

DISSERTATION

POSTTRAUMATIC GROWTH AND SUICIDE RISK IN COLLEGE STUDENTS
ACCORDING TO TRAUMA TYPE: A FAILURE TO REPLICATE

Submitted by

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In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

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Summer 2015

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ABSTRACT

POSTTRAUMATIC GROWTH AND SUICIDE RISK IN COLLEGE STUDENTS

ACCORDING TO TRAUMA TYPE: A FAILURE TO REPLICATE

While numerous studies have demonstrated that different types of traumatic life events predict differences in PTSD symptoms, there is a lack of research examining if posttraumatic growth also varies based on trauma type. This study investigated both positive posttrauma changes as measured by the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) and negative changes as measured by suicide risk and suicidal ideation and behavior in 335 college student survivors of three distinct traumatic event types: bereavement, chronic or acute illness, and accidental injury. The results showed that there was not a statistically significant difference in the total PTGI score or the PTGI subscale scores for the three trauma groups. There was not a significant difference between traumatic events on suicide risk and suicidal ideation and behavior. Posttraumatic growth did not moderate the relationship between type of trauma and suicide risk. Several plausible explanations for these results are explored in the discussion, including the role of event centrality and homogeneity of the sample.

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CHAPTER 1

Introduction

Surveys of community samples (e.g., Breslau, 2009) reveal that most individuals experience a major traumatic event in their life. Therefore, it is not surprising that the psychological effects of trauma have been the focus of much research attention. The majority of this research has focused on the negative consequences of traumatic events, such as Posttraumatic Stress Disorder (PTSD) and suicidal behavior. However, a growing body of literature demonstrates that many survivors report positive life changes following traumatic events (Calhoun & Tedeschi, 2006; Joseph & Linley, 2008). Common areas of growth reported by trauma survivors reflect changes in three general life domains: sense of self (e.g., increased strength and maturity), relationships (e.g., increased closeness to others), and spirituality or life philosophy (e.g., increased sense of purpose in life; Tedeschi, Park, & Calhoun, 1998). This phenomenon has several names, including posttraumatic growth (PTG), positive life change, stress-related growth, and perceived benefits or benefit finding (Sears, Stanton, & Danoff-Burg, 2003). To date, however, there has been very little research examining if posttraumatic growth occurs equally for survivors of different kinds of traumatic experiences. On the other hand, several studies have shown that different types of traumatic experiences are related to differences in severity of PTSD symptoms (Frans, Rimmö, Åberg, & Fredrikson, 2005; Hapke, Schumann, Rumpf, John, & Meyer, 2006). The current study examines both positive posttrauma changes as measured by the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) and negative changes as measured by suicide risk and suicidal ideation and behavior in college student survivors of three distinct traumatic event types: bereavement, chronic or acute illness, and accidental injury.

Trauma

Exposure to traumatic events is frequently linked to poor psychological outcomes, including depression, dissociation, and posttraumatic stress disorder (PTSD; Briere & Jordan, 2009; Gillespie et al., 2009). However, symptom severity and duration vary greatly among trauma survivors from minimal or no adverse reactions to short-term or chronic symptomatology. In a study of the prevalence of PTSD in a random sample of the German population, nearly 20% of participants reported experiencing a traumatic event (Hapke, Schumann, Rumpf, John, & Meyer, 2006). The trauma sample was further broken down into trauma types including physical assault, sexual assault, serious accidents, and vicarious trauma (witness to a trauma). Results showed that survivors of sexual assault reported significantly higher levels of PTSD than the other groups. A Swedish study comparing survivors of physical assault, sexual assault, robbery, sudden unexpected bereavement, war exposure, and motor vehicle accidents demonstrated similar results (Frans, Rimmo, Aberg, & Fredrikson, 2005). In this study drawn from the general population, both physical and sexual assault survivors recorded higher levels of PTSD risk than the other groups, and motor vehicle accident survivors had the lowest risk of PTSD (Frans et al., 2005).

Undergraduate students are in an age group at high risk for trauma exposure, with studies of community samples suggesting that the peak age for trauma exposure is 16 to 20 years of age (Breslau et al., 1998). In a study of over 1,500 undergraduate students, Frazier and colleagues (2009) found that 85% of students reported having experienced a traumatic event in their lifetime and 21% reported experiencing an event over a 2-month period during college. The most common event reported at both time points was the unexpected death of a loved one (47%), followed by a loved one surviving a life-threatening event (30%), witnessing family violence

(23%), unwanted sexual attention (21%), and motor vehicle or other accidents (19%). Lifetime exposures to family violence, unwanted sexual attention, and sexual assault were associated with higher current distress levels. When nominated as a worst event, sexual assault was associated with the most posttraumatic stress disorder symptoms. Additionally, events that caused intense fear, helplessness, or horror and those that were intentionally caused were associated with higher distress levels. Similarly, this author found that 72.2% of a sample of college students had experienced the death of a close loved one, 58.2% had a close friend, significant other, or family member experience a serious medical condition, and nearly 20% experienced an accident that led to serious injury to themselves or someone close to them (Sheline & Rosén, 2013).

Suicide Among College Students

In addition to the widespread prevalence of traumatic events in young adults attending college, suicide is the second leading cause of death for this cohort. Approximately 1,100 college students die by suicide each year (Centers for Disease Control and Prevention, 2009). Eight to 15% of college students report a previous suicide attempt (Hirsch, Wolford, LaLonde, Brunk, & Parker-Morris, 2007; Wilcox et al., 2010), with 6.4% having seriously considered, and 1.3% attempting, suicide at least once in the past 12 months (American College Health Association, 2008). The statistics become even more alarming when we examine lifetime rates of suicidal ideation. As many as 30% of U.S. college students report a history suicidal ideation (Brenner, Hassan, & Barrios, 1999) which, along with suicide attempts, are strong predictors of future suicidal behavior (Nock et al., 2008). Given the clinical and public health significance of suicidal thoughts and behaviors among college students, there is considerable interest in identifying factors that are associated with increased risk of suicidality in this population.

One of the influential factors associated with suicide among college students is the experience of negative life events. Interestingly, college students report higher levels of life stressors than their peers who do not attend college (Tomoda, 1997). Transitional and developmental stressors and elements of the “college experience” itself may contribute to suicide risk (Hirsch & Barton, 2011). Such stressors include changes in role responsibilities, increased academic demands, disruption in social support and interpersonal relationships, and increased financial responsibilities. However, some research indicates that college students are at reduced risk for suicide when compared to age- and sex-matched noncollegiate peers, possibly due to the increased availability of social support in college (Schwartz, 2006). But, other findings suggest that individuals in college who experience negative lives events appear to be at greater risk for suicidal ideation and attempts than their same age, noncollegiate counterparts (Dube et al., 2001; Konick & Gutierrez, 2005). To better understand this relationship, Rowe and colleagues (2013) tested the hypothesis that basic psychological needs moderate the relationship between negative life events and suicidal ideation among college students. They found that satisfaction of basic psychological needs, including autonomy, relatedness, and competence significantly moderated the relationship, over and above the effects of age, sex, and depressive symptoms. This important discovery offers hope that suicidal behavior associated with the experience of negative life events is not inevitable. Therapeutically strengthening competency, autonomy, and relatedness may be an important suicide prevention strategy for college students experiencing life stressors.

Suicide Risk Associated with Specific Traumas

Certain traumas are more likely to lead to symptoms of posttraumatic stress disorder (PTSD) than others (Frans, Rimmö, Åberg, & Fredrikson, 2005; Hapke, Schumann, Rumpf,

John, & Meyer, 2006). It makes sense that the disparate effects of different types of trauma would extend to a college student's risk for suicide. However, despite a call to identify and understand the risk factors associated with suicidal behavior among college students, very little research has examined the differential outcomes relating to specific types of trauma.

Losing a loved one through death is a common life event. A mourning process typically follows a loss, and most bereaved individuals emerge from this process without significant mental or physical problems (Bonanno et al., 2004). Mourners usually find a way to cope with the loss and its consequences over time (Stroebe et al., 2007). Still, a relationship between grief and the development of poor mental and physical health is well documented. Nine percent of adults develop complicated grief reactions and are at risk for depression, hypertension, work and social impairment, substance use, and reduced quality of life (Wittouck et al., 2011). In addition, bereaved individuals are at an increased risk for suicide and suicidal behavior compared to nonbereaved individuals. Heightened suicidal ideation in bereavement is associated with extreme emotional loneliness and severe depressive symptoms, a process referred to by one researcher as "the broken heart" (Stroebe, Stroebe, and Abakoumkin, 2005; Stroebe et al., 2007).

Psychological distress and physical health are also strongly related. In fact, the incidence of mental disorders is approximately 10% higher among those with a diagnosed chronic health condition compared to those without (Mitchell, 2012). Even among those without a diagnosable mental disorder, it has been estimated that up to 60% of physical health conditions have a psychological component to their presentation (Milgrom & Burrows, 2001). Suicide rates are often elevated among medical patients and, compared with the general population, they are at least doubled among people with chronic pain (Tang & Crane, 2006). Research also indicates that poor mental health is associated with acute conditions such as pain and infectious illness

among college students. In a sample of over 45,000 U.S. college students, the prevalence of acute infectious illness ranged from 8% to 29%. Depression, anxiety, and exhaustion were all associated with acute infectious illness (Adams, Wharton, Quilter, & Hirsch, 2008).

Accidental injury is the leading cause of death among older adolescents and young adults (Centers for Disease Control and Prevention, 2010). In addition to fatality, accidental injuries may also be linked to suicidal ideation. Using data from the National College Health Risk Behavior Survey, researchers found that students who reported suicidal ideation were significantly more likely than students who did not report considering suicide to carry a weapon, engage in a physical fight, boat or swim after drinking alcohol, ride with a driver who had been drinking alcohol, and rarely or never use seat belts (Barrios, Everett, Simon, & Brener, 2000). Another potential outcome of accidental injury in college is traumatic brain injury (TBI). In an electronic survey about college experiences after traumatic brain injury, the majority of respondents reported a range of physical, cognitive, and psychosocial effects of their injuries. The most common complaints were of memory problems and academic difficulty, with a smaller proportion reporting problems with organization, decision-making, fatigue, anger, depression, and headaches (Kennedy, Krause, & Turkstra, 2008). A recent meta-analysis confirmed an increased risk of suicide among TBI survivors compared to those with no history of TBI (Bahraini et al., 2013).

Posttraumatic Growth

Bereavement, acute or chronic illness, and accidental injury are all examples of traumatic life events. While some individuals emerge from these experiences with severe psychological distress, others have considerably less difficulty. Corresponding with the rise of the positive psychology movement, recent studies of traumatic experiences have found that humans are often

more resilient than once thought. There is now an extensive body of literature that documents that people with cancer, parents of children with severe health problems, people who have suffered a heart attack, and veterans of war, to name a few, identify positive ways their lives have changed as a result of the traumatic event (See Helgeson, Reynold, & Tomich, 2006 for a review). While the names that have been assigned to these positive changes vary, “posttraumatic growth” has emerged as the most predominant term in the literature (Meyerson, Grant, Carter, & Kilmer, 2011).

Coined by Tedeschi and Calhoun, posttraumatic growth involves the self-reported positive psychological changes induced by the experience and processing of a traumatic event and its aftermath (1995, 2004). These include improved interpersonal relationships, a greater sense of new possibilities, increased personal strength, heightened spirituality, and an enhanced appreciation for life. Researchers have increasingly recognized that some individuals were not only recovering from their stressful or traumatic experiences, they were experiencing positive changes beyond their previous levels of functioning (Zoellner & Maercker, 2006). This distinguishes posttraumatic growth from resiliency, which refers to the ability to continue to function normally in spite of adversity (Scales, Benson, Leffert, & Blyth, 2000).

Tedeschi and Calhoun (1995) propose that when people experience a trauma severe enough that it takes a central places in their lives; changes their worldviews, assumptions, and schemas; and shifts their self-identities. The subsequent distress they experience may trigger cognitive processing that results in personal growth. The experience of growth does not necessarily ameliorate the negative consequences of trauma; distress and growth can and do coexist (Calhoun & Tedeschi, 2006). A primary assumption of Tedeschi and Calhoun’s theory is that posttraumatic growth can only occur when a person is experiencing some significant level of

posttraumatic stress. It is thought that in the initial aftermath of the trauma, the overall degree of posttraumatic stress must be severe enough to challenge survivors' core beliefs, which prompts both intrusive and deliberate cognitive processing (Lindstrom, Cann, Calhoun, & Tedeschi, 2013). To date, studies linking overall posttraumatic stress and posttraumatic growth have produced mixed findings, with some studies showing positive associations (e.g., Solomon & Dekel, 2007), others negative associations (e.g., Kimhi, Eshel, Zysberg, & Hantman, 2010), and others curvilinear relationships, with the highest levels of posttraumatic growth appearing at moderate levels of posttraumatic stress (e.g., Butler et al., 2005).

A handful of studies have investigated the relationship between posttraumatic stress and posttraumatic growth using a longitudinal design. Frazier, Tennen, Gavian, Park, Tomich, and Tashiro (2009) conducted an online survey of 1,500 undergraduate students about their psychological well-being. Eight weeks later, 10% of the sample reported that they had experienced a traumatic event (e.g., a life-threatening accident, an assault, or an illness contracted by themselves or a close friend or loved one) that they rated as causing intense fear, helplessness, or horror. Findings demonstrated that many students who had experienced a traumatic event scored higher on psychological well-being than before: 5% reported an increase in the strength of their relationships, 12% found life more meaningful, 25% were more satisfied with life, 8% were more grateful, and 7% were more religiously committed than eight weeks prior. In another study, Dekel and colleagues (2012) assessed Israeli ex-prisoners of war and matched controls for posttraumatic stress disorder, depression, anxiety, and posttraumatic growth at several time-points over the course of 17 years. Results support the theory that endorsement of posttraumatic distress is necessary for facilitating and maintaining psychological growth

following a traumatic event. While limited in number, longitudinal studies like this confirm that positive changes can and do take place after adversity.

Individual differences play an important role in the experience of posttraumatic growth. Researchers have found that higher levels of exposure to traumatic events and trauma-related stressors predict both posttraumatic growth and posttraumatic stress. Following the 2008 Sichuan earthquake in Sichuan province China, the best predictors of posttraumatic growth were exposure to the earthquake, level of education, avoidance, intrusion, and hyperarousal symptoms (Xu & Liao, 2011). In addition, psychological resources, such as optimism and sense of purpose, are also believed to influence survivors' responses to trauma. Optimism has been found to be positively associated with posttraumatic growth and thought to promote positive reappraisal of trauma, adaptive coping, and greater perceptions of social support (Prati & Pietranoni, 2009). These benefits of optimism could protect against adverse psychological responses and encourage subjective experiences of posttraumatic growth and reengagement in meaningful life goals (Prati & Pietranoni, 2009). Similar to optimism, a sense of purpose is likely to facilitate adaptive coping, one of the most consistent predictors of posttraumatic growth (Linley & Joseph, 2004). A sense of purpose might also lead individuals to participate in volunteerism or other value-driven action, which may contribute to greater posttraumatic adjustment and growth (Hobfoll et al., 2007). Other characteristics found to influence an individual's likelihood of experiencing posttraumatic growth are positive affectivity, hardiness, intelligence, flexibility, determination, and willingness to take personal risks (Dekel et al., 2011; Tedeschi & Calhoun, 2004; Aldwin, 1994).

A recent study conducted by this author also found that posttraumatic growth moderated the relationship between severity of traumatic life events and suicide risk such that individuals

with the most severe traumatic life events were less likely to have heightened suicide risk in college if they had experienced posttraumatic growth following their trauma. In addition, this study also found that posttraumatic growth moderated the relationship between severity of traumatic life events and college adjustment such that individuals with the most severe traumatic life events were more likely to have better college adjustment if they had experienced posttraumatic growth following their trauma (Sheline & Rosén, 2013). These findings support the adaptive significance of posttraumatic growth: identifying positive ways life has changed as a result of severe trauma may limit the likelihood of experiencing suicidal ideation and behavior.

Posttraumatic Growth Associated with Specific Traumas

It is common in the posttraumatic growth literature to see studies devoted to the experience of a specific trauma type. Several studies have examined posttraumatic growth among bereaved individuals. In a study comparing survivors of sexual abuse, motor vehicle accidents, and bereavement, Shakespeare-Finch and Armstrong (2010) found that the bereaved reported higher levels of growth than other survivors. More specifically, the bereavement group reported significantly higher levels of growth in the “appreciation of life” and “relating to others” domains of posttraumatic growth when compared to the sexual abuse group. The authors hypothesized that the death of a first-degree family member might bring about thoughts and behaviors around the frailty of life and the importance of appreciating life, as well as prompting individuals to reach out and focus on their relationships with others. Another study compared posttraumatic growth across three groups: bereaved by a violent loss (accident, suicide, or homicide), bereaved by a nonviolent death, and a nonbereaved group that had experienced a general life stressor. Survivors who had lost loved ones to a violent death had higher scores across all five domains of posttraumatic growth and also reported more distress symptomatology,

supporting the argument that it is frequently the experience of psychological turmoil that instigates review and revision of core meaning systems (Currier, Mallot, Martinez, Sandy, Neimeyer, 2013).

Along with bereavement, the experience of dealing with a chronic or acute illness is one of the most studied traumatic events in the posttraumatic growth research. In a review of 57 qualitative studies of posttraumatic growth and life threatening physical illness spanning 32 years of publications, the four key themes to emerge were ‘reappraisal of life and priorities’; ‘trauma equals the development of self’; ‘existential re-evaluation’; and ‘a new awareness of the body’ (Hefferon, Greal, & Mutrie, 2009). This meta-analysis was significant in that it argued for a sixth domain to the posttraumatic growth process: a new awareness of the body by way of a diagnosis of life threatening physical illness. Qualitative research suggests that recovering and thriving from illness can create a heightened importance of the body via new behaviors like monitoring ones health, listening to their body, improved health habits (diet, exercise, reducing stress), and even cessation of risky behaviors (Hefferon, Greal, & Mutrie, 2009).

Accidental injury is another common form of trauma which can produce varied physical and psychological outcomes. Qualitative and descriptive studies suggest that some accidentally injured patients experience elevated appreciation of life, improved personal relationships, and a greater sense of personal strength (Zoellner et al., 2008). In a study assessing accidentally injured Chinese mainland patients, Wang and colleagues (2013) showed that posttraumatic growth presented primarily in the domain of Relating to Others and also found that posttraumatic growth was significantly related to marital status, educational level, personality, coping styles, and PTSD symptoms. Avoidance of PTSD symptoms, openness to experience, and positive coping styles were significant predictors of posttraumatic growth. Overall, these findings

suggest that clinicians working with patients who have experienced accidental injuries should take into account different dimensions of posttraumatic growth based on patients' coping styles.

Current Study

In order to be useful to clinicians, studies that examine how suicide risk in college students is related to specific traumatic events and how posttrauma changes can affect that relationship are needed. Therefore, this study seeks to investigate positive posttrauma changes as measured by the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) and suicide risk and suicidal ideation and behavior in survivors of three distinct traumatic event types: bereavement, chronic or acute illness, and accidental injury at a large university in the western United States.

This study addressed the following questions:

Research Question 1: Are there differences in posttraumatic growth across bereavement, chronic or acute illness, and accidental injury?

Research Question 2: Do bereavement, chronic or acute illness, and accidental injury differentially predict suicide risk and suicidal ideation and behavior?

Research Question 3: Do bereavement, chronic or acute illness, and accidental injury differentially predict posttraumatic growth subscale scores (e.g., greater sense of personal strength, enhanced interpersonal relationships)?

Research Question 4: Does posttraumatic growth moderate the relationship between type of trauma (bereavement, chronic or acute illness, and accidental injury) and suicide risk?

CHAPTER II

Method

Participants

Six hundred forty-eight students participated in data collection during October and November of 2012. Eighty-one cases were removed from data analysis due to reporting no trauma. (Trauma is a prerequisite for posttraumatic growth, thus their data could not be used to answer the research questions of this study.) An additional 10 cases were removed from the sample due to missing over 75% of data. These participants likely started the survey and left the website before completing the subsequent questionnaires. Of the 557 participants reporting trauma on the Posttraumatic Growth Inventory, 233 reported bereavement, 52 reported chronic or acute illness, and 50 reported accident or injury (Other reported traumas not examined in this study were violent or abusive crime, disaster, job loss, financial hardship, career or location change/move, change in family responsibility, divorce, retirement, combat, and 'other'). Thus the total number of participants is 335. The data collection occurred at a large university in the western United States, and students from Introductory Psychology classes were recruited. In return for participating in this study, participants received credit toward Introductory Psychology course requirements.

Participants identified as 236 (70.4%) females and 99 (29.6%) males. Additionally, 5 (1.5%) participants reported their ethnicity as African American/Black, 9 (2.7%) as Asian American/Asian, 18 (5.4%) as Hispanic/Latino, 2 (<1%) as Native Hawaiian or Pacific Islander, 287 (85.7%) as White non-Hispanic, 3 (<1%) as Middle Eastern American, and 11 (3.3%) self-reported as Other. The average age was 18.81 years ($SD = 1.47$).

Measures

Posttraumatic Growth. The level of posttraumatic growth was measured with the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996). Participants are forced to choose one type of trauma and to answer the subsequent posttraumatic growth questions based on that trauma. The PTGI lists 13 traumas, including bereavement, chronic or acute illness, accident or injury, violent or abusive crime, disaster, job loss, financial hardship, career or location change/move, change in family responsibility, divorce, retirement, combat, and 'other.' Although participants may have experienced multiple traumas, they were prompted to select and focus on only one event. In other words, the three trauma groups in this study are independent and composed of different individuals. PTGI consists of 21 items that measure positive outcomes following traumatic experiences within five subscales: Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life. Each item contains a 6-point Likert-type scale which ranges from 0 (I did not experience this change as a result of my crisis) to 5 (I experienced this change to a very great degree as a result of my crisis), with higher scores suggesting more growth from the experience (Tedeschi & Calhoun, 1996). Participants were also asked to describe how they felt their life changed as a result of the traumatic event(s) they experienced in their own words. In their original study, Tedeschi and Calhoun (1996) reported that the PTGI had an internal consistency of .90 and a test-retest reliability of .71 in a sample of undergraduate students. They examined concurrent and discriminant validity by comparing the relation between the PTGI and other measures including the NEO Personality Inventory and the Life Orientation Test. They found that optimism, religiosity, and the major dimensions of personality, except for neuroticism, correlated positively with PTGI scores (Tedeschi & Calhoun, 1996). The PTGI has now been validated on groups with exposure to

various types of adversity and extreme stress. These validation studies have been composed of college students (Calhoun, Cann, Tedeschi, & McMillan, 2000), adolescents (Ickovics et al., 2006; Milam, Ritt-Olson, & Unger, 2004), holocaust child survivors (Lev-Wiesel & Amir, 2003), adults with a history of cardiovascular disease (Sheikh & Marotta, 2005), and adults recovering from a diagnosis of cancer (Ho, Chan, & Ho, 2004). In the current study, the Cronbach alpha coefficient was .95 for the total scale score. The Cronbach alpha coefficient for the Relating to Others subscale was .90, the New Possibilities subscale was .87, the Personal Strength subscale was .84, the Spiritual Change subscale was .80, and the Appreciation of Life subscale was .79. (See Appendix A).

Past Suicidal Ideation and Behavior. Four items from Linehan and Nielsen's Suicidal Behaviors Questionnaire (SBQ; 1981) 34-item suicidal behaviors self-report instrument were used to assess suicidal ideation and behavior. This 4-item SBQ-Revised (SBQ-R) has satisfactory reliability and validity in clinical (coefficient alpha estimate of .88) and nonclinical populations (coefficient alpha estimate of .87; Osman et al., 2001). The SBQ-R Item 1 (current level of lifetime suicide ideation and/or suicide attempt; "Have you ever thought about or attempted to commit suicide?") is rated on a 4-point scale (1 = *never*, 4 = *I have attempted to kill myself, and really hoped to die*). The SBQ-R Item 2 (frequency of suicidal ideation over the past year; "How often have you thought about killing yourself in the past year?") is rated on a 5-point scale (1 = *never*, 5 = *very often*). The SBQ-R Item 3 (threat of suicide attempt; "Have you ever told someone that you were going to commit suicide, or that you might do it?") is rated on a 3-point scale (1 = *no*, 2 = *at one time*, 3 = *more than once*). The SBQ-R Item 4 (self-reported likelihood of suicidal behavior in the future; "How likely is it that you will commit suicide someday?") is rated on a 7-point scale (0 = *never*, 6 = *very likely*). Results from all four items

are summed to create a composite score of suicidal ideation and behavior. Scores range from 3 to 18. As in previous studies (e.g., Cole, 1988; Knott & Range, 1998), the obtained alpha coefficient in the present study for the four SBQ items was acceptable (.79; see Appendix B).

Suicide Risk. The Life Attitudes Schedule-Short Form (LAS-SF; Rohde, Lewinsohn, Langhinrichsen-Rohling, & Langford, 2004) is a 24-item self-report measure designed to assess current suicidal and health-related behaviors. Participants reported whether each item was true or mostly true for them, or false or mostly false for them during the past 7 days. To score the LAS-SF, one reverse scores negative responses so that higher scores indicate greater engagement in suicide-prone behavior. Moreover, the total score on the LAS-SF has been found to be correlated with both current suicide ideation and a history of past suicide attempts (Rohde et al., 2003). This scale has shown good reliability and validity estimates in clinical (coefficient alpha of .74) and nonclinical samples (coefficient alpha of .73; Ellis & Rutherford, 2008; Langhinrichsen-Rohling, Hudson, Lamis, & Carr, 2012; Langhinrichsen-Rohling & Lamis, 2008) and has been used successfully with college students in previous studies (Langhinrichsen-Rohling, Arata, Bowers, O'Brien, & Morgan, 2004). In a study measuring suicide risk among college students, Lamis and Malone (2011) found that the coefficient alpha for the LAS-SF items was .75. In the current study, the Cronbach alpha coefficient was .68. (See Appendix C).

Demographic Data. Descriptive information about the sample was gathered using a Demographic Information Form developed for this study. Categories of information included age, gender, race/ethnicity, and presence of religious affiliation. (See Appendix D).

Procedure

Participants in the study electronically signed an online informed consent form that described the study, outlined potential risks of participation, and assured confidentiality (See

Appendix E). Participants completed a series of online questionnaires, including the PTGI, SBQ-R, LAS-SF, and Demographic Data form. After completing the questionnaires, participants received web-delivered debriefing forms describing the study's purpose, offering information about available counseling services, and providing contact information for the primary investigator (See Appendix F). Participants' names were not connected to their online survey responses, and all completed questionnaires were stored in a protected electronic folder. All procedures and methods employed in this study were approved by the Colorado State University Human Subjects Committee/Institutional Review Board.

CHAPTER III

Results

To properly conduct parametric techniques, several assumptions about the data must first be tested. To test for violations of normality, each of the variables was examined separately. The distribution of scores on all dependent variables (PTGI, SBQ-R, LAS-SF, and the five subscales of the PTGI) was visually inspected for evidence of skewness and kurtosis. All variables demonstrated suitable normality except for *Suicidal Ideation and Behavior* (SBQ-R), which displayed a significant positive skew. In order to correct for this assumptive violation, SBQ-R was logarithm transformed before it was entered into analyses of variance. This type of transformation procedure is often recommended for the statistical investigation of positively skewed data (Cohen, Cohen, West & Aiken, 2003; Tabachnik & Fidel, 2007). Another assumption of parametric techniques is the presence of homogeneity of variance across groups. To check for violations of this assumption, Levene's test for equality of variance was interpreted and found not significant in all analyses. All dependent variables in this study were measured at the ratio level and the observations that make up the data were independent of one another.

Preliminary Analyses

To assess the direction and strength of the relationship between the dependent variables (PTGI, SBQ-R, LAS-SF, and the five subscales of the PTGI) a number of Pearson's product moment correlation coefficients were computed. Table 1 shows the means, standard deviations and intercorrelations for all dependent variables. Specifically, strong positive correlations between total PTGI and the Relating to Others subscale ($r=.92, p<.01$), the New Possibilities subscale ($r=.89, p<.01$), the Personal Strength subscale ($r=.89, p<.01$), the Spiritual Change subscale ($r=.60, p<.01$), and the Appreciation of Life subscale ($r=.81, p<.01$) were observed. As

expected, all of the five subscales of the PTGI were also positively correlated with one another. Small negative correlations between LAS-SF and PTGI ($r = -.12, p < .05$) and the Spiritual Change subscale ($r = -.20, p < .01$) were observed. Finally, a moderate positive correlation between LAS-SF and SBQ-R ($r = .41, p < .01$) was detected.

One-Way Analysis of Variance

Overall, the chronic or acute illness group reported a PTG level of ($M = 57.00, SD = 24.19$), the bereavement group reported ($M = 53.39, SD = 23.83$), and the accidental injury group reported ($M = 50.00, SD = 27.16$). A one-way between-groups analysis of variance (ANOVA) was conducted to explore the impact of trauma type on the total PTG score, as measured by the Posttraumatic Growth Inventory (PTGI). There was not a statistically significant difference in PTGI scores for the three trauma groups: $F(2, 314) = .970, p = .38$. Because there was not a significant difference in the overall ANOVA, post-hoc comparisons were not examined.

Multivariate Analysis of Variance

A one-way between-groups multivariate analysis of variance was performed to investigate differences across trauma type. Two moderately correlated dependent variables were used: suicidal ideation and behavior (as measured by the SBQ-R) and suicide risk (as measured by the LAS-SF). The independent variable was trauma type (*bereavement, chronic or acute illness, and accidental injury*). Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted. There was not a statistically significant difference between traumatic events on the combined suicide related dependent variables, $F(4, 614) = 2.05, p = .09$; Wilks' Lambda = .97; partial eta squared = .01. Because there was not a significant result on this multivariate test of significance, results for the

dependent variables were not considered separately. An earlier study with this data demonstrated that the number of traumatic life events and the perceived severity of traumatic life events significantly predicted suicide risk and suicidal ideation and behavior (Sheline & Rosén, 2013).

A second one-way between-groups multivariate analysis of variance was performed to investigate differences across trauma type as they related to posttraumatic growth factors. The dependent variables used were the five moderately correlated PTGI subscales: Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life. The independent variable was trauma type (bereavement, chronic or acute illness, and accidental injury). Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted. There was not a statistically significant difference between traumatic events on the combined PTGI dependent variables, $F(10, 618) = 1.09, p = .36$; Wilks' Lambda = .97; partial eta squared = .02. Because there was not a significant result on this multivariate test of significance, results for the dependent variables were not considered separately. In the interest of discussion, Table 2 shows the descriptive statistics for the PTGI subscales according to trauma type.

Moderation Analysis

Multiple linear regression was used to assess how posttraumatic growth might moderate the strength and/or direction of the observed relationship between type of trauma and suicide risk. The first requirement for running a moderated multiple regression involves dummy coding the categorical predictors. In this case, I created two dummy coded variables (“Chronic or Acute Illness” and “Accident or Injury”), with “Loss of a Loved One” serving as the reference group.

Several assumptions about the data were tested. To test for violations of normality, each of the predictor variables included in the regression analyses was examined separately. The distribution of scores on the continuous independent variable (PTGI) and the dependent variable (LAS-SF) were visually inspected for evidence of skewness and kurtosis.

Another assumption of multiple regression is the presence of linearity and homogeneity of variance across levels of the predictor variables (homoscedasticity). To check for violations of these assumptions, scatter plots were generated using the predicted values for all possible pairs of independent and dependent variables. Visual inspection of the plots verified that linearity and homoscedasticity were maintained. Because the multiple regression technique used in this study is particularly sensitive to outliers (very high or very low scores), it is critical to check for the presence of extreme scores that may exert undue influence on the relationship between the independent and dependent variables. Outliers were located through a variety of methods. First the data was graphically rendered by using a box-plot graph, which assists in the visual detection of extreme scores. These visual scanning procedures were also supplemented using statistical analysis of studentized residuals and Cook's Distance values, which provide a statistical representation of each case's residual error and resulting influence on the overall model (Cook, 1982). Cases were identified as potentially problematic when resulting in a Cook's Distance value greater than $4/n$ (.012 for this data set; Bolen & Jackman, 1990) or a studentized residual exceeding ± 2 (Belsey et al., 1980). These cases were then further visually scanned in order to assess whether they represented valid data or instances of unrealistic/faulty survey response. A total of four cases were identified as outliers. However, removal of these outliers did not significantly alter results of the research question and therefore all 335 participants were included in analysis.

A multiple linear regression analysis was conducted to determine the effects of trauma type and posttraumatic growth (PTGI) on suicide risk (LAS-SF; see Table 3; Baron & Kenny, 1986). The traumatic life event “Chronic or Acute Illness” was not significantly correlated with suicide risk (LAS-SF; $r = -.03, p > .05$). Similarly, the traumatic life event “Accident or Injury” was not significantly correlated with suicide risk (LAS-SF; $r = -.05, p > .05$). Posttraumatic growth (PTGI; $r = -.12, p < .05$) was significantly negatively correlated with suicide risk (SBQ-R; Table 1), which is what we would expect based on the positive changes associated with posttraumatic growth (Tedeschi, Park, & Calhoun, 1998). Additionally, the effect of trauma type on suicide risk (LAS-SF) was not moderated by trauma type and posttraumatic growth (Illness*PTGI; $b = -.01, p > .05$) and (Accident*PTGI; $b = .01, p > .05$). Overall, the six predictors in this model accounted for approximately 2% of the variance in suicide risk (LAS-SF; $R^2 = .02, p > .05$).

CHAPTER IV

Discussion

Many individuals will experience a traumatic event in their lives. More difficult to predict, however, is which of these individuals will experience either negative symptoms, or growth, as a result. The primary purpose of this research was to assess positive posttrauma changes as measured by the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) and negative changes as measured by the Suicidal Behaviors Questionnaire-Revised (SBQ-R; Osman et al., 2001) and the Life Attitudes Schedule-Short Form (LAS-SF; Rohde, Lewinsohn, Langhinrichsen-Rohling, & Langford, 2004) in survivors of three distinct traumatic event types: bereavement, chronic or acute illness, and accidental injury. Among this large group of mostly women undergraduates, there was not a statistically significant difference in PTGI scores for the three trauma groups. I also did not find a statistically significant difference between traumatic events on the combined variable of suicidal ideation and behavior (as measured by the SBQ-R) and suicide risk (as measured by the LAS-SF). Furthermore, there was not a statistically significant difference between traumatic events on the combined variable of the five PTGI subscales: Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life. Finally, posttraumatic growth did not moderate the relationship between type of trauma and suicide risk. Most research to date has examined the potential impact of trauma on psychological functioning (e.g., Breslau et al., 1998; Keane et al., 1994). The present study is unique in investigating if differences in dimensions of posttraumatic growth and suicide risk occur for survivors of different kinds of traumatic experiences. The three types of traumatic experiences- bereavement, chronic or acute illness, and accidental injury-are three of the most predominant across the college student population.

Posttraumatic growth theory does not address which traumas might contribute more or less to expected growth, or if some trauma types can be too detrimental to allow for personal posttraumatic growth. It is difficult to compare this result showing no significant difference in overall posttraumatic growth for the three trauma groups to previous findings because this study is the first to evaluate bereavement, chronic or acute illness, and accidental injury. Shakespeare-Finch and Armstrong (2010) examined three different trauma groups, motor vehicle accident, sexual assault, and bereavement. They found a significant difference in total posttraumatic growth based on trauma type, with the bereavement group reporting the highest mean posttraumatic growth total ($M=71.09$, $SD=20.81$), followed by motor vehicle accident group ($M=60.95$, $SD=25.60$) and the sexual assault group ($M=56.53$, $SD=23.60$). My findings did not show statistically significant differences between trauma types for posttraumatic growth.

The development-based traumatology framework (DBTF) may offer an explanation for these results (Kira et al., 2008). The taxonomy differentiates between four types of traumas: type I, when a traumatic event happened once and stopped (e.g., car accident); type II, when a traumatic event happened several times in the past and stopped (e.g., physical and sexual abuse and parental abandonment); type III, when a traumatic event happened, continued to happen, and did not stop (e.g., discrimination and racism); and type IV, when there is cumulative trauma that consists of the accumulative effects of different types of victimization and trauma. Because frequency of the event is not assessed in the Posttraumatic Growth Inventory, it cannot be determined if the trauma groups fall under type I or type II. It is possible that the students in this sample have only experienced one significant loss of a loved one, acute illness, or accidental injury. If this is the case, all of the traumas in this study would be considered type I traumas and contribute to similar levels of growth.

No statistically significant difference was found between traumatic events on the combined variable of suicidal ideation and behavior and suicide risk. One factor that might explain this result is event centrality, or the extent to which an event is incorporated into individual identity and thereby becomes central to one's sense of self (Berntsen & Rubin, 2006). Negative event centrality is associated with PTSD symptoms, depression, anxiety, stress, and alexithymia symptoms, even after controlling for trauma exposure (Bernard, Whittles, Kertz, & Burke, 2015). It is possible that the traumatic life events measured in this study either occurred too recently or were not severe enough to be considered central to one's sense of self. This low event centrality is a possible explanation for the lack of meaningful differences in suicidal ideation and behavior and suicide risk.

There was not a statistically significant difference between traumatic events on the combined variable of the five PTGI subscales: Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life. There is very little published research examining posttraumatic growth across trauma types. In their study comparing survivors of sexual abuse, motor vehicle accidents, and bereavement, Shakespeare-Finch and Armstrong (2010) found that the bereavement group reported significantly higher levels of growth in the "appreciation of life" and "relating to others" domains of posttraumatic growth when compared to the sexual abuse group. Due to the exploratory nature of this study, there were not specific predictions regarding differences in posttraumatic growth domains in survivors of bereavement, chronic or acute illness, and accidental injury. However, it is surprising that all three traumas led to similar increases in the perception of relating to others, new possibilities, personal strength, spiritual change, and appreciation of life. One potential explanation for this result is the homogeneity of the sample, which was composed of a disproportionate number of Caucasian

(85.7%) and women (70.4%) participants. It is possible that the fairly homogeneous college student sample exhibited rates and severity of trauma different from those reported in clinical and community-based samples. The development-based traumatology framework (DBTF) offers another possible justification for the lack of significant differences in posttraumatic growth domains (Kira et al., 2008). As mentioned previously, it is possible that the three traumatic life events examined in this study are type I traumas and contribute to similar experiences of posttraumatic growth.

Posttraumatic growth did not moderate the relationship between type of trauma and suicide risk. This is interesting given that a previous study using this same data set found that posttraumatic growth moderated the relationship between severity of traumatic life events and suicide risk. Individuals with the most severe traumatic life events had less suicide risk if they had experienced posttraumatic growth following their trauma (Sheline & Rosén, 2013). It is thought that in the initial aftermath of the trauma, the overall degree of posttraumatic stress must be severe enough to challenge survivors' core beliefs, which prompts both intrusive and deliberate cognitive processing (Lindstrom, Cann, Calhoun, & Tedeschi, 2013). The current findings could be explained by the fact that posttraumatic growth is a cognitive reevaluation process that involves focusing on the meaning of the traumatic life event(s) and the three traumatic life events examined in this study may not have been severe enough to prompt this process. Also not assessed was the previously mentioned construct of event centrality and it is possible that the survivors of bereavement, chronic or acute illness, and accidental injury did not consider their trauma a central part of their individual identity.

Limitations and Directions for Future Research

Several study limitations deserve mentioning. Results are limited by the study's cross-sectional design, making conclusions regarding long-term positive and negative posttrauma changes difficult. The study relied exclusively on self-report data, adding to the subjective nature of the findings. Additionally, participants self-selected into the study, which limits generalizability of the study somewhat, given that students may have been attracted to the study because of its particular focus on perceived growth after adversity. The sample was composed of a disproportionate number of Caucasian (85.7%) and female (70.4%) participants, thus limiting the generalizability of the current findings across race, ethnicity, and gender. Future studies should seek to address the long-term positive and negative posttrauma changes in clinical populations in which levels of psychopathology (e.g., PTSD, depression, suicidal ideation and behavior) may be more severe.

A major limitation of the study involves the Posttraumatic Growth Inventory itself. It was relied upon to determine the three traumatic life event groups and the inventory does not assess for frequency or perceived severity of the event, restricting the depth and understanding of participants' experience with trauma. Future studies should incorporate these questions into the assessment of the event that participants are thinking about while responding to items on the Posttraumatic Growth Inventory. The Posttraumatic Growth Inventory also forces participants to only report growth from one traumatic life event. However, an earlier study with this data set showed that the average number of traumatic life events for each participant was just over two ($M = 2.19$, $SD = 1.18$; Sheline & Rosén, 2013). This discrepancy may have played a role in the lack of significant findings in this study. Future research should also seek to assess event centrality, or the personal meaning of a negative event in relation to individual identity (Bernsten

& Ruben, 2006). The Centrality of Event Scale (CES; Bernstein & Rubin, 2006) contains items such as “This event has permanently changed my life” and “I feel that this event has become part of my identity.” Inclusion of this scale in future studies would add valuable information to an understanding of the subjective importance of various traumatic life events.

Implications

Despite these limitations, this research is the first of its kind to examine the dimensions of posttraumatic growth and suicide risk in college student survivors of three distinct traumatic event types: bereavement, chronic or acute illness, and accidental injury. While trauma type did not differentiate between various factors of growth and distress, there are several plausible explanations for the lack of significant results. Because so many college students have experienced a bereavement, chronic or acute illness, or accidental injury (60% of our 557-person sample), it will continue to be important for scientist-practitioners to explore the wide span of outcomes following these events—ranging from promise in the form of posttraumatic growth to peril in the form of suicidal ideation and behavior.

This research has expanded awareness of the common threads of pain and growth across human suffering. While clinicians are cautioned against generalizing across the traumas examined in this study, it appears that all five dimensions of posttraumatic growth (relating to others, new possibilities, personal strength, spiritual change, and appreciation of life) are worthwhile areas of focus in therapy in order to facilitate growth and/or reduce risk of suicide. At this point, it is not possible to hypothesize how best to facilitate posttraumatic growth in response to different trauma types. However, as trauma researchers and practitioners, it is up to us to call for a dialectical approach that considers how a client’s struggle with trauma contributes

to risk for suicide and the meaning-making, renewed relationships, and enhanced sense of purpose associated with posttraumatic growth.

Tables

Table 1.
Variable Means, Standard Deviations, and Intercorrelations

Variables	1	2	3	4	5	6	7	8
1. PTGI	1							
2. Relating to Others	.92**	1						
3. New Possibilities	.89**	.73**	1					
4. Personal Strength	.89**	.75**	.78**	1				
5. Spiritual Change	.60**	.47**	.44**	.44**	1			
6. Appreciation of Life	.81**	.69**	.67**	.69**	.38**	1		
7. LAS-SF	-.12*	-.10	-.04	-.11	-.20**	-.09	1	
8. SBQ-R	-.09	-.08	-.01	-.08	-.08	-.09	.41**	1
M	53.44	18.64	10.62	10.76	3.92	9.70	28.48	4.49
SD	24.38	9.29	6.71	5.41	3.27	3.80	2.97	2.25

**Correlation is significant at the .01 level (2-tailed)

*Correlation is significant at the .05 level (2-tailed)

Table 2.

Descriptive Statistics of PTGI Subscales According to Trauma

	Trauma	Mean	Std. Deviation
Relating to Others	Loss of a loved one	18.90	9.22
	Chronic or acute illness	19.25	8.99
	Accident or injury	16.72	10.18
	Total	18.64	9.34
New Possibilities	Loss of a loved one	10.30	6.45
	Chronic or acute illness	11.85	7.15
	Accident or injury	10.15	7.00
	Total	10.51	6.64
Personal Strength	Loss of a loved one	10.59	5.38
	Chronic or acute illness	12.02	5.28
	Accident or injury	10.00	5.82
	Total	10.72	5.44
Spiritual Change	Loss of a loved one	3.87	3.17
	Chronic or acute illness	3.87	3.35
	Accident or injury	4.04	3.65
	Total	3.90	3.26
Appreciation of Life	Loss of a loved one	9.69	3.73
	Chronic or acute illness	10.00	3.69
	Accident or injury	9.09	4.43
	Total	9.65	3.83

Table 3.

Does posttraumatic growth affect the strength and/or direction of the observed relationship between trauma type and suicide risk? Multiple Regression Analyses

	<i>B</i>	<i>SE (B)</i>	<i>t</i>	<i>p</i>
Predicting suicide risk				
Chronic or Acute Illness	.303	1.07	.28	.78
Accident or Injury	-1.03	1.24	-.83	.41
Posttraumatic Growth	-.01	.01	-1.52	.96
Illness x Posttraumatic Growth	-.01	.02	-.74	.46
Accident x Posttraumatic Growth	.01	.02	.52	.61
Constant	29.32			

Note. $R^2 = .02$ in predicting suicide risk, $n = 335$.

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Appendix A

Posttraumatic Growth Inventory

Before answering the following questions, focus on traumatic events that have occurred in your life.

Please indicate the general experience you are thinking of:

- Loss of a loved one
- Chronic or acute illness
- Violent or abusive crime
- Accident or injury
- Disaster
- Job loss
- Financial hardship
- Career or location change/move
- Change in family responsibility
- Divorce
- Retirement
- Combat
- Other

Time lapsed since last event occurred:

- 6 months - 1 year
- 1 - 2 years
- 2 - 5 years
- More than 5 years

Indicate for the statement below the degree to which the change reflected in the question is true in your life as a result of your crisis, using the following scale.

- 0 = I did not experience this change as a result of my crisis.
- 1 = I experienced this change to a very small degree as a result of my crisis.
- 2 = I experienced this change to a small degree as a result of my crisis.
- 3 = I experienced this change to a moderate degree as a result of my crisis.
- 4 = I experienced this change to a great degree as a result of my crisis.
- 5 = I experienced this change to a very great degree as a result of my crisis.

1. I changed my priorities about what is important in life.
2. I have a greater appreciation for the value of my own life.
3. I developed new interests.
4. I have a greater feeling of self-reliance.
5. I have a better understanding of spiritual matters.
6. I more clearly see that I can count on people in times of trouble.
7. I established a new path for my life.
8. I have a greater sense of closeness with others.
9. I am more willing to express my emotions.
10. I know better that I can handle difficulties.

11. I am able to do better things with my life.
12. I am better able to accept the way things work out.
13. I can better appreciate each day.
14. New opportunities are available which wouldn't have been otherwise.
15. I have more compassion for others.
16. I put more effort into my relationships.
17. I am more likely to try to change things which need changing.
18. I have a stronger religious faith.
19. I discovered that I'm stronger than I thought I was.
20. I learned a great deal about how wonderful people are.
21. I better accept needing others.

In your own words, please describe how you feel your life changed as a result of the traumatic event(s) you experienced:

Appendix B

Suicidal Behaviors Questionnaire-Revised (SBQ-R)

Instructions: Please check the number beside the statement or phrase that best applies to you.

1) Have you ever thought about or attempted to kill yourself? (check one only)

- Never
- It was just a brief passing thought
- I have had a plan at least once to kill myself but did not try to do it.
- I have had a plan at least once to kill myself and really wanted to die
- I have attempted to kill myself, but did not want to die
- I have attempted to kill myself, and really hoped to die

2) How often have you thought about killing yourself in the past year? (check one only)

- Never
- Rarely (1 time)
- Sometimes (2 times)
- Often (3-4 times)
- Very Often (5 or more times)

3) Have you ever told someone that you were going to commit suicide, or that you might do it? (check one only)

- No
- Yes, at one time, but did not really want to die
- Yes, at one time, and really wanted to die
- Yes, more than once, but did not want to do it
- Yes, more than once, and really wanted to do it

4) How likely is it that you will attempt suicide someday? (check one only)

- Never
- No chance at all
- Rather unlikely
- Unlikely
- Likely
- Rather likely
- Very Likely

Appendix C

Life Attitudes Schedule-Short Form (LAS-SF)

- 1) I take care of my possessions so that they will last as long as possible. (True or False)
- 2) I choose to listen to music that has a death related theme. (e.g., some Heavy Metal music like Ozzy Osbourne's "Suicide Solution.") (True or False)
- 3) I try to eat foods that are good for me. (True or False)
- 4) I have gone on occasional drinking sprees. (True or False)
- 5) I avoid unnecessary risks. (True or False)
- 6) At least once a month I have driven or have been driven more than 20 miles per hour over the speed limit. (True or False)
- 7) I rarely do things that violate my standards. (True or False)
- 8) I spend a lot of time doing things that are unproductive or unfulfilling. (True or False)
- 9) I look forward to a long life. (True or False)
- 10) I enjoy thinking about death. (True or False)
- 11) I enjoy eating "right". (True or False)
- 12) I don't really care much about what I eat (e.g., fried foods, sugar, etc.) (True or False)
- 13) I enjoy spending time with people who are cautious and avoid unnecessary risks. (True or False)
- 14) Sometimes I feel so frustrated that I would like to hit my fist against the wall (or do something that could hurt me). (True or False)
- 15) I feel good because my activities are meaningful and have purpose. (True or False)
- 16) I wish that I was someone else. (True or False)
- 17) I expect to have a long and interesting life. (True or False)
- 18) Killing myself would solve many of my problems. (True or False)
- 19) It is important to brush one's teeth after every meal. (True or False)
- 20) The danger of smoking cigarettes has been exaggerated. (True or False)
- 21) The chance of my being injured in an accident in the next year is very low (less than 10%). (True or False)
- 22) Sometimes I think about injuring myself (e.g., smashing my fist into a window). (True or False)
- 23) I believe that I am a good person. (True or False)
- 24) I think that I am worthless. (True or False)

Appendix D

Demographic Data Form

- 1) What is your age? ___ years old

- 2) What is your gender? (please choose one)
 Male
 Female
 Transgender
 I prefer not to answer

- 3) What race/ethnicity do you identify with the most? (please choose one)
 African American/Black
 Alaska Native
 American Indian/Native American
 Asian American
 Caucasian/White
 Hawaiian/Pacific Islander
 Latino or Hispanic
 Middle Eastern American
 Other (Please specify: _____)

- 4) Are you religiously affiliated?
 No
 Yes

Appendix E

**Consent to Participate in a Research Study
Colorado State University**

TITLE OF STUDY

Perceived Changes Following Adversity

PRINCIPAL INVESTIGATOR

Lee A. Rosen, Ph.D., Psychology Department
207 Behavioral Sciences Building, (970) 491-5925
Lee.Rosen@colostate.edu

CO-PRINCIPAL INVESTIGATOR

Kelly Sheline, Doctoral Student, Psychology Department
338 Behavioral Sciences Building, (970) 658-0949
kellysheline@gmail.com

WHY AM I BEING INVITED TO TAKE PART IN THIS RESEARCH?

We are interested in learning more about how individuals cope after a negative life event. Since we are interested in college students, we would appreciate your help.

WHO IS DOING THE STUDY?

The study is being conducted by doctoral student, Kelly Sheline, under the guidance of her advisor, Lee Rosen, Ph.D.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of the study is to better understand the positive changes sometimes experienced as a result of a struggle with challenging life events.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

You will be asked to complete the study on-line at a time and place that is convenient for you. Participation will take approximately 30 minutes of your time.

WHAT WILL I BE ASKED TO DO?

You will be asked to complete a few questionnaires regarding your experience with negative life events, changes that occurred as a result of these events, suicidal ideation, behavior, and risk factors, adjustment to college, and childhood maltreatment (sexual, physical, and emotional abuse). The surveys include some questions that may seem sensitive or personal. You are free to skip any question or item for any reason.

ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS STUDY?

Participation requires that you are at least 18 years of age and currently enrolled in college courses.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

Due to the sensitive nature of some of the questionnaires, there is a slight risk of emotional distress associated with this study. If any of the questions cause you emotional distress, please feel free to contact Kelly Sheline, M.Ed. at the CSU Health Network-Counseling Services at (970) 491-3649 or call (970) 491-6053 to speak to a CSU-Health Network counselor.

ARE THERE ANY BENEFITS FROM TAKING PART IN THIS STUDY?

There are no direct benefits from your participation in this study, although it will help us to better understand personal growth after negative life events.

DO I HAVE TO TAKE PART IN THE STUDY?

Your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

WHO WILL SEE THE INFORMATION THAT I GIVE?

We will keep private all research records that identify you, to the extent allowed by law.

This study is anonymous. We are not obtaining your name or other identifiable data from you, so no one, not even members of the research team, will be able to identify you or your data. Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered.

WILL I RECEIVE ANY COMPENSATION FOR TAKING PART IN THIS STUDY?

You will receive 1/2 experimental credit for your participation today.

WHAT HAPPENS IF I AM INJURED BECAUSE OF THE RESEARCH?

The Colorado Governmental Immunity Act determines and may limit Colorado State University's legal responsibility if an injury happens because of this study. Claims against the University must be filed within 180 days of the injury.

WHAT IF I HAVE QUESTIONS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions about the study, you can contact the investigator, Dr. Lee Rosén at 970-491-5925 or Kelly Sheline at 970-658-0949. If you have any questions about your rights as a volunteer in this research, contact Janell Barker, Human Research Administrator at 970-491-1655. You are free to print out a copy of this consent form to take with you for your records.

This consent form was approved by the CSU Institutional Review Board for the protection of human subjects in research on October 3, 2012.

If you have read and understood the above information and consent to participating in the study, please click the "I consent" button to indicate your consent to participate in the study.

Appendix F

Debriefing Information

Objective of Research

This study is concerned with the interaction between exposure to negative life events, positive benefits sometimes experienced as a result of these events (posttraumatic growth), and current psychological functioning. Previous studies have suggested that perceived growth after traumatic life experiences may prevent the development of suicidal thoughts and behavior. Relevant sections of your PSY 100 textbook include pages 484-485 and 502-503.

General Information

Your participation is greatly appreciated and will help psychologists to better understand the relationship between traumatic experiences, posttraumatic growth, and psychological functioning. If you would like to receive a report of this research when it is completed (or a summary of the findings), please contact Kelly Sheline, M.Ed. at kellysheline@gmail.com or Lee A. Rosén, Ph.D. at Lee.Rosen@Colostate.edu.

Safety

If your participation in this study has contributed to any emotional distress or significant discomfort, you may contact Dr. Susan MacQuiddy, Director of Counseling Services at CSU-Health Network at 970-491-6496. In case of emergency or crisis, on-call counselors are also available 24/7 and can be reached at [970-491-7111](tel:970-491-7111). For a nationwide crisis hotline, please call [1-800-273-8255](tel:1-800-273-8255). Finally, please contact the research investigators directly for assistance and additional debriefing if you experience any distress as a result of this study. Kelly Sheline can be reached at [\(970\) 658-0949](tel:970-658-0949) or kellysheline@gmail.com. To contact Dr. Lee Rosén, call [\(970\) 491-4925](tel:970-491-4925) or send an email to Lee.Rosen@Colostate.edu. If you have any questions about your rights as a volunteer in this research, contact Janell Barker, Human Research Administrator, at [970-491-1655](tel:970-491-1655).

Confidentiality

All information collected in today's study will be confidential, and there will be no way of identifying your responses in the data archive. Identifying the responses of individual participants is not important. Instead, this research will be focused on examining general patterns that emerge when the data are aggregated together.

Please do not disclose research procedures and hypotheses to anyone who might participate in this study between now and the end of data collection, as this could affect the results of the study.

Thank you for your participation!