5-2014

Traumatic Life Events and Symptoms of Anxiety: Moderating Effects of Adaptive Versus Maladaptive Coping Strategies

Alishia Foster
East Tennessee State University

Traumatic Life Events and Symptoms of Anxiety: Moderating Effects of Adaptive Versus Maladaptive Coping Strategies

---

A thesis

presented to

the faculty of the Department of Psychology

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Master of Arts in Psychology

---

by

Alishia Dawn Foster

May 2014

Jameson K. Hirsch, Ph.D., Chair

Jon R. Webb, Ph.D.

Matthew McBee, Ph.D.

Keywords: Traumatic Life Events, General Coping, Maladaptive Coping, Adaptive Coping, Anxiety

ABSTRACT

Traumatic Life Events and Symptoms of Anxiety: Moderating Effects of Adaptive Versus Maladaptive Coping Strategies

by

Alishia Foster

The experience of trauma is prevalent among young adult college students and is often associated with poor mental health outcomes such as symptoms of anxiety. Not all individuals who have experienced trauma, however, develop anxiety, perhaps due to individual-level adaptive characteristics, such as use of adaptive rather than maladaptive coping strategies. Yet, little research has examined the interrelationships between the experience of trauma, specific types of coping strategies, and subclinical anxiety symptoms. A sample of 915 undergraduate students completed self-report measures of trauma, coping strategies, and anxiety symptoms. We hypothesized that traumatic life events would be associated with anxiety symptoms, and that this relation would be moderated by adaptive and maladaptive coping, such that adaptive coping will weaken, whereas maladaptive coping will exacerbate, the trauma-anxiety relationship. Results demonstrated maladaptive coping, but not adaptive coping, was a moderator of the association between the experience of trauma and symptoms of anxiety.

DEDICATION

For my boys, Alek and Josiah. May you always strive to accomplish your dreams, no matter the struggle. I love you so much. This is for you.

-Mom

ACKNOWLEDGEMENTS

I would like to graciously thank my Thesis Chair, Dr. Jameson Hirsch, who has aided me over the past 3 years working on this project. Your dedication and persistence in seeing me through this journey has been greatly appreciated; I am truly grateful. I am also indebted to my committee members, Drs. Jon Webb and Matthew McBee, who have provided me wonderful guidance and shared moments imparting their expertise and encouragement. Additional thanks go to Drs. Kerry Holland and John-Paul Abner, who have been an amazing source of encouragement and support throughout my graduate school experience. You both have cheered me on, providing genuine and heartfelt support. Frankly, I have no words to capture how truly appreciative I am of all you have done and extended to me. You have made such a lasting impact upon me; I pray I can demonstrate the same to others in my future career.

I would also like to thank many others who have supported me throughout this process, including my family: Grandma & Grandpa Wilson, Mom, Joshua, Caleb, Kyle, and Drew. Mom, I hope to have made you proud, having worked hard based on the values and perseverance you instilled in me. To my brothers, I love you all so much. Thank you for the long talks and support whenever needed. I know you all will be cheering me on until the finish line. I am truly indebted to my husband, Drew, having been an amazing source of support and encouragement. Through the years we have known one another; your words of comfort and encouragement offered so freely and often have carried me through so many difficulties. I am so lucky to have such a compassionate support to share my life with. I love you so much.

Lastly, to all my friends and peers, I appreciate your commitment to me, and I will cherish our lasting friendships.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Introduction

The experience of traumatic events is prevalent among young adult college students. Greater than 80% of college students have experienced at least one traumatic event in their lifetimes, and over one third have experienced four or more traumatic events in their lifetimes (Green, 1996; Lauterbach & Vrana, 2001). As well, the "college experience," which is often characterized by financial, interpersonal, and academic stressors, and occurs during a time of transition to independence and adulthood, may contribute to psychological strain (Galatzer-Levy, Burton, & Bonanno, 2012; LaLande & Bonanno, 2011; Vrana & Lauterbach, 1994). Thus, it is likely that many college students experience symptoms of anxiety (American College Health Association, 2012).

Not all individuals who have experienced traumatic life events, however, develop anxiety, perhaps due to the potential buffering effects of individual-level adaptive characteristics such as coping ability (Hirsch, Walker, Chang, & Lyness, 2012). Previous research suggests that the ability to use an array of adaptive, rather than maladaptive, coping strategies may promote emotional well-being (Folkman & Moskowitz, 2004; Koenig, 2001). Yet, little research has examined the interrelationships between the experience of trauma, specific types of coping strategies, and subclinical anxiety symptoms, which is the focus of the current study. In the sections below, I review the current literature on the experience of trauma and its association with anxiety as well as on common methods of coping.

Traumatic Life Events: Operationalization and Potential Sequelae

Most individuals have experienced some form of trauma in their lifetimes (Breslau, 2009); yet, a general and standardized definition of trauma has proven remarkably difficult to generate, due to difficulties with operationalization and measurement. This is problematic from both a clinical and epidemiological stance; for instance, differences in reported rates of trauma across studies may be due, in part, to terminological and criterion-based discrepancies, and ambiguous classification may be a barrier to appropriate and sufficient treatment.

With regard to definition, the terminology used to define trauma is often circular; that is, an event is classified as a trauma because its consequences are traumatic. Some theoretical perspectives posit that "an event or circumstance is not a stress, trauma, and/or crisis," but, rather, that these characteristics refer to "level of personal distress regarding an event or circumstance" that is derived from an "individual's perception of the event, depending upon personal characteristics and context" (Dulmus & Hilarski, 2003, p. 27). Further, conceptualization of trauma is challenging due to the individual perceptual subjectivity of, and reaction to, traumatic life events. From minor hassles to catastrophes, "stressors vary along a number of dimensions, including magnitude, complexity, frequency, duration, predictability, and controllability" (Weathers & Keane, 2007, p. 108). Thus, comparison of such life events across individuals and samples is difficult (Frazier et al., 2009). To account for some of this variability and subjectivity, assessments of trauma often include a self-rating of severity of impact, in acknowledgement of the individual's personal experience (Weathers & Keane, 2007).

For both clinical and research pragmatism, a somewhat restrictive definition of traumatic life events is desirable (Norris, 1992; Weathers & Keane, 2007). From this perspective, traumatic events are considered a subset of possible life events that share common

characteristics, rather than operationalization based on subjective ratings by those who experience them. Events that would fall into this more restrictive classification of traumatic events may entail "violent encounters with nature, technology, or humankind" or a "violent event that is marked by sudden or extreme force and involves an external agent" (Norris, 1992, p. 409). Interpersonal violence and rape are easily captured in this definition, as are other types of experiences such as natural disasters, automobile accidents, and fire.

In addition to defining the concept of "trauma" or a "traumatic event," there is also debate regarding the appropriateness of the DSM-IV-TR diagnostic criteria for Post Traumatic Stress Disorder (PTSD), Criterion A, which requires that an individual must have "experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others" (American Psychiatric Association [APA], 2000, p. 467). Often, even in the case of severe trauma, PTSD fails to manifest, whereas, at other times, an individual may experience PTSD symptoms without being directly exposed to threat; thus, the dispute within the literature pertains to the need for an event to meet Criterion A to be considered traumatic (Rosen & Lilienfeld, 2007).

As examples, numerous studies have failed to find trauma incidence or severity to be necessarily predictive of PTSD symptoms (e.g., Bernat, Ronfeldt, Calhoun, & Arias, 1998; Feinstein & Dolan, 1991). In a study of 1,909 female college students, examining single versus multiple trauma events, significantly greater distress was reported when traumas classified as nonCriterion A events were compared to noninterpersonal Criterion A traumas (Green et al., 2000). In another collegiate study (N = 3,014; 1,763 female, 1,251 male), 66% of respondents reported exposure to a Criterion A trauma; however, only 9% met criteria for PTSD (Read, Ouimette, White, Colder, & Farrow, 2011). Further, the adverse impact of such subthreshold

disorders, including symptoms of anxiety, has been demonstrated with regard to chronicity of debilitating mental and physical symptoms, poor quality of life, and use of a disproportionate amount of health care resources (Helmchen & Linden, 2000; Katon & Roy-Byrne, 1991; Rivas-Vazquez, Saffa-Biller, Ruiz, Blais, & Rivas-Vazquez, 2004). For example, in a study of 1,300 participants from an outpatient community sample, 12% (N=156) met criteria for diagnosis of PTSD, and 7% (N=84) met criteria for current subthreshold PTSD; importantly, subthreshold PTSD was associated with social and vocational impairment (Zlotnick, Franklin, & Zimmerman, 2002). Such findings lend support to the concept of subthreshold symptoms as clinically meaningful. Thus, as we do in the current study, it is not only important to distinguish traumatic from nontraumatic events (Weathers & Keane, 2007) but to also consider trauma related symptoms on a continuum, acknowledging the presence of subsyndromal symptoms as a risk for poor health outcomes.

Prevalence of Traumatic Life Events. Within the United States, a vast majority of the population - approximately 80% - have experienced one or more traumatic life events (Breslau, 2009). Lifetime cumulative exposure to any traumatic event, defined according to DSM-IV criteria, in a nationally representative sample of the U.S. population in 2000, was 82.8% (Breslau, 2009; Kessler, Chiu, Demler, Merikangas, & Walters, 2005). Most college-age young adults have experienced one or more traumatic events at some point in their lifetimes (Vrana & Lauterbach, 1994), and studies of community samples suggest that the peak age for trauma exposure is between 16 to 20 years of age (Breslau et al., 1998). For college students, prevalence rates for trauma exposure range from 52% to 96% for more common or frequent traumatic events such as the death of a loved one (Frazier et al., 2009; Green et al., 2000; Kirk & Dollar, 2002; Owens & Chard, 2006). When a broader range of traumatic events were examined, such

as the violent or very unexpected death of a loved one, rates ranged from 84% to 94% (Vrana & Lauterbach, 1994).

The most commonly experienced traumatic life events include child and adult physical abuse and assault, sudden bereavement, and life-threatening accidents (Goodman, Corcoran, Turner, Yuan, & Green, 1998) and, although prevalence rates of such events are generally consistent across racial and ethnic, sex, and age groups (Norris, 1992), the occurrence of some events can vary by sex. Women are significantly more likely than men to have experienced molestation (17% versus 6%), attempted sexual assault (11% versus 2%), and rape (13% versus 6%) (Goodman et al., 1998). A significantly greater proportion of men, compared to women, report serious physical injury (19% versus 7.9%), serious accidents (40% versus 28%), physical assaults (13.4 % versus 5.5%), and witnessing of serious injury or death (31.1% versus 17.6%) (Bernat et al., 1998).

Age may also play a role in exposure to trauma; for example, young adults demonstrate higher past-year frequency of the "any traumatic event" category (27%) as compared to middle-aged (21%) or older adults (14.2%) (Norris, 1992). Risk of exposure to trauma may also accumulate over time, so a logical assumption might be that older adults would report greater rates of traumatic life events; however, research on cumulative lifespan trauma is inconsistent. Indeed, younger and middle-aged adults report higher lifetime frequencies of traumatic life events than older adult samples (Norris, 1992). Researchers suggest this may be a cohort effect, as younger individuals are more prone to, or more likely to be exposed to, violence than their older counterparts. Older adults may also report less incidence of trauma due to reporting bias; with the passage of time, older adults may bias their reflection of events with a diminished sense

of seriousness. This age effect, however, supports the notion that older adults develop coping abilities and resiliency to stressors throughout the lifespan (Norris & Murrell, 1988).

Association Between Trauma and Physical and Mental Health

In general, the experience of trauma is related to poor acute and long-term health outcomes, both mental and physical (Barlow, 1988; Beck, Emery, & Greenberg, 2005; Sareen et al., 2006). The effects of trauma may involve "psychological, biological, behavioral, and attentional mechanisms that interact to strain the body's ability to adapt, thereby increasing the likelihood of disease and illness behavior" (Schnurr & Green, 2004, p. 18). For example, with regard to physical well-being, individuals who have experienced traumatic events report higher rates of serious and life-threatening illnesses including cardiovascular disease, diabetes, gastrointestinal disorders, and cancer than the general population (Kendall-Tackett, 2009), as well as greater incidence of hypertension, asthma, fibromyalgia, chronic pain and somatic symptoms, and poor quality of life (Dozois & Westra, 2004; Kendall-Tackett, 2009; Rivas-Vazquez et al., 2004; Sareen et al., 2006; Zatzick et al., 1997).

Psychological distress following traumatic events is widely understood in terms of negative mental health outcomes, particularly posttraumatic stress disorder; however, the experience of trauma is also associated with other forms of psychological dysfunction including symptoms of anxiety and depression, substance abuse, and general stress-related symptoms (Breslau, 2002; Daugherty, 1998; Green et al., 2000; Scarpa, 2001; Vrana & Lauterbach, 1994), as well as strained interpersonal relationships, economic instability, and poor quality of life (Greenhausa & Parasuramanb, 1987; Heerey & Kring, 2007; Rapaport, Clary, Fayyad, & Endicott, 2005). Individuals who experience trauma at an early age often suffer from mental health problems throughout their lifespan (Schilling, Aseltine, & Gore, 2007). Importantly,

although traumatic events may seem separate and mutually exclusive from one another, the experience of multiple traumatic stressors over time has a cumulative detrimental effect, resulting in greater risk for perceived stress and poor physical and mental health outcomes (Bernat et al., 1998; Follette, Polusny, Bechtle, & Naugle, 1996; Green et al., 2000; Lalande & Bonanno, 2011; Vrana & Lauterbach, 1994).

The Relationship Between Trauma and Anxiety. In addition to bereavement and depression that might occur as a result of interpersonal loss and trauma, a frequent psychological consequence is symptoms of anxiety (Kreitler & Kreitler, 1988) but not only those symptoms associated with posttraumatic stress disorder (Gray & Lombardo, 2012).

Notably, only a small percentage of people who experience trauma will develop PTSD (McFarlane, 2000); however, individuals who are traumatized are more likely to experience a broad array of general anxiety symptoms comprising full criteria disorders (threshold) or subthreshold conditions (Laugharne, Lillee, & Janca, 2010; Mol et al., 2005; Stein, Walker, Hazen, & Forde, 1997). Thus, given the relatively low incidence and prevalence rates of trauma and PTSD and the tendency for trauma-triggered psychopathology to manifest in ways other than as PTSD symptomology, the current study is focused on anxiety symptoms, more broadly, as an outcome.

Anxiety may be conceptualized as a future-oriented sense of concern or unease in that it is a cognitive-emotional reaction linked to the anticipation of future danger or hardship (Barlow, 1988) and that manifests as a wide range of physical (e.g., increased cortisol levels), cognitive (e.g., recurrent or obsessive thoughts), affective (e.g., irritable mood) and behavioral (e.g., avoidance) symptoms. Cognitive theorists propose that anxiety symptoms and disorders result from distorted beliefs about the dangerousness of external stimuli, situations, sensations, and/or

mental events (Clark, 1999). In particular, the perception of uncontrollability in the context of current and upcoming stressful life events may contribute to risk for anxiety (Barlow, 1988). This may occur because perception of a lack of control may impact an individual's sense of self-concept, personal competence, and self-efficacy to react to stressors, thereby diminishing ability to effectively resolve stressors (Beck 2005). Further, cognitive dysfunction, often in the form of negative internal attributions such as self-blame, guilt and shame, contribute to emotional distress and additional feelings of anxiety (Morrison, Frame, & Larkin, 2003).

Epidemiology of Anxiety. Anxiety disorders are the most common mental illness in the U. S., affecting 40 million adults – an estimated 18% of the population (Kessler et al., 2005; Kessler & Wang, 2008). Of all potential anxiety disorders, the ones most frequently associated with the experience of trauma include generalized anxiety disorder (GAD), acute stress disorder, and posttraumatic stress disorder (American Psychiatric Association [APA], 2000). Among other impacts, anxiety disorders negatively affect healthcare use, vocational functioning, and physical and mental health (Barlow, 2002; Sareen, et al., 2006), often being comorbid with depression and substance abuse.

Demographic trends in anxiety rates exist. For example, prevalence rates of anxiety are often substantially higher in women than men, with some estimates finding women more than twice as likely to experience an anxiety disorder as male counterparts (Eisenberg, Gollust, Golberstein, & Hefner, 2007). Although most individuals experience trauma at some point in their lives, prevalence rates of trauma demonstrate a sharp rise in incidence between the ages of 16 and 20, suggesting the vulnerability of members of this age group (Breslau, 2009). Ethnicity and race also appears to be associated with anxiety symptoms following traumatic events, with

African-American participants reporting the highest rates of posttrauma anxiety (McGruder-Johnson, Davidson, Gleaves, Stock, & Finch, 2000).

At least four large epidemiological studies have been conducted to determine the prevalence of anxiety in the United States: The Epidemiological Catchment Area (ECA) Study, The National Comorbidity Study (NCS), the National Comorbidity Study-Revised (NCS-R), and the National Epidemiological Survey on Alcoholism and Related Conditions (NESARC; Kessler & Wang, 2008). The ECA study (1980-1984) indicated the lifetime and 12-month prevalence of anxiety disorders to be approximately 14.6% and 10.1%, respectively (Bourdon, Rae, Locke, Narrow, & Regier, 1992), whereas the NCS (1990-1992) indicated a lifetime rate of 24.9% and a 12-month prevalence rate of 17.2% (Kessler et al., 1994). The NCS-R (2001-2003) found similar results to the original NCS, with estimates of anxiety disorders at 28.8% (lifetime) and 18.1% (12-month prevalence) (Kessler & Wang, 2008).

The prevalence of anxiety disorders in college students parallels rates in the general population. According to a Spring 2012 report from the American College Health Association, 11.6% of 76,481 undergraduate students from 141 various educational institutions reported having been diagnosed or treated by a professional for anxiety in the last 12 months (American College Health Association, 2012). This represents substantial growth of diagnosed and/or treated anxiety on college campuses from the reported 6.7% in the year 2000, in a study that used 16,024 college students from 28 campuses (American College Health Association, 2000). A report provided by the National Alliance on Mental Illness (2012) found similar prevalence rates, with approximately 11% of enrolled undergraduate students self-identified with a primary diagnosis of anxiety; more broadly, in this same sample, 73% of participants indicated having

"experienced a mental health crisis while in college" (p. 17) that included panic and anxiety about school and life.

In keeping with the focus of this project, it is important to document the epidemiological manifestation of symptoms of anxiety at a subclinical or subthreshold level; such symptoms may not fulfill DSM diagnostic criteria with regard to severity or frequency but, nonetheless, contribute to significant distress and substantial impairment (Dozois & Westra, 2004; Rivas-Vazquez et al., 2004; Zinbarg et al., 1994). Few studies, however, have examined subclinical anxiety symptoms related to trauma in young-adult college students. In one study (n=440), the experience of trauma was associated with high, but nonclinical, levels of trait anxiety, as measured by the State-Trait Anxiety Inventory (STAI-T) (Vrana & Lauterbach, 1994). Findings from a second study indicate that college students (n = 234) manifest anxiety symptoms at differing rates of severity after exposure to trauma: 56% reported an absence of distress, 12% mild distress, 9% moderate severity, 15% marked severity, and 7% severe distress (Kirk & Dollar, 2002). Such findings suggest that not all anxiety-based reactions to trauma reach the level of clinical significance necessary to warrant a diagnosis. Yet, subthreshold symptoms are related to elevated risk for future diagnosis of psychopathology (Shankman et al., 2009) as well as poor quality of life (Rapaport et al., 2005).

In sum, high rates of anxiety and its symptoms exist in the U.S., have deleterious consequences, and, thus, warrant public health intervention. However, the success of prevention efforts depends on the identification of risk and protective factors associated with anxiety.

Etiology of Anxiety. Etiological models of anxiety vary considerably and posit a variety of contributors to anxiety including biological, environmental, and individual-level factors (Lang, Bradley & Cuthbert, 1998; Mineka & Zinbarg, 2006). Although some models are

exclusive in the factors that they propose lead to anxiety, increasingly, theories that integrate biological, psychological, and social factors are used to explain risk and protection from anxiety (Barlow, 2002; Craske, 1999; Mineka & Zinbarg, 2006). For instance, although some individuals may be more, or less, biologically-vulnerable to anxiety, symptoms are largely initiated by exogenous factors such as traumatic stress and maintained by affective states and cognitive schemas (Otto, Penava, Pollack, & Smoller, 1996).

Often viewed as a proxy for stress, anxiety symptoms may result from "fight-or-flight" reactions to traumatic life events; such an explanation relies on the combination of learning and biological paradigms, where behavioral and emotional conditioning occur, and lead to hyperarousal of the autonomic nervous system (Grillon, 2008). Other etiological models emphasize cognitive schemas, such that one's perception of controllability is considered critical in the process of analyzing and reacting to a stressful event, and requires the individual to react to trauma using a preexisting repertoire of coping strategies (Beck, 2005; Pretzer, Beck, & Newman, 1989). Given the potential interrelationships between contributing factors, the following paragraphs briefly review the primary theoretical positions on the development and maintenance of symptoms of anxiety.

Biological Risk Factors. Diverse biological influences, including genetic and neurobiological factors, are involved in the origins of people's anxieties, contributing to individual differences in the development, manifestation, and course of these disorders (Mineka & Zinbarg, 2006). As an example of heritability, findings from a child-based study of monozygotic twins having experienced an assaultive trauma, as compared to twins experiencing a nonassaultive trauma, suggest the presence of a moderate genetic risk for anxiety symptoms; genetic influence accounted for the majority of variance in PTSD symptoms (Stein et al., 2002).

Altered neuropsychological processing, such as increased release of stress hormones during fearful situations, may enhance the excitability of fear pathways, contributing to increased susceptibility to pathological anxiety. The effects of such changes may include activation of genes associated with vulnerability to anxiety (Vasey & Dadds, 2001). Further, studies of neurobiological correlates of anxiety have identified problematic hormonal and endocrine fluctuation such as dysregulation of the hypothalamic-pituitary-adrenal axis (Klaassens et al., 2012) and increased amygdala function in tandem with decreased functioning in brain areas associated with higher cognitive functioning (Rauch, Shin, & Wright, 2003) as risk factors for anxiety symptoms. Other physiological factors such as dysregulation of carbon dioxide inhalation have also been associated with increased anxiety symptoms (Woods, Charney, Goodman, & Heninger, 1988). Although important to acknowledge, and to consider for treatment purposes, investigation of biological contributors to symptoms of anxiety is beyond the scope of this project, which has a primary focus on environmental and individual-level risk and protective factors.

Environmental Risk Factors. Environmental influences on anxiety involve an individual's experience with external stimuli across the lifespan (Norris, 1992), including interpersonal relationships as well as stressful and potentially traumatic life events. On a day-to-day basis, situational factors that increase likelihood of being traumatized, such as living in close proximity to regions of high risk for natural disasters (e.g., earthquakes, tornadoes, hurricanes) or in areas of high crime rates and violence, also increase vulnerability to anxiety (Breslau, Troost, Bohnert, & Luo, 2013; Mohay & Forbes, 2009). Developmentally, and within the context of a stress-diathesis vulnerability model (McKeever & Huff, 2003), specific environmental components that may contribute etiological influence to anxiety symptoms include early control

experiences, parental responses to anxiety-provoking stimuli, and level of exposure to distressing stimuli (Vasey & Dadds, 2001).

Early control experiences are representative of the mastery skills a child obtains in early childhood, particularly experiences of autonomy. When children are unable to control significant aspects of their environment (e.g., accessibility to food) or prevented from doing so, anxiety may develop (Vasey & Dadds, 2001). Many life experiences, especially when traumatic, have this quality of lack of control, which lends itself to the development of anxiety symptoms. In contrast, having early, successful experiences of environmental control may reduce risk for anxiety (Chorpita, Brown, & Barlow, 1998).

Parental responses to stressful or traumatic stimuli, such as increased provision of attention when the child appears distressed, may also contribute to the development of child anxiety by modeling of anxious and avoidant behavior, overprotection, and inadvertent reinforcement of the child's anxious behavior (Dadds & Barrett, 2001). Yet, neither traumatic events nor parental responses necessarily result in anxiety, although this may be due to degree of controllability. When children have the opportunity to be exposed to challenging yet safe and controllable stimuli, they may both learn and use adaptive coping strategies that can buffer against anxiety symptoms, effectively "immunizing" children against the effects of later traumatic experiences (Poser & King, 1975). In addition to experience of acute traumatic stimuli, duration of exposure to unsafe and uncontrollable negative life events, including the hardships that often accompany low socioeconomic status, may result in maladaptive coping such as learned helplessness (Abramson, Seligman, & Teasdale, 1978; Herman, 1992), thereby heightening risk for symptoms of anxiety (Adler et al., 1994; Yu & Williams, 1999).

Individual-Level Cognitive-Emotional Risk and Protective Factors. Susceptibility to anxiety may also involve unique, individual-level characteristics such as personality traits (Farnam, Farhanga, Bakhshipourb, & Niknama, 2011; Spinhoven et al., 2011) and dysfunctional cognitions and beliefs (Bennett, Beck, & Clap, 2009; Ferreri, Lapp & Peretti, 2011), which independently may exacerbate the effects of trauma (Bonanno, Pat-Horenczyk, & Noll, 2011). According to the stress-buffering model, risk and protective factors can modify the impact of stress on development and maintenance of psychopathology including symptoms of anxiety (Spinhoven et al., 2011).

For example, neuroticism, which is defined as "a broad dimension of individual differences in the tendency to experience negative, distressing emotions and to possess associated behavioral and cognitive traits" (Costa & McCrae, 1987, p. 301), may predispose individuals to appraise ambiguous situations in a negative or threatening manner, making them more likely to perceive threats where others do not (Costa & McCrae, 1987; Schneider, 2004). Likewise, pessimism, or having a generally negative future orientation, and hopelessness, the perceived inability to envision and attain important personal goals, may contribute to feelings of anxiety (O'Connor & Cassidy, 2007). Such personality-based characteristics may result in the selection and implementation of maladaptive coping strategies such as denial, venting, and substance misuse (Billingsley, Waehler, & Hardin, 1993) and, in turn, poor mental health outcomes such as greater perceived stress and more symptoms of anxiety and depression (Bromberger & Matthews, 1996; Mroczek et al., 1993; Robinson-Whelen, Kim, MacCallum, & Kiecolt-Glaser, 1997).

In contrast, adaptive personal characteristics that may buffer against anxiety include agreeableness, conscientiousness, optimism, hopefulness, and self-compassion (Ahadi &

Rothbart, 1994; Neff, Kirkpatrick, & Rude, 2007; Scheier & Carver, 1992; Snyder, 2000), among others. Individuals who are optimistic or hopeful are able to envision a meaningful future existence and positive outcomes to goals (O'Connor & Cassidy, 2007), characteristics that may facilitate coping flexibility in response to trauma. As an example, optimistic individuals are more likely than pessimists to engage in adaptive coping, including attentional self-regulation strategies that protectively shift focus away from traumatic stimuli via positive reframing, humor, and use of religion (e.g., prayer and forgiveness) (Ahadi & Rothbart, 1994). Such coping approaches, including proclivity to have positive future expectancies and engage in motivational, goal-directed behaviors, may contribute to better psychological and physical well-being (Bonanno, 2004; Pargament, Smith, Koenig, & Perez, 1998; Scheier & Carver, 1992; Scheier et al., 1999).

Associations Between Trauma, Coping Strategies, and Anxiety Symptoms

Extensive research has noted the strong association between traumatic life events and negative mental health outcomes, specifically PTSD symptomology (Breslau, 2009). However, it is erroneous to assert that traumatic life events inevitably result in the manifestation of symptoms of PTSD, given the aforementioned lack of conclusive empirical evidence. Additionally, such a position assumes direct causation without consideration of possible moderators that may exacerbate or ameliorate risk. Often synonymous with the concept of stress, the act of coping - whether adaptive or maladaptive in nature - may exert a strong influence on the likelihood of development and maintenance of symptoms of anxiety (Carver & Scheier, 1994; Folkman et al., 1986), although less is known about how coping abilities or deficits impact subthreshold anxiety.

Coping Strategies. People respond to perceptions of threat, harm, and loss in diverse ways, many of which receive the label "coping" (Carver & Connor-Smith, 2010). Broadly,

coping is defined as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141). Coping styles are conceptualized as the general approach patterns that an individual uses to respond to stressful circumstances (Murberg, Bru, & Stephens, 2002) and include either (a) problem-focused coping oriented toward direct resolution of stressors or (b) emotion-focused coping meant to manage the negative affect related to the situation (Lazarus & Folkman, 1984). Another broad category of coping involves approach and avoidance coping, which are not mutually exclusive from problem-focused and emotion-focused coping strategies. Approach coping is similar to problem-focused coping in that an individual directly confronts the stressor and develops a means to remove or diminish the perceived danger. Although avoidance coping may be conceptualized as subsumed by the broader category of emotion-focused coping, it is operationalized as a negative or maladaptive reaction to a perceived stressor that, while it may temporarily provide a measure of relief, fails to remove or diminish the perceived danger (Lazarus & Folkman, 1986). Within these broad styles, even more specific coping strategies exist and, it must be noted that, when exposed to stressors, an individual rarely uses a single coping strategy in isolation but, rather, coping commonly involves use of multiple strategies (Carver, Scheier, & Weintraub, 1989).

For instance, McCrae's (1984) coping research emphasizes that the type of stressor experienced by an individual consequently influences the selection of specific coping strategies. Similar to McCrae's theoretical approach, Bonanno and colleagues (2011) take into account the variability in coping and adjustment demands across different stressor events, positing that resilience to trauma is fostered not by one particular type of coping response but, rather, by the ability to flexibly engage in diverse coping responses as needed across different types of

potentially traumatic events (Bonanno et al., 2011). As an example, McCrae (1984), using factor analytic procedures, derived 28 initial factors capturing unique strategies of coping, including fatalism, distraction, rational action, denial, avoidance, withdrawal, and wishful thinking. Similarly, Carver and colleagues (1989) identified 14 distinct forms of coping within a Multidimensional Coping Inventory (COPE) including strategies of active coping, planning, positive reframing, acceptance, humor, religion, emotional support, instrumental support, self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame; this classification system is used for the current study.

Coping Strategies and Anxiety. In response to anxiety-provoking situations individuals use their existing and available repertoire of coping behaviors; however, choice of coping strategy depends upon the individual, the situation, and an individual's previous history of coping strategies (Carver et al., 1989). For example, in the context of stressors, individuals with greater levels of anxiety often report an unwillingness or inability to engage in active coping, tend to use avoidance and denial strategies, and disengage from goals (Carver et al., 1989).

Intuitively, choice of coping strategy may differentially affect anxiety outcomes. For example, in a study of a community sample of adults (N=630) and adolescents (N=487), maladaptive cognitive coping strategies, such as self-blame, rumination, and catastrophizing were associated with reported anxiety symptoms (Garnefski et al., 2002). However, positive reappraisal, or "the tendency to try to attach a positive meaning to the event in terms of personal growth," is conceptualized as an adaptive coping strategy that is consistently negatively related to anxiety symptoms (Carver et al., 1989; Garnefski et al., 2002, p. 608).

It must also be noted that some forms of coping, such as instrumental and emotional coping, have the potential to manifest as adaptive or maladaptive, dependent on the context of

the stressful and potentially traumatic event. For instance, seeking social support via instrumental and/or emotional coping is associated with active coping and planning, which are adaptive approaches to stress, but also with venting of emotions, denial, and disengagement, which are maladaptive coping approaches (Carver et al., 1989). Such patterns suggest that the appropriateness and effectiveness of a particular coping strategy may depend somewhat on the interaction between contextual and individual factors.

Coping Strategies and Traumatic Life Events. Typically, traumatic situations are outside of individuals' usual experience and, thus, most individuals may be too overwhelmed to use coping skills available within their repertoire to effectively manage such events. Intensity of the stressor, uncontrollability of the traumatic event, and perceived appraisal of ability to successfully resolve the stressor, have a significant impact on the type of coping strategies selected and used. In fact, the overwhelming nature of trauma may impact judgment and decision-making capabilities (Kowalski-Trakofler, Vaught, & Scharf, 2003). For example, in response to the experience of severe traumas such as tornadoes (Ursano, Fullerton & McCaughey, 1994), concentration camps (Bettelheim, 1943; Frankl, 1946), nuclear blasts (Lifton, 1968), and combat (Solomon, Mikulincer, & Benbenishty, 1989) stereotypical reactionary behaviors may occur, including emotional numbing and cognitive impairment; in turn, such cognitive-emotional distress may result in difficulty choosing and implementing efficacious coping strategies that may be developed at least to some degree.

Further, the manner in which individuals attempt to cope with a traumatic event often differs from their preferred approach to a lesser or more-typical stressor (Aldwin, 1999). For example, individuals in traumatic situations may feel they have less control over their situation, as well as their cognitions and behaviors, and this may influence their choice of coping strategy.

The process of coping with trauma is also usually much more extended than is coping with stressful life events (Aldwin, 1999; Horowitz, 1986), requiring sustained efforts. Finally, "making meaning," which entails reappraisal or reinterpretation of not only the traumatic event but also the context of the event in a person's life (Aldwin, 1999; Frankl, 1946), is a strategy that has particular usefulness in traumatic situations, as opposed to more-typical stressors, because of its utility toward understanding and resolving the uncontrollability of an event. Despite the potential for differing responses to traumatic versus nontraumatic stress, individuals may adopt, generally, an adaptive versus maladaptive approach toward resolution of stressful life events (Tanner, Hunt, & Eppright, 1991).

Adaptive Coping versus Maladaptive Coping. In response to stressful and potentially traumatic life events, individuals may employ a variety of coping behaviors; however, not all approaches are equally effective. For instance, individuals may alternate between approaching and avoiding a stressor (Lazarus, 1983), perhaps resulting in application of a coping strategy that may be inappropriate for the situation and a deleterious outcome (Lazarus & Folkman, 1987). Ideally, coping behaviors serve to remove threat and/or lessen the fear associated with a threat. Coping responses that reduce the level of fear without reducing the danger are termed maladaptive coping responses (Rippetoe & Rogers, 1987). Conversely, adaptive coping responses are those that remove or lessen both fear and the danger of a threat, and lead to reduced anxiety and constructive, healthy psychosocial and physical outcomes for the individual (Giancola, Grawitch, & Borchert, 2009).

The likelihood that an individual will choose an adaptive versus maladaptive coping response is influenced greatly by one's past experience (Tanner et al., 1991) and by the result of a cognitive appraisal of the situation. The Appraisal Model of Coping, developed by Lazarus

and Folkman (1984), is a cognitive-relational theory of emotion and coping that delineates adaptive and maladaptive coping strategies based on an individual's rationale for the selection of a coping plan (Gage, 1992). Cognitive appraisal is the individual's perception of what is occurring in the environment and is conceptualized to include two interacting cognitive appraisal processes, primary and secondary, that determine the reaction of an individual to a stressor (Lazarus & Folkman, 1987). The primary appraisal process assesses whether the stressor could be harmful, while the secondary appraisal process involves a person's evaluation of whether anything can be done to overcome the stressor or prevent harm. Such evaluation includes awareness of one's physical, psychological, social, and material resources available to cope with the event (Lazarus & Folkman, 1986).

Importantly, even maladaptive coping strategies may be perceived to be beneficial in the short-term. For instance, if a selected coping strategy, such as avoidance or denial, is inefficient in resolving a traumatic stressor, yet is providing temporary relief from distress, then that maladaptive coping behavior has a greater likelihood of being reinforced and recurring (Littleton, Axsom, & Grills-Taquechel, 2011). To the extent that a maladaptive coping behavior is reinforced, it becomes more difficult for an individual to shift to more adaptive and effective forms of coping (Tanner et al., 1991). Of note, individuals may simultaneously employ multiple forms of coping and may attempt to resolve a stressor using both adaptive and maladaptive strategies; therefore, it is important to distinguish between these forms of coping as they relate to trauma and anxiety, discerning the independent contribution of each form of coping as well as their combined influence (Folkman, Lazarus, Gruen, & DeLongis, 1986; Rippetoe & Rogers, 1987).

Adaptive Coping and Anxiety. There are numerous types of adaptive coping, and these may be comprised of both emotion and problem-focused endeavors. For instance, positive reinterpretation or positive reframing is conceptualized as an adaptive, yet emotion-focused, coping effort, and involves the process of reframing a stressful event in positive terms, which may not only reduce perception of stress but may also encourage the use of additional problem-focused coping actions (Carver et al., 1989; Lazarus & Folkman, 1984). Similarly, seeking emotional social support, which is understood as "getting moral support, sympathy, or understanding" (Carver et al., 1989, p. 269), is also considered adaptive yet emotion-focused. Such an approach may provide reassurance when faced with a traumatic life event and may also allow venting of one's feelings. Finally, turning to religion or spirituality is a common method of adaptive, emotion-focused coping (Pargament, 1997; Park, 2005), which may allow individuals to transcend their stressors by "turning over" their difficulties to God or a higher power and, thereby, potentially promoting posttraumatic growth (Carver et al., 1989). It is important to note, however, that even seemingly-adaptive coping strategies may not always be pragmatic (Stanton, Danoff-Burg, Cameron, & Ellis, 1994); inefficiency of emotion-focused and avoidance strategies may occur more frequently in the absence of goal-setting and problem-solving strategies (Carver et al., 1989; Folkman, et al., 1986).

In contrast to emotion-focused strategies, there are also more-direct, problem-focused approaches that may be used in attempts to resolve perceived stressors. For example, active coping is the process of taking dynamic steps, including initiation and execution of direct action, to try to remove or circumvent a stressor or ameliorate the effects of anxiety (Carver et al., 1989). Likewise, planning, although not mutually exclusive from active coping, is a distinct form of coping comprising a series of problem-focused thought processes - including action

steps and strategies - targeting stressor resolution (Sniehotta, Schwarzer, Scholz, & Schuz, 2005). Seeking social support, particularly instrumental support, may also be an adaptive and problem-focused approach to resolution of stressors and is conceptualized as "seeking advice, assistance, or information" (Carver et al., 1989, p. 269); such engagement of others in stress-management efforts may assist the affected person in changing the situation, changing the meaning of the situation, or changing the emotional reaction to the situation (Thoits, 1986). Finally, the process of acceptance, although it may seem passive, is an active and adaptive process of acknowledging the reality of a stressful situation and may, consequently, promote engaged attempts to resolve the situation (Carver et al., 1989; Cook & Hayes, 2010). Acceptance is thought to directly involve the two components of the cognitive-appraisal process, including acceptance of a stressor as part of one's reality via primary appraisal and, perhaps, acceptance of a current lack of coping ability via the secondary appraisal process (Carver et al., 1989). Although acknowledging the existence of a problem, and one's own lack of resources to resolve the stressor, may seem problematic, such awareness – to someone with a tendency to employ adaptive coping strategies – may inform the crafting of a more efficient coping response (Roth & Cohen, 1986).

In general, the aforementioned adaptive coping strategies, among others, are associated with greater psychological well-being and better health outcomes across collegiate and clinical samples (Holahan, Holahan, Moos, & Brennan, 1995). For example, Carels (2004) found that greater action and acceptance coping were associated with better mental health status, including lower levels of depressive symptoms, in a sample of cardiac patients, and Carver et al. (1993) found the use of acceptance and humor resulted in less distress in a sample of breast cancer patients. In a collegiate sample, positive adjustment to college and less reported anxiety were

noted when adaptive coping strategies were used, including nonusage of avoidance coping, greater use of active coping, and greater seeking of social support via instrumental and emotion coping (Aspinwall & Taylor, 1992). Understandably, these adaptive coping techniques may not alleviate all forms of anxiety but have considerable applicability to models of trauma-based anxiety.

Adaptive Coping, Traumatic Life Events, and Anxiety. Adaptive coping behaviors are those that lead to productive, healthy psychosocial and physical outcomes for the individual (Giancola et al., 2009) and, in the context of traumatic life events, may serve as a protective buffer against negative consequences. Mechanistically, such adaptive behavior may foster adjustment to traumatic events via its effects on sustainment of motivational and goal-directed activities (Carver & Scheier, 2001). For example, positive reframing of a traumatic event may enable an individual to develop meaning from an otherwise difficult or uncontrollable circumstance, perhaps leading to the use of problem-focused coping strategies (Carver et al., 1989). The use of acceptance, through its linkage to controllability, may also facilitate adaptation to a traumatic stressor; even a limited perception of control, via acceptance of a situation, may minimize the impact of a stressor on the manifestation of anxiety (Alberts, Schneider, & Martijn, 2012). For example, in a sample of college students (N=500) exposed to continuous threat in a conflict zone, fewer PTSD symptoms were reported when acceptance coping was implemented (Nuttman-Shwartz & Dekel, 2009).

Finally, it is important to note that, under certain circumstances, an otherwise adaptive coping strategy may be implemented maladaptively or have deleterious consequences; use of religiousness and spirituality, seeking emotional and instrumental support, and self-distraction have the potential for such dual outcomes. For instance, belief in religious faith and God may

buffer stress, generally, and may alleviate feelings of hopelessness and helplessness in the context of negative and potentially traumatic life events (Gall et al., 2005), but may also involve a deferring style in which an individual waits for solutions from God rather than actively seeking to resolve one's own problems (Pargament et al., 1998). Individuals may also perceive their distress as a punishment from God for sin or wrong-doing, which may exacerbate anxiety via feelings of guilt or shame. In this regard, religious coping has been conceptualized as having both positive and negative forms (Pargament, 1997). Similarly, seeking emotional and instrumental support from others may be helpful during the process of coping with trauma; however, if practical assistance is ineffective or erroneous, or if emotional assistance promotes rumination, then these potentially adaptive interventions may result in harm.

Maladaptive Coping and Anxiety. In contrast to adaptive coping, maladaptive coping behaviors lead to destructive, unhealthy interpersonal, physical, and psychological outcomes (Giancola et al., 2009). In the context of stress and trauma, some maladaptive coping strategies - such as denial, distraction, or venting - may initially aid with adjustment; however, long term use of such maladaptive approaches may result in increased anxiety, depression, and hopelessness (Garnefski et al., 2002; Rippetoe & Rogers, 1987) as well as lower quality of life and mortality (Carver et al., 1993; Doering et al., 2004; Murberg et al., 2002). As examples, venting or expressing negative feelings may be cathartic, but long-term use of this strategy may distract an individual from focusing on or taking action to resolve the problem (Carver et al., 1989) and, similarly, use of avoidance and denial may temporarily distract from stressors but can also promote a paradoxical increase in intrusive thoughts about stressor stimuli and consequent negative mood and anxiety (Najmi & Wegner, 2008).

In general, however, use of maladaptive coping strategies is associated with poor physical and psychological health. For example, Murberg and colleagues (2002) found that behavioral disengagement and lack of acceptance were associated with increased mortality in cardiac patients. Similarly, Doering et al. (2004) found that cardiac patients who used avoidance coping were more likely to experience greater fatigue, anxiety, and depression, and use of denial and disengagement were related to greater distress in a sample of breast cancer patients, compared to patients who employed adaptive coping strategies (Carver et al., 1993). In sum, maladaptive coping does little to impact the source of a stressor and may contribute to increased psychological distress including anxiety (Littleton, Horsley, John, & Nelson, 2007).

Maladaptive Coping, Traumatic Life Events, and Anxiety. When examined in the context of traumatic life events, such maladaptive coping strategies appear to have similar deleterious effects, as illustrated by the following examples. In one study, of a sample of college students (N=500) exposed to continuous threat of rocket attacks in a conflict zone, maladaptive alcohol consumption contributed to increased stress responses (Nuttman-Shwartz & Dekel, 2009). In another study using female undergraduates (N=368) exposed to the mass shooting at Virginia Tech University, respondents who used maladaptive coping strategies (e.g., avoidance, withdrawal, wishful thinking, and rumination) reported greater psychological distress over time (Littleton et al., 2011).

Indeed, the experience of trauma may actually enhance the negative impact of a maladaptive coping strategy; for instance, in a recent meta-analysis, avoidant coping as opposed to approach coping emerged as a potential linkage of the association between traumatic experiences and psychological distress (Littleton et al., 2007). Similarly, following the terrorist attacks of September 11, 2001, a sample of college students who were only indirectly affected by

the event reported severe psychological dysfunction as a result of exposure to the attacks, and this distress was most pronounced for students who perseverated on the event and engaged in venting behaviors (Liverant, Hofmann, & Litz, 2004). Finally, characteristics of both the traumatic event, such as severity, and the individual, such as coping style, may interact to exacerbate reaction to the stressor and consequent anxious distress. In a study of 99 female, undergraduate childhood sexual abuse victims, severity of the traumatic abuse was associated with increased use of maladaptive avoidant coping that, in turn, was related to greater levels of anxiety symptoms (Fortier et al., 2009). In sum, most previous research indicates a deleterious outcome to the use of maladaptive coping efforts in response to a traumatic life event and, generally, individuals who manifest anxiety as a result tend to be inefficient and ineffective problem-solvers (Endler & Parker, 1990; Tremblay & King, 1994).

Statement of the Problem

Negative and potentially traumatic life events are generally associated with symptoms of anxiety including subthreshold manifestations of posttraumatic stress. However, not all individuals who experience trauma report symptoms of anxiety, perhaps due to adaptive, individual-level coping abilities; on the other hand, engagement in maladaptive coping approaches may exacerbate the relation between trauma and anxiety symptoms. The purpose of this study was to evaluate the association between traumatic life events and subclinical anxiety symptoms as impacted by the possible moderating effects of adaptive and maladaptive coping strategies. That we know of, no published research has investigated the potential differential moderating roles of adaptive versus maladaptive coping strategies on the association between trauma and subclinical anxiety symptoms.

Hypotheses

1. The collective cluster of variables from the B-COPE comprising an adaptive coping factor is expected to include self-distraction, active coping, seeking emotional and instrumental support, venting, positive reframing, planning, acceptance, humor, and religion.
2. The collective cluster of variables from the B-COPE comprising a maladaptive coping factor is expected to include denial, use of drugs and alcohol, self-blame, and behavioral disengagement.
3. Traumatic life events are expected to be significantly negatively associated with the adaptive coping factor and significantly positively associated the maladaptive coping cluster and anxiety symptoms.
4. The adaptive coping factor is expected to be significantly negatively associated with anxiety symptoms.
5. The maladaptive coping factor is expected to be significantly positively associated with anxiety symptoms.
6. The adaptive coping factor is expected to moderate the relationship between traumatic life events and anxiety symptoms, such that greater levels of adaptive coping will weaken the association between trauma and anxiety symptoms.
7. The maladaptive coping factor is expected to moderate the relationship between traumatic life events and anxiety symptoms, such that greater levels of maladaptive coping will exacerbate the association between the experience of trauma and anxiety symptoms.

8. Both the adaptive coping factor and the maladaptive coping factor, within a combined regression model, is expected to moderate the relationship between traumatic life events and anxiety symptoms. Such that greater levels of maladaptive coping will exacerbate the association between the experience of trauma and anxiety symptoms, and greater levels of adaptive coping will weaken the association between the experience of trauma and anxiety symptoms.

CHAPTER 2

METHOD

Procedures

The design of this study is cross-sectional and uses secondary data. The original study had Institutional Review Board approval, and participants were recruited from a rural, Southeastern university in the United States. Study questionnaires were administered via an online software system (SONA), which is used by the Department of Psychology to conduct research, solicit participation, and award course credit or extra credit course credit as compensation for participants' time. SONA is software used for working with human subjects, maintains all standard regulations (http://www.sona-systems.com/compliance.asp), and tracks credit-hours awarded to students for research participation. Participant identity is kept confidential by assignment of a random computer-generated tracking number; this number, while allowing communication, details of the student's participation, and a means of allocation of credit, does not reveal the identity of the participant to the researcher. Credits from online or in-person studies are placed into a participant's SONA Systems account using only the participant's identity number and participants have control over how to use said credits (applying them to particular courses). Instructors are only able to access reports of how many credits were earned by students in their class(es) and cannot see the particular studies in which a student may or may not have participated or participants' responses. When a participant withdraws from an online study on SONA Systems, none of the responses are saved or reported to the researchers. Thus, participants are offered maximum protection of their identity and data collected online are not linked to participant's identities. In courses where research participation is required, instructors

and/or the department also provide alternatives to actual involvement as a research participant (e.g., written assignments involving summarization of scientific journal articles).

Students who agreed to participate in the current study completed a series of questionnaires assessing mental health and coping strategies, among a broad array of other psychosocial variables; survey completion time was estimated at 45 to 60 minutes, and students were granted 2 SONA credits for participation. Data collection occurred in fall 2012 and spring 2013 semesters. The study was administered online; therefore, we were unable to obtain written informed consent and were granted an IRB-waiver to collect electronic informed consent. Data collection was preceded with a viewing of an abbreviated consent statement (See Appendix A). Participation in this study was voluntary, all responses are confidential, and there were no anticipated risks for participants. All participants were provided with contact information for campus, local, and national mental health resources, including the campus Counseling Center. Contact information for the Principal Investigator (Dr. Hirsch) and Co-Investigator (Alishia Foster), as well as for the IRB Coordinator, was also provided.

Measures

Demographic Questionnaire. A basic demographic survey was administered to determine age, sex, race, ethnicity, education level, and school enrollment status (e.g., class level, full or part-time student, or graduate and professional student). Sexual orientation, marital status, living situation, employment status, volunteer involvement, income, and health insurance coverage were also determined. Demographic variables were used for characterization of the sample and to serve as covariates, as needed (See Appendix B).

Trauma History Questionnaire. The Trauma History Questionnaire was administered to assess history of exposure to potentially traumatic events (THQ; Green, 1996; See Appendix C). The

instrument has 24 items (yes or no) assessing reported experiences of trauma, in three distinct categories: crime, general disaster and trauma, and sexual and physical assault. An example event of crime may include "*Has anyone ever tried to or succeeded in breaking into your home while you were there?*;" general disaster and trauma may be captured in the question, "*Have you ever had a spouse, romantic partner, or child die?*;" and, sexual and physical assault in the item, "*Has anyone, including family members or friends, ever attacked you without a weapon and seriously injured you?"* A total score for the THQ is available that captures the frequency and types of events that an individual has experienced. Subscale scores can also be derived: crime-related events (4 items), general disaster and traumatic experiences (13 items), and physical and sexual experiences (6 items). The THQ also includes one item for reporting a trauma not accounted for by the statements. The THS total score ranges from 0 to 24; higher scores indicate greater incidence of traumatic life events.

The THQ has been used successfully in college student samples. The initial psychometrics of the THQ were obtained from a pilot study of 423 college students who participated in a mail survey (Green, 1996; Hooper, Stockton, Krupnick, & Green, 2011). From this initial pilot survey study, a subsample of 25 college-age female trauma victims were redetermined after 2 to 3 months, to determine reliability of the measure. Results from this subsample demonstrated good test-retest reliability of responses (yes or no), with correlations ranging from .47 to 1.00 (mean = 0.70) (Green, 1996). Items with the lowest reliabilities pertained to general categories, including "other serious injury" and "other unwanted sex," both of which had correlations of .47 (Hooper et al., 2011).

Validity of the THQ has been assessed atypically in that traditional statistical methods (e.g., exploratory factor analysis, confirmatory factor analysis) to establish internal consistency

and construct validity are ill-suited. Hooper and colleagues (2011) state that "there are not strong reasons to hypothesize that people who experience one particular type of event would necessarily experience other specific events" (p. 267). Hence, internal consistency and construct validity are assessed via comparison of the THQ to a similar trauma inventory, the Stressful Life Events Screening Questionnaire (SLESQ; Goodman, Corcoran, Turner, Yuan, & Green, 1998). Comparison of six of the nine items generated Cohen's coefficients in the good to excellent range ($\kappa = .61$ to $\kappa = 1.00$). Concurrent validity of the THQ was also supported as it results in similar trauma prevalence rates as does the SLESQ (Goodman, et al., 1998). Regarding predictive and discriminant validity, those with higher trauma history scores are more likely to endorse greater anxiety, depression, and PTSD-related symptoms (Green, et al., 2000).

Brief Coping Inventory (B-COPE). Coping strategies were assessed using the Brief COPE scale (Carver, 1997; See Appendix D), which consists of 28 items grouped into 14 subscales. Example questions, representative of a few different subscales include: acceptance: "*I've been accepting the reality of the fact that it has happened*;" religion: "*I've been trying to find comfort in my religion or spiritual beliefs*;" venting: "*I've been expressing my negative feelings*;" and, substance use: "*I've been using alcohol or other drugs to make myself feel better*." Responses on a 4-point Likert scale, range from 1 = "*I haven't been doing this at all*" to 4 = "*I have been doing this a lot*."

Subscales include active coping, planning, positive reframing, acceptance, humor, religion, using emotional support, using instrumental support, self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame. These subscales demonstrate fair internal consistency (Cronbach's alpha), despite their brevity, with 11 of 14 subscales exceeding .60 and the remaining three (acceptance, denial, and venting) exceeding .50 (Carver, 1997).

While alphas .60 and below are not ideal, some researchers emphasize inter-item correlations as a more representative measure of reliability than Cronbach's alpha (Briggs & Cheek, 1986). For scales containing fewer than seven items, it is suggested that optimal mean inter-item correlations range between .2 and .4 (Briggs & Cheek, 1986). A previous study using the Brief COPE subscales reported inter-item correlations ranging from .2 to .85 (Parveen & Morrison, 2009).

Some previous studies have used factor analysis to further group the subscales into adaptive versus maladaptive categories in lieu of a formal scoring mechanism for doing so; the current study uses such a scoring approach (Bellizzi & Blank, 2006). In a study of breast cancer survivors, Brief COPE subscales were dichotomized into two broad groups, either adaptive or maladaptive (Bellizzi & Blank, 2006). Adaptive coping included the subscales of self-distraction, active coping, seeking emotional and instrumental support, venting, positive reframing, planning, acceptance, and religion, whereas maladaptive coping included the subscales of denial, use of drugs and alcohol, and behavioral disengagement. Adaptive coping explained 34% of the item variance, with factor loadings ranging from .558 to .831, and 14% of the item variance was explained by the maladaptive coping factor, with loadings ranging from .486 to .770.

A separate study of 125 caregivers providing aid to family members suffering from Alzheimer's disease also used factor analytic procedures, aggregating the Brief COPE subscales into three composite subscales: emotion-focused, problem-focused, and dysfunctional coping (Cooper, Katona, & Livingston, 2008). Results demonstrated acceptable internal consistency (α = 0.72 to 0.84) as well as test-retest reliability correlations over the course of a year ranging from r = 0.38 to r = 0.71 (Cooper et al., 2008).

Beck Anxiety Inventory. The Beck Anxiety Inventory is a 21-item, multiple-choice, self-report inventory that measures symptoms of anxiety in adults (ages 17 to 80), and is used in both clinical and research settings (BAI; Beck, Epstein, Brown & Steer, 1988; See Appendix E. Respondents report to what extent they have been bothered by each of the 21 symptoms in the previous week. Symptoms are rated on a 4-point scale with response choices ranging from 0 = "*Not at all;*" 1 = "*Mildly, didn't bother me much;*" 2 = "*Moderately, it was very unpleasant, but I could stand it*;" to 3 = "*Severely, I could barely stand it.*" Total score can range from 0 to 63 with higher scores indicating greater intensity and severity of anxiety symptoms.

The BAI has excellent internal consistency, with alphas ranging from $\alpha = .92$ to $\alpha = .94$, based on three normative samples of psychiatric outpatients (n=1,086), as well as high test–retest reliability correlation after one week ($r = .75$; Beck & Steer, 1990). A meta-analysis of 172 studies demonstrated an average Cronbach's coefficient alpha of .91, ranging from .83 to .95; test-retest reliability estimates ranged from .35 to .83 (mean = .66) across a seven to one hundred and twelve day time period (mean = 32.1 days) (De Ayala, Vonderharr-Carlson, & Kim, 2005). In a collegiate sample, internal consistency was good (Cronbach's alpha = .89) as was test-retest reliability (r =.62) over a time interval mean of 32 days; however, use of the BAI in nonpsychiatric samples, such as college students, may result in lower mean and median reliability estimates (De Ayala et al., 2005).

The BAI exhibits convergent and divergent validity, discriminating between anxiety and depression (Beck & Steer, 1990). Comparison to other measures of anxiety in adult, adolescent, and older psychiatric and community samples reveals moderate to strong correlations with the Hamilton Anxiety Rating Scale (HARS): $r = .51$; the State-Trait Anxiety Inventory: $r = .47$-$.58$; and, the Symptom Checklist 90- Revised: $r = .81$ (Beck & Steer, 1990).

Statistical Analyses

Prior to analyses a visual and statistical review of the data was conducted to detect potential missing or corrupt data as well as the presence of outliers. Recruitment for this study resulted in data from 915 participants, which allowed for compensation for missing or corrupt data.

Missing and Corrupt Data. Corruption of data may occur due to "test speededness," which refers to testing situations in which some examinees do not have ample time to answer all questions (Goegebeur, De Boeck, & Molenberghs, 2010) and, thus, hurry through, randomly guess, or omit responses. As data collection for the current study did not have a time limit, speededness effects are assumed to be self-imposed by the participant; therefore, surveys completed in less than 30 minutes, at a rate of approximately 1 item per 5 seconds or 12 items per minute, were omitted via listwise deletion (Van Ginkel, Sijtsma, van der Ark, & Vermunt, 2010).

Percentage of missing responses may necessitate imputation of data. Current empirical guidelines do not present a clear cutoff for imputation; however, our study uses only listwise deletion due to the large sample size and ability to maintain power with a reduced number of participant data included in analyses.

Linear and Multivariate Outliers. In an effort to discern and resolve normal distribution of variables, Mahalanobis distance values were calculated for all predictor variables within multivariate models. According to Barnett and Lewis (1978) values of the Mahalanobis distance statistic above 25 are cause for concern, even in large samples (N=500), and when there are five or more predictor variables. Based on this criterion, extreme outliers were removed from the dataset, after which most variables are expected to be normally distributed and correlations

between variables are anticipated to reveal expected linear trends. In the case of extreme skewness to zero of data, a transformation technique may be considered to normalize the distribution of the data, thereby allowing parametric analysis (Bradley, 1978). Of note, however, it was not expected that trauma and anxiety will be normally distributed in our sample, but that a positive skew will exist, indicating a relatively small subset of the sample to report high anxiety symptoms resulting from severe or cumulative traumas. Importantly, there is a precedent for leaving such variables untransformed (Dunlap, Chen, & Greer, 1994; Levine & Dunlap, 1983), due to the potential of biasing otherwise normally-distributed responses

Factor Analysis. To ascertain the appropriateness of classifying a coping strategy as either adaptive versus maladaptive (Bonanno et al., 2011), we classified coping strategies via factor analysis prior to use of scores in regression analyses. As designed, Brief COPE subscales comprise numerous adaptive, as well as maladaptive, potential coping strategies; factor analytic techniques were used to create higher order groupings of subscales. As specific coping strategies appear to vary in effectiveness as seen in the literature of coping, it appears appropriate to conduct an exploratory factor analysis on the 28 items (Field, 2009). The decision to cluster the 28 items into factors rather than maintain the original B-COPE 2-item subscales is based upon the need to conduct our analyses with strong reliability. Maintaining the 2-item subscales lends itself to poor reliability and enhances the probability of producing inconsistent findings in the future. The Kaiser-Meyer-Olkin measure was used to measure the sampling adequacy for the analysis, with KMO levels above .5 needed to be acceptable (Field, 2009). There is some precedent for this approach to clustering coping strategies (e.g., Bellizzi & Blank, 2006) and, thus, it is anticipated that the following factors will emerge: 1) adaptive coping, comprised of the subscales of self-distraction, humor, active coping, seeking emotional and instrumental support,

venting, positive reframing, planning, acceptance, and religion; and, 2) maladaptive coping, comprised of the subscales of denial, self-blame, use of drugs and alcohol, and behavioral disengagement.

Bivariate Correlations and Multicollinearity. To determine the associations between, and independence of, each study variable, Pearson's product-moment correlation coefficients were calculated for continuous variables and point-biserial correlations were calculated for dichotomous outcomes (Field, 2009). Multicollinearity was addressed following review of multicollinearity diagnostics, particularly the variance inflation factor (VIF) and tolerance. A VIF of 5 or 10 and above, and/or tolerance of less than 0.20 or 0.10 suggests problems with multicollinearity (O'Brien, 2007). Multicollinearity between variables, had it been significant, would have been resolved by the removal of one of the highly-related variables from consequent analyses. Further, this study used regression models with interaction terms, predictor and moderator variables centered to reduce multicollinearity (Aiken & West, 1991). Centering of the predictor variables and moderators involves the subtraction of the mean score from the original variables, resulting in a new variable with a mean of zero yet no change to the standard deviation.

Multivariable Hierarchical Linear Regressions. Multivariable, hierarchical linear regressions were used to explore the relationship of the predictor variable of history of self-reported traumatic life events to the outcome of symptoms of anxiety. Further, potential moderation was examined; we anticipated that the association between trauma and anxiety would be influenced differentially by the broader adaptive versus maladaptive coping factors gained from factor analysis of the Brief COPE. Moderation analyses were conducted in accordance with accepted guidelines (Baron & Kenny, 1986); covariates were entered on the first step of regression models

along with predictor variables, and interaction terms were entered on the second step (Field, 2009).

Because external variables have the ability to bias results, it is important to statistically control for potential confounding variables (Baron & Kenny, 1986). Three covariates were included in all regressions and moderation analyses: age, sex, and race and ethnicity, given their strong associations with the experience of traumatic life events (Breslau et al., 1998; Cohen & Roth, 1987; McGruder-Johnson et al., 2000). If these covariates demonstrate – in bivariate analysis – to be associated with key study variables, it will be important to identify and understand their impact upon further multivariable models.

CHAPTER 3

RESULTS

Descriptive Statistics

The initial sample was comprised of 915 college undergraduate students, but after accounting for speededness, missing data, and removing participants under the age of 18, the final sample was comprised of 611 students, 69.7% (n=426) of whom were female, and who ranged between 18 and 60 years of age (mean age = 21.48 years [SD = 6.760]). Participants' self-reported race and ethnicity was 84.8% White (n=518), 8.0% African American (n=49), 4.7% Hispanic or Latino (n=29), 1.3% Asian (n=8), .8% American Indian or Alaska Native (n=5), and .3% Native Hawaiian or other Pacific Islander (n=2).

Descriptive statistics were calculated for each variable and scale in the study (Table 1). The current sample reported a rate of traumatic life events similar to national and undergraduate samples (Breslau, 2009; Frazier et al., 2009; Green et al., 2000; Kirk & Dollar, 2002; Owens & Chard, 2006). Overall, 86.5% (n = 508) of respondents reported experiencing at least one traumatic life event. Of those individuals, 13.7% (n = 70) experienced one event, 15.9% (n = 81) two events, 12.0% (n = 61) three events, 9.0% (n = 46) four events, 9.6% (n = 49) five events, and 39.5% (n= 201) reported experiencing six or more events.

Scores on the Beck Anxiety Inventory for the current sample (Mean = 12.24, SD = 12.22), categorized as mild anxiety, were slightly higher than in previous collegiate studies; for example, M= 8.9 [SD= 9.2] (Adkins, Weathers, McDevitt-Murphy, & Daniels, 2008), and M= 7.30 [SD= 7.3; male] M= 10.38 [SD= 8.6; female] (Contreras et al., 2004). Given our factor analytic approach to developing coping subscales, direct comparison to coping scores in other study samples is not possible.

Table 1

Levels of Demographic, Predictor, and Criterion Variables for the Final Sample

Variable	Mean	Standard Deviation
Age	21.48	[6.76]
Traumatic Life Events	4.57	[4.00]
Anxiety Symptoms	12.24	[12.22]
Adaptive Coping Items	2.35	[0.70]
Maladaptive Coping Items	1.50	[0.53]

Note: Traumatic Life Events = Trauma History Questionnaire (THQ); Anxiety Symptoms = Beck Anxiety Inventory (BAI); Adaptive & Maladaptive Coping = Constructs developed following factor analysis of Brief COPE Inventory (B-COPE).

Factor Analysis

Our study included an exploratory factor analysis to discern the contributing items to broad adaptive and maladaptive coping factors; examination of the 28 B-COPE items revealed a Kaiser-Meyer-Olkin measure of sampling adequacy of .88, above the commonly recommended value of .6 (Kaiser, 1970). Additionally, a Bartlett's test of sphericity was significant ($\chi 2$ (378) = 8410.17, $p < .001$). Both the Kaiser-Meyer-Olkin measure and the Bartlett test of sphericity demonstrate that the items are appropriate for factor analysis, as the items within each individual factor are correlated with one another. A scree plot analysis was also conducted; a well-recognized method for evaluating the appropriateness and factorability of data (Jackson, 1993). Definitions for the scree plot included a dimension reduction factoring with an unrotated principal components analysis primarily to identify the point of inflection on the graph of extracted factors. The results of this scree plot examination identified at least two underlying factors (see Figure 1).

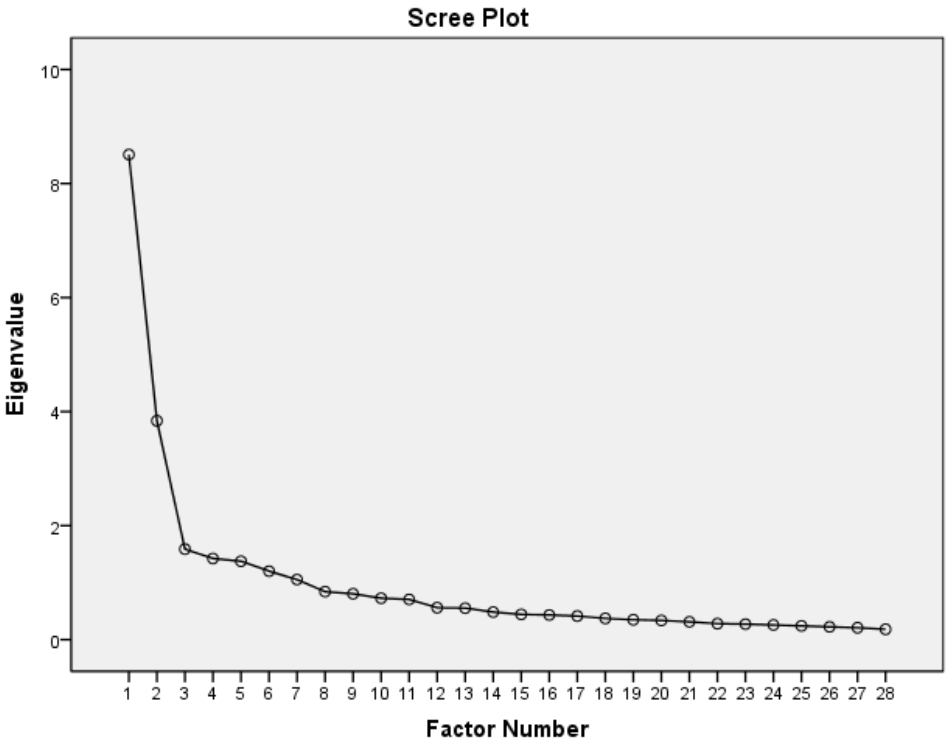

Figure 1. Scree Plot Depicts the Point of Inflection Prior to Factor Analysis.

It was observed that all 28 items demonstrated communality, as all items were above .3; suggesting common variance and appropriateness for factor analysis (see Table 2). Factor analysis was deemed to be appropriate with all 28 items following initial evaluation.

Table 2

Initial Communalities Based on Principal Axis Factor Analysis for 28 items from the Brief-COPE Inventory (B-COPE) (N=611)

I have been turning to work or other activities to take my mind off things	.40
I've been concentrating my efforts on doing something about the situation I'm in	.46
I've been saying to myself "this isn't real"	.51
I've been using alcohol or other drugs to make myself feel better	.66
I've been getting emotional support from others	.59
I've been giving up trying to deal with it	.46
I've been taking action to try to make the situation better	.56
I've been refusing to believe that it has happened	.46
I've been saying things to let my unpleasant feelings escape	.41
I've been getting help and advice from other people	.66
I've been using alcohol or other drugs to help me get through it	.64
I've been trying to see it in a different light, to make it seem more positive	.55
I've been criticizing myself	.56
I've been trying to come up with a strategy about what to do	.61
I've been getting comfort and understanding from someone	.69
I've been giving up the attempt to cope	.39
I've been looking for something good in what is happening	.56
I've been making jokes about it	.54
I've been doing something to think about it less, such as going to the movies, watching TV, reading, daydreaming, sleeping, or shopping	.43
I've been accepting the reality of the fact that it has happened	.53
I've been expressing my negative feelings	.43
I've been trying to find comfort in my religion or spiritual beliefs	.61
I've been trying to get advice or help from other people about what to do	.64
I've been learning to live with it	.53
I've been thinking hard about what steps to take	.61
I've been blaming myself for things that happened	.55
I've been praying or meditating	.59
I've been making fun of the situation	.51

Thus, to facilitate computation of composite scores for the factors underlying the Brief COPE Inventory, a principal axis factor analysis was used with a direct oblimin rotation. Because of the strong theoretical base of this project, a principal axis factor analysis was conducted seeking to measure the shared variance amongst the items, rather than a forced variable reduction technique (Suhr, 2009). The initial eigen values based on the first two factors explained 30% and 13% of the variance respectively. The third and fourth factors had eigen values just over one, and each explained 5% of the variance. Solutions for two and three factors were each examined using a direct oblimin rotation of the factor loading matrix. Cases were excluded via listwise deletion. The eigen values after rotation for the first two factors explained 28.39% and 11.49% of the variance respectively. The two-factor solution, which explained 39.89% of the variance, was preferred over the three-factor solution, which explained 43.91% of the variance. The decision to use the two-factor solution was based on the 'leveling off' of eigen values on the scree plot after two factors as well as the high rate of double loading items and difficulty interpreting the third factor.

Four items were eliminated because they double-loaded on both factors at .3 or above (See Table 3). The items "I have been turning to work or other activities to take my mind off things" of the self-distraction subscale, and "I've been saying things to let my unpleasant feelings escape" and "I've been expressing my negative feelings" of the venting subscale had factor loadings above .4; however, they double loaded on both Adaptive and Maladaptive Coping factors. "I've been making fun of the situation" of the humor subscale not only double loaded on both the Adaptive and Maladaptive Coping factors but also failed to meet the minimum criteria of .4 or higher on a primary loading factor.

The results of the exploratory factor analysis partially supported the first hypothesis; the collective cluster of items from the B-COPE comprising an adaptive coping factor included active coping, seeking emotional support, seeking instrumental support, positive reframing, planning, acceptance, and religion. However, the self-distraction and humor subscales only partially loaded within the adaptive coping factor (a single item each), with the remaining item of each subscale double loading. Venting loaded on both factors within the factor analysis. The factor analysis results also supported the second hypothesis; the collective cluster of items from the B-COPE comprising a maladaptive coping factor included denial, use of drugs and alcohol, self-blame, and behavioral disengagement.

Table 3

Factor Loadings Based on the Structure Matrix of a Principal Axis Factor Analysis with Direct Oblimin Rotation for 28 Items from the Brief-COPE Inventory (B-COPE) (N=611)

	Adaptive Coping	Maladaptive Coping
I have been turning to work or other activities to take my mind off things	.40	.45
I've been concentrating my efforts on doing something about the situation I'm in	.55	.23
I've been saying to myself "this isn't real"	.10	.59
I've been using alcohol or other drugs to make myself feel better	.03	.56
I've been getting emotional support from others	.65	.19
I've been giving up trying to deal with it	.13	.69
I've been taking action to try to make the situation better	.69	.07
I've been refusing to believe that it has happened	.09	.55
I've been saying things to let my unpleasant feelings escape	.46	.46
I've been getting help and advice from other people	.71	.17
I've been using alcohol or other drugs to help me get through it	.02	.52
I've been trying to see it in a different light, to make it seem more positive	.72	.11
I've been criticizing myself	.23	.65
I've been trying to come up with a strategy about what to do	.72	.22
I've been getting comfort and understanding from someone	.75	.12
I've been giving up the attempt to cope	.02	.58
I've been looking for something good in what is happening	.71	.00
I've been making jokes about it	.46	.22
I've been doing something to think about it less, such as going to the movies, watching TV, reading, daydreaming, sleeping, or shopping	.55	.35
I've been accepting the reality of the fact that it has happened	.67	.11
I've been expressing my negative feelings	.51	.45
I've been trying to find comfort in my religion or spiritual beliefs	.45	-.14
I've been trying to get advice or help from other people about what to do	.71	.11
I've been learning to live with it	.68	.15
I've been thinking hard about what steps to take	.71	.14
I've been blaming myself for things that happened	.27	.62
I've been praying or meditating	.40	-.16
I've been making fun of the situation	.35	.32

The decision to label the factors Adaptive Coping and Maladaptive Coping is supported by, and consistent with, previous research (Lazarus & Folkman, 1987; Zeidner & Saklofske, 1996). The Adaptive Coping factor contained the items of the subscales of active coping, seeking emotional support, seeking instrumental support, positive reframing, planning, acceptance, religion, humor, and self-distraction. The maladaptive coping factor contained the items of the subscales of denial, use of drugs and alcohol, self-blame, and behavioral disengagement. The internal consistency of factors, Adaptive Coping (N items = 16) and Maladaptive Coping (N items = 8), measured by Cronbach's alpha, was .915 and .823, respectively. Such alphas provide strong support for the reliability of the constructed factors, greatly exceeding the minimum alpha of .60 and falling within the good ($0.8 \leq \alpha < 0.9$) to excellent range ($\alpha \geq 0.9$) (Cronbach, 1951). Composite scores from the derived factors, Adaptive Coping and Maladaptive Coping, were created by summing the item scores (See Table 4); higher composite scores indicate higher use of the specific coping strategy.

Table 4

Descriptive Statistics for the Two Brief COPE Factors (N = 611)

	No. of Items	M	SD	Cronbach's α
Adaptive Coping Items	16	2.35	0.70	.915
Maladaptive Coping Items	8	1.50	0.53	.823

Bivariate Associations

An examination of Pearson's product moment correlations partially supported the third hypothesis that scores on the Trauma History Questionnaire (THQ) would be significantly positively associated with scores on the Beck Anxiety Inventory ($r = .43$, $p < .001$) and the

maladaptive coping cluster (r = .28, p < .001); however, traumatic life events was positively, rather than negatively, associated, with the adaptive coping factor (r = .20, p < .001). In partial support of the fourth hypothesis, the adaptive coping factor - comprising active coping, seeking emotional support, seeking instrumental support, positive reframing, planning, acceptance, and religion - was significantly positively associated with anxiety symptoms. However, the self-distraction and humor subscales of the Brief COPE were not fully associated with anxiety symptoms, as only a single item of each subscale was significantly associated; and the venting subscale was not significantly associated with anxiety symptoms. In support of the fifth hypothesis, the maladaptive coping factor – comprised of denial, use of drugs and alcohol, self-blame, and behavioral disengagement - was significantly positively associated with anxiety symptoms. Exploratory review of additional bivariate correlations revealed a small, yet significant, positive association between the adaptive coping factor and the maladaptive coping factor (r= .18, p<.001) (Cohen, 1988). Correlations are reported in Table 5.

Table 5

Pearson's Product Moment Correlations and Point-Biserial Correlations

	Age	Race/Ethnicity	Anxiety Symptoms	Traumatic Life Events	Adaptive Coping	Maladaptive Coping
Gender	.051	.060	-.206**	.015	-.084*	-.026
Age	-	.001	-.014	.335**	.121**	-.056
Race/Ethnicity	-	-	.027	-.030	.032	.033
Anxiety Symptoms	-	-	-	.433**	.163**	.596**
Traumatic Life Events	-	-	-	-	.202**	.284**
Adaptive Coping	-	-	-	-	-	.180**

Note: Traumatic Life Events = Trauma History Questionnaire (THQ); Anxiety Symptoms = Beck Anxiety Inventory (BAI); Adaptive Coping & Maladaptive Coping = subscales developed following factor analysis of Brief COPE Inventory (B-COPE); *p<.05; **p<.01

Moderation Analyses

Higher scores on the Trauma History Questionnaire were associated with greater levels of anxiety symptoms (standardized β = .54, p<.001). However, adaptive coping did not significantly moderate the relationship between traumatic life events and anxiety symptoms $F(1, 554)= .36$, p=.54, failing to support the sixth hypothesis. There was a near significant main effect for adaptive coping, associated with lower levels of anxiety symptoms (standardized β = .07, p=.058) (See Figure 2).

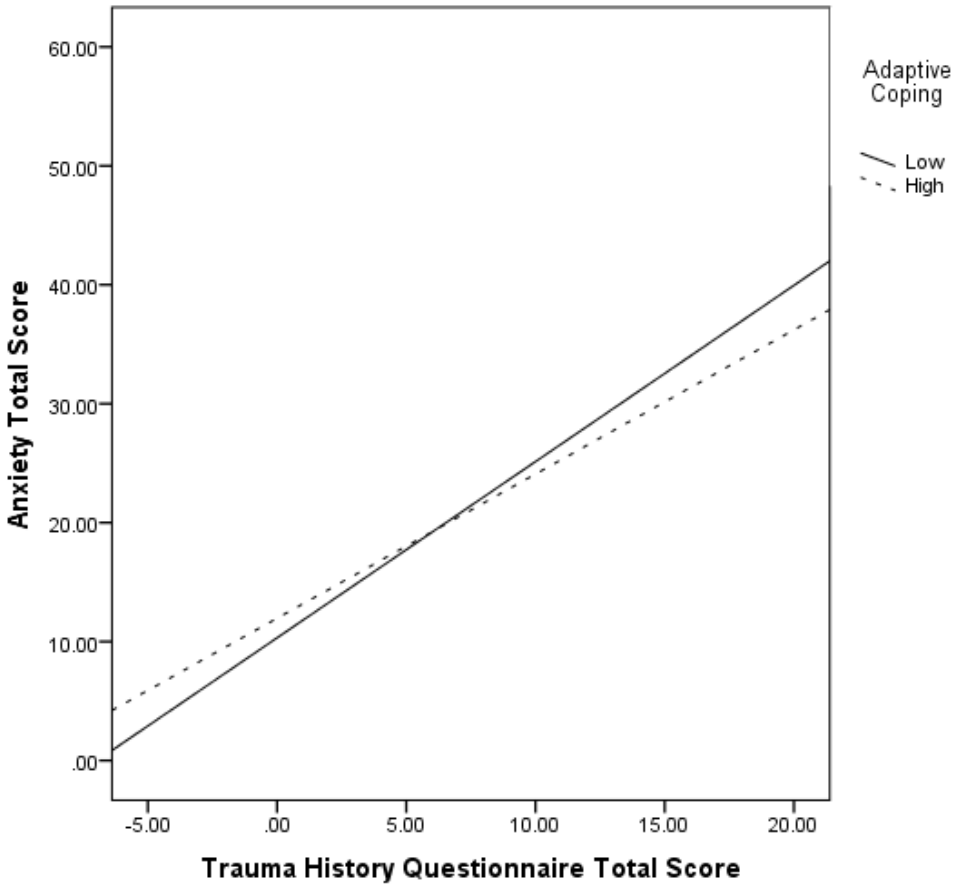

Figure 2. Adaptive Coping Moderates the Association Between Traumatic Life Events and Anxiety Symptoms.

On the other hand, maladaptive coping was a significant moderator of the trauma-anxiety association, $F(1, 556)= 4.64$, $p= .032$. The adjusted R-square value for the model was .475, indicating that the overall model accounts for 47.5% of the variance in anxiety symptoms. Those with higher levels of maladaptive coping have higher levels of anxiety symptoms in the context of traumatic life events, supporting the seventh hypothesis. There was also a main effect for maladaptive coping and traumatic life events, which was associated with higher levels of anxiety symptoms (standardized $\beta = .47$, $p< .001$) (See Figure 3).

Figure 3. Maladaptive Coping Moderates the Association Between Traumatic Life Events and Anxiety Symptoms.

In a combined model of adaptive and maladaptive coping, a higher frequency of traumatic life events was not significantly associated with greater levels of anxiety symptoms (standardized β = .178, p = .09); yet, the inclusion of the interaction terms did result in a significant R-square change, $F(3, 539)= 3.38$, p = .003. Adaptive coping did not significantly moderate the relationship between traumatic life events and anxiety symptoms (standardized β = .298, p = .087), failing to support a component of the eighth hypothesis; however, maladaptive coping was a significant moderator of this relationship (standardized β = .517, p=.016), supporting another component of the eighth hypothesis. A main effect was also found for maladaptive coping (standardized β = .395, p< .001), which was related to greater symptoms of anxiety. We also examined the three-way interaction between trauma and adaptive and maladaptive coping, which was not significant, (standardized β = .-.413, p = .066) (See Table 6), failing to support the eighth hypothesis.

Table 6

Traumatic Life Events, Adaptive Coping & Maladaptive Coping, and Anxiety Symptoms-Multivariate Linear Regression

Step 1	Unβ	SE	*p*-value	Stand. β
(Constant)	9.15	3.0	.003	
Gender	-4.82	.83	.000	-.18
Age	-.18	.06	.004	-.09
Race and Ethnicity	.39	.50	.427	.02
Traumatic Life Events	1.01	.10	.000	.33
Maladaptive Coping	1.40	.09	.000	.48
Adaptive Coping	.00	.03	.935	.00
Step 2				
(Constant)	8.69	3.55	.015	
Gender	-4.76	.83	.000	-.17

Table 6 (continued)

Age	-.17	.06	.008	-.09
Race and Ethnicity	.43	.50	.392	.02
Traumatic Life Events	.54	.32	.097	.17
Maladaptive Coping	1.32	.29	.000	.45
Adaptive Coping	.00	.07	.904	.00
Traumatic Life Events* Maladaptive Coping	.04	.02	.046	.14
Traumatic Life Events* Adaptive Coping	.00	.00	.779	.02
Adaptive Coping* Maladaptive Coping	.00	.01	.916	.01
Step 3				
(Constant)	9.47	3.57	.008	
Gender	-4.87	.83	.000	-.18
Age	-.17	.06	.007	-.09
Race and Ethnicity	.44	.50	.373	.02
Traumatic Life Events	-.16	.50	.742	-.05
Maladaptive Coping	1.14	.30	.000	.39
Adaptive Coping	-.01	.07	.794	-.01
Traumatic Life Events* Maladaptive Coping	.15	.06	.016	.51
Traumatic Life Events* Adaptive Coping	.03	.01	.087	.29
Adaptive Coping* Maladaptive Coping	.00	.01	.462	.09
Traumatic Life Events* Adaptive Coping* Maladaptive Coping	.00	.00	.066	-.41

Note. $R^2 = .436$ for Step 1: $\Delta R^2 = .004$ for Step 2 (ps < .05). * p < .05, ** p < .01, *** p < .001.

CHAPTER 4

DISCUSSION

Summary of Findings

To assess the impact of coping style on the association between the experience of traumatic life events and anxiety, first analyzed were the varied factors underlying adaptive and maladaptive coping via factor analysis. In partial support of the first hypothesis, the collective cluster of variables from the B-COPE comprising the adaptive coping factor included active coping, seeking emotional support, seeking instrumental support, positive reframing, planning, acceptance, and religion. This finding is consistent with previous research suggesting that these same characteristics appear to promote resilience in the context of traumatic life events (Carver et al., 1993; Nuttman-Shwartz & Dekel, 2009; Pargament, 1997). In support of the second hypothesis, the collective cluster of B-COPE variables comprising the maladaptive coping factor included denial, use of drugs and alcohol, self-blame, and behavioral disengagement. Again, the coping subtypes loading on this factor are supportive of previous research suggesting their contributions to deleterious psychological outcomes (Giancola et al., 2009; Littleton et al., 2011; McIntosh, Cameron, & Camp, 2003).

In bivariate analyses, there was a significant positive association between traumatic life events and anxiety symptoms and the maladaptive coping cluster, partially supporting the third hypothesis; however, somewhat unexpectedly, the adaptive coping factor was significantly positively, rather than negatively, associated with anxiety symptoms. This finding is inconsistent with previous research demonstrating that adaptive coping strategies are associated with less reported anxiety symptoms (Aspinwall & Taylor, 1992; Nuttman-Shwartz & Dekel, 2009). The maladaptive coping factor was significantly positively associated with anxiety symptoms,

supporting the fifth hypothesis. This finding is consistent with previous research demonstrating that maladaptive coping strategies are associated with greater likelihood of anxiety symptoms (Brougham, Zail, Mendoza, & Miller, 2009; Carver & Scheier, 1994; McIntosh et al., 2003).

In both independent and combined multivariable analyses, the adaptive coping factor was not a significant moderator of the relationship between traumatic life events and anxiety symptoms, failing to support the sixth hypothesis. In the independent analysis, however, there was a main effect for adaptive coping, which was related to fewer symptoms of anxiety ($p < .06$). On the other hand, in independent and combined analyses, maladaptive coping was a moderator of the relationship between traumatic life events and anxiety symptoms, such that greater levels of maladaptive coping strengthened the association between the experience of trauma and anxiety symptoms, supporting the seventh hypothesis.

Discussion of Factor Analytic Approach

Although a methodological and analytical procedure, the factor analysis of the Brief COPE subscales – which resulted in the derivation of two factors, adaptive and maladaptive coping – deserves mention. As previously noted, neither the COPE or Brief COPE offers a total coping score nor a means to aggregate coping strategies into larger composite coping scores; thus, with its large number of subscales, analyses are often numerous, and aggregate assessment of general coping approaches may be desirable. Indeed, previous researchers have also conducted factor analysis of the Brief COPE subscales, yielding similar results. For example, in a study of breast cancer survivors, Bellizzi and Blank (2006) identified a two-factor solution, which they labeled as adaptive versus maladaptive coping, whereas other studies have found a three-factor solution, of emotion-focused, problem-focused, and avoidant and dysfunctional

coping, in 125 familial Alzheimer's disease caregivers (Cooper et al., 2008) and in 349 undergraduate students (Eisenbarth, 2012).

Recognizing that the unique characteristics of the sample could influence item loading and consequent number of coping factors derived, effort was placed on clearly understanding and identifying the most appropriate coping composites; thus, we considered both a two-factor and three-factor model. Ultimately, the decision to use a two-factor rather than three-factor model was based on difficulty of interpretation of the third factor, including a high incidence of double-loading items (8 of 13 items).

Taxonomically, the decision to label the composite subscales as Adaptive Coping and Maladaptive Coping is supported by, and consistent with, previous research (Lazarus & Folkman, 1987; Zeidner & Saklofske, 1996). Further, the results parallel those of Bellizzi and Blank (2006), who found a two-factor solution explaining 34% of item variance for an adaptive coping cluster, with factor loadings ranging from .56 to .83. In the current study, the adaptive coping factor explained 30% of the item variance, with factor loads ranging from .40 to .72. Bellizi's maladaptive coping factor explained 14% of the item variance, with loadings ranging from .48 to .77, whereas the current maladaptive coping factor explained 13% of the item variance, with factor loadings from .52 to .69. Given the similarities between the two sets of findings for the factor analysis of the Brief COPE, we have confidence that this is a sufficiently valid approach to deriving overall adaptive and maladaptive subscales.

General Discussion

In the sample of college students maladaptive coping – but not adaptive coping – was a moderator of the association between the experience of trauma and symptoms of anxiety. Despite at least one similar finding in previous research (e.g., Littleton et al., 2007), the lack of

significance of adaptive coping as a moderator was unexpected and appears to contradict previous research indicating the effectiveness of adaptive coping strategies in the context of stressful life events (Giancola et al., 2009) and psychopathology (Carver et al., 1989), including anxiety (Alberts et al., 2012). For example, in a study of college students positive adjustment to college and lower anxiety were noted when adaptive coping strategies were used, including greater use of active coping and greater seeking of social support (Aspinwall & Taylor, 1992). Similarly, in a trauma-exposed sample of college students (N=500) fewer PTSD symptoms were reported when acceptance coping was implemented (Nuttman-Shwartz & Dekel, 2009). As such, the assumption was that a similar pattern would emerge in the current study; indeed, although not a moderator, adaptive coping was associated with both trauma and anxiety in the sample, albeit with less magnitude than maladaptive coping. Thus, the pattern of findings suggests that both adaptive and maladaptive coping may be activated when trauma is experienced, but that adaptive coping is less robustly related to poor outcomes than maladaptive coping.

As predicted, maladaptive coping was positively related to trauma and anxiety and was also a significant moderator of this association, supporting and extending previous research noting the use of maladaptive coping strategies in response to stressful and potentially-traumatic events. For example, in the aftermath of severe stress and trauma, greater use of maladaptive coping strategies, including alcohol use, avoidance, withdrawal, wishful thinking, and rumination, are frequently implemented (Littleton et al., 2011; Nuttman-Shwartz & Dekel, 2009). In a meta-analysis reviewing 39 studies of coping following traumatic life events, there was a "consistent association between reliance on avoidance strategies to cope with trauma and psychological distress" (Littleton et al., 2007; p. 985).

Intuitively, it is easy to understand how in the face of trauma resorting to use of some maladaptive coping strategies such as denying the trauma, engaging in distracting activities, and use of alcohol or drugs to alter mood may seem pragmatic or effective. What these strategies have in common, however, is their contribution to avoidance of a stressor (Lazarus, 1984). Avoidance, which involves an individual's reduction in the perceived level of fear without the reduction of danger associated with the stressor (Rippetoe & Rogers, 1987), may also extend to peripheral manifestations of the stressor, such as repetitive intrusive thoughts that are often associated with trauma (Miller et al., 1996; Tait & Silver, 1989). Thus, use of maladaptive coping strategies may be perpetuated beyond the point of reaction to the initial trauma, evolving into a conditioned response to intrusive thoughts or memories related to the trauma (Updegraff & Taylor, 2000). Further, according to past research, the deleterious association between intrusive thoughts and avoidance appears to exacerbate the relationship between trauma and mental health outcomes (Tait & Silver, 1989), including anxiety.

In the context of stressful life events, as individuals experience greater levels of anxiety, they are also more likely to report an unwillingness or inability to engage in active coping, opting instead to use avoidance and denial strategies, and to disengage from goals (Carver et al., 1989). This pattern of effects may be used to understand the potential cyclical interrelationship between trauma (Littleton et al., 2007), maladaptive coping and anxiety, but may also provide valuable insight into bidirectionality. For instance, individuals who consistently engage in maladaptive coping strategies increase their vulnerability to distress following trauma (LaLande & Bonanno, 2011; Vrana & Lauterbach, 1994) and, additionally, the heightened coping requirements necessitated by trauma may contribute to depletion of energy and resources a

person has to cope, increasing the likelihood that he or she will engage in maladaptive forms of coping, particularly avoidance (Snyder & Pulvers, 2001).

Limitations

In addition to the bidirectionality mentioned above, which could occur as a result of the cross-sectional study design, the findings must be considered in the context of other potential minor limitations. Although the sample size was large, it lacked diversity, being comprised of primarily White female college students; such homogeneity may limit generalizability of the findings. However, females and those in the young adult age group are at increased risk for the experience of a trauma as well as anxiety (Brougham et al., 2009); thus, the vulnerability of the sample makes it appropriate for study. Further, the use of self-report measures is less than ideal, however, attitudinal research often requires the use of self-report measures and we used well-established, reliable, and valid assessments of the study constructs. Despite the efforts to overcome these minor weaknesses, future prospective, longitudinal research is needed, using objective and biomarker assessment when possible, and involving diverse clinical and community samples, to substantiate and expand the findings.

Implications

Yet, despite these limitations, these findings may have implications for future research and clinical intervention. With regard to research, a better understanding is needed of the relative contributions of both adaptive and maladaptive coping – each has independent effects, but as they are likely always used simultaneously (Carver et al., 1989), their synergistic effects and competing use of energy and resources should be examined in greater detail (Snyder & Pulvers, 2001). As an example, it may be that – in the current study – the magnitude of the multivariable associations between trauma, maladaptive coping and anxiety somewhat

overwhelmed or "washed out" the otherwise beneficial effect of adaptive coping seen in bivariate analyses. Such an effect may also be an important clinical consideration, in that, despite best efforts toward adaptive coping, a traumatized individual may find such adaptive endeavors overshadowed, or offset, by the deleterious effects of maladaptive coping.

Although the link between trauma and anxiety is well-established, our study of college students who have experienced a lifetime trauma extends past research to include a nonclinical sample and subclinical symptoms of anxiety. Because many individuals who experience a trauma or develop anxiety do not seek treatment or receive a diagnosis (Gavrilovia, Schutzwohl, Fazel, & Priebe, 2005), it is important to investigate these characteristics as they exist in the general population or, in the case of our sample, in a group that is vulnerable to both trauma and anxiety. Additionally, early assessment and identification of threshold conditions may serve to minimize the impact of chronicity of symptoms of distress (Rivas-Vazquez et al., 2004).

The principal pattern of this study appears to emphasize the poor outcomes that maladaptive coping strategies contribute to, rather than the protective benefits potentially conferred by adaptive coping strategies. Thus, a clinical recommendation may be to therapeutically encourage diminishment of use of maladaptive forms of coping, with secondary promotion of use of adaptive coping strategies. Clinicians working with individuals who have experienced trauma may want to use therapeutic techniques from Cognitive Behavior Therapy (CBT), many of which are designed to enhance awareness of maladaptive thought and behavior patterns. By design, CBT is often implemented to increase awareness of erroneous thought patterns, also called cognitive distortions, and dysfunctional behaviors – through techniques such as thought logs and behavior monitoring (Beck, 1976; Burns, 1980; Persons, 2008). In essence, the CBT-based therapist aids the client in identifying, labeling, and creating a rational response

to negative automatic thoughts, particularly those occurring in moments of distress (Burns, 1980; Persons, 2008); importantly, success of such approaches may be predicated on the extent to which a client is able to apply in-session techniques to real-life situations. Additional cognitive behavioral techniques may include exposure events, either written, imagined, or in vivo, that aid the patient in using and building coping skills while exposed to a gradation of the stressor(s) (Foa & Kozak, 1986; Wolpe, 1958).

Although CBT appears effective in the treatment of anxiety symptoms following trauma, the substantial growth in psychosocial treatments over the last decade has led to wide consensus that specialized anxiety-based treatments may be better than generalist approaches or "treatment as usual" (Najavits, 2007; p. 513). Anxiety-specific treatments might include, for example: cognitive processing therapy, which has been used successfully with rape victims (CPT; Resick & Schnicke, 1996), imaginal flooding, used successfully with combat veterans (Cooper & Clum, 1989), and even self-help programs. For instance, in one study, traumatized college students (N=13) were enrolled in an internet-based, self-help program that involved psychoeducation, transition through a series of exposure events and instruction in coping skills (Hirai & Clum, 2005), resulting in a decrease in avoidance coping, fewer intrusive thoughts, and decreased subthreshold depressive and anxiety symptoms.

Conclusion

In closing, findings from the current study support and extend previous research on the association between traumatic life events and symptoms of anxiety (e.g., Bonanno et al., 2011; Galatzer-Levy et al., 2012; Littleton et al., 2011). Importantly, we examined subthreshold symptoms of anxiety presenting in a young-adult college student sample, an age and population group who are vulnerable to risk for trauma and anxiety. As in past research, we found a linkage

between trauma and anxiety symptoms; however, we also found that the deleterious effects of maladaptive coping appear to play a greater role in the manifestation of trauma-related anxiety than the potential protective effects of adaptive coping. Finally, an additional unique contribution of the current study is our factor analytic examination of the Brief COPE measure, as our findings provide additional clarification and support for the utility of overall subscale scores for this widely used measure.

It is important to note that the experience of trauma not only increases risk for symptoms of anxiety but also for other forms of psychological dysfunction including symptoms of depression, substance abuse, and general stress-related symptoms (Breslau, 2002; Daugherty, 1998; Green et al., 2000; Scarpa, 2001; Vrana & Lauterbach, 1994) as well as strained interpersonal relationships, economic instability, and poor quality of life (Greenhausa & Parasuramanb, 1987; Heerey & Kring, 2007; Rapaport et al., 2005). These findings are, thus, a first step toward understanding the role of adaptive versus maladaptive coping in the association between trauma and anxiety. Although additional prospective research is needed, individual-level and public health promotion of adaptive coping strategies, as well as interventions designed to ameliorate dependence on maladaptive coping, may be effective means of enhancing health-related quality of life, particularly psychological functioning, among persons who have experienced a traumatic life event.

REFERENCES

Abramson, L. Y., Seligman, M. E., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*(1), 49-74. doi: 10.1037/0021-843X.87.1.49

Adkins, J. W., Weathers, F. W., McDevitt-Murphy, M., & Daniels, J. B. (2008). Psychometric properties of seven self-report measures of posttraumatic stress disorder in college students with mixed civilian trauma exposure. *Journal of Anxiety Disorder, 22*, 1393-1402. doi: 10.1016/j.janxdis.2008.02.002

Adler, N. E., Boyce, T., Chesney, M. A., Cohen, S., Folkman, S., Kahn, R. L., & Syme, S. L. (1994). Socioeconomic status and health: The challenge of the gradient. *American Psychologist, 49*, 15-24. doi: 10.1037/0003-066X.49.1.15

Ahadi, S. A., & Rothbart, M. K. (1994). Temperament, development, and the big five. In C. F.Halverson, G. A. Kohnstamm, & R. P. Martin (Eds.), *The developing structure of temperament and personality from infancy to adulthood* (pp. 189-208). Hillsdale, NJ: Lawrence Erlbaum.

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage.

Alberts, H. J., Schneider, F., & Martijn, C. (2012). Dealing efficiently with emotions: Acceptance-based coping with negative emotions requires fewer resources than suppression. *Cognition & Emotion, 26*(5), 863-870. doi: 10.1080/02699931.2011.625402

Aldwin, C. M. (1999). *Stress, coping, and development: An integrative approach*. New York: Guilford.

American College Health Association. (2012). *American College Health Association-National College Health Assessment II: Reference Group Executive Summary Spring 2012.* Retrieved from http://www.acha-ncha.org/docs/ACHA-NCHA-II_ReferenceGroup_ExecutiveSummary_Spring2012.pdf.

American Psychiatric Association (2000; DSM-IV-TR). *Diagnostic and statistical manual of mental disorders (4th ed.).* Washington, DC: American Psychiatric Press.

Aspinwall, L. G., & Taylor, S. E. (1992). Modeling cognitive adaptation: A longitudinal investigation of the impact of individual differences and coping on college adjustment and performance. *Journal of Personality and Social Psychology, 63*(6), 989-1003. doi: 10.1037/0022-3514.63.6.989

Barlow, D. H. (1988). *Anxiety and its disorders: The nature and treatment of anxiety and panic*. New York: Guilford Press.

Barlow, D. H. (2002). *Anxiety and its disorders: The nature and treatment of anxiety and panic*. New York: Guilford Press.

Barnett, V., & Lewis, T. (1978). *Outliers in statistical data*. New York: John Wiley & Sons.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182. doi: 10.1037/0022-3514.51.6.1173

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. Oxford England: International Universities Press.

Beck, A. T., & Steer, R. A. (1990). *Manual for the Beck Anxiety Inventory*. San Antonio, TX: Psychological.

Beck, A. T., Emery, G., & Greenberg, R. L. (2005). *Anxiety disorders and phobias: A cognitive perspective*. Cambridge, MA: Basic Books.

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56*, 893–897. doi: 10.1037/0022-006X.56.6.893

Bellizzi, K., & Blank, T. (2006). Predicting posttraumatic growth in breast cancer survivors. *Health Psychology, 25*(1), 47-56. doi: 10.1037/0278-6133.25.1.47

Bennett, S. A., Beck, J. G., & Clapp, J. D. (2009). Understanding the relationship between posttraumatic stress disorder and trauma cognitions: The impact of thought control strategies. *Behavior Research and Therapy, 47*(12), 1018–1023. doi: 10.1016/j.brat.2009.07.015

Bernat, J. A., Ronfeldt, H. M., Calhoun, K. S., & Arias, I. (1998). Prevalence of traumatic events and peritraumatic predictors of posttraumatic stress symptoms in a nonclinical sample of college students. *Journal of Traumatic Stress, 11*(4), 645-664. doi: 10.1023/A:1024485130934

Bettelheim, B. (1943). Individual and mass behavior in extreme situations. *Journal of Abnormal Social Psychology, 38*(4), 417-452. doi: 10.1037/h0061208

Billingsley, K. D., Waehler, C. A., & Hardin, S. I. (1993). Stability of optimism and choice of coping strategy. *Perceptual and Motor Skills, 76*, 91-97. doi: 10.2466/pms.1993.76.1.91

Bonanno, G. A., Pat-Horenczyk, R., & Noll, J. (2011). Coping flexibility and trauma: the perceived ability to cope with trauma (PACT) scale. *Psychological Trauma: Theory, Research, Practice, and Policy, 3*(2), 117-129. doi: 10.1037/a0020921

Bourdon, K. H., Rae, D. S., Locke, B. Z., Narrow, W. E., & Regier, D. A. (1992). Estimating the prevalence of mental disorders in U.S. adults from the epidemiologic catchment area survey. *Public Health Reports, 107*(6), 663-668. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1403718/pdf/pubhealthrep00070-0057.pdf.

Bradley, J. V. (1978). Robustness? *British Journal of Mathematical and Statistical Psychology, 31*(2), 144-152. doi: 10.1111/j.2044-8317.1978.tb00581.x

Breslau, N. (2002). Epidemiological studies of trauma, posttraumatic stress disorder, and other psychiatric disorders. *Canadian Journal of Psychiatry, 47,* 923-929. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12553127.

Breslau, N. (2009). The epidemiology of trauma, PTSD, and other posttrauma disorders. *Trauma, Violence, & Abuse, 10*(3), 198-210. doi: 10.1177/1524838009334448.

Breslau, N., Kessler, R. C., Chilcoat, H. D., Schultz, L. R., Davis, G. C., & Andreski, P. (1998). Trauma and posttraumatic stress disorder in the community: The 1996 Detroit area survey of trauma. *Archives of General Psychiatry, 55*(7), 626-632. doi: 10.1001/archpsyc.55.7.626

Breslau, N., Troost, J. P., Bohnert, K., & Luo, Z. (2013). Influence of predispositions on post-traumatic stress disorder: Does it vary by trauma severity? *Psychological Medicine, 43*(2), 381-390. doi: 10.1017/S0033291712001195

Briggs, S. R., & Cheek, J. M. (1986). The role of factor analysis in the development and evaluation of personality scales. *Journal of Personality, 54*(1), 106-148. doi: 10.1111/j.1467-6494.1986.tb00391.x

Bromberger, J. T., & Matthews, K. A. (1996). A longitudinal study of the effects of pessimism, trait anxiety, and life stress on depressive symptoms in middle-aged women. *Psychology and Aging, 11*(2), 207-213. doi: 10.1037/0882-7974.11.2.207

Brougham, R. R., Zail, C. M., Mendoza, C. M., & Miller, J. R. (2009). Stress, sex differences, and coping strategies among college students. Current Psychology, 28(2), 85-97. doi: 10.1007/s12144-009-9047-0

Burns, D. D. (1980). *Feeling good: The new mood therapy*. New York, NY: Harper Collins Books.

Carels, R. A. (2004). The association between disease severity, functional status, depression and daily quality of life in congestive heart failure patients. *Quality of Life Research, 13*(1), 63-72. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/15058788.

Carver, C. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine, 4*(1), 92-100. doi: 10.1207/s15327558ijbm0401_6

Carver, C. S., & Connor-Smith, J. (2010). Personality and coping. *Annual Review of Psychology, 61*, 679-704. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/19572784.

Carver, C. S., & Scheier, M. F. (2001). Optimism, pessimism, and self-regulation. In E. C. Chang (Ed.), *Optimism and pessimism: Implications for theory, research, and practice* (pp. 31-51). Washington, DC: American Psychological Association.

Carver, C. S., & Scheier, M. F. (1994). Situational coping and coping dispositions in a stressful transaction. *Journal of Personality and Social Psychology, 66*(1), 184-195. doi: 10.1037/0022-3514.66.1.184

Carver, C., Scheier, M., & Weintraub, J. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56,* 267-283. doi: 10.1037/0022-3514.56.2.267

Carver, C.S., Pozo, C., Harris, S.D., Noriega, V., Scheier, M.F., Robinson, D. S., … Clark, K. C. (1993). How coping mediates the effect of optimism on distress: A study of women with early stage breast cancer. *Journal of Personality and Social Psychology, 65,* 375–390. doi: 10.1037/0022-3514.65.2.375

Chorpita, B. F., Brown, T. A., & Barlow, D. H. (1998). Perceived control as a mediator of family environment in etiological models of childhood anxiety. *Behavior Therapy, 29*(3), 457-476. doi: 10.1016/S0005-7894(98)80043-9

Clark, D. M. (1999). Anxiety disorders: why they persist and how to treat them. *Behavior Research and Therapy, 37,* 5-27. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10402694.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Cohen, L. J., & Roth, S. (1987). The psychological aftermath of rape: Long-term effects and individual differences in recovery. *Journal of Social and Clinical Psychology, 5*(4), 525-534. Retrieved from http://dx.doi.org/10.1521/jscp.1987.5.4.525.

Contreras, S., Fernandez, S., Malcarne, V. L., Ingram, R. E., & Vaccarino, V. R. (2004). Reliability and validity of the Beck Depression and Anxiety Inventories in Caucasian Americans and Latinos. *Hispanic Journal of Behavioral Sciences, 26*, 446-462. doi: 10.1177/0739986304269164

Cook, D., & Hayes, S. C. (2010). Acceptance-based coping and the psychological adjustment of Asian and Caucasian Americans. *International Journal of Behavioral Consultation and Therapy, 6*(3), 186-197. Retrieved from http://xa.yimg.com/kq/groups/9709744/2137336456/name/436+Cook+AAQ+and+Asian+IJBCT+2010.pdf.

Cooper, C., Katona, C., & Livingston, G. (2008). Validity and reliability of the Brief COPE in carers of people with dementia: The LASER-AD study. *The Journal of Nervous and Mental Disease, 196*(11), 838-843. doi: 10.1097/NMD.0b013e31818b504c

Cooper, N. A., & Clum, G. A. (1989). Imaginal flooding as a supplementary treatment for PTSD in combat veterans: A controlled study. *Behavior Therapy, 20*(3), 81-391. doi: 10.1016/S0005-7894(89)80057-7

Costa, P. T., & McCrae, R. R. (1987). Neuroticism, somatic complaints, and disease: Is the bark worse than the bite? *Journal of Personality, 55*(2), 299-316. doi: 10.1111/j.1467-6494.1987.tb00438.x

Craske, M. G. (1999). *Anxiety disorders: Psychological approaches to theory and treatment*. Boulder, CO: Westview Press.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297–334. doi: 10.1007/BF02310555

Dadds, M. R., & Barrett, P. M. (2001). Practitioner review: Psychological management of anxiety disorders in childhood. *Journal of Child Psychology and Psychiatry, 42*(8), 999-1011. doi: 10.1111/1469-7610.00798

Daugherty, T. K. (1998). Childhood trauma and current anxiety among college men. *Psychological Reports, 83*, 667-673. doi: 10.2466/pr0.1998.83.2.667

De Ayala, R. J., Vonderharr-Carlson, D. J., & Kim, D. (2005). Assessing the reliability of the Beck Anxiety Inventory scores. *Educational and Psychological Measurement, 65,* 742-756. doi: 10.1177/0013164405278557

Doering, L. V., Dracup, K., Caldwell, M. A., Moser, D. K., Erickson, V. S., Fonarow, G., & Hamilton, M. (2004). Is coping style linked to emotional states in heart failure patients? *Journal of Cardiac Failure, 10*(4), 344-349. doi: 10.1016/j.cardfail.2003.10.001

Dozois, D. J. A., & Westra, H. A. (2004). The nature of anxiety and depression: Implications for prevention. In D. J. A. Dozois & K. S. Dobson (Eds.), *The prevention of anxiety and depression: Theory, research, and practice* (pp. 9–41). Washington, DC: American Psychological Association. doi: 10.1037/10722-002

Dulmus, C.N., & Hilarski, C. (2003). When stress constitutes trauma and trauma constitutes crisis: The stress-trauma-crisis continuum. *Brief Treatment and Crisis Intervention, 3*(1), 27-35. Retrieved from http://btci.stanford.clockss.org/cgi/reprint/3/1/27.pdf.

Dunlap, W. P., Chen, R., & Greer, T. (1994). Skew reduces test-retest reliability. *Journal of Applied Psychology, 79,* 310-313. doi: 10.1037/0021-9010.79.2.310

Eisenbarth, C. (2012). Coping profiles and psychological distress: a cluster analysis. *North American Journal of Psychology, 14*(3), 485-496. Retrieved from http://www.freepatentsonline.com/article/North-American-Journal-Psychology/312401773.html.

Eisenberg, D., Gollust, S. E., Golberstein, E., & Hefner, J. L. (2007). Prevalence and correlates of depression, anxiety, and suicidality among university students. *American Journal of Orthopsychiatry, 77*(4), 534-542. doi: 10.1037/0002-9432.77.4.534

Endler, N. S., & Parker, J. D. (1990). Multidimensional assessment of coping: A critical evaluation. *Journal of Personality and Social Psychology, 58,* 844-854. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/2348372.

Farnama, A., Farhanga, S., Bakhshipourb, A., & Niknama, E. (2011). The five factor model of personality in mixed anxiety–depressive disorder and effect on therapeutic response. *Asian Journal of Psychiatry, 4,* 255–257. doi: 10.1016/j.ajp.2011.10.001

Feinstein, A., & Dolan, R. (1991). Predictors of posttraumatic stress disorder following physical trauma: An examination of the stressor criterion. *Psychological Medicine, 21,* 85-91. doi: 10.1017/S0033291700014689

Ferreri, F., Lapp, L. K., & Peretti, C. S. (2011). Current research on cognitive aspects of anxiety disorders. *Current Opinion in Psychiatry, 24,* 49-54. doi: 10.1097/YCO.0b013e32833f5585

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Thousand Oaks, CA: Sage.

Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychologial Bulletin, 99,* 20–35. doi: 10.1037/0033-2909.99.1.20

Folkman, S., & Moskowitz, J. T. (2004). Coping: pitfalls and promise. *Annual Review of Psychology, 55,* 745-774. doi: 10.1146/annurev.psych.55.090902.141456

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology, 50*(5), 992-1003. doi: 10.1037//0022-3514.50.5.992

Folkman, S., Lazarus, R. S., Gruen, R. J., & DeLongis, A. (1986). Appraisal, coping, health status, and psychological symptoms. *Journal of Personality and Social Psychology, 50,* 571-579. doi: 10.1037/0022-3514.50.3.571

Follette, V. M., Polusny, M., Bechtle, A. E., & Naugle, A. E. (1996). Cumulative trauma: The impact of child sexual abuse, adult sexual assault, and spouse abuse. *Journal of Traumatic Stress, 9,* 25-35. doi: 10.1007/BF02116831

Fortier, M. A., DiLillo, D., Messman-Moore, T. L., Peugh, J., DeNardi, K. A., Fortier, M. A., … Gaffey, K. J. (2009). Severity of child sexual abuse and revictimization: The mediating role of coping and trauma symptoms. *Psychology of Women Quarterly, 33*(3), 308-320. doi: 10.1111/j.1471-6402.2009.01503.x

Frankl, V. (1946). *Man's search for meaning.* Boston, MA: Beacon Press.

Frazier, P., Anders, S., Perera, S., Tomich, P., Tennen, H., Park, C., & Tashiro, T. (2009). Traumatic events among undergraduate students: Prevalence and associated symptoms. *Journal of Counseling Psychology, 56,* 450-460. doi: 10.1037/a0016412

Gage, M. (1992). The appraisal model of coping: An assessment and intervention model for occupational therapy. *The American Journal for Occupational Therapy, 46,* 353-362. doi: 10.5014/ajot.46.4.353

Galatzer-Levy, I. R., Burton, C. L., & Bonanno, G. A. (2012). Coping flexibility, potentially traumatic life events, and resilience: A prospective study of college student adjustment. *Journal of Social and Clinical Psychology, 31*(6), 542-567.

Gall, T. L., Charbonneau, C., Clarke, N. H., Grant, K., & Joseph, A., & Shouldice, L. (2005). Understanding the nature and role of spirituality in relation to coping and health: A

conceptual framework. *Canadian Psychology, 46*(2), 88-104. Retrieved from http://psycnet.apa.org/index.cfm?fa=buy.optionToBuy&id=2005-04336-004.

Garnefski, N., Van Den Kommer, T., Kraaij, V., Teerds, J., Legerstee, J., & Onstein, E. (2002). The relationship between cognitive emotion regulation strategies and emotional problems: comparison between a clinical and a non-clinical sample. *European Journal of Personality, 16*(5), 403-420. doi: 10.1002/per.458

Gavrilovic, J. J., Schutzwohl, M., Fazel, M., & Priebe, S. (2005). Who seeks treatment after a traumatic event and who does not? A review of findings on mental health service utilization. *Journal of Traumatic Stress, 18*(6), 595-605. doi: 10.1002/jts.20068

Giancola, J. K., Grawitch, M. J., & Borchert, D. (2009). Dealing with the stress for adult and continuing education of college: A model for adult students. *Adult Education Quarterly, 59*(3), 246-263. doi: 10.1177/0741713609331479

Goegebeur, Y., De Boeck, P., & Molenberghs, G. (2010). Person fit for test speededness: Normal curvatures, likelihood ratio tests and empirical Bayes estimates. *Methodology: European Journal of Research Methods for the Behavioral and Social Sciences, 6*(1), 3-16. Retrieved from http://ppw.kuleuven.be/okp/_pdf/Goegebeur2008PFFTS.pdf.

Goodman, L. A., Corcoran, C., Turner, K., Yuan, N., & Green, B. L. (1998). Assessing traumatic event exposure. General issues and preliminary findings for the Stressful Life Events Screening Questionnaire. *Journal of Traumatic Stress, 11*, 521-542. doi: 10.1023/A:1024456713321

Gray, M. J., & Lombardo, T. W. (2012). Advances in the conceptualization and treatment of trauma. *Behavior Modification, 36*(6), 755-758. doi: 10.1177/0145445512452201

Green, B. L. (1996). Psychometric review of Trauma History Questionnaire (Self-report). In B. H. Stamm & E. M. Varra (Eds.) *Measurement of stress, trauma and adaptation*. Lutherville, MD: Sidran.

Green, B. L., Goodman, L. A., Krupnick, J. L., Corcoran, C. B., Petty, R. M., Stockton, P., & Stern, N. M. (2000). Outcomes of single versus multiple trauma exposure in a screening sample. *International Society for Traumatic Stress Studies, 13*(2), 271-286. doi: 10.1023/A:1007758711939

Greenhausa, J. H., & Parasuramanb, S. (1987). A work-nonwork interactive perspective of stress and its consequences. *Journal of Organizational Behavior Management, 8*(2), 37-60. doi: 10.1300/J075v08n02_04

Grillon, C. (2008). Models and mechanisms of anxiety: Evidence from startle studies. *Psychopharmacology, 199*(3), 421-437. doi: 10.1007/s00213-007-1019-1

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). Canonical correlation analysis. Adapted from *Multivariate Data Analysis* (Ch. 8). Prentice Hall. Retrieved from http://www.education.umd.edu/EDMS/fac/Hancock/Course_Materials/EDMS771/readings/CanonicalCorrelationChapter.pdf.

Heerey, E. A., & Kring, A. M. (2007). Interpersonal consequences of social anxiety. *Journal of Abnormal Psychology, 116*(1), 125-134. doi: 10.1037/0021-843X.116.1.125

Helmchen, H., & Linden, M. (2000). Subthreshold disorders in psychiatry: Clinical reality, methodological artifact, and the double-threshold problem. *Comprehensive Psychiatry, 41*(Suppl. 1), 1–7. doi: 10.1016/S0010-440X(00)80001-2

Herman, J.L. (1992). Complex PTSD: A syndrome of survivors of prolonged and repeated trauma. *Journal of Traumatic Stress, 5*(3), 377-391. doi: 10.1002/jts.2490050305

Hirai, M. & Clum, G. A. (2005). An internet-based self-change program for traumatic event related fear, distress, and maladaptive coping. *Journal of Traumatic Stress, 18*(6), 631-636. doi: 10.1002/jts.20071

Hirsch, J.K., Walker, K.L., Chang, E.C., & Lyness, J.M. (2012). Illness burden and symptoms of anxiety in older adults: Optimism and pessimism as moderators. International Psychogeriatrics, 24(10), 1614-1621. doi:10.1017/S1041610212000762

Holahan, C., Holahan, C., Moos, R., & Brennan, P. (1995). Social support, coping, and depressive symptoms in a late middle-aged sample of patients reporting cardiac illness. *Health Psychology, 14*, 152-163. doi: 10.1037/0278-6133.14.2.152

Hooper, L., Stockton, P., Krupnick, J., & Green, B. (2011). Development, use, and psychometric properties of the Trauma History Questionnaire. *Journal of Loss and Trauma, 16*, 258-283. doi: 10.1080/15325024.2011.572035

Horowitz, M. J. (1986). *Stress and response syndrome (2nd ed*.). Northvale, NJ: Aronson.

Jackson, D. A. (1993). Stopping rules in principal components analysis: A comparison of heuristical and statistical approaches. *Ecology, 74*(8), 2204-2214. Retrieved from http://labs.eeb.utoronto.ca/jackson/ecology%2074.pdf.

Kaiser, H. F. (1970). A second generation little jiffy. *Psychometrika, 35*(4), 401-415. doi: 10.1007/BF02291817

Katon, W., & Roy-Byrne, P. (1991). Mixed anxiety and depression. *Journal of Abnormal Psychology, 100*, 337–345. doi: 10.1037/0021-843X.100.3.33

Kendall-Tackett, K. (2009). Psychological trauma and physical health: A psychoneuroimmunology approach to etiology of negative health effects and possible

interventions. *Psychological Trauma: Theory, Research, Practice, and Policy, 1*(1), 35-48. doi: 10.1037/a0015128

Kessler, R. C., & Wang, P. S. (2008). The descriptive epidemiology of commonly occurring mental disorders in the United States. *Annual Review of Public Health, 29*, 115-129. doi: 10.1146/annurev.publhealth.29.020907.090847

Kessler, R. C., Chiu, W. T., Demler, O., Merikangas, K. R., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*, 617-627. doi: 10.1177/1524838009334448

Kessler, R. C., McGonagle, K. A., Zhao S., Nelson, C. B., Hughes, M., Eshleman, S., … Kendler, K. S. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: Results from the national comorbidity survey. *Archives of General Psychiatry, 51*, 8-19. doi: 10.1001/archpsyc.1994.03950010008002

Kirk, A., & Dollar, S. C. (2002). Prevalence of traumatic events and PTSD symptomatology among a selected sample of undergraduate students. *Journal of Social Work in Disability & Rehabilitation, 1*, 53-65. doi: 10.1300/J198v01n01_06

Klaassens, E. R., Giltaya, E. J., Cuijpersb, P., van Veena, T., & Zitman, F. G. (2012). Adulthood trauma and HPA-axis functioning in healthy subjects and PTSD patients: A meta-analysis. *Psychoneuroendocrinology, 37*(3), 317–331. doi: 10.1016/j.psyneuen.2011.07.003

Koenig, H.G. (2001). Religion and medicine II: Religion, mental health, and related behaviors. *International Journal of Psychiatry in Medicine, 31*(1), 97-109. doi: 10.2190/BK1B-18TR-X1NN-36GG

Kowalski-Trakofler, K. M., Vaught, C., & Scharf, T. (2003). Judgment and decision making under stress: an overview for emergency managers. *International Journal of Emergency Management, 1*(3), 278-289. Retrieved from http://inderscience.metapress.com/content/pfhvmp7ecjrtvmle/.

Kreitler, S., & Kreitler, H. (1988). Trauma and anxiety: The cognitive approach. *Journal of Traumatic Stress, 1,* 35-56. doi: 10.1002/jts.2490010105

Lalande, K. M., & Bonanno, G. A. (2011). Retrospective memory bias for the frequency of potentially traumatic events: A prospective study. *Psychological Trauma: Theory, Research, Practice, and Policy, 3,* 165–170. doi: 10.1037/a0020847

Lang, P. L., Bradley, M. M., & Cuthbert, B. N. (1998). Emotion, motivation, and anxiety: Brain mechanisms and psychophysiology. *Society of Biological Psychiatry,* 44, 1248-1263. doi: 10.1016/S0006-3223(98)00275-3

Laugharne, J., Lillee, A., & Janca, A. (2010). Role of psychological trauma in the cause and treatment of anxiety and depressive disorders. *Current Opinion in Psychiatry, 23,* 25-29. doi: 10.1097/YCO.0b013e3283345dc5

Lauterbach, D., & Vrana, S. (2001). The relationship among personality variables, exposure to traumatic events, and severity of posttraumatic stress symptoms. *Journal of Traumatic Stress, 14,* 29–45. doi: 10.1023/A:1007831430706

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York: Springer.

Lazarus, R. S. (1983). The costs and benefits of denial. In S. Breznitz (Ed.), *The denial of stress* (pp. 1-30). New York: International Universities Press.

Lazarus, R. S., & Folkman, S. (1986). Cognitive theories of stress and the issue of circularity. In M H Appley and R Trumbull (Eds), (1986). *Dynamics of stress. physiological, psychological, and social perspectives* (pp. 63–80). New York: Plenum.

Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality, 1*, 141-169. doi: 10.1002/per.2410010304

Levine, D. W., & Dunlap, W. P. (1983). Data transformation, power, and skew: A rejoinder to Games. *Psychological Bulletin, 93*(3), 596-599. doi: 10.1037/0033-2909.93.3.596

Lifton, R. (1968). *Death in life: Survivors of Hiroshima*. New York: Random House.

Littleton, H., Axsom, D., & Grills-Taquechel, A. E. (2011). Longitudinal evaluation of the relationship between maladaptive trauma coping and distress: examination following the mass shooting at Virginia Tech. *Anxiety, Stress, & Coping: An International Journal, 24*(3), 273-290. doi: 10.1080/10615806.2010.500722

Littleton, H., Horsley, S., John, S., & Nelson, D. V. (2007). Trauma coping strategies and psychological distress: A meta-analysis. *Journal of Traumatic Stress, 20*(6), 977-988. doi: 10.1002/jts.20276

Liverant, G. I., Hofmann, G., & Litz, B. T. (2004). Coping and anxiety in college students after the September 11th terrorist attacks. *Anxiety, Stress & Coping: An International Journal, 17*(2), 127-139. doi: 10.1080/0003379042000221412

McFarlane, A. C. (2000). Posttraumatic stress disorder: A model of the longitudinal course and the role of the risk factors. *Journal of Clinical Psychiatry, 61*(5), 15-23. Retrieved from http://psycnet.apa.org/psycinfo/2000-15312-002.

McGruder-Johnson, A. K., Davidson, E. S., Gleaves, D. H., Stock, W., & Finch, J. F. (2000). Interpersonal violence and posttraumatic symptomatology: The effects of ethnicity,

gender, and exposure to violent events. *Journal of Interpersonal Violence, 15*(2), 205-221. doi: 10.1177/088626000015002006

McIntosh, A., Cameron, E., & Camp, L. L. (2003). A national trauma: Coping strategies and positive growth in college students. *Psi Chi Journal of Undergraduate Research, 8*(3), 108-115. Retrieved from http://homepage.psy.utexas.edu/HomePage/Class/Psy359H/Echols/Psi%20Chi%20Articles/2003%20Vol%208/2003%20Vol%208%20%233/McIntosh.pdf.

McKeever, V. M., & Huff, M. E. (2003). A diathesis–stress model of posttraumatic stress disorder: Ecological, biological, and residual stress pathways. *Review of General Psychology, 7*(3), 237-250. doi: 10.1037/1089-2680.7.3.237

Miller, S. M., Rodoletz, M., Schroeder, C. M., Mangan, C. E., & Sedlacek, T. V. (1996). Applications of the monitoring process model to coping with severe long-term medical threats. *Health Psychology, 15*, 216-225. doi: 10.1037/0278-6133.15.3.216

Mineka, S., & Zinbarg, R. (2006). A contemporary learning theory perspective on the etiology of anxiety disorders: It's not what you thought it was. *American Psychologist, 61*(1), 10-26. doi: 10.1037/0003-066X.61.1.10

Mohay, H., & Forbes, N. (2009). Reducing the risk of posttraumatic stress disorder in children following natural disasters. *Australian Journal of Guidance and Counseling, 19*(2), 179-195. doi: 10.1375/ajgc.19.2.179

Mol, S., Arntz, A., Metsemakers, J., Dinant, G., Vilters-Van Montfort, P. & Knottnerus, J. A. (2005). Symptoms of posttraumatic stress disorder after nontraumatic events: evidence from an open population study. *British Journal of Psychiatry, 186*, 494-499. doi: 10.1192/bjp.186.6.494

Morrison, A. P., Frame, L., & Larkin, W. (2003). Relationships between trauma and psychosis: a review and integration. *British Journal of Clinical Psychology, 42*, 331-353. Retrieved from http://sygdoms.com/pdf/trauma/7.pdf.

Mroczek, D. K., Spiro, A., Aldwin, C. M., Ozer, D. J., & Bossé , R. (1993). Construct validation of optimism and pessimism in older men: Findings from the normative aging study. *Health Psychology, 12*(5), 406-409. doi: 10.1037/0278-6133.12.5.406

Murberg, T. A., Bru, E., & Stephens, P. (2002). Personality and coping among congestive heart failure patients. *Personality and Individual Differences, 32*, 775–784. doi: 10.1016/S0191-8869(01)00081-2

Najavits, L. M. (2007). Psychosocial treatments for posttraumatic stress disorder. In P. E. Nathan and J. M. Gorman (Eds.), *A guide to treatments that work* (pp. 513-530). New York, NY: Oxford University Press.

Najmi, S., & Wegner, D. M. (2008). Thought suppression and psychopathology. In A. Elliott (Ed.), *Handbook of approach and avoidance motivation*, (pp. 447–459). Mahwah, NJ: Erlbaum.

National Alliance on Mental Illness. (2012). *College students speak: Survey report on mental health*. Retrieved from www.nami.org/collegereport.

Neff, K. D., Kirkpatrick, K. L., & Rude, S. S. (2007). Self-compassion and adaptive psychological functioning. *Journal of Research in Personality, 41*(1), 139-154. doi: 10.1016/j.jrp.2006.03.004

Norris, F. H. (1992). Epidemiology of trauma: Frequency and impact of different potentially traumatic events on different demographic groups. *Journal of Consulting and Clinical Psychology, 60(3*), 409-418. doi: 10.1037/0022-006X.60.3.409

Norris, F. H., & Murrell, S. (1988). Prior experience as a moderator of disaster impact on anxiety symptoms in older adults. *Journal of Health and Social Behavior, 28,* 197-211. doi: 10.1007/BF00930020

Nuttman-Shwartz, O., & Dekel, R. (2009). Ways of coping and sense of belonging in the face of a continuous threat. *Journal of Traumatic Stress, 22*(6), 667-670. doi: 10.1002/jts.20463

O'Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity, 41*(5), 673-690. doi:10.1007/s11135-006-9018-6

O'Connor, R. C., & Cassidy, C. (2007). Predicting hopelessness: The interaction between optimism/pessimism and specific future expectancies. *Cognition and Emotion, 21,* 596-613. Retrieved from https://dspace.stir.ac.uk/bitstream/1893/700/1/OConnorCassidy.

Otto, M. W., Penava, S. J., Pollack, R. A., & Smoller, J. W. (1996). Cognitive behavioral and pharmacologic perspectives on the treatment of posttraumatic stress disorder. In M. H. Pollack, M. W. Otto, & J. F. Rosenbaum (Eds.), *Challenges in clinical practice: Pharmacologic and psychosocial strategies* (pp. 219-236). New York: Guilford.

Owens, G. P., & Chard, K. M. (2006). PTSD severity and cognitive reactions to trauma among a college sample. *Journal of Aggression, Maltreatment & Trauma, 13*(2), 23-36. doi: 10.1300/J146v13n02_02

Pargament, K. I. (1997). *The psychology of religion and coping: Theory, research, practice.* New York: The Guilford Press.

Pargament, K., Smith, B., Koenig, H., & Perez L. (1998). Patterns of positive and negative religious coping with major life stressors. *Journal for the Scientific Study of Religion, 37*(4), 710-724. Retrieved from http://www.jstor.org/stable/1388152.

Park, C. L. (2005). Religion and meaning. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (pp. 295-314). New York: The Guilford Press.

Parveen, S., & Morrison, V. (2009). Predictors of fatalism in the caregiver role: A pilot study. *Journal of Health Psychology, 14*(8), 1135-1143. doi: 10.1177/1359105309343020

Persons, J. B. (2008). *The case formulation approach to cognitive-behavior therapy*. New York, NY: Guilford Press.

Poser, E. G., & King, M. C. (1975). Strategies for the prevention of maladaptive fear responses. *Canadian Journal of Behavioural Science, 7*(4), 279-294. doi: 10.1037/h0081915

Pretzer, J. L., Beck, A. T., & Newman, C. F. (1989). Stress and stress management: A cognitive view. *Journal of Cognitive Psychotherapy, 3*(3), 163-179. Retrieved from http://www.ingentaconnect.com/content/springer/jcogp/1989/00000003/00000003/art00001.

Rapaport, M. H., Clary, C., Fayyad, R., & Endicott, J. (2005). Quality-of-life impairment in depressive and anxiety disorders. *American Journal of Psychiatry, 162*, 1171-1178. doi: 10.1176/appi.ajp.162.6.1171

Rauch, S. L., Shin, L. M., & Wright, C. I. (2003). Neuroimaging studies of amygdala function in anxiety disorders. *Annals New York Academy of Science, 985*, 389-410. doi: 10.1111/j.1749-6632.2003.tb07096.x

Read, J.P., Ouimette, P., White, J., Colder, C., & Farrow, S. (2011). Rates of DSM-IV-TR trauma exposure and posttraumatic stress disorder among newly matriculated college students. *Psychological Trauma: Theory, Research Practice, and Policy, 3*(2), 148-156. doi:10.1037/a0021260

Resick, P. A., & Schnicke, M. K. (1996). *Cognitive processing therapy for rape victims: A treatment manual*. Newbury Park, CA: Sage.

Rippetoe, P. A., & Rogers, R. W. (1987). Effects of components of protection-motivation theory on adaptive and maladaptive coping with a health threat. *Journal of Personality and Social Psychology, 52*(3), 596-604. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/3572727.

Rivas-Vazquez, R. A., Saffa-Biller, D., Ruiz, I., Blais, M. A., & Rivas-Vazquez, A. (2004). Current issues in anxiety and depression: Comorbid, mixed, and subthreshold disorders. *Professional Psychology: Research & Practice, 35*, 74–83. doi: 10.1037/0735-7028.35.1.74

Robinson-Whelen, S., Kim, C., MacCallum, R. C., & Kiecolt-Glaser, J. K. (1997). Distinguishing optimism from pessimism in older adults: Is it more important to be optimistic or not to be pessimistic? *Journal of Personality and Social Psychology, 73*(6), 1345-1353. doi: 10.1037/0022-3514.73.6.1345

Rosen, G.M., & Lilienfeld, S.O. (2007). Posttraummatic stress disorder: An empirical evaluation of core assumptions. *Clinical Psychology Review, 28*, 837-868. doi: 10.1016/j.cpr.2007.12.002

Roth, S., & Cohen, L. J. (1986). Approach, avoidance, and coping with stress. *American Psychologist, 41*(7), 813-819. doi: 10.1037/0003-066X.41.7.813

Sareen, J., Jacobi, F., Cox, B. J., Belik, S. L., Clara, I., & Stein, M. B. (2006). Disability and poor quality of life associated with comorbid anxiety disorders and physical conditions. *Archives of Internal Medicine, 166*(19), 2109-2116. doi:10.1001/archinte.166.19.2109

Scarpa, A. (2001). Community Violence exposure in a young adult sample: Lifetime prevalence and socioemotional effects. *Journal of Interpersonal Violence, 16,* 36-53. doi: 10.1177/088626001016001003

Scheier, M. F., & Carver, C. S. (1992). Effects of optimism on psychological and physical well-being: Theoretical overview and empirical update. *Cognitive Therapy and Research, 16*, 201–228. doi: 10.1007/BF01173489

Scheier, M. F., Matthews, K. A., Owens, J. F., Schulz, R., Bridges, M. W., Magovern, G.J., & Carver, C. S. (1999). Optimism and rehospitalization after coronary artery bypass graft surgery. *Archives of Internal Medicine, 159,* 829–835. Retrieved from http://www.ucsur.pitt.edu/files/schulz/archintmedbypassgraftsurgery.pdf.

Schilling, E. A., Aseltine, R. H., & Gore, S. (2007). Adverse childhood experiences and mental health in young adults: A longitudinal survey. *BMC Public Health, 7*(30). doi: 10.1186/1471-2458-7-30

Schneider, T. R. (2004). The role of neuroticism on psychological and physiological stress responses. *Journal of Experimental Social Psychology, 40*(6), 795-804. doi: 10.1016/j.jesp.2004.04.005

Schnurr, P. P., & Green, B. L. (2004). Understanding relationships among trauma, post-traumatic stress disorder, and health outcomes. *Advances in Mind-Body Medicine, 20*(1), 18-29. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/15068106.

Shankman, S. A., Lewinsohn, P. M., Klein, D. N., Small, J. W., Seeley, J. R., & Altman, S. E. (2009). Subthreshold conditions as precursors for full syndrome disorders: A 15-year longitudinal study of multiple diagnostic classes. *Journal of Child Psychology and Psychiatry, 50*(12), 1485-1494. doi: 10.1111/j.1469-7610.2009.02117.x

Sniehotta, F. F., Schwarzer, R., Scholz, U., & Schuz, B. (2005). Action planning and coping planning for long-term lifestyle change: theory and assessment. *European Journal of Social Psychology, 35*(4), 565-576. doi: 10.1002/ejsp.258

Snyder, C. R. (2000). *Handbook of hope: Theory, measures, and applications*. San Diego, CA: Academic Press.

Snyder, C. R., & Pulvers, K. M. (2001). Dr. Seuss, the coping machine, and "Oh, the Places You'll Go". In C. R. Snyder (Ed.) *Coping with stress: Effective people and processes* (pp. 3-29). Oxford: Oxford University Press.

Solomon, Z., Mikulincer, M., & Benbenishty, R. (1989). Combat stress reaction: Clinical manifestations and correlates. *Military Psychology, 1*, 35-47.

Spinhoven, P., Elzinga, B. M., Hovens, J., Roelofs, K., van Oppen, P., Zitman, F. G, & Penninx, B. W. (2011). Positive and negative life events and personality traits in predicting course of depression and anxiety. *Acta Psychiatrica Scandinavica, 124*(6), 462–473. doi: 10.1111/j.1600-0447.2011.01753.x.

Stanton, A. L., Danoff-Burg, S., Cameron, C. L., & Ellis, A. P. (1994). Coping through emotional approach: Problems of conceptualizaton and confounding. *Journal of Personality and Social Psychology, 66*(2), 350-362. doi: 10.1037/0022-3514.66.2.350

Stein, D. J., Walker, J. R., Hazen, A. L., & Forde, D. R. (1997). Full and partial posttraumatic stress disorder: Findings from a community survey. *American Journal of Psychiatry, 154*, 1114-1119. Retrieved from http://www.cme.psychiatryonline.org/data/Journals/AJP/3679/1114.pdf.

Stein, M. B., Lang, K. L., Taylor, S., Vernon, P. A., & Livesley, W. J. (2002). Genetic and environmental influences on trauma exposure and posttraumatic stress disorder

symptoms: A twin study. *American Journal of Psychiatry, 159*, 1675-1681. doi: 10.1176/appi.ajp.159.10.1675

Suhr, D. D. (2009). *Principal component analysis vs. exploratory factor analysis*. University of Northern Colorado. Retrieved from http://www2.sas.com/proceedings/sugi30/203-30.pdf.

Tait, R., & Silver, R. C. (1989). Coming to terms with major negative life events. In J. S. Uleman & J. A. Bargh (Eds.) *Unintended thought* (pp. 351-382). New York: Guilford.

Tanner, J. F., Hunt, J. B., & Eppright, D. R. (1991). The protection motivation model: A normative model of fear appeals. *Journal of Marketing*, *55*(3), 36-45. Retrieved from http://www.jstor.org/stable/1252146.

Thoits, P. G. (1986). Social support as coping assistance. *Journal of Consulting and Clinical Psychology. 54*(4), 416-423. doi: 10.1037/0022-006X.54.4.416

Tremblay, P. F., & King, P. R. (1994). State and trait anxiety, coping styles and depression among psychiatric inpatients. *Canadian Journal of Behavioral Science, 26*, 505–519. doi: 10.1037/0008-400X.26.4.505

Updegraff, J. A., & Taylor, S. E. (2000). From vulnerability to growth: Positive and negative effects of stressful life events. In J. Harvey & E. Miller (Eds.) *Loss and trauma: General and close relationship perspectives* (pp. 3-28). Philadelphia, PA: Brunner-Routledge.

Ursano, R. J., Fullerton, C. S., & McCaughey, B. G. (1994). *Trauma and disaster*. New York, NY: Cambridge University Press.

Van Ginkel, J. R., Sijtsma, K., van der Ark, L. A., & Vermunt, J. K. (2010). Incidence of missing item scores in personality measurement, and simple item-score imputation. *Methodology*, *6*(1), 17-30. doi: 10.1027/1614-2241/a000003

Vasey, M. W., & Dadds, M. R. (2001). An introduction to the developmental psychopathology of anxiety, In M. W. Vasey & M. R. Dadds (Eds.), *The developmental psychopathology of anxiety* (pp. 3-26). New York, NY: Oxford University Press.

Vrana, S., & Lauterbach, D. (1994). Prevalence of traumatic events and post-traumatic psychological symptoms in a non-clinical sample of college students. *Journal of Traumatic Stress, 7,* 289-302.

Weathers, F.W., & Keane, T.M. (2007). The Criterion A problem revisited: Controversies and challenges in defining and measuring psychological trauma. *Journal of Traumatic Stress, 20*(2), 107-121. doi: 10.1002/jts.20210

Wolpe, J. (1968). Psychotherapy by reciprocal inhibition. *Conditional Reflex: A Pavlovian Journal of Research and Therapy, 3*(4), 234-240. doi: 10.1007/BF03000093

Woods, S. W., Charney, D. S., Goodman, W. K., & Heninger, G. R. (1988). Carbon dioxide-induced anxiety: Behavioral, physiologic, and biochemical effects of carbon dioxide in patients with panic disorders and healthy subjects. *Archives of General Psychiatry, 45*(1), 43-52. doi: 10.1001/archpsyc.1988.01800250051007

Yu, Y., & Williams, D. R. (1999). Socioeconomic status and mental health. In J. Phelan & C. Aneshensel (Eds.), *Handbook of the sociology of mental health* (pp. 151-166). New York: Kluwer Academic/ Plenum Press.

Zatzick, D. F., Weiss, D. S., Marmar, C. R., Metzler, T. J., Wells, K., Golding, J. M., ... Browner, W. S. (1997). Post-traumatic stress disorder and functioning and quality of life outcomes in female Vietnam veterans. *Military Medicine, 162*(10), 661-665. Retrieved from http://psycnet.apa.org/index.cfm?fa=search.displayRecord&UID=1997-41321-002.

Zeidner, M., & Saklofske, D. (1996). Adaptive and maladaptive coping, In M. Zeidner and N. S. Endler (Eds.), *Handbook of coping: Theory, research, applications* (pp. 505-531). Oxford, England: John Wiley & Sons.

Zinbarg, R. E., Barlow, D. H., Liebowitz, M., Street, L., Broadhead, Katon, W., … Richards, J. (1994). The DSM–IV field trial for mixed anxiety–depression. *American Journal of Psychiatry, 151*, 1153–1162. Retrieved from http://ajp.psychiatryonline.org/article.aspx?articleID=170497.

Zlotnick, C., Franklin, C. L., & Zimmerman, M. (2002). Does "subthreshold" posttraumatic stress disorder have any clinical relevance? *Comprehensive Psychiatry, 43*(6), 413-419. doi: 10.1053/comp.2002.35900

APPENDICES

Appendix A

Informed Consent Document

PRINCIPAL INVESTIGATOR: Jameson K. Hirsch, Ph.D.
TITLE OF PROJECT: Rural identity, emotional health & external influences

Introduction: Thank you for agreeing to participate in this study on coping, life events and health beliefs and behaviors. You will be asked to answer questions about a wide range of topics. Please try to answer every question honestly. If a question or answer does not pertain to you, please try to answer the question as if you were in that situation or it does pertain to you. Please read the informed consent message below which describes the study and provides information about your rights as a participant.

EAST TENNESSEE STATE UNIVERSITY - INFORMED CONSENT DOCUMENT (ICD)

This Informed Consent will explain about being a participant in a research study. It is important that you read this material carefully and then decide if you wish to be a volunteer.

PURPOSE: The purpose of this research study is to understand the coping styles and techniques used by individuals in reflection to life events and external factors. Also this study will address psychosocial characteristics of rural individuals and their psychological and physical health. Results from this study will provide a better understanding of coping and how the mind and body might interact in college students.

PROCEDURE and DURATION: You will be asked to complete an online survey, which will take approximately 45-60 minutes of your time. You can access this survey from any internet-capable computer.

ALTERNATIVE PROCEDURES: The alternative to participation is to not participate.

POSSIBLE RISKS/DISCOMFORTS: There are no anticipated risks for participants. Some people may become distressed when completing study questionnaires of a psychological nature; however, the risks are minimal. If you should feel uncomfortable or distressed after completion of this survey, please contact Dr. Hirsch [(423) 439-4463; hirsch@etsu.edu], or visit The Counseling Center at ETSU [3rd Floor of D.P. Culp Center; (423) 439-4841], which is free and confidential.

POSSIBLE BENEFITS: There are no benefits to you personally for participation in this research, although some people may gain satisfaction by completing surveys that offer some personal insight. Student volunteers who participate in this study to satisfy a portion of their research credit requirements will receive 1 hour of research credit for completing this survey. Results from this study will provide a better understanding of the relationship between mental and physical health characteristics in rural college students.

VOLUNTARY PARTICIPATION: Participation in this research experiment is voluntary. You may refuse to participate. You can quit at any time.

CONTACT FOR QUESTIONS: If you have questions, problems or research-related medical problems, you may call Dr. Hirsch at (423) 439-4463 or Alishia Foster at (423) 439-6923. You may call the

Chairman of the Institutional Review Board at (423) 439-6054 for any questions you have about your rights as a research subject. If you have questions or concerns call an IRB Coordinator at (423) 439-6055 or (423) 439-6002.

CONFIDENTIALITY: Every attempt will be made to see that your study results are kept confidential. A copy of the records from this study will be stored for at least 5 years after the end of this research. The results of this study may be published and/or presented at meetings without naming you as a subject. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, ETSU IRB and Dr. Hirsch have access to the study records.

Appendix B

Demographics

1. What is your gender?
   - Female
   - Male
   - Transgender
   - Other

2. What is your age?
   - _____

3. Are you Hispanic or Latino?
   - Yes
   - No

4. If yes, which group represents you?
   - Mexican, Mexican-American, or Chicano
   - Puerto Rican
   - Cuban
   - Dominican
   - Central American
   - Other Hispanic origin

5. What is your race?
   - American Indian
   - Asian
   - Black or African American
   - Native Hawaiian or Other Pacific Islander
   - White

6. Which of the following best describes your academic level?
   - Undergraduate-1st Year
   - Undergraduate-2nd Year
   - Undergraduate-3rd Year
   - Undergraduate-4th Year
   - Graduate Student
   - Post Doctoral Student
   - Other

7. Which best describes your enrollment in this school?
   - Part-Time
   - Full-Time

8. Are you an international student?
   - Yes
   - No

9. Which of the following best describes your field of study?
   - Liberal Arts/Humanities/Performing and Fine Arts
   - Business
   - Law
   - Social Sciences
   - Medical
   - Health Sciences
   - Mathematics
   - Physical Science
   - Engineering
   - Other

10. Which best describes your living situation?
   - On-campus
   - Off-campus, living on your own
   - Off-campus, living at home with family or relatives

11. How many years have you attended school on this campus?
   - One year or less
   - More than one year but less than two years
   - Between two and three years
   - More than three years

12. What is your current relationship status?
   - Single
   - Married/ domestic partner
   - Engaged or committed dating relationship
   - Separated
   - Divorced
   - Widowed

13. Are you a member of a social fraternity or sorority?
   - Yes
   - No

14. How many hours a week do you work for pay?
   - 0 hours
   - 1-9 hours
   - 10-19 hours
   - 20-29 hours
   - 30-39 hours
   - 40 hours
   - more than 40 hours

15. How many hours a week do you volunteer?

- 0 hours
- 1-9 hours
- 10-19 hours
- 20-29 hours
- 30-39 hours
- 40 hours
- more than 40 hours

16. Do you have any kind of health insurance (including prepaid plans such as HMOs)?

- Yes
- No
- Not Sure

17. Which of the following best describes you?

- Heterosexual
- Gay
- Lesbian
- Bisexual
- Transgender
- Unsure

Appendix C

Trauma History Questionnaire

The following is a series of questions about serious or traumatic life events. These types of events actually occur with some regularity, although we would like to believe they are rare, and they affect how people feel about, react to, and/or think about things subsequently. Knowing about the occurrence of such events, and reactions to them, will help us to develop programs for prevention, education, and other services. The questionnaire is divided into questions covering crime experiences, general disaster and trauma questions, and questions about physical and sexual experiences.

For each event, please indicate (circle) whether it happened, and if it did, the number of times and your approximate age when it happened (give your best guess if you are not sure). Also note the nature of your relationship to the person involved, and the specific nature of the event, if appropriate.

Crime-Related Events			If Yes # of Times	If Yes Approx. Age
1. Has anyone ever tried to take something directly from you by using force or the threat of force, such as a stick-up or mugging?	No	Yes	_____	_____
2. Has anyone ever attempted to rob you or actually robbed you (i.e. stolen your personal belongings)?	No	Yes	_____	_____
3. Has anyone ever tried to or succeeded in breaking into your home while you **weren't** there?	No	Yes	_____	_____
4. Has anyone ever tried to or succeeded in breaking into your home while you **were** there?	No	Yes	_____	_____
General Disaster and Trauma				
5. Have you ever had a serious accident at work, in a car or somewhere else? If yes, please specify _____	No	Yes	_____	_____
6. Have you ever experienced a natural disaster such as a tornado, hurricane, flood, major earthquake, etc., where you felt you or your loved ones were in danger of death or injury? If yes, please specify _____	No	Yes	_____	_____
7. Have you ever experienced a "man-made" disaster such as a train crash, building collapse, bank robbery, fire, etc., where you felt you or your loved ones were in danger of death or	No	Yes	_____	_____

injury?
If yes, please specify
_____

8. Have you ever been exposed to dangerous chemicals or radioactivity that might threaten your health?	No	Yes	_____	_____
9. Have you ever been in any other situation in which you were seriously injured? If yes, please specify _____	No	Yes	_____	_____
10. Have you ever been in any other situation in which you feared you might be killed or seriously injured? If yes, please specify _____	No	Yes	_____	_____
11. Have you ever seen someone seriously injured or killed? If yes, please specify _____	No	Yes	_____	_____
12. Have you ever seen dead bodies (other than at a funeral) or had to handle dead bodies for any reason?	No	Yes	_____	_____
13. Have you ever had a close friend or family member murdered, or killed by a drunk driver? If yes, please specify relationship (e.g., mother, grandson, etc.) _____	No	Yes	_____	_____
14. Have you ever had a spouse, romantic partner, or child die? If yes, please specify _____	No	Yes	_____	_____
15. Have you ever had a serious or life-threatening illness? If yes, please specify _____	No	Yes	_____	_____
16. Have you ever received news of a serious injury, life-threatening illness or unexpected death of someone close to you? If yes, please indicate _____	No	Yes	_____	_____
17. Have you ever had to engage in combat	No	Yes	_____	_____

while in military service in an official or unofficial war zone?
If yes, please indicate where.
_____

Physical and Sexual Experiences

18. Has anyone ever made you have intercourse, oral or anal sex against your will? If yes, please indicate nature of relationship with person (e.g. stranger, friend, relative, parent, sibling) _____	No	Yes	_____	_____
19. Has anyone ever touched private parts of your body, or made you touch theirs, under force or threat? If yes, please indicate nature of relationship with person (e.g. stranger, friend, relative, parent, sibling) _____	No	Yes	_____	_____
20. Other than incidents mentioned in Questions 18 and 19, have there been any other situations in which another person tried to force you to have unwanted sexual contact?	No	Yes	_____	_____
21. Has anyone, including family members or friends, ever attacked you with a gun, knife or some other weapon?	No	Yes	_____	_____
22. Has anyone, including family members or friends, ever attacked you without a weapon and seriously injured you?	No	Yes	_____	_____
23. Has anyone in your family ever beaten, "spanked" or pushed you hard enough to cause injury?	No	Yes	_____	_____

Other Events

24. Have you experienced any other extraordinarily stressful situation or event that is not covered above? If yes, please specify. _____ _____	No	Yes	_____	_____

Appendix D

Brief COPE

These items deal with ways you've been coping with the stress in your life since you found out you were going to have this operation. There are many ways to try to deal with problems. These items ask what you have been doing to cope with this one. Obviously, differen people deal with things in different ways, but I'm interested in how you've tried to deal with it. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says: How much or how frequently. Don't answer on the basis of whether it seems to be working or not-just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

1	2	3	4
I haven't been doing this at all	I've been doing this a little bit	I've been doing this a medium amount	I've been doing this a lot

1. I have been turning to work or other activities to take my mind off things.

1 2 3 4

2. I've been concentrating my efforts on doing something about the situation I'm in.

1 2 3 4

3. I've been saying to myself "this isn't real".

1 2 3 4

4. I've been using alcohol or other drugs to make myself feel better.

1 2 3 4

5. I've been getting emotional support from others.

1 2 3 4

6. I've been giving up trying to deal with it.

1 2 3 4

7. I've been taking action to try to make the situation better.

1 2 3 4

8. I've been refusing to believe that it has happened.

1 2 3 4

9. I've been saying things to let my unpleasant feelings escape.

1 2 3 4

10. I've been getting help and advice from other people.

1 2 3 4

11. I've been using alcohol or other drugs to help me get through it.

1 2 3 4

12. I've been trying to see it in a different light, to make it seem more positive.

1 2 3 4

13. I've been criticizing myself.

1 2 3 4

14. I've been trying to come up with a strategy about what to do.

1 2 3 4

15. I've been getting comfort and understanding from someone.

1 2 3 4

16. I've been giving up the attempt to cope.

1 2 3 4

17. I've been looking for something good in what is happening.

1 2 3 4

18. I've been making jokes about it.

1 2 3 4

19. I've been doing something to think about it less, such as going to the movies, watching TV, reading, daydreaming, sleeping, or shopping.

1 2 3 4

20. I've been accepting the reality of the fact that it has happened.

1 2 3 4

21. I've been expressing my negative feelings.

1 2 3 4

22. I've been trying to find comfort in my religion or spiritual beliefs.

1 2 3 4

23. I've been trying to get advice or help from other people about what to do.

1 2 3 4

24. I've been learning to live with it.

1 2 3 4

25. I've been thinking hard about what steps to take.

1 2 3 4

26. I've been blaming myself for things that happened.

1 2 3 4

27. I've been praying or meditating.

1 2 3 4

28. I've been making fun of the situation.

1 2 3 4

Appendix E

Beck Anxiety Inventory

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

	Not at all	Mildly – but it didn't bother me much	Moderately – it wasn't pleasant at times	Severely – it bothered me a lot
Numbness or tingling	0	1	2	3
Feeling hot	0	1	2	3
Wobbliness in legs	0	1	2	3
Unable to relax	0	1	2	3
Fear of worst happening	0	1	2	3
Dizzy or lightheaded	0	1	2	3
Heart pounding/ racing	0	1	2	3
Unsteady	0	1	2	3
Terrified or afraid	0	1	2	3
Nervous	0	1	2	3
Feeling of choking	0	1	2	3
Hands trembling	0	1	2	3
Shaky/Unsteady	0	1	2	3
Fear of losing control	0	1	2	3
Difficulty in breathing	0	1	2	3
Fear of dying	0	1	2	3
Scared	0	1	2	3
Indigestion	0	1	2	3
Faint/ lightheaded	0	1	2	3
Faced flushed	0	1	2	3
Hot/cold sweats	0	1	2	3

VITA

ALISHIA D. FOSTER

Education: Carman-Ainsworth High School, Flint, Michigan

B.A. Psychology, Concord University, Athens, West Virginia 2010

M.A. Clinical Psychology, East Tennessee State University, Johnson City, Tennessee 37604

Professional Experience: Graduate Assistant, East Tennessee State University, College of Arts and Sciences, 2010-2013

PCIT Certification Coordinator, Parent-Child Interaction Therapy International, 2013-Present

Honors and Awards: Foster, A., Jeglic, E., & Hirsch, J. (2012, April). Religiousness Distinct From Spirituality as a Moderator Between Negative Life Events and Alcohol Abuse. Poster presented at Appalachian Student Research Forum at the Millennium Centre, Johnson City, TN. Won 1st place in graduate level poster competition.

Foster, A., Walker, K., Collette, K., Jeglic, E., & Hirsch, J. (2011, March). Trait Hope as a Moderator Between Perceived Racism and

Suicidal Ideation. Poster presented at Appalachian Student Research Forum at the Millennium Centre, Johnson City, TN. Won 2nd place in graduate level poster competition.