

AMERICAN UNIVERSITY OF BEIRUT

PREVALENCE AND PREDICTORS OF POSTTRAUMATIC
GROWTH IN A COLLEGE STUDENT SAMPLE IN
LEBANON

By

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AN ABSTRACT OF THE THESIS OF

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Posttraumatic growth (PTG) refers to perceived positive change in perception of self, interpersonal relationships and/or philosophy of life (Tedeschi & Calhoun, 1996). These changes occur following a very stressful or traumatic experience resulting in emotional distress (Tedeschi & Calhoun, 1996). This traumatic or stressful experience sets in motion multiple psychological factors that are directed towards resolving the emotional distress (Tedeschi & Calhoun, 1996), resulting for some in posttraumatic growth.

The aims of the study were to test the posttraumatic growth model and the various predictors related to the model such as the characteristics of the event (impact of trauma; event centrality), post-trauma challenges (disruption of core beliefs; deliberate and intrusive rumination; self-disclosure) and sociocultural factors (social support and spiritual support) (Berger & Weiss, 2009).

Results of the regression model indicated that disruption of core beliefs and social support were significant positive direct predictors of PTG. Despite the cross-sectional nature of the study and lack of generalizability of the findings, this study offers possible future directions, such as investigating the mediating effect of various factors on the relation between disruption of core beliefs and PTG.

Keywords: Posttraumatic Growth; Trauma; Core Beliefs; Social Support; Posttraumatic Stress Disorder Symptoms; Event Centrality; Student Population

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CHAPTER I

PREDICTORS OF POSTTRAUMATIC GROWTH

Prevalence and Predictors of Posttraumatic Growth in a College Student Sample in Lebanon

Posttraumatic growth (PTG) is defined as perceived positive change in perception of self, interpersonal relationships and/or philosophy of life that occurs after going through a very stressful or traumatic experience (Tedeschi & Calhoun, 1996). This traumatic or stressful experience is considered to be very challenging to previously held assumptions or core beliefs, and may lead to the disruption of these beliefs. The challenge or disruption to core beliefs is said to result in emotional distress and even threaten the individual's life narrative (Berger & Weiss, 2009). Cognitive engagement is then said to be set in motion in order to resolve this disruption to core beliefs (Tedeschi & Calhoun, 1996), resulting for some in posttraumatic growth. The current study aimed to investigate the post-trauma factors that were discussed in the posttraumatic growth model (Tedeschi & Calhoun, 1996) in Lebanon. These factors are related to the characteristics of the trauma (severity of trauma and event centrality) and post-trauma challenges (disruption of core beliefs, deliberate and intrusive rumination, and self-disclosure). The study also aimed to investigate the role of sociocultural factors that are not part of the posttraumatic growth model, but which were found in previous research to be associated with PTG, such as social support and religious or spiritual coping (Berger & Weiss, 2009).

A. Posttraumatic Growth Model

As defined by Tedeschi and Calhoun (1996, 2004), posttraumatic growth refers to perceived positive psychological change of the self that occurs after a very stressful or distressing life event. Posttraumatic growth can occur across three dimensions: self-perception, relating to others, and philosophy of life (Tedeschi & Calhoun, 1996). The first dimension is self-perception, which refers to the changed view of the self as stronger and

more confident. This personal strength entails the acceptance of vulnerability of the self and the recognition of the self as becoming stronger (Calhoun & Tedeschi, 2006). The change in self-perception also involves identifying new life possibilities and changing one's current life path (Tedeschi & Calhoun, 2004). The second dimension is relating to others, which refers to changes that occur in interpersonal relationships. This includes increased sensitivity and appreciation of relationships, leading to more intimacy and connection in those relationships. Increased feelings of connection to others are said to make way to feelings of increased freedom to be oneself (Calhoun & Tedeschi, 2006). In addition, individuals are said to experience increased compassion towards the suffering of others (Calhoun & Tedeschi, 2006). The third dimension of growth is the philosophy of life dimension, which refers to the attempt to find meaning in the trauma. This new meaning is represented by an increased appreciation of life, changes in one's priorities, and/or spiritual changes (Tedeschi & Calhoun, 1996). Changes in appreciation of life might refer to appreciation of life in general, such as viewing life as precious, or viewing particular aspects of life as valuable, such as time spent with family (Taku et al., 2007). Spiritual changes indicate changes in existential and/or spiritual views such as gaining stronger religious beliefs (Taku et al., 2007). The characteristics of the traumatic event that set posttraumatic growth in motion have been investigated as predictors of PTG. One of these characteristics is the impact of the traumatic event.

B. Impact of Event

Whereas posttraumatic growth represents self-reported positive change after a trauma, posttraumatic stress disorder (PTSD) represents the severe impact of enduring a traumatic event. This impact is usually operationalized in the literature as posttraumatic stress disorder (PTSD) symptoms. According to the DSM-V, PTSD occurs following direct or indirect exposure to a trauma. In contrast to a stressful event, a trauma is defined as an event that

exposes one to serious emotional or physical injury, sexual violence, or actual or threatened death all of which threaten the physical integrity of the self or others. Examples of a trauma can include but are not limited to war-related traumas, personal life-threatening experiences, death and life-threatening experiences of loved ones, and interpersonal traumas, such as domestic abuse, severe rejection or abandonment.

Symptoms of PTSD include hyperarousal, intrusions, avoidance, and negative changes in cognitions and mood, which occur following exposure to a trauma. Hyperarousal and reactivity symptoms include increased hypervigilance, irritable or aggressive behavior, self-destructive behavior, sleep disturbances and problems with concentration. Intrusive symptoms consist of recurrent involuntary thoughts, nightmares, flashbacks and intense distress. Avoidance consists of purposeful avoidance of the trauma, which includes avoidance of thoughts, feelings or external reminders of the trauma. Changes in cognitions and mood also occur after the event, where individuals might not be able to remember features of the trauma, may develop negative beliefs about the world and self, and/or may experience persistent feelings of blame, shame or guilt. Individuals may also experience diminished interests in activities, feel alienated, have constricted affect, and/or become unable to experience positive emotions. PTSD symptoms should occur for more than one month and cause distress or functional impairment. The impact of a traumatic event on an individual can be expressed through the symptoms of PTSD.

Research has investigated PTSD symptomatology as a predictor of PTG. Taku, Calhoun, Cann, and Tedeschi (2008) found that participants, who reported higher PTG, also reported higher levels of intrusion, hyperarousal and avoidance symptoms. Furthermore, Shakespeare-Finch and Lurie-Beck (2014) found a strong positive correlation between PTSD and PTG in survivors of natural disasters and in civilians in conflict zones. Similarly, Jin, Xu, Liu and Liu (2014) found a positive correlation between PTSD and PTG in survivors one

year following the Wenchuan earthquake. In a university student sample examining a diverse set of stressors, McCaslin et al. (2009) also investigated the relation between PTSD and PTG and found that PTSD symptoms predicted PTG levels. In a longitudinal study, Lowe, Manove, and Rhodes (2013) investigated PTSD and PTG in low-income mothers who experienced Hurricane Katrina. PTSD levels were measured one and three years after the incident, while PTG levels were only measured three years after the event. Lowe et al. (2013) found that PTSD symptoms measured at both times were positively associated with PTG. Furthermore, participants who exhibited clinically significant PTSD levels showed higher PTG levels than those who did not meet the PTSD cutoff score. Zhou, Wu and Chen (2015) measured time since traumatic event as a moderating variable between PTSD and PTG in a study on adolescent survivors of an earthquake. PTG and PTSD levels were measured 3.5 years, 4.5 years and 5.5 years after the earthquake. Zhou et al. found that PTSD levels obtained 3.5 years after the incident predicted growth levels obtained 4.5 years after the earthquake, while PTSD levels obtained 4.5 years after the earthquake predicted PTG levels obtained 5.5 years later, implying that PTSD tends to both precede and predict PTG. However, after controlling for previous levels of PTSD and PTG, the correlation between PTSD and PTG measured at 5.5 years after the earthquake was no longer significant, which indicated that the relation weakened across time (Zhou et al., 2015). Regarding this inconsistency, Zhou et al. (2015) suggested that initial PTSD and PTG might have shared common factors, such as challenge to core beliefs, which contributed to the predictive power of PTSD symptoms on PTG. With the passage of time, these common factors may change, which would lead to the weakening of relation between PTSD symptoms and PTG (Zhou et al., 2015).

In a review of the research on the linearity of the relation between PTSD and PTG, Joseph, Murphy and Regel (2012) identified both a significant linear and curvilinear relation

in previous literature (e.g. McCaslin et al., 2009). Indeed, Kleim and Ehlers (2009) investigated the linearity between PTSD and PTG in survivors of assault. Compared to a linear form, an inverted U-curve relation between the two variables was identified as a better fit (Kleim & Ehlers, 2009). This suggests that moderate levels of posttraumatic stress reaction are necessary for growth to occur, while low levels are not influential enough and high levels are too debilitating (Joseph et al., 2012). In summary, research has found that PTSD symptoms was associated with and predicted PTG, and studies have established a curvilinear relation between PTSD and PTG (Klein & Ehlers, 2009; Shakespeare-Finch & Lurie-Beck, 2014; McCaslin et al., 2009).

C. Event Centrality

In addition to PTSD symptomatology, another characteristic that distinguishes a traumatic event from any other stressful event is that a traumatic event is perceived as central to the identity of the individual (Berntsen & Rubin, 2006). In trauma literature, this is referred to as the event centrality of the trauma, and it represents a turning point in the individual's life (Berntsen & Rubin, 2006). Here, the event is seen as central to one's life story and understanding of the world (Berntsen & Rubin, 2006) and the extent to which a particular event defines one's life narrative (Groleau, Calhoun, Cann, & Tedeschi, 2013). There are multiple examples that indicate centrality of an event, such as when an individual perceives that the trauma has permanently changed his/her life and future, or has permanently impacted his/her current life and relationships (Bernsten & Rubin, 2006). Groleau et al. (2013) further found that event centrality accounted for unique variance in PTG after controlling for disruption of core beliefs and rumination. Similarly, Blix, Birkeland, Bang, Hansenand and Heir (2015) found a significant stable positive relation between centrality of events and PTG both one year and two years after a bombing in Norway. In summary, event centrality has

been recently investigated in research in relation to PTG, and has been found to be a positive predictor of PTG (Bernsten & Rubin, 2006).

D. Disruptions of Core Beliefs

Disruption of core beliefs is a construct related to event centrality, and one which has been linked to PTG. The trauma that eventually allows for PTG is said to challenge the view we have about ourselves, others and the world (Tedeschi & Calhoun, 1996). These views have been referred to as our fundamental assumptions (Tedeschi & Calhoun, 1996), which are concerned with the benevolence of the world, the meaningfulness of the world, and the worthiness of the self (Janoff-Bulman, 1989). Benevolence of the world refers to the extent to which an individual believes in the goodness of the world and people. Meaningfulness of the world refers to beliefs in the justice of the world and the distribution of good and bad outcomes, in addition to the controllability of outcomes and the extent to which outcomes are seen to be the result of one's behavior. The third assumption, worthiness of the self, refers to assumptions and beliefs about the self and the extent to which the self is deserving of good or bad outcomes.

In posttraumatic growth literature, these fundamental assumptions have been referred to as the fundamental schemas or core beliefs (Cann, Calhoun, Tedeschi, Kilmer, et al. 2010; Janoff-Bulman, 1989). These are constructed structures of knowledge developed gradually over time. However, highly stressful or traumatic events can cause sudden core belief changes that challenge our previously held assumptions or schemas about the self and the world, and disrupt the status quo of held assumptions (Janoff-Bulman, 1989). Following the trauma, life before and after the event are perceived to be different by the individual (Tedeschi & Calhoun, 2004) especially when the nature of the traumatic event is considered to be highly emotionally intense and uncontrollable (Berger & Weiss, 2009).

Research on core belief disruption and PTG has found a positive association between these two variables (Lindstrom, Cann, Calhoun, & Tedeschi, 2013; Lancaster, Klein, Nadia, Szabo, & Mogerman, 2015). Additionally, Lindstrom et al. (2013) found that PTG occurred only when the traumatic event challenged personal beliefs. Similarly, Taku and Oshio (2015) conducted an item analysis of the scale most commonly used to measure PTG (Post Traumatic Growth Inventory) and found that most of the items on the scale were explained by the disruption of core beliefs, indicating that this disruption is critical for growth. In summary, disruption of core beliefs seems to play an important role in facilitating growth according to PTG model, and research has found it to be a positive predictor of PTG (Cann, Calhoun, Tedeschi, Kilmer, et al., 2010; Lindstrom et al., 2013).

E. Cognitive Engagement: Deliberate and Intrusive Rumination

In order to reach emotional adjustment, the traumatic experience needs to be processed and integrated into the individual's life narrative (Janoff-Bulman, 1989; van der Kolk, McFarlane & van der Hart, 1996). In this situation, cognitive processes are activated to deal with the threat to the fundamental assumptions and assimilate the event into the old assumptions or reestablish new assumptions (Cann, Calhoun, Tedeschi, Kilmer, et al., 2010). Indeed, part of the intervention for dealing with the aftermath of traumas includes rebuilding the trauma experience, exploring the trauma memory and integrating it into long-term memory (van der Kolk et al., 1996). It is the reexamining, rebuilding or revising of one's core beliefs that results in perceived changes in self, relationships with others and changes in one's philosophy of life (Tedeschi & Calhoun, 1996). As such, subsequent growth is said to result not from the trauma itself, but from the struggle with disrupted core beliefs (Cann, Calhoun, Tedeschi, Kilmer, et al. 2010; Tedeschi & Calhoun, 2004). This processing of the event allows individuals to recognize and experience positive change and growth above and beyond the level of psychological functioning that was present before the traumatic event (Zoellner &

Maercker, 2006). Cognitive processing, such as rumination, is a mechanism that allows for the reprocessing, exploration and analysis of the event and the meaning behind it (Tedeschi & Calhoun, 2004).

Research on PTG identified two types of cognitive processing: deliberate event-related rumination and intrusive event-related rumination. These types of rumination refer to constant thinking or self-reflection related to the stressful event (Cann et al., 2011). Specifically, deliberate rumination refers to purposeful re-examination of the trauma or experience that is directed towards making sense of the event (Cann et al., 2011), and intrusive rumination refers to thoughts that occur suddenly and involuntarily (Lindstrom et al., 2013). According to the PTG model, deliberate rumination is necessary for posttraumatic growth to occur (Tedeschi & Calhoun, 2004). Both Lancaster et al. (2015) and Triplett, Tedeschi, Cann, Calhoun, and Reeve, (2012) found a positive relation between deliberate rumination and PTG. Furthermore, Forgeard (2013) and Taku et al. (2012) found that deliberate rumination predicted all levels of posttraumatic growth. Similarly, Taku, Cann et al. (2009) found that both deliberate rumination that occurred immediately following the trauma and recent deliberate rumination predicted PTG. On the other hand, Taku et al. (2012) found that intrusive rumination did not predict growth. Intrusive rumination was found to be associated with distress (Lancaster et al., 2015) and negatively associated with PTG (Cann, Calhoun, Tedeschi & Solomon, 2010). Therefore, according to the PTG model, rumination is an important cognitive process that might help facilitate growth (Cann, Calhoun, Tedeschi, Kilmer, et al., 2010), and research has found a relation between both deliberate and negative rumination and PTG (Cann et al., 2011; Cann, Calhoun, Tedeschi & Solomon, 2010).

F. Self-Disclosure

Self-disclosure has also been investigated in relation to PTG. Taku, Tedeschi, Cann and Calhoun (2009) emphasized the importance of self-disclosure in gaining social support

and alleviating negative emotions following a traumatic event. Self-disclosure refers to talking about the stressful event in order to process it. Taku, Tedeschi et al. (2009) measured self-disclosure in Japanese university students that had experienced a traumatic event in the past 10 years, and found that participants who disclosed about a stressful event showed higher levels of PTG. In an experiment, Slavin-Spenny, Cohen, Oberleitner and Lumley (2011) investigated the effect of different disclosure methods on PTG. The disclosure methods were carried out for 30 minutes and included writing, talking into a tape recorder, talking to a passive listener, and talking to an active listener. After six weeks, Slavin-Spenny et al. (2011) found that all participants who engaged in any form of disclosure, showed significantly higher levels of PTG compared to control participants. When comparing within-group differences, all four methods resulted in similar levels of change in PTG. However, when each group was compared against its corresponding control groups, only the three verbal groups showed a significant difference on PTG levels, while written disclosure and control writing did not differ significantly on PTG, which demonstrates the importance of verbal disclosure. Pietruch and Jobson (2012) investigated the relation between self-disclosure and PTG following a psychotic episode. Pietruch and Jobson (2012) examined self-disclosure as the participant's urge to talk and reluctance to talk about the psychotic episode, in addition to actual self-disclosure. Urge to talk was defined as the need to talk about the traumatic experience (Müller, Moergeli & Maercker, 2008). Urge to talk also refers to the ease with which participants talked about the event and their feelings during the event, and the need for participants to express themselves repeatedly to others (Müller, Beauducel, Raschka & Maercker, 2000). On the other hand, reluctance to talk was defined as the resistance to talk to others about the traumatic experience, despite potentially wanting to speak of the event or having the urge to do so (Müller et al., 2008). Reluctance to talk refers to not talking about the event, having difficulties talking about the event and not wanting to

burden others by telling them about the event (Müller et al., 2000). Müller et al. (2008) found that urge to talk and reluctance to talk were not correlated with one another, implying that these constructs represent two different dimensions. Pietruch and Jobson (2012) found that only reluctance to talk was found to be a predictor of PTG, such that greater reluctance to talk predicted lower levels of PTG. In summary, self-disclosure has been found to positively correlate with PTG, indicating that self-disclosure might help individuals cope with negative emotions following a trauma (Pietruch & Jobson, 2012; Taku et al., 2009).

G. Social Support

Another factor related to self-disclosure is perceived social support, which has been shown to positively predict PTG (Prati & Pietrantonio, 2009; Su & Chen, 2014). Social support has been found to influence PTG by allowing chances for the acceptance of the individual's disclosure of the event by others (Tedeschi & Calhoun, 2004). It has been hypothesized that social support exposes individuals to different perspectives of the same event and allows for sharing of personal stories related to growth (Tedeschi & Calhoun, 2004). Indeed, re-establishing secure social connections following a trauma is part of the intervention for acute and chronic trauma (van der Kolk et al., 1996). As part of a large qualitative investigation, Adams (2015) analyzed the life experiences and functioning of women struggling with chronic illness. Adams (2015) found that being part of a social group became part of the individuals' post-trauma narratives and facilitated changes in personal schemas, such as how the participants defined themselves. Weiss (2004a) found that female survivors of breast cancer who experienced greater quality of marital emotional support perceived greater growth. Weiss (2004a) also found that participants reported higher levels of PTG when they knew individuals who suffered and reported posttraumatic growth following similar experiences. Weiss (2004b) also investigated PTG in husbands of women with breast cancer and showed that PTG in the husbands was significantly associated with

both the couple's depth of commitment to the marital relationship and the number of supportive individuals present in the husband's life. Therefore, social support has been found to be a positive predictor of PTG (Prati & Pietrantonio, 2009; Su & Chen, 2014), suggesting that obtaining support from one's environment helps the individual deal with the consequences of a trauma.

H. Spiritual Support

In addition to social support, religiosity and spirituality have been investigated in relation to PTG. Koenig (1998) stated that religiosity and spirituality play an important role in confronting a painful event by becoming the basis of one's life philosophy and helping the individual cope with stressors. Calhoun & Tedeschi (2006) also proposed that individual factors, such as intrinsic religiousness and religious coping can come into play when an individual attempts to find meaning in a trauma and, help enhance sense of meaning in life for some individuals (Shaw, Joseph & Linley, 2005). The term intrinsic religiousness has been used to refer to the extent to which religion constitutes the basis of an individual's meaning of life and the extent to which an individual draws strength and understanding from a religious belief system (Park, Cohen & Murch, 1996). Park et al. (1996) found that participants reported increased intrinsic religiousness following stressful experiences, and intrinsic religiousness was found to be a predictor of PTG.

Yet, compared to intrinsic religiousness, religious coping has been found to be an event stronger predictor of PTG (Prati & Pietrantonio, 2009). Compared to intrinsic religiousness, Pargament, Koenig and Perez (2000) suggested that religious coping represented a more active use of religion in order to deal with stressors, which includes praying, contemplating a larger spiritual force and meaning, and seeking spiritual support from religious establishments. Pargament et al. (2000) stated that this form of coping helps with giving meaning to negative events and important life transformations. Thomas and

Savoy (2014) further differentiated between two types of religious coping: positive and negative religious coping. Positive religious coping included seeking a stronger relationship with God or seeking help from the religious community, while negative religious coping referred to going through religion-related struggles, such as feelings of increased guilt and shame, (Thomas & Savoy, 2014) and religious discontent (Pargament et al., 2000). Thomas and Savoy (2014) found that low levels of negative religious coping and high levels of positive religious coping were associated with higher levels of PTG.

The literature on PTG has been conducted mainly on intrinsic religiousness and religious coping (e.g. Pargament et al., 2000; Thomas & Savoy, 2014; Shaw, Joseph & Linley, 2007), with no research focusing on the wider construct of spirituality and its relation to PTG. Maton (1989) stated that spiritual support refers to the perceived positive influence of the connection with a higher power during times of uncertainty, distress or difficulty. Spiritual support is considered to be one aspect of positive religious coping (Gall Charbonneau & Florack, 2011). Therefore, this study investigated the relation between spiritual support and PTG, in order to be inclusive of individuals with varying faiths and not only monotheistic religions, and individuals who may or may not identify themselves as religious.

I. Gender

Gender differences were also found when examining PTG. In a meta-analysis, Vishnevsky, Cann, Calhoun, Tedeschi, and Demakis (2010) found a small to moderate gender difference where women reported higher level of PTG than men. Oginska-Bulik (2015) found that bereaved women reported higher levels of PTG than bereaved men especially on appreciation of life and relations with others. In a study on cancer patients, Morris and Shakespeare-Finch (2011) found that women diagnosed with cancer reported higher levels of PTG compared to men. Similarly, in a study on adults who had parents with

cancer, Teixeira and Pereira (2013) found that women reported higher levels of PTG compared to men. Previous studies have demonstrated that female university students were found to perceive higher social support as compared to male students (Tinajero, Martínez-López, Rodríguez, Guisande, & Páramo, 2015) and were more likely to emotionally self-disclose as compared to males (Sultan & Chaudry, 2008), which might explain why women were found to have higher levels of PTG than men. On the other hand, in a Japanese undergraduate population, Taku et al. (2007) found no gender differences on PTG scores. In summary, mixed findings have been obtained on the role of gender on predicting PTG.

CHAPTER II

AIMS AND CONTRIBUTIONS

According to the PTG model, multiple characteristics of the traumatic event and challenges that occur following the event play a role in facilitating and eventually allowing for PTG (Tedeschi & Calhoun, 1996; 2004). The aim of this study was to investigate the multiple factors implicated in the PTG model, which included the characteristics of the trauma and post-trauma challenges in cognitive processing and self-disclosure. Characteristics of the trauma included impact of the event and centrality of the event. Post-trauma challenges included disruption of core beliefs, deliberate and intrusive rumination and self-disclosure (urge to talk and reluctance to talk). This was the first study to explore these integral factors of the PTG model as proposed by Tedeschi and Calhoun (1996) in Lebanon. In addition to these integral components of the PTG model, this study aimed to examine the social and culturally relevant factors of quality of social and spiritual support, in order to provide evidence for an extended model of PTG that includes the larger systems of support and resources beyond the individual (Berger & Weiss, 2004). Furthermore, this was the first study to comprehensively explore the additive value of a group of relevant socio-cultural

variables (such as urge to talk, reluctance to talk, social support and spiritual support) on PTG in one model.

A. Hypotheses

Research on the relation between PTSD levels and PTG showed a positive correlation (Lowe et al., 2013; Taku et al., 2007). Additionally, McCaslin et al. (2009) found that PTSD symptoms predicted PTG levels in a university student sample. Therefore, we hypothesize that

H1: PTSD symptoms will positively predict PTG.

Research has introduced event centrality as a construct that might distinguish a traumatic event from any other stressful event (Berntsen & Rubin, 2006). Research has found that events that are more central to the individual's identity or life story are associated with higher levels of PTG (Groleau et al., 2013).

H2: Centrality of event will positively predict PTG.

Research indicated that disruption of core beliefs is a predictor of PTG, such that greater disruption of core beliefs is related to higher PTG levels (Lancaster et al., 2015; Lindstrom et al., 2013; Taku and Oshio, 2015). Therefore,

H3: Disruption of core beliefs will positively predict PTG.

Research found deliberate rumination to be a predictor of PTG, such that greater deliberate rumination predicted greater levels of PTG (Lancaster et al., 2015; Taku, Kilmer, Cann, Tedeschi & Calhoun, 2012; Triplett et al., 2012) while intrusive rumination was found to be negatively associated with PTG (Cann, Calhoun, Tedeschi & Solomon, 2010). Therefore,

H4: Deliberate rumination will positively predict PTG.

H5: Intrusive rumination will positively predict PTG.

Research indicated that self-disclosure is related to PTG (Taku, Tedeschi et al., 2009).

Specifically, Pietruch and Jobson (2012) found that urge to talk was positively correlated with PTG and that reluctance to talk was found to be a predictor of PTG. Therefore,

H6: Urge to disclose will positively predict PTG

H7: Reluctance to disclose will negatively predict PTG

Research found perceived social support to be associated with PTG (e.g. Lindstrom et al., 2013; Park et al., 1996).

H8: Perceived social support will positively predict PTG.

Although there is no research on PTG and spiritual support, research has found that religious coping to be a positive predictor of PTG (Prati & Pietrantonio, 2009), such that higher religious coping predicted higher levels of PTG. Therefore,

H9: Spiritual support will positively predict PTG.

B. Exploratory Hypothesis

Research on gender differences on PTG levels has found that female participants reported higher levels of PTG (Vishnevsky et al., 2010). However, Taku et al. (2007) found no gender differences in a Japanese university sample.

Exploratory H1: There will be a relation between gender and PTG.

CHAPTER III

METHODOLOGY

A. Participants

The recruitment of participants from the undergraduate introductory psychology class followed the procedure set by the Interim Guidance for Access to the Psychology (201) Student Pool for Research which has been approved by the American University of Beirut Human Research Protection Program. Participants were recruited from the American University of Beirut (AUB) from an undergraduate introductory psychology class. A total of

162 participants met inclusion criteria. Two participants were removed since they were identified as univariate and/or multivariate outliers, resulting in a final sample size of 160. Gender of participants was unequally represented (61% females, 39% males and 4.9% undeclared) and the age of participants ranged from 18 to 24.

1. Inclusion criteria. Participants who reported any event that meets DSM-5 criteria for a trauma were included in the study. Meeting inclusion criteria included experiencing any event that involves exposure to serious emotional or physical injury, sexual violence, or actual or threatened death, which threatens the physical integrity of the self or others. This was determined by analyzing the student's answer on question number 4 in the demographics scale (Appendix E). Students who answered "yes" on parts 4(a) or 4(b) or 4(c) were included in the study.

2. Exclusion criteria. Participants who did not report any event that meets DSM-5 criteria for a trauma were excluded from the study. Students who answered "no" on parts 4(a) and 4(b) and 4(c) were directed to the debriefing page and were excluded from the study. The Institutional Review Board expressed concern regarding participants who very recently experienced a trauma. Therefore, participants who reported experiencing a trauma at the time of data collection or within the last 2 months of the study were also excluded and redirected to a debriefing page that included information on how to obtain advice and assistance.

B. Procedure

The main sample was obtained using convenience sampling. Students from the introductory PSYC 101 and 201 classes who were interested in obtaining extra credit for their psychology course were given the choice to participate in this research study or write a report on a psychological article. Students in PSYC 101 and 201 classes received an announcement regarding the research, which included brief information on the purpose of the study and how to participate in the study (Appendix A). Interested students accessed the link on the Moodle

forum. This link allowed them to register for and access the survey that contained an introduction to the study, an informed consent, and instructions (Appendices B-D), followed by the scales and questionnaires. The estimated time needed to complete the questionnaires was approximately 30 minutes. The informed consent form briefly presented the research topic and explained the voluntary nature of the participation. The informed consent also included information on the anonymity of the participant and confidentiality of the research data. The informed consent also covered the benefits and potential risks that might result from participating in the research project and provided participants with the location and contact information of the university's counseling center, in case any distress emerges during or after participation in the study. The form also included the contact information of the primary investigator. Participants were then asked to fill in the demographic form followed by the scales (Appendix E-M). The scales were counterbalanced and two versions of the questionnaire were used. The survey concluded with a debriefing page (Appendix N) and information on how to receive the extra credit for their course.

C. Variables and Measures

1. Demographics and Type of Trauma Questionnaire

The demographic questionnaire included items about the participant's age and gender, followed by a list of stressful life events that might qualify as a traumatic event, and whether participants experienced intense fear, hopelessness, numbness, emotional and/or physical injury following the stressful event (Appendix E). The questionnaire also measured time since event.

2. Posttraumatic Growth Inventory (PTGI)

The Posttraumatic Growth Inventory is the most commonly used scale to measure posttraumatic growth and is based on people's perceived benefits as a result of a traumatic experience (Tedeschi & Calhoun, 1996). The scale includes five subscales with a total of 21 items (Appendix F). The Relating to Others subscale contains 7 items, a sample of which is "I put more effort into my relationships". The New Possibilities subscale contains 5 items, a sample of which is "I developed new interests". The Personal Strength subscale contains 4 items, a sample of which is "I discovered that I'm stronger than I thought I was". The Spirituality subscale contains 2 items and, a sample of which is "I have a stronger religious faith". The Appreciation for Life subscale contains 3 items and, a sample of which is "I have a greater appreciation for the value of my own life". Items on the scale are measured on a 6-point Likert-type scale ranging 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"). Items include "I have established a new path for my life" and "I put more effort in my relationships" (Tedeschi & Calhoun, 1996). The inventory has been shown to have good internal consistency with a Cronbach's alpha of .90 (Cann et al., 2011). The instructions were modified to more clearly draw attention towards the stressful event. Specifically, the term "crisis" was changed to "the stressful event that you previously mentioned". In this study, PTGI was found to have very good internal consistency of .90.

3. Impact of Event Scale (IES-R)

The Impact of Event Scale-Revised (IES-R) was used to measure hyperarousal, intrusion and avoidance symptoms that are associated with PTSD (Weiss & Marmar, 1997). This scale was not intended to diagnose PTSD; it was intended to measure the of the impact of the trauma as defined by symptoms of PTSD. This scale contains 22 items measured on a 5-point Likert scale ranging from 0 ("Not at all") to 4 ("Extremely") (Appendix G). Sample

items from the Avoidance subscale (8 items) include “I stayed away from reminders about it”. Sample items from the Intrusions subscale (8 items) include “Any reminder brought back feelings about it”. Sample items from the Hyperarousal subscale (6 items) include “I felt irritable and angry”. The scale has been shown to have very good internal consistency with a Cronbach’s alpha of .94 (Cann et al., 2011). In this study, the scale also showed very good internal reliability with a Cronbach’s alpha of .92.

4. Centrality of Event Scale (CES)

Centrality of event was measured using the short form of the Centrality of Event Scale (Berntsen & Rubin, 2006). This 7-item version of the scale was used to measure the extent to which the event is central to the participant’s identity. Items are measured on a 5-point Likert scale ranging from 1 (“totally disagree”) to 5 (“totally agree”). Items include “This event permanently changed my life” (Appendix H). The scale has shown good internal consistency with a Cronbach’s alpha of .88 (Bernstern & Rubin, 2006). In this study, the scale showed very good internal consistency with a Cronbach’s alpha of .90.

5. Core Beliefs Inventory (CBI)

Disruption of core beliefs was measured using the Core Beliefs Inventory, which measures the reexamination of core beliefs that are based on fundamental assumptions about the world and the self (Cann, Calhoun, Tedeschi, Kilmer, et al. 2010). The scale includes 9 items measured using a 6-point Likert scale ranging from 0 (“Not at all”) to 5 (“A very great extent”). The scale was found to have good internal consistency ($\alpha=.82$; Cann, Calhoun, Tedeschi, Kilmer, et al. 2010). Sample items include “Because of the event, I seriously examined the degree to which I believe things that happen to people are fair” and “Because of the event, I seriously examined my beliefs about my expectations for my future” (Appendix I). In this study, the scale showed good internal consistency with a Cronbach’s alpha of .82.

6. Event-Related Rumination Inventory (ERRI)

Intrusive and deliberate rumination were measured using the Event-Related Rumination Inventory (Cann et al., 2011). The scale contains two subscales with 10 items for each type of rumination. The scale has been found to have good internal consistency for both deliberate and intrusive rumination ($\alpha=.87$ and $\alpha=.93$ respectively). Items were assessed using a 4-point Likert scale ranging from 0 (“Not at all”) to 4 (“often”). Sample item for the intrusive rumination subscale include “I thought about the event when I did not mean to”. Sample item for the deliberate rumination scale include “I thought about whether I could find meaning from my experience” (Appendix J). In this study, both intrusive and deliberate rumination showed good internal consistency with a Cronbach’s alpha of .93 and .85, respectively.

7. Disclosure of Trauma Questionnaire (TDQ)

Self-disclosure was measured using the Disclosure of Trauma Questionnaire (Müller et al., 2000) that contains two subscales about the Urge to Talk and Reluctance to Talk (Appendix K). The subscales contain 11 items and 13 items, respectively. Items were assessed using a 4-point Likert scale ranging from 0 (“I do not agree at all”) to 3 (“I agree completely”). Sample items for the Urge to Talk subscale include “It is important for me to talk repeatedly about what happened and how it happened”. Sample items for the Reluctance to Talk subscale include “I have not told anybody about the event”. Both subscales were found to have good internal reliability of $\alpha=.83$ and $\alpha=.84$, respectively (Pietruch & Jobson, 2012). In this study, both Urge to Talk and Reluctance to Talk subscales showed acceptable to good internal consistency, with a Cronbach’s alpha of .78 and .84, respectively.

8. Family Support Scale (FSS)

Social support was measured using the Family Support Scale (Dunst, Trivette & Jenkins, 1984). This scale measures the different sources of available support, such as family,

friends and professionals (Dunst et al., 1984). This scale originally contains 18 items measured on a Likert scale ranging from 0 (“Not at all helpful”) to 4 (“Extremely helpful”). The scale was modified to include 12 items in order to better suit the population sample (Appendix L). The scale was found to have acceptable internal reliability of $\alpha=.80$ (Littlewood, Swanke, Strozier, & Kondrat, 2012). Similarly, the scale showed good internal consistency with a Cronbach’s alpha of .78 in this study.

9. Spirituality Support Scale (SSS)

Perceived spiritual support was measured using the Spirituality Support Scale (Ai, Tice, Peterson, & Huang, 2005). The scale includes 12 items measured on a 4-point Likert scale ranging from 1 (“Strongly disagree”) to 4 (“Strongly agree”). The items have been modified to include reference to a higher power in addition to God (Appendix M). Sample items include “I experience the love and caring of God (or a higher power) on a regular basis” and “My religious or spiritual faith has guided me through the times of difficulty”. The scale showed good internal reliability of .97 (Ai et al., 2005). In this study, the scale also showed excellent internal consistency with a Cronbach’s alpha of .97.

D. Pilot Study

After obtaining the approval from the Institutional Review Board, five undergraduate students and one graduate student were recruited using convenience sampling from the American University of Beirut. Students were invited to voluntarily participate in the pilot study and complete the survey in the Graduate Assistant room in Jesup Hall. Exclusion criteria for the pilot study were students in the psychology 201 student pool and students who were under 18 years of age. The pilot study was conducted in order to estimate the time needed to complete all questionnaires and to assess for participants’ comprehension of the scales and ease in filling the scales. Quantitative data collected from the pilot surveys was not included in the study or in the data analysis. Completion of the questionnaire took an average

of 20 to 30 minutes. Based on the pilot study, minor sentence modifications were required to clarify a few items the reader. Specifically, the phrase “in your life” was changed to “that you previously mentioned” in the Centrality of Event Scale. The statement “the event about which you were reporting” was changed to “the stressful event that you previously mentioned” in the Core Beliefs Inventory. The statement “Please think back to the previous event that you previously mentioned” was added to the Event-Related Rumination Inventory and Disclosure of Trauma Questionnaire. On item 6 in the Disclosure of Trauma Questionnaire, the phrase “I must” was changed to “It’s very important to”. On item 9 in the Spiritual Support Scale, the phrase “inspired” was changed to “influenced”.

E. Research Design

A hierarchical multiple regression analysis was conducted to investigate whether trauma characteristics (impact of event; centrality of event) and challenges and cognitive processing associated with the trauma (disruption of core beliefs; deliberate and intrusive rumination; self-disclosure) and external factors (gender; perceived social support; spiritual support) were predictors of PTG.

CHAPTER IV

RESULTS

A total of 210 participants consented to participating in the study. Three participants had empty questionnaires, so they were removed from the sample. In addition, 23 participants did not meet inclusion criteria and were excluded. Also, ten participants were removed from the sample since they mentioned experiencing a traumatic event less than two months before the study was conducted. Twelve participants met inclusion criteria but had more than 60% of the questionnaire missing, and were also excluded. Preliminary analysis of the data was

therefore carried out on 162 participants. This analysis included a missing value analysis, checking for univariate and multivariate outliers, and assessing the normality of the variables.

A. Missing Value Analysis

The missing value analysis (MVA) indicated that items in the following scales had more than 5% missing data: Deliberate rumination, intrusive rumination, self-disclosure, and social support. The missing values on all the Deliberate and intrusive rumination items ranged from 6.20% to 8.00%. The missing values on all of the TDQ items also ranged from 6.80% to 8.00%. The FSS had a Not Applicable (N/A) option, which was coded as 0 for the missing value analysis. Half of the items on the FSS had a missing value that is either 6.20% or 6.80%. Little's MCAR test was carried to test whether the data was missing at random. Little's MCAR was statistically non-significant, $\chi^2(6555)=6552.11, p>.05$, indicating that the data was missing at random. Therefore, an Estimation Maximization (EM) was used to deal with the missing data¹, and the data was checked to see if any of the values were out of range. Values that were out of range were modified to the nearest score that was within the range of the scale. These imputed values were used in the regression analysis.

B. Univariate and Multivariate Analysis

Items were computed to obtain mean scores on the scales, and univariate and multivariate analyses were conducted. Univariate outliers were identified by converting all non-categorical data into z-scores. Any z-score that exceeds ± 3.29 was considered to be a univariate outlier. Two univariate outliers were identified with z-scores above +3.29 standard deviations on the urge to disclose scale and social support scale. Multivariate outliers were determined using Mahalanobis distance. Two cases were found to be multivariate outliers, $\chi^2(12)=32.91, p<.001$. One of these multivariate outliers was also univariate outliers, these outliers were deleted. Inspection of the second multivariate outlier showed that this participant mentioned that they were not able to pick one traumatic event over another as the

¹ The analysis was also run using listwise exclusion, and the same results were obtained.

most stressful. Since the study premise requires participants to think back to one stressful event in particular, this case was deleted. Mahalanobis distance was run again and no other multivariate outliers were detected.

C. Normality

Since the sample size is large, the normality of the variables was tested by obtaining the z-scores of skewness and kurtosis. Disruption of core beliefs, social support and spiritual coping showed z-skewness scores above the ± 3.29 significance level. Disruption of core beliefs had a z-skewness=-3.97 and spiritual support had a z-skewness=-4.64, indicating non-normal negatively skewed distributions. Social support had a z-skewness=4.08, which indicates a non-normal positively skewed distribution. Despite these non-normal IVs, posttraumatic growth showed a normal distribution with z-skewness=-1.87. Furthermore, normality of residuals (described below) also indicated a normal distribution; therefore, these IVs were not transformed.

D. Order Effects

An independent t-test was carried out to check for significant differences between the two versions of the questionnaire. The two versions differed on the placement of the social support and spiritual support scales in the questionnaire. 83 participants completed the first version of the questionnaire in which the social support and spiritual support scales were presented at the end. 77 participants completed the second version in which social support and spiritual support were presented first. The investigator's rationale was that the social support and spiritual support scales had a general focus and did not focus on a particular traumatic event, while the rest of the scales required participants to think back to a specific traumatic event. In addition, introducing scales that focus directly on the trauma consequences might cause some bias towards the negative nature of the trauma. This bias can

be tested for by first presenting more neutral scales such as the social support and spiritual support scales, followed by the trauma-centered scales.

Independent t-tests revealed order effects on the means of Impact of Event Scale, and Intrusive Rumination subscale. Means and standard deviations are presented in Table 1. With equal variances in the dependent variable across versions assumed, $F(1, 158)=.71, p>.05$, scores on impact of event significantly differed across versions, $t(158)=2.11, p<.05$. Similarly, intrusive rumination showed a significant difference across the two versions, $t(158)=1.99, p=.05$, with equal variances assumed, $F(1, 158)=.06, p>.05$. Inspection of the means and standard deviations indicated that participants who filled the social support and spiritual support scales first reported lower scores on impact of event and intrusive rumination. Since the order effects did not impact the dependent variable, they were not addressed in the analysis.

E. Sample Descriptives

The final sample size was 160 participants, and included 92 (57.50%) females, 60 (37.50%) males and 8 (5.00%) participants of undeclared gender. The age of the participants ranged from 18 to 24 ($M=18.81, SD=1.06$). On the question screening for all potentially traumatic events (Table 2), exposure to war was the most frequently endorsed event ($N=68, 43.10\%$), followed by life threatening illness of a parent, sibling or close friend ($N=59, 36.90\%$). The cumulative number of multiple potentially traumatic events reported by participants ranged from one to 13 events (Table 3). Around 24% of participants reported experiencing one potentially traumatic event, while 21.30% of participants reported experiencing two events, and 20.60% of participants reported three events.

The most distressing event that was most frequently endorsed was death of a parent, sibling or close friend (16.30%, $n=26$), followed by exposure to war (13.10%, $n=21$), severe rejection or failure in a relationship (12.50%, $n=20$), and life threatening illness of a parent,

sibling or close friend (11.30%, n=18) (Table 4). Other types of traumatic events included being threatened with serious harm or being seriously injured (7.50%, n=12); having a parent, sibling or close friend who has experienced a life-threatening accident (5.60%, n=9); experiencing a life-threatening accident (5.60%, n=9); being sexually harassed or assaulted during childhood or adulthood (4.40%, n=7); experiencing parents' separation or divorce (3.80%, n=6); being physically attacked, beaten or abused during childhood or adulthood (3.80%, n=6); other (3.10%, n=5); witnessing or feeling the effects of an explosion (3.10%, n=5); being uprooted or forced to move from one's home (2.50%, n=4); experiencing a life-threatening illness (2.50%, n=4); witnessing physical attacks or beatings in one's home (2.50%, n=4); witnessing severe assault outside one's home (1.90%, n=3); and, lastly, experiencing a robbery involving a weapon (.60%, n=1). Regarding time since event, participants reported experiencing this traumatic event 3 months to 13 years ago, with an average of 4.19 years (SD=3.68). 15% of participants reported experiencing the traumatic event within the past year, while 74.70% of all participants experienced the event within the past five years (Table 5). Out of 160 participants, 137 participants (85.6%) reported experiencing intense fear, helplessness, horror or numbness when the event occurred. 129 participants (79.4%) considered that they were emotionally injured by the event, and 25 participants (15%) reported that they were physically injured by the event.

F. Scale Descriptives

The mean of the items of each scale were computed and the average of all scores was obtained. As seen in Table 6, the mean of PTG was $M=2.48$ ($SD=.96$, range=4.43). Scores on impact of event had a mean of 1.79 ($SD=.77$, range=3.36), which indicates lower than midpoint scores on impact of event. The mean of social support was $M=1.07$ ($SD=.61$, range=3.43), which was lower than the midpoint, indicating that participants' ratings of social support helpfulness were lower than average. The mean of scores on the urge to talk and

reluctance to talk subscales were also lower than the midpoint of the scale, where the mean of urge to talk was $M=.99$ ($SD=.55$, $range=2.93$) and the mean of reluctance to talk was $M=1.21$ ($SD=.62$, $range=2.77$). The mean of spiritual support was $M=2.92$ ($SD=.79$, $range=3.00$), indicating scores that were higher than average.

G. Inter-correlations of Measures

Pearson's correlations of the dependent and independent variables were obtained and are presented in Table 7. Spearman's rho was used instead of Pearson's r for non-normal variables (core beliefs, social support and spiritual support). Also, point biserial correlation of gender with other variables was also obtained and presented in Table 8. Results from the correlation matrix indicate that PTG had positive correlations with 8 out of 10 independent variables. There was a positive large correlation between disruption of core beliefs and PTG ($r=.50$, $p<.05$). Also, PTG had a positive large to medium sized correlation with deliberate rumination ($r=.43$, $p<.05$), social support ($r=.35$, $p<.05$), impact of event ($r=.34$, $p<.05$) and centrality of event ($r=.34$, $p<.05$). PTG had a positive small to medium sized correlation with intrusive rumination ($r=.30$, $p<.05$), spiritual support ($r=.19$, $p<.05$) and urge to talk ($r=.17$, $p<.05$). There was non-significant relation between gender and PTG ($r_{pb}=-.12$, ns) and reluctance to talk ($r=.09$, ns). There was a large positive correlation between impact of event and intrusive rumination ($r=.78$, $p<.05$). Furthermore, time since event was negatively associated with impact of event ($r=-.22$, $p<.05$), disruption of core beliefs ($r=-.29$, $p<.05$), and deliberate rumination ($r=-.20$, $p<.05$). Therefore, time since event was controlled for in the regression analysis.

H. Regression Analysis

A hierarchical multiple regression involving two steps was used to test the predictors of PTG using forced entry method. The first step included gender and time since event, which was the controlled variable. The second step included impact of event, event centrality,

disruption of core beliefs, deliberate rumination, social support, spiritual support, urge to talk, and reluctance to talk. First, the assumptions of the regression analysis were assessed.

1. Variable type. All variables were either scaled or purely dichotomous.

2. Ratio of cases to IVs. Tabachnick and Fidel (2014) recommended a sample size larger than $(50+8m)$ if we are interested in testing the multiple correlation and $(104+m)$ for testing individual predictors, where m is the number of IVs. With the addition of version number as a predictor, the initial data set includes 11 predictors with a sample size of 160. Therefore, the sample size assumption is met since the sample size is beyond both sample size estimates ($50+8*11=138$ and $104+11=115$).

3. Influential cases. Influential cases refer to cases present in the sample that might influence the parameters of the regression model. These cases were assessed by inspecting the DFbetas and Standardized DFbetas. Cases with DFbetas above the absolute value of 1 or 2 imply potentially influential cases. Examination of the DFbetas and Standardized DFbetas of all predictors revealed that there were no influential cases in the data.

4. Multicollinearity. Multicollinearity refers to high correlation between variables which might affect the regression analyses. Correlations above .80 can indicate issues of multicollinearity. Inspection of the zero order correlation matrix indicated a high correlation between intrusive rumination and impact of event ($r=.78, p<.05$). Therefore, intrusive rumination was dropped out of the analysis, since the impact of event scale includes a subscale that measures intrusions. The analysis was re-run and the Variance Inflation Factor (VIF) coefficients were inspected to check for values above 10. All VIF values were found to be below 10, indicating that there were no issues with multicollinearity.

5. Independence of errors. The independence of errors was assessed using the Durbin-Watson statistic to see if errors of predictors were independent of each other. The Durbin-Watson statistic close to 2 refers to that the assumption of independence of errors is

met, while scores less than 1 and greater than 3 violate the assumption. In this analysis, the Durbin-Watson value was 2.12, which satisfies the assumption of independence of errors.

6. Normality of residuals. The normality of the residuals of the dependent variables was assessed by inspecting the histogram shown in Figure 1. The histogram of posttraumatic growth had a bell shaped curve whose center approached zero ($M=1.37E-15$, $SD=.97$). In addition, the normal P-P plot also showed that the data was packed on the diagonal line (Figure 2). These figures indicate that the residuals were normally distributed and the assumption was met.

7. Homoscedasticity of regression slope. Homoscedasticity of the regression slope is assessed for by inspecting the Z-RESID vs. Z-PRED scatterplot. The scatterplot (Figure 3) shows a random array of dots that are not funneling or making a particular shape, indicating that the assumption is met.

8. Hierarchical Multiple Regression. The first model, which included the controlling variable, time since event, and gender was not significant, $F(2, 149)=2.91$, ns. The second model which included the rest of the predictors was significant $F(10, 141)=10.72$, $p<.05$. The R squared value was $R^2=.43$ and the change in R squared in the second model was also statistically significant, $\Delta R^2=.39$, $p<.05$. This indicates that the second model accounted for 43% variance in PTG. Furthermore, the adjusted R square had a value of $R^2=.39$, which indicated a 4% loss in predictive power of the model if the model was generalized to the population from which this sample was taken.

Inspection of the beta coefficients in the final model reveals that disruption of core beliefs was found to be the strongest significant positive predictor of PTG, $\beta=.44$, $p<.05$, after controlling for time since event. In addition, social support was found to be the second strongest significant positive predictor, $\beta=.27$, $p<.05$, after controlling for time since event. These findings indicate that those who reported higher levels of core beliefs disruption and

social support reported higher levels of PTG. This magnitude and significance of these predictors were similar to the large and medium significant correlations that core belief disruption and social support had with PTG (Table 7). Gender was not a significant predictor of PTG, and this is similar to the point biserial correlation previously obtained which showed a non-significant correlation between PTG and gender (Table 8). Therefore, exploratory hypothesis 1 was not supported. In addition to spiritual support, impact of event, centrality of event and deliberate rumination were also not significant predictors despite medium-sized significant correlation with PTG. Therefore, only hypotheses 3 and 8 were supported.

CHAPTER V

DISCUSSION

A. Main Findings of the Study

The aim of this study was to measure the prevalence of posttraumatic growth and to investigate the role of trauma characteristics, post-trauma challenges and socio-cultural factors in predicting posttraumatic growth. In Lebanon, there is no literature on the prevalence of PTG or its predictors. Our sample included a group of undergraduate students who met the criteria for experiencing a trauma. In total, participants reported a moderate degree of post-traumatic growth, which indicates that these students had the necessary resources to experience growth following a trauma.

The strongest direct predictor of post-traumatic growth was disruption of core beliefs. This finding indicates that higher levels of disruption of core beliefs, predicted higher levels of PTG in our sample. This is consistent with previous studies that found that disruption of core beliefs positively predicted posttraumatic growth (Lancaster et al., 2015; Lindstrom et al., 2013; Taku & Oshio, 2015). According to the posttraumatic growth model, the ultimate shift in core beliefs following a trauma eventually allows for growth to develop (Tedeschi & Calhoun, 1996). Furthermore, disruption of core beliefs occurs when an event is traumatic or

impactful enough to disrupt the beliefs and assumptions that we have about the world and ourselves (Janoff-Bulman, 1989).

The second positive significant direct predictor on posttraumatic growth was perceived social support, such that higher levels of social support predicted higher levels of posttraumatic growth. This finding supports previous findings on perceived social support and posttraumatic growth (Lindstrom et al., 2013; Park et al., 1996). Additionally, we explored various potential sources of social support including family, friends, religious establishments and professionals, etc. In this study, participants' scores on perceived social support were lower than average. This is contrary to the high levels of social support in AUB students in a previous study (Hawa, 2006). A possible explanation might be that the Family Support Scale (Dunst et al., 1984) measured the aggregate support obtained from various social sources, rather than social support obtained from family and friends only (i.e. Hawa, 2006). Indeed, our results showed that participants more frequently endorsed parents, siblings, friends and relatives as helpful sources of support compared to other sources. More than half of the participants found neither religious establishments nor support sources, such as social groups, professional helpers and professional agencies, helpful. This may indicate that participants either do not have access to these sources or were unlikely to reach out to potential sources of support, such as professionals and agencies.

This study also explored the role of other posttraumatic growth predictors such as impact of event, event centrality, urge to talk, reluctance to talk, deliberate rumination and spiritual support, all of which were not significant predictors of posttraumatic growth. Contrary to previous research (Groleau et al., 2013; McCaslin et al., 2009; Zhou et al., 2015), centrality of event and impact of event were not found to be significant direct predictors of posttraumatic growth, despite medium-sized positive correlations with posttraumatic growth. Previous studies on PTSD and posttraumatic growth (e.g. Lowe et al., 2013, Taku et al.,

2008; Zhou et al., 2015) did not investigate the influence of impact of event and disruption of core beliefs together on posttraumatic growth, and may have missed the possible interplay of disruption of core beliefs on PTSD symptomatology and posttraumatic growth.

Similar to Pietruch and Jobson (2008), our results showed that urge to talk positively correlated with posttraumatic growth. However, neither urge to talk nor reluctance to talk predicted posttraumatic growth, which is contrary to previous literature (Pietruch & Jobson, 2008). A possible reason for this might be the difference in sample characteristics since Pietruch and Jobson (2008) examined urge and reluctance to talk in a clinical population. Contrary to previous research (Lancaster et al., 2015; Triplett et al., 2012), deliberate rumination was also found to be a non-significant predictor of posttraumatic growth, despite a large positive correlation with posttraumatic growth. Spiritual support is another variable that was found to be a non-significant predictor of posttraumatic growth, despite high levels of spiritual support reported by participants. Although these variables were not found to be direct significant predictors of PTG, they might have influenced PTG indirectly. Since there were high correlations between the various predictors in this study, it is possible that these predictors might have had a mediating effect between the predictors. For example, impact of event or deliberate rumination might be mediating the influence of disruption of core beliefs on PTG. Nevertheless, this hypothesis would require a mediation analysis which is beyond the scope of this study.

Notably, significant order effects related to social support, impact of event and intrusive rumination emerged in the questionnaires. When participants completed the trauma centered scales first, their scores on impact of event, intrusive rumination and social support were significantly higher than participants who completed the social support and spiritual support first. A possible explanation for these finding is that participants who completed the trauma-centered scales first (e.g. PTGI and Impact of Event Scale) might have been primed to

the negative nature and consequences of a trauma, and therefore, they scored higher on PTSD levels and intrusive rumination. Similarly, when participants completed the spiritual coping and social support scales first, they had lower levels of impact of event and intrusive rumination, also indicating a possible effect of these support scales on the way the participants perceived their trauma and their symptoms of the trauma.

This study also explored the prevalence of different types of potentially traumatic experiences in an undergraduate student population in Lebanon. The most commonly endorsed stressful life experience was exposure to war which was reported by almost 43% of participants, and it was the most traumatic experience for 12.6% of participants. Another common stressful experience was witnessing or feeling the effects of an explosion as reported by 33% of participants, which was understandable given the unstable political state and terrorist attacks that occurred in some parts of Lebanon. The most frequently endorsed traumatic experiences that were not related to war included death of a parent, close friend or loved one. These results were similar to findings from Lebanese national studies (e.g. Itani, Haddad, Fayyad, Karam, & Karam, 2014). Karam et al. (2008) found that 47% Lebanese adults reported that they were exposed to one or two war-related events. Similarly, Itani et al. (2014) found that war-related traumas were the most prevalent event reported by Lebanese adults.

B. Limitations of the Study

There are several limitations that are worth mentioning. First, this study is cross-sectional; therefore, no causal interpretations can be made. Second, interpretation of this study's results does not generalize to the Lebanese population and can only be applied to college students. Furthermore, the data analysis indicated some measure of shrinkage indicating that the regression model obtained may not generalize robustly to the population.

Third, although this study investigated a wide range of traumas, it did not measure or control for the influence of multiple traumas on posttraumatic growth; at least 76% of participants in this study reported more than one potentially traumatic experience. Because of the curvilinear relationship between the impact of trauma and post-traumatic growth shown in previous research (McCaslin et al., 2009), the impact of multiple trauma may change the findings on post-traumatic growth. Lastly, all scales relied on retrospective self-report, which can be influenced by recall biases.

C. Future Considerations

This study provides preliminary results on levels of posttraumatic growth and its predictors. Future studies should explore the PTG model on a clinical sample or a more representative sample of the Lebanese population. Exploring trauma and posttraumatic growth is important given the political unrest that threatens the safety of the people in some areas of Lebanon. Over the years, wars occurring in the Arab region have led to a surge in number of refugees in Lebanon. Further research will help identify factors that facilitate posttraumatic growth in order to help mental health professionals promote growth and well-being following a trauma.

The factors investigated in this study were both integral components of the posttraumatic model (Tedeschi & Calhoun, 1996) and culturally relevant factors. Nonetheless, previous research has found that personality characteristics such as optimism (Prati & Pietrantonio, 2009), self-efficacy (Lotfi- Kashani, Vaziri, Akbari, Kazemi-Zanjani, & Shamkoeyan, 2014), self-esteem (Tedeschi & Calhoun, 1996), and acceptance (Prati & Pietrantonio, 2009) have been found to be positively correlated with posttraumatic growth; while, neuroticism (Evers et al., 2001) and comorbid psychiatric disorders such as depression (Frazier, Conlon & Glaser, 2001) were found to be negatively associated with growth. Although these personality characteristics and clinical factors were beyond the scope of this

study, it would be interesting to explore the possible interactions between these characteristics (e.g. optimism and positive coping strategies) and cognitive factors (e.g. disruption of core beliefs).

Furthermore, the current study found that social support positively predicted posttraumatic growth. This indicates that investigating socio-cultural factors in relation to posttraumatic growth is important in the Lebanese cultural context. A qualitative research design might help identify possible factors in social support that facilitate growth, such as facilitating the construction of the trauma narrative, or receiving the listener's acceptance. Since high levels of spiritual support were found in this sample, it would be interesting to explore the interaction between social support and spiritual support; and whether individuals who have similar spiritual coping styles, may support each other more than individuals who do not have similar coping styles.

D. Conclusion

This study investigated the role of trauma characteristics and cognitive processes, which are core components of the posttraumatic growth. This study also investigated culturally relevant social factors on the development of posttraumatic growth in a university student sample. Although this study is cross-sectional, it provides preliminary data on the prevalence of posttraumatic growth in Lebanon. Results indicated that disruption of core beliefs and social support to be significant positive predictors. Nonetheless, in total, all predictors accounted for 43% variance in PTG scores. Furthermore, significant correlations between predictors indicated a possible interactions occurring between the different factors. Future studies might benefit from experimental or mediation analysis, to clarify the relation between these factors and posttraumatic growth.

REFERENCES

- Adams, H. L. (2015). Insights into processes of posttraumatic growth through narrative analysis of chronic illness stories. *Qualitative Psychology, 2*(2), 111-129.
doi:10.1037/qup0000025
- Ai, A. L., Tice, T. N., Peterson, C., & Huang, B. (2005). Prayers, spiritual support, and positive attitudes in coping with the September 11 national crisis. *Journal of Personality, 73*(3), 763–791. doi: 10.1111/j.1467-6494.2005.00328.x.
- Al-Krenawi, A. & Graham, J. R. (2000). Culturally sensitive social work practice with Arab clients in mental health settings. *Health and Social Work, 25*, 9-22.
- Berger, R., & Weiss, T. (2009). The Posttraumatic Growth model: An expansion to the family system. *Traumatology, 15*(1), 63-74. doi:10.1177/1534765608323499
- Berntsen, D., & Rubin, D. C. (2006). The centrality of event scale: A measure of integrating a trauma into one's identity and its relation to post-traumatic stress disorder symptoms. *Behaviour Research & Therapy, 44*(2), 219-231.
doi:10.1016/j.brat.2005.01.009
- Blix, I., Birkeland, M. S., Hansen, M. B., & Heir, T. (2015). Posttraumatic growth and centrality of event: A longitudinal study in the aftermath of the 2011 Oslo bombing. *Psychological Trauma: Theory, Research, Practice, and Policy, 7*(1), 18-23.
doi:10.1037/tra0000006
- Calhoun L. G., & Tedeschi, R. G. (2006). The foundations of posttraumatic growth: an expanded framework. In L. G. Calhoun & R. G. Tedeschi (Eds.), *The handbook of posttraumatic growth: Research and practice* (pp. 3-23). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Calhoun, L. G., & Tedeschi, R. G. (2004). The Foundations of Posttraumatic Growth: New Considerations. *Psychological Inquiry, 15*(1), 93-102.

- Cann, A., Calhoun, L. G., Tedeschi, R. G., & Solomon, D. T. (2010). Posttraumatic growth and depreciation as independent experiences and predictors of well-being. *Journal of Loss & Trauma, 15*(3), 151-166. doi:10.1080/15325020903375826
- Cann, A., Calhoun, L. G., Tedeschi, R. G., Kilmer, R. P., Gil-Rivas, V., Vishnevsky, T., & Danhauer, S. C. (2010). The Core Beliefs Inventory: a brief measure of disruption in the assumptive world. *Anxiety, Stress & Coping, 23*(1), 19-34.
doi:10.1080/10615800802573013
- Cann, A., Calhoun, L. G., Tedeschi, R. G., Triplett, K. N., Vishnevsky, T., & Lindstrom, C. M. (2011). Assessing posttraumatic cognitive processes: the Event Related Rumination Inventory. *Anxiety, Stress & Coping, 24*(2), 137-156.
doi:10.1080/10615806.2010.529901
- Christiansen, D. M., & Elklit, A. (2008). Risk factors predict post-traumatic stress disorder differently in men and women. *Annals of General Psychiatry, 7*(24). doi: 10.1186/1744-859X-7-24.\
- Dunst, C., Trivette, C. M., & Jenkins, J. (1984). Family support scale: Reliability and validity. Published instrument. Asheville, NC: Winterberry Press.
- Evers, A. W. M., Kraaimaat, F. W., van Lankveld, W., Jongen, P. J. H., Jacobs, J. W. G., & Bijlsma, J. W. J. (2001). Beyond unfavourable thinking: The Illness Cognition Questionnaire for chronic diseases. *Journal of Consulting and Clinical Psychology, 69*, 1026–1036.
- Forgeard, M. C. (2013). Perceiving benefits after adversity: The relationship between self-reported posttraumatic growth and creativity. *Psychology of Aesthetics, Creativity, And The Arts, 7*(3), 245-264. doi:10.1037/a0031223
- Frazier, P., Conlon, A., & Glaser, T. (2001). Positive and negative life changes following sexual assault. *Journal of Consulting and Clinical Psychology, 69*, 1048–1055.

- Gall, T. L., Charbonneau, C., & Florack, P. (2011). The relationship between religious/spiritual factors and perceived growth following a diagnosis of breast cancer. *Psychology & Health, 26*(3), 287-305. doi:10.1080/08870440903411013
- Groleau, J. M., Calhoun, L. G., Cann, A., & Tedeschi, R. G. (2013). The role of centrality of events in posttraumatic distress and posttraumatic growth. *Psychological Trauma: Theory, Research, Practice, and Policy, 5*(5), 477-483. doi:10.1037/a0028809
- Hawa, S. E. (2007). *The role of religiosity, social support, parental styles, and stigma in the psychological distress of students seeking counseling at AUB*. Unpublished master's thesis, American University of Beirut, Lebanon. Retrieved from <https://ulib.aub.edu.lb/thesis/t-4859.pdf>
- Itani, L., Haddad, Y. C., Fayyad, J., Karam, A., & Karam, E. (2014). Childhood Adversities and Traumatization in Lebanon: A National Study. *Clinical Practice & Epidemiology in Mental Health, 10*, 116-125. doi:10.2174/1745017901410010116
- Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events: Applications of the schema construct. *Social Cognition, 7*(2), 113-136. doi:10.1521/soco.1989.7.2.113
- Jin, Y., Xu, J., Liu, H., & Liu, D. (2014). Posttraumatic stress disorder and posttraumatic growth among adult survivors of Wenchuan earthquake after 1 year: Prevalence and correlates. *Archives of Psychiatric Nursing, 28*(1), 67-73. doi:10.1016/j.apnu.2013.10.010
- Joseph, S., Murphy, D., & Regel, S. (2012). An affective-cognitive processing model of post-traumatic growth. *Clinical Psychology & Psychotherapy, 19*(4), 316-325. doi:10.1002/cpp.1798
- Karam, E. G., Mneimneh, Z. N., Dimassi, H., Fayyad, J. A., Karam, A. N., Nasser, S. C., Chatterji, S. & Kessler, R. C. (2008). Lifetime prevalence of mental disorders in

- Lebanon: First onset, treatment, and exposure to war. *PLoS Medicine*, 5(4), 579-586.
doi:10.1371/journal.pmed.0050061
- Kleim, B., & Ehlers, A. (2009). Evidence for a curvilinear relationship between posttraumatic growth and posttrauma depression and PTSD in assault survivors. *Journal of Traumatic Stress*, 22(1), 45-52. doi:10.1002/jts.20378
- Koenig, H. G. (1998). *Handbook of religion and mental health* (1st ed.). San Diego: Academic Press.
- Lancaster, S. L., Klein, K. R., Nadia, C., Szabo, L., & Mogerman, B. (2015). An Integrated Model of Posttraumatic Stress and Growth. *Journal of Trauma & Dissociation*, 16(4), 399-418. doi:10.1080/15299732.2015.1009225
- Lindstrom, C. M., Cann, A., Calhoun, L. G., & Tedeschi, R. G. (2013). The relationship of core belief challenge, rumination, disclosure, and sociocultural elements to posttraumatic growth. *Psychological Trauma: Theory, Research, Practice, and Policy*, 5(1), 50-55. doi:10.1037/a0022030
- Littlewood, K., Swanke, J. R., Strozier, A., & Kondrat, D. (2012). Measuring social support among kinship caregivers: Validity and reliability of the family support scale. *Child Welfare*, 91(6), 59-78.
- Lotfi-Kashani, F., Vaziri, S., Akbari, M. E., Kazemi-Zanjani, N., & Shamkoeyan, L. (2014). Predicting post traumatic growth based upon self-efficacy and perceived social support in cancer patients. *Iranian Journal of Cancer Prevention*, 7(3), 115.
- Lowe, S. R., Manove, E. E., & Rhodes, J. E. (2013). Posttraumatic stress and posttraumatic growth among low-income mothers who survived Hurricane Katrina. *Journal of Consulting and Clinical Psychology*, 81(5), 877-889. doi:10.1037/a0033252

- Maton, K. I. (1989). The stress-buffering role of spiritual support: Cross-sectional and prospective investigations. *Journal for the Scientific Studies of Religion*, 28 (3), 310–323.
- McCaslin, S. E., de Zoysa, P., Butler, L. D., Hart, S., Marmar, C. R., Metzler, T. J., & Koopman, C. (2009). The relationship of posttraumatic growth to peritraumatic reactions and posttraumatic stress symptoms among Sri Lankan university students. *Journal of Traumatic Stress*, 22(4), 334-339.
- Morris, B. A. & Shakespeare-Finch, J. (2011). Cancer Diagnostic Group Differences in Posttraumatic Growth: Accounting for Age, Gender, Trauma Severity, and Distress. *Journal of Loss and Trauma: International Perspectives on Stress & Coping*, 16(3), 229-242. doi:10.1080/15325024.2010.519292
- Müller, J., Moergeli, H., & Maercker, A. (2008). Disclosure and Social Acknowledgement as Predictors of Recovery from Posttraumatic Stress: A Longitudinal Study in Crime Victims. *The Canadian Journal of Psychiatry*, 53(3), 160 – 168.
doi:10.1177/070674370805300306
- Müller, J., Beauducel, A., Raschka, J., & Maercker, A. (2000). Kommunikationsverhalten nach politischer Haft in der DDR –Entwicklung eines Fragebogens zum Offenlegen der Traumaerfahrungen. *Zeitschrift für Politische Psychologie*, 8, 413-427.
- Ogińska-Bulik, N. (2015). The relationship between resiliency and posttraumatic growth following the death of someone close. *Omega: Journal of Death & Dying*, 71(3), 233-244. doi:10.1177/0030222815575502
- Pargament, K. I., Koenig, H. G., & Perez, L. (2000). The many methods of religious coping: Development and initial validation of the RCOPE. *Journal of Clinical Psychology*, 56, 519–543.

- Pargament, K. I., Smith, B. W., Koenig, H. G., & Perez, L. (1998). Patterns of positive and negative religious coping with major life stressors. *Journal for the Scientific Study of Religion*, 37, 710-724. doi:10.2307/1388152
- Park, C. L., Cohen, L. H., & Murch, R. L. (1996). Assessment and prediction of stress-related growth. *Journal of Personality*, 64(1), 71-105. doi:10.1111/1467-6494.ep9606210694
- Pietruch, M. & Jobson, L. (2012). Posttraumatic growth and recovery in people with first episode psychosis: an investigation into the role of self-disclosure. *Psychosis*, 4(3), 213-22. doi: 10.1080/17522439.2011.608434
- Prati, G., & Pietrantonio, L. (2009). Optimism, social support, and coping strategies as factors contributing to posttraumatic growth: A Meta-Analysis. *Journal of Loss & Trauma*, 14(5), 364-388. doi:10.1080/15325020902724271
- Shakespeare-Finch, J., & Lurie-Beck, J. K. (2014). A meta-analytic clarification of the relationship between posttraumatic growth and symptoms of posttraumatic distress disorder. *Journal of Anxiety Disorders*, 28, 223-229. doi:10.1016/j.janxdis.2013.10.005
- Shaw, A., Joseph, S., & Linley, P. A. (2005). Religion, spirituality, and posttraumatic growth: a systematic review. *Mental Health, Religion & Culture*, 8(1), 1-11. doi:10.1080/1367467032000157981
- Slavin-Spenny, O. M., Cohen, J. L., Oberleitner, L. M., & Lumley, M. A. (2011). The effects of different methods of emotional disclosure: differentiating post-traumatic growth from stress symptoms. *Journal of Clinical Psychology*, 67(10), 993-1007. doi: 10.1002/jclp.20750
- Su, Y., & Chen, S. (2014). Emerging Posttraumatic Growth: A prospective study with pre- and posttrauma psychological predictors. *Psychological Trauma: Theory, Research, Practice, And Policy*, 7(2), 103-111. doi:10.1037/tra0000008

- Sultan, S., & Chaudry, H. (2008). Gender-based differences in the patterns of emotional self-disclosure. *Pakistan Journal Of Psychological Research*, 23(3-4), 107-122.
- Tabachnick, B. G., & Fidell, L. S. (2014). Using multivariate statistics. Boston: Pearson/Allyn & Bacon.
- Taku, K., & Oshio, A. (2015). An item-level analysis of the Posttraumatic Growth Inventory: Relationships with an examination of core beliefs and deliberate rumination. *Personality & Individual Differences*, 86, 156-160.
doi:10.1016/j.paid.2015.06.025
- Taku, K., Calhoun, L. G., Cann, A., & Tedeschi, R. G. (2008). The role of rumination in the coexistence of distress and posttraumatic growth among bereaved Japanese university students. *Death Studies*, 32(5), 428-444. doi:10.1080/07481180801974745
- Taku, K., Calhoun, L. G., Tedeschi, R. G., Gil-Rivas, V., Kilmer, R. P., & Cann, A. (2007). Examining posttraumatic growth among Japanese university students. *Anxiety, Stress & Coping*, 20(4), 353-367. doi:10.1080/10615800701295007
- Taku, K., Cann, A., Tedeschi, R. G., & Calhoun, L. G. (2009). Intrusive versus deliberate rumination in posttraumatic growth across US and Japanese samples. *Anxiety, Stress & Coping*, 22(2), 129-136. doi:10.1080/10615800802317841
- Taku, K., Kilmer, R. P., Cann, A., Tedeschi, R. G., & Calhoun, L. G. (2012). Exploring posttraumatic growth in Japanese youth. *Psychological Trauma: Theory, Research, Practice, and Policy*, 4(4), 411-419. doi:10.1037/a0024363
- Taku, K., Tedeschi, R. G., Cann, A., & Calhoun, L. G. (2009). The culture of disclosure: effects of perceived reactions to disclosure on posttraumatic growth and distress in Japan. *Journal of Social & Clinical Psychology*, 28(10), 1226-1243. doi: 10.1521/jscp.2009.28.10.1226

- Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9*(3), 455-471.
doi:10.1007/BF02103658
- Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic Growth: Conceptual foundations and empirical evidence. *Psychological Inquiry, 15*(1), 1-18.
doi:10.1207/s15327965pli1501_01
- Teixeira, R. J. & Pereira, G. (2013). Factors Contributing to Posttraumatic Growth and Its Buffering Effect in Adult Children of Cancer Patients Undergoing Treatment. *Journal of Psychosocial Oncology, 31*(3), 235-265. doi:10.1080/07347332.2013.778932
- Thomas, E., & Savoy, S. (2014). Relationships between traumatic events, religious coping style, and posttraumatic outcomes. *Traumatology: An International Journal, 20*(2), 84-90. doi:10.1037/h0099380
- Tinajero, C., Martínez-López, Z., Rodríguez, M. S., Guisande, M. A., & Páramo, M. F. (2015). Gender and socioeconomic status differences in university students' perception of social support. *European Journal Of Psychology Of Education, 30*(2), 227-244. doi:10.1007/s10212-014-0234-5
- Triplett, K. N., Tedeschi, R. G., Cann, A., Calhoun, L. G., & Reeve, C. L. (2012). Posttraumatic growth, meaning in life, and life satisfaction in response to trauma. *Psychological Trauma: Theory, Research, Practice, and Policy, 4*(4), 400-410.
doi:10.1037/a0024204
- van der Kolk, B. A., McFarlane, A. C., & van der Hart, O. (1996). A general approach to treatment of posttraumatic stress disorder. In B. A. van der Kolk, A. C. McFarlane & L. Weisæth (Eds.), *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society* (pp. 417-440). New York: Guilford.

- Vishnevsky, T., Cann, A., Calhoun, L. G., Tedeschi, R. G., & Demakis, G. J. (2010). Gender differences in self-reported posttraumatic growth: a meta-analysis. *Psychology of Women Quarterly, 34*(1), 110-120. doi:10.1111/j.1471-6402.2009.01546.x
- Weiss, D., & Marmar, C. (1997). The Impact of Event Scale - revised. In J. Wilson & T. Keane (Eds.), *Assessing psychological trauma and PTSD* (pp. 399-411). New York: Guilford.
- Weiss, T. (2004a). Correlates of posttraumatic growth in married breast cancer survivors. *Journal of Social & Clinical Psychology, 23*(5), 733-746. doi:10.1521/jscp.23.5.733.50750
- Weiss, T. (2004b). Correlates of posttraumatic growth in husbands of breast cancer survivors. *Psycho-Oncology, 13*(4), 260-268. doi:10.1002/pon.735
- Zhou, X., Wu, X., & Chen, J. (2015). Longitudinal linkages between posttraumatic stress disorder and posttraumatic growth in adolescent survivors following the Wenchuan earthquake in China: A three-wave, cross-lagged study. *Psychiatry Research, 228*(1), 107-111. doi:10.1016/j.psychres.2015.04.024
- Zoellner, T., & Maercker, A. (2006). Posttraumatic growth in clinical psychology - A critical review and introduction of a two component model. *Clinical Psychology Review, 26*(5), 626-653. doi:10.1016/j.cpr.2006.01.008

APPENDICIES

Appendix A

Announcement of the study

Prevalence and Predictors of Posttraumatic Growth in a College Student Sample in Lebanon

Dear Students,

After experiencing a stressful life event, we might feel a positive psychological change in ourselves. We might feel stronger or more confident than we used to be. We might start to have increased appreciation of life and/or appreciation of the relationships we have with others.

The **purpose** of this research study is to examine the predictors of posttraumatic growth in a college student sample in Lebanon. You are invited to participate in this study by filling out an online survey. Filling the survey will take approximately 30 minutes.

To participate, you must be between 18 and 25 years of age.

If you wish to participate, please contact Dr. May Awaida. **To ensure the anonymity of your participation, your name cannot be traced back to the survey.**

Dr. May Awaida

Tel: +961 1 350000 ext 4374/4360

Email: mawaida@aub.edu.lb

Your participation will contribute to your understanding of how research studies are conducted in the field of psychology and will therefore earn you one point towards your final Psychology 201 grade. You will be asked to create a code to relay to your instructor so you could earn the **extra credit**.

If you do not wish to participate in this study, you can earn extra credit by participating in other research studies, or by writing a brief report on an article in a psychological journal. For more information on other research studies or writing a brief report, please contact Dr. May Awaida.

Some questions and examples related to stressful events in the survey might make you feel upset or distressed. If you think that you need talk to someone about your feelings, please visit or contact Counseling Center at AUB which provides free counseling services to students. It is located in West Hall 2nd floor room 210 (phone ext. 3196). You can also contact the family medicine clinic (ext. 3000) which will assess your case and make suitable referrals to the psychological services available in the infirmary.

Primary Investigator:

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Beirut, Lebanon

Student Researcher:

Rima Abboud, Graduate Student,
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Appendix B

Welcome to the study, my name is Rima Abboud, I am a graduate student in the Clinical Psychology master's program at AUB. I am conducting a research study about post-traumatic growth following different types of stressful events. The following consent form will give you more information about the study.

Appendix C

Consent Form for Psychology 201 Students**Participating in a Research Project**

Project Title: Prevalence and Predictors of Posttraumatic Growth in a College Student Sample in Lebanon

Investigator: Dr. Fatimah El Jamil

Co-Investigator: Rima Abboud

Address: American University of Beirut, Jesup 101

Phone: 01- 350 000, ext 4372

Email: fa25@aub.edu.lb

Dear participants, we would like to invite you to participate in a research study conducted at the American University of Beirut. The study seeks to examine posttraumatic growth in people who have been exposed to different types of stressful events. Posttraumatic growth refers to perceived positive change in perception of self, interpersonal relationships and/or philosophy of life that occurs after going through a very stressful experience. Growth will also be measured in relation to other cognitive and social factors such as rumination, social support, and spirituality. In order to take part in this study, you must be between 18 – 25 years old and have experienced a very stressful event that you believe impacted you greatly such as an event that led to physical or emotional injury or an event that violated your integrity or the integrity someone close to you, or a life threatening event. Participants who are under 18 years, above 25 years, and who do not report experiencing a very stressful life event, such as the ones described above, will be excluded from the study.

As a research participant, you will be asked to read this consent form, and respond to a questionnaire. We will be asking 130 participants (students who are registered in Psychology 201) to complete the study questionnaire. Your participation in this research will take no more than 30 minutes. This is a one-off survey.

All of the data collected will be treated in the strictest **confidence** and only the primary investigator and the co-investigator will have access to it. To ensure **anonymity**, no direct identifying information will be recorded; you will not be asked to give us your name. All data from the study will be maintained on a password protected computer for a period of three years after which it will be deleted. Records may be audited by the IRB while assuring confidentiality.

Your participation is **voluntary**, you have the right to refuse to participate and to withdraw from the study or discontinue your participation at any time without giving a reason and with no penalties. Your refusal to participate in this study will not affect your relationship with AUB and will not result in the loss of benefits.

The results of the study will allow filling the gaps in the literature on posttraumatic growth and will provide data on posttraumatic growth in a college student sample in Lebanon which is until this point missing. There is no monetary reward for participating in this study. However, you will receive 1% point on your final PSYC 201 grade. Should you decide not to participate in this study but still wish to receive extra course credit, you can write a brief report on an article from a psychological journal. If you want to write a brief report instead of participating, please contact your PSYC-201 instructor to receive the task.

In case you decide to participate you will be asked to create and enter a code which you will give to your PSYC 201 instructor. This code will not link your responses to you, and will only ensure that you receive credit for your participation.

This study might exacerbate disturbing memories and cause emotional distress. Some examples of stressful events in the survey might make you feel upset. If you think that you need talk to someone about your feelings, please visit or contact Counseling Center at AUB which provides free counseling services to students. Their number is 01-350 000 ext. 3196. If at any time and for any reason you prefer not to answer any questions, please feel free to skip them. If you are in therapy due to a traumatic event, please discuss your possible involvement in this study with your therapist before deciding whether you want to be involved.

If you have questions about this research study, or if you are interested in learning about the outcome of the study, you may contact Dr. **Fatimah El Jamil**, fa25@aub.edu.lb, +961.1.350000 x4372 or Rima Abboud, raa113@aub.edu.lb

If you have any questions about your rights as a participant, you may contact the Social & Behavioral Sciences Institutional review Board (SBSIRB) at AUB: 01- 350 000 ext. 5445 or 5454 or irb@aub.edu.lb

If you accept the above statements and are willing to participate in this study, please press the ACCEPT button below.

THANK YOU FOR YOUR COOPERATION

Note: If you are currently experiencing any distress, please contact the Counseling Center at AUB (West Hall, room 210, ext. 3196), Family Medicine Clinic (ext. 3000) or the Psychiatry Department at AUBMC (ext. 5650).

Appendix D

Instructions

The following are questions that may or may not apply to you. ***Please read the instructions carefully before each questionnaire and answer the questions that follow.***

Note: If you are currently experiencing any distress, please contact the Counseling Center at AUB (West Hall, room 210, ext. 3196), Family Medicine Clinic (ext. 3000) or the Psychiatry Department at AUBMC (ext. 5650).

Appendix E

1. Gender: Male Female
2. Age:
 - Less than 18 [If this option is chosen, default setting on Lime Survey will be set to redirect participant to the debriefing page]
 - 18
 - 19
 - 20
 - 21
 - 22
 - 23
 - 24
 - 25
 - More than 25 [If chosen, default setting on Lime Survey will be set to redirect participant to the debriefing page]
3. Have you experienced any of the following events? Choose all options that apply.
 - a) Life-threatening accident (Such as a car, boat or motorcycle accident)
 - b) Life-threatening accident experienced by a parent, sibling or close friend
 - c) Life-threatening illness
 - d) Life-threatening illness of a parent, sibling or close friend
 - e) Death of a parent, sibling, or close friend
 - f) Being threatened with serious harm or seriously injured (ex: threatened with a weapon or by a stranger, getting mugged, bullied)
 - g) Robbery involving a weapon
 - h) Parents separating or divorcing
 - i) Severe rejection or failure in a relationship
 - j) Physically attacked, beaten or abused during childhood or adulthood
 - k) Witnessed physical attacks or beatings in your home
 - l) Witnessed severe assault outside your home
 - m) Sexual harassment or assault during childhood or adulthood (ex: inappropriate touching, sexual remarks, sexual contact that is against your will or without your consent)
 - n) Witnessed or felt the effects of an explosion
 - o) Was exposed to war
 - p) Uprooted or forced to move from your home
 - q) Other:
4. If yes, choose the event that was the most stressful or distressing.
Pick one of the following:
 - a. Life-threatening accident (Such as a car, boat or motorcycle accident)
 - b. Life-threatening accident experienced by a parent, sibling or close friend

- c. Life-threatening illness
- d. Life-threatening illness of a parent, sibling or close friend
- e. Death of a parent, sibling, or close friend
- f. Being threatened with serious harm or seriously injured (ex: threatened with a weapon or by a stranger, getting mugged, bullied)
- g. Robbery involving a weapon
- h. Parents separating or divorcing
- i. Severe rejection or failure in a relationship
- j. Physically attacked, beaten or abused during childhood or adulthood
- k. Witnessed physical attacks or beatings in your home
- l. Witnessed severe assault outside your home
- m. Sexual harassment or assault during childhood or adulthood (ex: inappropriate touching, sexual remarks, sexual contact that is against your will or without your consent)
- n. Witnessed or felt the effects of an explosion
- o. Was exposed to war
- p. Uprooted or forced to move from your home
- q. Other:

Some questions will require you to think back to this stressful event that you have chosen.

- a) Did you experience intense fear, helplessness, horror, or numbness when it happened?
 yes no
- b) Do you consider that you were emotionally injured by the event?
 yes no
- c) Do you consider that you were physically injured by the event?
 yes no

5. How long ago did this event occur?

- Less than two month ago [If this option is chosen, default setting on Lime Survey will be set to redirect participant to the debriefing page]
- 3-11 months ago
- 1 year ago
- 2 years ago
- 3 years ago
- 4 years ago
- 5 years ago
- Other:

Note: If you are currently experiencing any distress, please contact the Counseling Center at AUB (West Hall, room 210, ext. 3196), Family Medicine Clinic (ext. 3000) or the Psychiatry Department at AUBMC (ext. 5650).

Appendix F

Posttraumatic Growth Inventory

Indicate for each of the statements below the degree to which this change occurred in your life as a result of the stressful event that you previously mentioned.

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.

Note: If you are currently experiencing any distress, please contact the Counseling Center at AUB (West Hall, room 210, ext. 3196), Family Medicine Clinic (ext. 3000) or the Psychiatry Department at AUBMC (ext. 5650).

Appendix G

Impact of Events Scale-Revised

Please think back to the most stressful event that you previously mentioned. Below is a list of difficulties people sometimes have after stressful life events. Please read each item and then indicate how distressing each difficulty has been for you following the event:

0 = Not at all

1 = A little

2 = Moderately

3 = A lot

4 = Extremely

1. Any reminder brought back feelings about it
2. I had trouble staying asleep
3. Other things kept making me think about it
4. I felt irritable and angry
5. I avoided letting myself get upset when I thought about it or was reminded of it
6. I thought about it when I didn't mean to
7. I felt as if it hadn't happened or it wasn't real
8. I stayed away from reminders about it
9. Pictures about it popped into my mind
10. I was jumpy and easily startled
11. I tried not to think about it
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them
13. My feelings about it were kind of numb
14. I found myself acting or feeling like I was back at that time
15. I had trouble falling asleep
16. I had waves of strong feelings about it
17. I tried to remove it from my memory
18. I had trouble concentrating
19. Reminders of it caused me to have physical reactions
20. I had dreams about it
21. I felt watchful and on-guard
22. I tried not to talk about it

Note: If you are currently experiencing any distress, please contact the Counseling Center at AUB (West Hall, room 210, ext. 3196), Family Medicine Clinic (ext. 3000) or the Psychiatry Department at AUBMC (ext. 5650).

Appendix H

Centrality of Event Scale

Please think back to the most stressful or traumatic event that you previously mentioned and answer the following questions in an honest and sincere way, by circling a number from 1 to 5.

1=Totally disagree 2=Disagree 3=Neutral 4=Agree 5=Totally agree

1. I feel that this event has become part of my identity.
2. This event has become a reference point for the way I understand myself and the world.
3. I feel that this event has become a central part of my life story.
4. This event has colored the way I think and feel about other experiences.
5. This event permanently changed my life.
6. I often think about the effects this event will have on my future.
7. This event was a turning point in my life

Note: If you are currently experiencing any distress, please contact the Counseling Center at AUB (West Hall, room 210, ext. 3196), Family Medicine Clinic (ext. 3000) or the Psychiatry Department at AUBMC (ext. 5650).

Appendix I

Core Belief Inventory

Some events that people experience are so powerful that they ‘shake their world’ and lead them to seriously examine core beliefs about the world, other people, themselves, and their future.

Please reflect upon the stressful event that you previously mentioned and indicate **the extent to which it led you to seriously examine each of the following core beliefs.**

1. Because of the event, I seriously examined the degree to which I believe things that happen to people are fair.
2. Because of the event, I seriously examined the degree to which I believe things that happen to people are controllable.
3. Because of the event, I seriously examined my assumptions concerning why other people think and behave the way that they do.
4. Because of the event, I seriously examined my beliefs about my relationships with other people.
5. Because of the event, I seriously examined my beliefs about my own abilities, strengths and weaknesses.
6. Because of the event, I seriously examined my beliefs about my expectations for my future.
7. Because of the event, I seriously examined my beliefs about the meaning of my life.
8. Because of the event, I seriously examined my spiritual or religious beliefs.
9. Because of the event, I seriously examined my beliefs about my own value or worth as a person.

0 = not at all

1 = to a very small degree

2 = to a small degree

3 = to a moderate degree

4 = to a great degree

5 = to a very great degree

Note: If you are currently experiencing any distress, please contact the Counseling Center at AUB (West Hall, room 210, ext. 3196), Family Medicine Clinic (ext. 3000) or the Psychiatry Department at AUBMC (ext. 5650).

Appendix J

Event Related Rumination Inventory

After an experience like the one you reported, people sometimes, but not always, deliberately and intentionally spend time thinking about their experience. Indicate for the following items how often, if at all, you deliberately spent time thinking about the issues indicated during the weeks immediately after the event.

1. I thought about whether I could find meaning from my experience.
2. I thought about whether changes in my life have come from dealing with my experience.
3. I forced myself to think about my feelings about my experience.
4. I thought about whether I have learned anything as a result of my experience.
5. I thought about whether the experience has changed my beliefs about the world.
6. I thought about what the experience might mean for my future.
7. I thought about whether my relationships with others have changed following my experience.
8. I forced myself to deal with my feelings about the event.
9. I deliberately thought about how the event had affected me.
10. I thought about the event and tried to understand what happened.

After an experience like the one you reported, people sometimes, but not always, find themselves having thoughts about their experience even though they don't try to think about it. Indicate for the following items how often, if at all, you had the experiences described during the weeks immediately after the event.

1. I thought about the event when I did not mean to.
2. Thoughts about the event came to mind and I could not stop thinking about them.
3. Thoughts about the event distracted me or kept me from being able to concentrate.
4. I could not keep images or thoughts about the event from entering my mind.
5. Thoughts, memories, or images of the event came to mind even when I did not want them.
6. Thoughts about the event caused me to relive my experience.
7. Reminders of the event brought back thoughts about my experience.
8. I found myself automatically thinking about what had happened.
9. Other things kept leading me to think about my experience.
10. I tried not to think about the event, but could not keep the thoughts from my mind.

Not at all (0) Rarely (1) Sometimes (2) Often (3)

Note: If you are currently experiencing any distress, please contact the Counseling Center at AUB (West Hall, room 210, ext. 3196), Family Medicine Clinic (ext. 3000) or the Psychiatry Department at AUBMC (ext. 5650).

Appendix K

Disclosure of Trauma Questionnaire

Please indicate the extent to which you agree or disagree with each of the following statements.

I do not agree at all (0), I agree slightly (1), I agree mostly (2) and I agree completely (3)

1. There are several people I have told the whole story to more than once.
2. It is important for me to talk repeatedly about what happened and how it happened.
3. The more often I talk about the event, the clearer it becomes to me.
4. When I talk about my experiences, I try to imagine everything as it was.
5. I often describe feelings of fear, shock, humiliation, or of feeling paralyzed.
6. I must get the experience clear in my mind.
7. I have not told anybody about the event.
8. I feel like I need to talk about the event a lot.
9. I only describe the things that happened using the same few words or phrases.
10. Telling somebody about the incident would not be of any help to me.
11. I find it difficult to talk to people about the incident.
12. I never find the right time to talk about what I experienced during the event.
13. The more I talk about the incident, the better I can express how I felt during the situation.
14. I often leave out details when I describe the incident.
15. After I have described everything about the incident, I feel relieved.
16. I find it more comfortable not to talk about the incident.
17. I do not want to burden my partner, family, or friends by telling them about the incident.
18. I find it easy to talk about my experiences of the situation.
19. I feel compelled to talk about my experiences of the situation again and again.
20. I like to talk about the event as often as possible.
21. My family/friends criticize me for only ever talking about the incident.
22. It is difficult for me to speak about the incident in detail.
23. I often think about the event, but do not talk about it very much.
24. I have not told anyone exactly what happened during the event.

Note: If you are currently experiencing any distress, please contact the Counseling Center at AUB (West Hall, room 210, ext. 3196), Family Medicine Clinic (ext. 3000) or the Psychiatry Department at AUBMC (ext. 5650).

Appendix L
Modified Family Support Scale

Listed below are sources that often times are helpful to individuals. This questionnaire asks you to indicate **how helpful** each of the below sources is to **you**. Please circle the response that best describes how helpful the sources have been to you. If any of the sources was not available to you, please circle “NA” under the column “Not Applicable”.

	Not applicable	Not at all helpful	Sometimes helpful	Generally helpful	Very helpful	Extremely helpful
1. My parents	NA	0	1	2	3	4
2. Siblings	NA	0	1	2	3	4
3. My relatives	NA	0	1	2	3	4
4. My friend(s)	NA	0	1	2	3	4
5. Other parents	NA	0	1	2	3	4
6. Church, mosque, or temple/shrine	NA	0	1	2	3	4
7. Social groups/clubs	NA	0	1	2	3	4
8. Co-workers	NA	0	1	2	3	4
9. My family’s physician	NA	0	1	2	3	4
10. Professional helpers (social workers, therapists, counselors, psychiatrists, teachers, etc.)	NA	0	1	2	3	4
11. Professional agencies/associations ex: AUBMC, IDRAAC, Helem, Himaya, (public health, social services, mental health, etc.)	NA	0	1	2	3	4
12. Others (Please specify)		0	1	2	3	4

Note: If you are currently experiencing any distress, please contact the Counseling Center at AUB (West Hall, room 210, ext. 3196), Family Medicine Clinic (ext. 3000) or the Psychiatry Department at AUBMC (ext. 5650).

Appendix M

Modified Spiritual Support Scale

For the following twelve questions, spirituality is defined as one's relationship to God, a higher power, or whatever you perceive to be Ultimate Transcendence.

(1) Strongly disagree (2) Disagree (3) Agree (4) Strongly agree

1. I have an inner resource from my spiritual relationship with God (or a higher power) that helps me face difficulties.
2. I experience the love and caring of God (or a higher power) on a regular basis.
3. I often sense a secure unification with God (or a higher power) at my heart.
4. Care from God (or a higher power) provides me with peace and contentment in uncertainty.
5. I have experienced a close personal relationship with God (or a higher power).
6. My profound love for God (or a higher power) has encouraged me to survive difficulty and distress.
7. I have received spiritual support from my religious or spiritual association.
8. My religious or spiritual faith has guided me through the times of difficulty.
9. I have been inspired by my religious or spiritual faith in the face of distress.
10. My religious or spiritual faith has helped me cope during the time of difficulty.
11. I have gained inner strength from my religious or spiritual faith in the face of distress.
12. My religious or spiritual faith has provided me with comfort in uncertainty.

Note: If you are currently experiencing any distress, please contact the Counseling Center at AUB (West Hall, room 210, ext. 3196), Family Medicine Clinic (ext. 3000) or the Psychiatry Department at AUBMC (ext. 5650).

Appendix N

Debriefing

Thank you for participating in the study

If you have questions about this research study, or if you are interested in learning about the outcome of the study, you may contact Dr. Fatimah El Jamil, fa25@aub.edu.lb, +961.1.350000 x or Rima Abboud, raa113@aub.edu.lb

If you have any questions about research or your rights as a participant, you may contact the Social & Behavioral Sciences Institutional review Board (SBSIRB) at AUB: 01- 350 000 ext. 5445 or 5454 or irb@aub.edu.lb

If any information in the survey made you upset and you think you need to talk to someone, please contact the Counseling Center at AUB that provides free counseling services to students. These services are confidential and anonymous. The center is located in West Hall room 210. You may contact them at 01-350 000 ext. 3196. For assistance, you may also contact the department of Psychiatry in the American University of Beirut Medical Center at 01-350 000 ext. 5650/1 and Family Medicine Clinic in AUBMC at 01-350 000 ext. 3000.

To gain your 1% extra credit, please create and enter a code in the box below. Please also write it down and give it to your PSYC 201 instructor. This code can be a combination of ANY SIX NUMBERS.

LIST OF TABLES

Table 1: Means and SD across versions

Scores	Version 1		Version 2	
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
Impact of event	1.91	.80	1.66	.73
Intrusive rumination	1.76	.80	1.51	.79

Table 2: List and frequency of potentially traumatic events

	Number of participants	Percentage
Exposed to war	68	43.10
Life threatening illness of a parent, sibling or close friend	59	36.90
Witnessed or felt the effects of an explosion	53	33.10
Life threatening accident experienced by a parent, sibling or close friend	52	32.50
Severe rejection or failure in a relationship	49	31.30
Life threatening accident	44	27.50
Death of a parent, sibling or close friend	38	23.80
Being threatened with serious harm	24	15.00
Uprooted or forced to move from home	17	10.60
Sexual harassment or assault during childhood or adulthood	16	10.0
Parents separated or divorced	16	10.00
Physically attacked, beaten or abused during childhood or adulthood	15	9.40
Witnessed severe assault outside home	14	8.80
Witnessed physical attacks or beatings at home	14	8.80
Life threatening illness	12	7.50
Other	5	3.80
Robbery involving a weapon	4	2.50

Table 3: Cumulative number of stressful life events

Total number of stressful life events	Frequency	Percentage
1	38	23.80
2	34	21.30
3	33	20.60
4	20	12.50
5	15	9.40
6	8	5.00
7	8	5.00
8	1	.60
9	2	1.30
13	1	.60

Table 4: List and frequency of most traumatic event

	Number of participants	Percentage
Death of a parent, sibling, or close friend	26	16.30
Was exposed to war	21	13.10
Severe rejection or failure in a relationship	20	12.50
Life-threatening illness of a parent, sibling or close friend	18	11.30
Being threatened with serious harm or seriously injured	12	7.50
Life-threatening accident	9	5.60
Life-threatening accident experienced by a parent, sibling or close friend	9	5.60
Sexual harassment or assault during childhood or adulthood	7	4.40
Physically attacked, beaten or abused during childhood or adulthood	6	3.80
Parents separating or divorcing	6	3.80
Witnessed or felt the effects of an explosion	5	3.10
Other	5	3.10
Witnessed physical attacks or beatings in your home	4	2.50
Uprooted or forced to move from your home	4	2.50
Life-threatening illness	4	2.50
Witnessed severe assault outside your home	3	1.90

Robbery involving a weapon

1

.60

Table 5: Time since event

	Frequency	Percent
2-12 months ago	24	15.20
1 year ago	21	13.30
2 years ago	20	12.70
3 years ago	15	9.50
4 years ago	16	10.10
5 years ago	22	13.90
6 years ago	2	1.30
7 years ago	6	3.80
8 years ago	3	1.90
9 years ago	1	.60
10 years ago	15	9.95
11 years ago	10	6.30
12 years ago	2	1.30
13 years ago	1	.60

Table 6: Scale Descriptives

	Mean	SD	Range
Posttraumatic growth	2.46	.97	4.43
Impact of event	1.77	.77	3.45
Centrality of event	3.34	.93	4.16
Disruption of core beliefs	2.91	1.00	4.78
Deliberate rumination	1.73	.66	3.00
Intrusive rumination	1.64	.81	3.00
Reluctance to talk	1.20	.62	2.77
Urge to talk	1.00	.55	2.36
Social Support	1.06	.61	3.17
Spiritual Support	2.92	.80	3.00

Table 7: Zero Order Correlation Matrix

	PTG	Impact of event	Centrality of event	Core beliefs ¹	Deliberate rumination	Intrusive rumination	Reluctance to talk	Urge to talk	Social support ¹	Spiritual support ¹	Time since event
Impact of event	.34**	1.00									
Centrality of event	.34**	.56**	1.00								
Core beliefs ¹	.50**	.49**	.37**	1.00							
Deliberate rumination	.43**	.54**	.64**	.57**	1.00						
Intrusive rumination	.30**	.78**	.62**	.48**	.69**	1.00					
Reluctance to talk	.09	.36**	.16*	.24*	.18*	.24**	1.00				
Urge to talk	.17*	.18*	.26**	.18*	.36**	.28**	-.18*	1.00			
Social support ¹	.35**	-.03	-.06	.07	.05	-.03	-.17*	.02	1.00		
Spiritual support ¹	.19**	-.01	-.05	.15	.10	-.06	-.08	-.06	.30**	1.00	
Time since event	-.11	-.22**	-.17*	-.29**	-.20**	-.28**	-.09	-.17*	.10	.06	1.00

¹Spearman's rho

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

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

Table 7: Point biserial correlations

	Gender
PTG	-.12
Impact of event	-.12
Centrality of event	-.14*
Core beliefs ¹	-.16*
Deliberate rumination	-.07
Intrusive rumination	-.14
Reluctance to talk	.07
Urge to talk	.01
Social support ¹	.04
Spiritual support ¹	-.25**
Time since event	-.06

For Gender: Females=1, Males=2

¹Spearman's rho

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

Table 9: Regression Parameters

	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>t</i>	<i>p</i>
Model 1					
Gender	-.25	.16	-.13	-1.60	.12
Time since event	-.04	.02	-.16	-1.93	.06
Model 2					
Gender	-.01	.14	-.00	-.04	.97
Time since event	.00	.02	.01	.09	.93
Impact of Event	.13	.11	.10	1.17	.25
Event Centrality	.09	.09	.09	.99	.33
Disruption of Core Beliefs	.43	.09	.44	4.72	.000
Deliberate Rumination	.01	.15	.01	.09	.93
Social Support	.42	.11	.27	3.89	.000
Spiritual Support	.12	.09	.10	1.44	.15
Urge to Talk	.03	.13	.02	.25	.81
Reluctance to Talk	-.01	.12	-.01	-.10	.92

Note: For Model 1, $R^2=.04$, $p>.05$; For Model 2, $\Delta R^2=.39$, $p<.05$; Total $R^2=.43$, $p<.05$.

ILLUSTRATIONS

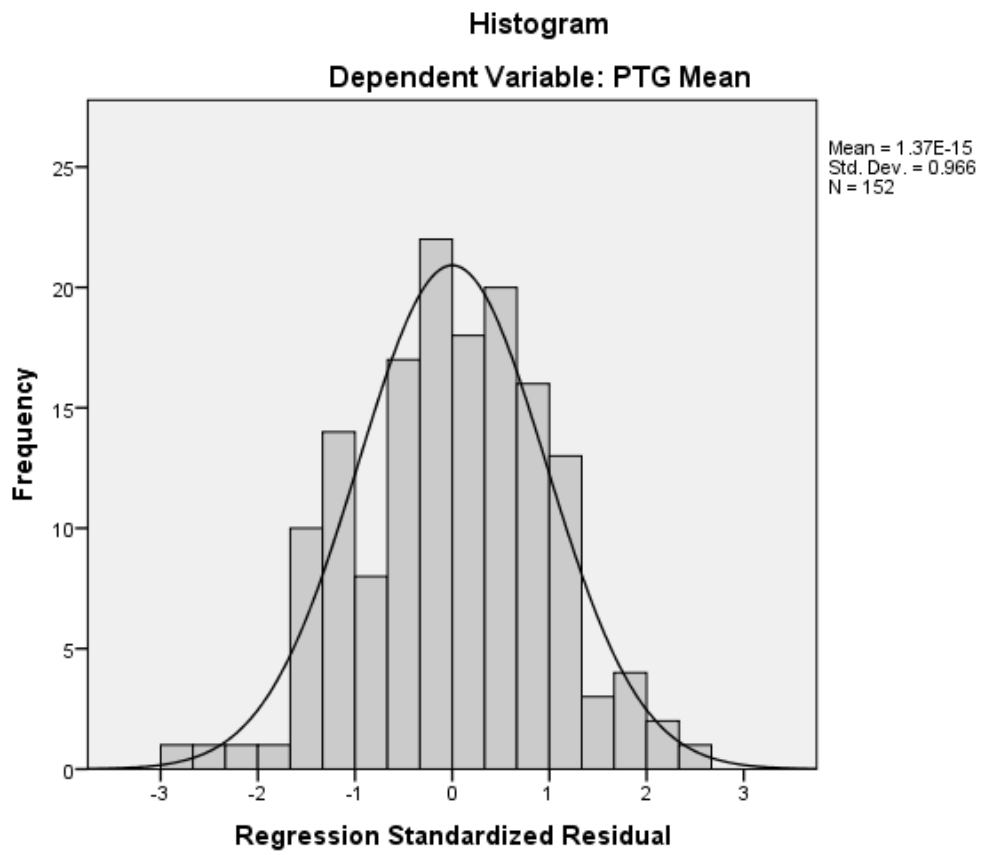


Figure 1: Histogram

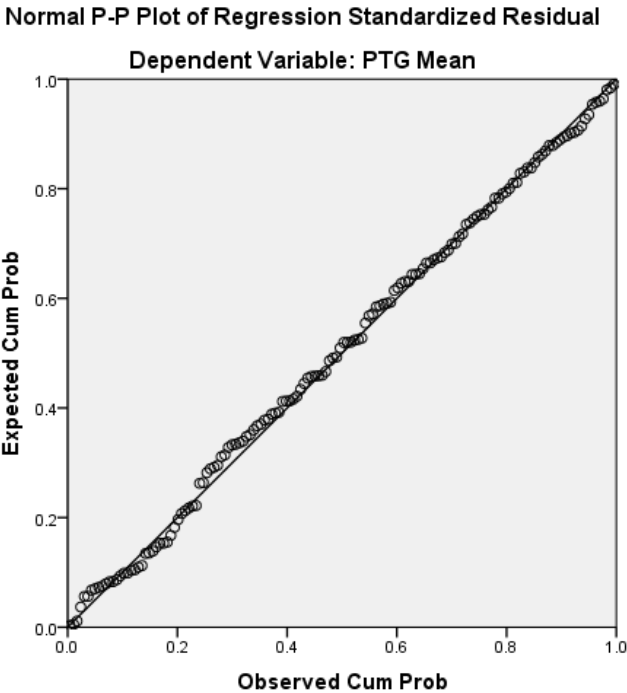


Figure 2: Normal P-P Plot

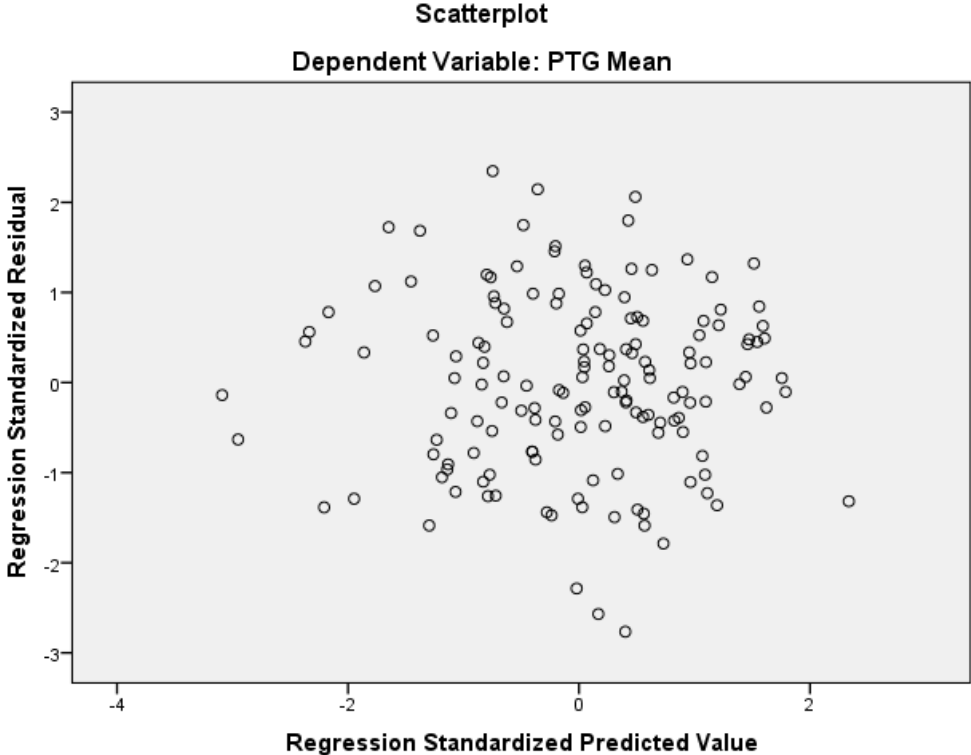


Figure 3: Scatterplot