. People were unfriendly.
0 1 2 3
16. I enjoyed life.
0 1 2 3
17. I had crying spells.
0 1 2 3
18. I felt sad.
0 1 2 3
19. I felt that people disliked me.
0 1 2 3
20. I could not “get going.”
0 1 2 3

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