EXPLORING SOURCES OF PERCEIVED SOCIAL SUPPORT AND ATTACHMENT INSECURITY THAT SIGNIFICANTLY PREDICT MENTAL HEALTH AMONG A GROUP OF COLLEGE STUDENTS

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DISSERTATION

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Abstract

This study examined sources of perceived social support and attachment insecurity that were significant predictors of mental health in a group of college students. 407 undergraduate students (mean age = 20.25 years) enrolled in a 200-level course in a large Midwestern university volunteered to complete self-reported questionnaires. Pearson correlations were calculated for all variables, MANOVA, ANOVA, and hierarchical multiple regression analyses were conducted. Sources of perceived social support and attachment insecurity that significantly predicted mental health differed across genders, with females reporting more perceived social support from family, friends, and significant others, and males reporting more attachment anxiety as well as avoidance. In regards to sources of perceived social support, support from family was the most significant predictor of males' mental health, whereas support from friends was the most significant predictor of females' mental health. In regards to attachment insecurity, avoidance with father emerged as the most significant predictor of males' mental health, whereas avoidance with mother, anxiety with dating partner and best friends were the most significant predictors of females' mental health. Incremental effects of perceived social support on mental health were also explored. For male students, perceived social support did not have any additional incremental effects on mental health after controlling for attachment. For female students, perceived support from friends had a small but significant amount of additional effects on mental health after controlling for attachment. Findings of this study indicate that male and female college students' mental wellbeing were influenced by distinctive close relationships.

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CHAPTER 1

INTRODUCTION

The transition from adolescence to adulthood is becoming increasingly prolonged in the postmodern American society, and many forces are considered to have contributed to this change. Prior to the 1950s, relatively few people were able to obtain higher education, and the majority of those who did were young men; since the 1950s, the number of young people pursuing higher education increased significantly, and by 2011, 48% of those between the ages of 18-24 were enrolled in 4-year or 2-year colleges (Arnett J. J., 2000). The Sexual Revolution of the 1960s changed a lot of people's attitudes towards premarital sexual behaviors, and nowadays more young people are trying sexual intercourse at the age of 18 or before they decide to enter marriage (Mathews & Hamilton, 2009). Changes like these have allowed young people more time to explore before making commitments and settling down into adulthood (Arnett J. J., 2000). Recently, this transition was given a new name-Emerging Adulthood, which roughly spans the ages of 18 to 25 (Arnett J. J., 1998). This major transitional period is considered as a time of identity exploration, feeling-in-between and instability, as a self-focused age when young people explore many possibilities before finding their own niche in love, work, and world views (Arnett J. J., 2000).

Emerging adulthood can be an exciting as well as stressful time. It is exciting because with increased independence, young people begin to play a more active role in their own development than at any earlier time (Arnett J. , 2006a; Eccles, Barber, Stone, & Hunt, 2003). For many emerging adults attending colleges, exploratory activities may

involve developing new social networks, romantic relationships, and world views, keeping up with school work when one has much greater autonomy to do other things, and negotiating "temptations" of alcohol, drugs, and sexuality (Gallagher, Gill, & Sysko, 2000; Gallagher, Sysko, & Zhang, 2001; Pledge, Lapan, Heppner, & Roehlke, 1998; O'Malley, Wheeler, Murphey, & O'Connell, 1990; Robbins, May, & Corazini, 1985; Stone & Archer, 1990). It is also a stressful time because with increased exploration, young people often encounter setbacks that can create stress, anxiety, and feelings of loneliness, putting their mental health at risk (Helson & Kwan, 2000; Nelson & McNamara Barry, 2005; Roberts, Caspi, & Moffitt, 2001; Roberts & Chapman, 2000). Rising college student mental health concern has been reported since the early to mid-1990s, however, it only began to catch the eye of the press and the public in recent years following a series of tragedies that took place on college campuses involving students with mental health problems, such as the death of MIT student Elizabeth Shin and the subsequent legal battle, and the murders/suicides at Virginia Tech and Northern Illinois University. As these events riveted the nation's and sometimes the world's attention, college student mental health issues and campus safety are becoming pressing public health and policy concerns (Schwartz & Kay, 2009). Levine and Cureton (1998a) has noted that in recent years, emerging adults are coming to college "overwhelmed and more damaged than those of previous years". In 1994, only 9% of college students seeking care at counseling centers were taking psychiatric medications, and by 2006, this number has risen to 23.3%; further, 7.5% of these counseling center clients could not function in college settings or without extensive psychiatric/psychological support due to severe psychological problems (Gallagher R. , 2006).

In addition, the successful transition to full adulthood usually requires emerging adults to negotiate between maintaining ties with parents and establishing new and intimate relationships, such as with friends or romantic partners. Therefore, social relationships become increasingly important during emerging adulthood (Galambos, Barker, & Krahn, 2006; Shulman, Kalnitski, & Shahar, 2009). However, it was observed that an increasing number of young people were coming to college socially isolated and not connected to any individuals or groups (Guthman, Iocin, & Konstas, 2010). The number of students who come from dysfunctional families, have poor family relations, or have a lack of social support is also on the rise (Kadison & DiGeronimo, 2004; Kadison R. , 2004). Longitudinal studies have shown that social support and attachment security could foster successful passage through these years, such as more rewarding friendships and romantic ties, reduced anxiety, depression, and loneliness (Benson, Scales, Hamilton, & Semsa, 2006; Eccles & Gootman, 2002; Aquilino, 2006). Although universities and colleges provide them with some support, some may still feel the sudden drop in institutional support, leading to a sense of floundering (Mortimer, Zimmer-Gembeck, Holmes, & Shanahan, 2002; Schulenberg & Zarrett, 2006). Therefore, close relationships with sources such as parents, friends, and romantic partners may be especially important for college students.

A review of the literature indicates the significant association between attachment, social support, especially perceived social support, and mental health (Zimet G. , Dahlem, Zimet, & Farley, 1988; Scharf, Mayseless, & Kivenson-Baron, 2004; Berkman, Glass, Brissette, & Seeman, 2000; Brissette, Scheier, & Carver, 2002; Coyne & Downey, 1991; Kawachi & Berkman, 2001; Reblin & Uchino, 2008). Perceived social

support is defined as the extent to which an individual believes that the need for support is being fulfilled (Procidano & Heller, 1983). People with low levels of perceived social support were more psychologically distressed and isolated (Kawachi & Berkman, 2001; Coyne & Downey, 1991; Durden, Hill, & Angel, 2007). They tend to display more externalizing as well as internalizing problems (Garnefski & Diekstra, 1996; Kashani, Canfield, Borduin, Soltys, & Reid, 1994). While people with high levels of perceived social support were more resilient and less likely to experience depression and loneliness (Fontana, Kerns, Rosenberg, & Colonese, 1989). Attachment refers to a "lasting psychological connectedness between human beings" (Bowlby J. , 1969), and is usually conceptualized within two dimensions: attachment anxiety and avoidance (Brennan, Clark, & Shaver, 1998; Fraley, Garner, & Shaver, 2000). Individuals high in attachment anxiety are preoccupied with relational distress, and excessive worries about the availability and responsiveness of significant others (Pietromonaco & Feldman Barrett, 1997; Searle & Meara, 1999). Individuals high in attachment avoidance are likely to suppress emotional responses, and are compulsively self-reliant during times of distress (Dozier & Kobak, 1992; Mikulincer, Florian, & Tolmacz, 1990; Mikulincer & Orbach, 1995). Individuals low in both attachment anxiety and avoidance are considered to have a secure attachment style. Both attachment anxiety and avoidance are associated with poor mental health, whereas attachment security is associated with good mental health (Kidd & Sheffield, 2005; Myers & Vetere, 2002; Myers & Vetere, 2002; Wearden, Cook, & Vaughan-Jones, 2003; MacDonald & Kingsbury, 2006).

Ratings of perceived social support and attachment often differ across different relationships (Baldwin M. W., Keelan, Fehr, Enns, & Koh- Rangarajoo, 1996; Cohen &

Syme, 1985). Many studies done previously have focused on global measures of attachment and perceived social support. Yet, global and relationship-specific attachment may be distinctive constructs (Ross & Spinner, 2001). Similarly, global and relationship-specific perceived social support appeared to have independently unique contributions to mental health (Brock, Sarason, Sarason, & Pierce, 1996; Pierce, Rubenfeld, & Morgan, 1991). as Prochidano and Heller (1983) suggested that studies that fail to consider different sources of support may lose important information. Therefore, the primary purpose of the current study is to examine sources of perceived social support and attachment insecurity that are significant predictors of mental health. Moreover, previous studies indicate an association between perceived social support and attachment, suggesting that perceived social support might just be a consequence of internal working models generated from early attachment with one's caregiver (Sarason, Pierce, & Sarason, 1990; Blain, Thompson, & Whiffen, 1993; Moreira, et al., 2003). If these propositions hold true, then it is expected that when predicting mental health, attachment could account for effects of perceived social support completely. Therefore, another purpose of the present study is to examine sources of perceived social support that will have incremental effects on mental health after controlling for attachment.

Previous studies have reported gender differences in both attachment insecurity and perceived social support. For example, it was found that men was typically more avoidance than women (Fraley, Heffernan, Vicary, & Brumbaugh, 2011; Schmitt, 2008). In close relationships, women were found to put more emphasis than men on intimacy, communication, and interdependence; they also tend to report higher levels of perceived support from a significant other and friends than men (Furman & Buhrmester, 1992;

Zimet G. , Dahlem, Zimet, & Farley, 1988). Therefore, the third purpose of this study is to examine when predicting mental health, if sources of perceived social support and attachment insecurity would differ across gender.

Statement of the Problem

In grappling with the many possibilities emerging adulthood appears to offer, young people begin to play an active role in their own development than at any earlier time (Eccles, Barber, Stone, & Hunt, 2003). Vigorous exploration is regularly accompanied by disappointments, stress, and loneliness, putting their mental health at risk. In addition, social relationships become increasingly important during emerging adulthood, as many young people redefine relationships with their parents, and start establishing new intimate social relationships, such as with friends and romantic partners. Although emerging adults are often perceived as experiencing the healthiest time of one's life, an increasing number of studies have documented their deteriorating mental health, raising public health and campus safety concerns. Poor mental health can have a profound impact on all aspects of students' college life. From an individual level, poor mental health can affect a student's physical, emotional, interpersonal functioning and academic performance. For example, students with higher levels of psychological distress were more likely to be anxious, and less likely to persist when faced with difficulty (Kitzrow, 2003). It was found that people with high levels of psychopathology displayed impaired information-processing skills, which are critical to successful academic performance. Kessler et al. (Kessler, Foster, Saunders, & Stang, 1995) reported that 5% of college students prematurely end their education due to psychiatric disorders. Students with poor mental health also have the potential to affect other people, such as roommates,

classmates, faculty, and staff. From an institutional point of view, students with poor mental health may also impact the higher educational institution by way of legal implications related to risk management and mental health services. Several institutions including Brown, Harvard, and MIT, have been the target of lawsuits alleging inadequate or negligent treatment of mental health problems (Kitzrow, 2003).

Close relationships with significant others such as parents, friends, or romantic partners have been shown to foster successful passage through this transitional period (Benson, Scales, Hamilton, & Semsa, 2006; Eccles & Gootman, 2002). A review of the literature shows that they are consistently associated with mental health (Zimet G. , Dahlem, Zimet, & Farley, 1988; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). However, the focus of these studies has been more on global measures of attachment and perceived social support. Understanding the significance of these constructs within a particular relationship might help researchers and counselors design better mental health programs. Moreover, previous studies indicate an association between perceived social support and attachment, and that attachment may influence perceived social support through influencing the construction of working models, which are mental representations of others' availability when help is needed and one's worthiness of being loved and cared for. Some researchers even proposed that perceived social support is part of attachment (Moreira, et al., 2003). If this holds true, one would expect that the effects of perceived social support on mental health can be completely accounted for by attachment. Understanding the relationship between attachment and perceived social support when predicting mental health may not only add value to existing literature, but can also help counselors working in college settings to design

more effective mental health programs for college students. Last but not least, data and research is needed on the overall mental health status of the entire college student population, because the current literature provides limited information among this population, and most of the studies have focused on the clinical population-students who seek help at counseling centers (Soet & Sevig, 2006).

Purpose and Research Questions

The primary purpose of the study is to examine sources of perceived social support and attachment insecurity that are significant predictors of mental health among a group of college students, and to test if these sources differ across gender.

The following research questions will guide the study:

1. What sources of attachment have the most significant impact on college students' mental health and do the sources differ by gender?
2. What sources of perceived social support have the most significant impact on college students' mental health and do the sources differ by gender?
3. What sources of perceived social support will have incremental effects on college students' mental health after controlling for attachment and do the sources differ by gender?

Definitions of Terms

Emerging Adulthood

Emerging adulthood can be conceptualized as "a period of development bridging adolescence and young adulthood, during which young people are no longer adolescents but have not yet attained full adult status." (Arnett J. J., 2004).

Perceived Social Support

Perceived Social Support is defined as the extent to which an individual believes that the need for support is being fulfilled (Procidano & Heller, 1983).

Attachment

Attachment is defined as any form of behavior that results in a person attaining or maintaining proximity to some other clearly identified individual who is conceived of as better able to cope with the world. It is most obvious whenever the person is frightened, fatigued or sick, and is assuaged by comforting and caregiving (1988). Attachment is usually conceptualized in two dimensions: attachment anxiety and attachment avoidance (Brennan, Clark, & Shaver, 1998).

Internal Working Models

Internal working models are mental representations that consist of expectations about the self, significant others, and the relationship between the two (Bretherton & Waters, 1985; Collins & Read, 1994). They include knowledge about the details of interactional experiences as well as the affect associated with those experiences (Bretherton & Waters, 1985).

Mental Health

In this study, mental health is defined and measured by 4 indicators in the SF-36 by Rand Corporation: vitality, social functioning, mental role limitations, and emotional wellbeing.

Vitality

Vitality, or Energy/Fatigue, is defined in the SF-36 as a subjective feeling of wellbeing including energy and fatigue.

Social Functioning

Social Functioning is defined in the SF-36 as the quantity and quality of interactions with others.

Mental Role Limitations

Mental Role Limitations are defined in the SF-36 as limitations of the individual's work functions caused by mental health problems.

Emotional Wellbeing

Emotional Wellbeing is defined in the SF-36 as anxiety, depression, loss of behavioral or emotional control, and psychological wellbeing experienced by an individual.

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter will first examine characteristics of today's college student population-emerging adults from a developmental perspective. The theories and paradigms that will be reviewed reflect views held by scientists from different eras and genres of psychology throughout the years. Next, this chapter will review current literature on two of the most important factors that have been linked to mental health-perceived social support and attachment, and how they are implicated in studies of mental health.

The Transition to Adulthood

For decades, the transition to adulthood has been the focus of numerous scholars from the fields of psychology, sociology, and human development. One of the most important theories proposed so far is Erik Erikson's (1963) Psychosocial Stages of Human Development, in which he identified eight stages across the life span during which an individual may encounter a specific developmental crisis. The individual moves through and complete the developmental tasks of each stage when he or she is biologically, socially, and psychologically ready (Maier, 1965). Maturation from one developmental stage provides new meanings to all previous and already developed stages, as well as to the later and still developing ones. The theory focuses on relations between family members and their sociocultural reality, and highlights the opportunities for growth brought by challenges during an individual's developmental crises (Maier,

1965). The eight developmental stages, their presumed consequent crises and strengths are as follows:

I. Infancy, trust vs basic mistrust, strength: hope;

II. Early childhood, autonomy vs shame and doubt, strength: will;

III. Childhood, initiative vs guilt, strength: purpose;

IV. School age, industry vs inferiority, strength: competence;

V. Adolescence, identity vs role diffusion, strength: fidelity;

VI. Young adulthood, intimacy vs isolation, strength: love;

VII. Adulthood, parental sense vs stagnation, strength: care;

VIII. Old age, integrity vs despair, strength: wisdom.

Erikson himself seemed to put a great deal of emphasis on stages I, V and VI, which might be due to his own personal upbringing and the stages' "strategic importance to our contemporary, western childrearing efforts" (Maier, 1965). These three developmental stages are highly relevant to the subjects of our study, and their details are provided as follows.

Stage I. Trust vs Mistrust

Erikson (1968) considered this stage the foundation of all subsequent developmental stages, because "the basic psychosocial attitude to be learned at this stage is that you can trust the world in the form of your mother, that she will come back and

feed you, that she will feed you the right thing in the right quantity at the right time, and that when you're uncomfortable she will come and make you comfortable, and so on. That there is basic correspondence between your needs and your world, this is what I mean by basic trust....but to learn basic mistrust is just as important" (Evans, 1969). Furthermore, a mother's responsiveness to the child's needs was much more important than the feeding itself (Shaffer, 1999). If the mother's responsiveness is consistent overall, the baby will likely develop trust and bring the trust to new experiences later on. However, due to unfavorable circumstances life may bring, new experiences can still make the infant acquire a sense of mistrust and "fearful apprehension of future situations" (Maier, 1965). Both Erikson (1968) and Bowlby (1969) consider having an environment characterized by warmth, trust, and security would help infants develop secure attachment, which fosters healthy psychological and behavioral development later in life. The importance of stage I as the foundation of subsequent developmental stages may lie in the fact that the sense of trust and mistrust infants hold during this period could affect them for life.

Stage V. Identity vs Role Confusion

Erikson (1968) theorized that young adults living in industrialized societies would experiment with different roles before finding their own niche and making commitments, and referred to this period of exploration as "social moratorium". However, this stage presents a major developmental challenge, which is the establishment of a coherent sense of identity, such as who I am, where I am heading and where I will fit into the larger society (Erikson E. , 1968). Erikson defined identity as "the accrued confidence [in] the inner sameness and continuity of one's meaning for others"

(1950). The establishment of a sense of identity is necessary for the smooth transition to full adulthood. As adolescents move through this stage, they often find themselves grapple with questions such as "What kind of career do I want? What religious, moral, and political values should I adopt? Who am I as a man or woman, and as a sexual being? Just where do I fit into society?" (Shaffer, 1999). Searching for answers to these questions creates confusion and anxiety due to the uncertain nature characteristic of this process, thus, Erikson coined the term "identity crisis" to describe this experience.

Stage VI. Intimacy vs Isolation

The experience of unresolved identity issues can prevent a person from moving on to the next psychosocial stage-intimacy vs isolation (Erikson E. , 1968). Intimacy could not be obtained until the individual was nearing the completion of the identity formation (Erikson E. , 1968). Using a sample of 710 emerging adults between the ages of 18 to 26, Barry et al (2009) found that identity achievement was related positively to four romantic relationship qualities. Because love and romance during adolescence is not true intimacy, but an attempt to define one's identity by projecting one's self-image onto another person; true intimacy is the creation of a harmonic relation when fusing two separate identities, without eliminating the individuality of either (Erikson E. , 1968). Young adulthood is often considered as the period of time when true intimacy begins to develop and blossom into committed relationships often seen in adulthood. Those who fail to resolve issues at the end of this identity development stage will experience isolation. Erikson defined isolation as inhibition in taking chances with one's identity to experience true intimacy (1968). Isolation often results from one's fear of commitment, which is the most important characteristics of intimate relationships (Erikson E. , 1968).

Individuals that experience isolation rather than intimacy may be limited in their psychosocial growth due to their inability to move forward to the next developmental stage (Erikson E. , 1968).

Although Erikson's work has contributed significantly to the theoretical basis for emerging adulthood, the nature of the period has changed considerably since the time of his writings (Arnett J. J., 2000). Recently, the life pursuits of many contemporary young people indicate that the transition to adult roles has become so delayed that it has spawned a new transitional period, extending from the late teens to the mid-twenties. Arnett (2000) gave this prolonged transition a new name - emerging adulthood, defined as a developmental phase bridging adolescence and adulthood, and is characterized by five main features: identity exploration, instability, self-focus, feeling-in-between, and age of possibilities.

Identity exploration. This is the most central feature of emerging adulthood. With decreased parental supervision and increased freedom, emerging adults begin exploring identities in a variety of areas such as love, work, religion and worldviews (Arnett J. J., 2004), or in other words, "trying out various life possibilities and gradually moving toward making enduring decisions" about one's future (Arnett J. J., 2000). Through actively negotiating different roles and ideologies, emerging adults begin to consolidate identities as they learn more about who they are and what they want out of life (Arnett J. J., 2004). For those who wish to have various romantic and sexual experiences, and try out different work and educational possibilities, emerging adulthood is the perfect time for it, because of diminished parental surveillance and little pressure to enter marriage (Arnett J. J., 2000). Explorations in love suddenly become more intimate and serious, and

the focus is less on recreation and more on emotional and physical intimacy, thus, romantic relationships last longer and more likely to include sexual intercourse (Michael, Gagnon, Laumann, & Kolata, 1995). Similarly, emerging adults view work experiences more seriously as work prepares them for adult work roles (Arnett J. J., 2000). William Perry (1999) argued that emerging adults often entered college with a worldview they had learned in childhood and adolescence, but by the end of their college years, they had often committed themselves to a worldview different from the ones they brought in. However, the nature of all of these identity exploration activities is uncertainty, which can create anxiety, instability, confusion, and tremendous stress, as most emerging adults are not able to tell where their explorations will lead them (Arnett J. J., 2004). Nonetheless, most emerging adults are optimistic about reaching their goals eventually (Arnett J. J., 2000).

The Self-focused Age. Many young people become intensely self-focused during emerging adulthood, as they gain understanding of themselves before committing to specific roles in work and love (Arnett J. , 2006a). Focusing on one's self does not equal being self-indulgent during this time, rather, it reflects one's desire for experimentation and growth, which can ultimately facilitate the transition to adulthood. According to Arnett (Arnett J. J., 2000), three of the most salient developmental tasks during emerging adulthood are: (a) coping effectively with the home-leaving transition, (b) advancing in the development of the capacity for mature intimacy in friendships and in romantic relationships while maintaining close and autonomous relationships with parents, and (c) developing a sense of efficacy and individuation.

Age of Instability. Emerging adulthood is a period of great instability. For today's emerging adults, finishing college, starting a job, getting married, and entering parenthood are delayed by at least 5 years, when compared with those in the 1970s (Arnett J. J., 2000). It is becoming more common nowadays for high school graduates to postpone college, and for college graduates to change jobs frequently as they seek jobs that guarantee higher incomes as well as personal fulfillment (Arnett J. J., 2004).

Feeling in-between. Many emerging adults strongly feel that they are not adolescents anymore but not yet adults. Once they reach their late twenties and early thirties, most feel that they have reached adulthood. However, still 30% of emerging adults in their late twenties and early thirties still feel that they are adults in some respects but not in others (Arnett J. J., 2004), indicating that the transition to full adulthood is a gradual process. When asked about characteristics that matter most to their subjective sense of attaining adulthood, many of emerging adults cited accepting responsibility for one's self and making independent decisions as the top two most important criteria. Another one-becoming financially independent, also ranks consistently near the top (Arnett J. J., 1997; Arnett J. , 1998; Green, Wheatley, & Aldava, 1992).

The age of possibilities. Emerging adulthood is often perceived as the healthiest time of one's life. Many emerging adults are living semi-independently, away from direct parental supervision, thus, they have more freedom to explore different things. They are also optimistic about their future, and this sense of optimism can diminish as they take on more responsibilities of adulthood.

Emerging Adults as College Students

The entry into emerging adulthood typically takes place around the age of 18, when adolescents finish high school (Arnett J. J., 2000). Participation in higher education has risen substantially over the past 50 years, from approximately 25% enrollment in the 1950s to the current 65% enrollment (Arnett J. , 2006a). Approximately two-thirds of high school seniors will enter college (Spain & Bianchi, 1996), one-third of whom will enter two-year colleges and two-thirds of whom will enter four-year colleges (National Center for Education Statistics, 2002). As more emerging adults enroll in higher educational institutions, colleges and universities play an increasingly important role in offering emerging adults a structured environment for exploration and growth, or in other words, an institutionalized moratorium (Erikson E. H., 1980). An institutionalized moratorium allows emerging adults to experiment with different roles and identities without taking on permanent adult responsibilities immediately. Erikson (1980) wrote that:

"*Societies offer, as individuals require, a more or less sanctioned intermediary period between childhood and adulthood, institutionalized moratoria, during which a lasting pattern of 'inner identity' is scheduled for relative completion*" (p. 110).

The college years are a period of "change on a broad array of value, attitudinal, psychological, social, and moral dimensions" (Pascarella & Terenzini, 1991), as higher education promotes explorations and reconsiderations of worldviews (Pascarella & Terenzini, 1991). By the end of college years, many emerging adults have often committed themselves to a worldview different from the one they brought in, while remaining open to further modifications of it (Arnett J. J., 2000). This is also a period of semi-autonomy (Goldscheider & DaVanzo, 1986) as emerging adults take on some of the

responsibilities of independent living but leave others to their parents, college authorities, or other adults (Arnett J. J., 2000). The transition to adulthood often involves conquering challenges such as living independently for the first time, making new friends who have different worldviews from one's own, and negotiating temptations with sexuality, alcohol and drugs. These experiences could be a source of anxiety and distress for many emerging adults attending colleges (Kadison & DiGeronimo, 2004).

Overall, both Erikson and Arnett have pointed out that the years between childhood and adulthood are increasingly viewed as a period of time for identity development, and explorative activities in expanding interpersonal relationships with others. With potentially diminished supportive networks from childhood years, the uncertainty that comes with active exploration in diverse environment may create anxieties and stress for many emerging adults.

College Student Mental Health Statistics

In recent years, college students have been reporting diagnosable mental illness and related behavior problems dramatically more than ever before (Gallagher R. , 2006; Benton, Robertson, Tseng, Newton, & Benton, 2003). Media reports about tragic events involving students with mental health problems that happened at Virginia Tech, MIT, and Northern Illinois University have put the issue in national and even international spotlight. Some researchers have already declared the emerging mental health crisis on college campuses an "epidemic" (Henriques, 2014). Directors of university counseling centers may be on the frontline to observe the state of mental health crisis on college campuses. According to the National Survey of Counseling Center Directors (Gallagher

R. , 2012; Gallagher R. , 2006), 95% of counseling center directors reported that the number of students with serious mental health problems was a growing concern, that 40% of their clients have severe psychological problems, with 8% being so severe that they cannot continue studies, 16% of clients were referred for psychiatric evaluation, and 25% of clients were on psychiatric medications. There is also evidence showing that many students who have psychological disorders may not go to counseling centers for treatment at all. Results from a web-based survey administered to a random sample of 2785 students attending a large, public university showed that of students with positive screens for depression or anxiety, the proportion who did not receive any services ranged from 37% to 84%, depending on the disorder (Eisenberg, Golberstein, & Gollust, 2007).

Students' self-reported subjective experience of mental health problems was similar. Rates of anxiety, depression and suicide have sky-rocketed, learning disabilities, eating disorders, and alcohol dependence disorders have reached unprecedented levels (Henriques, 2014). In the 2008 National College Health Assessment, more than 33% of respondents reported ''feeling so depressed it was difficult to function'' at least once in the 12 months prior to the survey, and nearly 10% reported ''seriously considering attempting suicide'' during the same period of time. According to a study of 26,000 students from 70 colleges and universities (Drum, Brownson, Burton Denmark, & Smith, 2009), 6% of undergraduates and 4% of graduate students reported having seriously considered suicide in the 12 months prior to the survey. Another study drawing samples from 26 colleges and universities in 2007 and 2009 (Hunt & Eisenberg, 2010) found that 17% of students were depressed, including 9% with major depression, and 10% of students had an anxiety disorder such as panic disorder. When the University of

California Berkeley surveyed its graduate students in 2004 (Mental Task Force on Graduate Student Mental Health., 2004), results revealed that 45% of surveyed students had experienced an emotional or stress-related problem in the last 12 months that significantly affected their well-being and/or academic performance. In a study examining a wide range of psychiatric disorders in a nationally representative sample of college students and their non-college-attending peers, Blanco et al (2008) found that almost half of college-age young people had a psychiatric disorder in the past 12 months, and the overall rate of psychiatric disorders was not different between college students and their non-college attending peers. However, only less than 25% of surveyed individuals with a mental disorder sought treatment in the year prior to the survey (Blanco, et al., 2008). Much of existing research on college student mental health has focused on students who seek help at college counseling centers (Benton, Robertson, Tseng, Newton, & Benton, 2003; Furr, Westefeld, McConnell, & Jenkins, 2001), therefore, more data and research is needed on mental health status of all students, regardless of whether they seek help at counseling centers (Soet & Sevig, 2006).

Causes of College Student Mental Health Crisis

There is limited research that would help researchers pinpoint the exact causes of the current mental health crisis on college campuses, thus, most of the causes are speculative in nature. Several researchers posit that the current mental health crisis has been influenced by the massive societal and academic changes that often take place during the transition to college, such as growing up in broken or poorly-functioned families, having poorly-developed familial bonds due to excessive high school extracurricular activity involvement, the increasing financial burden of attending

colleges, excessive focus on grades, rising substance abuse, increased exposure to cultural diversity, and the downplaying of symptom severity by both the student and the student's family (Kadison R. , 2004; Kadison & DiGeronimo, 2004). For many students, college-level academic expectations are often perceived as drastically greater than the expectations set by their teachers in high school (Kadison & DiGeronimo, 2004).

Americans have seen a reduction in the number of close confidants over the last two decades (McPherson, Smith-Lovin, & Brashears, 2006), in 1985, the average American reported having 2.94 individuals with whom to discuss important matters, by 2004, this number was just 2.08, even more startling was the finding that the most commonly reported number of available confidants is now zero. This change in social relations in the larger society will likely affect college students' social support network. Guthman et al (2010) pointed out that more and more young people are coming to college socially isolated and not connected to any individuals or groups. When faced with major stressors like higher academic expectations, zero or inadequate social support may be a major risk factor for affective disorders. Studies targeting incoming college freshmen have found that students with adequate social support reported greater protection from major life stressors (Cohen, Sherrod, & Clark, 1986). Vogel and Wei (2005) surveyed 355 college students at a large Midwestern university, and found that attachment anxiety was positively related to acknowledging distress and to seeking help, however, both anxious and avoidant individuals also perceived less social support, which negatively contributed to their experience of distress. Bovier et al (2004) reported that mental health among 2000 randomly selected college students was significantly positively associated with functional social support. In a study done by Hefner and Eisenberg (2009) on 1378

college students at a large public university, it was found that perceived social support was most strongly and persistently associated with measures of mental health such as depression, anxiety, suicidality and eating disorder, independent of frequency of social contacts, and other individual characteristics.

Some researchers have found attachment theory a particularly useful framework within which to study young people's experiences of the stormy transition to college (Fisher & Hood, 1987). They argued that one's attachment style would influence how one deals with loneliness and stress during the transition, for example, secure individual tend to view distress as manageable, and other people as having good intentions and available when help is needed (Mikulincer, Shaver, & Pereg, 2003). Experiences of depressive symptoms by college students during the first semester were significantly linked to attachment security, suggesting that attachment styles may be important predictors for psychosocial well-being and mental health in response to the transition to college (Carr, Colthurst, Coyle, & Elliott, 2013).

An Overview of Attachment Theory

Attachment theory is the joint work of John Bowlby, a British child psychiatrist with psychoanalysis by training, and Mary Ainsworth, an American-Canadian developmental psychologist (1991). Drawing on concepts from ethology, cybernetics, information processing, developmental psychology, and psychoanalysis, Bowlby (1979) contributed significantly to the theoretical formulations of attachment theory, and defined attachment as an "affectional bond between infants and their primary caregivers", and suggested that it affects human beings "from the cradle to the grave". Mary Ainsworth,

on the other hand, provided empirical evidence to Bowlby's theories, making it possible for ensuing researchers to polish and expand the theory.

Bowlby (1969) argues that the evolutionary function of attachment behavior is to protect the young from danger, as they cannot defend themselves from predators. When threatened by danger, infants direct distress signals to special individuals referred to as attachment figures, who are usually main caregivers such as the mother. Attachment figures are thought to serve two basic functions: safe haven and secure base. Safe haven refers to the attachment figure's ability to provide comfort and reassurance to the distressed infants. When the infants' "felt security" is restored, they continue to use attachment figures as the secure base from which to explore the world (Ainsworth M. , 1967; Schaffer & Emerson, 1964). The infant's behavior directed towards attachment figures when distressed is called proximity seeking. When proximity seeking fails or the attachment figure is unavailable, infants often respond through separation protest, displaying greater distress such as crying, clinging and showing anger, hoping to elicit sensitive responses from attachment figures. Secure base, safe haven, proximity seeking and separation protest are the defining features of an established attachment relationship (Ainsworth, Blehar, Waters, & Wall, 1978). Accordingly, the quality of an attachment relationship largely depends on whether the attachment figure is available upon the infant' proximity seeking, capable of providing reassurance and support to serve as a safe haven, and of acting as a secure base from which the infant is confident to explore the world. "When interaction between a couple runs smoothly, each party manifests intense pleasure in the other's company and especially in the other's expression of affection. Conversely, whenever interaction results in persistent conflict, each party is likely on occasion to

exhibit intense anxiety or unhappiness, especially when the other is rejecting." (Bowlby J. , 1969)

Early Attachment to Caregivers

The attachment relationship during infancy is relatively asymmetrical and unilateral; however, as the infant gains greater cognitive capabilities and becomes increasingly aware of the outside world, especially the motives and plans of the attachment figure, the attachment relationship grows into a more symmetrical goal-corrected partnership (Bowlby J. , 1969). By this time, the child is more capable of viewing the attachment figure as a separate entity, and is more willing to compromise to maintain a gratifying attachment relationship. This recognition of the attachment figure as an independent person is an important milestone in human development, as it facilitates the formation of internal working models. Internal working models are cognitive frameworks comprised of mental representations derived from interactional experiences with the caregiver to understand the world, self and others (Bowlby J. , 1988). The contents of internal working models involve knowledge about the details of interactional experiences as well as affect associated with these experiences (Bretherton I. , 1985). Furthermore, they are considered to operate primarily outside of conscious awareness (Bowlby J. , 1988). If the attachment figure responds to the child's needs for both comfort and exploration with sensitivity, the child is likely to develop an internal working model featuring positive views of the self and significant others. In contrast, if the attachment figure fails to respond to the child's needs for comfort and exploration with sensitivity, the child is likely to develop an internal working model featuring negative views of self and significant others (Bowlby J. , 1973). These early interactional

experiences with primary caregivers establish the blueprint for children's future interpersonal interactions (Morris, 1982).

Later, Ainsworth et al (1978) provided empirical support for Bowlby's attachment theory through an experiment called the “Strange Situation”, which later became widely used in attachment research. In this experiment, parents and infants are first led into a playroom where the infant is allowed to play with toys and explore the room. Two episodes involving separation and reunion then take place. In the first episode, a stranger enters the room and tries to engage with the infant as the parent quietly leaves the playroom. When the parent returns after a brief period of time, the stranger then leaves the room, and the parent is reunited with the infant. In the second episode, the parent leaves the room first, leaving the infant alone, and the stranger then enters the room to engage with the infant. After a similar brief period of time, the parent returns to reunite with the infant and the stranger leaves the room. Based on infants' reactions to separation and reunion with their parents, Ainsworth and colleagues identified three attachment styles: secure, anxious-avoidant (insecure) and anxious-ambivalent or resistant (insecure). Secure infants typically develop positive views of themselves as worthy of love, and views of others as dependable and supportive (Ainsworth, Blehar, Waters, & Wall, 1978). Anxious-ambivalent infants are preoccupied with the availability of the caregiver, and will resist caregiver’s comfort upon reunion. Avoidant infants would constrain their distress and avoid contact with the caregiver upon her return (Ainsworth, Blehar, Waters, & Wall, 1978).

Adult Attachment

Given the nature of attachment as an affectional bond, Ainsworth (1967) contended that the needs for proximity maintenance to a special individual and the resulting feelings of comfort and security are not exclusive between mothers and infants; in fact, some adult relationships meet these criteria and can be considered as attachment relationships (Weiss, 1991). Hazan and Shaver (1987) then built on Bowlby and Ainsworth's initial position on attachment and expanded it to include adult romantic relationship, as behaviors inherent to the attachment system are also displayed in romantic relationships (Hazan & Zeifman, 1994; Campa, Hazan, & Wolfe, 2009).

Initially, the classification of adults' attachment orientation was based on Ainsworth's typology of infant-mother attachment (Ainsworth, Blehar, Waters, & Wall, 1978). Later, Bartholomew et al (1991) proposed a four-group model, which was based on views of the self and views of others. View of the self refers to the extent of one's dependence on others' acceptance, a positive view of the self is associated with less dependence on others' acceptance, and a negative view of the self is associated with more dependence on others' acceptance. View of others refers to the extent of avoidance of intimacy, a positive view of others is associated with low avoidance of intimacy, and a negative view of others is associated with high avoidance of intimacy. The four groups are: the securely-attached (positive views of both the self and others), the preoccupied (a negative view of the self, but a positive view of others), the dismissive - avoidant (a positive view of the self but a negative view of others), and the dismissive - fearful (negative views of both the self and others). Figure 1 illustrates this four-group model.

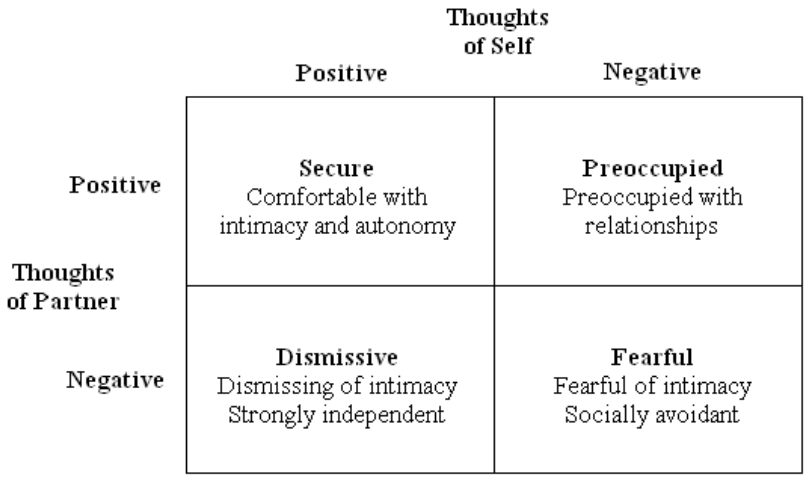

Fig. 1 Bartholomew's four-category model of adult attachment (Bartholomew & Horowitz, 1991)

However, this four-group model raised issues with regards to categorical versus continuous measures of attachment orientation. Further studies (Brennan, Clark, & Shaver, 1998) suggested that attachment orientation can be best conceptualized with two dimensions - *attachment anxiety* and *attachment avoidance* (Figure 2 shows the dimensional model). And they are affect-based and in line with Bowlby's original theory, in addition, they can be measured using self-report questionnaires with reliability and validity (Brennan, Clark, & Shaver, 1998).

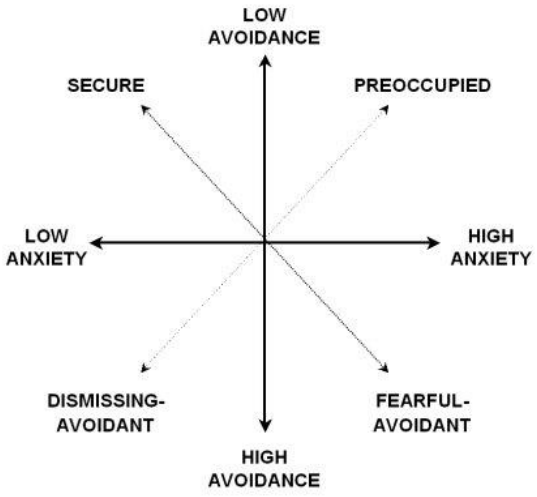

Fig. 2 The two-dimensional model of individual differences in adult attachment

Secure individuals are low in both attachment avoidance and anxiety, they perceive attachment figures as available, responsive and warm, they are comfortable with intimacy and close relationships, and are able to depend on others for support when needed. *Preoccupied* individuals are high in attachment anxiety but low in avoidance, they experience an increased desire for closeness and intimacy, but lack confidence in attachment figures' availability and responsiveness, and they depend on others' approval for personal wellbeing but fear abandonment. *Fearful-avoidant* individuals are high in both attachment anxiety and avoidance, they are distrustful towards significant others, but also experienced increased anxiety from fear of abandonment. Finally, *dismissing-avoidance* individuals are low in attachment anxiety but high in avoidance, they perceive attachment figures as unavailable and unresponsive when needed, in contrast, they perceive themselves as invulnerable to attachment needs, they tend to distance themselves from intimate relationships to avoid emotional dependence.

Association between Bowlby's Attachment and Erikson's Trust vs Mistrust

As previously described, Erikson (1968) believed that "Mothers create a sense of trust in their children by that kind of administration which in its quality combines sensitive care of the baby's individual needs and a firm sense of personal trustworthiness within the trusted framework their culture's life style. This forms the basis in the child for a sense of identity which will later combine a sense of being all right, of being oneself, and what other people will trust one will become" (p. 249). This conceptualization of trust versus mistrust during early developmental periods surprisingly parallels Bowlby's conceptualization of attachment security versus insecurity within the framework of internal working models. Both propose that when the caregiver-usually the mother, is responsive and consistent in meeting the child's needs, the child would develop trust towards the caregiver and towards oneself as worthy of being loved and cared for. This sense of "trust" or "attachment security" is stored in the "framework" or "internal working models" and becomes the basis of future relationships with others.

Global Attachment and Relationship-Specific Attachment

Global attachment refers to the broadest level of mental representations of attachment figures, whereas relationship-specific attachment refers to mental representations related to specific attachment relationships (Collins & Read, 1994). Accumulating evidence in the past has shown that relationship-specific attachment can be quite different from global attachment (Baldwin M. W., Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996; Ross & Spinner, 2001). For example, Cozzarelli et al (2000) found that individuals' mental representations of their current relationships were only modestly

correlated with their more overarching mental representations of attachment. Recent research even indicates that relationship-specific attachment is much more powerful in shaping global attachment over time than global attachment is in shaping relationship-specific attachment (Pierce & Lydon, 2001).

Bowlby (1969) argued that individuals have a "hierarchy of attachment figures" to whom they turn in times of distress. Typically, one special person is preferred as the principal attachment figure that can provide safe haven and secure base functions, while others are seen as subsidiary attachment figures (Bretherton I. , 1985). A major developmental task during emerging adulthood is intimacy vs isolation (Erikson E. , 1968), as young people's social network expands with their exploration, those who are not able to develop close relationships with others are thought to more likely experience loneliness and isolation later in life. Because of this shift in priorities, the hierarchy of attachment may be different during emerging adulthood.

Hierarchy of Attachment Figures during Emerging Adulthood

When asked about their subjective sense of attaining adulthood, the three criteria most often cited by emerging adults were accepting responsibility for one's self, making independent decisions (Arnett J. J., 1998; Greene, Wheatley, & Aldava IV, 1992), and becoming financially independent. These criteria reflect emerging adults' emphasis on becoming a self-sufficient person (Arnett J. J., 1998). During emerging adulthood, young people often have to deal with the contradictory needs of autonomy and dependency, the parent-child relationship evolves into one in which parents support independence and autonomy of the young while maintaining strong attachment and emotional bonds with

the young (Grotevant & Cooper, 1986; Hill & Holmbeck, 1986; Ryan & Lynch, 1989), as parents' sustained efforts to provide support throughout the home-leaving process and to maintain closeness are important for successful adjustments (Frank, Avery, & Laman, 1988; Grotevant & Cooper, 1986).

Studies have shown that parental support for independence is positively associated with higher self-esteem, autonomy, feelings of love and worthiness (Ryan & Lynch, 1989), whereas parental denial of independence contributes to hostility and impaired social functioning (Allen, Hauser, O'Connor, & Bell, 2002). Mayseless and Hai (1998) found that home-leaving led to heightened feelings of autonomy and better relations with (more warmth, less confrontation) young people. While emerging adults with the most frequent contact with parents, particularly those still living at home, tend to have the poorest psychological adjustment and poorer relations with parents (Dubas & Peterson, 1996; O'Connor, Allen, Hauser, & Bell, 1996).

Researchers contended that non-familial close relationships such as friendships and romantic relationships in emerging adulthood may reflect the functional significance and patterns of prior parent-child relationships (Owens, et al., 1996; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000; Hazan & Zeifman, 1994). This corroborates the observation that starting from adolescence, young people are gradually expanding their relational world through active exploration, as a result, friends and romantic partners become more significant figures (Collins & van Dulmen, 2006; Hazan & Zeifman, 1994).

Friends are perceived as an important source for intimacy, mutuality, and self-disclosure (Furman & Buhrmester, 1992), they are individuals emerging adults are most

likely to spend time with when feeling down. Romantic relationships usually begin as an informal extension of friendships (Furman, Porter, & Stern, 2002) from early adolescence, and gradually assume more importance than friendships during emerging adulthood. According to Erikson (1968), establishing intimacy in close relationships with others, particularly romantic partners, is considered as a major developmental task during emerging adulthood. In a longitudinal study following individuals from birth to age 23, Sroufe and colleagues (2005a) found that 69% of 23-year-olds were spending less time with their friends than they were 3 to 4 years before, and argued that the reduction of time spent with friends could be due to an increased reliance on romantic partners.

A survey of existing literature in google scholar, PsycInfo, and Eric using the key word "hierarchy of attachment" yielded only 4 studies that conducted a systematic examination on hierarchy of attachment among adolescents and emerging adults. In one study, Rosenthal and Kobak (2010) have found that mothers were frequently cited as the primary attachment figure for both high school and college students, however, for college students, romantic partners rather than friends were placed in higher positions, and fathers were placed in lower positions. Trinke and Bartholomew (1997), as well as Pitman and Scharfe (2010) reported that romantic partners were ranked most highly as attachment figures by a sample of undergraduate students, followed by mothers, fathers, and best friends. Similarly, another study done by Doyle et al (2009) reported that dismissiveness with best friends followed the same pattern of increase with age as dismissiveness with parents. The current study seeks to examine sources of attachment that have the most significant influence on college students' mental health. Based on the

evidence provided above, attachment with mother is expected to have the most significant influence, followed by romantic partners, best friends and father.

Significance of Internal Working Models

Internal working models of attachment are enduring mental representations of interactional experiences with attachment figures, which have cognitive as well as emotional components (Bretherton & Waters, 1985). Continuity of attachment from childhood to adulthood is maintained primarily through the persistence of these internal working models, as individuals tend to bring mental representations formed from previous relationships to new relationships. Information stored in internal working models includes views about others' availability when help is needed, and views about oneself as worthy of love and care (Collins & Read, 1994; Bretherton & Waters, 1985). Views about others and oneself can be both positive and negative. A positive view of others is usually formed when attachment figures are accessible and responsive when help is needed, whereas a negative view of others is formed when attachment figures are inconsistent or unresponsive with care (Main, Kaplan, & Cassidy, 1985). Positive views of others may contribute to a positive view of one's self, as when individuals interact with attachment figures, beliefs about the self as worthy of love and care can be gauged from the responsiveness of others (Bartholomew K. , 1990; Bartholomew & Horowitz, 1991).

Internal working models are sometimes considered core features of personality, affecting the way in which the attachment system is expressed through cognitive, affective, and behavioral patterns of response in attachment-relevant contexts (Collins,

Guichard, Ford, & Feeney, 2004). The central theme of internal working models is the fulfillment of attachment needs such as proximity seeking and attainment of felt security (Bretherton & Waters, 1985; Sroufe & Waters, 1977). Collins and Read (1994) suggest that internal working models may be organized as a hierarchical structure, so at the top of hierarchy is the most general representation about the self and others, based on early interactional experiences with caregivers, further down in the hierarchy are domain-specific representations of different types of relationships, and at the lowest hierarchy are representations of specific relationships. Studies have shown that general working models and relationship-specific working models are correlated but not redundant (Baldwin M. , Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996; Cozzarelli, Hoekstra, & Bylsma, 2000; Pierce & Lydon, 2001), and whether an individual will feel secure or not in a relationship is largely attributed to that individual's general propensity towards felt security (La Guardia & Patrick, 2008; Cook, 2000; Pierce & Lydon, 2001).

Internal working models are used for categorizing individuals into secure and insecure attachment styles (Ainsworth, Blehar, Waters, & Wall, 1978), as people with different attachment styles behave differently, and these behavioral responses are stored as "scripts" in internal working models (Main, Kaplan, & Cassidy, 1985). The internal working models of secure and insecure individuals differ in four basic areas (Collins & Read, 1994): memories of attachment-related experiences; beliefs, attitudes and expectations about self and others; attachment-related goals and needs; and finally, plans and strategies associated with achieving attachment goals. Compared with insecure individuals, secure individuals are more likely to have integrated, organized and coherent attachment memories (Shaver, Belsky, & Brennan, 2000); they also tend to hold more

positive beliefs about themselves in relation to others (Collins & Read, 1990; Hazan & Shaver, 1987; Harvey & Byrd, 1998), and their self-esteem is likely based on interpersonal and relational competency (Brennan & Bosson, 1998; Brennan & Morris, 1997); their approach to attachment relationships features both intimacy and autonomy, and are more likely to develop constructive coping skills such as support-seeking (Collins & Feeney, 2000; Feeney & Collins, 2001; Simpson, Rholes, & Nelligan, 1992), problem solving (Feeney, Noller, & Callan, 1994; Simpson, Rholes, & Phillips, 1996; Greenberger & McLaughlin, 1998), and self-disclosure (Mikulincer & Nachshon, 1991).

Internal working models may be the link between attachment and perceived social support. Research has shown that perceived social support is associated with reports of early experiences with attachment figures (Blain, Thompson, & Whiffen, 1993; Kobak & Sceery, 1988; Sarason B. , et al., 1991; Sarason, Pierce, & Sarason, 1990). For example, Sarason et al (1990) linked the developmental antecedents of perceived social support to early parent-child attachment, and suggested that one's primary caregiver could be conceptualized as the earliest source of perceived social support. Kobak and Sceery (1988) found that secure individuals reported having more available support from their families than avoidant individuals. Florian et al (1995) found that secure individuals reported higher levels of available emotional and instrumental support from their significant others and reported seeking more support than avoidant and ambivalent individuals.

An Overview of Perceived Social Support

Numerous theoretical models have been proposed that attempt to more accurately describe the multivariate nature of social support (Cobb, 1979; Cohen, Mermelstein, Kamarck, & Hoberman, 1985; Kahn R. , 1979; Schaefer, Coyne, & Lazarus, 1981). Some researchers suggest that social support can be broadly organized into three categories: social embeddedness, received social support, and perceived social support (Barera, 1986; Sarason, Pierce, & Sarason, 1990; Gottlieb, 1983; Heller & Swindle, 1983). Kahn and Antonucci (1980) defined social support with 3 A's: affect, affirmation, and aid, and argued that social support may involve the expression of caring and emotional intimacy (affect), the provision of information about the rightness or wrongness of one's actions or thoughts (affirmation), and the availability and use of direct help through money, time, effort, and the like (aid). House (1981) identifies four types of support behaviors: (a) emotional support which involves caring, trust, and empathy; (b) instrumental support which includes helping others do their work, loaning money, and going with others on difficult tasks; (c) informational support which means giving information or teaching a skill which can provide a solution to a problem; and (d) appraisal support which involves information that helps one in evaluating personal performance, as when a work supervisor tells an underling that a job was well done. Another group of scholars categorize social support into two forms-structural and functional social support, structural support refers to the existence and quantity of relationships, whereas functional support refers to the perceived quality of social relationships (Kawachi & Berkman, 2001; Thoits, 1995). Similarly, Chronister, Johnson and Berven (2006) conceptualized ‘social support’ as consisting of structural, functional,

and perceptual dimensions, and the perceptual dimension refers to subjective experiences of satisfaction by individuals of their support networks. Despite different categorizations and dimensions of social support, most authors have found perceived social support to be the strongest predictor of psychological status (Antonucci & Israel, 1986; Sandler & Barrera, 1984; Wethington & Kessler, 1986; Barrera, Sandler, & Ramsay, 1981; Brandt & Weinert, 1981; Schaefer, Coyne, & Lazarus, 1981; Wilcox, 1981). Therefore, this study will focus on effects of perceived social support on mental health.

Cobb (1979) proposed that the effects of social support were based on "information leading the subject to believe that he is cared for and loved…esteemed and valued…and belongs to a network of communication and mutual obligation". Heller and Swindle (1983) defined perceived social support as individuals subjective beliefs that they are cared for and worthy of help, that significant others are accessible during times of distress, and that they are satisfied with the type and quality of the relationships they have in life. This concept fits well with Cobb's early conceptualization. Similarly, Cassel (1976) argued that the positive impacts of social support come from the perception that one is being cared for rather than from the number of social ties one has. The construct of perceived social support is also consistent with the important role cognitive appraisal plays in human psychology. Lazarus and Folkman (1984) wrote that "psychological stress is a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being", indicating that the experience of stress includes not only the perception of actual stress, but also the subjective perception of available support from others.

The growth in the literature on perceived social support is possibly fuelled by the consistent findings that perceived social support is associated with a variety of mental health outcomes (Antonucci & Israel, 1986; Sandler & Barrera, 1984; Wethington & Kessler, 1986), perhaps because it is a more direct measure of an individual's subjective perception of available support (Schaefer, Coyne, & Lazarus, 1981). It has been linked to psychiatric morbidity, suicide, clinical depression (Broadhead, et al., 1983), acute and trait anxiety, and self-reported mental health (Cohen & Wills, 1985; Gottlieb, 1983). Brissette et al (2002) found that it was perceived social support rather than the actual self-reported size of students' social network that predicted students' psychological adjustment to college. Caspi et al (1987) found that perceived social support was related to an alleviation of impacts of stressful events happened on a previous day on an individual's mood states in the next day. Perceived social support serves as a protective factor against mental health problems (Clara, Cox, Enns, Murray, & Torgrudc, 2003).

Global and Relationship-Specific Perceived Social Support

A review of existing literature suggests that perceived social support assessed globally and across different relationships might be independent constructs. Global perceived social support more likely functions in a trait-like manner reflecting one's predisposition to views of support availability (Cozzarelli, Hoekstra, & Bylsma, 2000), and could not be derived by simply summing perceptions of support across various relationships (Davis, Wrage, & Reich, 1998). Lakey et al (1990) found that global perceived social support was more strongly correlated with cognitive personality variables, and with biases in interpreting the supportiveness of hypothetical helping behaviors. Whereas perceived social support assessed within a particular relationship

reflects unique experiences that give rise to distinctive expectations about the future likelihood of receiving support within that relationship (Cutrona, 1989; Pierce, Rubenfeld, & Morgan, 1991). Thus, heterogeneous relationships with different individuals are likely to differ in their degrees of support (Pierce, Rubenfeld, & Morgan, 1991). For example, differences in perceived social support from family and from friends have been documented in the literature (Vaux & Harrison, 1985; Procidano & Heller, 1983). For the majority of respondents, perceived social support from family is more stable, reliable, and uninfluenced by temporary attitudinal changes (Procidano & Heller, 1983) than that from friends. Further, Davis et al (1998) have found that global and domain-specific perceptions of social support had independent unique contributions to wellbeing.

Gender Differences in Attachment and Perceived Social Support

No gender differences were thought to exist in parent-child attachment, because both male and female infants depend on their caregivers for attachment needs. Yet in the studies of adult attachment, it was consistently found that men tended to be more avoidant than women (Brennan, Clark, & Shaver, 1998; Scharfe & Bartholomew, 1994), and less likely to express emotions associated with affiliation and social bonding than women (Brody & Hall, 1993; Geary, 1998). These gender differences in adult attachment may be explained by the different socialization processes for males and females. Females typically develop a more relational self, and a communal approach to interpersonal relationships that is characterized by intimacy and concerns for others, whereas males typically develop a more separate self and an independent approach to interpersonal relationships that is characterized by agency and exploration (Cross & Madson, 1997; Fivush & Buckner, 2003; Thorne & McLean, 2002). Previous studies showed that by

early adolescence, girls' friendships are characterized by more intimacy than those of boys (Brendgen, Little, & Krappmann, 2000; Gullone & Robinson, 2005; Furman & Buhrmester, 1992; Bukowski, Hoza, & Boivin, 1994), which may explain females' greater use of best friends for attachment functions (Gullone & Robinson, 2005; Henrich, Blatt, Kuperminc, Zohar, & Leadbeater, 2001; Sharon & Gordon, 2009). Differences in attachment may contribute to gender-specific building blocks of security and trust within internal working models (Gilligan, 1982). Zimet et al (1988) reported that women reported greater perceived social support from friends and significant others. This finding is consistent with findings from attachment literature that women emphasis more intimacy in close relationships than men.

Ethnic Differences in Attachment and Perceived Social Support

Conclusions regarding ethnicity and attachment are inconsistent. In a study using data set from the NICHD Early Childcare Research Network to examine differences in attachment security between African-American and Caucasian children at two years of age, it was found that African American children's attachment security was substantially lower than that of Caucasian children (Bakermans-Kranenburg, Van IJzendoorn, & Kroonenberg, 2004). Wei and colleagues (2004) found that Americans of Hispanic descent tended to be more anxious, however, Lopez et al (2000) reported greater avoidance among Hispanic Americans instead of greater anxiety. Kim and Zane (2004) found that Korean Americans were more avoidant and less anxious than Caucasians, whereas You and Malley-Morrison (2000) found them to be more anxious and just as avoidant as Caucasians. A study by Agishtein and Brumbaugh (2013) found that individuals from East Asian countries such as China and Korea exhibited the highest

level of attachment anxiety, but African American individuals were not significantly more avoidant than others.

There is a scarcity of research focusing exclusively on perceived social support among different ethnic groups, possibly due to issues in measurements and definitions. In a study done by Pernice-Duca (2010), it was found that the quality of relationships across various members of an adolescent's social network did not significantly vary between ethnic groups, but varied within specific relationships, for example, compared with Caucasians, African-American and occasionally Latino adolescents, reported relatives, siblings, and teachers as providing significantly greater sources of self-enhancing assistance and reliable affection. Their study also did not find significant differences in perceived social support between adolescents living in two-parent and single-parent homes. Almeida et al (2009) reported that Latinos had lower perception of friend support than non-Latino whites.

CHAPTER 3

METHODS

Emerging adulthood is considered as a period of extended exploration in contemporary American society. Yet, exploratory activities such as in love, work, and world views are often accompanied by setbacks, heartbreaks, stress, and loneliness. A handful of studies have reported the types of psychological distress that are frequently experienced by emerging adults attending colleges. On the national level, the most often cited statistics come from two surveys: the National College Health Assessment (NCHA) by American College Health Association, and the National Survey of College Counseling Center Directors (NSCCC) by Robert P. Gallagher at University of Pittsburgh. In the year 2013, results from NCHA showed that within the last 12 months prior to the assessment, almost half (45%) of all surveyed students reported feeling hopeless, an alarming 83.7% felt overwhelmed by things they had to do, 31.3% felt so depressed that it was difficult to function, and 7.4% seriously considered suicide. In the same year, results from NSCCC showed that an overwhelming 95% of directors reported an increase in the number of students with severe psychological problems, 44% of center clients had severe psychological problems, and 7% of these clients had impairment, so serious they cannot remain in school, or could only do so with extensive psychological/psychiatric help.

A longitudinal study of psychological distress among college students found that although for most students, levels of distress peaked during the freshman year and then declined, some students experienced chronic and severe levels of distress that did not decrease over time (Sher, Wood, & Gotham, 1996). These students often report poor

mental health, relationship stress (Kisch, Leino, & Silverman, 2005; Blanco, et al., 2008), low social support (Blanco, et al., 2008; Hefner & Eisenberg, 2009), or victimization by sexual violence (Stepakoff, 1998). Other causes may be dysfunctions, instability, poor parenting skills, violence within the family, early experimentation with drugs, alcohol and sexual practices, and poor interpersonal attachment (Gallagher, Gill, & Sysko, 2000).

Longitudinal studies have revealed the importance of perceived social support and attachment security in fostering successful passage through this transition. For example, studies targeting incoming college freshmen have found that students with adequate social support reported greater protection from major life stressors (Cohen, Sherrod, & Clark, 1986), and adjusted better during stressful situations (Brissette, Scheier, & Carver, 2002). Similarly, greater security in current attachment with parents was significantly related to less perceived psychological distress (Evan & William, 1993). However, existing literature has focused extensively on global measures of perceived social support and attachment, only a few recent studies have gone so far as to examine perceived social support or attachment within specific relationships. In addition, though some researchers proposed that perceived social support might just be part of attachment, the relationship between these two constructs is not yet conclusive. Understanding significance of perceived social support and attachment within a particular relationship in predicting mental health could help researchers and counselors design more effective mental health programs. Furthermore, many of the existing studies have focused on the clinical population-students with mental disorders or seek professional help at the counseling center, or a specific mental disorder such as depression, rarely did

researchers examine the overall mental health status among a general college student population. Thus, it warrants the current study to address some of these issues.

Purpose and Research Questions

The main purpose of the study is to examine sources of attachment and perceived social support that are significant predictors of mental health among a group of college students, and to test if these sources differ across gender.

The following research questions will guide the current study:

1. What sources of attachment have the most significant impact on college students' mental health and do the sources differ by gender?
2. What sources of perceived social support have the most significant impact on college students' mental health and do the sources differ by gender?
3. What sources of perceived social support still have incremental effects on college students' mental health after controlling for attachment and do the sources differ by gender?

Quantitative Research Framework

As defined by Trochim and Land (Trochim & Land, 1982), a quantitative research design is the "glue that holds the research project together…to show how all of the major parts of the research project—the samples or groups, measures, treatments or programs, and methods of assignment—work together to try to address the central research questions." This study utilizes a quantitative research framework because it aims to maximize objectivity, replicability, and generalizibility of the findings, most

importantly, it aims to predict (Harwell, 2011). The nature of a quantitative design is often described as deductive, because inferences from tests of statistical hypotheses are expected to lead to general inferences about characteristics of a population (Harwell, 2011). Therefore, a quantitative design often has the assumption that there is a single "truth" that exists, independent of human perception (Lincoln & Guba, 1985). The contents of a quantitative design usually include: (1) introduction to a study that includes the purpose and research questions; (2) theoretical perspectives or models; (3) methodology that encompasses sampling and an evaluation of external validity, instrumentation that may include an evaluation of construct validity, experimental design that includes an evaluation of internal validity and data collection, and data analysis that includes an evaluation of statistical conclusion validity; (4) reporting the results; and (5) conclusions and implications (Pedhazur & Schmelkin, 1991; Shadish, Cook, & Campbell, 2002).

Power Analysis

A preliminary power analysis concluded that when there were 14 independent variables (age, gender, and ethnicity, 8 attachment variables, and 3 perceived social support variables), reaching a medium effect size (f^2 =.15) at *power = .95* for *a = .05* would require a sample size of 130 participants (Cohen J. , 1992). Pedhazur (1997, p. 207) suggests that a ratio of subject to variable of at least 15:1 is critical for results of multiple regression analysis to be generalizable. Accordingly, the current study has 14 independent and 4 dependent variables, which required at least 270 subjects.

Participants

The study was first approved by *the Institutional Review Board* of the University of Illinois at Urbana-Champaign. For two consecutive semesters, undergraduate students enrolled in a 200-level Community Health course were asked for voluntary participation in the study. These students were chosen because they represented a relatively diverse student population at the University of Illinois, most importantly, they belong to the emerging adult population. Only the data of those participants who completed all items were included in the analyses in this study. Fully completed questionnaires from 407 participants (268 female, 139 male; 297 Caucasian, 33 African American, 28 Hispanic-American, and 49 Asian-American; mean age = 20.25 years, *SD* = 1.13; 8.6% were freshmen, 27% were sophomore, 30.7% were juniors, and 33.7% were seniors) were collected and analyzed using SPSS 20.0. Frequency distributions of participants' demographic characteristics are presented in Table 1.

Table 1

Frequency Distribution of Participants' Demographic Characteristics

Variable	N	%
Year_in_school		
Freshman	35	8.6
Sophomore	110	27
Junior	125	30.7
Senior	137	33.7
Ethnicity		
Caucasian	297	73
Non-Caucasian	110	27
African American	33	8.1
Hispanic American	28	6.9
Asian American	49	12.0
Gender		
Male	139	34.2
Female	268	65.8

Procedure

The first round of data collection was conducted in one class period in the fall semester of 2012, and the second round was conducted in one class period in the spring semester of 2013. Participation in this study was completely voluntary, without monetary compensations, and no extra credits were offered for participation. At the beginning of each data collection session, participants were told that the purpose of the study was to "examine how their relationships with others will affect their health". Then instructions were given, and students who agreed to participate and signed the consent form were asked to complete questionnaire packets, which include measures of attachment, perceived social support, mental and physical health. All the questionnaires were to be completed anonymously. And after completion of the questionnaire, each participant was thanked for their time and participation.

Instruments

Attachment

Experiences in Close Relationships-Relationship Structures Scale (*ECR-RS*) developed by Fraley et al (2011) can be used to assess attachment-related anxiety and avoidance in individuals' relationships with their mothers, fathers, romantic partners, and friends. A common set of 9 items is used to measure attachment in these 4 domains, 6 of which (items 1-6) assesse attachment avoidance, 3 of which (items 7-9) assesse attachment anxiety. Attachment avoidance measures concerns about closeness with and dependence on others (e.g., I find it difficult to allow myself to depend on him/her), whereas attachment anxiety measures concerns about rejection and abandonment by

significant others (e.g. I'm afraid that I will lose my partner's love). Some items are "It helps to turn to this person in times of need" or "I don't feel comfortable opening up to this person". For each item, participants were asked to rate, on a 7-point Likert scale, the extent to which they agreed or disagreed with the item, with 1 being strongly disagree and 7 being strongly agree. Within each specific relationship, a total score for attachment avoidance was calculated by averaging across items 1 to 6 after reversing keying items 1 to 4; a total score for attachment anxiety was calculated by averaging across items 7 to 9. The authors reported that the test-retest reliability of this 9-item scale is approximately .65 for romantic relationships, and .80 for parent-child relationships. Further, the scales measuring each of the 4 relationships are meaningfully related to one another as well as to the outcomes of relationships such as depression.

Perceived Social Support

The *Multidimensional Scale of Perceived Social Support* (*MSPSS)* by Zimet et al (1988) was used to measure perceived social support. The scale consists of 12 items measuring individuals' subjective perceived availability and adequacy of social support across 3 sources: family (items 3, 4, 8, 11), friends (items 1, 2, 5, 6, 7, 9, 12), and a significant other (items 1, 2, 5, 10). It uses a 7-point response format (1 = very strongly disagree; 7 = very strongly agree). Some items include "There is a special person who is around when I am in need" or "I can count on my friends when things go wrong". The original instrument was administered to university students, Cronbach's coefficient alphas were reported for the whole scale as well as for each subscale. The internal reliability for the whole scale was .88, it was .87 for family, .91 for a significant other, and .85 for friends (Dahlem, Zimet, & Walker, 1991; Kazarian & McCabe, 1991; Zimet

G. , Dahlem, Zimet, & Farley, 1988). Factor analysis showed that respondents clearly differentiated between the 3 sources of perceived social support (Zimet G. , Dahlem, Zimet, & Farley, 1988).

Mental Health

Short Form-36 (*SF-36*) was used to measure mental and physical health. This questionnaire was developed from a pool of 245 items used for measuring physical limitations, role functioning, mental health, and perceived general health (Ware & Sherbourne, 1992). The 245-item pool was part of the Medical Outcomes Study (MOS) done by RAND (Ware & Sherbourne, 1992).

SF-36 is a multi-dimensional scale that is consisted of 36 items, 8 health-related dimensions, and 2 domains. The 8 dimensions were selected from a pool of 40 concepts in the Medical Outcomes Study (MOS) (Stewart & Ware, 1992), and represent frequently measured and multiple operational indicators of health and wellbeing. They are: 1) vitality (examines energy/fatigue, includes items 23, 27, 29, 31,), 2) physical functioning (examines limitations in physical activity because of health problems, includes items 3, 4, 5, 6, 7, 8, 9, 10, 11, 12), 3) bodily pain (measures presence of physical pain, includes items 21, 22), 4) general health (measures self-evaluation of general health, includes items 1, 33, 34, 35, 36), 5) physical role limitations (limitations in role activities due to physical health problems, includes items 13, 14, 15, 16), 6) mental role limitations (measures limitations in role activities due to emotional health problems, includes items 17, 18, 19), 7) social functioning (measures limitations in social activities, includes items 20, 32), and 8) emotional wellbeing (measures emotional distress and wellbeing, includes

items 24, 25, 26, 28, 30). The physical health domain includes dimensions of physical functioning, bodily pain, general health, and physical role functioning, and the mental health domain includes domains of vitality, emotional role functioning, social role functioning, and mental health dimensions (Ware J. , 2004). Each dimension is computed by averaging across all items within the dimension, and each domain can be computed by averaging across scores from corresponding dimensions. All but one of the items (item 2) are used for scoring. Items measuring mental health include "During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?" or "Did you feel full of pep during the last 4 weeks?". Items measuring mental health include "Does your health now limit you in these activities?" or "I seem to get sick a little easier than other people".

Hundreds of studies have tested the psychometric soundness of *SF-36*. Some of these studies have validated SF-36 among people who are from different cultures and speak different languages (Laguardia, et al., 2011). Other studies have validated the scale among specific populations (Laosanguanek, Wiroteurairuang, Siritho, & Prayoonwiwat, 2011). Results showed that the validity of SF-36 differed markedly across different studies. Emotional Wellbeing, Mental Role Limitations, Social Functioning, and the total score of mental health have been shown to be the most valid measure of mental wellbeing. Physical Functioning, Physical Role Limitations, Bodily Pain, and the total score of physical health are considered to be the most valid measures of physical wellbeing.

The popularity and widespread use of *SF-36* drew the attention of researchers trained in item-response theory. For example, Rasch analysis was used to compare its measurement result with that obtained from traditional Likert scale approach (Raczek, et al., 1998). Results from Rasch analysis showed that *SF-36* had stronger relative validity and precision (McHorney, Haley, & Ware, 1997) than the Likert scale approach, suggesting that *SF-36* is a unidimenional scale that can be reproduced (Haley, McHorney, & Ware, 1994).

Data Analyses

All data was analyzed using SPSS (version 20). Before conducting any statistical analysis, the data were examined for both univariate and multivariate outliers. To check for univariate outliers, both independent and dependent variables were standardized (*z* scores), any case with a *z* score greater than 3.3 and less than -3.3 was deleted. Because of the study's large sample size, cases with missing data were deleted using listwise deletion in SPSS (version 20). To check for multivariate outliers, Mahalanobis Distance was calculated, which is often used to identify cases in which the observed score noticeably differs from the centroid of all scores (Byrne, 2009). Any case with a Mahalanobis Distance larger than 23.685 for $df = 14$ at $p < .05$ was deleted. The total number of cases after data cleaning was 407, which was deemed adequate to achieve sufficient statistical power.

Descriptive statistics were reported for participants' demographic information (Table 1). To test if sources of perceived social support and attachment insecurity are significantly different across gender, two one-way multivariate analyses of variance

(MANOVA) will be conducted, one on sources of perceived social support, the other one on sources of attachment insecurity. An alpha level of .05 was used to determine statistical significance. The *Wilks Lambda statistic* was used to determine significance of the MANOVA results. MANOVA is used when researchers need to determine whether two or more groups differ on more than one dependent variable (Keselman, Cribbie, & Donahue, 1998). Rather than including all dependent variables in one MANOVA, researchers should group dependent variables into meaningful clusters and analyze them with separate MANOVAs (Martella, Nelson, Morgan, & Marchand-Martella, 2013). If result of the MANOVA is significant, it means that the groups differ on one or more of the dependent variables. However, MANOVA does not pinpoint the specific variable(s) on which the groups differ. In most analyses, MANOVA is often used as an initial step; if result of MANOVA is significant, ANOVA is often performed on each of the dependent variables to determine which specific one produces statistically significant differences between or among groups. Therefore, a series of ANOVAs were conducted as a follow-up test of MANOVA to examine what specific sources of perceived social support and attachment anxiety differ across gender.

Zero-order Pearson correlations were calculated for all dependent and independent variables. A series of hierarchical multiple regression analyses were then conducted to test sources of perceived social support and attachment insecurity that are significant predictors of mental health for both genders. Hierarchical multiple regression analysis is a sequential process involving the entry of predictor variables into the analysis in steps. It is widely used for statistical analysis in social sciences research when independent variables are correlated with each other, and the variance of one variable can

be accounted for by a previous variable (Pedhazur, 1997). It analyzes effects or explanatory abilities of a predictor variable after controlling for other correlated predictor variables by calculating changes in adjusted R^2 at each step of the analysis, thus, the increment in variance after each variable (or group of variables) is entered into the regression model (Pedhazur, 1997). Therefore, hierarchical multiple regression analysis helps researchers evaluate the unique contributions of a particular predictor variable above and beyond previously entered predictor variables. The order of variable entry is typically based on existing theory and past research, as Kerlinger (1986) wrote that "the research problem and the theory behind the problem should determine the order of entry of variables in multiple regression analysis". And the most relevant independent variables would be entered first into the hierarchical multiple regression analysis (Cohen, West, & Aiken, 2010). Accordingly, the order of entry of independent variables in the current study is based on these principles. The results of the analyses, including unstandardized regression coefficient (B) for each predictor, changes in R^2 (ΔR^2) for each step along with F values were reported.

CHAPTER 4

RESULTS

Multivariate analysis of variance (MANOVA), ANOVA and correlational analyses were conducted prior to examining research questions. The purpose of MANOVA is to test if sources of perceived social support and attachment insecurity were significantly different across gender. The independent variable was gender, and dependent variables were grouped into two meaningful clusters – perceived social support and attachment insecurity. Wilks Lambda (Λ) statistic and an alpha level of .05 were used to determine statistical significance. Results indicate that there was a statistically significant difference in sources of perceived social support between males and females, F (3, 403) = 20.968, $p < .001$; Wilk's $\Lambda = 0.865$, partial $\eta^2 = 0.206$, sources of attachment insecurity was also statistically significant between males and females, F (8, 398) = 8.310, $p < .001$; Wilk's $\Lambda = 0.857$, partial $\eta^2 = 0.143$. To identify specific sources, a follow-up one-way analysis of variance (ANOVA) was conducted to examine each source of perceived social support and attachment insecurity across gender. Results of the ANOVA are presented in Table 2. Perceived social support from family (F (1,405) = 18.566, $p < 0.001$), significant others (F (1,405) = 55.564, $p < 0.001$), and friends (F (1,405) = 60.907, $p < .001$) were significant across gender, with females reporting more perceived social support than males. Meanwhile, attachment avoidance with mother (F (1,405) = 11.863, $p = 0.001$), dating partner (F (1,405) = 17.044, $p < 0.001$), and best friends (F (1,405) = 54.016, $p < 0.001$), attachment anxiety with mother (F (1,405) = 10.051, $p = 0.002$) and best friends (F (1,405) = 12.332, $p < 0.001$) were all significantly different across gender, with males reporting more anxieties as well as avoidance than

females. However, attachment avoidance with father (F (1,405) = 0.465, p = 0.496), attachment anxiety with father (F (1,405) = 1.660, p = 0.198) and dating partner (F (1,405) = 1.140, p = 0.286) did not significantly differ across the two groups. These results indicated significant gender differences, males and females were analyzed separately for future analyses.

Zero-order Pearson correlation coefficients were computed for all independent and dependent variables (see Table 3 and Table 4). Correlation coefficients among variables in the current study ranged from small (±.1 to ±.3) to large (±.5 to ±1.0), with a majority correlations falling between the small to medium (±.3 to ±.5) effect size range. For both males and females, the correlation between mental health and sources of perceived social support were positive, whereas the correlation between mental health and attachment anxiety, avoidance were negative. Perceived social support from friends and significant others had the highest correlation for both males ($r = .84$, $p < .001$) and females ($r = .88$, $p < .001$). Further, correlation coefficients were examined to determine if multicollinearity was an issue for any of the independent variables. Multicollinearity refers to the presence of highly intercorrelated predictor variables in regression models, it has negative effects on regression results because the variance of the regression coefficients can be inflated so much that the individual coefficients are not statistically significant. Inspection of the correlation matrix for high pairwise correlations is often used to detect multicollinearity, correlation coefficients close to 1 may indicate the presence of multicollinearity. However, this is not sufficient, since multicollinearity can exist when there is no high correlation between two variables. The Variance Inflation Factor (VIF) is often checked along with correlations to determine presence of

multicollinearity. The term “Variance Inflation” refers to the effect of multicolinearity on the variance of estimated regression coefficients, and is calculated as multiple coefficient of each predictor on all the other predictors in multiple regressions. For example, a VIF of 10 implies that the standard errors are 10 times larger than would otherwise be. Critical values have been used to determine the presence of multicollinearity in regressions (Haan, 2002), a critical VIF value of 5 as recommended by Rogerson (2001) was used in this study. For each regression analyses, VIF value of each predictor was checked, any value above 5 signaled the presence of multicollinearity.

Table 2. One-Way Analysis of Variance (ANOVA)

	Mean		*SD*		*F*	*p*
	Male (*N*=139)	Female (*N*=268)	Male (*N*=139)	Female (*N*=268)		
Attachment Anxiety						
Mother	1.32	1.14	.68	.44	10.051**	.002
Father	1.42	1.31	.07	.05	1.660	.198
Dating Partner	2.49	2.31	1.60	1.58	1.140	.286
Best Friends	1.77	1.44	.96	.84	12.332**	< .001
Attachment Avoidance						
Mother	2.43	2.02	1.11	1.16	15.481**	.001
Father	2.79	2.69	1.32	1.50	.465	.496
Dating Partner	2.33	1.88	1.09	1.00	17.044**	< .001
Best Friends	2.28	1.60	1.03	.79	54.016**	< .001
Perceived Social Support						
Family	6.07	6.42	.81	.77	18.566**	< .001
Friends	5.64	6.33	.94	.80	60.907**	< .001
Significant Others	5.52	6.33	1.20	.94	55.564**	< .001

*Note. *p<.05, **p<.01*

Table 3. Zero-Order Correlations for Male students (*N*=139)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Mental Health	1.00													
2	Year in school	.08	1.00												
3	Ethnicity	.09	-.15	1.00											
	Anxiety														
4	Mother	-.14	.07	.051	1.00										
5	Father	-.17	-.11	.091	.72**	1.00									
6	Dating Partner	-.26**	.08	-.03	.31**	.28**	1.00								
7	Best Friends	-.23**	.08	.07	.42**	.45**	.32**	1.00							
	Avoidance														
8	Mother	-.20*	.04	.09	.38**	.30**	.25**	.19*	1.00						
9	Father	-.38**	.06	-.01	.21*	.36**	.27**	.28**	.49**	1.00					
10	Dating Partner	-.22**	.14	-.10	.38**	.31**	.55**	.29**	.27**	.18*	1.00				
11	Best Friends	-.23**	.09	.11	.27**	.31**	.15	.51**	.40**	.39**	.26**	1.00			
	Perceived Support														
12	Family	.27**	-.06	.06	-.16	-.36**	-.19*	-.15	-.57**	-.63**	-.16	-.27**	1.00		
13	Friends	.18*	-.01	-.01	-.25**	-.31**	-.30**	-.36**	-.42**	-.39**	-.42**	-.52**	.45**	1.00	
14	Sig Others	.22*	.07	-.02	-.20*	-.27**	-.34**	-.21*	-.40**	-.38**	-.45**	-.28**	.37**	.84**	1.00
	Mean	72.96	2.09	.28	1.32	1.42	2.49	1.77	2.43	2.79	2.33	2.28	6.07	5.64	5.52
	SD	15.53	.91	.45	.68	.80	1.60	.96	1.11	1.32	1.09	1.03	.81	.94	1.20

*Note. *p< .05, **p< .01*

Table 4. Zero-Order Correlations for Female students (*N*=268)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Mental Health	1.00													
2	Year in school	.03	1.00												
3	Ethnicity	-.09	.08	1.00											
	Anxiety														
4	Mother	-.18**	.05	.10	1.00										
5	Father	-.08	.10	.10	.43**	1.00									
6	Dating Partner	-.31**	.13*	.07	.20**	.10	1.00								
7	Best Friends	-.30**	.07	.05	.38**	.38**	.28**	1.00							
	Avoidance														
8	Mother	-.24**	.01	.12*	.40**	.18**	.12	.23**	1.00						
9	Father	-.15*	.03	.13*	.23**	.48**	.12*	.23**	.36**	1.00					
10	Dating Partner	-.19**	.10	.10	.15*	.08	.47**	.15*	.15*	.10	1.00				
11	Best Friends	-.17**	.05	.18**	.22**	.19**	.07	.52**	.32**	.28**	.22**	1.00			
	Perceived Support														
12	Family	.24**	.01	-.13*	-.35**	-.22**	-.13*	-.25**	-.62**	-.45**	-.15*	-.33**	1.00		
13	Friends	.32**	.06	-.14*	-.20**	-.12*	-.18**	-.32**	-.38**	-.20**	-.28**	-.37**	.54**	1.00	
14	Sig Others	.27**	.08	-.09	-.07	-.11	-.19**	-.22**	-.31**	-.17**	-.33**	-.18**	.47**	.88**	1.00
	Mean	69.52	1.79	.26	1.14	1.31	2.31	1.44	2.02	2.69	1.88	1.60	6.42	6.33	6.33
	SD	17.23	.99	.44	.44	.84	1.58	.84	1.16	1.50	1.00	0.79	.77	.80	.94

*Note. *p< .05, **p< .01*

Research Question 1: What sources of perceived social support have the most significant impact on college students' mental health and do the sources differ by gender?

A series of hierarchical multiple regression analyses were conducted to explore sources of perceived social support that were best predictors of mental health for female and male students respectively. In the first hierarchical regression, demographic variables including year in school and ethnicity were entered in block one, and perceived social support from family, significant other, and friends were entered in block two. Table 5 presents results of the hierarchical regression. Upon inspection, the highest VIF value was 3.78 for male students and 4.78 for female students, which are below the critical value of 5, as a result, it was determined that multicollinearity was not a factor impacting the regression model.

For male students, demographic variables in block one were not significant, as they predicted only 1.6% of the total variance in mental health (R^2 = 0.016, F (2,136) = 1.111, p = 0.332). Perceived social support from family, significant others and friends were added in the second block, results indicate that the model was improved significantly by explaining an additional 8.7% variance (R^2 change = 0.087, p = 0.006), with the overall model predicting 10.3% of the variance in mental health (R^2 = 0.103, F (5,133) = 3.046, p = .012). Upon examining the final model, the only significant predictor was Perceived Social Support from family (β = 4.351, p = 0.015).

For female students, demographic variables in the first block did not produce significant results, explaining only 1.0% of the variance in mental health (R^2 = 0.010, F (2,265) = 1.345, p = 0.262). When the three sources of perceived social support were added in the second block, the model improved significantly (R^2 change = 0.104, p <

0.001), with the overall model predicting 11.4% of the variance in mental health (R^2 = 0.114, F (5,262) = 6.714, $p < .001$). Perceived Social Support from friends emerged as the only significant predictor (β = 6.492, p = 0.018) in the final model.

Based on these results, perceived social support from family appears to be a significant source of support in predicting male students' mental wellbeing, whereas perceived social support from friends appears to play a more significant role in female students' mental wellbeing.

Table 5. Hierarchical Multiple Regression on Perceived Social Support

Male (*N*=139)					
		R^2	R^2 *change*	*B*	*Beta*
Step 1	Year in school	.016	.016	1.611	.094
	Ethnicity			3.455	.100
Step 2	Perceived social support	.103**	.087**		
	Family			4.351	.228*
	Friends			-1.321	-.080
	Significant Others			2.524	.196
Female (*N*=268)					
Step 1	Year in school	.010	.010	.702	.040
	Ethnicity			-3.707	-.095
Step 2	Perceived social support	.114**	.104**		
	Family			2.065	.092
	Friends			6.492	.302*
	Significant Others			-.740	-.040

*Note. *p<.05, **p<.01*

Research Question 2: What sources of attachment have the most significant influence on college students' mental health and do the sources differ by gender?

In the second hierarchical multiple regression analysis, demographic predictors including year in school and ethnicity were entered in block one, and sources of attachment anxiety and avoidance were entered in block two. Table 6 presents results of the regression analysis. Upon inspection, the highest VIF value was 2.601 for male students and 1.034 for female students, which are well below the critical VIF value of 5, indicating that multicollinearity was not a problem in this regression model. For male students, demographic variables again did not yield a significant result, as they only explained 1.6% of the variance in mental health (R^2 = 0.016, F (2,136) = 1.111, p = 0.332). The addition of attachment predictors entered in the second block significantly improved the full model's predictability by 19.8% (R^2 change = 0.198, $p < 0.001$), with the full model (R^2 = 0.214, F (10,128) = 3.485, $p < 0.001$) explaining 21.4% of the variance in mental health. Attachment avoidance with father emerged as the only significant predictor in the full model, β = -3.804, p = 0.001. The negative β value indicates that the more avoidant our male subjects were with their fathers, the poorer their mental health was.

For female students, demographic variables in block one did not yield significant results either, as they only explained 1.0% of the variance in mental health (R^2 = 0.010, F (2,265) = 1.345, p = 0.262). Addition of attachment predictors in the second block significantly improved the predictive power of the full model by 17.8% (R^2 change = 0.178, $p < .001$), with the full model (R^2 = 0.188, F (10,257) = 5.949, $p < 0.001$) explaining 18.8% of the variance in mental health. Results indicate that the following

three significant predictors emerged for female students: they were attachment anxiety with dating partner (β = -2.302, p = 0.002), best friends (β = -5.040, p = 0.001), and attachment avoidance with mother (β = -2.104, p = 0.034). The negative values of all three regression coefficients indicate that as our female subjects experienced more anxieties with their romantic partners, best friends, and more avoidance with their mothers, their mental health decreased. In addition, the effect sizes of attachment predictors for both men and women were determined to be of medium strength based on Cohen's recommendations (1988), which suggests that attachment may be a better predictor of mental health than perceived social support, especially for our male subjects.

Table 6. Hierarchical Regression on Attachment

		Male (*N*=139)			
		R^2	R^2 *change*	*B*	*Beta*
Step 1	Year in school	.016	.016	1.611	.094
	Ethnicity			3.455	.100
Step 2	Attachment Anxiety	.214**	.198**		
	Mother			-.957	-.042
	Father			2.096	.108
	Dating Partner			-1.144	-.118
	Best Friends			-1.504	-.093
	Attachment Avoidance				
	Mother			.389	.028
	Father			-3.804	-.323**
	Dating Partner			-1.271	-.089
	Best Friends			-1.135	-.076
		Female (*N*=268)			
Step 1	Year in school	.010	.010	.702	.040
	Ethnicity			-3.707	-.095
Step 2	Attachment Anxiety	.188**	.178**		
	Mother			-.645	-.017
	Father			2.133	.104
	Dating Partner			-2.302	-.211**
	Best Friends			-5.040	-.246**
	Attachment Avoidance				
	Mother			-2.104	-.142*
	Father			-.723	-.063
	Dating Partner			-.742	-.043
	Best Friends			.736	.034

*Note. *p<.05, **p<.01*

Research Question 3: What sources of perceived social support will have incremental effects on college students' mental health after controlling for attachment and do the sources differ by gender?

In the third hierarchical regression, predictor variables were entered in three blocks, demographic predictors including year in school and ethnicity were again entered in block one, attachment predictors in block two, and perceived social support predictors were entered in block three. The results of the regression are presented in Table 7 and Table 8. Upon examination, VIF values of perceived social support from friends and significant others were above the critical value of 5 for both male and female students, which indicate the presence of multicollinearity. Previous studies have shown that the significant others support subscale appeared to measure both friends and family support at the same time (Cheng & Chan, 2004; Chou, 2000; Stanley et al, 1998), therefore, it was removed from the regression model to control for multicollinearity. And after it was removed, all VIF values were below the critical value of 5.

For male students, after controlling for demographic and attachment variables, the addition of perceived social support predictors in the third block did not improve the model significantly (R^2 change = 0.011, p = 0.410), with the full model explaining 22.5% of variance in mental health (R^2 = 0.225, F (12, 126) = 3.049, p = 0.016). Upon examining the full model, attachment avoidance with father remained the only significant predictor (β = -3.388, p = 0.009). These results indicate that, attachment, more specifically, attachment avoidance with father plays a more significant role for our male subjects, and perceived social support was not a significant contributor to their mental health.

For female students, after controlling for demographic and attachment variables in the first and second blocks, the addition of perceived social support predictors in the third block further improved the model significantly by explaining an additional 2.6% (R^2 change = 0.026, $p < .001$) of variance, with the full model accounting for 21.4% of the total variance in mental health ($R^2 = 0.214$, F (12, 255) = 5.782, $p < 0.001$). Upon examination of the final full model, perceived social support from friends ($\beta = -2.104$, $p = 0.034$), attachment anxiety with dating partner ($\beta = -2.269$, $p = 0.003$) and best friends ($\beta = -4.390$, $p = 0.005$) remained significant, whereas avoidance with mother was no longer significant. These results indicate that the positive contribution of perceived social support from friends to our female subjects' mental wellbeing is significant beyond the negative effects of anxieties with romantic partners, best friends, and avoidance with one's mothers.

Table 7. Hierarchical Regression on Attachment and Perceived Social Support for male students

		Male (*N*=139)			
		R^2	R^2 *change*	*B*	*Beta*
Step 1	Year in school	.016	.016	1.611	.094
	Ethnicity			3.455	.100
Step 2	Attachment Anxiety	.214**	.198**		
	Mother			-.957	-.042
	Father			2.096	.108
	Dating Partner			-1.144	-.118
	Best Friends			-1.504	-.093
	Attachment Avoidance				
	Mother			.389	.028
	Father			-3.804	-.323**
	Dating Partner			-1.271	-.089
	Best Friends			-1.135	-.076
Step 3	Perceived Social Support	.225**	.011		
	Family			2.419	.127
	Friends			-1.883	-.114

*Note. *p<.05, **p<.01*

Table 8. Hierarchical Regression on Attachment and Perceived Social Support for female students

		Female (*N*=268)			
		R^2	R^2 *change*	*B*	*Beta*
Step 1	Year in school	.010	.010	.702	.040
	Ethnicity			-3.707	-.095
Step 2	Attachment Anxiety	.188**	.178**		
	Mother			-.645	-.017
	Father			2.133	.104
	Dating Partner			-2.302**	-.211
	Best Friends			-5.040**	-.246
	Attachment Avoidance				
	Mother			-2.104*	-.142
	Father			-.723	-.063
	Dating Partner			-.742	-.043
	Best Friends			.736	.034
Step 3	Perceived Social Support	.214**	.026*		
	Family			.192	.009
	Friends			4.005	.186**

*Note. *p<.05, **p<.01*

CHAPTER 5

DISCUSSION

The primary purpose of the study was to investigate sources of perceived social support and attachment insecurity that are significant predictors of mental health in college students and determine if these sources differ by gender. Based on my review of the literature, this is the first study to examine sources of perceived social support and attachment together in predicting mental health among a group of college students. First, I examined if sources of perceived social support and attachment insecurity differed across gender. Secondly, I wanted to examine sources of perceived social support and attachment insecurity that were significant predictors of mental health for both males and females. Finally, I was interested in examining if sources of perceived social support had an incremental predictive ability above and beyond that of attachment insecurity. Results indicate that sources of perceived social support and attachment insecurity differ across gender, and the same relationship might carry different weight when predicting their mental health. Findings of the current study also lend support to the growing theories and research on relationship-specific attachment and perceived social support.

Males and females differed significantly in their ratings of perceived social support, with females reporting more support from all three sources (family, friends, and significant others) than males. First, this result departs from Zimet's (1988) finding that males and females did not differ significantly in levels of perceived support from family. Second, this finding concurs with previous studies showing that females reported more social support from friends and significant others than males (Colarossi, 2001; Colarossi

& Eccles, 2003; Slavin & Rainer, 1990). My study also found that males and females also differed significantly in attachment avoidance with mother, dating partner, best friends, and attachment anxiety with mother and best friends, with males reporting more anxieties and avoidance than females. This finding departs from previous studies that found that women were typically more anxious than men (Fraley, Heffernan, Vicary, & Brumbaugh, 2011; Schmitt, 2008).

What sources of perceived social support have the most significant impact on college students' mental health and do the sources differ by gender?

In terms of predicting mental health, my findings showed that perceived social support accounted for a small but close to medium percentage of total variances. Perceived support from family was the most significant predictor for male student mental health, however, perceived support from friends instead of family emerged as the most significant predictor for female student mental health. First, this finding is consistent with Prochidano and Heller's (1983) findings that friends and family were independent sources of social support, and studies that fail to consider different sources of support may lose important information. Second, the significant influence of support from friends but not from family on female students' mental health is consistent with previous studies showing that by early adolescence, girls' friendships are characterized by more intimacy than those of boys (Brendgen, Little, & Krappmann, 2000; Gullone & Robinson, 2005; Furman & Buhrmester, 1992; Bukowski, Hoza, & Boivin, 1994), and that females reported more perceived support from friends (Zimet G. , Dahlem, Zimet, & Farley, 1988; Ciarrochi, Chan, & Bajgar, 2001; Cheng & Chan, 2004).

What sources of attachment have the most significant influence on college students' mental health and do the sources differ by gender?

I found that for both males and females, attachment insecurity accounted for a medium proportion of total variances in predicting mental health, higher that the variances explained by perceived social support, indicating that attachment insecurity might be a better predictor of mental health than perceived social support. Attachment avoidance with father emerged as the most significant predictor for male students' mental health, whereas attachment avoidance with mother, attachment anxiety with dating partner and best friends were the most significant predictors for female students' mental health. This finding is consistent with previous studies reporting that young males may prefer their fathers more for attachment needs. For example, a study done by Trinke and Bartholomew (1997) using a sample of 223 university students reported that males ranked wanting to use their fathers as safe havens more highly than did females. In another study, Freeman and Brown (2001) found that fathers were rated higher as a source of attachment support by males. Another study done by Freeman and Almond (2010) mapping young adults' use of fathers for attachment support found that the majority of the 10% young adults who ranked fathers as the principal source of attachment support were males younger than 20 who were not romantically involved and less sexually active; conversely, higher levels of sexual activity and closeness to romantic partners predicted lower use of fathers as attachment figures. Given the fact that our sample was relatively young, the majority of our male subjects may be young people who were not currently romantically involved and less sexually active. Therefore, without a

significant other in life yet, they may still perceive fathers as the main attachment figure, and an avoidant relationship with father may significantly impact their mental wellbeing.

The finding that female students' mental wellbeing was more significantly subject to anxieties with dating partner and best friends, and avoidance with mother is consistent with existing literature. Previous studies have repeatedly shown that females were more prone to being anxious in romantic relationships (Del Giudice, 2011), and reporting higher peer attachment scores than males (Armsden & Greenberg, 1987; Laible, Carlo, & Raffaelli, 2000; Kenny & Rice, 1995; Swenson, Nordstrom, & Hiester, 2008; Raja, McGee, & Stanton, 1992). These results may reflect the different socialization processes for young adult males and females in regards to close relationships. Young adult females typically develop a more relational self, and a communal approach to interpersonal relationships that is characterized by intimacy and concerns for others, whereas young adult males typically develop a more separate self and an independent approach to interpersonal relationships that is characterized by agency and exploration (Cross & Madson, 1997; Fivush & Buckner, 2003; Thorne & McLean, 2002). Previous studies showed that by early adolescence, girls' friendships are characterized by more intimacy than those of boys (Brendgen, Little, & Krappmann, 2000; Gullone & Robinson, 2005; Furman & Buhrmester, 1992; Bukowski, Hoza, & Boivin, 1994), which may explain females' greater use of best friends for attachment functions (Gullone & Robinson, 2005; Henrich, Blatt, Kuperminc, Zohar, & Leadbeater, 2001; Sharon & Gordon, 2009). These attachment findings also correspond with our earlier finding that for females, perceived social support from friends was the most significant predictor of their mental wellbeing. In examining adolescents' attachment hierarchies, Rosenthal and Kobak (2010) found

that, while attachment bonds with parents endure during adolescence, the formation of peer attachment bonds was strongly motivated by increased support-seeking from friends and romantic partners. For female participants in the current study, mothers may still be preferred as the main source for fulfilling attachment functions. However, when one's relationship with one's mother is characterized by avoidance and emotional distance, friends are increasingly perceived and turned to as a source for social support and for fulfilling attachment functions.

What sources of perceived social support will have incremental effects on college students' mental health after controlling for attachment and do the sources differ by gender?

Previous studies have suggested that perceived social support might be part of attachment, therefore, the aim of this research question was to test if perceived social support had independent incremental effects on mental health after controlling for attachment. For both males and females, when all three sources of perceived social support were entered into regression analysis, multicollinearity was detected using a critical VIF value of 5. Variables with a VIF value above 5 were perceived social support from friends and significant others. In Zimet's (1988) original study on the Multidimensional Scale of Perceived Social Support (MSPSS) using a sample of 275 undergraduate students at Duke, the intercorrelation between support from friends subscale and support from significant other subscale was .63, which was considered a moderate correlation. However, in our study, the high zero-order correlations between perceived support from friends and from significant other for both males and females were above .80. These high correlations suggest that the "special person" in the

Significant Others subscale may have been interpreted by our subjects as referring to their close friends, since the items making up the Significant Others subscale were constructed to leave interpretation up to participants (Canty-Mitchell & Zimet, 2000). Several studies have also encountered problems with the Significant Others subscale, for example, when the MSPSS was administered to 2105 high school students in Hong Kong, Cheng and Chan (2004) reported that the significant other support subscale appeared to measure both friends and family support at the same time. Another study done by Chou (2000) revealed that two, instead of three, factors were extracted from MSPSS using a sample of Hong Kong adolescents, and they were Friend and Family subscales. When the MSPSS was tested in a group of older adults, Stanley et al (1998) reported that correlation (r = .75) between the significant other subscale and the family subscale was higher than all other sub-scale intercorrelations. The high intercorrelation between the Significant Other support subscale and Friends support subscale in our findings again lend support to the possibility that, the Significant Others support subscale might be redundant with the other two subscales, depending on how the subjects define their significant others. Based on these findings, perceived social support from significant others was removed from the regression model to control for multicollinearity. And after it was removed, all VIF values were below the critical value of 5.

Results revealed that perceived social support from friends remained a significant predictor for female students' mental health after controlling for attachment, but for male students, perceived social support was no longer significant after controlling for attachment. First, this finding lends partial support to the notion that perceived social support may be a different construct from attachment and has independent contributions

to mental health. Second, according to Erikson (1968), the major developmental task during emerging adulthood is to develop intimate relationships such as with friends and romantic partners, those who fail to establish intimacy face loneliness. The finding that male participants were less likely to be affected by relationships with friends and significant others than females might suggest that they might lag behind females in developing intimate relationships, and they might experience loneliness more than females. Third, for both males and females, the full model that included both attachment and perceived social support accounted for the highest variances in mental health, consequently, it may be a better model at predicting mental health than those that only included attachment or perceived social support. Fourth, for female participants, after controlling for demographic and attachment predictors, the introduction of perceived social support in block three explained an additional 2.6% ($p < .05$) of variances in mental health, which was statistically significant; in comparison, for male students, the introduction of perceived social support in block three added 1.1% ($p > .05$) of variances, which was not significant. However, it is important to note that despite the statistical significance of the added variance explained by perceived social support for female students, the amount of the added variance was relatively small.

Overall, the findings indicate that compared with female students, male students appeared not to be affected significantly by relationships with friends and romantic partners, contrary to what Arnett (2000) and Erikson (1963) have proposed about emerging adults. This might reflect a lack of exploration or expansion of relationships outside one's family among the male participants. Moreover, the male participants might

be vulnerable to the negative effects of a lack of meaningful social relationships, such as loneliness and isolation.

Limitations

Although results of the current study indicate that when predicting mental health, sources of perceived social support and attachment differ across gender, there are several limitations of the study that need to be addressed. First, the sample was drawn using convenience sampling, the majority of our subjects were between the ages of 20 (31.2%) to 21 (31.4%). As a result, the findings of this study cannot be assumed to be generalizable to the entire emerging adult population. Further research is needed to validate these results in more diverse samples of emerging adults, including the ones who are currently not in any academic settings. Second, previous studies have suggested ethnicity-based differences in attachment and perceived social support, but we did not find ethnicity a significant factor in predicting mental health, which might be due to the fact that 73% of the participants were Caucasians. Therefore, the findings of this study may not be generalizable to more ethnically diverse groups. Third, this study only examined four sources of attachment insecurity, namely, mother, father, dating partner, and best friends. Other sources such as siblings could be included in future research. Lastly, our sample was comprised of individuals who reported no significant mental health issues. Because of the composition of the sample, it may be difficult to determine what contributions attachment and perceived social support have in clinical mental health problems. As a result, it would appear to be important to continue research to examine the impact of attachment and perceived social support in a group of college students who may be experiencing mental health problems while in college.

Implications and Suggestions for Future Research

Grounded within a developmental framework, findings of this study may have practical implications for mental health professionals working with emerging adults in university settings. From a perceived social support perspective, previous studies found that peer-led social support programs implemented during the first weeks of college improved students' social support perceptions and decreased feelings of loneliness (Lamothe, et al., 1995; Oppenheimer, 1984; Pratt, et al., 2000) and that students who displayed high initial social anxiety levels benefited the most from such interventions (Oppenheimer, 1984). In each group support session, students are encouraged to discuss different topics such as expectations versus realities of college life, the breakdown of old social ties and the establishment of new social connections, the balance between school work and social life and so on. The implementation of a peer-led support program may help boost students' mental wellbeing by enhancing their perceived social support from friends. In the current study, friends seemed to be of particular importance in female participants' mental wellbeing, hence, peer-support programs that focus on conflict resolution, communication and interpersonal skills training might help with female students' mental wellbeing. Since perceived social was not proved to be a significant predictor for male participants' mental health, peer-led programs might not be too much of a help to young male students. Future research is needed to look at gender differences of the effects peer-led social support programs on mental health.

From an attachment perspective, attachment interventions programs are often designed for people with psychological disorders, there are not many reported attachment prevention or intervention programs designed for college students without diagnosed

psychological disorders. Kilmann et al (2006) tested a manualized attachment-focused (AF) group intervention that attempts to raise greater awareness of attachment issues among college students, and to lay the groundwork for more positive relationship experiences. College students with insecure adult attachment were randomly assigned into either an attachment-focused group or a relationship skills-focused (RS) group. At follow-up, both AF and RS participants reported increased self-awareness and positive relationship expectations and experiences. Because attachment avoidance with father was the single most significant predictor for male participants' mental wellbeing in the current study, the implementation of an attachment-focused or a relationship-focused group might help raise awareness of attachment-related issues for male students and increase positive expectations in relationships with their fathers. However, attachment style might not subject to change that easily. Therefore, prevention and intervention strategies might as well focus on raising awareness about attachment relationships such as mindfulness training, and empowering individuals through problem-solving and emotion regulation trainings.

From an administrative point of view, several universities have implemented the Counselor-In-Residence (CIR) program that focuses on prevention of mental illnesses among college students. The CIR program places representatives of the counseling center in residence halls, thus, providing direct counseling services to students living in the community (Davis, Kocet, & Zozone, 2001; Halstead & Derbort, 1988; Harris, 1994). However, there are some challenges in implementing a CIR program, one of which is that such a program is possible only when overt, sustained support from university administration such as the Residence Life Office and the counseling center is available

(Rawls, Johnson, & Bartels, 2004). Therefore, it is crucial to inform university administration of the benefits of the CIR program, and to gain support from and work collaboratively with the counseling center, the student health center and the office of student affairs.

One of the major challenges of studying an emerging adult population lies in accessibility. Compared with adolescents, there is a significant weakening of the safety net as well as supportive institutions and organizations for emerging adults (Park et al., 2006). According to the U.S. Census Bureau in 2011, only approximately half (48%) of young people between the ages of 18-24 were enrolled in postsecondary educational institutions such as 4-year colleges or 2-year community colleges. Even over a decade later, the "forgotten half" remains forgotten by researchers, because compared with studies done on emerging adults attending colleges, there are few studies on young people who do not attend college after graduating from high school. Therefore, the recruitment of a representative sample of emerging adults can be difficult, as most research is conducted in academic settings, and college students are often recruited as a convenience sample that may or may not represent all emerging adults. Furthermore, the same condition applies to research on college students after they leave college, because these young people are no longer accessible in large numbers in any institutional settings by the time they graduate from college.

And finally, findings of this study also call attention to the need for further clarification and maybe validation of the MSPSS Significant Others support subscale. I found that there was a high intercorrelation between the Friends Support and the

Significant Others support subscales, lending support to the speculation that they might be measuring the same construct.

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