

RELATIONSHIPS AMONG SOCIAL SUPPORT, LIFE PURPOSE, AND STRESS
IN THE LIVES OF GRADUATE STUDENTS

By

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Abstract of Dissertation Presented to the Graduate School
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RELATIONSHIPS AMONG SOCIAL SUPPORT, LIFE PURPOSE, AND STRESS
IN THE LIVES OF GRADUATE STUDENTS

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Although universities can positively influence all aspects of young adult health, attempts to assist students in developing social support are often inadequate and the need to assist students in discovering life purpose is often ignored. Several personal development theorists posit that developing social support and discovering life purpose are necessary for positive human development. However, the association between social support and life purpose has not been empirically verified. The purposes of this study were to describe the association between social support and life purpose among graduate students; explain how main and interaction effects of social support and life purpose influence graduate student stress levels; and determine if the association and influence of the interaction vary when compared by demographic characteristics. Phase One of the pilot study revealed that the design and layout of the web-based survey were easily understood. Phase Two of the pilot study revealed the reliability of conducting a web-based survey with instruments designed to measure levels of social support, life purpose, and stress among young adults. The main study included a random sample of 1979 graduate students enrolled at the University of Florida during spring 2007.

Bivariate correlation analyses provided empirical support for a relationship between social support and life purpose, revealing that these variables are significantly correlated in a positive

direction among graduate students, regardless of most demographic characteristics. A multiple linear regression analysis revealed that social support, life purpose, and sex significantly contributed to the total variance in stress score. These main effects indicate that as social support and life purpose increase, stress decreases as well as that males have lower stress scores than females. A comparison of the change in R^2 revealed that life purpose was better than social support at predicting stress levels. Another multiple linear regression analysis revealed the absence of a significant interaction effect between social support and life purpose with regard to stress. The findings from this study can be used to inform the health education profession by helping determine the need for initiatives designed to reduce stress as well as enhance social support and life purpose among graduate students.

CHAPTER 1 INTRODUCTION

Social health and spiritual health represent two vital dimensions of health. One component of social health—social support—promotes both physical health (Bolt, 2004; Clara, Cox, Enns, Murray, & Torgrudc, 2003; Thoits, 1995) and psychological health (Bolt, 2004; Clara, Cox, Enns, Murray, & Torgrudc, 2003; Hodges, 2002; Kanters, Bristol, & Attarian, 2002; Lawson & Fuehrer, 1989; Mallinckrodt & Leong, 1992; Thoits, 1995; Vaux & Wood, 1987). Two theories explain how social support influences health: the direct or main effects theory (Bolt, 2004; Jenkins & Elliot, 2004; Mallinckrodt & Leong, 1992), and the stress-buffering theory (Bolt, 2004, Jenkins & Elliot, 2004; Jung, 1997; Lawson & Fuehrer, 1989; Mallinckrodt & Leong, 1992).

Meaning and purpose in life, a component of spiritual health, also promotes health (Hodges, 2002; Kass, Friedman, Leserman, Zuttermeister, & Benson, 1991; Kennedy & Kanthamani, 1994; Laurence, 2005; Love & Talbot, 1999; Mahoney & Graci, 1999; Strange, 2001; Tanyi, 2002; Young, Cashwell, & Woolington, 1998). As people understand their meaning and purpose in life, several health benefits accrue, including “a heightened sense of physical and emotional well-being” (Tanyi, 2002, p. 506), due in part to a stress-buffering effect (Kennedy & Kanthamani, 1994, p. 357; Yiu-kee & Tang, 1995). A sense of meaning and purpose in life buffers against stress because it “provides direction and fulfillment in life” (Kennedy & Kanthamani, 1994, p. 357).

These particular benefits may become most evident during young adulthood, which involves “a time of questioning and spiritual searching in which there is particular emphasis upon...making connection with ultimate life purpose” (Dalton, 2001, p. 17). The process of searching “frequently coincide[s] in people’s lives with pursuit of advanced formal education”

(Strange, 2001, p. 59). In fact, “the graduate school experience is essentially an act of dreaming about one’s purpose in life—in the most spiritual sense, one’s calling or vocation” (Strange, 2001, p. 63). As such, the sense of meaning and purpose in life for young adults proves “especially important in helping them to identify and commit to future goals and career choices” (Dalton, 2001, p. 18).

Statement of the Research Problem

Colleges and universities can affect virtually all aspects of young adult life and should, therefore, take a holistic approach to addressing needs of students (Higher Education Research Institute (HERI): *The Spiritual Life*, 2005). In higher education, however, attempts to assist students in developing social support are often inadequate (Christie, Munro, & Fisher, 2004; Cronan-Hillix, Gensheimer, Cronan-Hillix, & Davidson, 1986; Ellis, 2001; Herzig, 2004; Mallinckrodt & Leong, 1992; Williams, 2000; Williams, 2002); and the need to assist students in discovering a sense of meaning and purpose in life is often ignored (Dalton, 2001; Higher Education Research Institute (HERI): *Summary*, 2004; *HERI: The Spiritual Life*, 2005; Laurence, 2005; Love, 2001; Love & Talbot, 1999).

Many graduate programs attempt to provide students with a supportive environment in which to learn and to grow. Research has shown, however, that gender and racial differences can influence whether or not students reap the benefits intended by the social support services provided (Ellis, 2001; Herzig, 2004; Mallinckrodt & Leong, 1992; Williams, 2000; Williams, 2002). As a result, the support that graduate programs believe they provide may not be experienced by the entire student body.

The belief that higher education has “come to neglect the student’s inner development—the sphere of values and beliefs, emotional maturity, spirituality, and self-understanding” (HERI: *The Spiritual Life*, 2005, *The Project*, ¶ 2) prompted the Higher Education Research Institute at

the University of California, Los Angeles to conduct research to better understand the spiritual development of college students. According to the HERI study, though “three-fourths of the students say that they are ‘searching for meaning and purpose in life’” (HERI: The Spiritual Life, 2005, p. 4), “more than half say that their professors never provide opportunities to discuss the meaning and purpose of life” (HERI: Summary, 2004, p. 6). As a result, students’ self-reported levels of spirituality declined during their undergraduate education (HERI: Summary, 2004). Previous research supports these findings by confirming that many young adults never develop a sense of meaning and purpose in life during their time in college (Frankl, 1967 as cited in Coffield, 1981; Naylor & Naylor, 1995 as cited in Hindman, 2002).

Several theorists indicate, however, that developing a social support network and discovering a sense of meaning and purpose in life represent necessary steps in the process of positive human development (i.e., Maslow’s Hierarchy of Needs), particularly for young adults (i.e., Chickering’s Seven Vectors of Development, Parks’ Faith Development Theory). To achieve a sense of meaning and purpose in life, theorists posit that people must develop interpersonal relationships which enhance a social support network (Chickering & Reisser, 1993; Frager & Fadiman, 2005; Maslow, 1987; Parks, 2000). The association between presence of social support and a sense of meaning and purpose in life has not been empirically verified. As a result, potential health benefits that may result, as well as potential interactions between social support and a sense of meaning and purpose in life, remain unknown.

Purpose of the Study

The purpose of this study is to (1) describe the association between social support and life purpose among graduate students; (2) explain how the main effects, as well as the interaction effect, of social support and life purpose influence stress levels of graduate students; and (3)

determine if the association and influence of the interaction vary when compared by demographic characteristics.

Significance of the Study

If higher education institutions do not facilitate a social support network and discovery of a sense of meaning and purpose for their students, these young adults may not acquire the related health benefits. For example, stress poses a major health concern for young adults in higher education (Abouserie, 1994; Deckro, Ballinger, Hoyt, & Wilcher, 2002; Geraghty, 1997; Goldman & Wong, 1997; Kanters, Bristol, & Attarian, 2002; Ross, Niebling, & Heckert, 1999; Sciacca & Melby, 1992). Social support (Bolt, 2004, Jenkins & Elliot, 2004; Jung, 1997; Lawson & Fuehrer, 1989; Mallinckrodt & Leong, 1992) and a sense of meaning and purpose in life (Kennedy & Kanthamani, 1994; Yiu-kee & Tang, 1995) can provide a buffer against stress.

In addition to contributing numerous health problems (Deckro, Ballinger, Hoyt, & Wilcher, 2002; Dixon & Reid, 2000; Duenwald, 2002; Frazier & Schauben, 1994; Geraghty, 1997; Goldman & Wong, 1997; Hudd, Dumlao, Erdmann-Sager, Murray, Phan, Soukas, et al, 2000; Park & Levenson, 2002; Sciacca & Melby, 1992), stress causes burnout (Schaufeli, Maslach, & Marek, 1993 as cited by Jenkins & Elliot, 2004; Schaufeli & Buunk, 1996 as cited by Peiro, Gonzalez-Roma, Tordera & Manas, 2001; Cooper, Dewe, & O’Driscoll, 2001; Hobfoll & Shirom, 2000; and Schaufeli & Enzmann, 1998 as cited by Pines & Keinan, 2005; Maslach, Schaufeli, & Leiter, 2001). Burnout can lead people to “question their vocational choice” (Spicuzza & De Voe, 1982, p. 96) and to consider leaving their line of work (Golde, 1998; Pines & Keinan, 2005; Spicuzza & De Voe, 1982). Many graduate students view their educational pursuits as a full-time job, one that will prepare them to fulfill their life purpose through their careers. As such, stress that leads to burnout may increase attrition rates among graduate students.

Considerable research has been conducted to explore the health benefits of social support and a sense of meaning and purpose in life independently. Yet no investigations published to date have explored the association or the interaction between presence of social support and a sense of meaning and purpose in life, despite a theoretical association between the two. Potential health benefits that may result from understanding the association as well as the interaction between social support and a sense of meaning and purpose in life, particularly those associated to stress buffering, remain unknown. This study explored the association and interaction between social support and a sense of meaning and purpose in life, as well as their impact on stress levels, and contributes to the professional literature by providing valuable information for university-based health promotion/disease prevention initiatives.

Research Questions

1. What is the association between social support and life purpose in graduate students?
2. Does the association between social support and life purpose in graduate students vary when compared by (a) sex, (b) age, (c) race, (d) field of study, (e) type of degree, (f) credit hours, (g) time in program, (h) program focus?
3. Which of the following variables are associated with stress level among graduate students: (a) social support, (b) life purpose, (c) sex, (d) age, (e) race, (f) field of study, (g) type of degree, (h) credit hours, (i) time in program, (j) program focus?
4. Does the interaction between social support and life purpose influence the stress levels of graduate students?
5. Is there variation in how the interaction between social support and life purpose influences the stress levels of graduate students when compared by (a) sex, (b) age, (c) race, (d) field of study, (e) type of degree, (f) credit hours, (g) time in program, (h) program focus?

Research Questions 1, 3, and 4 are considered primary because answering them will provide meaningful overall information. Research Questions 2 and 5 are considered secondary not only because they require adequate demographic data, but also because their analysis is contingent upon the results of the primary research questions. Specifically, answering Research

Question 2 is relevant only if the answer to Research Question 1 revealed a correlation and Research Question 5 is relevant only if the answer to Research Question 4 revealed an interaction effect.

Delimitations

- Participants will include a sample of graduate students enrolled at the University of Florida.
- Data will be collected during Spring semester 2007.
- The Interpersonal Support Evaluation List (ISEL) was used to determine participants' "perceived availability of potential social resources" (Cohen, Mermelstein, Kamarck, & Hoberman, 1985, p. 75).
- The Personal Meaning Index (PMI) was used to determine participants' "existential beliefs that life is meaningful" (Reker, 2005, p. 72).
- The Perceived Stress Scale (PSS) was used to determine "the degree to which situations in one's life are appraised as stressful" (Cohen, Kamarck, Mermelstein, 1983, p. 387).
- Data will be collected using a web-based survey.

Limitations

- Students who participate in the study may not represent all graduate students enrolled at the University of Florida.
- Data collected during Spring semester 2007 may differ from data collected during other time periods.
- The Interpersonal Support Evaluation List (ISEL) may not measure all participant perceptions regarding potential social resources.
- The Personal Meaning Index (PMI) may not measure all participant beliefs about the meaning of life.
- The Perceived Stress Scale (PSS) may not measure all participant perceptions concerning stressful life situations.
- Data collected using a web-based survey may differ from data collected using other survey formats.

Assumptions

- The students who participate will be considered adequately representative of graduate students at the University of Florida.
- Data collected during the Spring semester 2007 were considered adequate for the purpose of this study.
- The Interpersonal Support Evaluation List (ISEL) was considered adequate to address participants' "perceived availability of potential social resources" (Cohen, Mermelstein, Kamarck, & Hoberman, 1985, p. 75).
- The Personal Meaning Index (PMI) was considered adequate to address participants' "existential beliefs that life is meaningful" (Reker, 2005, p. 72).
- The Perceived Stress Scale (PSS) was considered adequate to address "the degree to which situations in one's life are appraised as stressful" (Cohen, Kamarck, Mermelstein, 1983, p. 387).
- Collecting data using a web-based survey was considered adequate for the purpose of the study.

Definition of Terms

- **CALLING.** Vocational pursuits that allow people to live out their passions in ways that are meaningful and make a difference in the world beyond themselves (Chickering & Reisser, 1993; Hindman, 2002; Parker, 2000).
- **FAITH DEVELOPMENT.** The process people undergo as they attempt to make sense of their lives by looking for the meaning in their past, present, and future, which can be informed by secular or religious perspectives depending on their personal beliefs (Parks, 2000).
- **MEANING AND PURPOSE IN LIFE.** "Having a sense of direction from past, present, and future, and... a logically integrated and consistent understanding of self, others, and life in general" (Reker, 1992, p. 20).
- **SOCIAL SUPPORT.** The presence of people who can offer a listening ear, companionship that leads to a sense of belonging, or material aid such as goods and services (Cohen, Mermelstein, Kamarck, & Hoberman, 1985).
- **STRESS.** The physiological and psychological responses a person's body experiences when resources needed to cope with the demands of a particular situation are lacking (Lazarus & Folkman, 1984 as cited by Jenkins & Elliot, 2004).
- **VECTORS OF DEVELOPMENT.** Guidelines that describe the current position of students as well as their progress on the journey toward intrapersonal and interpersonal development (Chickering & Reisser, 1993).

CHAPTER 2 REVIEW OF THE LITERATURE

The purpose of this study is to (1) describe the association between social support and life purpose among graduate students; (2) explain how the main effects, as well as the interaction effect, of social support and life purpose influence stress levels of graduate students; and (3) determine if the association and influence of the interaction vary when compared by demographic characteristics.

The purpose of Chapter 2 is to present an overview of the research relevant to this study. A summary of the following topics will be presented: (a) personal development, (b) health-related benefits, (c) academic-related benefits, and (d) higher education issues. Chapter 2 will conclude with a discussion of the theoretical association between social support and life purpose.

Personal Development

The process of personal development among graduate students can be best understood by taking into account Maslow's Hierarchy of Needs (Frager & Fadiman, 2005; Maslow, 1987), Parks' Faith Development Theory (Parks, 2000), and the revised version of Chickering's Seven Vectors of Development (Chickering & Reisser, 1993). These theories postulate that developing a social support network and discovering a sense of meaning and purpose in life are necessary steps in the process of personal development. In addition, these theories imply that developing a social support network must occur before people have the capacity to discover a sense of meaning and purpose in their lives.

Maslow's Hierarchy of Needs

Maslow's Hierarchy of Needs espouses that all human beings have the following needs: physiological needs, safety and security, love and belongingness, self-esteem, and self-actualization. He posits that individuals must fulfill lower-order needs before they can attempt to

achieve higher-order needs (Frager & Fadiman, 2005; Maslow, 1987). Thus, the lower-order need of love and belongingness (i.e., the development of social relationships and the receipt of the support they can provide) must be fulfilled prior to achieving self-actualization, which “occurs as individuals achieve their full potential as human beings as manifested through...a sense of fulfillment and purpose in life” (Hawks, 1994, *Spiritual Health as an Integral Part of Holistic Health*, ¶ 6; Hodges, 2002). Discovering a sense of meaning and purpose in life takes place “within the context of social relationships and then serves as the path to...self-actualization” (Hawks, 1994, *Conclusion*, ¶ 1).

Parks’ Faith Development Theory

According to Parks, there are “four eras in the developmental spectrum spanning adolescence to mature adult faith: adolescence or conventional, young adult, tested adult, and mature adult” (Parks, 2000, p. 70). Parks’ Faith Development Theory focuses specifically on the development of young adults, “people typically between seventeen and thirty—the ‘twenty-somethings’” (Parks, 2000, p. 3). Prior to the development of this theory, young adulthood was generally considered a time of transition between adolescence and adulthood, and, as such, was not regarded as a viable stage in the process of faith development. Parks (2000) however, believed that “embedded in the place called transition [there is] a distinct form of composing meaning, a recognizable stage [that focused on] the formation of identity and the searching for a fitting role in society” (p. 62). According to Parks (2000) “this newfound freedom to struggle for an identity and to take responsibility for it are signals that an adolescent has crossed the threshold into young adulthood” (p. 63). Thus, “one becomes a young adult in faith (at whatever age) when one begins to take self-conscious responsibility for one’s own knowing, becoming, and moral action, even at the level of ultimate meaning-making” (Parks, 2000, p. 64). During this stage a young adult will experience what Parks terms probing commitment, in which he/she

“explores many possible forms of truth—as well as work roles, relationships, and lifestyles—and their fittingness to one’s own experience of self and world” (Parks, 2000, p. 66–67). As a person progresses from the young adult to the tested adult stage of faith development, their probing commitment becomes tested commitment, which “begins to take form when...one’s form of knowing and being takes on...a recognition that one is willing...to affirm one’s place in the scheme of things” (Parks, 2000, p. 69).

The process of moving from young adulthood to tested adulthood, from probing to tested commitment, is better understood in terms of the way in which faith is defined. According to Parks’ Faith Development Theory, “faith is...the activity of seeking and discovering meaning” (2000, p. 7). The process of faith development can be explained by the following theoretical components: Forms of Knowing, Forms of Dependence, and Forms of Community (Parks, 2000). The latter two components focus on social interaction and interpersonal relationships as a means by which young adults develop their faith and discover a sense of meaning and purpose in life (Parks, 2000). More specifically, Forms of Dependence “focus[es] on the relationships through which we discover and change our views of knowledge and faith” while Forms of Community focuses on “the influence of the interpersonal, social, and cultural context on one’s development” (Love, 2001, p. 9; Parks 2000). Love (2001) asserted that Parks’ Faith Development Theory suggests that “the movement toward a mature adult faith is one of connection to, interaction with, and belonging to the broader world. [This process takes place as individuals begin to recognize] one’s interdependence and interconnectedness with communities and individuals” (p. 14).

Chickering’s Seven Vectors of Development (Revised)

Chickering’s Revised Seven Vectors of Development provides information specific to the development of college students, “which today includes persons of virtually all ages”

(Chickering & Reisser, 1993, p. 34). Based on Chickering's theory, "the seven vectors...help...determine where students are and which way they are heading" (Chickering & Reisser, 1993, p. 34) and "describe...journeying toward individuation—...one's unique way of being—and also toward communion with other individuals and groups, including the larger national and global society" (Chickering & Reisser, 1993, p. 35).

Vectors four and six respectively correspond to the development of social support and the discovery of a sense of meaning and purpose in life. Vector Four, Developing Mature Interpersonal Relationships, serves to "recognize the importance of students' experiences with relationships in the formation of their core sense of self" (Chickering & Reisser, 1993, p. 39). Some of the characteristics of mature interpersonal relationships are intimacy, interdependence, tolerance, and commitment. Vector Six, Developing Purpose, serves to help people identify their vocational goals as well as to be intentional about making plans to accomplish their goals by prioritizing their responsibilities. These have helped people figure out who they are. But it is the vector, developing purpose, that will help people figure out what they are being called to do in the future (Chickering & Reisser, 1993). Based on the progression of vectors, it appears as if most students will develop social support prior to discovering a sense of meaning and purpose in life.

Health-Related Benefits

Developing a social support network and discovering a sense of meaning and purpose in life contribute to the process of personal development and also provide health-related benefits.

Theoretical Explanation of Health Benefits of Social Support

Two theories have been postulated to explain how social support influences health (Bolt, 2004; Jenkins & Elliot, 2004; Jung, 1997; Lawson & Fuehrer, 1989; Mallinckrodt & Leong, 1992).

Direct/main effects theory

The direct/main effects theory states that “social support is beneficial to well-being, regardless of the level of stressors to which individuals are exposed” (Jenkins & Elliot, 2004, p. 623; Mallinckrodt & Leong, 1992). According to this theory, social support can benefit health by encouraging people to participate in health promoting behaviors (i.e., nutritious diets, physical activity) and refraining from participation in health-related risk behaviors (i.e., smoking, drinking) (Bolt, 2004).

Stress-buffering theory

The stress-buffering theory states that “social support is related to well-being only for persons who experience stress” (Mallinckrodt & Leong, 1992, p. 717; Jenkins & Elliot, 2004). Specifically, the theory states that “support, either perceived availability or amount actually received, is more beneficial for individuals with higher rather than lower levels of stress” (Jung, 1997, p. 79; Lawson & Fuehrer, 1989). The way in which social support serves as a buffer against stress is by acting “as a coping resource that lessens...the potentially [harmful] impact of stressors” (Mallinckrodt & Leong, 1992, p. 717; Clara, Cox, Enns, Murray, & Torgrudc, 2003; Hodges, 2002; Thoits, 1995) by “help[ing] us to evaluate and overcome the stressful event” (Bolt, 2004, p. 182; Clara, Cox, Enns, Murray, & Torgrudc, 2003).

Health Benefits of Social Support

Researchers have found that social support plays an important role in enhancing both physical (Bolt, 2004; Thoits, 1995) and psychological health (Bolt, 2004; Clara, Cox, Enns, Murray, & Torgrudc, 2003; Hodges, 2002; Kanters, Bristol, & Attarian, 2002; Lawson & Fuehrer, 1989; Thoits, 1995).

Physical health benefits

The physical health-related benefits that occur as a result of social support can be explained by both theories. According to the direct/main effects theory, higher levels of social support lead people to take fewer health-related risks, which in turn increase the likelihood that people will participate in health promoting behaviors (i.e., proper nutrition, adequate physical activity). According to the stress-buffering theory, higher levels of social support help people cope with adverse life events, thereby decreasing their stress levels. Health promoting behaviors and decreased stress levels that occur as a result of social support enhance immune functioning, lessen chances of becoming sick and promote rapid recovery if illness occurs (Bolt, 2004). As a result of improved physical health status, social support decreases the likelihood that people will meet an untimely death from illness (Bolt, 2004; Thoits, 1995).

Psychological health benefits

The presence of psychological health-related benefits that occur as a result of social support can be explained by the stress-buffering theory. For example, higher levels of social support help people cope with adverse life events (Clara, Cox, Enns, Murray, & Torgrudc, 2003; Hodges, 2002; Thoits, 1995; Kanters, Bristol, & Attarian, 2002), thereby decreasing their stress levels. This decrease then may lead to benefits associated with the presence of social support, such as increased life satisfaction (Bolt, 2004), self-esteem, and a sense of personal identity (Thoits, 1995) as well as decreased occurrence and severity of anxiety (Kanters, Bristol, & Attarian, 2002; Lawson & Fuehrer, 1989) and depression (Clara, Cox, Enns, Murray, & Torgrudc, 2003; Hodges, 2002; Kanters, Bristol, & Attarian, 2002).

Health Benefits of Life Purpose

Meaning and purpose in life has been studied to determine its associated health-related benefits. According to Victor Frankl (1959), “striving to find meaning in one’s life is the

primary motivation force in man” (p. 23). Upon discovering a sense of meaning and purpose in life, people are afforded benefits such as improved physical and psychological health (Tanyi, 2002), which may result from decreased stress levels (Kennedy & Kanthamani, 1994; Yiu-kee & Tang, 1995) that likely occur because of an increased ability to cope with and adapt to adverse life events (Hodges, 2002; Tanyi, 2002). These factors occur because of having a sense of meaning and purpose in life. Additional benefits include enhanced feelings of hope (Hodges, 2002; Tanyi, 2002) and personal fulfillment (Hawks, 1994; Kennedy & Kanthamani, 1994), which may result from individuals having a sense of meaning and purpose in life and knowing what direction to take in life (Kennedy & Kanthamani, 1994).

Academic-Related Benefits

Developing a social support network and discovering a sense of meaning and purpose in life contribute to personal development by providing academic-related benefits.

Reducing Burnout and Attrition

Burnout

Several research studies have looked at burnout among professionals (Pines & Keinan, 2005) particularly those working in helping professions (Bruce, Conaglen, & Conaglen, 2005; Jenkins & Elliot, 2004; Peiro, Gonzalez-Roma, Tordera, & Manas, 2001; Spicuzza & De Voe, 1982; Yiu-kee & Tang, 1995). Researchers have looked at burnout among professionals in an effort to understand the potential for burnout during graduate school. Many full-time students consider graduate school to be their careers, while many part-time students consider graduate school to be a part-time career. Thus, part-time students’ responsibilities must be balanced with non-academic responsibilities that are associated with careers and/or families.

Researchers disagree about the causes and/or correlates of burnout. Some researchers believe that burnout occurs from chronic occupational stress (Bruce, Conaglen, & Conaglen,

2005; Jenkins & Elliot, 2004; Maslach, Schaufeli, & Leiter, 2001; Peiro, Gonzalez-Roma, Tordera & Manas, 2001). Others believe that burnout is correlated with feelings of insignificance (Pines & Keinan, 2005; Yiu-kee & Tang, 1995).

Burnout due to stress. According to the findings that associate burnout with occupational stress, “work and organizational demands are related to burnout experiences, especially when they are chronic and hard to control” (Peiro, Gonzalez-Roma, Tordera, & Manas, 2001, p. 511). Although acute stress can be a motivator, students often have little control over graduate school experiences (i.e., deadlines, comprehensive examinations, thesis or dissertation proposals and defenses). These demands are chronic because graduate school is typically a lengthy commitment of several years. As previous research has shown, stress can be reduced and burnout can be eliminated if students develop a social support network (Bolt, 2004, Jenkins & Elliot, 2004; Jung, 1997; Lawson & Fuehrer, 1989; Mallinckrodt & Leong, 1992) and discover a sense of meaning and purpose in life (Kennedy & Kanthamani, 1994; Yiu-kee & Tang, 1995).

Burnout due to existential issues. Findings that associate burnout with existential issues often occur around situations in which people feel as if their work lacks significance (Pines & Keinan, 2005; Yiu-kee & Tang, 1995). Pines and Keinan (2005) state that “the root cause of burnout lies in people’s need to believe that their lives are meaningful, that the things they do are useful and important” (p. 626; Yiu-kee & Tang, 1995). People often enter graduate school because they want to make a difference. Also they believe that acquiring the knowledge and experience necessary to enter certain professions will allow them to do so. However, some students become discouraged because they lose sight of how the work they are doing now will allow them to make a difference (Pines & Keinan, 2005; Spicuzza & De Voe, 1982). Without a sense that their work is significant and will make a difference in the world, graduate students are

likely to experience burnout (Pines & Keinan, 2005). As research has shown, discovering a sense of meaning and purpose in life can help people determine what direction to take in life (Kennedy & Kanthamani, 1994), which can lead to feelings of hope (Hodges, 2002; Tanyi, 2002), personal fulfillment (Hawks, 1994; Kennedy & Kanthamani, 1994), and reduce the likelihood that burnout will occur.

Attrition

Several researchers have studied burnout in depth by focusing on attrition among graduate students (Christie, Munro, & Fisher, 2004; Golde, 1998; Herzig, 2004; Reed & Giacobbi, 2004) and professionals (Pines & Keinan, 2005; Spicuzza & De Voe, 1982). According to research on professionals, burnout can lead people to “question their [current or future] vocational choice” (Spicuzza & De Voe, 1982, p. 96; Pines & Keinan, 2005). Should burnout persist, graduate students may actually leave their programs (Golde, 1998; Reed & Giacobbi, 2004). Thus, it is important to incorporate social support and a sense of meaning and purpose in the lives of graduate students to decrease feelings of burnout, so that the possibility of attrition is lessened.

Encouraging Vocational Pursuits

The role of life purpose

Young adults must discover a sense of meaning and purpose in life before deciding upon vocations. Young adults “have an inner sense that they are meant to do something special with their lives” (Dalton, 2001, p. 20). This inner sense is “a sense of vocation—[an] awareness of living one’s life aligned with a larger frame of purpose and significance” (Parks, 2000, p. 26). Pursuing a graduate degree is one way in which young adults “dream...about [their] purpose in life—in the most spiritual sense, one’s calling or vocation” (Strange, 2001, p. 63). Young adults’ sense of meaning and purpose in life appears to be “especially important in helping them to identify and commit to future goals and career choices” (Dalton, 2001, p. 18). Thus, as young

adults discover their sense of meaning and purpose in life they “integrate their beliefs into career choices and lifestyle patterns [which lead them] to be active participants in social and civic communities” (Dalton, 2001, p. 24).

The role of social support

Social support from a variety of different sources (i.e., faculty, staff, peers, family, friends) can encourage young adults to seek, discover, and/or motivate them to pursue their purpose.

Encouragement to seek purpose. The environments in which young adults live and interact with others have the capacity to influence the development of life purpose (Love & Talbot, 1999). For young adults to experience this development, they must feel secure enough to discover the meaning and purpose that has been there all along (Hindman, 2002). One way to help young adults feel secure in seeking their purpose in life is through the establishment of a sense of belonging (Strange, 2001). According to Parks (2000) a network of belonging allows people to “feel recognized as who they really are, and as who they are becoming. It offers both challenge and support and thus offers good company for both the emerging strength and the distinctive vulnerability of the young adult” (p. 95). Communities in which this network of belonging develops can “recognize, support, challenge, and inspire those within them...Such an environment can indeed nurture the spiritual questions in students’ lives” as they seek to discover their purpose in life (Strange, 2001, p. 60). Once students feel a sense of belonging, although they are ready to seek purpose, they may be unsure of their ability. Therefore, they will need people to stand beside them and encourage them to figure out who they are and what their purpose in life is. This type of encouragement comes from relationships in which people not only provide a caring (Hindman, 2002) and supportive (Cronan-Hillix, Gensheimer, Cronan-Hillix, & Davidson, 1986) presence, but also ensures young adults that they can be trusted to remain committed to them for as long as it takes to find their life purpose (Hindman, 2002).

Guidance in discovering purpose. When young adults decide to embark on the journey of discovering their life purposes, they need people with enough life experience who can offer guidance along the way (Hindman, 2002). One way that more experienced people can guide young adults is to lead by example. Also, more experienced people can pose questions that encourage students to “reflect upon the greater purpose of their lives” (Dalton, 2001, p. 23). These questions allows students to search within themselves to find answers based on “worthy commitment [and] moral responsibility” (Dalton, 2001, p. 23) that will hopefully lead them closer to discovering their own unique purpose in life (Strange, 2001). When posing questions, more experienced people must allow young adults to express their answers and provide occasions to discuss their responses (Chickering & Reisser, 1993; Dalton, 2001; Hindman, 2002; Strange, 2001). Sharing one’s self with others and listening to the stories of those who have already discovered as well as those who are still searching for their life purpose can lead young adults even closer to figuring out what it is they are being called to do with their lives (Strange, 2001). Providing young adults time for reflection and introspection allows them to determine how they are going to incorporate new understandings of their sense of purpose into their lives (Hindman, 2002; Strange, 2001).

Motivation to pursue purpose. In order to pursue their calling, young adults need opportunities to live so that their actions are congruent with their values and sense of purpose (Hindman, 2002). Unless students live out their calling, they may become discouraged and find it difficult to maintain a sense of meaning and purpose in life.

Higher Education Issues

Institutions of higher education are influential in shaping society (HERI: The Spiritual Life, 2005) because they can help to promote the development of young adults (Chickering & Reisser, 1993; Parks, 2000). However, to aid young adults in their overall development, colleges

and universities must take a more holistic approach (Love & Talbot, 1999) and “recommit to the mission of nurturing mind, body, heart, and spirit” (Chickering & Reisser, 1993, p. 41). This nurturing process should include efforts to aid young adults in developing social support networks and discovering a sense of meaning and purpose in life. Both components are necessary for the development of young adults, according to Maslow (Frager & Fadiman, 2005; Maslow, 1987), Parks (2000), and Chickering (Chickering & Reisser, 1993). Developing these components allows for the realization of the health- and academic-related benefits associated with social support and life purpose. However, “at the graduate level the authentic, holistic, educational experience may be most in jeopardy” (Strange, 2001, p. 60).

Inadequate Social Support

Many graduate programs have attempted to provide students with supportive environments by establishing mentor/advisor relationships with faculty members and encouraging their involvement in the social and academic aspects of their graduate program departments (Ellis, 2001; Herzig, 2004; Mallinckrodt & Leong, 1992). However, the social interactions that occur as a result are not always adequate in providing young adults with the support they need. Research has shown that gender and/or racial differences mediate whether or not students will reap the benefits intended by the social support initiatives offered (Ellis, 2001; Herzig, 2004; Mallinckrodt & Leong, 1992; Williams, 2000; Williams, 2002).

Faculty-student interaction

Despite being assigned a faculty mentor/advisor, students perceived a lack in the level of support that they expected (Cronan-Hillix, Gensheimer, Cronan-Hillix, & Davidson, 1986; Ellis, 2001; Herzig, 2004; Mallinckrodt & Leong, 1992). The reasons included “personality incongruity, lack of common research interests, lack of cultural commonalities resulting in poor communications, as well as...having racist, sexist, or unsupportive advisers who simply made

degree progress very difficult” (Ellis, 2001, p. 36). Research shows that insufficient support is perceived by students of all races and both genders (Ellis, 2001). However, women (Cronan-Hillix, Gensheimer, Cronan-Hillix, & Davidson, 1986; Ellis, 2001; Herzig, 2004) and racial minorities (Ellis, 2001; Herzig, 2004) seem to be at a disadvantage when it comes to finding compatible mentors and advisors.

According to Herzig (2004), the “forms of discrimination that women faced in finding mentors rang[ed] from professors who would not take on women students to mentors who did not seem to tap into their professional networks as vigorously for their female students as they did for their male students” (p. 192). Herzig (2004) also reported that there is a “tendency for faculty to mentor same-sex students [which poses a disadvantage for female students due to] the small numbers of women faculty” (p. 193). Furthermore, because there are few women faculty, “there is a frequent lack of female role models within academia” (Cronan-Hillix, Gensheimer, Cronan-Hillix, & Davidson, 1986, p. 126; Mallinckrodt & Leong, 1992). The same holds true for minority students (Herzig, 2004).

Department involvement

Many students, particularly women and minorities, find it difficult to become involved in their graduate program departments (Ellis, 2001; Herzig, 2004) because the departmental culture seems impersonal (Herzig, 2004) and lacks a sense of community (Ellis, 2001). This perception leads students to feel as if they do not belong (Christie, Munro, & Fisher, 2004). One reason that women and racial minorities may feel alienated from their departments is because, “if...student[s] have] commitments to an ethnic, cultural, or family community, it may be difficult for [them] to participate in the activities of the academic community. Competing communities of practice can isolate students from the communities of their departments and programs. [Another reason for such feelings of alienation to occur is that] student[s] who [are] not accepted by the other

community members or who [are] perceived to have a particular set of skills, abilities, and dispositions...will have fewer opportunities to develop effective relationships with mentors and others” (Herzig, 2004, p. 202).

Disregard for Meaning and Purpose in Life

Helping students discover a sense of meaning and purpose in life, by guiding them toward an understanding of who they are and what they are meant to do with their lives based on their unique personal characteristics and abilities, is one aspect of young adult development that is often ignored in academia (Dalton, 2001; HERI: Summary, 2004; HERI: The Spiritual Life, 2005; Laurence, 2005; Love, 2001; Love & Talbot, 1999). This is a significant oversight, considering that young adults view spirituality to be an important aspect in their lives, one they believe institutions of higher education should aid them in developing (HERI: The Spiritual Life, 2005). To gain a better understanding of the spiritual development of college students, and the role of colleges and universities in that development, the Higher Education Research Institute at the University of California, Los Angeles conducted a study, the results of which revealed that, even though “three-fourths of the students say that they are ‘searching for meaning and purpose in life’” (HERI: The Spiritual Life, 2005, p. 4), “more than half say that their professors never provide opportunities to discuss the meaning and purpose of life” (HERI: Summary, 2004, p. 6).

The separation of the spiritual life from the academic life causes fragmentation (Parks, 2000). The danger of such fragmentation is that students, who “find themselves at a crucial point in life, having to make major decisions about life choice and direction” (Dalton, 2001, p. 23), may be unable to comprehend how the academic goals they have been working to accomplish coincide with their sense of meaning and purpose in life. Without a sense that the time and effort they are putting towards their academic pursuits is meaningful, young adults may lose sight of their goals and the ultimate purpose in their lives. Additional HERI survey results revealed that

the self-reported levels of spirituality of students declined during their undergraduate education, from 47% during their freshman year to 39% during their junior year (HERI: Summary, 2004), indicating that the spiritual lives of young adults may be at risk.

Theoretical Association between Social Support and Life Purpose

The discussion of personal development theories indicates that developing a social support network and discovering a sense of meaning and purpose in life must occur before human beings can complete the developmental process. These theories and the academic-related benefits of encouraging vocational pursuits illustrate the idea that developing a social support network generally needs to occur before people can discover a sense of meaning and purpose in their lives. Specifically, social support can encourage people to discover their meaning and purpose in life, which in turn can help people identify a vocation to which they can dedicate their lives. Research has yet to be conducted to understand the nature of the relationship between social support and life purpose to test these theoretical implications. The purpose of this study is to determine if there is a relationship and in what direction that relationship presents itself.

Since social support and a sense of meaning and purpose in life play a significant role in the process of human development, it seems likely that the effects of an interaction between these two variables would contribute substantially to an understanding of well-being and development. Thus, research that is designed to explore the nature of the association and interaction between social support and a sense of meaning and purpose in life is likely to contribute to the field of health education research and provide valuable information that can be used in university health promotion/disease prevention initiatives.

CHAPTER 3 METHODS

This study (1) described the association between social support and life purpose among graduate students; (2) explained how the main effects, as well as the interaction effect, of social support and life purpose influence stress levels of graduate students; and (3) determined if the association and influence of the interaction vary when compared by demographic characteristics.

Specifically, the research questions addressed in this study were 1. What is the association between social support and life purpose in graduate students? 2. Does the association between social support and life purpose in graduate students vary when compared by (a) sex, (b) age, (c) race, (d) field of study, (e) type of degree, (f) credit hours, (g) time in program, (h) program focus? 3. Which of the following variables are associated with stress level among graduate students: (a) social support, (b) life purpose, (c) sex, (d) age, (e) race, (f) field of study, (g) type of degree, (h) credit hours, (i) time in program, (j) program focus? 4. Does the interaction between social support and life purpose influence the stress levels of graduate students? 5. Is there variation in how the interaction between social support and life purpose influences the stress levels of graduate students when compared by (a) sex, (b) age, (c) race, (d) field of study, (e) type of degree, (f) credit hours, (g) time in program, (h) program focus?

Research hypotheses related to Research Question 4 were as follows. Hypothesis 1 stated that graduate students with high social support and high life purpose will have low stress levels (i.e., A graduate student senses that his purpose in life is to become a doctor and his family and friends are supportive of this vocational choice). Hypothesis 2 stated that graduate students with low social support and low life purpose will have high stress levels (i.e., A graduate student's family and friends do not provide support for him as he struggles to discover his purpose in life). Hypothesis 3 stated that graduate students with high social support and low life purpose or low

social support and high life purpose will have moderate stress levels (A graduate student's family and friends provide support for him as he struggles to discover his purpose in life OR A graduate student senses that his purpose in life is to become a writer, but his family and friends do not provide support for this vocational choice because they want him to become a doctor).

The purpose of Chapter 3 is to describe the methods that were used to conduct this study. A description of the following topics is presented: (a) research design, (b) research variables, (c) study population, (d) instrumentation, (e) data collection, and (f) data analysis.

This study was approved by the University of Florida Institutional Review Board in November 2006 (Appendices A, B, C, and D: original application and subsequent revisions).

Research Design

Cross-Sectional, Web-Based, Survey Research

This study utilized a cross-sectional, web-based, survey research design. Survey research is conducted by gathering information from a small sample of people in order to make inferences about trends within the larger population (Creswell, 2005; Dillman, 2000). To ensure that such inferences are as accurate as possible, it is important to reduce both coverage and sampling error (Creswell, 2005) as well as enhance response rates (Creswell, 2005; Dillman, 2000). This study addressed these considerations by selecting large samples from a target population that were representative of the larger population (Creswell, 2005) as well as by making follow-up contacts with non-respondents (Creswell, 2005; Dillman, 2000).

The cross-sectional nature of the research design indicated that survey data was collected on a single occasion (Creswell, 2005). One advantage associated with cross-sectional research designs is efficiency, which allows researchers to reach more people in less time for less money, thereby increasing the likelihood that the sample is representative of the population of interest.

Another advantage associated with cross-sectional research designs is that such designs are not impacted by effects associated with testing or history (Portney & Watkins, 2000).

Surveys were distributed by, completed on, and returned via the Internet in accordance with processes recommended by Creswell (2005) and Dillman (2000). The advantages of conducting research via web-based surveys are efficiency (Creswell, 2005; Dillman, 2000) and economy (Daley, McDermott, McCormack, & Kittleson, 2003; Dillman, 2000). In addition, benefits specifically related to the population of interest are that graduate students are likely to have access to and be knowledgeable about both computer use and the Internet (Daley, McDermott, McCormack, & Kittleson, 2003). Pealer and colleagues (2001) found no significant differences when comparing the response rates of university students who completed web-based surveys (58.3%) versus those who completed mail surveys (62%).

Potential procedural problems exist with web-based surveys. The entire sample may not receive the e-mail message containing a link to the web-based survey if delivered into the “junk-mail” folder of intended recipients instead of their “in” boxes, depending on how e-mail accounts sort items from unknown senders. The intended recipients also may use e-mail accounts in addition to their university sponsored address. Some recipients who receive an e-mail message containing a link to the web-based survey may not be able to access the link due to the way in which their internet accounts are configured. Recipients also may forward a study e-mail request to people they think might be interested in participating, thereby affecting with the randomness of a sample.

The web-based survey process was facilitated by SurveyMonkey, a service that provides a password-protected account from which surveys can be created and disseminated as well as from which survey responses can be collected and data compiled. Password protection ensures that

only the principal investigator has access to the names, e-mail addresses, and survey responses of the participants, enabling that information to be preserved in a confidential manner. Moreover, because participant directories are kept separate from survey responses, the names of participants and their e-mail addresses are not connected to their survey responses, further ensuring confidentiality. (SurveyMonkey, 2006).

Pilot Studies

Phase one

The first phase assessed whether the design and layout of the survey were easily understood (Daley, McDermott, McCormack, & Kittleson, 2003). Twelve questions to solicit the reactions of respondents to the survey were positioned at various locations: two after the welcome screen; four after the compilation of 70 questions representing social support, life purpose, and stress; four after the eight demographic questions; and two at the end of the survey (Appendix E). These questions elicited assessments on the successful incorporation of several principles Dillman (2000) identifies as necessary for constructing web surveys: 1) “Introduce the Web questionnaire with a welcome screen that is motivational, emphasizes the ease of responding, and instructs respondents about how to proceed to the next page” (p. 377); 2) “Present each question in a conventional format similar to that normally used on paper self-administered questionnaires” (p. 379); 3) “Restrain the use of color so that figure/ground consistency and readability are maintained, navigational flow is unimpeded, and measurement properties of questions are maintained” (p. 382); and 4) “Provide specific instructions on how to take each necessary computer action for responding to the questionnaire, and give other necessary instructions at the point where they are needed” (p. 389).

The convenience sample for Phase One of the pilot study consisted of ten graduate students enrolled at the same university that would serve for the main study. Cover letter e-mails

with a link to the survey were sent on November 30, 2006 to explain the purpose of the pilot study and invite them to participate (Appendix F). One week later, e-mails were sent to the Phase One sample, reminding non-respondents to complete the survey (Appendix G) and thanking respondents for doing so (Appendix H). Completion of the 90 question survey, which took approximately 25 minutes, served as implied consent, in accordance with the IRB-approved protocol. Data collection for Phase One of the pilot study ended two weeks after the cover letters were sent.

Nine of the 10 students in the sample responded, yielding a 90% response rate. Although a majority of respondents provided positive feedback with regard to the survey, they did make some suggestions. As a result, several editorial changes were made. For example, the cover letter e-mail and welcome screen were reworded to make them more concise and the welcome screen was spaced differently to make a more pronounced distinction between the message and the instructions for how to proceed with the survey. The colors of the survey and section titles were changed to the university's colors. No changes were made to the social support, life purpose, stress, or demographics sections.

Phase two

The second phase assessed the reliability of the 78-item web-based survey (Portney & Watkins, 2000). Internal consistency was determined by calculating Cronbach's alpha for the ISEL, PMI, and PSS. Since the web-based survey was a compilation of three different instruments, each of which measures a different variable, the internal consistency of each individual instrument was determined separately (Portney & Watkins, 2000).

Simple random sampling was employed for Phase Two, using a list of all graduate students enrolled at the University of Florida during the Spring 2007 semester obtained from the Office of Institutional Planning and Research. The names of the students who participated in Phase One

were removed from the sampling frame prior to selecting the Phase Two sample. A SAS program was used to generate a list of random numbers and 400 students were selected for the Phase Two sample for this pilot study (Dillman, 2000).

Cover letter e-mails with a link to the survey were sent on January 26, 2007 to explain the purpose of the pilot study and invite them to participate (Appendix I). Completion of the survey, which took approximately 15 minutes, served as implied consent, in accordance with the IRB-approved protocol. One week later, another e-mail was sent to those who had not yet participated asking them to do so. Four days later a final follow-up e-mail was sent to non-respondents (Appendix J). Data collection for this phase ended two weeks after the cover letters were sent. After data collection ended, another e-mail was sent to members of the main study sample who responded to the survey, thanking them for doing so (Appendix K).

Of the 400 e-mails sent to the sample, one was undeliverable due to a “fatal error” associated with the e-mail account. Thus, a total of 399 graduate students comprised the Phase Two sample. Of these, 112 ($n = 399$, 28.08%) answered at least half of the questions from each section of the survey, 99 of whom ($n = 399$, 24.82%) responded to all items.

The ISEL had a Cronbach's $\alpha = .950$ ($n = 109$), which was slightly better than but still comparable to the Cronbach's α 's calculated for this instrument when it was used in previous studies ($\alpha = .88$ to $\alpha = .90$) (Cohen, Mermelstein, Kamarck, & Hoberman, 1985). The PMI had a Cronbach's $\alpha = .945$ ($n = 113$), which was slightly better than but still comparable to the Cronbach's α 's calculated for this instrument when it was used in previous studies ($\alpha = .88$ to $\alpha = .91$) (Reker, 1992). The PSS had a Cronbach's $\alpha = .902$ ($n = 110$), which was slightly better than but still comparable to the Cronbach's α 's calculated for this instrument when it was used in previous studies ($\alpha = .84$ to $\alpha = .86$) (Cohen, Kamarck, Mermelstein, 1983). Thus all three

instruments used in Phase Two of the pilot study yielded high internal consistency (Portney and Watkins, 2000).

Research Variables and Instrumentation

The variables social support, life purpose, and stress were measured utilizing instruments with demonstrated psychometric adequacy. The psychometrics of the scales are illustrated by internal reliability, convergent validity, and discriminant validity (Portney & Watkins, 2000).

Social Support and Life Purpose

Social support was measured using a composite score of the items within the Interpersonal Support Evaluation List (ISEL), a 40-item scale that requires participants to provide Likert-type responses ranging from 0 (definitely false) to 3 (definitely true) and that focuses on “the perceived availability of potential social resources” (Cohen, Mermelstein, Kamarck, & Hoberman, 1985, p. 75). Alpha coefficients for the ISEL range from .88 to .90, thus demonstrating that the internal consistency estimates are high. The ISEL moderately correlates with other measures of social support (i.e., .30 with the Moos Family Environment Scale, when used with an undergraduate student population; .31 with the Partner Adjustment Scale, when used with a community population) (Cohen, Mermelstein, Kamarck, & Hoberman, 1985). Information on obtaining a copy of this instrument can be found at <http://www.psy.cmu.edu/~scohen/scales.html>.

Life purpose was measured by the Personal Meaning Index (PMI), a composite score of the Purpose and Coherence subscales of the Life Attitude Profile-Revised (LAP-R). The PMI is a 16-item scale that requires participants to provide Likert-type responses ranging from 0 (strongly disagree) to 6 (strongly agree) that focuses on “the existential beliefs that life is meaningful” (Reker, 2005, p. 72). Alpha coefficients for the PMI range from .89 to .91, thus demonstrating that internal consistency estimates are high (Reker, 1992). The PMI correlates

with other measures of meaning and purpose in life (i.e., .82 with the Purpose in Life Test; .81 with the Life Regard Index-Framework) (Reker, 1992). Information on obtaining a copy of this instrument can be found by contacting Gary T. Reker, Ph.D. in the Department of Psychology at Trent University, located in Peterborough, Ontario, Canada.

For the first and second research questions, Social Support and Life Purpose were considered dependent variables. For the third, fourth, and fifth research questions, Social Support and Life Purpose were considered independent variables. In addition to determining the composite scores for both variables, the fourth and fifth research questions called for a range of high, moderate, and low values of Social Support and Life Purpose to be identified. This was accomplished by determining the highest and lowest possible scores and labeling the top third of the scores as high, the middle third of the scores as moderate, and the bottom third of the scores as low.

Stress

Stress was measured using a composite score of the items within the Perceived Stress Scale (PSS), a 14-item scale that requires participants to provide Likert-type responses ranging from 0 (never) to 4 (very often) that focuses on “the degree to which situations in one’s life are appraised as stressful” (Cohen, Kamarck, Mermelstein, 1983, p. 387). Alpha coefficients for the PSS range from .84 to .86, thus demonstrating that internal consistency estimates are high. The PSS moderately correlates with other measures of stress (i.e., life-event scales). In fact, “the PSS is more closely related to a life-event impact score, which is to some degree based on the respondent’s appraisal of the event, than to the more objective measures of the number of events occurring within a particular timespan” (Cohen, Kamarck, Mermelstein, 1983, p. 392). Another indication of its validity is that “the PSS, although highly correlated with depressive symptomatology, was found to measure a different and independently predictive construct”

(Cohen, Kamarck, Mermelstein, 1983, p. 392–393). Information on obtaining a copy of this instrument can be found at <http://www.psy.cmu.edu/~scohen/scales.html>.

For the third, fourth, and fifth research questions Stress was considered a dependent variable. In addition to determining composite scores for both variables, the fourth and fifth research questions called for a range of high, moderate, and low values of Stress to be identified. This was accomplished by determining the highest and lowest possible scores and labeling the top third of the scores as high, the middle third of the scores as moderate, and the bottom third of the scores as low.

Demographics

Data for three demographic variables (i.e., age, credit hours, time in program) required respondents to specify exact numbers. Age was measured by asking participants to indicate their age at the time of survey completion. Credit hours asked respondents to indicate the number of credit hours in which they were enrolled in the current semester. Time in Program was defined as the total number of semesters (i.e., Fall, Spring, Summer) in which respondents had been enrolled in their current graduate program, including the current semester (Appendix L).

Sex, race, field of study, type of degree, and program focus were obtained through multiple-choice items. Participants reported their sex as male or female. Race was measured by asking participants to select from the list of categories used by the United States Bureau of the Census (2000): White; Black, African American, Negro; American Indian or Alaska Native; Asian (Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Other Asian); Pacific Islander (Native Hawaiian, Guamanian or Chamorro, Samoan, Other Pacific Islander); Spanish, Hispanic, Latino (Mexican, Mexican American, Chicano; Puerto Rican; Cuban; Other Spanish, Hispanic, Latino); Other. Field of Study was defined as the college in which the graduate program departments of the participants were housed. Type of Degree was defined as the

specific degree toward which the participants were working, indicated as the masters or doctoral level. Program Focus was defined as the activity toward which the participants were focusing a majority of their time during the current semester: coursework, comprehensive/qualifying exams, or thesis/dissertation research (Appendix L).

Study Population

The most current enrollment data available from the University of Florida was for the Fall 2006 semester, during which there were 10,828 enrolled at the graduate level (University of Florida Office of Institutional Planning and Research, Table I, 2006; University of Florida Office of Institutional Planning and Research, Table I-3, 2006; University of Florida Office of Institutional Planning and Research, Table I-5, 2006). A majority of these graduate students were white (59.3%, n = 6422) and male (52.4%, n = 5673). In terms of field of study, several colleges were represented by more than 10% of the graduate student population: Engineering (20.7%, n = 2236), Liberal Arts & Sciences (19.3%, n = 2095), a combination of the health-related colleges (Dentistry, Health and Human Performance, Medicine, Nursing, Pharmacy, and Public Health and Health Professions) (15.4%, n = 1684), and Business Administration (12.2%, n = 1325). The age range for these graduate students was 19 to 65 + years and, with an average age of approximately 29.2, most of the participants were between the ages of 21 and 30 (69.5%, n = 7530). A more detailed description of the categorical demographic characteristics can be found in Table 3-1.

Graduate students enrolled at the University of Florida during the Spring 2007 semester comprised the population for the main study. The sample for the main study was selected by means of simple random sampling. The same list of graduate students that served as the sampling frame for Phase Two was used, this time with the names of the students who participated in both phases of the pilot study removed prior to selecting the main study sample.

A SAS program was used to generate a list of random numbers, which selected the 2000 students who were included in the main study sample for this survey (Dillman, 2000).

The minimum acceptable sample size for this study was determined based on target accuracy, as more relevant than target power, because its purpose was to accurately estimate the strength of the relationship between the variables. In addition, sample sizes required to achieve target accuracy are larger than sample sizes required to achieve target power. Therefore, sample size based on target accuracy included more than enough people to achieve target power. For research questions one and two, the minimum sample size necessary to accurately estimate the strength of the relationship between the variables when conducting bivariate correlations is 297 (Algina, Degrees, 2005). For research questions three, four, and five, the minimum sample size necessary to accurately estimate the strength of the relationship between the variables when conducting multiple linear regression analyses is 231 (Algina, Sample, 2005). Thus, a sample size of approximately 300 would be acceptable to conduct all of the necessary data analyses in an effort to achieve target accuracy of $\rho \pm .10$ where $\rho = .35$. In order to increase the likelihood of achieving an acceptable sample size, keeping in mind the response rate of approximately 25% achieved for Phase Two of the pilot study, over-sampling indicated a sample size of approximately 2000.

Data Collection

A pre-notification letter was sent via e-mail on February 16, 2007 to the main study sample informing them that they would receive another e-mail within a couple of days requesting their participation in a web-based survey (Appendix M). Two days later, a cover letter was sent via e-mail to the main study sample explaining the purpose of the study, inviting them to participate, and directing those who choose to participate to a link to the web-based survey (Appendix N). One week later, another e-mail was sent to members of the main study sample who had yet to

participate in survey reminding them to do so. One week after that, another e-mail was sent to members of the main study sample who had yet to participate in the survey reminding them to do so (Appendix O) (Dillman, 2000). A final e-mail was sent to non-respondents a week later requesting that, if they chose not to complete the entire survey, they complete only the demographic questions (Appendix P). Doing so was supposed to allow for a comparison between the respondents and the non-respondents based on demographic characteristics, but the number of non-respondents who provided demographic information ($n = 17$) was too small to make comparisons. Completion of the 78-item survey, which took approximately 15 minutes, served as implied consent. Data collection for the main study ended four weeks after the pre-notification e-mails are sent. After data collection ended, another e-mail was sent to members of the main study sample who responded to the survey, thanking them for doing so (Appendix Q).

Data Analysis

SPSS, version 13.0, and SAS, version 8.2, were used to analyze the data by generating both descriptive and inferential statistics. Descriptive statistics served to summarize the sample's demographic characteristics. Inferential statistics were used to answer the five research questions. Research questions 1 and 2 were answered using bivariate correlations, which identify the relationship between two variables by determining to what extent one variables is associated with another (Portney & Watkins, 2000). The analysis for research question 2 compared correlations to determine if there was a difference in the association between social support and life purpose for each category within the demographic variables (Marascuilo, 1966). Research questions 3 and 4 were answered using multiple linear regression analysis. For research question 3, multiple linear regression analysis was used to determine the presence of significant main effects for social support on stress and for life purpose on stress. For research question 4, multiple linear regression analysis was conducted to determine the presence of a significant

effect for the interaction between social support and life purpose on stress (Portney & Watkins, 2000). No data analysis was conducted to address research question 5 since it was deemed irrelevant based on findings from research question 4.

Table 3-1. Demographic characteristics of the study population

Demographic Variables	N	%
Sex		
Male	5673	52.40
Female	5153	47.60
Race		
White	6422	59.30
Black	405	3.70
American Indian	32	0.30
Asian	410	3.80
Hispanic	657	6.10
Field of Study		
Agricultural & Life Sciences	1012	9.30
Business Administration	1325	12.20
Design, Construction & Planning	269	2.50
Dentistry	35	0.32
Education	1067	9.85
Engineering	2236	20.70
Fine Arts	240	2.20
Health & Human Performance	247	2.30
Journalism & Communications	231	2.10
Law	116	1.10
Liberal Arts & Sciences	2095	19.30
Medicine	307	2.80
Nursing	285	2.60
Pharmacy	231	2.10
Public Health & Health Professions	579	5.30
Veterinary Medicine	19	0.18

CHAPTER 4 RESULTS

The purpose of this study was to (1) describe the association between social support and life purpose among graduate students; (2) explain how the main effects, as well as the interaction effect, of social support and life purpose influence stress levels of graduate students; and (3) determine if the association and influence of the interaction vary when compared by demographic characteristics.

The purpose of Chapter 4 is to discuss the results of this study. A discussion of the results for the main study is presented. All significance tests were conducted at the .01 alpha level.

Sampling Frame

Graduate students enrolled at the University of Florida during the Spring 2007 semester comprised the population for the main study. The sampling frame provided by the Office of Institutional Planning and Research contained the names of 6,962 graduate students. The names of students who participated in phases one and two of the pilot study as well as the names of students with no corresponding e-mail addresses were removed from the list, resulting in a sampling frame total of 6545 graduate students.

Response Rates

A random sample of 2000 graduate students was selected to participate in the main study. Twenty-one of the 2000 e-mails sent to the sample were undeliverable for the following reasons: “over quota error,” “user unknown error,” “blocked by spam firewall,” “fatal error,” “no longer valid address,” “message too old—delivery expired,” “message too old—delivery expired—spam blocked,” and “unknown address error.” As a result, a total of 1979 graduate students received a cover letter e-mail with survey link inviting them to participate in the study. Of the 1979 graduate students in the sample, 33% (n=654) answered at least half of the questions from

each section of the survey. A total of 572 completed all of the survey items, yielding a 29% response rate.

Demographic Characteristics

A majority of the main study participants were white (70.2%, n = 475), female (56.3%, n = 383), pursuing a master's degree (56.3%, n = 382), and focusing a significant portion of their time and energy on coursework (64.9%, n = 440). In terms of field of study, several colleges were represented by more than 10% of the study participants: Liberal Arts and Sciences (22.1%, n = 150), a combination of the health-related colleges (Dentistry, Health and Human Performance, Medicine, Nursing, Pharmacy, and Public Health and Health Professions) (15.68%, n = 112), Business Administration (14.7%, n = 100), Education (13.7%, n = 93), Agricultural & Life Sciences (13.2%, n = 90), and Engineering (12.1%, n = 82). The participant age ranged from 20 to 63 years and, with an average age of 28.6 (SD = 6.6), most of the participants were between the ages of 21 and 30 (72.8%, n = 490). The number of credit hours in which the participants were currently enrolled ranged from 2 to 18, and with 9.7 credit hours being the average (SD = 2.6), most of the participants were enrolled as full-time students (71.6%, n = 481). The number of semesters in which the participants had been enrolled in their current graduate program ranged from 1 to 30, with 5.2 semesters being the average (SD = 3.8). A more detailed description of the categorical demographic characteristics can be found in Table 4-1.

A comparison of the demographic characteristics of study participants and the study population revealed that a majority of both groups were white (study participants: 70.2%, n = 475 and study population: 59.3%, n = 6422) and between the ages of 21 and 30 (study participants: 72.8%, n = 490 and study population: 69.5%, n = 7530), with an average age of approximately 29 (study participants: 28.6 and study population: 29.2). In addition, the following colleges were represented by more than 10% of the students in both groups: Engineering (study participants:

12.1%, n = 82 and study population: 20.7%, n = 2236), Liberal Arts & Sciences (study participants: 22.1%, n = 150 and study population: 19.3%, n = 2095), a combination of the health-related colleges (Dentistry, Health and Human Performance, Medicine, Nursing, Pharmacy, and Public Health and Health Professions) (study participants: 15.68%, n = 112 and study population: 15.4%, n = 1684), and Business Administration (study participants: 14.7%, n = 100 and study population: 12.2%, n = 1325). In spite of these similarities, however, certain difference must be noted. The difference in the percentage of Whites within the group of study participants and the study population was large enough to indicate that Whites were over-represented among study participants. In addition, study participants and members of the study population differed in terms of sex: the majority of the study participants were female (56.3%, n = 383) while the majority of the study population was male (52.4%, n = 5673). Thus, although similar in a number of ways, the study participants were not representative of the study population of graduate students enrolled at the University of Florida during the Fall 2006 semester.

Internal Consistency

The Cronbach's alpha statistics calculated for the ISEL, PMI, and PSS indicated that all three instruments used in the main study had high internal consistency (Portney and Watkins, 2000). The ISEL had a Cronbach's $\alpha = .947$ (n = 635), which was slightly better than but still comparable to the Cronbach's α 's calculated for this instrument when it was used in previous studies ($\alpha = .88$ to $\alpha = .90$) (Cohen, Mermelstein, Kamarck, & Hoberman, 1985). The PMI had a Cronbach's $\alpha = .942$ (n = 644), which was slightly better than but still comparable to the Cronbach's α 's calculated for this instrument when it was used in previous studies ($\alpha = .88$ to $\alpha = .91$) (Reker, 1992). The PSS had a Cronbach's $\alpha = .862$ (n = 654), which was slightly better than but still comparable to the Cronbach's α 's calculated for this instrument when it was used in

previous studies ($\alpha = .84$ to $\alpha = .86$) (Cohen, Kamarck, Mermelstein, 1983). Thus, the items comprising each of these instruments reliably measure social support (ISEL), meaning and purpose (PMI), and stress (PSS).

Levels of Social Support, Life Purpose, and Stress

The ISEL has possible scores that range from 40 to 160. Participants in this study had social support scores ranging from a low of 58 to a high of 160, with a mean of 130.6 (SD = 17.3) that fell within the upper third of possible scores. The PMI has possible scores that range from 16 to 112. The participants in this study had life purpose scores ranging from a low of 25 to a high of 112, with a mean score of 81.4 (SD = 17.4) that fell within the upper third of possible scores. The PSS has possible scores that range from 14 to 70. Participants in this study had stress scores ranging from a low of 17 to a high of 67, with a mean score of 39.3 (SD = 7.8) that fell within the middle third of possible scores.

Research Question #1

What is the association between social support and life purpose in graduate students?: A bivariate correlation was calculated to determine if there was an association between social support and life purpose in graduate students. The bivariate correlation results of $r(588) = .500, p = .000$ indicate that, among graduate students, social support and life purpose are significantly correlated in a positive direction.

Research Question #2

Does the association between social support and life purpose in graduate students vary when compared by (a) sex, (b) age, (c) race, (d) field of study, (e) type of degree, (f) credit hours, (g) time in program, (h) program focus?: Bivariate correlations were calculated to determine whether an association between social support and life purpose in graduate students was influenced by various demographic variables. In order to achieve target power when

conducting bivariate correlations for a two-tailed test, n must be at least 61. Therefore, only categories in which the n used to calculate the correlation was greater than or equal to 61 were included in the following analyses.

2a. Does the association between social support and life purpose in graduate students vary when compared by sex?: Two bivariate correlations were calculated to assess research question 2a, one based on data collected from male participants and another based on data collected from female participants (Table 4-2). These correlations were then compared to determine whether the difference between them was significant. The bivariate correlation results indicate that there is a significant ($p = .000$), positive association between social support and life purpose for both male and female graduate students. A comparison of these correlations revealed that, while the correlation associated with males is slightly smaller than the correlation associated with females, the difference between the correlations is not significant ($p = 0.61$, $\alpha = .05$).

2b. Does the association between social support and life purpose in graduate students vary when compared by age?: Four bivariate correlations were calculated to assess research question 2b, one based on data collected from participants between the ages of 21 and 25, one based on data collected from participants between the ages of 26 and 30, one based on data collected from participants between the ages of 31 and 35, and one based on data collected from participants over the age of 35 (Table 4-2). The data from the age ranges of 36–40, 41–45, 46–50, 51–55, 56–60, Over 60 were combined to form the category “Over 35” due to the fact that each of the age ranges over the age of 35 consisted of data from relatively few participants ($n < 61$). These correlations were then compared to determine whether the differences among them were significant. The bivariate correlation results indicate that there is a significant ($p = .000$),

positive association between social support and life purpose for each age range category. A comparison of these correlations revealed that, while the correlations, from largest to smallest, were associated with participants between the ages of 21 and 25, 31 and 35, 26, and 30, and over 35, the differences among the correlations was not significant ($p = 0.98$, $\alpha = .05$).

2c. Does the association between social support and life purpose in graduate students vary when compared by race?: Two bivariate correlations were calculated to assess research question 2c, one based on data collected from the White participants and another based on data collected from the Non-White participants (Table 4-2). Information from the racial categories other than White were combined to form the category of Non-White because less than 25% of the main study participants were represented by each of these races (i.e., Black, African American, Negro; American Indian or Alaska Native; Asian; Pacific Islander; Spanish, Hispanic, Latino; Other). These correlations were then compared to determine whether the difference between them was significant. The bivariate correlation results indicate that there is a significant ($p = .000$), positive association between social support and life purpose for both White and Non-White graduate students. A comparison of these correlations revealed that, while the correlation associated with Whites is slightly larger than the correlation associated with Non-Whites, the difference between the correlations is not significant ($p = 0.94$, $\alpha = .05$).

2d. Does the association between social support and life purpose in graduate students vary when compared by field of study?: Six bivariate correlations were calculated to assess research question 2d, one based on data collected from the participants in the College of Agricultural and Life Sciences, one based on data collected from the participants in the College of Business Administration, one based on data collected from the participants in the College of Education, one based on data collected from the participants in the College of Engineering, one

based on data collected from the participants in the College of Liberal Arts and Sciences, and one based on data collected from the participants in the Health-Related Colleges (Table 4-2). Bivariate correlations could not be calculated for the participants in the Colleges of Design, Construction and Planning, Dentistry, Fine Arts, Health and Human Performance, Journalism and Communications, Law, Medicine, Nursing, Pharmacy, Public Health and Health Professions, and Veterinary Medicine because the number of respondents within each of these categories were insufficient for analysis (i.e., < 61). However, the data from the colleges of Dentistry, Health and Human Performance, Medicine, Nursing, Pharmacy, and Public Health and Health Professions were combined to form the category Health-Related Colleges because this study addressed spiritual and social health topics found within these disciplines. These correlations were then compared to determine whether the differences among them were significant. The bivariate correlation results indicate that there is a significant ($p = .000$), positive association between social support and life purpose for each college. A comparison of these correlations revealed that, while the correlation associated with the Health-Related Colleges was larger than the correlations associated with the other colleges, the difference among the correlations was not significant ($p = 0.22$, $\alpha = .05$).

2e. Does the association between social support and life purpose in graduate students vary when compared by type of degree?: Two bivariate correlations were calculated to assess research question 2e, one based on data collected from participants working toward a masters degree and another based on data collected from participants working toward a doctoral degree (Table 4-2). These correlations were then compared to determine whether the difference between them was significant. The bivariate correlation results indicate that there is a significant ($p = .000$), positive association between social support and life purpose for graduate students

working toward a masters degree as well as for graduate students working toward a doctoral degree. A comparison of these correlations revealed that, while the correlation associated with graduate students working toward a masters degree is slightly larger than the correlation associated with graduate students working toward a doctoral degree, the difference between the correlations is not significant ($p = 0.67, \alpha = .05$).

2f. Does the association between social support and life purpose in graduate students vary when compared by credit hours?: Three bivariate correlations were calculated to assess research question 2f, one based on data collected from part-time students, one based on data collected from full-time students, and one based on data collected from over-time students (Table 4-2). Participants enrolled in 8 or fewer credit hours were considered part-time, those enrolled in 9–12 credit hours were considered full-time, and those enrolled in 13 or more credit hours were considered over-time (University of Florida Graduate School, 2006). These correlations were then compared to determine whether the differences among them were significant. The bivariate correlation results indicate that there is a significant ($p = .000$), positive association between social support and life purpose for part-time, full-time, and over-time graduate students. A comparison of these correlations revealed that, while there were only slight differences between the correlations with the correlation associated with over-time graduate students being the highest and the correlation associated with full-time students being the lowest, the difference between the correlations was not significant ($p = 0.27, \alpha = .05$).

2g. Does the association between social support and life purpose in graduate students vary when compared by time in program?: Four bivariate correlations were calculated to assess research question 2g, one based on data collected from students enrolled in their first or second semester, one based on data collected from students enrolled in their third or fourth

semester, one based on data collected from students enrolled in their fifth or sixth semester, and one based on data collected from students enrolled for more than six semesters (Table 4-2).

These correlations were then compared to determine whether the differences among them were significant. The bivariate correlation results indicate that there is a significant ($p = .000$), positive association between social support and life purpose for each semester category. A comparison of these correlations revealed that, while there were only slight differences between the correlations, the difference between the correlations was not significant ($p = 0.51, \alpha = .05$).

2h. Does the association between social support and life purpose in graduate students vary when compared by program focus?: Two bivariate correlations were calculated to assess research question 2h, one based on data collected from participants focusing a majority of their time and energy on coursework and another based on data collected from participants focusing a majority of their time and energy on thesis or dissertation research (Table 4-2). These correlations were then compared to determine whether the difference between them was significant. No bivariate correlation was calculated for the participants focusing a majority of their time and energy on comprehensive or qualifying examinations due to respondents numbering less than 61. The bivariate correlation results indicate that there is a significant ($p = .000$), positive association between social support and life purpose for graduate students focusing a majority of their time and energy on coursework as well as for graduate students focusing a majority of their time and energy on thesis or dissertation research. A comparison of these correlations revealed that, while the correlation associated with graduate students focusing a majority of their time and energy on coursework is slightly larger than the correlation associated with graduate students focusing a majority of their time and energy on thesis or dissertation research, the difference between the correlations is not significant ($p = 0.69, \alpha = .05$).

Research Question #3

Which of the following variables are associated with stress level among graduate students: (a) social support, (b) life purpose, (c) sex, (d) age, (e) race, (f) field of study, (g) type of degree, (h) credit hours, (i) time in program, (j) program focus?: Correlations between stress and all of the quantitative independent variables are presented in Table 4-3. The two quantitative independent variables found to significantly correlate with stress were social support ($r = -.393, p = .000$) and life purpose ($r = -.470, p = .000$). Means and standard deviations for stress as a function of the categorical independent variables are presented in Table 4-4. The means ranged from 37.8 to 40.4, falling within the middle third of possible scores on the PSS.

A multiple linear regression analysis was conducted to determine the strength of association between the dependent variable of stress and the independent variables of social support, life purpose, sex, age, race, field of study, type of degree, credit hours, time in program and program focus (Table 4-5). A residual analysis was conducted and the residual plots revealed that the assumptions of regression analysis were met. Results revealed a significant adjusted R^2 of .272, $F(10, 540) = 21.51, p = .000$, which indicated that 27.2% of the total variance in the stress score was explained by the predictor set, which was comprised of measures assessing (a) social support, (b) life purpose, (c) sex, (d) age, (e) race, (f) field of study, (g) type of degree, (h) credit hours, (i) time in program and (j) program focus.

Of these independent variables, however, only social support, life purpose, and sex significantly contributed to the total variance in the stress score, thereby exhibiting main effects. Specifically, an analysis of the unstandardized regression coefficients of these variables revealed the following: For each unit increase in stress score the level of social support of the participants decreased by .101 units ($b = -.101, t(540) = -5.349, p = .000$) and their sense of purpose in life

decreased by .153 units ($b = -.153$, $t(540) = -8.448$, $p = .000$). In addition, being male was associated with lower stress scores ($b = -3.136$, $t(540) = -5.588$, $p = .000$).

An analysis of the R^2 increase for social support and life purpose allowed for a determination of “how much the added predictors improve the overall fit of the regression line” (Dooley, 2001, p. 336). The increase in R^2 that occurred when social support was added to the regression equation ($\Delta R^2 = .038$), revealed that, of the 27.2% of total variance in stress score that was explained by the predictor set, 3.8% was uniquely associated with social support. The increase in R^2 that occurred when life purpose was added to the regression equation ($\Delta R^2 = .095$), revealed that, of the 27.2% of total variance in stress score that was explained by the predictor set, 9.5% was uniquely associated with life purpose. These findings indicate that, of these two variables, life purpose is better than social support at predicting stress levels.

Research Question #4

Does the interaction between social support and life purpose influence the stress levels of graduate students?: A multiple linear regression analysis was conducted to determine whether or not the interaction between social support and life purpose influences the stress levels of graduate students (Table 4-6). Results revealed a significant adjusted R^2 of .295, $F(4, 566) = 60.752$, $p = .000$, which indicated that 29.5% of the total variance in the stress score was explained by the predictor set, which was comprised of measures assessing (a) sex, (b) social support, (c) life purpose, and (d) the interaction of these two variables (social support X life purpose). Sex was included in this multiple linear regression analysis based on the results found for research question 3, which showed that it was one of the variables that significantly contributed to the total variance in the stress score. The results revealed that the interaction term was not statistically significant ($p = .812$). However, additional results from this multiple linear regression analysis did confirm the results found for research question 3, revealing the presence

of significant main effects for social support ($p = .000$), life purpose ($p = .000$), and sex ($p = .000$).

Research Question #5

Is there variation in how the interaction between social support and life purpose influences the stress levels of graduate students when compared by (a) sex, (b) age, (c) race, (d) field of study, (e) type of degree, (f) credit hours, (g) time in program, (h) program focus?: Due to the fact that no significant interaction effect was found between social support and life purpose in terms of its influence on the stress levels of graduate students there was no reason to explore whether interaction effects differed when compared by the various demographic variables. As such, the fifth research question was deemed irrelevant and no analyses were conducted.

Limitations

When interpreting results from this study, some limitations should be noted. The study sample was not representative of the study population, thus restricting generalizability of findings. The study sample included graduate students at one large southeastern university, thus also restricting generalizability of findings. The correlational nature of the cross-sectional study design allowed for determination of associations between and among variables, but precluded inferences regarding cause and effect. Social support and life purpose were measured as broad variables, not as subscales, which may have yielded more detailed information. Likewise, stress was the one dependent variable considered in the study, thus potentially limiting the understanding of main and interaction effects for social support and life purpose.

Table 4-1. Categorical demographic characteristics of the main study participants

Demographic Variables	N	%
Sex		
Male	297	43.70
Female	383	56.30
Race		
White	475	70.20
Black, African American, Negro	35	5.20
American Indian or Alaskan Native	1	0.10
Asian	85	12.60
Pacific Islander	1	0.10
Spanish, Hispanic, Latino	56	8.30
Other	24	3.50
Field of Study		
Agricultural & Life Sciences	90	13.20
Business Administration	100	14.70
Design, Construction & Planning	21	3.10
Dentistry	1	0.10
Education	93	13.70
Engineering	82	12.10
Fine Arts	8	1.20
Health & Human Performance	22	3.20
Journalism & Communications	12	1.80
Law	9	1.30
Liberal Arts & Sciences	150	22.10
Medicine	21	3.10
Nursing	17	2.50
Pharmacy	5	0.70
Public Health & Health Professions	46	6.80
Veterinary Medicine	3	0.40
Type of Degree		
Masters	382	56.30
Doctoral	297	43.70
Program Focus		
Coursework	440	64.90
Comprehensive or Qualifying Exams	42	6.20
Thesis or Dissertation Research	196	28.90

Table 4-2. Bivariate correlation coefficients between social support & life purpose as compared by demographic variables

Demographic Variables	Pearson Correlation	Sig. (2-tailed)	N
Sex			
Male	.483	.000	256
Female	.515	.000	329
Age			
21–25	.521	.000	232
26–30	.495	.000	201
31–35	.501	.000	79
Over 35	.489	.000	68
Race			
White	.508	.000	414
Non-White	.503	.000	171
Field of Study			
Agricultural & Life Sciences	.369	.000	77
Business Administration	.520	.000	90
Education	.570	.000	80
Engineering	.556	.000	73
Liberal Arts & Sciences	.439	.000	133
Health-Related Colleges	.632	.000	89
Type of Degree			
Masters	.531	.000	330
Doctoral	.494	.000	253
Credit Hours			
Part Time (8 or Fewer Credits)	.550	.000	99
Full Time (9–12 Credits)	.475	.000	410
Over Time (13 or More Credits)	.613	.000	69
Time in Program (# of Semesters)			
1–2	.528	.000	191
3–4	.481	.000	121
5–6	.412	.000	119
7 or More	.543	.000	150
Program Focus			
Coursework	.502	.000	377
Thesis or Dissertation Research	.474	.000	168

Table 4-3. Bivariate correlation coefficients between stress & the quantitative independent variables

		Stress	Social Support	Life Purpose	Age	Credit Hours	Time in Program
Stress	Pearson Correlation	1	-.393	-.470	-.001	.039	.008
	Sig. (2-tailed)		.000	.000	.972	.322	.842
	N	654	593	624	648	645	650
Social Support	Pearson Correlation	-.393	1	.500	-.045	.015	-.059
	Sig. (2-tailed)	.000		.000	.266	.714	.147
	N	593	635	588	605	602	606
Life Purpose	Pearson Correlation	-.470	.500	1	.011	.064	-.033
	Sig. (2-tailed)	.000	.000		.773	.106	.400
	N	624	588	644	635	633	637
Age	Pearson Correlation	-.001	-.045	.011	1	-.243	.147
	Sig. (2-tailed)	.972	.266	.773		.000	.000
	N	648	605	635	673	664	669
Credit Hours	Pearson Correlation	.039	.015	.064	-.243	1	-.211
	Sig. (2-tailed)	.322	.714	.106	.000		.000
	N	645	602	633	664	671	667
Time in Program	Pearson Correlation	.008	-.059	-.033	.147	-.211	1
	Sig. (2-tailed)	.842	.147	.400	.000	.000	
	N	650	606	637	669	667	676

Table 4-4. Levels of stress as a function of the categorical independent variables

Study Variables	M	SD
Sex		
Male	37.8	7.6
Female	40.4	7.7
Race		
White	39.1	7.7
Non-White	39.9	7.7
Field of Study		
Health-Related	39.6	7.7
Non-Health-Related	39.2	7.8
Type of Degree		
Masters	39.4	7.7
Doctoral	39.2	7.8
Program Focus		
Coursework	39.1	7.7
Non-Coursework	39.6	7.9

Table 4-5. Main study multiple linear regression unstandardized regression coefficients, standardized regression coefficients, t-test statistics, & R squared increase for study & demographic variables

Variables	<i>b</i>	Std Error	β	<i>t</i>	<i>p</i>	ΔR^2
Intercept	64.492	3.041		21.208	.000	
Social Support	-.101	.019	-.230	-5.349	.000	.038
Life Purpose	-.153	.018	-.358	-8.448	.000	.095
Sex	-3.136	.561	-.208	-5.588	.000	
Age	-.004	.047	-.003	-.081	.936	
Race	.152	.613	.009	.248	.804	
Field of Study	.206	.787	.010	.262	.794	
Type of Degree	.018	.638	.001	.028	.978	
Credit Hours	.166	.111	.058	1.493	.136	
Time in Program	.032	.098	.016	.330	.742	
Program Focus	-.219	.728	-.014	-.301	.764	

Table 4-6. Multiple linear regression unstandardized regression coefficients, standardized regression coefficients & t-test statistics

Variables	<i>b</i>	Std Error	β	<i>t</i>	<i>p</i>
Intercept	40.696	.385		105.687	.000
Sex	-3.499	.548	-.227	-6.387	.000
Social Support	-.110	.018	-.245	-5.936	.000
Life Purpose	-.154	.018	-.353	-8.555	.000
Social Support X Life Purpose	.000	.001	.009	.238	.812

CHAPTER 5 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Previous research indicates that both social support and life purpose prove independently beneficial in the lives of young adults because these factors provide a buffer against stress (Bolt, 2004; Clara, Cox, Enns, Murray, & Torgrudc, 2003; Hodges, 2002; Kanters, Bristol, & Attarian, 2002; Kennedy & Kanthamani, 1994; Mallinckrodt & Leong, 1992; Tanyi, 2002; Thoits, 1995; Yiu-kee & Tang, 1995), and promote physical and psychological health (Bolt, 2004; Cox, Enns, Murray, & Torgrudc, 2003; Hawks, 1994; Hodges, 2002; Kanters, Bristol, & Attarian, 2002; Kennedy & Kanthamani, 1994; Lawson & Fuehrer, 1989; Tanyi, 2002; Thoits, 1995). The stress buffering effect associated with social support and life purpose, independently, also benefits young adults academically by decreasing the likelihood of burnout (Bolt, 2004, Jenkins & Elliot, 2004; Jung, 1997; Kennedy & Kanthamani, 1994; Lawson & Fuehrer, 1989; Mallinckrodt & Leong, 1992; Yiu-kee & Tang, 1995) and attrition (Golde, 1998; Pines & Keinan, 2005; Reed & Giacobbi, 2004; Spicuzza & De Voe, 1982).

Theorists posit that developing a social support network and discovering a sense of meaning and purpose in life represent necessary steps in the process of human development (Frager & Fadiman, 2005; Maslow, 1987) and young adult development in particular (Chickering & Reisser, 1993; Parks, 2000). However, no research to date has explored the association and interaction between the presence of social support and a sense of meaning and purpose in life, or the association of these factors with health benefits.

Summary

This study (1) described the association between social support and life purpose among graduate students; (2) explained how the main effects, as well as the interaction effect, of social

support and life purpose influence stress levels of graduate students; and (3) determined if the association and influence of the interaction vary when compared by demographic characteristics.

The study included a two-phase pilot study and a main study. Phase One of the pilot study assessed whether the design and layout of the web-based survey were easily understood. Phase Two of the pilot study assessed the reliability of conducting a web-based survey with instruments developed and used to measure levels of social support, life purpose, and stress among young adults. The main study included a random sample of graduate students enrolled at the University of Florida during Spring semester 2007. Data were analyzed using inferential statistics, bivariate correlations, and multiple linear regression analyses.

Research Question #1

What is the association between social support and life purpose in graduate students?: Up to this point, the presence of a relationship between social support and life purpose has been theoretical in nature, commonly posited within personal development theories such as Maslow's Hierarchy of Needs, Chickering's Seven Vectors of Development – Revised, and Parks' Faith Development Theory (Chickering & Reisser, 1993; Frager & Fadiman, 2005; Maslow, 1987; Parks, 2000). This study, however, was able to provide empirical support for a relationship between social support and life purpose by revealing that, among graduate students, social support and life purpose are significantly correlated in a positive direction ($r(588) = .500, p = .000$). This finding suggests that levels of social support and life purpose vary in the same direction. Additional implications based on this finding are addressed in the discussion of the relationship between social support and life purpose with regard to demographic variables.

Research Question #2

Does the association between social support and life purpose in graduate students vary when compared by (a) sex, (b) age, (c) race, (d) field of study, (e) type of degree, (f)

credit hours, (g) time in program, (h) program focus?: The second research question examined associations between social support and life purpose when compared by Sex (male, female); Age (21 to 25, 26 to 30, 31 to 35, and over 35); Race (White, non-White); Field of Study (College of Agricultural and Life Sciences, College of Business Administration, College of Education, College of Engineering, College of Liberal Arts and Sciences, Health-Related Colleges); Type of Degree (masters, doctoral); Credit Hours (part-time, full-time, over-time); Time in Program (first or second semester, third or fourth semester, fifth or sixth semester, more than six semesters); and Program Focus (coursework, thesis or dissertation research). For all of the preceding demographic variables, social support and life purpose were significantly and positively correlated. Moreover, none of the correlations for the categories within a demographic variable differed significantly from one another, suggesting universities may plan comprehensive health promotion programs for students without necessarily targeting specific groups.

Research Question #3

Which of the following variables are associated with stress level among graduate students: (a) social support, (b) life purpose, (c) sex, (d) age, (e) race, (f) field of study, (g) type of degree, (h) credit hours, (i) time in program, (j) program focus?: Multiple regression analysis revealed strength of association between stress and social support, life purpose, sex, age, race, field of study, type of degree, credit hours, time in program and program focus. Social support, life purpose, and sex were the only variables that contributed significantly to total variance in the stress score, thereby documenting the main effects of these variables on stress. Each variable has a unique, independent relationship with stress. As social support increased, stress decreased. As life purpose increased, stress decreased. Stress levels were lower among male graduate students than among female graduate students. An analysis of the R^2 increase for

both social support and life purpose revealed that, of these two variables, life purpose is better than social support at predicting stress levels.

Research Question #4

Does the interaction between social support and life purpose influence the stress levels of graduate students?: Absence of a significant interaction effect between social support and life purpose indicated no differential effects for social support across life purpose with regard to stress. Thus, contrary to expectations, findings did not support the study hypotheses: 1) Graduate students with high social support and high life purpose will have low stress levels; 2) Graduate students with low social support and low life purpose will have high stress levels; 3) Graduate students with high social support and low life purpose or low social support and high life purpose will have moderate stress levels.

Up to this point, previous research studies have explored the associations between social support and stress and between life purpose and stress, but have not considered how the interaction between social support and life purpose may influence stress levels. The fact that this study examined the effect of the interaction between social support and life purpose on stress is an important contribution to the profession because it increases our understanding of the relationship between social support and life purpose and how this relationship impacts stress levels.

Research Question #5

Is there variation in how the interaction between social support and life purpose influences the stress levels of graduate students when compared by (a) sex, (b) age, (c) race, (d) field of study, (e) type of degree, (f) credit hours, (g) time in program, (h) program focus?: No data analysis was conducted to address this question due to the absence of an interaction effect for Research Question 4.

Conclusions

A majority of the main study participants were white, female, pursuing a master's degree, and focusing a significant portion of their time and energy on coursework. In terms of field of study, several colleges were represented by more than 10% of the study participants: Liberal Arts and Sciences, a combination of the health-related colleges (Dentistry, Health and Human Performance, Medicine, Nursing, Pharmacy, and Public Health and Health Professions), Business Administration, Education, Agricultural & Life Sciences, and Engineering. The average age of participants was 28.6 (SD = 6.6). The average number of credit hours in which participants were currently enrolled was 9.7 (SD = 2.6). The average number of semesters in which the participants had been enrolled in their current graduate program was 5.2 (SD = 3.8). These findings showed the study participants to be similar to, but not representative of, the study population of graduate students enrolled at the University of Florida during the Fall semester 2006 semester.

Mean scores for social support ($M = 130.6$, $SD = 17.3$) and life purpose ($M = 81.4$, $SD = 17.4$) respectively fell in the upper third of possible scores for the ISEL and PMI, suggesting that subjects experienced relatively high levels of both social support and life purpose. Mean scores for stress ($M = 39.3$, $SD = 7.8$) fell in the middle third of possible scores for the PSS, suggesting that subjects experienced relatively moderate levels of stress. These findings differ from previous studies which suggested graduate students of all races and both genders perceive the support they receive inadequate (Ellis, 2001). Research documented that women (Cronan-Hillix, Gensheimer, Cronan-Hillix, & Davidson, 1986; Ellis, 2001; Herzig, 2004) and racial minorities (Ellis, 2001; Herzig, 2004) were most likely to view social support as lacking. This difference may be due to the fact that previous research specifically explored social support available through institutions of higher education (i.e., faculty, advisors, peers), while this study asked

participants to consider social support available in all realms of their lives (i.e., faculty, advisors, peers and family, friends, co-workers).

Subjects in this study reported high levels of life purpose, again differing from previous research. For example, the HERI study (2004) found that, as students accumulated more years of higher education, their levels of life purpose declined. These findings held true even when students viewed spirituality as an important aspect in their lives, one they believed institutions of higher education should help them develop (HERI: The Spiritual Life, 2005). However, previous studies explored levels of life purpose among undergraduate students while this study focused on graduate students. Meaning and purpose in life guide young adults in selecting a vocation (Dalton, 2001), so undergraduate students may feel their lives lack purpose because they have not yet selected a vocation. As young adults develop a sense of meaning and purpose in life, allowing their calling to guide their career path, they may ensure that their actions and beliefs match (Dalton, 2001). Thus, pursuing a graduate degree represents one way young adults aspire to fulfill an identified purpose (Strange, 2001). So, graduate students would be more likely to report purpose in their lives.

The fact that subjects experienced moderate levels of stress also differed from previous studies which concluded that stress constitutes a major health concern for young adults in higher education (Abouserie, 1994; Deckro, Ballinger, Hoyt, & Wilcher, 2002; Geraghty, 1997; Goldman & Wong, 1997; Kanters, Bristol, & Attarian, 2002; Ross, Niebling, & Heckert, 1999; Sciacca & Melby, 1992). However, high levels of social support and life purpose, as reported by the subjects in this study, can provide a buffer against stress (Bolt, 2004, Jenkins & Elliot, 2004; Jung, 1997; Kennedy & Kanthamani, 1994; Lawson & Fuehrer, 1989; Mallinckrodt & Leong, 1992; Yiu-kee & Tang, 1995). Thus, stress levels among subjects in this study would be

predictably lower than for individuals whose levels of social support and life purpose were lower.

Recommendations

Recommendations for Professional Practice

The findings from this study can be used to inform professional practice by suggesting several recommendations. Higher education institutions often do not provide social support that adequately meets the needs of students (Christie, Munro, & Fisher, 2004; Cronan-Hillix, Gensheimer, Cronan-Hillix, & Davidson, 1986; Ellis, 2001; Herzig, 2004; Mallinckrodt & Leong, 1992; Williams, 2000; Williams, 2002). Many universities also do not recognize the need for initiatives that focus on students' sense of purpose in life (Dalton, 2001; HERI: Summary, 2004; HERI: The Spiritual Life, 2005.; Laurence, 2005; Love, 2001; Love & Talbot, 1999). Based on the positive association found between life purpose and social support among graduate students, regardless of most demographic characteristics, one such recommendation would be for university health care centers and student affairs organizations to offer comprehensive programs to promote social support and life purpose, without necessarily offering programs for particular demographic groups.

The fact that stress constitutes a major health concern for young adults in higher education increases the likelihood that university health care centers and student affairs organizations will dedicate a considerable amount of time and resources toward implementing health promotion initiatives designed reduce stress. A major component of such programs is determining the baseline stress levels of students in an effort to identify those students who are most in need of stress reduction as well as to evaluate how successful the program was at reducing stress among these students. Based on the main effects found between social support and stress and between life purpose and stress, which revealed that students with higher levels of stress tend to have

lower levels of social support and life purpose, an additional advantage of determining baseline stress levels is that, by knowing which students have high stress levels, health care center and student affairs staff can identify students who are likely to have low levels of social support and life purpose.

Thus, another recommendation would be for university health care centers and student affairs organizations to utilize the information obtained through stress reduction programs to identify the need for programs designed to enhance social support and life purpose. By revealing this need, such information may encourage institutions of higher education to be more intentional about making programs designed to enhance social support and life purpose available to students. Recognizing which students have low levels of social support and life purpose can assist university health care center and student affairs staff in directing programs designed to enhance social support and life purpose toward the students most in need. Doing so can conserve scarce time and resources by limiting the scope of such programs to those in greatest need, instead of attempting to reach the entire student body, many of whom may not need the services offered by such programs. Female graduate students, for example, were found to experience higher stress levels than male graduate students; and with higher stress levels comes the tendency to experience lower levels of social support and life purpose. Therefore, initiatives aimed at promoting social support and life purpose may produce a greater positive impact if targeted toward female graduate students. In addition, knowing which students are most in need of enhanced social support and life purpose enables university health care center and student affairs staff to encourage specific students to participate in such health promotion initiatives, thereby increasing the likelihood that those most in need will take advantage of and benefit from programs designed to enhance social support and life purpose.

As higher education institutions come to recognize the importance of programs designed to enhance social support and life purpose in the lives of graduate students university health care centers and student affairs organization may be more inclined to implement such programs on a more regular basis. A major component of such programs should be determining the baseline social support and life purpose levels of students in an effort to identify those students who are most in need of social support and life purpose as well as to evaluate how successful the program was at promoting social support and life purpose among these students. Based on the main effects found between social support and stress and between life purpose and stress, which revealed that students with lower levels of social support and students with lower levels of life purpose tend to have higher levels of stress, an additional advantage of determining baseline social support and life purpose levels is that, by knowing which students have low social support and low life purpose health care center and student affairs staff can identify students who are likely to have high stress levels.

Thus, another recommendation would be for university health care centers and student affairs organizations to utilize the information obtained through programs designed to enhance social support and life purpose to identify the need for programs designed to reduce stress. By recognizing which students have high stress levels, university health care center and student affairs staff can direct programs designed to reduce stress toward the students most in need. Doing so can conserve scarce time and resources by limiting the scope of such programs to those in greatest need, instead of attempting to reach the entire student body, many of whom may not need the services offered by such programs. This is especially important considering the fact that stress constitutes a major health concern for young adults in higher education, which may lead university health care centers and students affairs organizations to aspire to aid all students

in reducing stress, when in reality they may not have adequate time and resources to achieve this goal. In addition, knowing which students are most in need of stress reduction enables university health care center and student affairs staff to encourage specific students to participate in such health promotion initiatives, thereby increasing the likelihood that those most in need will take advantage of and benefit from programs designed to reduce stress.

Social support and life purpose have been identified as buffers against stress (Bolt, 2004, Jenkins & Elliot, 2004; Jung, 1997; Kennedy & Kanthamani, 1994; Lawson & Fuehrer, 1989; Mallinckrodt & Leong, 1992; Yiu-kee & Tang, 1995). Such findings may prompt university health care centers and student affairs organizations to implement health promotion initiatives designed to enhance social support and life purpose in an effort to reduce stress. Findings from the current study, however, revealed the absence of an interaction effect for social support and life purpose on stress among graduate students, suggesting that such health promotion initiatives need not include both social support and life purpose in a single initiative, but would do better to focus on one of these issues at a time. Doing so would allow university health care centers and student affairs organizations to focus their resources on health promotion initiatives that address a single factor, which would likely enhance positive outcomes.

Recommendations for Future Research

This study should be extended using a broader sample that includes undergraduate students, undergraduate and graduate students from different types of institutions (i.e., small, medium, large, public, private, religiously affiliated, located in different geographic regions), young adults who recently graduated from college and began their careers, and young adults who did not attend college. In addition, future studies could consider how relationships among social support, life purpose, and stress differ when looking at these diverse samples. When considering such relationships in the lives of graduate students in particular, comparisons between males and

females as well as students in professional and non-professional programs might also be of interest.

Experimental studies to determine causal relationships could be designed to explore the theoretical notion that social support precedes and is necessary for the procurement of life purpose in the process of positive human development (Maslow's Hierarchy of Needs, Chickering's Seven Vectors of Development, Parks' Faith Development Theory). Such studies could also determine if social support causes a decrease in stress levels or whether decreased stress levels allow for increased social support, as well as whether a sense of purpose in life can cause a decrease in stress level or if decreased stress levels allow for discovery of a sense of purpose in life.

To gather more detailed data, future studies should use instruments that allow for the consideration of social support in terms of type of support (i.e., emotional, informational, instrumental) as well as source of support (i.e., friends, family, significant others). Instruments that address identity development variables also would allow for a more in-depth look at how students derive their sense of purpose in life (i.e., self, others, or no sense of purpose).

Finally, to gain a better understanding about the influence of social support and life purpose on overall well-being, future studies should consider the impact of social support, life purpose, and their interaction in terms of dependent variables such as depression, life satisfaction, and personal identity. To decrease error variance, and to understand more clearly what variables contribute to total variance in stress levels, study designs should include additional variables in the regression analysis, perhaps by including survey questions on a broader range of demographic variables (i.e., marital status, religious affiliation, number of

children, local versus long-distance support networks, type of employment (graduate assistantship, part-time job, full-time job).

APPENDIX A
ORIGINAL INSTITUTIONAL REVIEW BOARD APPLICATION

1. Title of Project:

The Relationship between Social Support and Life Purpose on Graduate Student Well-being

2. Principal Investigator:

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4. Dates of Proposed Research: January 1, 2007–December 30, 2008

5. Source of Funding for the Protocol: None

6. Scientific Purpose of the Investigation:

Developing a social support network and discovering a sense of meaning and purpose in life are necessary steps in the process of positive human development in general (i.e., Maslow's Hierarchy of Needs) and of positive young adult development in particular (i.e., Chickering's Seven Vectors of Development, Parks' Faith Development Theory). Research documents the existence of health benefits associated with both social support (Bolt, 2004; Clara, Cox, Enns, Murray, & Torgrudc, 2003; Thoits, 1995; Hodges, 2002; Kanters, Bristol, & Attarian, 2002; Lawson & Fuehrer, 1989; Mallinckrodt & Leong, 1992; Thoits, 1995; Vaux & Wood, 1987) and a sense of meaning and purpose in life (Hodges, 2002; Kass, Friedman, Leserman, Zuttermeister, & Benson, 1991; Kennedy & Kanthamani, 1994; Laurence, 2005; Love & Talbot, 1999; Mahoney & Graci, 1999; Strange, 2001; Tanyi, 2002; Young, Cashwell, & Woolington, 1998).

Within higher education, attempts to aid students in the development of social support are often inadequate (Christie, Munro, & Fisher, 2004; Cronan-Hillix, Gensheimer, Cronan-Hillix, & Davidson, 1986; Ellis, 2001; Herzig, 2004; Mallinckrodt & Leong, 1992; Williams, 2000; Williams, 2002) and the need to aid students in the discovery of a sense of meaning and purpose

in life is often ignored (Dalton, 2001; HERI: Summary, 2004; HERI: The Spiritual Life, 2005.; Laurence, 2005; Love, 2001; Love & Talbot, 1999). This neglect may result in young adults not acquiring myriad health benefits. For example, stress is a major health concern among young adults in the pursuit of higher education (Abouserie, 1994; Deckro, Ballinger, Hoyt, & Wilcher, 2002; Geraghty, 1997; Goldman & Wong, 1997; Kanters, Bristol, & Attarian, 2002; Ross, Niebling, & Heckert, 1999; Sciacca & Melby, 1992). Social support (Bolt, 2004, Jenkins & Elliot, 2004; Jung, 1997; Lawson & Fuehrer, 1989; Mallinckrodt & Leong, 1992) and a sense of meaning and purpose in life (Kennedy & Kanthamani, 1994; Yiu-kee & Tang, 1995) can provide a buffer against stress. Stress contributes to myriad health problems (Deckro, Ballinger, Hoyt, & Wilcher, 2002; Dixon & Reid, 2000; Duenwald, 2002; Frazier & Schauben, 1994; Geraghty, 1997; Goldman & Wong, 1997; Hudd, Dumlao, Erdmann-Sager, Murray, Phan, Soukas, et al, 2000; Park & Levenson, 2002; Sciacca & Melby, 1992). It also causes burnout (Schaufeli, Maslach, & Marek, 1993 as cited by Jenkins & Elliot, 2004; Schaufeli & Buunk, 1996 as cited by Peiro, Gonzalez-Roma, Tordera & Manas, 2001; Cooper, Dewe, & O'Driscoll, 2001; Hobfoll & Shirom, 2000; and Schaufeli & Enzmann, 1998 as cited by Pines & Keinan, 2005; Maslach, Schaufeli, & Leiter, 2001), which can lead people to "question their vocational choice" (Spicuzza & De Voe, 1982, p. 96) and to consider leaving their line of work (Golde, 1998; Pines & Keinan, 2005; Spicuzza & De Voe, 1982). For graduate students, working on their degree is typically equivalent to a full-time job, one that is preparing them to fulfill their life purpose through their careers. As such, stress that leads to burnout may cause an increase in attrition rates among graduate students.

No investigations published to date have explored the association between social support and purpose in life. As a result, potential health benefits that may result from an interaction between social support and a sense of meaning and purpose in life, particularly those associated with stress buffering, remain unknown. Thus, research designed to explore the nature of the association and interaction between social support and a sense of meaning and purpose in life would contribute to the field of health education research by providing valuable information for university-based health promotion/disease prevention initiatives. The purpose of this study will be to (1) determine if there is an association between social support and life purpose in graduate students; (2) explore how the interaction between various levels of social support and life purpose influences graduate students' stress levels; and (3) establish whether this association and/or the influence of this interaction vary when compared by demographic characteristics.

7. Describe the Research Methodology:

Data will be collected on the variables of social support, life purpose, and stress using existing instruments that have demonstrated psychometric adequacy. Social support will be measured by the Interpersonal Support Evaluation List (ISEL) (Cohen, Mermelstein, Kamarck, & Hoberman, 1985) (Appendix D). Meaning and purpose in life will be measured by the Personal Meaning Index (PMI), a composite score of the Purpose and Coherence subscales of the Life Attitude Profile-Revised (LAP-R) (Reker, 2005) (Appendix E). Stress will be measured by the Perceived Stress Scale (PSS) (Cohen, Kamarck, Mermelstein, 1983) (Appendix F). Data will also be collected on the following demographic variables (Appendix G): sex, age, race, field of study (i.e., the college in which participants' graduate program departments are housed), type of degree (i.e., the specific degree toward which the participants are working – masters or doctoral), credit

hours (i.e., the number of credit hours in which participants are enrolled for the current semester), time in program (i.e., the number of years in which participants have been enrolled in their current graduate program), and program focus (i.e., the activity toward which participants are focusing a majority of their time and energy during the current semester - coursework, comprehensive/qualifying exams, or thesis/dissertation research). The questions from each of the afore-mentioned instruments along with the demographic questions will be uploaded onto the SurveyMonkey web-based survey service so that participants can complete the entire 78-question survey on-line. The SurveyMonkey web-based survey service utilizes password-protected access to participant directories and survey responses ensuring that only the principal investigator has access to participants' names, e-mail addresses, and survey responses, thereby keeping that information confidential (SurveyMonkey, 2006).

A pilot test to determine whether the web-based format of the instruments is user-friendly (Daley, McDermott, McCormack, & Kittleson, 2003) will be conducted due to the fact that the instruments were originally designed in paper format and will be converted to web-based format for purposes of this study. A convenience sample of ten graduate students will be selected to participate in the pilot test. Cover letter e-mails will be sent to the pilot test sample explaining the purpose of the pilot test and inviting them to participate (Appendix A). These e-mails will also include a link to the web-based survey. Questions included in the pilot test are based on several of the principles Dillman (2000) identifies as necessary for constructing web surveys and are designed to assess whether the design and layout of the web-based survey is easy to understand (Appendix B). One week later, another e-mail will be sent to the pilot test sample, thanking respondents for completing the survey and reminding nonrespondents to do so. After completing the web-based survey, responses to the pilot test questions will be reviewed and used to determine if any changes need to be made to improve the survey prior to disseminating it to the study sample (Creswell, 2005).

The study sample will be selected by means of simple random sampling. A list of all graduate students enrolled at the University of Florida during the Spring 2007 semester will be obtained from the Office of the University Registrar and will serve as the sampling frame for this study. The names of the students who participated in the pilot test will be removed from the sampling frame prior to selecting the sample. A SAS program will generate a list of random numbers to determine which students from the sampling frame will be included in the sample (Dillman, 2000). A proposed sample of 1,000 participants will be necessary in order to allow for a sufficient response rate of 50%.

A prenotification letter will be sent via e-mail to the study sample informing them that they will receive another e-mail within a couple of days requesting their participation in a study by completing a web-based survey. Two days later, a cover letter will be sent via e-mail to the study sample explaining the purpose of the study, inviting them to participate, and directing those who choose to participate to a link to the web-based survey (Appendix C). One week later, another e-mail will be sent to the study sample, thanking respondents for completing the survey and reminding nonrespondents to do so. Two weeks later, nonrespondents will receive another e-mail requesting that they respond and providing them with a copy of the link that will direct them to the web-based survey. Another two weeks later, a final e-mail will be sent to nonrespondents asking them to complete the survey (Dillman, 2000). This e-mail will also

request that, if they choose not to complete the entire survey, they complete only the demographic questions. Doing so will allow for a comparison between respondents and nonrespondents based on demographic characteristics.

Completion of the 78-question survey will require approximately 15 minutes and will serve as implied consent. All participants who complete the entire survey by responding to all of the questions will receive a \$5 Barnes & Noble online gift certificate via e-mail. The SurveyMonkey web-based survey service will keep track of who has and has not responded to the survey by indicating their response status next to their e-mail addresses, which are listed in a study sample directory. The SurveyMonkey web-based survey service utilizes password-protected access to participant directories and survey responses ensuring that only the principal investigator has access to both pilot test and main study participants' names, e-mail addresses, and survey responses, thereby keeping that information confidential (SurveyMonkey, 2006). In addition, because participant directories are kept separate from survey responses, participants' names and e-mail addresses will not be connected to their survey responses, thereby ensuring confidentiality.

SPSS, version 13.0, and SAS, version 8, will be used to analyze the data by generating both descriptive and inferential statistics. Descriptive statistics will serve to summarize the sample's demographic characteristics (i.e., sex, age, race, field of study, type of degree, credit hours, time in program, and program focus). Inferential statistics will be used to answer the four research questions. Bivariate correlations will be calculated using SPSS to determine if there is an association between social support and life purpose in graduate students. Bivariate correlations will also be calculated using SPSS to determine whether such an association is influenced by the afore-mentioned demographic variables. These correlations can then be compared using SAS to determine if there is a difference in the association (Marascuilo, 1966) between social support and life purpose for each demographic variable. Multiple regression analysis will be calculated using SPSS to determine how the interaction between various levels of social support and life purpose influence graduate students' stress levels. Multiple regression analyses will also be calculated using SPSS to determine how the interaction between various levels of social support and life purpose influence graduate students' stress levels when compared by the afore-mentioned demographic variables.

8. Potential Benefits and Anticipated Risks:

Participants may benefit by having a greater awareness of the social and spiritual dimensions of human health. Participants' names, e-mail addresses, and survey results will be maintained in a password-protected SurveyMonkey account (SurveyMonkey, 2006). Neither the participants' names nor e-mail addresses will be connected with their survey results. Therefore, participation in this study poses no more than minimal risk.

9. Describe How Participants will be Recruited, the Number and Age of Participants, and Proposed Compensation:

Graduate students will be the population for this study. The target population will be graduate students enrolled at the University of Florida during the Spring 2007 semester. The pilot test

sample will be selected by means of convenience sampling. The study sample will be selected by means of simple random sampling. A list of all graduate students enrolled at the University of Florida during the Spring 2007 semester will be obtained from the Office of the University Registrar and will serve as the sampling frame for this study. The names of the students who participated in the pilot test will be removed from the sampling frame prior to selecting the sample. A SAS program will generate a list of random numbers to determine which students from the sampling frame will be included in the sample (Dillman, 2000). A proposed sample of 1,000 participants, ages 18 and older, will be necessary in order to allow for a sufficient response rate of 50%. All participants who complete the entire survey, by responding to all 78 questions, will receive a \$5 Barnes & Noble online gift certificate via e-mail.

10. Describe the Informed Consent Process:

A cover letter will be sent via e-mail to the sample participants explaining the purpose of the study, inviting them to participate, and directing those who choose to participate to a link to the web-based survey (Appendix C). Completion of the 78-question survey will require approximately 15 minutes and will serve as implied consent. Thus, students will voluntarily consent to participate in this study by completing the web-based survey.

11. Signatures: The original signature(s) of the Principal Investigator(s) and faculty supervisor (where applicable) of the research are required at the bottom of the UFIRB protocol. If the protocol is submitted electronically, a cover letter bearing these signatures is required.

_____	_____
Principal Investigator's Signature	Date
Beth Johnson, MPH, CHES	

I approve this protocol for submission to the UFIRB.

_____	_____
Faculty Supervisor's Signature	Date
Barbara Rienzo, PhD	

I approve this protocol for submission to the UFIRB.

_____	_____
Dept. Chair/Center Director Signature	Date
Robert Weiler, PhD	

Original IRB Appendix A: Pilot Study Informed Consent

Project Title: The Relationship between Social Support and Life Purpose on Graduate Student Well-being

Purpose of the research study: Beth Johnson (bajohnso@ufl.edu) is a doctoral candidate in the department of Health Education and Behavior. This study proposes to assess graduate students' experience related to social support, life purpose, and stress.

What you will be asked to do in the study: You are being asked to click on the web-link below and participate in an online survey. In addition, you are being asked to complete feedback questions, which will be located after each section within the online survey. The feedback questions are designed to elicit information on the design and layout of the online survey in an effort to determine if any changes need to be made.

Time required: The online survey will take approximately 25 minutes to complete.

Risks and Benefits: Your participation in this study poses no more than minimal risk. Neither your name nor your e-mail address will be connected with your survey results. The benefit of participation is a greater awareness of the social and spiritual dimensions of human health.

Compensation: You will not be compensated for participating in this study.

Confidentiality: Your identity will be kept confidential to the extent provided by law. Your e-mail address will be used to follow-up on your participation in the pilot study. Your name and e-mail address, which will be listed in a pilot participant directory, will not be connected to your survey responses. The pilot participant directory and survey responses will be maintained in a password-protected web-based survey service account ensuring that only the principal investigator has access to this information. No names will be used in any report.

Voluntary Participation: Your participation in this study is completely voluntary. There is no penalty for not participating.

Right to withdraw from the study: You have the right to withdraw from the study at anytime without consequence.

Whom to contact if you have questions about the study: Beth Johnson, MPH, CHES at bajohnso@ufl.edu or Dr. Barbara A. Rienzo, PhD at brienzo@hhp.ufl.edu, Department of Health Education & Behavior, 05 Florida Gym, (352) 392-0583.

Whom to contact about your rights as a research participant in the study: UFIRB Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; ph 392-0433.

Agreement: By clicking on the web-link below and completing the online survey you are indicating that you have read the above procedures and you are consenting to voluntarily participate in this study.

<<<<< Link to Online Survey >>>>>

Thank you in advance for participating in this survey. The information you provide will be extremely beneficial in determining the most effective design and layout for the online survey. Your help in this matter is greatly appreciated.

Original IRB Appendix B: Pilot Study Questions

* These questions will be included at the end of each section of the survey as indicated below *

Welcome Screen Section

* Did the message on the welcome screen serve to motivate you to participate in the survey?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

* Did the instructions on the welcome screen adequately inform you how to proceed to the next page so that you could begin the survey?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

Social Support Section

* Did the instructions adequately inform you how to respond to the questions?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

* Did the layout of the questions and responses make it easy to understand how to respond to the questions?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

* Was the number of questions per page adequate?

Yes [] No - Too few questions per page [] No – Too many questions per page []

- If “No”, please explain and suggest revisions in the space below...

* Did the instructions at the end of each page adequately inform you how to proceed to the next page so that you could continue the survey?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

Purpose Section

* Did the instructions adequately inform you how to respond to the questions?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

* Did the layout of the questions and responses make it easy to understand how to respond to the questions?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

* Was the number of questions per page adequate?

Yes [] No - Too few questions per page [] No – Too many questions per page []

- If “No”, please explain and suggest revisions in the space below...

* Did the instructions at the end of each page adequately inform you how to proceed to the next page so that you could continue the survey?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

Stress Section

* Did the instructions adequately inform you how to respond to the questions?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

* Did the layout of the questions and responses make it easy to understand how to respond to the questions?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

* Was the number of questions per page adequate?

Yes [] No - Too few questions per page [] No – Too many questions per page []

- If “No”, please explain and suggest revisions in the space below...

* Did the instructions at the end of each page adequately inform you how to proceed to the next page so that you could continue the survey?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

Demographics Section

* Did the instructions adequately inform you how to respond to the questions?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

* Did the layout of the questions and responses make it easy to understand how to respond to the questions?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

* Was the number of questions per page adequate?

Yes [] No - Too few questions per page [] No – Too many questions per page []

- If “No”, please explain and suggest revisions in the space below...

* Did the instructions at the end of each page adequately inform you how to proceed to the next page so that you could continue the survey?

Yes [] No []

- If “No”, please explain and suggest revisions in the space below...

Other

* How well did the colors used in the survey design enable you to read the items?

Very Well [] Adequate – Could be Improved [] Difficult to Read []

- If it needs improvement, please explain and suggest revisions in the space below...

* In the space below, please provide any additional feedback you think would be helpful in making this survey as user-friendly as possible...

Original IRB Appendix C: Dissertation Study Informed Consent

Project Title: The Relationship between Social Support and Life Purpose on Graduate Student Well-being

Purpose of the research study: Beth Johnson (bajohnso@ufl.edu) is a doctoral candidate in the department of Health Education and Behavior. This study proposes to assess graduate students' experience related to social support, life purpose, and stress.

What you will be asked to do in the study: You are being asked to click on the web-link below and participate in an online survey.

Time required: The online survey will take approximately 15 minutes to complete.

Risks and Benefits: Your participation in this study poses no more than minimal risk. Neither your name nor your e-mail address will be connected with your survey results. The benefit of participation is a greater awareness of the social and spiritual dimensions of human health.

Compensation: You will receive a \$5 Barnes & Noble online gift certificate via e-mail for completing the entire survey by responding to all of the questions.

Confidentiality: Your identity will be kept confidential to the extent provided by law. Your e-mail address will be used to follow-up on your participation in the study as well as to send you an incentive upon completion of the survey. Your name and e-mail address, which will be listed in a participant directory, will not be connected to your survey responses. The participant directory and survey responses will be maintained in a password-protected web-based survey service account ensuring that only the principal investigator has access to this information. No names will be used in any report.

Voluntary Participation: Your participation in this study is completely voluntary. There is no penalty for not participating.

Right to withdraw from the study: You have the right to withdraw from the study at anytime without consequence.

Whom to contact if you have questions about the study: Beth Johnson, MPH, CHES at bajohnso@ufl.edu or Dr. Barbara A. Rienzo, PhD at brienzo@hhp.ufl.edu, Department of Health Education & Behavior, 05 Florida Gym, (352) 392-0583.

Whom to contact about your rights as a research participant in the study: UFIRB Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; ph 392-0433.

Agreement: By clicking on the web-link below and completing the online survey you are indicating that you have read the above procedures and you are consenting to voluntarily participate in this study.

<<<<< Link to Online Survey >>>>>

Thank you in advance for participating in this survey. The information you provide will be extremely beneficial in enhancing an understanding of the graduate student experience. Your help in this matter is greatly appreciated.

Original IRB Appendix D: Interpersonal Support Evaluation List (ISEL)

Information on obtaining a copy of this instrument can be found at

<http://www.psy.cmu.edu/~scohen/scales.html>

Original IRB Appendix E: Personal Meaning Index (PMI)

Information on obtaining a copy of this instrument can be found by contacting Gary T. Reker, Ph.D. in the Department of Psychology at Trent University, located in Peterborough, Ontario, Canada.

Original IRB Appendix F: Perceived Stress Scale (PSS)

Information on obtaining a copy of this instrument can be found at

<http://www.psy.cmu.edu/~scohen/scales.html>

Original IRB Appendix G: Demographic Information

Directions: For each of the following questions check the answer that best represents you.

1. What is your sex?

- Male
- Female

2. In which of the following categories does your age fall?

- Under 20 years
- 20 - 24
- 25 - 29
- 30 - 34
- 35 - 39
- 40 - 44
- 45 - 49
- 50 - 54
- 55 - 59
- 60 - 64
- 65 or older

3. What is your race? Please mark one of the following race categories (as used by the U.S. Census Bureau) to indicate what you consider yourself to be.

- White
- Black, African American, Negro
- American Indian or Alaska Native
- Asian (Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Other Asian)
- Pacific Islander (Native Hawaiian, Guamanian or Chamorro, Samoan, Other Pacific Islander)
- Spanish, Hispanic, Latino (Mexican, Mexican American, Chicano; Puerto Rican; Cuban; Other Spanish, Hispanic, Latino)
- Other: _____

4. In which of the following colleges is your graduate program department housed?

- Agricultural and Life Sciences
- Business Administration, Design, Construction, and Planning
- Dentistry
- Education
- Engineering
- Fine Arts
- Health and Human Performance
- Journalism and Communications

- Law
- Liberal Arts and Sciences
- Medicine
- Nursing
- Pharmacy
- Public Health and Health Professions
- Veterinary Medicine

5. What type of degree are you working towards?

- Masters
- Doctoral

6. How many credit hours are you currently enrolled in for this semester?

- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- More than 12

7. How many academic years, including this year, have you been enrolled in your graduate program?

- 1
- 2
- 3
- 4
- 5 or More

8. On which of the following activities do you focus a majority of your time and energy with regard to your academics?

- Coursework
- Comprehensive or Qualifying Exams
- Thesis or Dissertation Research

APPENDIX B
 INSTITUTIONAL REVIEW BOARD REVISION FORM 1

Protocol Revision For Already Approved Studies Institutional Review Board Office 02 (Social and Behavioral Research)	
Protocol Number: 2006-U-1056	
Protocol Title: The Relationship between Social Support and Life Purpose on Graduate Student Well-being	
Investigator's Name: Beth Johnson	
Email Address: bajohnso@ufl.edu	Phone: 352-392-0583 ext 1254
Revision / Amendment to Protocol	
<p><i>State the revision(s) you are making to the study:</i></p> <p>Dates of Proposed Research: December 1, 2006 – December 30, 2008</p> <p>Protocol Title: The Relationships between Social Support and Life Purpose and Their Influence on Graduate Student Well-being</p> <p>Pilot Study: A second phase will be added to the pilot study. 100 graduate students will be randomly selected from a list of all graduate students enrolled at the University of Florida during the Spring 2007 semester. The names of the students who participated in phase one of the pilot study (the originally proposed pilot study) will be removed from the list prior to selecting the sample for phase two of the pilot study. Cover letter e-mails will be sent to the phase two pilot study sample explaining the purpose of the pilot test and inviting them to participate. These e-mails will also include a link to the web-based survey. One week later, another e-mail will be sent to the phase two pilot study sample, thanking respondents for completing the survey and reminding non-respondents to do so. A brand new informed consent has been created specifically for phase two of the pilot study.</p> <p>Dissertation Study: Prior to selecting the sample for the dissertation study, the names of the students who participated in either phase of the pilot study will be removed from the list of all graduate students enrolled at the University of Florida during the Spring 2007 semester. The proposed sample will consist of 600 graduate students.</p> <p>Demographic Questions: Response options for questions 2, 6, and 7 were changed from multiple choice category options to fill in the blank options.</p>	

Protocol Revision For Already Approved Studies
 Institutional Review Board Office 02 (Social and Behavioral Research)

Justification for Revision

Provide a reason / justification for this change:

Dates of Proposed Research: To begin data collection for phase one of the pilot study as soon as possible.

Protocol Title: A more in-depth description of what the study intends to look into.

Pilot Study: To determine the reliability of the web-based format of the survey with a graduate student population.

Dissertation Study: In order to achieve target accuracy necessary to estimate the strength of the relationship between the variables in the study, the minimum N should equal 297 participants, which was rounded up to 300. Over-sampling by 50% indicates that an N of 600 will be sufficient.

Demographic Questions: To gather more detailed data.

Does this change affect the following documents? Please attach Revised Copy.

Informed Consent – Yes	Questionnaire – Yes	Flyer – No
(Principal Investigator Signature)		(Date)
Supervisor’s Signature (If PI is student)		(Date)

This section is for IRB02 – use only

Comments:

Signature of Chair / Vice-Chair:

Approval Date:

IRB Revision 1 Appendix A: Revised Dissertation Study Informed Consent

Project Title: The Relationships between Social Support and Life Purpose and Their Influence on Graduate Student Well-being

Purpose of the research study: Beth Johnson (bajohnso@ufl.edu) is a doctoral candidate in the department of Health Education and Behavior. She is interested in learning about the graduate student experience as it relates to the various dimensions of health. The purpose of her dissertation is to examine the relationship between social support and life purpose on graduate student well-being.

What you will be asked to do in the study: You are being asked to click on the web-link below and participate in an online survey.

Time required: The online survey will take approximately 15 minutes to complete.

Risks and Benefits: Your participation in this study poses no more than minimal risk. Neither your name nor your e-mail address will be connected with your survey results. The benefit of participation is a greater awareness of the social and spiritual dimensions of human health.

Compensation: You will receive a \$5 Barnes & Noble online gift certificate via e-mail for completing the entire survey by responding to all of the questions.

Confidentiality: Your identity will be kept confidential to the extent provided by law. Your e-mail address will be used to follow-up on your participation in the study as well as to send you an incentive upon completion of the survey. Your name and e-mail address, which will be listed in a participant directory, will not be connected to your survey responses. The participant directory and survey responses will be maintained in a password-protected web-based survey service account ensuring that only the principal investigator has access to this information. No names will be used in any report.

Voluntary Participation: Your participation in this study is completely voluntary. There is no penalty for not participating.

Right to withdraw from the study: You have the right to withdraw from the study at anytime without consequence.

Whom to contact if you have questions about the study: Beth Johnson, MPH, CHES at bajohnso@ufl.edu or Dr. Barbara A. Rienzo, PhD at brienzo@hhp.ufl.edu, Department of Health Education & Behavior, 05 Florida Gym, (352) 392-0583.

Whom to contact about your rights as a research participant in the study: UFIRB Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; ph 392-0433.

Agreement: By clicking on the web-link below and completing the online survey you are indicating that you have read the above procedures and you are consenting to voluntarily participate in this study.

<<<<< Link to Online Survey >>>>>

Thank you in advance for participating in this survey. The information you provide will be extremely beneficial in enhancing an understanding of the graduate student experience. Your help in this matter is greatly appreciated.

IRB Revision 1 Appendix B: Pilot Study Phase 2 Informed Consent

Project Title: The Relationships between Social Support and Life Purpose and Their Influence on Graduate Student Well-being

Purpose of the research study: Beth Johnson (bajohnso@ufl.edu) is a doctoral candidate in the department of Health Education and Behavior. She is interested in learning about the graduate student experience as it relates to the various dimensions of health. The purpose of her dissertation is to examine the relationship between social support and life purpose on graduate student well-being.

What you will be asked to do in the study: You are being asked to click on the web-link below and participate in an online survey.

Time required: The online survey will take approximately 15 minutes to complete.

Risks and Benefits: Your participation in this study poses no more than minimal risk. Neither your name nor your e-mail address will be connected with your survey results. The benefit of participation is a greater awareness of the social and spiritual dimensions of human health.

Compensation: You will not be compensated for participating in this study.

Confidentiality: Your identity will be kept confidential to the extent provided by law. Your e-mail address will be used to follow-up on your participation in the study as well as to send you an incentive upon completion of the survey. Your name and e-mail address, which will be listed in a participant directory, will not be connected to your survey responses. The participant directory and survey responses will be maintained in a password-protected web-based survey service account ensuring that only the principal investigator has access to this information. No names will be used in any report.

Voluntary Participation: Your participation in this study is completely voluntary. There is no penalty for not participating.

Right to withdraw from the study: You have the right to withdraw from the study at anytime without consequence.

Whom to contact if you have questions about the study: Beth Johnson, MPH, CHES at bajohnso@ufl.edu or Dr. Barbara A. Rienzo, PhD at brienzo@hhp.ufl.edu, Department of Health Education & Behavior, 05 Florida Gym, (352) 392-0583.

Whom to contact about your rights as a research participant in the study: UFIRB Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; ph 392-0433.

Agreement: By clicking on the web-link below and completing the online survey you are indicating that you have read the above procedures and you are consenting to voluntarily participate in this study.

<<<<< Link to Online Survey >>>>>

Thank you in advance for participating in this survey. The information you provide will be extremely beneficial in enhancing an understanding of the graduate student experience. Your help in this matter is greatly appreciated.

IRB Revision 1 Appendix C: Revised Demographic Information

Directions: For each of the following questions check the answer that best represents you.

1. What is your sex?

- Male
 Female

2. How old are you? _____

3. What is your race? Please mark one of the following race categories (as used by the U.S. Census Bureau) to indicate what you consider yourself to be.

- White
 Black, African American, Negro
 American Indian or Alaska Native
 Asian (Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Other Asian)
 Pacific Islander (Native Hawaiian, Guamanian or Chamorro, Samoan, Other Pacific Islander)
 Spanish, Hispanic, Latino (Mexican, Mexican American, Chicano; Puerto Rican; Cuban; Other Spanish, Hispanic, Latino)
 Other: _____

4. In which of the following colleges is your graduate program department housed?

- Agricultural and Life Sciences
 Business Administration, Design, Construction, and Planning
 Dentistry
 Education
 Engineering
 Fine Arts
 Health and Human Performance
 Journalism and Communications
 Law
 Liberal Arts and Sciences
 Medicine
 Nursing
 Pharmacy
 Public Health and Health Professions
 Veterinary Medicine

5. What type of degree are you working towards?

- Masters
 Doctoral

6. How many credit hours are you currently enrolled in for this semester? _____

7. How many semesters, including this semester, have you been enrolled in your graduate program? When considering the number of semesters please include Fall, Spring, and Summer.

8. On which of the following activities do you focus a majority of your time and energy with regard to your academics?

- ___ Coursework
- ___ Comprehensive or Qualifying Exams
- ___ Thesis or Dissertation Research

APPENDIX C
 INSTITUTIONAL REVIEW BOARD REVISION FORM 2

Protocol Revision For Already Approved Studies Institutional Review Board Office 02 (Social and Behavioral Research)	
Protocol Number: 2006-U-1056	
Protocol Title: The Relationships between Social Support and Life Purpose and Their Influence on Graduate Student Well-being	
Investigator's Name: Beth Johnson	
Email Address: bajohnso@ufl.edu	Phone: 352-392-0583 ext 1254
Revision / Amendment to Protocol	
<p><i>State the revision(s) you are making to the study:</i></p> <p>Pilot Study Phase 2:</p> <p>300 graduate students will be randomly selected from a list of all graduate students enrolled at the University of Florida during the Spring 2007 semester. The names of the students who participated in phase one of the pilot study, who were selected to participate in and received surveys for the initial phase two of the pilot study, and who have been selected to participate in the dissertation study will be removed from the list prior to selecting the additional sample for phase two of the pilot study.</p> <p>No changes will be made to the contact and follow-up procedures for this additional sample for phase two of the pilot study. Contact and follow-up procedures for this additional sample for phase two of the pilot study will be identical to the procedures followed for the initial sample for phase two of the pilot study.</p> <p>Demographic information will be obtained from the University Registrar's Office for all graduate students enrolled at the University of Florida during the Spring 2007. The demographic information will include sex, age, race, field of study (the college in which the graduate program department they are enrolled in is housed), type of degree (the specific degree toward which the participants are working – masters or doctoral level), credit hours (the number of credit hours in which participants are enrolled for the current semester), and time in program (the number of semesters, including this semester, that participants have been enrolled in their current graduate program).</p>	

Protocol Revision For Already Approved Studies
 Institutional Review Board Office 02 (Social and Behavioral Research)

Justification for Revision

Provide a reason / justification for this change:

Pilot Study Phase 2:

To ensure that enough data is collected so that statistical analyses can be conducted to determine the reliability of the web-based format of the survey with a graduate student population.

To allow for a comparison of demographic information between members of the sample who participated in the study and the population in question (i.e., all graduate students enrolled at the University of Florida during the Spring 2007 semester). This comparison will provide information regarding whether the study participants are representative the population in question.

Does this change affect the following documents? Please attach Revised Copy.

Informed Consent – No	Questionnaire – No	Flyer – No
(Principal Investigator Signature)		(Date)
Supervisor’s Signature (If PI is student)		(Date)

This section is for irb02 – use only

Comments:

Signature of Chair / Vice-Chair:

Approval Date:

APPENDIX D
 INSTITUTIONAL REVIEW BOARD REVISION FORM 3

Protocol Revision For Already Approved Studies Institutional Review Board Office 02 (Social and Behavioral Research)	
Protocol Number: 2006-U-1056	
Protocol Title: The Relationships between Social Support and Life Purpose and Their Influence on Graduate Student Well-being	
Investigator's Name: Beth Johnson	
Email Address: bajohnso@ufl.edu	Phone: 352-392-0583 ext 1254
Revision / Amendment to Protocol	
<p><i>State the revision(s) you are making to the study:</i></p> <p>Dissertation Study Sample Size:</p> <p>An additional 1400 graduate students will be randomly selected from a list of all graduate students enrolled at the University of Florida during the Spring 2007 semester. The names of the students who participated in phases one and two of the pilot study will be removed from the list prior to selecting the dissertation study sample. Doing so will result in a total sample size of 2000 (600 graduate students as originally proposed + 1400 additional graduate students). No changes will be made to the contact and follow-up procedures for the dissertation study.</p> <p>Dissertation Study Incentive:</p> <p>No incentive will be offered to participants for completing the survey.</p>	
Justification for Revision	
<p><i>Provide a reason / justification for this change:</i></p> <p>Dissertation Study Sample Size:</p> <p>Increasing the sample size for the dissertation study will ensure that enough data is collected so that statistical analyses can be conducted to answer the research questions posed.</p> <p>Dissertation Study Incentive:</p> <p>Eliminating the incentive from the dissertation study has become necessary due to monetary constraints. In addition, knowing that incentives will not be distributed allows for an increase in sample size (see proposed change to dissertation study sample size).</p>	

Protocol Revision For Already Approved Studies Institutional Review Board Office 02 (Social and Behavioral Research)		
Does this change affect the following documents? Please attach Revised Copy.		
Informed Consent – Yes	Questionnaire – No	Flyer – No
(Principal Investigator Signature)		(Date)
Supervisor’s Signature (If PI is student)		(Date)
This section is for irb02 – use only		
Comments:		
Signature of Chair / Vice-Chair:		Approval Date:

IRB Revision 3 Appendix A: Revised Dissertation Study Informed Consent

Project Title: The Relationships between Social Support and Life Purpose and Their Influence on Graduate Student Well-being

Purpose of the research study: Beth Johnson (bajohnso@ufl.edu) is a doctoral candidate in the department of Health Education and Behavior. She is interested in learning about the graduate student experience as it relates to the various dimensions of health. The purpose of her dissertation is to examine the relationship between social support and life purpose on graduate student well-being.

What you will be asked to do in the study: You are being asked to click on the web-link below and participate in an online survey.

Time required: The online survey will take approximately 15 minutes to complete.

Risks and Benefits: Your participation in this study poses no more than minimal risk. Neither your name nor your e-mail address will be connected with your survey results. The benefit of participation is a greater awareness of the social and spiritual dimensions of human health.

Compensation: You will not be compensated for participating in this study.

Confidentiality: Your identity will be kept confidential to the extent provided by law. Your e-mail address will be used to follow-up on your participation in the study as well as to send you an incentive upon completion of the survey. Your name and e-mail address, which will be listed in a participant directory, will not be connected to your survey responses. The participant directory and survey responses will be maintained in a password-protected web-based survey service account ensuring that only the principal investigator has access to this information. No names will be used in any report.

Voluntary Participation: Your participation in this study is completely voluntary. There is no penalty for not participating.

Right to withdraw from the study: You have the right to withdraw from the study at anytime without consequence.

Whom to contact if you have questions about the study: Beth Johnson, MPH, CHES at bajohnso@ufl.edu or Dr. Barbara A. Rienzo, PhD at brienzo@hhp.ufl.edu, Department of Health Education & Behavior, 05 Florida Gym, (352) 392-0583.

Whom to contact about your rights as a research participant in the study: UFIRB Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; ph 392-0433.

Agreement: By clicking on the web-link below and completing the online survey you are indicating that you have read the above procedures and you are consenting to voluntarily participate in this study.

<<<<< Link to Online Survey >>>>>

Thank you in advance for participating in this survey. The information you provide will be extremely beneficial in enhancing an understanding of the graduate student experience. Your help in this matter is greatly appreciated.

APPENDIX E
PILOT STUDY PHASE 1: FEEDBACK QUESTIONS

* These questions will be included at the end of each section of the survey as indicated below *

Welcome Screen Section

* Did the welcome screen motivate you to participate in this survey?

Yes [] No []

- If you checked “No”, please provide comments and suggestions for revision in the space below...

* Did the instructions on the welcome screen adequately inform you how to proceed to the next page so that you could begin the survey?

Yes [] No []

- If you checked “No”, please provide comments and suggestions for revision in the space below...

Social Support, Life Purpose, & Stress Section

* Did the instructions adequately inform you how to respond to the questions?

Yes [] No []

- If you checked “No”, please provide comments and suggestions for revision in the space below...

* Did the layout of the questions and response options make it easy to understand how to respond to the questions?

Yes [] No []

- If you checked “No”, please provide comments and suggestions for revision in the space below...

* Was the number of questions per page adequate?

Yes [] No - Too few questions per page [] No – Too many questions per page []

- If you checked one of the “No” options, please provide comments and suggestions for revision in the space below...

* Did the instructions at the end of each page adequately inform you how to proceed to the next page so that you could continue the survey?

Yes [] No []

- If you checked “No”, please provide comments and suggestions for revision in the space below...

Demographics Section

* Did the instructions adequately inform you how to respond to the questions?

Yes [] No []

- If you checked “No”, please provide comments and suggestions for revision in the space below...

* Did the layout of the questions and response options make it easy to understand how to respond to the questions?

Yes [] No []

- If you checked “No”, please provide comments and suggestions for revision in the space below...

* Was the number of questions per page adequate?

Yes [] No - Too few questions per page [] No – Too many questions per page []

- If you checked one of the “No” options, please provide comments and suggestions for revision in the space below...

* Did the instructions at the end of each page adequately inform you how to proceed to the next page so that you could continue the survey?

Yes [] No []

- If you checked “No”, please provide comments and suggestions for revision in the space below...

End of Survey

* Did the colors used in the survey design make the screen difficult to read?

Yes [] No []

- If you checked “Yes”, please provide comments and suggestions for revision in the space below...

* In the space below, please provide any additional feedback you think would be helpful in making this survey as user-friendly as possible...

APPENDIX F
PILOT STUDY PHASE 1: COVER LETTER E-MAIL

Hi [FirstName],

Thank you for agreeing to participate in the pilot study for my dissertation research. Please read the following information carefully as it gives you a description of my dissertation research as well as what you are being asked to do as a participant. After reading this information please click on the link below to access the survey.

Project Title: The Relationship between Social Support and Life Purpose on Graduate Student Well-being

Purpose of the research study: Beth Johnson (bajohnso@ufl.edu) is a doctoral candidate in the department of Health Education and Behavior. This study proposes to assess graduate students' experience related to social support, life purpose, and stress.

What you will be asked to do in the study: You are being asked to click on the web-link below and participate in an online survey. In addition, you are being asked to complete feedback questions, which will be located after each section within the online survey. The feedback questions are designed to elicit information on the design and layout of the online survey in an effort to determine if any changes need to be made.

Time required: The online survey will take approximately 25 minutes to complete.

Risks and Benefits: Your participation in this study poses no more than minimal risk. Neither your name nor your e-mail address will be connected with your survey results. The benefit of participation is a greater awareness of the social and spiritual dimensions of human health.

Compensation: You will not be compensated for participating in this study.

Confidentiality: Your identity will be kept confidential to the extent provided by law. Your e-mail address will be used to follow-up on your participation in the pilot study. Your name and e-mail address, which will be listed in a pilot participant directory, will not be connected to your survey responses. The pilot participant directory and survey responses will be maintained in a password-protected web-based survey service account ensuring that only the principal investigator has access to this information. No names will be used in any report.

Voluntary Participation: Your participation in this study is completely voluntary. There is no penalty for not participating.

Right to withdraw from the study: You have the right to withdraw from the study at anytime without consequence.

Whom to contact if you have questions about the study: Beth Johnson, MPH, CHES at bajohnso@ufl.edu or Dr. Barbara A. Rienzo, PhD at brienzo@hhp.ufl.edu, Department of Health Education & Behavior, 05 Florida Gym, (352) 392-0583.

Whom to contact about your rights as a research participant in the study: UFIRB Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; ph 392-0433.

Agreement: By clicking on the web-link below and completing the online survey you are indicating that you have read the above procedures and you are consenting to voluntarily participate in this study.

Thank you in advance for participating in this survey. The information you provide will be extremely beneficial in determining the most effective design and layout for the online survey. Your help in this matter is greatly appreciated.

Here is a link to the survey:
[SurveyLink]

(IRB Approved Protocol #2006-U-1056)

Thanks again,

Beth Johnson, MPH, CHES
Doctoral Candidate
Department of Health Education and Behavior
College of Health and Human Performance
University of Florida

Please note: If you do not wish to participate in this survey and do not wish to receive further emails from me, please click the link below, and you will be automatically removed from my mailing list.
[RemoveLink]

APPENDIX G
PILOT STUDY PHASE 1: NON-RESPONDENT FOLLOW-UP E-MAIL

Hi [FirstName],

Thank you again for agreeing to participate in the pilot study for my dissertation research.

If you have not yet had time to complete the online survey, please do so as soon as possible. Data collection will end at 5pm on Thursday December 14th.

Please review the information below as it gives you a description of my dissertation research as well as what you are being asked to do as a participant. After reviewing this information please click on this link to access the survey.

Here is a link to the survey:

[SurveyLink]

(IRB Approved Protocol #2006-U-1056)

Project Title: The Relationship between Social Support and Life Purpose on Graduate Student Well-being

Purpose of the research study: Beth Johnson (bajohnso@ufl.edu) is a doctoral candidate in the department of Health Education and Behavior. This study proposes to assess graduate students' experience related to social support, life purpose, and stress.

What you will be asked to do in the study: You are being asked to click on the web-link below and participate in an online survey. In addition, you are being asked to complete feedback questions, which will be located after each section within the online survey. The feedback questions are designed to elicit information on the design and layout of the online survey in an effort to determine if any changes need to be made.

Time required: The online survey will take approximately 25 minutes to complete.

Risks and Benefits: Your participation in this study poses no more than minimal risk. Neither your name nor your e-mail address will be connected with your survey results. The benefit of participation is a greater awareness of the social and spiritual dimensions of human health.

Compensation: You will not be compensated for participating in this study.

Confidentiality: Your identity will be kept confidential to the extent provided by law. Your e-mail address will be used to follow-up on your participation in the pilot study. Your name and e-mail address, which will be listed in a pilot participant directory, will not be connected to your survey responses. The pilot participant directory and survey responses will be maintained in a password-protected web-based survey service account ensuring that only the principal investigator has access to this information. No names will be used in any report.

Voluntary Participation: Your participation in this study is completely voluntary. There is no penalty for not participating.

Right to withdraw from the study: You have the right to withdraw from the study at anytime without consequence.

Whom to contact if you have questions about the study: Beth Johnson, MPH, CHES at bajohnso@ufl.edu or Dr. Barbara A. Rienzo, PhD at brienzo@hhp.ufl.edu, Department of Health Education & Behavior, 05 Florida Gym, (352) 392-0583.

Whom to contact about your rights as a research participant in the study: UFIRB Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; ph 392-0433.

Agreement: By clicking on the web-link below and completing the online survey you are indicating that you have read the above procedures and you are consenting to voluntarily participate in this study.

Thank you in advance for participating in this survey. The information you provide will be extremely beneficial in determining the most effective design and layout for the online survey. Your help in this matter is greatly appreciated.

Thanks again,

Beth Johnson, MPH, CHES
Doctoral Candidate
Department of Health Education and Behavior
College of Health and Human Performance
University of Florida

Please note: If you do not wish to participate in this survey and do not wish to receive further emails from me, please click the link below, and you will be automatically removed from my mailing list.

[RemoveLink]

APPENDIX H
PILOT STUDY PHASE 1: RESPONDENT THANK YOU E-MAIL

Hi [FirstName],

Thank you for your prompt participation in the pilot study for my dissertation research.

The information you provided will be extremely helpful in informing the changes I make to enhance the effectiveness of the design and layout of the online survey.

Your time and effort are greatly appreciated.

Thanks again,

Beth Johnson, MPH, CHES
Doctoral Candidate
Department of Health Education and Behavior
College of Health and Human Performance
University of Florida

Please note: If you do not wish to receive further emails from me, please click the link below, and you will be automatically removed from my mailing list.

[RemoveLink]

APPENDIX I
PILOT STUDY PHASE 2: COVER LETTER E-MAIL

Hi [FirstName],

You were selected at random to participate in an online survey about your graduate student experience.

This survey is being conducted as part of my dissertation research on the relationships among graduate students' social support, life purpose, and general well-being. Completing this survey should take no more than 15 minutes of your time.

By clicking on the web-link below and completing the survey you are indicating that you consent to voluntarily participate in this study.

If you have any questions about this study I can be contacted at bajohnso@ufl.edu.

Thank you in advance for participating in this survey. Your help is greatly appreciated.

Sincerely,

Beth Johnson, MPH, CHES
Doctoral Candidate
Department of Health Education and Behavior
College of Health and Human Performance
University of Florida

To participate in this survey simply click on the web-link below.

[SurveyLink]

If the web-link does not work you can copy and paste the link directly onto your web browser to access the survey.

(IRB Approved Protocol #2006-U-1056)

Please note: If you do not wish to participate in this survey and do not wish to receive further emails from me, please click the link below, and you will be automatically removed from my mailing list.

[RemoveLink]

APPENDIX J
PILOT STUDY PHASE 2: NON-RESPONDENT FOLLOW-UP E-MAIL

Hi [FirstName],

A week ago you received an e-mail inviting you to participate in an online survey about your graduate student experience.

If you have not yet had time to complete the online survey, please do so as soon as possible. Data collection will end at 5pm on Tuesday February 13th.

This survey is being conducted as part of my dissertation research on the relationships among graduate students' social support, life purpose, and general well-being. Completing this survey should take no more than 15 minutes of your time.

By clicking on the web-link below and completing the survey you are indicating that you consent to voluntarily participate in this study.

If you have any questions about this study I can be contacted at bajohnso@ufl.edu.

Thank you in advance for participating in this survey. Your help is greatly appreciated.

Sincerely,

Beth Johnson, MPH, CHES
Doctoral Candidate
Department of Health Education and Behavior
College of Health and Human Performance
University of Florida

To participate in this survey simply click on the web-link below.

[SurveyLink]

(IRB Approved Protocol #2006-U-1056)

Please note: If you do not wish to participate in this survey and do not wish to receive further emails from me, please click the link below, and you will be automatically removed from my mailing list.

[RemoveLink]

APPENDIX K
PILOT STUDY PHASE 2: RESPONDENT THANK YOU E-MAIL

Hi [FirstName],

Thank you for completing the survey about your graduate student experience.

The information you provided has enhanced our understanding of social support, life purpose, and stress.

Your time and effort are greatly appreciated.

Thanks again,

Beth Johnson, MPH, CHES
Doctoral Candidate
Department of Health Education and Behavior
College of Health and Human Performance
University of Florida

Please note: If you do not wish to receive further emails from me, please click the link below, and you will be automatically removed from my mailing list.

[RemoveLink]

APPENDIX L
DEMOGRAPHIC QUESTIONS

Directions: For each of the following questions check the answer that best represents you.

1. What is your sex?

- Male
- Female

2. How old are you? _____

3. What is your race? Please mark one of the following race categories (as used by the U.S. Census Bureau) to indicate what you consider yourself to be.

- White
- Black, African American, Negro
- American Indian or Alaska Native
- Asian (Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Other Asian)
- Pacific Islander (Native Hawaiian, Guamanian or Chamorro, Samoan, Other Pacific Islander)
- Spanish, Hispanic, Latino (Mexican, Mexican American, Chicano; Puerto Rican; Cuban; Other Spanish, Hispanic, Latino)
- Other: _____

4. In which of the following colleges is your graduate program department housed?

- Agricultural and Life Sciences
- Business Administration
- Design, Construction, and Planning
- Dentistry
- Education
- Engineering
- Fine Arts
- Health and Human Performance
- Journalism and Communications
- Law
- Liberal Arts and Sciences
- Medicine
- Nursing
- Pharmacy
- Public Health and Health Professions
- Veterinary Medicine

5. What type of degree are you working towards?

- Masters
- Doctoral

6. How many credit hours are you currently enrolled in for this semester? _____

7. How many semesters, including this semester, have you been enrolled in your graduate program? When considering the number of semesters please include Fall, Spring, and Summer.

8. On which of the following activities do you focus a majority of your time and energy with regard to your academics?

- Coursework
- Comprehensive or Qualifying Exams
- Thesis or Dissertation Research

APPENDIX M
MAIN STUDY: PRE-NOTIFICATION E-MAIL

Hi [FirstName],

I am a fellow graduate student interested in the connections among personal well-being, sense of purpose, and social support.

Two days from now will receive an e-mail requesting your participation in an online survey about your graduate student experience, conducted as part of my dissertation research.

Thank you in advance. Your help is greatly appreciated.

Sincerely,

Beth Johnson, MPH, CHES
Doctoral Candidate
Department of Health Education and Behavior
College of Health and Human Performance
University of Florida

Please note: If you do not wish to participate in this survey and do not wish to receive further emails from me, please click the link below, and you will be automatically removed from my mailing list.

[RemoveLink]

APPENDIX N
MAIN STUDY: COVER LETTER E-MAIL

Hi [FirstName],

You were selected at random to participate in an online survey about your graduate student experience.

This survey is being conducted as part of my dissertation research on the relationships among graduate students' social support, life purpose, and general well-being. Completing this survey should take no more than 15 minutes of your time.

By clicking on the web-link below and completing the survey you are indicating that you consent to voluntarily participate in this study.

If you have any questions about this study I can be contacted at bajohnso@ufl.edu.

Thank you in advance for participating in this survey. Your help is greatly appreciated.

Sincerely,

Beth Johnson, MPH, CHES
Doctoral Candidate
Department of Health Education and Behavior
College of Health and Human Performance
University of Florida

To participate in this survey simply click on the web-link below.

[SurveyLink]

If the web-link does not work you can copy and paste the link directly onto your web browser to access the survey.

(IRB Approved Protocol #2006-U-1056)

Please note: If you do not wish to participate in this survey and do not wish to receive further emails from me, please click the link below, and you will be automatically removed from my mailing list.

[RemoveLink]

For those of you who already asked to be removed from the mailing list I apologize for this inconvenience. There was a technical error with the first e-mail in that people were accidentally removed from the mailing list. I am sending the survey to the entire mailing list to make sure everyone who wants to participate has an opportunity to do so. If you ask to be removed from the mailing list again I will make sure this happens.

APPENDIX O
MAIN STUDY: NON-RESPONDENT FOLLOW-UP E-MAIL

Hi [FirstName],

A week ago you received an e-mail inviting you to participate in an online survey about your graduate student experience.

If you have not yet had time to complete the online survey, please do so as soon as possible. Data collection will end at 5pm on Sunday March 18th.

This survey is being conducted as part of my dissertation research on the relationships among graduate students' social support, life purpose, and general well-being. Completing this survey should take no more than 15 minutes of your time.

By clicking on the web-link below and completing the survey you are indicating that you consent to voluntarily participate in this study.

If you have any questions about this study I can be contacted at bajohnso@ufl.edu.

Thank you in advance for participating in this survey. Your help is greatly appreciated.

Sincerely,

Beth Johnson, MPH, CHES
Doctoral Candidate
Department of Health Education and Behavior
College of Health and Human Performance
University of Florida

To participate in this survey simply click on the web-link below.

[SurveyLink]

(IRB Approved Protocol #2006-U-1056)

Please note: If you do not wish to participate in this survey and do not wish to receive further emails from me, please click the link below, and you will be automatically removed from my mailing list.

[RemoveLink]

APPENDIX P
MAIN STUDY: NON-RESPONDENT DEMOGRAPHIC REQUEST E-MAIL

Hi [FirstName],

I wanted to contact you one last time regarding your participation in an online survey about your graduate student experience.

I would greatly appreciate it if you would complete the entire survey. ***However, if you do not feel you have the time to do so I ask that you would take a few minutes to complete just the eight demographic questions at the end of the survey (#s 71-78).*** Doing so will allow for a comparison between respondents and non-respondents based on demographic characteristics.

By clicking on the web-link below and completing the survey you are indicating that you consent to voluntarily participate in this study.

If you have any questions about this study I can be contacted at bajohnso@ufl.edu.

Thank you in advance for participating in this survey. Your help is greatly appreciated.

Sincerely,

Beth Johnson, MPH, CHES
Doctoral Candidate
Department of Health Education and Behavior
College of Health and Human Performance
University of Florida

To participate in this survey simply click on the web-link below.

[SurveyLink]

If the web-link does not work you can copy and paste the link directly onto your web browser to access the survey.

(IRB Approved Protocol #2006-U-1056)

Please note: If you do not wish to participate in this survey and do not wish to receive further emails from me, please click the link below, and you will be automatically removed from my mailing list.

APPENDIX Q
MAIN STUDY: RESPONDENT THANK YOU E-MAIL

Hi [FirstName],

Thank you for completing the survey about your graduate student experience.

The information you provided has enhanced our understanding of social support, life purpose, and stress.

Your time and effort are greatly appreciated.

Thanks again,

Beth Johnson, MPH, CHES
Doctoral Candidate
Department of Health Education and Behavior
College of Health and Human Performance
University of Florida

Please note: If you do not wish to receive further emails from me, please click the link below, and you will be automatically removed from my mailing list.

[RemoveLink]

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BIOGRAPHICAL SKETCH

Beth Ann Johnson grew up in Chesapeake, Virginia, where she graduated from Western Branch High School in 1998. In 2002, she graduated summa cum laude from Longwood College in Farmville, Virginia, receiving a Bachelor of Science degree with a major in exercise science and a minor in health education. In 2004, she graduated from the University of North Carolina at Greensboro, receiving a Master of Public Health degree with a concentration in community health education. During her time at the University of North Carolina at Greensboro Beth also became a Certified Health Education Specialist (CHES). In 2007, Beth graduated from the University of Florida with a doctorate in health education and behavior. Upon admittance to the University of Florida, she was awarded the Alumni Graduate Fellowship, the highest award offered by the university to incoming graduate students. During her time at the University of Florida, Beth was committed to teaching undergraduate students, participating in research projects that lead to published manuscripts and presentations at national conventions, and maintaining active membership in several professional organizations. In the fall of 2007, Beth joined the faculty of the Department of Health Promotion in the School of Health Sciences and Human Performance at Lynchburg College in Lynchburg, Virginia.