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Pepperdine University

Graduate School of Education and Psychology

ATTACHMENT STYLE AND PERCEIVED STRESS IN COLLEGE STUDENTS

A dissertation submitted in partial satisfaction

of the requirements for the degree of

Doctor of Psychology

by

Jason Dorin

January, 2014

Edward Shafranske, Ph.D., ABPP – Dissertation Chairperson

This dissertation, written by

Jason Dorin

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF PSYCHOLOGY

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DEDICATION

I dedicate this accomplishment to my family and friends who have supported me all the way and provided me with the encouragement, wisdom, and strength to pursue my goals and dreams.

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Finally, I want to thank my partner and love of my life, Ivana, who provided the support, strength, and inspiration needed to overcome the many obstacles I've encountered over the previous 10 years. Thank you for always being there for me and helping me find my smile, even when times became hard. Home would not be home without you.

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ABSTRACT

The purpose of this study was to examine the impact that attachment (as measured by an adult attachment measure) has on a college student's perceived stress levels. A sample of seven hundred and twenty-seven college students ranging from 18 to 30 years (N=727; 73.2% female, 26.8% male; 46.8% Hispanic/Latino, 18.2% Asian/Pacific Islander, 13.3% Caucasian, 7.4% other/mixed, 5.0% Middle Eastern, 4.5% African American/Black, 4.5% Armenian, and 0.3% Native American) completed two self-report questionnaires assessing attachment styles (ECR-S) and perceived stress levels (PSS). Analyses revealed a statistically significant relationship between an adult's level of secure attachment and level of perceived stress. The overall results showed that secure attachment levels were significantly and negatively related to perceived stress levels. These results provide further evidence of the impact that earlier relationships have on a person's functioning in adulthood, specifically with regards to one's ability to cope with a physically and emotionally demanding environment. Implications for providing attachment related interventions and directions for future research are explored.

Introduction

The transition from adolescence to adulthood marks a significant milestone in a person's development (Arnett, 2000). For many, this transition occurs within the context of attending a college or university. The college experience, particularly for those who move away from home to go to a university, represents a significant change in the lives of the students. During this time a number of challenges are faced, including managing the demands of newly independent living, mastering new skills, adapting to a series of novel experiences, and sustaining a focus on academic demands, all without the comforts of one's home, usual support system, and parental monitoring (Arnett, 2000). Additionally, the students are separating from their families of origin (Hicks & Heastie, 2008) and creating their own identities emerging into adulthood (Arnett, 2000). Ross, Neibling, and Heckert (1999) concluded that college students encounter many new responsibilities, such as a greater workload, new relationships, and time-management. These new responsibilities in turn create new stressors that may result in difficulties in negotiating a new lifestyle, produce anxiety or depression, as well as pose hardships on the body. Such changes in one's life require adaptation, and stress is often a byproduct of adaptation (Derogatis & Coons, 1993). Stress can affect many areas in a person's life, including academic performance (Andrews & Wilding, 2004). For example, researchers suggest that stress has a detrimental impact on a college student's performance and grade point average (Andrews & Wilding, 2004; Chemers, Hu, & Garcia, 2001; de Meuse, 1985; Shields, 2001; Struthers, Perry, & Menec, 2000).

In light of the multiple challenges students face, it follows then that the capacity for resilience in the face of stressors is both a beneficial and necessary factor in the pursuit of maintaining both physical and mental health, as well as academic success in college. Researchers have shown that stress in college students is associated with unhealthy behaviors such as

smoking, eating disorders, and alcohol abuse (Ecónomos, Hildebrandt, & Hyatt, 2008; Oliver, Reed & Smith, 1998; Pritchard, Wilson, & Yamnitz, 2007) Furthermore, stress can negatively impact the college student's mental health, frequently causing an increase in depressive symptoms (Benton, Robertson, Tseng, Newton, & Benton, 2003; Dyson & Renk, 2006; Yorgason, Linville, & Zitzman, 2008) and a lowering of self-esteem (Hudd et al., 2000).

In assessing the impact that new life circumstances has on an individual, as well as the amount of support that might be required for successful adaptation, one needs to account for the degree of resiliency that the individual manifests in the face of stressors. Resiliency—a personality trait that varies from individual to individual—has been shown to develop largely as a byproduct of the quality and nature of one's early childhood attachments (Ditzen et al., 2008; Gallo & Matthews, 2006; Hawkins, Howard, & Oyebode, 2007). Therefore, it may be posited that attachment may contribute to some extent to resiliency, which in turn would impact an individual's experience of stressful events, such as those faced in college. This study therefore sought to identify the impact that attachment (as measured by an adult attachment measure) has on a college student's experience of stress.

Background

Defining Stress

The term "stress" was first coined by Hans Selye in 1936 when he introduced animals to noxious stimuli in a laboratory and labeled such stimuli as "stress." He later came to define stress as a nonspecific response of the body to any demand (Selye, 1936) and stressors as stimuli that would induce such a reaction. Selye's further research would eventually discover the detrimental effects of stress on species immunity and cell integrity. Other researchers (e.g., Cohen, 1985; Lok & Bishop, 1999; Lopez & Gormley, 2002) followed Selye in investigating the

various consequences of stress on organisms attempting to adapt to challenging situations. Later studies identified physiological responses in individuals exposed to stressful psychosocial stimuli (Lazarus, Folkman, 1984a; Levi, 1971) and the effects of emotional arousal on their immune system (Mason, 1975). There is an abundance of research (Engel, 1954; Solomon, Amkraut, & Kasper, 1974; Udelman, 1982) providing evidence that an individual's ability to thwart illness is affected by the amount and degree of stressful life events. For example, chronic stress has been shown to compromise the immune system and is associated with global immunosuppression (Segerstrom & Miller, 2004), making one prone to various diseases (Biondi et al., 2001).

Studies have also found that mood and anxiety disorders have been associated with a decline in immunity, suggesting that psychiatric conditions may be caused by or contribute to stress. For example, a number of studies have determined that depression causes a decrease in natural immunity (Zorilla et al., 2001). While the findings of studies examining the effects of anxiety on a person's immunity have been mixed, it appears that anxiety impacts, to some extent, a person's immune function (Uhde, Tancer, Gelernter, & Vittone, 1994; van Duinen, Schruers, Maes, & Griez, 2007).

Stress is a very common occurrence in daily lives, whether it originates from work, school, or home. Common causes of stress have been attributed to issues related to money, occupation, interpersonal relationships, and health. Recently, a third of Americans claimed to be experiencing high levels of stress (APA, 2008), which has been blamed for causing an increase in both psychological and physical health problems (Braveman, Egerter, & Mockenhaupt, 2011; Lantz, House, Mero, & Williams, 2005; McEwen, 1998; McEwen & Seeman, 1999; Miller, Cohen, & Ritchey, 2002). However, stress is bidirectional and isn't solely dependent on an environmental (external) stressor; rather it reflects on one's subjective experience of it.

Perceived Stress

How one perceives stress has been shown to have a significant impact on one's health and longevity (Keller et al., 2012). Keller et al. determined that an individual who displayed high levels of stress and also reported higher perceived levels of stress had increased chances of having worse physical and mental health. Thus, two major components to an individual's manifestation of stress have been identified: (a) the stress response itself, and (b) an individual's subjective experience of stress. "Stress" or "stress response" often refers to physiological responses, such as the activation of the hypothalamic, pituitary, and adrenal axis (HPA) and the subsequent release of cortisol in response to acute psychological distress (Hellhammer, Wüst, & Kudielka, 2009). A significant research finding is the mediation effect of an individual's experience or appraisal of stress (Lazarus & Folkman, 1984b). One's appraisal of the severity of the stressor is the determining factor as to how the body will respond (Lazarus & DeLongis, 1983). This concept was developed and demonstrated by Lazarus and his colleagues, who developed the stress and coping theory (e.g., Coyne & Lazarus, 1980; Lazarus, 1966, 1981; Lazarus & DeLongis, 1983; Lazarus & Folkman, 1984a, 1984b; Lazarus, Kanner, & Folkman, 1980). The theory identified two primary processes: cognitive appraisal and coping. Cognitive appraisal underlies one's subjective experience of stress, and determines the impact of a given situation/stressor on one's wellbeing (Folkman, Lazarus, Gruen, & DeLongis, 1986). Researchers have broken down this process, differentiating primary and secondary appraisal. Primary appraisal refers to the individual determining whether the experience is of any significant importance to them, such as providing some benefit or promoting harm (Lazarus & Folkman, 1984b). Secondary appraisal, on the other hand, refers to the person determining whether they can have any impact on the situation, positive or negative (Lazarus & Folkman,

1984b). During this process the person is challenged to identify the situation as either an opportunity to learn and benefit from, or to react to a possibility of loss or harm (Folkman et al., 1986). The second part of the theory is referred to as coping. Coping is defined by Lazarus and Folkman (1984b) as a person's constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the person's resources.

Although stress, both chronic and acute (transient), is a common occurrence in life, it is ongoing, chronic stress, that adversely impacts one's psychological and physical well-being (Brown & Harris, 1989; Eckenrode, 1984; Lepore, Miles, & Levy, 1997). Moreover, the ultimate effect of stress on any given individual is dependent upon the individuals' personal perception of the stressful event and his/her reaction to it (Lazarus & Folkman, 1984b). There are numerous factors that affect how people perceive and then react (affectively and behaviorally) to it. Some of these factors include a person's family and social environment, as well as a person's ethnicity and/or culture (Dyrbye & Shanafelt, 2007). For instance, researchers have found that differentiation (i.e., an individuals' ability to maintain his/her individuality while remaining emotionally connected to their family of origin; Kerr & Bowen, 1988) plays a big part in the experience of stress (Krycak, Murdock, & Marszalek, 2012). Studies suggest that a person who is more autonomous may perceive stress to a lesser extent than one who is less differentiated from one's family (Kerr & Bowen, 1988). However, differentiation from a family whose origin is from a collectivistic society may respond differently, as pronounced individuation may cause stress and distress in the family (Chung & Gale, 2006, 2009). A host of other factors have been found to be associated with perceived stress, including self-esteem (Dixon & Kurpius, 2008; Friedlander, Reid, Shupak, & Cribbie, 2007; Gloria & Kurpius, 2001; Gloria, Kurpius, Hamilton,

& Wilson, 1999; Hudd et al., 2000; Wilburn & Smith, 2005), age (e.g. Diehl, Coyle, & Labouvie-Vief, 1996; Folkman, Lazarus, Pimley, & Novacek, 1987; Shaw, Krause, Liang, & Bennett, 2007; Trouillet, Gana, Lourel, & Fort, 2009), education (Heins, Fahey, & Leiden, 1984) gender (Bergdahl & Bergdahl, 2002; Brummett et al., 2004; Day & Livingstone, 2003; Gjerde, Block & Block, 1988; Nolen-Hoeksema, 1987), health (Keller et al., 2012), appraisal or mindset (Giacobbi, Tuccitto, & Frye, 2007; Lazarus, 1966; Skinner, & Brewer, 2002), and attachment (Mikulincer & Florian, 1998; Mikulincer, Florian, & Weller, 1993). Given the many factors that have been found to contribute to stress and the unique contextual features of the college experience (including its demands and developmental pressures), it is likely that many college students experience stress. The next section consists of a review of studies which investigated stressors associated with the college experience.

Common Perceived Stressors of College Students

College life is an especially difficult transition for an adolescent/young adult to make (Arnett, 2000). In many occasions it is a leap of faith, leaving an environment they have known for many years for a strange environment free of the security they've been accustomed to. As a result, this population is often confronted with many stressors and challenges. They are required to cope with a variety of responsibilities such as academic schedules and demands, career path decisions, interpersonal relationships, and autonomy on issues such as time management and finances while being on their own (Hudd et. al., 2000). Researchers have discovered additional stressors such as tests, grade competition, time demands, professors and classroom environment, and future success/career (Archer & Lamnin, 1985). In addition, students also reported major personal stressors such as intimate relationships, parental conflicts, finances, and personal conflicts with friends (Archer & Lamnin, 1985). Finally, there was some indication of

differences in perceived stress depending on sex and year in college (Guo, Wang, Johnson, & Diaz, 2011). For further descriptions of college stressors, these studies, along with others can be found in Appendix A. With all these stressors impacting college students' lives, lacking the ability to cope with stressors can have negative impacts on their academic performance.

Researchers have found that more than 25 percent of college students report that their academic performance is negatively affected by stress (American College Health Association, 2012).

However, there are factors that have been found to pave the way for a less stressful transition to college life—long before the transition takes place. A key factor is the bond that a child forms with their primary caregiver (Bowlby, 1989). Studies have found that students who had formed a secure attachment to an adult have fewer stress effects than those who exhibit other forms of attachment (Aspelmeier & Kerns, 2003; Bernier, Larose, Boivon, & Soucy, 2004; Moller, 2002).

In light of the prevalence and potential deleterious effects of stress on college students, it is important to study factors that may lead to resilience and serve as buffers to stress. The quality of one's attachment history may be a particularly significant factor influencing the perception of stress and consequently the person's experience of stress, which in turn impacts resilience. We turn now to an overview of the construct of attachment and the literature examining its influence on the perception and experience of stress.

Attachment

The quality of early attachment experiences has long been known to have a profound effect on an individual's development, impacting the way he/she views the world and how they develop future relationships (Ainsworth, Blehar, Waters, & Wall, 1978). John Bowlby (1958) was the first to develop attachment theory. He proposed that relationships established early, between a child and the child's primary caregiver, would become a template for the quality of

one's future relationships. The most important early attachment is between the infant and its biological mother. Bowlby suggested that the quality of this relationship had long-lasting consequences with regards to the child's feelings of security in the world. For example, if an infant is consistently attended to by a loving, stable mother, the child would likely develop into a relatively "secure" child. Such a fortunate child grows up feeling that others can be trusted and loved (Burger, 2006; Feeney, 1998). This security, in turn, allows the child to feel more confident in exploring the world and navigating strange environments than a child whose infancy was marked by a less secure relationship with his or her mother (Ainsworth et al., 1978). According to Bowlby, the developmental effects of this early, primary attachment relationship are long-lasting, determining the person's approach to others and the world in general for the rest of their lives. Mary Ainsworth would follow up with Bowlby's research, identifying several different attachment styles that can develop in the mother-child dyad (Ainsworth & Bell, 1970).

Mary Ainsworth would later develop an experiment called the "strange situation," in which she created circumstances that helped identify how secure an infant felt with its primary caregiver (Ainsworth & Bell, 1970). The experiment consisted of the child's primary caregiver first being in a room with the child while the child was playing. Next, the caregiver was asked to leave the room. The researchers then noted the response the child had when the caregiver left and also when the caregiver returned. Specifically, levels of distress in the child in response to the caregiver's leaving and returning were noted.

For children who displayed some distress over their caregiver leaving, and comfort when reunited, a label of secure attachment was applied, and this was described as being the norm (Ainsworth et al., 1978). However, other children became very upset both when their caregiver left and returned, or they became completely detached, appearing to be uncaring whether the

primary caregiver was present or not. These attachment styles would later be termed as anxious-ambivalent and avoidant, respectively (Ainsworth et al., 1978).

Ainsworth was able to provide further support for Bowlby's theory of the mother-infant dyad as playing a significant role in the development of the child and his or her interactions with the outside world (Ainsworth et al., 1978). For example, this effect may be seen in securely attached children, who feel safe in their environment and anticipate that their needs will be met when in distress, and thus are able to formulate a positive view of utilizing others for support. Therefore, the child who grows up with such reliable parenting will carry with him or her a framework that will promote the development of positive, trusting relationships with others. However, if the child's needs were not met appropriately at a young age, the child can develop a negative view regarding his or her chances of receiving support from others, and approach others in a more cautious manner (Collins & Feeney, 2000). This worldview is manifested in the form of anxious feelings and a hyper-vigilant stance in the world, not trusting others (Collins & Feeney, 2000). Internalizing this working model of relationships is likely to have a detrimental impact on interpersonal relationships, and in turn negatively affect one's emotional well-being. Attachment theory, for many years, was thought to be relevant only in the context of childhood, but more recently there has been growing research in attachment theory that attachment behavior is apparent throughout the lifespan of the individual (Bowlby, 1977; Bretherton, 1985; Collins & Read, 1994; Main, Kaplan, & Cassidy, 1985). The internal schema formed from a younger age undoubtedly has a profound impact on adulthood, especially as the individual becomes more independently immersed into a social environment (Hazan & Shaver, 1987). These early attachment scenarios contribute significantly to the quality of one's social adaptation in adulthood. However, adult attachment relationships differ from childhood attachment, as there is

more reciprocation between adults than an adult and a child, siblings, or in the case of a romantic relationship between two adults. Hazan and Shaver (1987) suggested that three attachment behaviors, which are apparent during childhood, resurface in adulthood and romantic relationships, although in a somewhat different form. These are referred to as proximity maintenance, safe haven, and a secure base. Although parental attachment figures are still significant in the lives of an adolescent and adult, it was suggested that the individual seeks the same forms of comfort from peers as they previously had from their parents, with similar expectations of satisfaction or frustration. For example, an adult's safe haven and proximity maintenance is associated with one being able to seek and obtain support when needed (Cooper, Shaver & Collins, 1998). Additionally, Bartholomew and Horowitz (1991) suggested four styles of an adult attachment model. This model explained the correlation between positive and negative thoughts and the effects it has on feelings of the self and others. The four types of the working adult attachment model are secure, preoccupied, fearful, and dismissing. Within this model the secure adult finds comfort in autonomy and intimacy, whereas the preoccupied adult harbors feelings of unworthiness but at the same time has positive feelings of others. The fearful adult has both feelings of unworthiness and a distrust of others. Finally, the adult who exhibits a dismissing attachment model has a sense of worthiness but at the same time is avoidant of others due to a lack of trust (Bartholomew & Horowitz, 1991). Summarizing the foregoing, it is apparent that a parent affects the development of a child's attachment, which influences the development of adult attachment, and can impact a person's peer and romantic relationships.

An assessment and understanding of the attachment style that an adult developed can be a predictor of the type of relationships that person will form, as well as their social and emotional processing styles (Thompson & Raikes, 2003). These styles can influence how one perceives and

experiences stress as attachment style has been associated with how one mobilizes and utilizes relationships (e.g., Collins & Feeney, 2000; Feeney & Collins, 2004). For example, those displaying insecure attachment styles have been found to be associated with more negative relationships and the seeking and receiving of less support, with an increase in conflicts (Gallo, Smith, & Ruiz, 2003). Furthermore, individuals' responses to stress and how they regulate themselves have also been associated with adult attachment style (Cassidy, 2000; Dozier, Stovall, & Albus, 1999). Therefore, attachment styles may affect interpersonal relationships, physical health, and academic performance.

Attachment, Coping, and Resiliency

As stated above, attachment style appears to be associated with a number of interpersonal and intrapersonal factors, including stress and resilience. For example, researchers have discovered that those reporting a secure attachment style also show a greater resiliency to stress, whereas those who demonstrate an insecure attachment style are more vulnerable to stress and are more likely to become dysregulated (Ditzen et al., 2008; Gallo & Matthews, 2006; Hawkins, Howard, & Oyebode, 2007). This finding is understandable since basic ways of relating as reflected in attachment style likely influence coping behavior and its effectiveness.

Individuals tend to develop specific ways to cope and adapt to stressors. These coping strategies range from potentially harmful, such as using mind-altering substances, to the generally beneficial, such as meditation or relaxation techniques (Kassel, Wardle, & Roberts, 2007; Myers et al., 2012). However, other ways to cope with stress are more ingrained, derived from early experiences including modeling and conditioning. These character patterns may take the form, for example, of isolation, or "self-imposed time-out", as a way of self-regulating one's emotional state (Kliwer, Fearnow, & Miller, 1996). Many individuals develop their typical

coping skills during their early years in their interactions with primary caregivers. The interaction between a mother and infant influences the way a child copes with stressful situations, and as this framework is developed the child grows up utilizing similar coping skills for similar stressors (Kliewer et al., 1996). For example, a child who was raised in an unsafe environment in which the child's primary caregiver was not present to provide comfort may have learned not to rely on the help of others. This could be harmful in later years when turning to others might help alleviate some of the most stressful moments during their college years. However, if a child was raised in a safe, nurturing environment and found soothing and support in response to asking for help, that child often grows up with the schema of a positive experience for seeking help. In college, then, it would be expected that this person would be likely to be relatively comfortable seeking help from his or her classmates and professors to help alleviate stress. Furthermore, it would be expected that people who grow up in environments that are soothing and supportive develop less anxiety in the face of challenges, as they carry within them an expectation that things will turn out okay. With a clearer, calmer mind than their more anxious peers, they are in a better position to think through and solve their problems, either alone, or with the help of others. Therefore, one could make an argument that children who were brought up in a supportive environment and established a secure attachment with their caregivers would form a buffer against stress. Furthermore, it may be hypothesized that such a child benefitting from secure attachment would be better prepared, as a young adult, to manage the demands and stressors associated with college.

The Purpose of the Study

This study examined the association of attachment style and reported levels of stress. The thesis was that the quality of attachment is associated with resiliency in coping with new

situations and the adaptive skills required in these environments. Furthermore, the study will explore how one's adult attachment style affects perceived stress in a stressful environment, specifically, within a college setting. Additionally, whether students with secure attachment would demonstrate less perceived stress than students with insecure attachment.

Therefore, based on previous research conducted on the topic, an examination of the associations between perceived stress and levels of attachment as measured on the ECR was conducted.

Methodology

Research Approach

The approach this study utilized was a secondary data analysis method (i.e., analyzing data derived and recorded from previously conducted research). The dataset used in this study came from a southern California public university derived from a subject pool in the psychology department (which consisted of a lower-division, general education course), and from upper-division general education courses in the Family & Consumer Science department. An on-line survey method was utilized with the subject pool along with a pencil/paper survey for upper-division students.

The use of an archival dataset provides a number of advantages: (a) the data have already been collected, so it saves time, effort, and money; and (b) there is minimal concern regarding the need for institutional review, as this was already obtained by the principal investigator and therefore exempt from subsequent review (Creswell, 2007; Mertens, 2010).

Participants

The participants in this study were obtained from a psychology course at an undergraduate university in southern California and were required to participate in an array of

studies as part of the course requirement. The participants consisted of 727 students ranging in age from 18 to 30 years, with a mean average age of 20.2 years. Female participants comprised 73.2% of the subjects, while male participants made up 26.8%. With regards to college class status, freshmen were the largest group, composing 32% of the sample, followed by juniors (29.4%), sophomores (22.7%), seniors (14.6%), and graduate students (1.2%). The distribution of reported ethnicity follows: 46.8% Hispanic/Latino, 18.2% Asian/Pacific Islander, 13.3% Caucasian, 7.4% other/mixed, 5.0% Middle Eastern, 4.5% African American/Black, 4.5% Armenian, and 0.3% Native American. With regards to generation status, 15.7% were first generation (subject and subject's parents were foreign born), 62.0% were second generation (subject was U.S. born, parents were foreign born), and 22.3% were third generation (all U.S. born).

Among the population used were lower-division participants who completed the survey online in this study, while the participants in the upper-division general education course completed a paper/pencil survey and did not receive course credit. All of the participants were informed of their rights (e.g., anonymous survey, confidentiality, and could skip questions). Furthermore, the participants were allowed to discontinue the study at any given moment and still receive full credit for participating. Therefore, they would not feel forced to complete the questionnaire regardless of discomfort, which could then influence their responses on the questionnaire. Although most of the students were allowed to participate, there was one exclusionary criteria, that the participant needed to be 18 to 30 years old.

Instrumentation

Characteristics of the sample were identified using standard demographic questions. These items included sex, age, years in college, relationship status, ethnicity, living

arrangements, and identified religion. Previously validated self-report assessments were used to measure the key variables in the study, as explained below.

Adult attachment. Adult attachment was measured by administration of the 12-item Experiences in Close Relationship Scale (ECR)-Short Form (Wei, Russell, Mallinckrodt, & Vogel, 2007). This scale is a shortened version of a questionnaire developed by Hazan and Shaver (1987) to identify three types of adult attachment style: secure, anxious, and avoidant. An early version of this assessment consisted of three paragraphs outlining one type of adult attachment followed by a question asking which paragraph mostly resembles the participant's attachment style. However, this initial attempt at identifying attachment styles did not provide sufficient information. Consequently, researchers created multiple inventories to identify attachment styles (e.g., Collins & Read, 1990; Feeney, Noller, & Hanrahan, 1994; Simpson, 1990). In pursuing a more reliable and effective assessment Brennan, Clark, and Shaver (1998) presented over a thousand students with items from many different adult attachment instruments. After analysis of the results Brennan et al.'s (1998) study found 18 of 323 items that loaded on anxiety and avoidance dimensions. From these items the researchers developed a 36-item, final adult attachment measure, called the Experiences in Close Relationship Scale (ECR; Brennan et al., 1998).

The ECR was reported to have both a high level of internal consistency (Brennan et al., 1998) as well as validity (Brennan, Shaver, & Clark, 2000) among a sample of undergraduate students. Nevertheless, although the ECR has been established as a highly reliable and valid measure, its length of 36 items is regarded by some researchers as a bit excessive and counterproductive in terms of deterring compliance in completing the questionnaire. Therefore, Wei et al. (2007) developed the Experiences in Close Relationship Scale-Short Form (ECR-S)

and identified the most salient questions regarding anxiety and avoidance from the original ECR to administer to participants. Wei et al. (2007) found that the new shortened measure was equivalent in reliability, factor structure, and construct validity to the longer scale.

In the present study, the ECR-S was administered to college undergraduate students to assess their adult attachment style. Participants were given a questionnaire consisting of 12-items, focusing on anxiety (i.e. “I need a lot of reassurance that I am loved by my partner.”) and avoidance (i.e. “I want to get close to my partner, but I keep pulling back.”). The participants are then asked to respond using a 6-point Likert scale ranging from 1 (strongly disagree) to a 6 (strongly agree). Eight items were reverse coded, and then the scores were averaged, with higher scores indicating more secure attachment and lower scores indicating more insecure attachment.

Perceived stress. The Perceived Stress Scale was used to identify the extent to which a situation in a person’s life is stressful (Cohen, Kamarck, & Mermeistein, 1983). Subjective measures of stress have been used but along with them have come some practical and theoretical limitations. Cohen, Kamarck, & Mermeistein (1983) suggested that practically, it is time consuming and complicated to create a new measure for every stressor. Furthermore, from a theoretical stand-point, does the measures of the person’s perceived response to a stressor truly assess the evaluation of the stressful event? For example, evidence has been found that people often misattribute their feelings of stress to an incorrect source (Gochman & Smith, 1979). Therefore, an instrument to measure global levels of perceived stress was sought and developed (Cohen et al., 1983). The Perceived Stress Scale (PSS) measure was developed and used to target global stressors and measure one’s feelings of uncertainty and of being strained by outside pressures. The measure contains 14 items and was developed and designed to identify the situations that individual’s find most stressful, specifically in areas of unpredictability,

uncontrollable, and overloading, and the extent of these stresses. Cohen et al. (1983) focused on these particular areas as researchers have found these to be the central components of stress (Averill, 1973; Lazarus, 1966; Seligman, 1975). The PSS was found to have adequate internal and test-retest reliability, as well as reliable validity in determining to what degree the person appraises stressful life events (Cohen et al., 1983). A sample of the items administered include, “In the last month, how often have you felt confident about your ability to handle your personal problems?” Following the questions, the responder is given several choices: 1 = *Never*, 2 = *Almost never*, 3 = *Sometimes*, 4 = *Fairly often*, 5 = *Very often*. Additionally, these scores were then averaged to determine the level of perceived stress among the participant.

Procedure

Data obtained in the study was collected from college students in an online survey and via paper/pencil survey. The students who participated in the online survey were from a psychology department subject pool consisting of students attending a lower-division, general education psychology course at a Southern California university from a diverse ethnic background. Those who participated were given course credit for completing the survey. Self-report, paper/pencil survey data were also collected from students in upper-division, general education classes in a Family & Consumer Sciences department. These students did not receive course credits. Researchers came to the class and distributed the survey to those students who were willing to participate. They were given 20 minutes to complete the survey (most finished in 8-12 minutes). Because the study was exempt and the participants were adults, anonymous, and no sensitive materials were in the survey, no consent form was needed. However, the investigator did inform the participants that although there was no deception or other risks, the survey may elicit negative emotions. The following steps were taken in obtaining participation

by the investigator: (a) The investigator and his assistants announced to the class the opportunity to obtain course credit and gave verbal instructions regarding participation to those completing the survey in class; (b) The name of the study was posted, along with the age requirements for participation (18-29 years); (c) The students who were willing to participate would sign up, take the survey online, and were given 30 minutes to complete it while in class; and (d) following completion of the survey, the students were given 2 credits out of 10 needed to complete the psychology course. Once all the data were collected, research assistants coded, entered, and verified the data for accuracy. Then the data were transferred into a Statistical Package for the Social Science (SPSS) data file. The dataset was provided by the principal investigator by means of a SPSS data file that included the scores obtained on the questionnaires along with the demographic information for each participant.

Results

The following section presents the results of the data analyses.

Data Analyses

The principal investigator provided the de-identified dataset with the responses on each of the questions on the survey along with the demographics of the subjects. After receiving all the data from the study, SPSS was used to analyze the information. Descriptive statistics were conducted on age, ethnicity, sex, and grade level. Next, Cronbach's alphas were conducted on the scales to ensure adequate reliability, followed by skewness and kurtosis analyses for each scale. Then, bivariate correlations and simple linear regression were used to answer the following: (a) is there a significant relationship between secure attachment and perceived stress? and (b) will those with secure attachment styles report lower levels of stress. First, a bivariate correlation was conducted to examine the strength and direction of the relationship between the

level of secure attachment and perceived stress. Then, a simple linear regression was conducted to examine the amount of variance in level of stress accounted for by level of secure attachment. It is anticipated that the information gained from this study will add to the literature on the influence that previously established attachment experiences has on an individual's experience of stress during emerging adulthood, as well as their influence on the development of resiliency in college students.

Measurement

The ECR-S measure was found to have good internal consistency with a Cronbach's alpha of .76. Additionally, the attachment scale revealed a standard deviation of .78 and a skewness of -.008 demonstrating a relatively symmetrical distribution. However, the distribution was flatter with a kurtosis of -.437. The PSS measure was also found to have good internal consistency with a Cronbach's alpha of .87. Furthermore, the stress scale showed a slightly negative skewness, with a standard deviation of .67 and a skewness of -.11. The distribution of scores appeared relatively normal with a kurtosis of -.16.

Findings

First, bivariate correlations were conducted to examine the strength and direction of the relationship (i.e., r) between the level of secure attachment and perceived stress. Then, a simple linear regression was conducted to examine the amount of variance (i.e., R^2) in level of stress accounted for by level of secure attachment. The results of the correlations and regressions are reported in Table 1.

The results of the correlations with the total sample indicated that attachment and perceived stress levels were significantly and negatively related ($r = -.41, p < .001$); indicating that college students who have a more secure attachment are significantly more likely to report

lower perceived stress levels. In the simple linear regression, the level of secure attachment accounted for 17% of the variance in stress ($R^2 = .17$, $F = 150.19$, $p < .001$).

Next, the analyses were conducted separately for each gender. The results of the correlations with women indicated that attachment and perceived stress were significantly and negatively related ($r = -.43$, $p < .001$); indicating that female college students who have a more secure attachment are less likely to perceive stress. In the simple linear regression, the level of secure attachment accounted for 19% of the variance in stress ($R^2 = .19$, $F = 122.91$, $p < .001$). The results of the correlations with men indicated that attachment and perceived stress were significantly and negatively related ($r = -.37$, $p < .001$); indicating that male college students who have a more secure attachment are less likely to perceive stress. In the simple linear regression, the level of secure attachment accounted for 13% of the variance in stress ($R^2 = .13$, $F = 29.85$, $p < .001$).

The Fisher r-to-z transformation (Fisher, 1921; Warner, 2008) was used to compare the two correlations (i.e., the correlation for women and for men). An online calculator was used for the analysis (<http://vassarstats.net/rdiff.html>). The size of the correlation was not significantly different between men and women ($z = .85$, $p = .40$).

Next, the analyses were conducted separately for each ethnic group that had at least 50 subjects in the subsample. The results of the correlations with the Asian sample ($n = 132$) indicated that attachment and perceived stress were significantly and negatively related ($r = -.33$, $p < .001$); indicating that Asian college students who have a more secure attachment are less likely to perceive stress. In the simple linear regression, the level of secure attachment accounted for 11% of the variance in stress ($R^2 = .11$, $F = 15.63$, $p < .001$). The results of the correlations with the Caucasian students ($n = 97$) indicated that attachment and stress were significantly and

negatively related ($r = -.46, p < .001$); indicating that Caucasian college students who have a more secure attachment are less likely to perceive stress. In the simple linear regression, the level of secure attachment accounted for 21% of the variance in stress ($R^2 = .21, F = 25.89, p < .001$). The results of the correlations with the Latino sample ($n = 340$) indicated that attachment and stress were significantly and negatively related ($r = .41, p < .001$); indicating that Latino college students who have a more secure attachment are less likely to perceive stress. In the simple linear regression, the level of secure attachment accounted for 17% of the variance in stress ($R^2 = .17, F = 67.12, p < .001$). The results of the correlations with the Middle Eastern sample ($n = 69$) indicated that attachment and perceived stress were significantly and negatively related ($r = .57, p < .001$); indicating that Middle Eastern college students who have a more secure attachment are less likely to perceive stress. In the simple linear regression, the level of secure attachment accounted for 32% of the variance in stress ($R^2 = .32, F = 31.83, p < .001$).

When examining differences between the correlations for the ethnic groups, the Fisher r-to-z transformation found that the correlations between attachment and stress were not significantly different between the ethnic groups.

Table 1

Results of Bivariate Correlations and Simple Linear Regressions with Secure Attachment as the IV and Stress as the DV for Total Sample, Genders, and Ethnic Groups

	Total Sample ($n = 727$)	Women ($n = 532$)	Men ($n = 195$)	Asian ($n = 132$)	Caucasian ($n = 97$)	Latino ($n = 340$)	Middle Eastern ($n = 69$)
r value	-.41***	-.43***	-.37***	-.33***	-.46***	.41***	.57***
R^2 value	.17***	.19***	.13***	.11***	.21***	.17***	.32***
F value	150.19	122.91	29.85	15.63	25.89	67.12	31.83

* $p < .05$. ** $p < .01$. *** $p < .001$

Summary

The analyses of data collected from a sample of college students ($n = 727$) found a significant relationship between adults' level of secure attachment and level of perceived stress.

The overall results showed the proposed hypothesis to be true, demonstrating that secure

attachment levels were significantly and negatively related to perceived stress levels, with secure attachment accounting for 17% of the variance in stress. Furthermore, these significant correlations were found to be similar among both sexes and various ethnicities. Fisher r-to-z transformation indicated no significant strength differences between attachment and perceived stress among the sexes and ethnic backgrounds.

Other studies have found that mental toughness (Clough, Earle, & Sewell, 2002) accounted for 10% of the variance for lower levels of stress and depressive symptoms among young adults (Gerber et al., 2013). This suggests that while individuals who demonstrate confidence in their ability to control their environment experience lower levels of stress, those who demonstrate secure attachment styles are even more likely to display lower levels of perceived stress.

Discussion

This study examined the relationship between college student's level of secure attachment and perceived stress levels. The results of the study found support for the hypothesis that there is a significant relationship between adults' secure attachment and perceived stress levels. A positive correlation was observed between secure attachment levels and lower perceived stress levels, or conversely, that when adults reported more insecure attachment they also reported higher levels of perceived stress. These findings are consistent with previous research that demonstrated greater resiliency in subjects identified as having a secure attachment style, and greater vulnerability to stress in subjects displaying an insecure attachment style (Ditzen et al., 2008; Gallo & Matthews, 2006; Hawkins, Howard, & Oyeboode, 2007).

The findings in this study provides further evidence that the quality of early relationships--early attachments--are influential on one's adjustment to stressors later on in life (Bowlby, 1977; Bretherton, 1985; Collins & Read, 1994; Main, Kaplan, & Cassidy, 1985). The connection

between one's attachment style and perceived stress levels further demonstrates the importance and attention that needs to be given to early relationships in order to help the individual adjust and cope with challenges later on in life. An early personal history of being in relationships that promoted a secure attachment to one's caregivers seem to foster both an expectation that things "will work out" because (a) turning to reliable sources of support and soothing become a normal part of one's life, and (b) being soothed and supported, on a regular basis, leads to the capacity to self-soothe, and to engage in positive, encouraging self-talk. These factors necessarily would promote resiliency.

Furthermore, the findings are consistent with previous findings that suggest those exhibiting insecure attachment styles are at risk of engaging in more negative relationships, conflicts, and finding less support (Gallo, Smith, & Ruiz, 2003), thus bringing about an increase in stressors. Conversely, those exhibiting higher levels of secure attachment may utilize others for more support and approach stressors in more problem-focused strategies (e.g., Ciechanowski, Sullivan, Jensen, Romano, & Summers, 2003; Hunter & Maunder, 2001; Mikulincer & Florian, 1998).

When examining the results further, the study found that secure attachment level accounted for 19% of the variance of stress in female adults and 13% in male adults. These differences, while not statistically significant, may suggest a possible bi-directionality in the correlation of attachment level and support seeking behaviors as women have a tendency to place more importance on close relationships and seeking support from others than men (e.g., Baker & Berenbaum, 2007; Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Ptacek, Smith, & Dodge, 1994; Tamres, Janicki, & Helgeson, 2002). Nevertheless, these results suggest that both men and

women benefit from developing a secure attachment style and thus become more resilient to life stressors.

In addition, further analyses were conducted to explore whether a significant relationship between attachment and stress existed for different ethnic groups. For each ethnic group, level of secure attachment was significantly and negative related to reported stress level. Furthermore, no significant differences between ethnic groups were identified, suggesting that the connection between attachment style and perceived stress levels are consistent across ethnicities. A further analysis was conducted regarding generational status and whether this may have had an impact on perceived stress levels. However, upon further analyses, there was only one ethnic group large enough to conduct such an analysis (Latinos), but again, no significant difference was found between first and third generations.

In conclusion, the data utilized in this study pertaining to differences between genders and between ethnicities suggests that more securely attached young adults report less stress regardless of gender or ethnicity. These findings are consistent with another study that suggested no definitive significance among ethnicities and gender (Moran, 2007). However, further consideration needs to be given to the role of ethnicity and gender, as cultural influences on attachment and stress can be very complex.

Limitations

There are several limitations that are present in this study. One of the limitations of using an archival dataset, was that the survey items were not at first formulated to specifically address the research question. Therefore, additional questions specific to the research question were not asked, and variables that may have provided a more complete answer to the research question were not examined.

Another major limitation is to what extent does the ECR-S accurately assess adult attachment, more specifically among different ethnicities. Wei et al. (2007) noted that the participants in constructing the ECR-S were mainly from those who identify as Euro-Americans and undergraduates from the same public university. Therefore, there is concern of whether the psychometric properties of the measure would be consistent among other ethnicities and age groups.

Furthermore, the research design could not provide information as to whether current perceived stressors might have influenced performance on the ECR-S.

Finally, the population used for this study cannot be generalized, as it consisted of Southern California college students and is at best representative of undergraduate and graduate students immersed in American westernized culture.

Directions for Future Research

Although a significant relationship was found between secure attachment and lower perceived stress levels, correlation analyses do not infer causation. Many factors other than attachment style can contribute to perceived stress levels. There are various kinds and sources of stress, and it is possible that the effects of some of these may have greater or lesser influence than others. Examples include socio-economic status, proximity of family members, living conditions, recent illnesses, etc. In addition to these, and specifically attributable to the population chosen, a college student's parents' education and other overt or covert pressure exerted on the student can influence his or her stress levels, thus skewing the results of the study. Finally, a person's family background, observation and modeling of parents' responses to stress have been found to impact how the child, and later, the adult, responds to stress themselves. (Gil, Williams, Thompson, & Kinney, 1991; Kliewer et al., 2006; Kliewer, Fearnow, & Miller, 1996;

Kliewer & Lewis, 1995). Future prospective studies could be conducted to examine other possible causations and their influence on perceived stress levels as well as attachment style.

Generation status may also have influenced the results, but there were not enough participants in each generational divide to examine generational status as a potential moderator. Generation status can be influential in coping with stress, as being assimilated into a culture for many years may help the individual become more comfortable in his or her environment as well as more confident in seeking and procuring support from the community. Further research should be conducted to examine the impact that generation status can have on attachment styles and perceived stress levels as well.

Although the study revealed that secure attachment among college students is related to decreased stress level, other factors can either exacerbate or diminish stress levels. For example, an individual who exhibits secure attachment style has been shown to trust others and may be more likely to access resources, thus allowing the person to cope with stressors more effectively by seeking support (Cooper, Shaver, & Collins, 1998). Therefore, it is of note that the interaction between secure attachment and accessing resources may not be linear, but may be bidirectional. Having a secure attachment style impacts seeking support and resources, which in turn further feeds the belief that the world is a supportive environment, thus influencing attachment style and one's schema of the world. Further research is needed to identify the interaction between accessing resources and attachment style and the impact that outside supports have on influencing later attachment styles and world schemas.

Another concern and area of further research is the influence of inherent qualities that can exacerbate the effects of stressors. Although a correlation exists between secure attachment level and perceived stress levels, the research does not explain or take into account how those who

have secure attachment interpret degrees of stress in commonly occurring experiences. For example, future studies could examine to what extent an individual exaggerates the level of threat in everyday events (e.g., catastrophizing). Another area of research that could potentially yield useful information in terms of guiding parents in developing resilient children involves the effect of parental modeling on one's interpretation of events, especially in homes where the individual developed a secure attachment with an overprotective (anxious) parent.

Conclusion

The purpose of the study was to examine the association between levels of attachment and perceived stress levels among college students. Seven hundred and twenty-seven students responded to questionnaires that provided information on their attachment level and perceived stress levels. The results of the survey supported the hypothesis that those exhibiting more secure attachment showed a lower level of perceived stress. This study provides further evidence of the profound impact that earlier relationships have on a person's functioning later on in life and the ability to cope with stressors. These results can be usefully applied in encouraging counselors to take into account a student's attachment style and how that may impact their ability to cope with a physically and emotionally demanding environment. Furthermore, a clinician can implement this knowledge in interventions with clients by maintaining an awareness of the importance of developing and maintaining a secure attachment in the therapeutic relationship. Through the fostering of a positive emotional experience by the therapist, involving consistent positive regard and empathic understanding, the client may have the opportunity to experience a truly supportive, secure relationship. In turn, this experience can improve their psychological health over time and allow them to create and sustain meaningful relationships with others (Sable, 2007).

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Appendix A

Author/Year	Title	Research Questions/ Objectives	Sample	Major Findings
Aspelmeier & Kerns, 2003	Love and School: Attachment/Exploration Dynamics in College	Two studies testing whether secure attachment promotes exploration at college and how insecure attachment predicts exploration.	269 undergraduates completed self-report measures of attachment and exploration	Sex differences were found in exploratory behavior: For males general insecurity were correlated with low levels of exploration. For females dismissiveness was correlated with low levels of exploration.
Dill & Henley, 1998	Stressors of College: A comparison of Traditional and Nontraditional Students	Perceived stressors of nontraditional (returning adult) and traditional college students were compared	47 Non-traditional, 47 traditional students completed the Adolescent Perceived Events Scale for college students	Significant differences were found between the nontraditional and traditional students in academics, peer and social relations, family and network, autonomy and responsibility, and intimacy.
Aselton, 2012	Sources of Stress and Coping in American College Students Who Have Been Diagnosed With Depression	The study explored the sources of stress in American college students who had been treated for depression and identifying their coping mechanisms	13 in-depth interviews were conducted after initially having 26 participants	Sources of stress included roommate issues, academic problems, financial and career concerns, and pressure from family. Ways to cope were exercise, socializing with friends, self-talk, relaxation techniques, substance use (marijuana), journaling, and listening to music.
Bland, Melton, Welle, & Bigham, 2012	Stress Tolerance: New Challenges for Millennial College Students	Identifying lifestyle habits and coping strategies that may be significantly associated with high or low stress tolerance	246 participants completed the stress tolerance questionnaire	Ten lifestyle/coping factors were significantly associated with high stress tolerance-one was a protective factor (feeling supported), nine put one at risk of low stress tolerance including cleaning, praying, using social network, and calling mother.
Hudd, Dumlao, Erdmann-Sager, Murray, Phan, Soukas,	Stress at College: Effects on Health Habits, Health Status and Self-Esteem	Are students in certain demographic groups prone to experience high	145 participants completed a survey	Found that females and non-athletes were more likely to be stressed and stressed students engaged in more

Yokozuka, 2000		levels of stress? Is there a relationship between stress and other health behaviors? Do stressed students possess lower levels of self-esteem?		unhealthy behaviors. Students under greater stress also exhibited lower self-esteem.
Archer & Lamnin, 1985	An investigation of personal and academic stressors on college campuses.	What are the personal and academic stressors on college campuses	Administered a 9-item survey, about personal and academic situations or conditions that students found to be most stressful to 893 undergraduates	Major academic stressors were tests, grade competition, time demands, professors and class environment, and career and future success. Personal stressors mentioned were intimate relationships, parental conflicts, finances, and interpersonal conflicts.
Guo, Wang, Johnson, & Diaz, 2011	College Students' Stress Under Current Economic Downturn	Investigated the perceived economic stress among college students	560 undergraduate students were surveyed to assess their perceived economic stress.	Male and female college students both perceived and equivalent magnitude of economic stress with senior college students perceiving the highest economic stress.
Ross, Niebling, & Heckert, 1999	Sources of Stress Among College Students	A survey to determine the major sources of stress among college students	The student stress survey was used on 100 undergraduate students	Intrapersonal stressors being the more frequently reported stress including: change in sleeping habits, vacations, change in eating habits, increased workload, and new responsibilities.
Serlachius, Hamer, & Wardle, 2007	Stress and weight change in university students in the United Kingdom	The study examined whether students exhibit similar weight gain compared to U.S. students in the first year at a university, and the role that stress plays.	A survey was administered to 268 students at University College London	Findings confirmed modest weight gain over the first year at a University, which was related to higher levels of perceived stress. However, this association was stronger with women.
Pedersen, 2012	Stress Carry-Over and College Student Health Outcomes.	The study examined the relationship between stress stemming from school and family domains and	268 online questionnaires were completed by undergraduate men and women.	Carry-over stress operates both similarly for men and women, affecting at least one physical health outcome and perceived mental health.

Lyrakos, 2012	The impact of stress, social support, self-efficacy and coping on University students, a multicultural European study.	physical and mental health outcomes The study was done to examine the impact of stress, social support and self-esteem on university students.	562 students completed a questionnaire before and after a 12 month period.	Results showed that levels of stress are negatively correlated with the positive ways of coping, the levels of social support, self-esteem and University Satisfaction. Furthermore, stress levels are positive correlated with the negative ways of coping.
Brougham, Zail, Mendoza, & Miller, 2009	Stress, Sex Differences, and Coping Strategies Among College Students	The sources of stress and coping strategies of college students were examined	166 students completed the COPE survey and Student Stress Assessment	Results found that college women reported a higher overall level of stress and greater use of emotion-focused coping strategies than college men.
Sax, 1997	Health trends among college freshmen.	Trends in college student health based on an annual survey of college freshmen administered for 30 years at colleges are described.	The survey involved about 300,000 entering freshman from 600 colleges or universities	Major trends include declines in beer drinking and in physical and emotional self-confidence and an increase in stress and cigarette smoking. "Unhealthy" behaviors and attitudes are reported most often by freshmen at public 2-year institutions.
Abouserie, 1994	Sources and Levels of Stress in Relation to Locus of Control and Self Esteem in University Students	This study reports an investigation into the sources and levels of stress in relation to locus of control and self esteem in college students.	Two stress questionnaires were completed by 675 second-year undergraduates	Results showed that 77.6% and 10.4% of the students fall into the moderate and serious stress categories, respectively. Female students are more stressed than males. Results also indicated a positive correlation between locus of control and academic stress. A significant negative correlation between self esteem and both academic and life stress emerged, indicating that students with high self esteem are less stressed.

Appendix B

PEPPERDINE UNIVERSITY

Graduate & Professional Schools Institutional Review Board

June 17, 2013

Jason Dorin

Protocol #: E0613D02 Project Title: Attachment Style and Perceived Stress in College Students

Dear Mr. Dorin,

Thank you for submitting the Non-Human Subjects Verification Form and supporting documents for your above referenced project. As required by the Code of Federal Regulations for the Protect for Human Subjects (Title 45 Part 46) any activity that is research and involves human subjects requires review by the Graduate and Professional Schools IRB (GPS-IRB).

After review of the Non-Human Subjects Verification Form and supporting documents, GPS IRB has determined that your proposed research activity does not involve human subjects. Human subject is defined as a living individual about whom an investigator (whether professional or student) conducting research obtains

- (1) Data through intervention or interaction with the individual, or
- (2) Identifiable private information. (45 CFR 46102(f))

As you are not obtaining either data through intervention or interaction with living individuals, or identifiable private information, then the research activity does not involve human subjects, therefore GPS IRB review and approval is not required of your above reference research. We wish you success on your non-human subject research.

Sincerely,

Doug Leigh Chair, Graduate and Professional Schools IRB Pepperdine University

cc: Dr. Lee Kats, Vice Provost for Research and Strategic Initiatives Ms. Alexandra Roosa, Director Research and Sponsored Programs Dr. Edward Shafranske, Graduate School of Education and Psychology

