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Coping strategies, psychopathological symptoms, and posttraumatic growth following trauma and stressful life events

Jessica Henninger

COPING STRATEGIES, PSYCHOPATHOLOGICAL SYMPTOMS, AND POSTTRAUMATIC GROWTH FOLLOWING TRAUMA AND STRESSFUL LIFE EVENTS

by

Jessica R. Henninger

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Dedication

I would like to dedicate this manuscript to my son, Tyler D. Henninger, for whom I hope the world provides another question for every answer discovered, and to my husband, Christian D. Henninger, for whom patience knows no bounds and without whom my accomplishments would be empty celebrations.

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Abstract

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Thomas Dinzeo, Ph.D.
Master of Arts in Clinical and Mental Health Counseling

The current study examined the predictive value of stressful life experiences and coping strategies on posttraumatic growth and psychopathological symptoms. Using the Traumatic Life Events Questionnaire (TLEQ), the Brief COPE, the Brief Symptom Inventory (BSI), and the Posttraumatic Growth Inventory (PTGI), hierarchical linear regression models were used to explore the contribution of specific coping strategies to predict posttraumatic growth and psychopathological symptoms following exposure to a trauma/stressful life event. We hypothesized that coping styles such as planning, humor, and acceptance would predict more adaptive outcomes, whereas coping styles such as venting, substance use, and denial would predict more maladaptive outcomes. Results from a factor analysis indicated that there were three factors in the current sample. Factors 1 and 3 were considered "adaptive" coping styles and analyzed together. In a hierarchal regression, these strategies predicted significantly more posttraumatic growth and less psychopathological symptoms beyond that of gender and trauma/stressful life events. Factor two was considered "maladaptive" and significantly predicted psychopathological symptoms beyond that of gender and trauma/stressful life events. Post-hoc analyses explored the specific predictive value of these coping strategies.

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Chapter 1: Introduction

Most people experience at least one traumatic event in a lifetime (American Psychological Association, 2004); however, only a small percentage of these individuals go on to manifest symptoms of psychopathology. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR), trauma is defined as "a stressful event an individual experiences, witnesses, or is confronted with that involves actual or threatened death or serious injury, or a threat to the physical integrity of self or others to which the individual reacts with intense fear, helplessness, or horror" (American Psychiatric Association, 2000, p.463). Stressful life events might be defined as sub-traumatic life events that cause an individual significant stress but do not meet criteria to be defined as a trauma by the American Psychological Association. Statistics generated by the Center for Epidemiology of Disasters (Ganeshan, Shamanthy, & Diamond, 2009) suggest that the number of people exposed to trauma has been increasing in recent decades. With technological advancements, instantaneous updates, pictures, and even videos of such events readily available, the risk of potential exposure to such events goes beyond those directly affected by trauma.

Trauma and stressful life events can have negative effects on individuals such as the subsequent development of psychopathological symptoms (Amstadter & Vernon, 2008; Eftekhari, Zoellner & Vigil, 2009; Kleim & Glucksman, 2012; and Kong & Bernstein, 2009); however, there is also the potential for positive effects as well (Kira , Lewansowski, & Somers, 2012; Feder et al., 2008; Pollard & Kennedy, 2007). For example, Calhoun and Tedeschi (1998) described "posttraumatic growth" as the phenomenon in which an individual seems to thrive psychologically following a

traumatic or stressful life event. Indeed, some people actually *benefit* from experiencing the trauma or stressor. Part of that process, as the authors note, is the result of adaptive coping as it is necessary to relieve emotional distress (Calhoun & Tedeschi, 1998). The way in which an individual reacts both cognitively and behaviorally affects the impact of the trauma or stressful life event. What makes some individuals develop mental health disorders, while others seem to flourish after experiencing such a negative event? These differences may be related to how people appraise the event and their subsequent coping strategies.

The Role of Appraisal

Beck's cognitive theory of psychopathology states that the "interpretation of a situation *precedes* [the] emotional response" (1976, p. 28). According to this theory, cognitive appraisal can be thought of as the way in which an individual perceives the traumatic or stressful event (Beck, 1976). Numerous studies have supported the importance of cognitive appraisals in predicting psychopathology in general. Amstadter and Vernon (2008) found reappraisal emotional approach coping strategies to be predictive of *less* psychopathological symptoms. Similarly, Eftekhari, Zoellner, and Vigil, (2009) found high levels of reappraisal and low levels of suppression to be *least* predictive of psychopathology. Pollard and Kennedy (2007) even suggest that therapy is a useful tool whereby individuals are enabled to reconstruct their "assumptions or world view…and may produce meaningful narrative[s] to make sense of the trauma" (p.350).

Which types of appraisals are adaptive? Feder et al. (2008) found a significant positive correlation between scores on the Posttraumatic Growth Inventory and optimism

in individuals who had formerly been prisoners of war during Vietnam. This suggests that optimism is an adaptive appraisal and seems to be predictive of resilience in individuals. Furthermore, appraisal shapes the coping process which may have long term effects (Lazarus et al., 1985). More optimistic styles of appraisal are generally related to better physical and mental health as indicated by Lawler, Ouimette, and Dahlstedt (2005). Thus, if this process is recursive, as Lazarus et al. (1985) indicate, then it should also be possible to change coping strategies in an attempt to reshape appraisals into more adaptive responses. Cognitive appraisals might be improved through behavioral changes in coping in much the same way as behavioral techniques are utilized to change maladaptive thoughts (Friedberg & McClure, 2002). For instance, cognitive therapists often encourage clients to engage in pleasurable activities in an effort to provide clients with more opportunities to increase positive thinking. Therefore, if optimism (Feder et al., 2008), awareness, and controllability (Linley & Joseph, 2004) are adaptive appraisals associated with such things as personal strength and appreciation of life, then coping strategies that are associated with the adaptive appraisals, should also be considered adaptive, and thus predictive of less psychopathology and greater posttraumatic growth.

Coping

Simply assessing appraisals is not a sufficient solution to help individuals overcome traumatic or stressful life events as appraisals are similar to intermediate thoughts in cognitive theory (Beck, 1976). At the most conscious level of awareness, according to Beck, is automatic thoughts. Such consists of stream of consciousness or internal verbalizations. An individual is fully aware of the thoughts running though

his/her mind. At the most unconscious level of cognition is an individual's schema. Schemas consist of an individual's worldview and how an individual understands and perceives him/herself, others, and the world at large. Such can be brought to conscious awareness with moderate effort. In between automatic thoughts and schema are intermediate beliefs. Intermediate beliefs are the general attitudes, perceptions, and opinions that an individual may hold. Such require slightly more effort to bring to conscious awareness, and can be difficult to remember retrospectively. For instance, an individual may have difficulty remembering his/her perception of a traumatic event during the moment in which it took place. Even if an individual does "remember" such, the appraisal that is remembered may or may not be accurate as memories tend to change over time.

Appraisals are also difficult to operationalize and directly address in therapy. Meta-cognitive tasks, having an individual think about the way s/he thought about a traumatic/stressful life event can be an arduous task. However, people do tend to remember what they did. "Lazarus and Folkman (1982) have defined coping as 'cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (original citation Lazarus and Folkman, 1982, p. 141, as cited by Watson and Sinha, 2008, p.223). Thus, coping strategies, measured in terms of behavior (Littleton, Horsley, John, & Nelson, 2007), present a concrete mechanism to analyze and reshape appraisals. New coping strategies may be taught via skills training, and thus provide an indirect way to change appraisals.

While copings strategies present an opportunity to measure the way individuals react to a trauma or stressful life events, studies provide contradictory evidence for which coping strategies are adaptive and which are maladaptive. Watson and Sinha (2008) conducted a well-structured study with undergraduate students that analyzed coping strategies by gender and the subsequent association with various types of psychopathological symptoms including somatization, obsessive-compulsions, depression, and anxiety. Interestingly, they found significant gender differences in the adaptiveness of coping strategies as they related to symptoms of mental health disorders. For instance, avoidance was significantly predictive of somatization, obsessive-compulsions, depression, and anxiety in females, but not males, while emotion-focused coping was repeatedly associated with symptoms in both genders. It is unclear whether similar results would exist in individuals who had experienced a traumatic or stressful life event. It is also uncertain which coping strategies have adaptive effects for each gender.

For the purpose of the current study, *maladaptive* coping will be defined as those that are associated with increased psychopathological symptoms and decreased posttraumatic growth. When coping is defined in this way, studies have shown self-distraction (Mellman et al., 2001; Schmid, Petermann, & Fegert, 2013), venting, such as emotion-focused coping (Amstadter & Vernon, 2008; Lack & Sullivan, 2008; Mellman et al., 2001), denial (Amstadter & Vernon, 2008), behavioral disengagement, such as avoidance (Lawler, Ouimette, & Dahlstedt, 2005; Ortiz, Silverman, Jaccard, and LaGreca, 2011; Mellman et al., 2001), substance use (Ouimette, Finney & Moos, 1999;Khoury et al., 2010), and self-blame (Desmet et al., 2007; Kannon & Levitt, 2013) to be significantly associated with higher levels of psychopathology; as such, they have

generally been labeled maladaptive. *Adaptive* coping strategies, in comparison, such as positive reframing and growth (Eftekhari, Zoellner, & Vigil, 2009; Lack & Sullivan, 2008), instrumental social support, such as information/advice seeking (Semmer et al., 2008; Declercq, Vanheule, Markey, & Willemsen, 2007), active coping (Feder et al., 2008), religious coping (Feder et al., 2008), humor (Mellman et al., 2001), emotional support seeking (Lack & Sullivan, 2008; Mellman et al., 2008), acceptance (Dahl et al., 2005; Vieten et al., 2010), and planning, such as problem-focused coping (Amstadter & Vernon, 2008) have been associated with more positive outcomes such as increased posttraumatic growth and decreased psychopathological symptoms.

Some controversy exists in the literature concerning the adaptive or maladaptive nature of the above-mentioned coping strategies. For instance, contrary to the findings of Amstadter & Vernon (2008), Huijts et al. (2012) found a significant positive association between emotion-focused coping and quality of life. Likewise, Coifman, Bonanno, Ray, and Gross (2007) and Lack and Sullivan (2008) found that repressive coping styles, such as avoidance of specific activities or behaviors, can have adaptive qualities despite their generally maladaptive connation in other studies. Amstadter and Vernon (2008) suggest that these findings may be the result of the different types of trauma assessed in the various samples. For instance, Amstadter and Vernon's study (2008) assessed only man-made trauma, such as physical assault, while Coifman, Bonanno, Ray, and Gross (2007) only assessed bereaved individuals. Unfortunately, assessing only a single type of trauma restricts the generalizability of findings to other trauma samples. Thus, certain coping strategies may be more beneficial under specific circumstances, but such assessment is beyond the scope of the current study. Based on the majority of the studies reviewed, the

above labels of coping strategies will be used throughout the entirety of this study. It is hoped that further analyses will expand the knowledge base of this complex phenomenon.

Chapter 2: Literature Review

Overlap of Symptoms

Schmid, Petermann, & Fegert (2013) found support for the overlap of certain coping strategies, including self-blame and self-distraction, following a trauma in individuals who expressed PTSD and depression. Likewise, traumatized individuals who endorse avoidant coping strategies are more likely to manifest symptoms of substance abuse (Ouimette, Finney, & Moos, 1999) depression, anxiety, and PTSD (Ortiz Silverman, Jaccard, and LaGreca, 2011). As a result, there appears to be a need for further analysis of the association between coping strategies and a broader scope of psychopathological symptoms.

Contradictory evidence in the literature indicates that individual reactions to stress are complex (Ortiz, Silverman, Jaccard, and LaGreca, 2011). Therefore, the better we as clinicians can understand the relationship between trauma/stressful life events, coping strategies, and psychopathology, the more efficient we can be at understanding and preventing the manifestation of pathological symptoms. While many studies have examined the link between trauma and PTSD (Amstadter & Vernon, 2008; Coifman et al., 2007; Eftekhari, Zoellner, & Vigil, 2009; Huijts et al., 2012; & Kleim, Ehlers, & Glucksman, 2012), few studies have incorporated a broader scope of psychopathology. Other studies, for instance, seem to indicate an association between trauma and other mental health disorders such as anxiety (Coifman et al., 2007; Eftekhari, Zoellner, & Vigil, 2008; Silverman, Jaccard, and LaGreca,, 2011), depression (Coifman et al., 2007; Eftekhari, Zoellner, &Vigil, 2008; Kleim, Ehlers, & Glucksman, 2012), schizophrenia (Shannon et al., 2011), substance use disorders (Ouimette, Finney & Moos, 1999),

borderline personality disorder (Venta, Kenkel-Mikelonis, & Sharp, 2012), and Eating Disorders (Frayne & Wade, 2006; Kong & Bernstein, 2009) but have failed to specifically examine coping strategies within these populations.

Feder et al. (2008), for example, attempted to assess post-traumatic growth in male Vietnam veterans using the Posttraumatic Growth Inventory and other questionnaires that evaluated such things as optimism, social support, and purpose in life. Using hierarchical regression models, the authors found optimism to be a significant predictor of scores on the Posttraumatic Growth Inventory in comparison to social support. They concluded that "the capacity to grow psychologically is a key component of the coping process after stressful life events" (Feder et al., 2008, p. 360). These findings provide evidence in favor of the existence of adaptive strategies that may lead to positive outcomes following a traumatic or stressful life event. Despite these findings, generalizations to other population are limited by the all male sample in addition to the single type of trauma, namely war. A more representative sample would be needed to assess whether similar findings exist in other populations.

Eftekhari, Zoellner, & Vigil (2009) also assessed the adaptivity of coping strategies following a trauma. Their sample consisted of nonclinical undergraduate women whose responses to the Emotion Regulation Questionnaire yielded four patterns of coping in a cluster analysis: high regulators, high reappraisers/low suppressors, moderate reappraisers/low suppressors, and low regulators. High reappraisers/low suppressors appeared to be the most adaptive response since they yielded the least amount of psychopathology as measured by levels of depression and anxiety; low regulators tended to have the greatest levels of depression and anxiety. Limitations

included the all-female sample, as well as the restricted scope of psychopathology assessed as they did not include measures of psychotic disorders, other mood disorders, somatic disorders, or eating disorders. Also, although low regulation of emotions can be considered a maladaptive response based on the increased psychopathology attributed to it, only limited conclusions can be made about the adaptive nature of high-appraisal combined with low suppression as such is only measured by the *lack* of psychopathology. For example, it would be much more beneficial to assess the potential for posttraumatic growth, as an indicator of adaptiveness and psychopathological symptoms as an indicator of maladativeness simultaneously in a study.

The goals of the current study were to replicate findings that coping strategies can be reliably categorized as adaptive or maladaptive and to address gaps in the literature regarding coping strategies by assessing a broader range of psychopathological symptoms in a sample of individuals who have been exposed to a traumatic or stressful life event. We hypothesized that 1) coping strategies would yield onto four factors: problem-focused, emotion-focused, social support seeking, and avoidant. Historically maladaptive coping strategies including behavioral disengagement, denial, venting, self-distraction, substance use, and self-blame have yielded maladaptive responses such as elevated levels of psychopathological symptoms, less adaptive appraisals and decreased levels of posttraumatic growth. We anticipated finding similar patterns in the current sample. In contrast, adaptive coping strategies such as acceptance, active coping, emotional social support seeking, humor, instrumental support seeking, planning, positive reinterpretation and growth, religious coping, and humor have yielded greater adaptive appraisal,

decreased levels of psychopathological symptoms and increased levels of posttraumatic growth.

We further hypothesized that 2) trauma/stressful life event exposure would be correlated with increased psychopathological symptoms. We also anticipated that 3) coping strategy factors would predict psychopathological symptoms and posttraumatic growth beyond that of trauma severity, such that greater use of maladaptive coping strategies would be related to more severe psychopathological symptoms and less posttraumatic growth while greater use of adaptive coping strategies would be associated with less severe psychopathological symptoms and more posttraumatic growth.

Chapter 3: Method

Participants

The current study was originally comprised of 284 undergraduate students at a medium sized Mid-Atlantic university recruited electronically through SONA. We estimated that we would need to recruit at least 70 participants. There were 11 participants missing at least ten percent of one or more measures. When these participants were removed from the dataset, there were no outliers identified according to Stevens (2000) guidelines such that there were no standardized residuals whose absolute value was greater than or equal to 3. The current sample thus consisted of 273 participants (53.8% female, n=147). The mean age was 20.5 years and ranged from 19 to 48 years. 70.7% of the participants identified as Caucasian (n=193), 13.6% identified as African American (n=37), 9.5% identified as Hispanic/Latino (n=26), 5.9% identified as Asian/Pacific Islander (n=16), and .4% identified as Native American (n=1). These percentages were roughly representative of the university's population.

Procedure

All procedures for this study met requirements of the Rowan University Institutional Review Board. Student participants were recruited from the undergraduate population via the electronic SONA system at Rowan University. Participants were then referred to Survey Monkey, and online questionnaire platform, licensed to the Psychology Department at Rowan where the informed consent, demographic questionnaire, and other measures were available. Individuals were told that the study was designed to assess extremely distressful events, the ways in which people deal with

stress, and the various benefits and disadvantages that may occur following a traumatic or stressful life event. Informed consent was obtained to ensure that participants were over the age of 18. All minors were excluded from further participation. All participants were informed that they would be eligible to receive course credit for participation (i.e. students enrolled in Essentials of Psychology course) OR be entered into a chance to win a $25 Wawa gift card at the conclusion of the study. Because of the nature of this study, we were aware that asking questions related to a previous traumatic/stressful life event could be potentially distressing to participants. All participants were informed of such potential risks. With the permission of Rowan's Psychological and Counseling Services Center, all participants were provided with the contact information for Rowan's Psychological and Counseling Services should they become distressed at any point during the study. All participants were reminded that participation was voluntary and they were able to cease participation at any time without penalty. In addition to the demographic survey, participants completed four questionnaires: the Traumatic Life Events Questionnaire (TLEQ), the Brief COPE, the Posttraumatic Growth Inventory (PTGI), and the Brief Symptom Inventory (BSI). On average, participants completed the study in 18.56 minutes. At the conclusion of the study, all participants were thanked, debriefed and reminded about the purposes of the current study, and provided with the contact information for the primary investigator, the primary investigator's advisor, and Rowan's Psychological and Counseling Services.

Measures

The Traumatic Life Events Questionnaire. The Traumatic Life Events Questionnaire (TLEQ; Kubany, 2000) includes 22 items that assess an individual's exposure to a variety of traumas. In addition, a 23rd item allows participants to generate any traumatic event not listed. Directions were tweaked to encourage individuals who have experienced a stressful life event not included on the list of traumas to generate their event on the 23rd item. Responses to items such as "Have you ever been present during a robbery where the robber(s) used or displayed a weapon?" are scored on a six-point frequency scale ranging from (0) never to (6) more than 5 times. Internal reliability, analyzed through temporal consistency, ranges from (kappa coefficients) .27 to .59. However, Peirce et al. (2009) found great support of the scale's psychometric properties; for instance, Peirce et al. (2009) found that that the number of potentially traumatic events reported in the TLEQ was nine times greater than the number of potentially traumatic events reported using the Structured Clinical Interview for DSMIV-TR (SCID). Compared to the TLEQ, the SCID had much less sensitivity in detecting such traumatic events as injury/illness of a loved one or witnessing family violence (Peirce et al., 2009). Kubany et al. (2000) reported kappa coefficient that ranged from .24 to .88 for the 16 items. Nine out of the 16 items yielded kappa coefficients greater than .50. Convergent validity came from comparing the TLEQ with a traumatic life events interview; the mean kappa was .70 between both measures (Kubany et al., 2000). The alpha coefficient for the current sample was .874 which suggests that the measure's items were consistently answered by study participants.

In scoring the TLEQ, it was necessary to recode the results such into "0" if participants had indicated that they had never experienced a stressful life event, "1" if participants had experienced only a single stressful life event, and "2" if participants had experienced multiple stressful life events. We decided to code this measure into categories due to the complexity in assessing which participants' responses were significant traumatic/stressful life events; responses ranged from 0 to 53. While there was an additional item on included at the end of this measure to determine whether participants experienced intense fear, helplessness, or horror, we did not assess the number of items for which participants has such experiences. Due to an error while setting the measure's protocol, there was one missing data point for 41 participants (i.e. they skipped a question). Because scores were recoded into categories, missing data did not ultimately create a dilemma since the additional item would not have shifted any of the 41 participants into another category.

The Brief COPE. The Brief Coping Operations Preference Enquiry (Brief COPE; Carver, 1997) is a 28-item assessment adapted from the full COPE (Carver, Schneider, & Weintraub, 1989) that evaluates the way in which an individual reacts to negative experiences. Of the three empirically supported formats, questions were general such that participants were asked to report the extent to which they typically use each strategy. Responses to items such as "I make jokes about it" are based on a four-point Likert scale ranging from (1) "I don't do this at all" to (4) "I do this a lot". The scales include the evaluation of fourteen different coping strategies including self-distraction (α = .71), active coping (α = .68), denial (α=54), substance use (α = .90), emotional support (α =.71), instrumental support (α = .64), behavioral disengagement (α = .65), venting (α =

.50), positive reframing (α = .64), planning (α = .73), humor (α = .73), acceptance (α = .57), religion (α = .82), and self-blame (α .69). The current sample yielded an overall Cronbach's alpha of .914. With the exception of Self Distraction, all subscales in the current sample yielded greater alpha coefficients than those found by Carver (1989). See Table 1 in Appendix A. As per Carver's (1989) suggestion, a factor analysis was performed on the coping strategies in the current sample, the results of which will be explained in the results section.

The Posttraumatic Growth Inventory. The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) is a 21-item inventory that assesses the extent to which individuals psychologically benefit from exposure to a traumatic or stressful life event. The inventory uses a seven-point Likert scale with responses to items such as "I developed new interests" ranging from (0) "I did not experience this change to a very great degree as a result of my crisis" to (6) "I experienced this change to a very great degree as a result of my crisis". In accordance with representative personnel from the Posttraumatic Growth Research Center at University of North Carolina, the PTGI was scored by summing the total value of endorsed items such that results indicated the total amount of posttraumatic growth each participant reported. Subsections of the inventory were also summed to indicate the degree to which participants experienced growth in the five subscales: appreciation of life, relating to others, spirituality change, new possibilities, and personal strength.

Five subscales include relating to others (α=.85), New Possibilities (α=.84), personal strength (α=72), spiritual change (α=.85), and appreciation of life (α=.67). According to Tedeschi and Calhoun (1996), internal consistency, as evidenced by Cronbach's alpha

was .90 and test-retest reliability was .71. In the current study, Cronbach's alpha was .965. See Table 1 in Appendix A for subscale reliability.

The Brief Symptom Inventory. The Brief Symptom Inventory (BSI; Derogatis, 1983) is a shorter adaptation from the Symptom Checklist Inventory (SCL-90) that consists of 53 items which measure psychopathological symptoms. A five point Likert Scale is used to assess the range of severity from (0) not at all distressed to (4) extremely distressed on items such as "Having the urge to break or smash things". Nine subscales include Somatization (α=.80), Obsessive-Compulsions (α=.83), Interpersonal Sensitivity (α=.74), Depression (α=.85), Anxiety (α=.81), Hostility (α=.78), Phobic Anxiety (α=.77), Paranoid Ideation (α=.77), and Psychoticism (α=.71). Responses yield three sub scores including the General Severity Index, the Positive Symptom Distress Index, and the Positive Symptom Total. According to Derogatis and Melisaratos (1983), test-retest reliability ranges from .68 for somatization to .91 for phobic anxiety. Cronbach's alpha in the current sample was .976. See Table 1 in Appendix A for subscale reliability.

Participant results of the BSI were analyzed according using the Global Severity Index, that is, the degree to which participants experienced a total severity of all symptoms endorsed, in addition to the severity of symptoms in each of the nine categories: somatization, obsessive compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Due to an error while setting up the scoring codes in Survey Monkey, missing data for 19 participants were completed manually according to Derogatis' (1983) scoring procedures.

Chapter 4: Results

In order to test our first hypothesis, a Principal Components Analysis (PCA) was conducted with eigenvalues greater than 1. This PCA yielded 3 factors that accounted for 58.72% of variance. Factor 1 was labeled Non-Avoidant Coping and consisted of ten coping strategies including Self-distraction, Active Coping, Emotional Support Seeking, Instrumental Support Seeking, Venting, Positive Reframing, Self Blame, Planning, Acceptance, and Religion. There were some complexities in naming the first factor as it seemed to consist of emotion-focused coping strategies(emotional support seeking and venting) as well as problem-focused coping strategies (instrumental support seeking, self blame, active coping, planning, etc.) Even self distraction on this factor presents a problem as this strategy is arguably "avoidant" to an extent; however, self distraction might perhaps be a more temporary avoidant strategy and not one in which an individual perpetually denies or avoids the problem in question. Factor 2, labeled Avoidant Coping Strategies consisted of three coping strategies including denial, substance use, and behavioral disengagement. Factor 3 was solely comprised of Humor. Conducting a rotated factor matrix did not substantially change these factors. Thus, the results of the PCA only partially supported our first hypothesis such that Self Distraction, Venting, and Self Blame were not expected to load on Factor 1, Humor loaded by itself on Factor 3, Social Support Seeking did not load onto a distinct factor, and Emotion-Focused Coping did not emerge as a single factor. The implications are discussed in further detail in the discussion below.

Of the participants, 83.2% reported multiple traumatic or stressful life events (n=227, $\bar{x}$=5.43), 7.0% reported a single traumatic or stressful life event (n=19), and 9.9%

reported not having experienced any traumatic or stressful life events (n=27). 27.1% of participants (n=74) reported that at least one endorsed traumatic or stressful life event caused them to feel intense fear, helplessness, or horror. Individuals who endorsed this item reported significantly more psychopathological symptoms ($t(261) = 3.065$, $p = .017$) than individuals who did not endorse this item. Before trauma scores were recoded into categories (e.g. no trauma, single trauma, multiple trauma) raw trauma scores were significantly correlated to the BSI Global Severity Index $r = .304$, $p < .001$ such that the more stressful life events individuals reported, the more individuals also tended to report increased symptoms of psychopathology. The results of an ANOVA indicated that there was a significant difference among the trauma/stressful life event categories in the amount of psychopathological symptoms reported $F(2,270) = 3.170$, $p = .044$, such that individuals who reported experiencing two or more traumatic/stressful life events also reported the most psychopathological symptoms. These findings support our second hypothesis. Trauma was also significantly correlated with posttraumatic growth $r = .196$, $p = .003$; indeed, individuals need to experience a traumatic/stressful event in order to benefit from one.

Group differences according to gender were examined using t-tests which found that females reported more trauma/stressful life events compared to males, but this difference was not statistically significant $t(272) = -.662$, $p = .509$. Females reported significantly more posttraumatic growth $t(272) = -3.524$, $p < .001$ and reported significant greater symptoms severity that males $t(272) = -3.138$, $p = .002$. Females reported significantly using more coping strategies on Factor 1, but this was not statistically significant $t(272) = -1.644$, $p = .101$. Females also reported the use of humor (Factor 3)

more than males $t(272) = 2.316$, $p = .021$. Females reported using more coping strategies on Factor 2, but such was not significant $t(272) = 1.60$, $p = .873$. As a result of these findings, gender was entered into the regression model on step 1.For a correlation table depicting all measures, please refer to Table 2 Appendix B. Please refer to Tables 2b and 2c in Appendix B for correlations by gender for the Brief COPE, the PTGI, and the BSI.

Several statistical analyses' assumptions were violated including tests of normality for the TLEQ, Factors 1, 2, and 3, the PTGI, and the BSI. Skewness and kurtosis were violated such that they were greater than twice their respective standard error's for the TLEQ (negatively skewed, leptokurtosis), the PTGI (positively skewed, platykurtotic), and the BSI (positively skewed, leptokurtotic). Also, Factor 2 and Factor 3 were significantly positively skewed; however, kurtosis was only violated for Factors 1 and 2. Levene's test of homogeneity of variance was not met for the TLEQ and Factors 1, 2, and 3; this assumption was met for the PTGI and the BSI. Multicollinearity assumptions for all four regression models were met such that tolerance was greater than .2 (Menard, 1995) and VIF was less than 10 (Myers, 1990). Thus, predictors were not highly correlated. Homoscedasticity assumptions were met for all four models such that for each value of the predictors, the variance of the error was constant. However, normality of errors for all four models was not met; consequently, for some variables, the errors were correlated. Following the guidelines suggested by Erceg-Hurn and Mirosevich (2008), we decided not to transform the data. As a result, we use caution when interpreting the results of our analyses.

To test our third hypothesis, we created four regression models to examine the unique contribution of coping strategies to psychopathological symptoms and posttraumatic growth.

Regression Model 1

After controlling for gender in Step 1, the addition of trauma/stressful life events in Step 2 significantly added to the prediction of posttraumatic growth F (1, 270) = 13.667, p <.001, adj. R^2=.084. As predicted in Step 3, levels of adaptive (Factors 1 and 3) coping predicted posttraumatic growth beyond the variance accounted for by gender and trauma/stressful life event F (2,268) =45.413, p<.001, R^2 change= .230. The overall model significantly predicted 31.1% of the variance in the prediction of total posttraumatic growth F (4,268) =31.640, p<.001. These results provide support for our third hypothesis. See Table 3 in Appendix C for detailed information about the beta weights (and significance levels) associated with the variables in each step of the regression model described above.

Regression Model 2

After controlling for gender in Step 1, and adding trauma/stressful life events scores in Step 2, levels of maladaptive coping strategies (Factor 2) in Step 3did not significantly predict posttraumatic growth when controlling for gender and trauma/stressful life events. However, Model 2 still significantly predicted8.4% of the variance in the prediction of posttraumatic growth F(3,269) = 9.306, p<.001. The results of our regression analyses provide mixed support for our third hypothesis since

maladaptive coping did not significantly predict posttraumatic growth beyond that of gender and trauma/stressful life event even though the overall model predicted posttraumatic growth. See Table 4 in Appendix C for detailed information about the beta weights (and significance levels) associated with the variables in each step of the regression model described above.

Regression Model 3

After controlling for gender in Step 1, the addition of trauma/stressful life events in Step 2 did not significantly add to the prediction of psychopathological symptoms. In contrast to our predictions, levels of adaptive coping (Factors 1and 3) in Step 3 significantly predicted psychopathological symptoms F (2,268) =24.381, p<.001, R^2 change = .147. The overall model significantly predicted 17.9% of the variance in the prediction of psychopathological symptoms F (4,268) =15.856, p<.001. These findings did not support our third hypothesis. See Table 5 in Appendix C for detailed information about the beta weights (and significance levels) associated with the variables in each step of the regression model described above.

Regression Model 4

After controlling for gender in Step 1, and trauma/stressful life events on Step 2 levels of maladaptive coping (Factor 2) in Step 3 significantly predicted psychopathological symptoms F (1,269) =93.485, p<.001, R^2 change=.246. Model 4 accounted for 28.3% of the variance in the prediction of psychopathological symptoms F (3,269) =36.754, p<.001. These findings provide support for my third hypothesis. See

Table 6 in Appendix C for detailed information about the beta weights (and significance levels) associated with the variables in each step of the regression model described above.

Post-hoc regression analyses were conducted to determine relationships between specific adaptive coping strategies and different aspects of posttraumatic growth. All adaptive coping strategies on Factors 1 and 3 were examined individually in the prediction of the five subscales of posttraumatic growth (e.g. active coping's prediction of relating to others, active coping's prediction of appreciation of life, etc.). With the exception of self blame, all specific coping strategies listed as adaptive- including planning, acceptance, venting, emotional support seeking, instrumental support seeking, religion, distraction, active, positive reframing, and humor- significantly predicted relating to others, appreciation of life, internal personal strength, and new possibilities beyond gender and trauma/stressful life event score alone ($p<.001$). Coping strategies predicted spiritual change slightly differently. All coping strategies with the exception of self blame significantly predicted spiritual change beyond gender and trauma/stressful life event ($p<.001$) except acceptance ($p=.001$), venting ($p<.001$), emotional support ($p<.019$), instrumental support seeking ($p<.001$), self distraction ($p<.005$), active coping ($p<.018$), and humor ($p<.012$). Please refer to Tables 7-11 in Appendix D for beta weight of significant findings.

Pos-hoc regression analyses were also conducted to determine relationships between specific maladaptive coping strategies (Factor 2) and different symptom clusters of psychopathology. Behavioral disengagement, substance use, and denial significantly predicted obsessive compulsions, depression, psychoticism, somatization, interpersonal

sensitivity, hostility, anxiety, phobic anxiety, and paranoid ideation (p<.001). Please refer to Tables 12-20 in Appendix D for beta weights of significant findings.

There were some significant differences between genders when correlations were ran to examine relationship between specific adaptive coping strategies and posttraumatic growth subscales. Please refer to Table 2b. For instance, active coping and humor was significantly correlated with PTGI total for females but not for males. Self blame was also significantly related to active coping and religious coping in females, but not in males. When correlations were examined between specific maladaptive coping strategies and psychopathological symptoms, gender differences emerged; denial was significantly correlated to substance use in males, but not in females. Please refer to Table 2c.

Chapter 5: Discussion

Previous research has failed to adequately distinguish adaptive coping styles from maladaptive coping styles, in part because such studies have not included measures of positive outcomes, such as posttraumatic growth, in addition to measures of psychopathology. Essentially, other researchers have determined the adaptiveness of certain coping strategies by a *lack* of psychopathology. This trend has produced contradictory evidence in discriminating adaptive from maladaptive coping strategies.

We had anticipated that a factor analysis of the Brief COPE would yield 4 factors: Problem-Focused, Emotion-Focused, Social Support Seeking, and Avoidance. However, this was not how the coping strategies loaded in the current study. For instance, social support seeking (emotional and instrumental support seeking) did not load onto a single factor as such have been apt to do (Amstadter & Vernon, 2008; Lawler, Ouimette, & Dahlstedt, 2005; Littleton et al., 2007). Similarly, self distraction typically loads with the other Avoidant strategies on Factor 2 unlike the findings of the current study. There has also been evidence of another factor, namely Emotion-Focused that typically consists of Venting and Self Blame that did not appear in this study's factor analysis. Also of note was the fact that Humor loaded on its own factor. This was highly unanticipated and only serves to highlight the problem inherent in various other studies. Because there is no "total score" for the Brief COPE and Carver encourages researches to run their own factor analysis on study data, it is difficult to assess which coping strategies are actually adaptive and maladaptive. For instance, coping strategies for this sample that loaded with other predetermined "adaptive coping strategies" on a single factor might have had more positive outcomes as evidenced by increased posttraumatic growth and

decreased psychopathological symptoms, but this may or may not generalize to other samples. For example, as discussed earlier, Coifman et al. (2007) found that Avoidant coping strategies such as repression and self distraction to be adaptive for bereaved individuals following a loss of a spouse or child; these individuals reported less psychopathology, less somatization, and less health problems compared to a control group. How long such strategies might be adaptive under certain circumstances is yet unknown.

Interestingly, both adaptive and maladaptive coping strategies significantly predicted increased psychopathological symptoms. It may be that those with greater levels of psychopathology may utilize more adaptive and maladaptive coping strategies than those with lower levels of psychopathology. The direction of this relationship is not possible to determine. However, all maladaptive coping strategies (behavioral disengagement, denial, and substance use), did significantly predict all psychopathological symptom dimensions- obsessive-compulsions, depression, psychoticism, somatization, interpersonal sensitivity, hostility, anxiety, phobic anxiety, and paranoid ideation- beyond that of gender and trauma/stressful life events score. Results should be interpreted with caution since it is unclear as to which specific coping strategies contribute to the diverse array of psychopathological symptoms or the possibility of individuals flourishing in the wake of trauma/stressful life event exposure. Future research should examine these strategies within the context of the specific situation/trauma/stressful life event in which they occur over time.

It is important to note that post-hoc analyses called into question the "adaptive" quality of self blame since this coping strategy did not significantly predict Relating to

Others or Appreciation of Life, Personal Strength, Spiritual Change, or New Possibilities on the Posttraumatic Growth Inventory. We use caution when interpreting the results of self blame with the other coping strategies that loaded on Factor 1. Also several gender differences were found such that active coping and humor were significantly related to total posttraumatic growth in females but not in males. Also, self blame and active coping, and self blame and religious coping were significantly correlated in females but not in males. In addition, denial and substance use were significantly correlated in males, but not in females. Perhaps, individuals' cognitive interpretation s of events vary by gender which lead them to utilize different coping strategies. This might also account for why some coping strategies are ore adaptive for one gender or the other. It may not be the effectiveness of the specific coping strategy as the reason it is being implored. These findings may be confounded by appraisal.

Limitations of the current study: One limitation involves the use of self report measures that inherently have the potential for a wide range of biases and distortions, both intentional and non-intentional. While there were several steps taken to reduce potentially biased responses (e.g. examining time spent on questionnaire, examining extreme outlying responses), it is not possible to eliminate this from research utilizing self report. Future prospective studies that record negative life events as they occur, and objectively rate events based on the negative characteristics of the event, may further minimize error within their samples. However, even this approach may not be accurate since (ideally) the individual appraisal of the event would also be considered. Due to the scope of the current project, it was not possible to account for the unique appraisal of each negative life even in the current study. Thus, an individual's interpretation of an

event may serve as a potential confound for the results presented for this study since it was not accounted for in the methodology of this study. Similarly, this study did not determine whether individuals had sought psychotherapy after the event, the duration of time that had elapsed since the event, how the individual perceived the event at the time of its occurrence and not how the individual currently perceived the event.

Other limitations include the cross-sectional nature of study design. Results represent only a small glimpse into the nature of the effect of coping strategies on posttraumatic growth and psychopathological symptoms and were retrospective as measures attempted to understand how individuals typically react or reacted to a traumatic/stressful life in the past. Also, although the American Psychological Association (2004) suggest that most individuals will experience a traumatic event sometime throughout their life, since an undergraduate sample was used, and the average age of participants was 20.5 years, it is possible that some of the individuals have not yet experienced a traumatic/significant stressful life event. Since this study was conducted on undergraduates who are arguably more well- adjusted and economically privileged than other individuals not currently enrolled in higher education, it is difficult to determine whether such results would generalize to a community sample or clinical sample of individuals who have experienced traumatic/stressful life event(s).

In addition, the wording of the Brief COPE was such that questions evaluated the extent to which an individual typically use each coping strategy. There is a dearth of research that has evaluated the similarity between how an individual typically copes with stressors and how an individual copes with a specific traumatic or major stressful life event; therefore, it is impossible to purport with any certainty that the way individuals

normally cope is similar to the way individuals cope when experiencing a traumatic or stressful life event. Also, the current study did not take into account how long ago individuals experienced the traumatic/ stressful life event, nor whether or not individuals had received psychological treatment. Furthermore, the extent to which coping strategies such as those in Factor 2(Avoidant) have temporary adaptive qualities and positive outcomes compared to outcomes if these strategies are used as the primary strategy or over time was beyond the scope of the current study.

Additional research is needed to further understand the specific relationships that exist between adaptive/maladaptive coping and posttraumatic growth/psychopathological symptoms. For instance, how and to what extent do certain maladaptive strategies predict specific psychopathological symptom clusters (e.g. psychosis, depression, and anxiety)? And under which circumstances? Do some coping strategies have temporary adaptive qualities, and long might such be utilized before leading to deleterious effects? It would also be beneficial to attempt to determine the extent of this relationship regarding different types of trauma (e.g. natural disaster, physical assault, etc.) to better understand which coping strategies are most adaptive under which circumstances or types of trauma. These results provide evidence for the use of teaching individuals planning techniques, active coping strategies, emotional and instrumental support seeking, positive reframing, acceptance, religion, self distraction, and humor as ways to effectively deal with traumatic or stress situations in life. It appears that helping individuals to address their traumatic/stressful life experience(s) instead of imploring avoidance is more beneficial. This finding mirrors current therapeutic techniques, such as exposure therapy, that encourage clients to use coping strategies to *approach* stimuli that remind them of the

traumatic/stressful life event(s). Indeed, this study found that avoidant coping strategies were associated with less posttraumatic growth. Similarly, this study provided support for the discouragement of client utilizing other forms of avoidance such as substance use, denial, and behavioral engagement. It seems as though client utilizing these strategies should be redirected and taught other coping skills to decrease their risk of developing or maintaining psychopathological symptoms. Many people are exposed to some form of traumatic life even in their lifetime; these negative events provide an opportunity for individuals to grow psychologically from the experience. This study and others like it provide evidence for ways to maximize the possibility of individuals experiencing positive outcomes after trauma exposure while minimizing the possibility of experiencing negative consequences. It is hoped that such knowledge will provide clinicians in the field with more evidence to support the coping strategies they encourage individuals to endorse in the aftermath of a traumatic or stressful life event.

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Appendix A: Alpha Reliabilities

Table 1: Alpha Reliabilities

	Cronbach's Alpha (α)
TLEQ	.874
PTGI	.965
Appreciation of Life	.848
Relating to Others	.930
New Possibilities	.897
Personal Strength	.896
Religion	.866
Brief COPE	.914
Self Distraction	.619
Active Coping	.732
Denial	.820
Substance Use	.920
Instrumental Support Seeking	.846
Emotional Support Seeking	.796
Behavioral Disengagement	.674
Self Blame	.761
Venting	.625
Positive Reframing	.811
Planning	.782
Humor	.822
Acceptance	.785
Religion	.873
BSI	.976
Somatization	.884
Obsessive-Compulsions	.859
Interpersonal Sensitivity	.883
Depression	.895
Anxiety	.868
Hostility	.841
Phobic Anxiety	.842
Paranoid Ideation	.828
Psychoticism	.762

Appendix B: Correlations

Table 2a: Correlations for All Variables (N=273)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
(1)	TLEQ	XXX																			
(2)	PTGI total	.222**	XXX																		
(3)	Relating	.183**	.929**	XXX																	
(4)	Possibilities	.184**	.930**	.803**	XXX																
(5)	Strength	.265**	.911**	.769**	.846**	XXX															
(6)	Spiritual	.061	.662**	.546**	.571**	.519**	XXX														
(7)	Appreciation	.256**	.885**	.768**	.780**	.812**	.529**	XXX													
(8)	Factor 1	.187**	.517**	.487**	.453**	.467**	.365**	.473**	XXX												
(9)	Factor 2	.165**	.090	.039	.121*	.091	.111	.069	.327**	XXX											
(10)	Factor 3	.037	.235**	.178**	.229**	.264**	.121*	.235**	.393**	.255**	XXX										
(11)	BSI GSI	.110	.295**	.212**	.302**	.328**	.205**	.270**	.409**	.505**	.195**	XXX									
(12)	BSI PSYC	.059	.230**	.161**	.246**	.253**	.190**	.183**	.362**	.452**	.154*	.887**	XXX								
(13)	BSI IS	.108	.238**	.199**	.239**	.268**	.133*	.182**	.370**	.414**	.166**	.842**	.802**	XXX							
(14)	BSI SOM	.090	.228**	.175**	.223**	.232**	.188**	.210**	.305**	.441**	.119*	.878**	.730**	.682**	XXX						
(15)	BSI OC	.162**	.347**	.227**	.383**	.392**	.216**	.330**	.364**	.439**	.234**	.864**	.702**	.683**	.749**	XXX					
(16)	BSI HOS	.070	.275**	.172**	.302**	.337**	.159**	.256**	.307**	.417**	.184**	.790**	.678**	.590**	.670**	.698**	XXX				
(17)	BSI PHOB	.047	.170**	.118	.174**	.167**	.182**	.151*	.291**	.415**	.146*	.797**	.705**	.652**	.734**	.648**	.500**	XXX			
(18)	BSI PAR	.109	.250**	.126*	.307**	.320**	.153*	.223**	.344**	.479**	.218**	.827**	.773**	.758**	.636**	.718**	.675**	.656**	XXX		
(19)	BSI ANX	.062	.273**	.217**	.251**	.276**	.206**	.272**	.395**	.395**	.172**	.881**	.706**	.680**	.842**	.727**	.665**	.774**	.653**	XXX	
(20)	BSI DEP	.116	.225**	.178**	.207**	.259**	.154*	.195**	.380**	.439**	.156**	.872**	.825**	.753**	.693**	.705**	.655**	.593**	.639**	.742**	XXX

Table 2b: Correlations for Adaptive Coping Strategies and Posttraumatic Growth by Gender (N=273)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	PTGI total	XXX	.924**	.940**	.899**	.626**	.857**	.354**	.474**	.387**	.427**	.345**	.503**	.418**	.231**	.439**	.319**	.133
2	PTGI relating	.930**	XXX	.821**	.733**	.482**	.732**	.271**	.422	.452**	.494**	.351**	.483**	.401**	.141	.399**	.227**	.108
3	PTGI poss	.914**	.763**	XXX	.857**	.539**	.752**	.343**	.484**	.340**	.370**	.325**	.470**	.412**	.246**	.359**	.266**	.113
4	PTGI stren	.920**	.800**	.822**	XXX	.490**	.777**	.362**	.494**	.284**	.329**	.271**	.452**	.312**	.280**	.457**	.226**	.136
5	PTGI spir	.693**	.610**	.599**	.530**	XXX	.466**	.196*	.173*	.099	.157	.233**	.243**	.285**	.126	.170*	.672**	.184*
6	PTGI apprec	.914**	.803**	.801**	.841**	.600**	XXX	.377**	.284**	.346**	.348**	.260**	.450**	.360**	.239**	.474**	.203*	.069
7	BC self distr	.304**	.241**	.240**	.346**	.152	.364**	XXX	.557**	.509**	.527**	.445**	.489**	.500**	.345**	.499**	.327**	.454**
8	BC active cop	.239**	.168	.188*	.321**	.110	.273**	.364**	XXX	.509**	.561**	.473**	.620**	.656**	.291**	.538**	.276**	.217**
9	BC emo sup	.405**	.473**	.277**	.346**	.262**	.363**	.277**	.372**	XXX	.867**	.628**	.507**	.507**	.217**	.520**	.194*	.344**
10	BC instru sup	.363**	.433**	.263**	.285**	.304**	.279**	.344**	.406**	.638**	XXX	.659**	.560**	.642**	.279**	.524**	.273**	.400**
11	BC venting	.290**	.296**	.262**	.250**	.182*	.250**	.341**	.291**	.509**	.495**	XXX	.482**	.533**	.370**	.388**	.298**	.538**
12	BC pos refra	.445**	.365**	.389**	.409**	.433**	.461**	.338**	.472**	.422**	.372**	.326**	XXX	.592**	.396**	.549**	.346**	.291**
13	BC planning	.243**	.205*	.200*	.255**	.156	.262**	.352**	.398**	.306**	.415**	.349**	.414**	XXX	.369**	.417**	.383**	.380**
14	BC humor	.323**	.309**	.272**	.318**	.208*	.295**	.481**	.146	.159	.271**	.270**	.450**	.233**	XXX	.214**	.077	.316**
15	BC accept	.333**	.304**	.204*	.321**	.292**	.415**	.556**	.367**	.471**	.322**	.375**	.540**	.445**	.373**	XXX	.259**	.270**
16	BC religion	.318**	.274**	.218*	.235**	.665**	.267**	.238**	.195*	.258**	.379**	.286**	.344**	.207*	.206*	.252**	XXX	.233**
17	BC self blam	.077	.037	.142	.080	-.067	.085	.360**	.161	.278**	.312**	.340**	.092	.378**	.322**	.243**	.166	XXX

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

a. Gender: Male is on the bottom; Female is on the top

BC Brief COPE; 2 Posttraumatic Growth Inventory (PTGI) Relating to Others; 3 PTGI New Possibilities; 4 PTGI Internal Strength; 5 PTGI Spiritual Change; 6 PTGI Appreciation of Life; 7 Self Distraction; Active Coping; 9 Emotional Support Seeking; 10 Instrumental Support Seeking; 12 Positive Reframing; 15 Acceptance; 17 Self Blame

Table 2c: Correlations for Maladaptive Coping Strategies and Psychopathological Symptoms by Gender (N=273)

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	BSI GSI	XXX	.900**	.845**	.892**	.884**	.786**	.824**	.822**	.891**	.863**	.328**	.320**	.457**
2	BSI Psychoticism	.856**	XXX	.791**	.799**	.755**	.713**	.726**	.746**	.745**	.817**	.299**	.305**	.419**
3	BSI Interpersonal Sensitivity	.822**	.805**	XXX	.699**	.757**	.606**	.647**	.765**	.677**	.727**	.260**	.309**	.335**
4	BSI Somatization	.836**	.564**	.619**	XXX	.773**	.669**	.773**	.656**	.858**	.707**	.315**	.269**	.344**
5	BSI Obsessive Compulsions	.827**	.600**	.542**	.705**	XXX	.680**	.707**	.734**	.773**	.723**	.314**	.269**	.404**
6	BSI Hostility	.843**	.650**	.589**	.739**	.735**	XXX	.562**	.713**	.643**	.639**	.220**	.296**	.411**
7	BSI Phobic Anxiety	.714**	.650**	.644**	.567**	.520**	.450**	XXX	.665**	.805**	.609**	.285**	.230**	.332**
8	BSI Paranoid Ideation	.823**	.804**	.723**	.566**	.674**	.645**	.620**	XXX	.667**	.610**	.359**	.282**	.511**
9	BSI Anxiety	.846**	.607**	.649**	.787**	.633**	.748**	.666**	.590**	XXX	.760**	.294**	.219**	.344**
10	BSI Depression	.880**	.826**	.780**	.648**	.660**	.695**	.538**	.659**	.687**	XXX	.255**	.316**	.432**
11	BC Denial	.473**	.413**	.364**	.424**	.369**	.326**	.544**	.414**	.406**	.320**	XXX	.106	.440**
12	BC Substance Use	.421**	.322**	.322**	.459**	.387**	.322**	.372**	.322**	.323**	.327**	.445**	XXX	.403**
13	BC Behavioral Disengagement	.456**	.394**	.416**	.415**	.304**	.351**	.448**	.365**	.367**	.433**	.430**	.475**	XXX

**. Correlation is significant at the 0.01 level (2-tailed).

a. Gender = Male is on the bottom; female is on the top

1 Brief Symptom Inventory (BSI) Global Severity Index

11 Brief Cope (BC) Denial

Appendix C: Regression Models Beta Weights

Table 3: Regression Model 1Beta Weights: Prediction of Posttraumatic Growth via levels of Adaptive Coping (Factors 1 & 3)

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	42.662	5.271		8.093	.000		
	Gender	11.584	3.259	.211	3.554	.000	1.000	1.000
2	(Constant)	27.140	6.646		4.083	.000		
	Gender	11.127	3.188	.203	3.490	.001	.998	1.002
	TLEQ	9.364	2.533	.215	3.697	.000	.998	1.002
3	(Constant)	-11.028	7.180		-1.536	.126		
	Gender	9.574	2.830	.174	3.384	.001	.954	1.048
	TLEQ	5.617	2.237	.129	2.512	.013	.964	1.038
	Factor 1	1.056	.132	.453	8.024	.000	.795	1.257
	Factor 3	1.297	.940	.077	1.381	.169	.812	1.231

a. Dependent Variable: PTGI total score

Table 4: Regression Model 2Beta Weights: Prediction of Posttraumatic Growth via levels of Maladaptive Coping (Factor 2)

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	42.662	5.271		8.093	.000		
	Gender	11.584	3.259	.211	3.554	.000	1.000	1.000
2	(Constant)	27.140	6.646		4.083	.000		
	Gender	11.127	3.188	.203	3.490	.001	.998	1.002
	TLEQ	9.364	2.533	.215	3.697	.000	.998	1.002
3	(Constant)	23.113	7.742		2.985	.003		
	Gender	11.188	3.189	.204	3.509	.001	.998	1.002
	TLEQ	8.934	2.568	.205	3.479	.001	.971	1.030
	Factor 2	.581	.573	.060	1.014	.312	.973	1.028

a. Dependent Variable: PTGI total score

Table 5: Regression Model 3 Beta Weights: Prediction of Symptom Severity via levels of Adaptive Coping (Factors 1 & 3)

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.229	.135		9.115	.000		
	Gender	.257	.083	.184	3.083	.002	1.000	1.000
2	(Constant)	1.042	.173		6.011	.000		
	Gender	.252	.083	.180	3.026	.003	.998	1.002
	TLEQ	.113	.066	.102	1.709	.089	.998	1.002
3	(Constant)	.256	.199		1.282	.201		
	Gender	.224	.079	.160	2.852	.005	.954	1.048
	TLEQ	.038	.062	.034	.608	.544	.964	1.038
	Factor 1	.021	.004	.354	5.740	.000	.795	1.257
	Factor 3	.033	.026	.077	1.259	.209	.812	1.231

a. Dependent Variable: BSI GSI

Table 6: Regression Model 4 Beta Weights: Prediction of Symptom Severity via levels of Maladaptive Coping (Factor 2)

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.229	.135		9.115	.000		
	Gender	.257	.083	.184	3.083	.002	1.000	1.000
2	(Constant)	1.042	.173		6.011	.000		
	Gender	.252	.083	.180	3.026	.003	.998	1.002
	TLEQ	.113	.066	.102	1.709	.089	.998	1.002
3	(Constant)	.178	.174		1.019	.309		
	Gender	.265	.072	.189	3.686	.000	.998	1.002
	TLEQ	.021	.058	.019	.356	.722	.971	1.030
	Factor 2	.125	.013	.503	9.669	.000	.973	1.028

a. Dependent Variable: BSI GSI

Appendix D: Post Hoc Regression Models Beta Weights

Table 7: Adaptive Coping Strategies and Posttraumatic Growth: Relating to Others

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Planning	3.254	.585	.308	5.559	.000
Acceptance	1.848	.297	.344	6.231	.000
Venting	2.132	.376	.316	5.664	000
Emotional Support Seeking	2.488	.301	.450	8.260	.000
Instrumental Support Seeking	2.511	.296	.455	8.495	.000
Religion	1.275	.318	.233	4.008	.000
Self Distraction	1.443	.343	.240	4.203	.000
Active Coping	1.737	.333	.295	5.214	.000
Positive Reframing	2.262	.301	.405	7.519	.000
Humor	1.304	.350	.215	3.725	.000

Table 8: Adaptive Coping Strategies and Posttraumatic Growth: Appreciation of Life

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Planning	1.522	.266	.314	5.726	.000
Acceptance	1.041	.130	.420	8.016	.000
Venting	.716	.176	.231	4.066	000
Emotional Support Seeking	.817	.145	.321	5.627	.000
Instrumental Support Seeking	.729	.145	..287	5.032	.000
Religion	.545	.145	.216	3.748	.000
Self Distraction	.947	.151	.343	3.672	.000
Active Coping	.839	.151	.310	5.566	.000
Positive Reframing	1.096	.135	.426	8.103	.000
Humor	.712	.158	.255	4.513	.000

Table 9: Adaptive Coping Strategies and Posttraumatic Growth: Internal Strength

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Planning	1.838	.353	.286	5.201	.000
Acceptance	1.189	.176	.364	6.768	.000
Venting	.935	.232	.228	4.037	.000
Emotional Support Seeking	.901	.194	.268	4.641	.000
Instrumental Support Seeking	.912	.191	.272	4.768	.000
Religion	.730	.191	.219	3.822	.000
Self Distraction	1.177	.200	.322	5.888	.000
Active Coping	1.415	.191	.395	7.411	.000
Positive Reframing	1.380	.180	.406	7.685	.000
Humor	1.023	.206	.277	4.971	.000

Table 10: Adaptive Coping Strategies and Posttraumatic Growth: New Possibilities

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Planning	2.381	.418	.317	5.697	.000
Acceptance	1.048	.218	.275	4.813	.000
Venting	1.327	.273	.277	4.854	000
Emotional Support Seeking	1.154	.231	.294	5.000	.000
Instrumental Support Seeking	1.227	.227	.313	5.407	.000
Religion	.928	.227	.239	4.082	.000
Self Distraction	1.227	.244	.287	5.036	.000
Active Coping	1.411	.236	.338	5.981	.000
Positive Reframing	1.652	.215	.416	7.680	.000
Humor	1.093	.250	.253	4.379	.000

Table 11: Adaptive Coping Strategies and Posttraumatic Growth: Spiritual Change

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Planning	.745	.195	.222	3.819	.000
Acceptance	.344	.100	.202	3.430	.001
Venting	.435	.126	.204	3.464	001
Emotional Support Seeking	.255	.108	.145	2.361	.019
Instrumental Support Seeking	.348	.105	.200	3.313	.001
Religion	1.151	.078	.668	14.764	.000
Self Distraction	.321	.112	.169	2.853	.005
Active Coping	.266	.111	.143	2.386	.018
Positive Reframing	2.262	.301	.405	7.519	.000
Humor	.290	.114	.151	2.531	.012

Table 12: Maladaptive Coping Strategies and Psychopathological Symptoms: Obsessive Compulsions

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Denial	.250	.040	.323	5.726	.000
Substance Use	.195	.037	.304	5.272	.000
Behavioral Disengagement	.249	.041	.345	6.099	.000

Table 13: Maladaptive Coping Strategies and Psychopathological Symptoms: Depression

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Denial	.206	.044	.270	4.689	.000
Substance Use	.209	.040	.304	5.250	.000
Behavioral Disengagement	.325	.043	.420	7.633	.000

Table 14: Maladaptive Coping Strategies and Psychopathological Symptoms: Psychoticism

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Denial	.201	.034	.340	6.006	.000
Substance Use	.161	.031	.302	5.183	.000
Behavioral Disengagement	.246	.033	.409	7.350	.000

Table 15: Maladaptive Coping Strategies and Psychopathological Symptoms: Somatization

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Denial	.201	.034	.337	5.998	.000
Substance Use	.172	.031	.319	5.552	.000
Behavioral Disengagement	.214	.034	.354	6.262	.000

Table 16: Maladaptive Coping Strategies and Psychopathological Symptoms: Interpersonal Sensitivity

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Denial	.230	.046	.288	5.036	.000
Substance Use	.284	.046	.351	6.195	.000
Behavioral Disengagement	.254	.037	.387	6.801	.000

Table 17: Maladaptive Coping Strategies and Psychopathological Symptoms: Hostility

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Denial	.174	.038	.270	4.600	.000
Substance Use	.178	.034	.305	5.175	.000
Behavioral Disengagement	.254	.037	.387	6.801	.000

Table 18: Maladaptive Coping Strategies and Psychopathological Symptoms: Anxiety

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Denial	.216	.038	.319	5.676	.000
Substance Use	.154	.036	.254	4.345	.000
Behavioral Disengagement	.233	.039	.340	6.014	.000

Table 19: Maladaptive Coping Strategies and Psychopathological Symptoms: Phobic Anxiety

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Denial	.204	.033	.346	6.172	.000
Substance Use	.148	.031	.278	4.777	.000
Behavioral Disengagement	.212	.034	.354	6.268	.000

Table 20: Maladaptive Coping Strategies and Psychopathological Symptoms: Paranoid Ideation

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Denial	.260	.039	.371	6.692	.000
Substance Use	.178	.037	.283	4.853	.000
Behavioral Disengagement	.317	.038	.446	8.252	.000