THE RELATION BETWEEN POSTTRAUMATIC GROWTH AND RESILIENCE IN THE SOUTH AFRICAN CONTEXT

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ABSTRACT

Over the last decade, a growing body of literature has examined the positive ways in which people's lives change as a result of experiencing various traumatic events. Specifically, a vast amount of literature has examined various person variables that possibly alter the occurrence of posttraumatic growth (PTG). However, to date, only theoretical, non-empirical assumptions have been made about the relation between the person variable resilience and PTG. The relation between the two concepts could have important implications for both preventive interventions as well as trauma counselling. The present study investigates the relation between resilience and PTG in a sample of South Africans who have been exposed to a range of traumatic events. Furthermore, it examines the nature of such a relation, investigating whether resilience is contributing to the occurrence of PTG or whether the two constructs are unrelated. The sample consisted of 272 first year students from the Faculty of Commerce and Law at the University of the Witwatersrand. Participants completed a survey of questions that consisted of a Demographic questionnaire, the Traumatic Stress Schedule, the Impact of Events Scale Revised, the Dispositional Resilience Scale and the Posttraumatic Growth Inventory. The data yielded a significant relation between the resilience component of Challenge and the PTGI domain Relating to Others. However, it did not find any other significant relation between either of the resilience factors, specifically Challenge, Control, and Commitment, and the PTGI domains. Implications of the results and recommendations for further research are discussed.

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Chapter 1: Introduction

Over the past decade, research has shifted its focus from the negative aftermath of traumatic events to the identification of the positive ways in which people's lives have changed as a result of a struggle with adversity. The new field of research on posttraumatic growth (PTG) exhibits the relation between traumatic disruptions of people's worlds of meaning and their frequent reports of positive personal transformations.

Subsequent to the encountering of interpersonal violence, debilitating illnesses, tragic bereavement or catastrophic accidents, many survivors report positive changes in five domains of their lives. Specifically, persons that were exposed to traumas reported posttraumatic growth in relationships (Relating to Others), in their outlook of life (New Possibilities), in their perception of themselves (Personal Strength), in their spiritual beliefs (Spiritual Change) and lastly in their appreciation of life (Appreciation of Life) (Tedeschi & Calhoun, 1996). However, not every trauma sufferer experiences these positive outcomes. The question thus remains as to what differentiates people who report such growth process in the aftermath of trauma, from those who do not? A growing body of literature has tried to answer this question, examining person variables such as optimism (Helgeson, Reynolds & Tomich, 2006), positive reinterpretation (Park, Cohen & Murch, 1996), age (Cardova et al., 2007), gender (Helgeson et al., 2006) and acceptance coping (Brooks & Matson, 1982), to name just a few, and their relation to PTG. Despite this, the vast amount of factors that could alter the occurrence of PTG have only sparsely, if at all, been investigated. Resilience is one of them. Although controversial theoretical assumptions about its relation with PTG have been made (Carver, 1998; Tedeschi & Calhoun, 1995; Westphal & Bonanno, 2007), no empirical study to the researcher's knowledge has been conducted. If the two constructs are in fact related, it would have important implications for both preventive interventions as well as trauma counselling. If resilience increases the occurrence of PTG, resilience could be fostered, therefore increasing positive change after a struggle with a range of traumas. Furthermore, if a person with high resilience is able to

experience more growth from traumatic experiences when compared with a person with low resilience, then trauma counselling could clearly encourage such meaning making processes in more resilient persons.

Given the paucity of literature and the implication of such a relation on preventive interventions and trauma counselling, the aim of this study will therefore be to investigate the relation between resilience and posttraumatic growth in a sample of South Africans who have been exposed to a range of traumas. The opportunity to contribute to this understanding, whilst daunting, is exciting and could add meaningfully to the well-being of the vast population of trauma sufferers in this country. Regrettably the high incidence of crime, disease, and economic hardships prevalent in the South African context provide an ever increasing traumatized population, which will make the study even more meaningful and necessary. A secondary aim is to explore the nature of this hypothesized relation. More specifically, the study examines whether either of the resilience domains of Challenge, Commitment and Control will contribute to the occurrence of growth in the posttraumatic growth domains of Relating to Others, New Possibilities, Personal Strength, Spiritual Change and Appreciation of Life, while controlling for the level of posttraumatic stress symptoms, the number of traumas experienced and gender.

Chapter 2: Literature Review

2.1 Posttraumatic Growth

After decades of examining the negative consequences of traumatic event exposure, work by Tedeschi and Calhoun (2004) has opened up a new area of research that promotes the potential for a positive reaction to trauma, a construct they have labelled posttraumatic growth (PTG). The growing interest in identifying positive ways in which individual's lives have changed as a result of a traumatic event resonates with the recent shift towards positive psychology. Its aim is to change the focus of psychology from repairing the negative aspects of existence to developing positive capacities (Seligman & Csikszentmihalyi, 2000). Researchers have explored these positive changes, using various different terminology, such as stress-related growth (Weinrib, Rothrock, Johnsen & Lutgendorf, 2006; Siegel, Schrimshaw & Pretter, 2005), benefit finding (Helgeson et al., 2006), thriving (Carver, 1998) and adversarial growth (Linley & Joseph, 2003). Since Tedeschi and Calhoun's (1996) introduction to PTG, many studies have added to this body of knowledge, examining posttraumatic growth following a range of traumatic events including cancer (Cordova, Cunningham, Carlson & Andrykowski, 2001; Kallay, 2006; Sears, Stanton & Danoff-Burg, 2003), severe illness (Siegel et al., 2005), terrorism (Hobfoll et al., 2007; Hobfoll, Canetti-Nisim, Johnson, 2006), sexual assault (Frazier, Conlon & Glaser, 2001), natural disasters (Cryder, Kilmer, Tedeschi & Calhoun, 2006) and violent trauma (Connor, Davidson & Lee, 2003).

2.1.1 Conceptualisation of PTG

The present study will adopt Tedeschi and Calhoun's (2004) conceptualization of posttraumatic growth which states that PTG is "the experience of positive change that occurs as a result of the struggle with highly challenging life crises" (Tedeschi & Calhoun, 2004, p.1). The construct refers to a person's perception of profound changes in his/her life after a struggle with crisis has occurred. The individual has therefore not only returned to the previous status quo but has used the trauma as "an opportunity for further individual development" (Zoellner & Maercker, 2006, p.629). The concept of

PTG has two important implications. Firstly, in order for PTG to occur, a person has to be exposed to an event that is perceived as extremely undesirable and intense in nature (Tedeschi & Calhoun, 1996). Minor stressors or normal developmental processes are therefore not associated with the emergence of PTG (Tedeschi & Calhoun, 1996, 2004). Secondly, positive changes occur only after a struggle has taken place. This struggle refers to a breakdown in a person's past and future assumptions about his/her life that begins immediately after exposure to an intense and severe trauma (Bellizzi & Blank, 2006; Tedeschi & Calhoun, 2004).

Posttraumatic growth is conceptualised as a multidimensional construct that includes changes in the domains of interpersonal relationships, self-perception and philosophy of life (Taku, Cann, Calhoun & Tedeschi, 2008). More specifically, survivors attribute a more positive significance to friendship, family, openness, and self-disclosure, as well as increased compassion and altruism (Kallay, 2006; Tedeschi & Calhoun, 2004; Zoellner & Maercker, 2006). For example, Frazier, Conlon and Glaser (2001) found that female sexual assault survivors reported positive changes such as better relationships as well as increased empathy. Malinak, Hoyt, and Patterson (1979) studied adults who had lost a parent within the preceding 2 years and their findings indicated that approximately half of the participants reported a deepening in their relationships with others. They argued that the loss made them realise how important relationships are and how quickly they can lose significant others (Malinak et al., 1979). In another study of PTG in bereaved parents, participants reported deeper and more meaningful relationships (Calhoun, Tedeschi, Fulmer & Harlan, as cited in Tedeschi & Calhoun, 2004). Another change that took place in bereaved parents was that of a greater sense of compassion, specifically with people who share the same traumatic event. This in turn resulted in a greater connection with others (Calhoun, Tedeschi, Fulmer & Harlan, as cited in Tedeschi & Calhoun, 2004).

People who have been faced with traumatic events often display a continuing need to discuss the consequences of these events. This can result in a person becoming more self-disclosing. Such self-disclosure may provide a person with an opportunity to

experiment with new behaviours that are then directed at persons in the social support network (Tedeschi & Calhoun, 1995). The traumatic event has made the affected person more aware of their own vulnerability, which in turn may lead to more emotional expressiveness and willingness to accept help. The individual might therefore utilize social support that may have been previously unacknowledged (Tedeschi & Calhoun, 1996). Collin, Taylor and Skokan (1990) believe that through increased sensitivity to others as well as efforts to improve relationships, individuals will further develop and appreciate their social relationships.

Furthermore, individuals report changes in self-perception, including a better acceptance of the self with one's own vulnerabilities and limitations. (Kallay, 2006; Tedeschi & Calhoun, 2004; Zoellner & Maercker, 2006). Research of cancer patients suggests that the most common changes reported were those of feeling stronger and more self-assured (Collins et al., 1990). Similar findings have been reported for people who have had bone marrow transplantations (Curbow, Somerfield, Baker, Wingard & Legro, 1993). Furthermore, eighty-three percent of a sample of survivors of a sinking cruise-ship stated that they felt more experienced about life (Joseph, Williams & Yule, 1993).

Experiencing a trauma and the aftermath provides a person with information about his or her self-reliance. This in turn affects both self-evaluation of competence in difficult situations as well as the likelihood that one will address difficulties in an assertive manner (Tedeschi & Calhoun, 1996). Having coped with a trauma often results in peoples convictions of their own strength and this confidence may then be generalised to all kinds of situations and challenges (Thomas, DiGiulio & Sheehan, 1991). Surviving a trauma may also enhance a person's appreciation of one's vulnerability, sensitivity as well as emotional experience. Even though this might initially not be regarded as a positive outcome of trauma, it may result in positive behavioural changes. People who have illusions of invulnerability and who therefore engage in psychologically and physically unhealthy ways of living may undergo changes in these areas after having faced a stressor (Tedeschi & Calhoun, 1995).

Lastly, changes in the philosophy of life refer to shifts in existential perspectives such as a deeper appreciation for each day, spiritual change and a deeper understanding of religiosity (Kallay, 2006; Tedeschi & Calhoun, 2004; Zoellner & Maercker, 2006). In addition, survivors of trauma often report that they experienced a change in priorities. What might have been previously considered to be insignificant, such as spending time with children, may later be perceived as important (Tedeschi & Calhoun, 2004). For example, Affleck, Tennen and Gershman (1985) reported that 23% of mothers with sick newborns regarded themselves to have an improved perspective on life. Taylor, Lichtman, and Wood (1984) noted that 60% of women who were diagnosed with cancer reported positive changes in priorities, including taking life easier and enjoying it more.

Even though studies have found that a person's spiritual belief may be temporarily weakened after trauma and even result in the person becoming more cynical and less religious, the struggle to come to terms with the trauma leads many persons to have a stronger belief system (Andrykowski, as cited in Tedeschi & Calhoun, 1995; Schwartzberg & Janoff-Bulman, 1991). A person, after having recognised meaning of the trauma and its aftermath, may experience emotional relief and develop a new philosophy of life in which basic assumptions as well as the meaning of life are altered (Janoff-Bulman, 1992; Taylor & Brown, 1988).

2.1.2 Posttraumatic Growth Inventory (PTGI)

The three PTG domains of interpersonal relationships, self-perception and philosophy of life have been used by Tedeschi and Calhoun (1996) to develop the Posttraumatic Growth Inventory (PTGI), which allows quantification of the experiences of growth. According to the wording of the PTGI items, possible benefits that arise as a result of a struggle with adversity are treated as outcomes of coping (Tedeschi & Calhoun, 1996). However, the perception of benefit has also been treated as a coping process, in which positive reinterpretation, positive reframing, interpretive control, or reconstruction of events take place (Carver et al., 1993; Rothbaum, Weisz, & Snyder, 1982). The experience of persons, who, according to their own words, make "positive reinterpretations", is that certain benefits were an outcome of their attempts to cope with

adversity (Tedeschi & Calhoun, 1995). This study will therefore conceptualize PTG as an outcome that results from a process of coping, which will be discussed later.

The three dimensions of interpersonal relationships, self-perception and philosophy of life have also been found to be more discrete factors at a lower level of analysis (Taku et al., 2008). Several studies have reported five subscales of the PTGI, namely: Relating to Others, New Possibilities, Personal Strength, Spiritual Change and Appreciation of Life (Lindely, Andrews & Joseph, 2007; Morris, Shakespeare-Finch, Rieck & Newbery, 2005; Tedeschi & Calhoun, 1996, Taku et al. 2008). Janoff-Bulman (2004) as well as McMillan (2004) suggested that these five subscales of the PTGI possibly reflect different underlying psychological processes that may need to be distinguished when studying PTG. Taku et al. (2008) tested five models of the underlying structure of the PTGI in order to examine whether the PTGI comprises three domains, five factors or even a unitary dimension. Results indicate that the PTGI should be considered to be a multidimensional measurement instrument. Further, the study verified that the five factors that are captured by the PTGI can be used in a meaningful manner when interpreting PTG. Due to the PTGI being a multidimensional measure; Taku et al. (2008) suggested that each factor could relate differently to other variables. This has been somewhat supported by a variety of research. For example, Morris et al. (2005) found a strong relationship between the New Possibilities and Appreciation of Life Factors of the PTGI and the three subscales of the Impact of Event Scale Revised (IES-R), indicating that a relation exists between intrusion PTSD symptoms and PTG. However, their findings also indicated that the Relating to Others Factor was least correlated with the IES-R subscales. Thus, the absence or presence of PTSD symptoms may not affect the positive growth that can occur in the person's relationships after having faced a traumatic event (Morris et al., 2005).

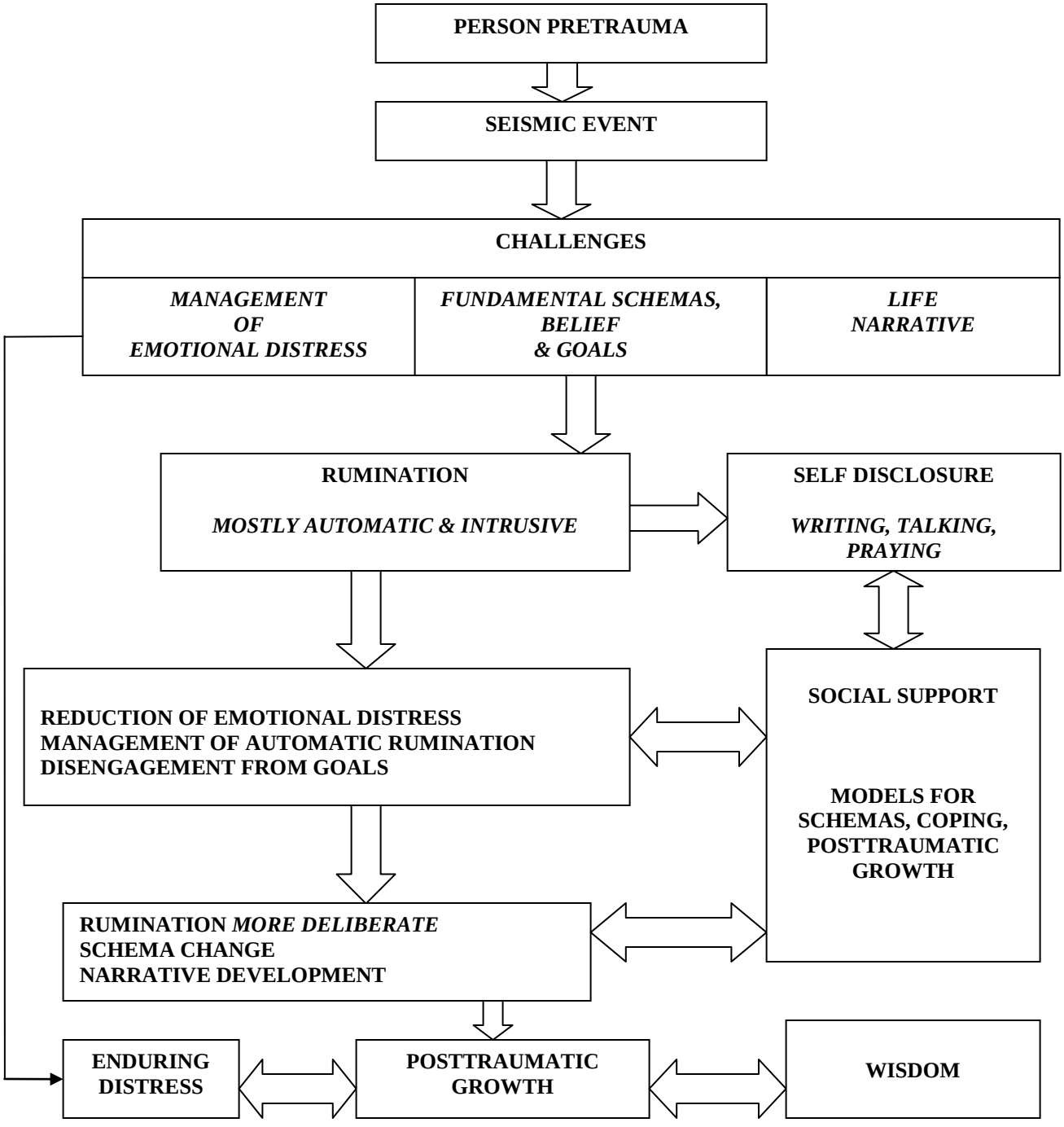
Furthermore, different factors of PTG might be sensitive to different cognitive processing styles or they might be influenced by other variables (Tedeschi & Calhoun, 2004). For example, deliberate rumination about the trauma, such as seeking to develop a new assumptive world or to stress the positive aspects, has been found to be directly

related to the development of PTG (Tedeschi & Calhoun, 2004). However, the pattern of these relationships may vary among the five domains of the PTGI and growth in all of these domains might therefore not occur simultaneously, if at all (Taku et al., 2008).

2.1.3 A model for coping with trauma

Tedeschi and Calhoun (2004) have outlined a model that explains how the process of growth is conceptualized as is illustrated in Figure 1. They describe PTG as the outcome that results from a coping process (Tedeschi & Calhoun, 1996). This coping process begins with a traumatic or "psychologically seismic" (Tedeschi and Calhoun, 2004, p.5) event that severely shakes or threatens an individual's schematic structures that have guided understanding, decision making, and meaningfulness. Higher-order goals, higher-order beliefs, and the ability to manage emotional distress are challenged. The emotional distress a person experiences opens a process of recurrent rumination as well as attempts to engage in behaviour that is aimed at reducing distress. According to Tedeschi and Calhoun (2004), rumination is initially more automatic than deliberate and is characterised by frequent returns to thinking activity regarding the trauma and the issues around it. Once a person experiences the first coping success which is characterised for example by reduction in emotional distress, rumination is transformed into more deliberate thinking about the trauma and the impact it has on the person's life (Zoellner & Meacker, 2006). Tedeschi and Calhoun draw a distinction between "depressogenic rumination" (p. 9), which refers to rumination that has been shown to be related to negative affect and depression (Nolen-Hocksema & Morrow, 1991), and rumination that is associated with posttraumatic growth. This type of rumination is labelled by Tedeschi and Calhoun (2004) as cognitive processing and includes (a) analysing the new situation, (b) finding meaning and (c) re-appraisal. Research findings support Tedschi and Calhoun's assumption about the importance of rumination in relation to PTG (Linley & Joseph, 2004). Weinrib et al. (2006) found strong evidence for the role of cognitive processing in PTG. In their study, people were asked to write about a traumatic event before completing a growth inventory. Their findings indicate that growth reports were directly linked to indicators of cognitive processing as implicit from the essays (Weinrib et al, 2006; Park & Helgeson, 2006).

Figure 1: A Model of Posttraumatic Growth (Tedeschi & Calhoun, 2004, p.7)



2.1.4 Factors contributing to PTG

Various studies have examined variables other than cognitive processing that are believed to positively influence the coping process and the emergence of PTG. Recently, three meta-analytic reviews of existing empirical studies of posttraumatic growth have been published in order to provide comprehensive summaries of the findings and to increase the understanding of the factors contributing to PTG (Linley & Joseph, 2004; Helgeson et al., 2006; Zoellner & Maercker, 2006).

Helgeson et al. (2006) found that among the demographical variables that they examined, minority persons were more likely to perceive benefit and meaning from the traumatic event than majority persons. Age has also been implicated to influence the emergence of PTG (Helgeson et al., 2006). Specifically, research found that in a sample of individuals who suffer from breast cancer, younger people were more likely to report PTG than did older people (Cardova et al., 2007). One possible explanation for this finding is that such trauma experienced at a younger age is perceived as more disruptive of the daily life and world views since the illness is less consistent with the individual's phase of life than it might be for older persons (Cardova et al., 2007).

Morris et al. (2005) investigated PTG in Australian undergraduate students and their findings suggest that cultural differences may exist in PTG patterns. Their results indicated that, as in a previous study on PTG in an Australian sample (Shakespeare-Finch, Smith, Gow, Embleton & Baird, 2003), participants reported the least amount of growth in the Spiritual Change factor. This result contrasted with that of U.S. findings, in which spiritual change was of great importance and thus gives rise to the possibility that cultural differences play a role in the expression of PTG (Morris et al., 2005).

Furthermore, research suggests that women more than men engage in the most benefit finding (Helgeson et al., 2006). This finding might be due to gender differences in coping and is in line with a meta-analytical review of the literature on coping, which showed that women employ more positive reappraisal and positive self-talk than men (Tamres, Janicki & Helgeson, 2002). In addition, women are typically socialised

differently to men in that they experience and acknowledge their feelings (L'Abate, 1992). This might also account for their increased stress-related growth (Park et al., 1996).

Furthermore, women were found to experience greater amount of stress in response to adversity than did men (Anderson & Manuel, 1994; Rausch, Auerbach & Gramling, 2008), which further contributes to the gender differences in PTG. For example, Anderson and Manuel (1994) investigated gender differences in stress responses to an earthquake and their results indicated that women reported a greater severity in reported stress symptoms. Even though the causes remain unclear, several assumptions have been made. One possible explanation could be that gender differences are in fact due to biological differences (Anderson & Manuel, 1994). Furthermore, a greater acceptance in societies for women to express their feelings might be another explanation (Anderson & Manuel, 1994). Experiencing an event as more distressing may result in greater motivation to make meaning of such traumas, which subsequently leads to a greater experience of PTG (Tedeschi & Calhoun, 1995).

Higher education and employment have also been associated with increased PTG (Linley & Joseph, 2004; Russel, White & White, 2006). Russel et al. (2006) examined a sample of patients with Multiple Sclerosis, investigating their beliefs and meaning making of the illness. Their findings indicated that employment and higher levels of education were associated with meaning making. The researchers suggest that verbal skills and reading stimulate the formulation of existential questions as well as the seeking of their answers. Through employment, a person is provided with a meaningful and productive role as well as witnesses to coping skills in the face of adversity, therefore contributing to the meaning making process. Furthermore, Helgeson et al. (2006) found that two personality types, optimism and religiosity, are associated with PTG. Since the defining feature of optimism is to have a positive outlook in life, it is not surprising that this personality trait has been found to be related to benefit finding (Helgeson et al., 2006). The fact that religious activities and intrinsic religiousness are positively associated with growth may also reflect the fact that one domain of PTG is

spiritual growth (Helgeson et al., 2006; Linley & Joseph, 2004). Intrinsic religiousness refers to the degree in which religion serves as a framework of meaning.

A salient, coherent belief system enables the person to draw strength, make sense of, and interpret experiences and it therefore influences a person's ability to find positive meaning in a stressful experience (Antonovsky, 1987). Park et al. (1996) also found a relationship between stress-related growth and satisfaction with one's social support system, suggesting that a good social support system is an important variable in the development of PTG. The relationship between the two concepts can be explained in various ways. For example, a person's satisfaction with the support system could indicate that the person's particular coping needs fit with his or her available resources (Folkman, 1992). Another possibility is that a person might ask for and receive the necessary support that he or she needs to cope with the event. Through the positive feedback of people that the person perceives care for him or her, the individual might feel worthwhile and capable to master challenges (Park et al., 1996). Problem-focused coping, positive reinterpretation as well as acceptance coping was also related to experiencing PTG (Linely & Joseph, 2004; Park et al., 1996). The coping strategy of positive reinterpretation, such as learning from an experience or growing as a result of a trauma, enhances the likelihood that a person will actually do exactly that (Park et al., 1996). Various other studies have investigated the relation of acceptance coping to positive change (Brooks & Matson, 1982; Schussler, 1992). Brooks and Matson (1982) studied a sample of individuals with multiple sclerosis and found that acceptance coping was related to improved self-confidence as well as enhanced relationships with others. The authors believed that through acceptance coping, the individual was able to integrate the difficult circumstances of having a terminal disease with other aspects of their life and therefore facilitated enhanced functioning and growth.

The personality traits of extraversion, openness to internal experience and conscientiousness were also found to be significantly correlated with PTG (Evers et al., 2001; Tedeschi & Calhoun, 1996). Even though it was unclear whether these traits existed before the traumatic event or whether they developed as a consequence, a

longitudinal study of personality before and after bereavement indicates that the personality variables were present before adversity and remained relatively unchanged throughout the aftermath of the bereavement (McCrae & Costa, 1993; Tedeschi & Calhoun, 1996). Tedeschi and Calhoun (1996) suggest that the above mentioned personality traits allow persons to perceive particular growth. People open to internal experience examine their experiences and view them as less threatening and potentially beneficial. In addition, persons high in extroversion are believed to be tolerating stimulation better and seek social support more readily. Furthermore, conscientious people are characterised to be more disciplined and rely on, develop, and appreciate this trait after trauma (Tedeschi & Calhoun, 1996).

Waysman, Schwarzwald and Solomon (2001) examined the relationship between hardiness and positive and negative long term changes following trauma in 164 Israeli POWs. Hardiness was found to be associated with higher levels of positive change, indicating that the personality trait can be seen as a resource that promotes the development of psychological growth following adversity (Waysman et al., 2001).

As mentioned above, a person has to perceive a stressor as undesirable and intense in order for PTG to occur (Tedeschi & Calhoun, 1996). Various researches have confirmed this assumption (Helgeson et al., 2006; Maguen, Vogt, King, King & Litz, 2006). Both objective severity as well as subjective perceptions of stress has been found to be related to benefit finding (Helgeson et al., 2006). In addition, threat severity is believed to motivate benefit finding as it encourages people to make serious changes in the way they live their lives. Even if growth is simply a subjective perception, cognitive adaptation theory suggests that self-enhancement biases are more likely to develop under conditions of severe threat (Taylor, 1983; Taylor & Brown, 1988).

According to Frazier et al. (2001), most changes resulting from the struggle with adversity occur between two weeks and two months post-trauma. After that, studies indicate that self-reported PTG remains fairly stable up to three years post-trauma (McMillen, Smith, & Fisher, 1997).

2.1.5 PTG controversies

The existing literature on PTG exhibits many controversies about the construct, indicating that further studies have to work "towards a better understanding of the complexity of posttraumatic growth" (Hobfall et al., 2007, p.350). One area of conflict in the study of PTG is the relationship between PTG and well-being. Quantitative evidence so far has been mixed (Tedeschi & Calhoun, 2004). Whereas some studies found positive links between the two constructs (Frazier et al., 2001), others suggested that growth is unrelated (Tedeschi & Calhoun, 2004) or even inversely related (Hobfoll et al., 2006) to positive mental and physical outcomes. Tedeschi and Calhoun (2004) therefore concluded that growth and psychological distress have to be seen as separate, independent dimensions rather than as a single dimension with opposite endpoints (Linley & Joseph, 2004; Tedeschi & Calhoun, 2004). However, the relationship between the two constructs might be more complicated. For example, recent studies indicate that the relation of PTG to well-being is moderated by other variables such as optimism and ethnicity (Park & Helgeson, 2006; Milam, 2006). In addition, Helgeson et al. (2006) found that time since trauma is an important moderator of the relation between benefit findings to health outcome (Helgeson et al., 2006). In their meta-analytical review of benefit finding and growth, benefit finding was more likely to be related to a good outcome when a longer time since the traumatic event had elapsed. This relation was specifically found in terms of reduced depression and greater positive affect. However, results indicated that anxiety is an exception in that benefit finding was related to reduced anxiety only when the time since trauma was shorter rather than longer (Helgeson et al., 2006).

Another controversial debate within the literature of PTG, which has been mentioned above, is whether positive change should be regarded as an outcome or as a process (Zoellner & Maercker, 2006). Tedeschi and Calhoun (2004) have for example conceptualised PTG as an outcome of the struggle with a traumatic event, whereas Filipp (as cited in Zoellner & Maercker, 2006) has referred to it as an integrative process. According to the latter, a person, after being exposed to trauma, will pass through three processes of coping. In the beginning, a person construes "perceptive

reality" by attentive processes which include defences of positive illusions, self-enhancing illusions, and hope, and comparative processes, which designate palliative comparisons by performing social and temporal comparisons. The stage of "perceptive reality" is followed by "interpretive reality". This phase results from ruminative thinking and PTG is considered to be one possibility to construct "interpretative reality" (Filipp, as cited in Zoellner & Maercker, 2006). However, research often does not clarify PTG as being either an outcome or a process, which has to be considered when interpreting the findings and again reflects the lack of knowledge around the construct.

A further area of concern in the study of PTG is whether reports of growth reflect actual or illusionary change. More specifically, the question arises of whether individuals are reporting positive changes in their lives that have actually occurred or whether they are manufacturing them in an attempt to cope with the trauma and to reduce feelings of psychological distress and helplessness (Park & Helgeson, 2006). A study by Frazier and Kaler (2006) attempted to validate reports of growth by examining links of growth to well-being, using both comparison groups and more objective measures of well-being. Their findings demonstrated very little validity, indicating that reports of growth are often illusionary. However, several studies suggest that growth reports at some time and under some conditions reflect actual positive changes. For example, Rabe, Zoellner, Maercker, and Karl (2006) examined individuals who were involved in severe car accidents and found that they displayed neurological correlates of growth. It is important to keep in mind that the focus of PTG is on the individual's subjective perception of growth. Survivors of trauma might internally perceive themselves as changed but might not display major real-life changes. Therefore, self-reported positive change might refer to the individual's perception that they have undergone growth due to the traumatic event exposure rather than reflect actual changes.

The above literature review on PTG highlights some of the controversies that are currently experienced in this field of research. Another controversial area associated with trauma and positive adaptation to adversity is that of resilience and will be discussed next.

2.2 Resilience

Being exposed to a trauma often results in transient trauma symptoms such as experiencing flashbacks or having difficulty sleeping (Bonanno, Galea, Bucciarelli, & Vlahov, 2007). However, only a small subset of people will experience trauma reactions that meet the criteria of posttraumatic stress disorder (PTSD, American Psychiatric Association, 2000). Instead, most individuals will quickly recover from any adverse effects of such symptoms (Shalev, 2002) and some display only moderate or no disruptions in their normal ability to function (Bonanno, 2004). A growing body of research therefore suggests that the majority of adults who were exposed to a potentially traumatic event are resilient (Bonanno et al., 2007). The term resilience has also been referred to as "protective factors", "invulnerability" and "hardiness", to name just a few (Hoge, Austin & Pollack, 2007). Further, it has been defined in various ways and much debate resulted from the lack of a unifying description and subsequent operationalization and measurement of its key constructs (Luthar, Cicchetti, & Becker, 2000).

Positive adaptation processes have traditionally been explored within three application areas. Specifically, the developmental psychology literature has extensively studied resilient outcomes in children (Hoge et al., 2007; Masten & Coatsworth, 1998; Arrington, & Wilson, 2000), the nursing literature has examined personality hardiness as a buffer for physical illness, and finally the PTSD literature has allied the concept of resilience to understand the development of PTSD in war veterans.

2.2.1 Protective factors

Developmental psychologists focused on children determined to be "at risk" for developing later difficulties in life because of adverse life circumstances such as poverty and parental mental illness (Hoge et al., 2007; Masten & Coatsworth, 1998; Arrington, & Wilson, 2000). Researchers followed these children over a period of time, following up on their mental health, social, economic, and occupational status and identifying "protective" variables that seemed to promote health and well-being and counterbalance the effects of risk factors (Hoge et al., 2007). Protective factors are

defined as conditions or processes that moderate the negative effects of risk factors and therefore lead to resilient outcomes (Garmezy, Masten & Tellegen, 1984). Not only are they able to decrease the risk itself but they can also attenuate the effects of the risk factors or enhance the persons coping capacity.

Research on resilience has identified a variety of protective factors (Earvolino-Ramirez, 2007). These include an ability of bouncing back and moving on in life after having experienced stressful life events. Reintegration is another commonly found expression in contemporary literature on resilience and describes the process in which an individual wants to return to a regular routine after having been exposed to adversity (Earvoline-Ramirez, 2007). Resilient persons are able to reintegrate or assimilate with the life they are familiar with in a positive or even improved manner (Flach, 1997).

Another protective factor found is that of high expectancy and self-determination. Benard (1991) defined high expectancy as a person's sense of purpose and achievement in life, which can be either internal or external. An individual high in self-determination has a feeling that regardless of the challenges in life, he or she will overcome these and excel. The concept of self-determination is linked with a sense of self-worth. The person is not overwhelmed by feelings of hopelessness as he or she has an internal belief that the individual will preserve, no matter what life brings (Garmezy, 1991; Rutter, 1987).

In research done with children, a healthy attachment to a significant adult was found to be a protective factor, making the child more resilient (Garmezy, 1991; Luthar et al., 2000).Furthermore, social support and meaningful relationships with a peer or family member are consistent with resilient outcomes (Richardson, 2002; Tusaie & Dyer, 2004).

Flexibility is another protective factor found to be of importance in resilience. The concept captures the essence of adaptability and includes being able to roll with change,

being cooperative, sociable, tolerant, and having an easy temperament (Earvoline-Ramirez, 2007; Luthar & Cicchetti, 2000; Richardson, 2002).
Research further found that a sense of humour is an important protective factor. Through a sense of humour about life situations as well as one's self, the person is able to make light of stressful life events, to enhance coping mechanisms and to moderate intense emotional reactions (Garmezy, 1991; Richardson, 2002).

Self-esteem and self-efficacy are other protective factors that have been vastly researched (Garmezy, 1991; Luthar & Cicchetti, 2000). Other individual protective factors are that of optimism and cognitive capacity (Kerig & Wenar, 2006). Family factors that make up resilience include family cohesion, conflict management, and communication (Carbonell, Reinherz & Giaconia, 2002). Bonanno et al. (2007) identified unique predictors of resilience after being exposed to terrorism. Their data suggests that the prevalence of a resilient outcome was predicted by the following variables: gender, age, race-ethnicity, and education level (Bonanno et al., 2007).

2.2.2 Resilience and coping

Few studies have examined how resilience can be distinguished from other factors such as coping (Harvey & Delfabbro, 2004). Rutter (1985) attempted to answer this issue by identifying several central features of resilience. One of the features was that resilience results from exposure, rather than avoidance, of adverse situations and risk. Resilience is therefore regarded as an active process. Resilient persons are successfully able to manipulate their environments in order to protect themselves from the negative consequences of stressful events. Therefore, resilience differs greatly from coping as a person can cope with a situation by simply avoiding it (Gruen, Folkman & Lazarus, 1988; Lazarus & Folkman, 1987). A second feature of resilience is that previous experience is believed to play a role (Rutter, 1985). Even though resilience refers to current functioning, previous experiences clearly play a role as they enabled the development of necessary skills and strategies. Through for example previous exposure to people abusing substances, a person is better able to deal with similar experiences that he/she might face later in life (Harvey & Delfabbro, 2004). In addition, a third

feature of resilience is the varying significance of risk and protective factors over time (Rutter, 1985). An example of a risk factor varying in importance depending on factors such as the person's age is low birthweight. In infancy, low birthweight is associated with multiple risk factors such as impaired cognitive and physical development (Bradley, Whiteside, Mundfrom, Casey et al., 1994). However, lower than average weight in adults is a protective factor as the person usually experiences fewer negative health symptoms (Harvey & Delfabbro, 2004). A fourth point Rutter (1985) raises is the fact that certain factors, depending on the context, can function not only as risk but also as protective factors. Rew, Seehafer, Thomas and Yockey (2001) gave an example of children who are running away from home. Even though this behaviour could be considered as an at-risk behaviour as it exposes the child to all kinds of dangers, is can also be considered a protective factor as it possibly removes a child from a potentially hazardous home environment and allows him or her access to health care services, education and new social support (Harvey & Delfabbro, 2004).

2.2.3 Hardiness

Apart from the research that focused on exploring resilience in children, the concept, as mentioned above, has also been explored in populations which displayed significant medical problems or which were undergoing stressful life experiences (Hoge et al., 2007). Resilience has commonly been referred to as a stable personality resource, named hardiness (Maddi & Khoshaba, 1994). The concept of hardiness was developed by Kobasa (1979). In a study of business executives, Kobasa (1979) was able to provide the initial empirical support that hardiness is a stress-resistance resource. The study consisted of middle and upper level executives with especially high levels of stressful life events that were divided into groups high and low on illness symptoms. As hypothesised, the high stress/low-illness executives displayed significantly greater personality hardiness than the high-stress/high-illness executives. Kobasa (1979) referred to hardiness as a personality structure that consists of three general characteristics: commitment, challenge and control. "Commitment" refers to the person's ability to feel deeply involved in, or committed to the activities of his or her life as well as the person's ability to turn events into something meaningful and

important (Kobasa, 1979; Maddi & Khoshaba, 1994). Alienation is therefore the opposite of commitment and involves a lack of direction as well as a feeling of personal insignificance (Kobasa & Puccetti, 1983). “Control” indicates the person’s belief that one can influence the course of events, rather than feeling powerless (Kobasa & Puccetti, 1983, Maddi & Khoshaba, 1994). “Challenge” refers to the assumption that fulfilment in life is the result of growth and wisdom that is gained from difficult experiences (Maddi & Khoshaba, 1994). A person high in challenge therefore regards change as a normal challenge or impetus to development, instead of perceiving it as a threat (Kobasa & Puccetti, 1983).

When being confronted with specific stressful life events, hardy persons will find opportunities to exercise decision making, to confirm their priorities in life and to set new goals and other complex activities that they regard as important human capabilities. In addition, hardy persons are able to evaluate any given event in the context of their overall life plan. The potential disruptiveness of any event will be mitigated by their basic sense of purpose and involvement in life. Furthermore, the coping style of hardy persons reveals their deep seated belief not only in their own effectiveness but also in their ability to make use of other human and environmental resources. For a hardy person, coping consists of turning adverse events into possibilities and opportunities that will help their own as well as other people’s development (Kobasa & Puccetti, 1983). Overall, hardy persons are believed to perceive potentially stressful events in less threatening terms (Kobasa, 1982). Research has supported this view by finding that even though hardy persons experience events in a very similar manner to less hardy persons; they appraise the events as less stressful and maintain their optimism about their ability to cope with them (Alfred & Smith, 1989; Rhodewalt & Zone, 1989). For example, Florian et al. (1995) studied Israeli recruits after a demanding, 4 month combat training period and found that participants high in commitment improved mental health by reducing the appraisal of threat as well as by using emotion-focused strategies and increasing secondary appraisal. Furthermore, control was also found to improve mental health by reducing the appraisal of threat, increasing secondary appraisal as well as using problem-solving and support-seeking strategies.

2.2.4 Resilience research

Various studies have found evidence for widespread adult resilience after exposure to an isolated but potentially threatening trauma. For example, Bonanno, Wortsman, et al. (2002) examined the divergent trajectories of grieving and found that resilient individuals, who are relatively well adjusted and display adequate coping skills, do not exhibit significant distress or depression following loss. Another study by Bonanno, Rennicke, and Dekel (2005) examined individuals who were directly exposed to the terrorist attack on the World Trade Centre during September 11, 2001 and operationally defined trajectories of outcome, one of them psychological resilience. Their data indicated that the resilient trajectory, characterised by stable low symptom levels across time, was the most commonly observed outcome (Bonanno et al., 2005). Better physical and mental health as well as less PTSD symptom severity after exposure to violent traumas, such as rape, incest, physical or emotional abuse and violent attacks are also associated with resilience (Connor, Davidson & Lee, 2003).

2.2.5 Resilience controversies

As mentioned above, empirical research on resilience has received much criticism. Luthar et al's. (2000) critical appraisal of the construct of resilience outlines the main controversial areas and illustrates the "growing concerns about the rigor of theory and research in the area" (Luthar et al., 2000, p. 543). The researchers examined four broad categories of concern, namely ambiguity in definition and terminology, variations in interdomain functioning and risk experiences among ostensibly resilient children and instability in the phenomenon of resilience and theoretical concerns (Luthar et al., 2000). The meaning of the term resilience varies considerably across studies as well as over time and according to the theoretical context or participant group that is under investigation (Heller, Larrieu, D'Imperio & Boris, 1999; Luthar & Cichetti, 2000; Masten, Best & Garmezy, 1990). Not only has resilience been defined in terms of success in educational achievement and positive behavioural adjustment but also in terms of enhanced cognitive functioning and the absence of psychopathology (Harvey & Delfabbro, 2004). Furthermore, research literature on resilience for example debates whether resilience should be regarded as a personality trait or as a dynamic process.

Commonly researchers refer to each of these terms as interchangeable (Luthar et al., 2000). Despite this, all existing research on resilience shares the basic assumption that most people are subject to adversity and stressors and that many factors can contribute to how they deal with these experiences. A person's ability to display resilience when faced with a stressor depends on the interplay of factors that are either beneficial or inimical to the person's wellbeing (Roy, Rutter & Pickles, 2000; Rutter, 1985, 1987).

2.2.6 Conceptualisation of resilience

The present study will focus on adults and the researcher will use Bonanno's (2004) definition of adult resilience. He describes the theoretical construct as:

> the ability of adults in otherwise normal circumstances who are exposed to an isolated and potentially highly disruptive event such as the death of a close relation or a violent or life-threatening situation to maintain relatively stable, healthy levels of psychological and physical functioning. . . as well as the capacity for generative experiences and positive emotions. (pp. 20-21).

Implicit in this definition are two critical conditions. Firstly, a person has to be exposed to an aversive event or significant threat (Bonanno, 2004). Simply avoiding a stressful situation or a negative event does not constitute resilience. Instead, resilience is regarded as active process, rather than a personality trait, in that resilient people are successfully able to manipulate their environment in order to protect them from the negative consequences of adverse events (Harvey & Delfabbro, 2004; Rutter, 1985). Secondly, a person, also possibly experiencing short-term dysregulation and variability in both emotional and physical well-being, will maintain a relatively stable ability to function and possibly enhance their resilience (Bonanno, 2004, Hoge et al., 2007).

Another area of debate is how the construct of resilience is related to that of PTG and will be discussed below.

2.3 Posttraumatic Growth and Resilience

Both PTG and resilience refer to constructs that result in positive adaptation after having experienced a traumatic event. However, a literature overview shows that there are few and very controversial assumptions regarding the relation between the two constructs. Many studies on PTG have implicitly or explicitly equated PTG with resilience or even went a step further and considered PTG superior to resilient outcomes (Hobfoll et al., 2007; Westphal & Bonanno, 2007). For example, Carver (1998) distinguished between the two constructs by referring to resilience as a return to the previous level of functioning after adversity and by associating PTG with not merely returning to the previous level of functioning but exceeding it on some dimension (Carver, 1998). Implicit in this distinction is the assumption that for PTG to occur, a person has to display resilience and return to a healthy functioning before moving toward more effective subsequent functioning. Tedeschi and Calhoun (1995) supported this assumption. The researchers believed that positive outcomes in life traumas depend on the coming together of several person variables, resilience being one of them. Thus, for growth to occur, a person needs to not only be for example optimistic, hardy, and face life crises that represent irreversible changes, but they also need to be resilient in order for a new level of adaptation to be achieved. Tedeschi and Clahoun (1995) went a step further in their assumptions about the relation between such personality dimensions and the occurrence of PTG. They argue that personality characteristics interact with the negativity of the situation that a person perceives and that this interaction determines the likelihood of successful coping. Even though persons who score in the "healthy" ranges of the personality characteristics will be able to cope with greater adversity, they will gain much less from confronting crises. However, people who are moderately capable on these dimensions, neither extremely pessimistic nor extremely competent and confident, may be experiencing the greatest amount of growth when coping with trauma. Thus, although the person may not be the most hardy, resilient and creative person, he or she will have the potential for significant growth. People who perceive themselves to be less capable and who have poor coping skills are likely to be overwhelmed by crises and thus have difficulty working through and perceiving benefits from the trauma (Tedeschi & Calhoun, 1995).

Westphal and Bonanno (2007) objected to the notion that resilience is often equated with PTG and suggest that PTG and resilience should be viewed as two independent constructs. They also went a step further and argued that it is highly unlikely for resilient individuals to engage in the kind of meaning making behaviours that are associated with PTG since they do not struggle to the same extent as other, more traumatised individuals would. Thus, survivors of trauma that are highly resilient will not engage in the cognitive processing that is necessary for PTG to occur (Westpahl & Bonanno, 2007). However, the researchers failed to make a distinction between individuals low, moderate or high in resilience and their relation to PTG.

Another complicating area of research that is associated with the complex relation between PTG and resilience is that of hardiness. The relation between hardiness and resilience is not very clear and often, hardiness is either equated with resilience, viewed as one of the factors of resilience (Farber, Schwartz, Scharper, Moonen, & McDaniel, 2000), or considered to be an independent construct (Tedeschi & Calhoun, 2004). Studies of hardiness in general show that this personality trait is positively associated with PTG (Linley & Joseph, 2004).

The above illustrates very clearly that there is little understanding of the relation between resilience and PTG and no empirical research so far has tried to shed more light onto this association. This is why the present study is so important. It will be one of the first, to the researcher's knowledge, that attempts to give some empirically derived insight into the current debate.

The present study will investigate the relation between resilience and PTG. It will further try to answer the question of whether resilience adds to the occurrence of PTG or whether these two constructs are unrelated. Specifically, the present study will explore the nature of the relation between the three resilience constructs and the five PTG constructs.

Chapter 3: Method

3.1 Research Design

Non-probability sampling was used as the students used did not have an equal, non-zero chance of being included in the sample.

The predictor variable in this study was that of resilience and the outcome variable was that of posttraumatic growth. The study investigated the relationship between the two variables. Since the predictor variable was an intrinsic characteristic of the participant, it could not be manipulated by the researcher for the purpose of the study and thus the design implemented was non-experimental in nature. Furthermore, a cross-sectional, correlational research design was used as all the information on the two variables was collected at the same time. Lastly, the level of the predictor variable contained different participants and the research was therefore a between-group design.

3.2 Participants

A convenience sample of 222 first year students was drawn from the academic department of Commerce and Law at the University of the Witwatersrand, South Africa. The sample consisted of three classes of first year students and represented a heterogeneous group of students with regards to gender. An ethnically diverse sample consisting of 102 males and 119 females was collected, with a gender composition that was representative of the student population, which is 48% male and 52% female. The mean age of the participants was 18,76 years and the ages ranged between 18 and 25.

3.3 Measures

3.3.1 Biographical information

Participants reported basic demographic data (Appendix 2), including age, gender, ethnicity and year of study.

3.3.2 Traumatic Stress Schedule

The Traumatic Stress Schedule (TSS) (Norris, 1990) (Appendix 3) measures information about potentially traumatic events and it was used to control for the total number of traumatic events that participants were confronted with. It consists of 9 closed ended questions, inquiring about experiences of violent robbery, physical assault, motor vehicle accidents, hijacking, unwanted sexual activity, death of a loved one, natural disaster and combat (Norris, 1990). The measure has been found to be well established, with good reliability and validity (Norris & Hamblen, 1997). The TSS has been used in South African studies, one of them being Hoffman's (2002) research on the traumatic events and its implications on students in Pretoria.

3.3.3 Dispositional Resilience Scale

The Dispositional Resilience Scale (DRS) (Bartone, Ursano, Wright, Ingraham, 1989) (Appendix 4) is a self-report measure and consists of 45 items. It includes an overall resilience index as well as three subscales which measure the three broad categories of resilience, namely commitment, challenge, and control (Bartone et al., 1989). Three items were removed due to face validity, as they apply to working individuals rather than students. The DRS is a 4-point rating scale and contains items which are evaluated in a positive as well as negative direction. The scale has been found to be a reliable measure of resilience, with a well established construct discriminant and convergent validity and a Cronbach's alpha of 0.85 (Bartone et al., 1989; Huck, 2004).

3.3.4 Impact of Events Scale – Revised

The Impact of Events Scale - Revised (IES-R) (Appendix 5) is a self-report measure that aims to assess the subjective distress a person experiences after having faced a life event (Weiss & Marmar, 1997). The IES-R was used to control for the level of subjective distress after experiencing each traumatic event. The IES-R was developed by Weiss and Marmar in 1997 in order to parallel the DSM-IV criteria for PTSD and has been used within the South African context (Peltzer, 2000). It consists of 22 items and respondents are asked to rate each item on a scale of 0 (not at all) to 4 (extremely).

According to Weiss and Marmar (1997), the internal consistency of the IES-R was shown to be high and validity also seems to be sufficient.

3.3.5 Posttraumatic Growth Inventory

The Posttraumatic Growth Inventory (PTGI) (Tedeschi & Calhoun, 1996) (Appendix 6) was developed in order to measure the extent to which survivors of traumatic experience perceive personal benefits, including perceived changes in self, a changed sense of relationship, and a changed philosophy of life. The inventory consists of a 21-item scale which measures the above mentioned broad categories of perceived benefit (Tedeschi & Calhoun, 1996). Further, the measurement instrument includes five subscales, namely new possibilities, relating to others, personal strength, spiritual change and appreciation of life, that correspond to the above mentioned three categories (Tedeschi & Calhoun, 1996). The PTGI yields both scores on each of these five subscales as well as a total score. Participants are asked to rate items of each scale from 0 (I did not experience this change as a result of my crisis) to 5 (I experienced this to a very great degree as a result of my crisis). Calhoun and Tedeschi (1996) examined the psychometric properties of the PTGI. The instrument shows good internal consistency, with a measure of $\alpha = .90$. In addition, the reported test-retest reliability of $r = .71$ was acceptable. The measure has been successfully used in the South African context by Peltzer (2000) who investigated trauma symptoms within an urban community sample.

All questionnaires were available in English, which meant that a relatively large number of students had to complete the questionnaires in a language other than their home language. However, this was not considered to be problematic since the University of Witwatersrand requires all prospective students to have passed the national matric examination with acceptable final symbols. English is one of the compulsory subjects. Additionally, students are taught in English and are thus required to have sufficient proficiency not to be disadvantaged in this study.

3.4 Procedure

Permission to undertake the research was obtained from the ethics committee at the University of the Witwatersrand. The researcher then set up a meeting with the Dean of the Commerce and Law Faculty in order to present the purpose of the study and to obtain permission to use the students as the sample. Once permission was granted, lecturers of three different classes were approached in order to arrange a date and time for the questionnaires to be handed out. The lectures were advised that the study would take up approximately 20 to 25 minutes of the student's time. The researcher handed out the questionnaire either during the break of the lecture or at the end of it, depending on the lecturer's preference.

The researcher began the study by introducing herself to the students and explaining that she is a psychology masters student at the University of the Witwatersrand. The researcher then informed the students about the aim and rational of the study in disguised form since knowledge of the true purpose of the research could have influenced the responses of the self-reported questionnaires. The participants were informed of the true purpose of the study in a debriefing sheet (Appendix 7) that was handed out once they had completed their questionnaires. All students present in class were informed of the voluntary, anonymous and confidential nature of participation. They were further told that they were neither advantaged nor disadvantaged for participating or not participating in the study. They were also notified that they could withdraw from the study at any time. The questionnaire pack was then handed out by the researcher and participants were asked to read the cover letter (Appendix 1) as it contained further information about the study and details of the researcher in case participants needed to contact her. The letter also included contact details of professionals who would be able to assist participants in case they experienced any distress after completing the questionnaires.

Students who were willing to complete the questionnaires were doing so in their own space (usually between 20 and 25 minutes) and then placed the pack in a box that was located next to the exit. They were made aware that completion of the questionnaires

and placing them into the box was regarded as consent to take place in the study. Even though the overall procedure ensured a high returned rate of completed questionnaires (only 17 students decide not to participate), 50 questionnaires had to be discarded as the answers were incomplete.

3. 5 Ethical Considerations

One of the main ethical considerations dealt with the nature of the population that was examined. The participants had experienced a range of traumatic events that have occurred fairly recently and thus, the population was regarded as a potentially vulnerable one. Being asked about their traumatic experiences and filling out the self-report questionnaires had the potential to trigger the memory of the event and associated feelings and thoughts. Thus, the pack of questionnaires included a debriefing sheet that provided the participants with a contact list of qualified counsellors and therapists. In addition, the researcher emphasised that participants could terminate filling out questionnaires at any point in time.

Confidentiality was ensured by assigning all questionnaires arbitrary numbers. Furthermore, participants were not asked to identify themselves by names, hence their anonymity was guaranteed.

One ethical constraint was that the true purpose of the study was not disclosed initially to the participants since this might have influenced the responses that persons would give in their self-report questionnaires. Instead, volunteers were told that the study is about examining traumatic experiences of South Africans and how they worked through these adversities. The participants were informed of the true purpose of the study in the debriefing sheet (Appendix 7) once they have completed all the questionnaires.

3.6 Data Analysis

Basic descriptive statistics such as means and standard variations were calculated to provide a basic description of the convenience sample. In addition, Pearson's correlation analyses were performed to determine the relation between resilience and

PTG. The analysis of the DRS was conducted by not only using the DRS composite resilience score but by also using the three DRS subscales, specifically Commitment, Challenge, and Control. This approach enables conceptual clarity in understanding independent contributions of each of the DRS dimension to the observed effects and was recommended in various studies (Farber et al., 2000; Funk, 1992). Similarly, instead of using the overall score of the PTGI, research concluded that the PTGI should be considered to be a multidimensional instrument (Taku et al., 2008). Thus, the analysis focused on its five subscales, namely Factor I (Relating to Others), Factor II (New Possibilities), Factor III (Personal Strength), Factor IV (Spiritual Change) and Factor V (Appreciation of Life), in order to examine whether different underlying processes exist for each of the factors. Lastly, a hierarchical multiple regression analysis was performed in order to explore how much variance each of the three resilience subscales, along with other variables, contributed to each of the five PTG factors.

Chapter 4: Results

This chapter first provides the descriptive statistics for the outcome variable, Posttraumatic Growth (PTG) and its subscales, which were measured by the Posttraumatic Growth Inventory (PTGI), as well as the predictor variable resilience as measured by the Dispositional Resilience Scale (DRS). In addition, the mean and standard deviations of Age, Gender, total number of trauma experienced (Trauma Total) and the level of posttraumatic stress symptoms as measured by the Impact of Event Scale –Revised (IES-R) will be depicted. Pearson's correlation analyses were run to ascertain whether there were significant relations between the five subscales of the PTGI and the three subscales of the DRS. Lastly, a multiple regression analyses was carried out to determine the relation between the outcome and predictor variables while at the same time controlling for Gender, IES-R, and Trauma Total.

4. 1 Descriptive Statistics

The means and standard deviations for Age, Trauma Total, IES-R, DRS and the three subscales of the DRS are reported in Table 1. The total sample (N = 222) consisted of 102 males (46% of the total sample), 119 females (54%) and one respondent who did not complete the question on gender. The mean age of participants was 18.76 years and ranged from 18 to 25 years. The number of traumatic events per person ranged between zero and eight events, with a mean of 1.8 events (SD = 1.32). Forty-one percent of participants reported having been the victim of a robbery, mugging or hold-up. Furthermore, 46% indicated that they lost a close friend or family member through an accident, homicide or suicide and 11% have been involved in a serious accident. Fourteen percent of the participants have been the victim of a violent attack and 46% have either themselves been victims of hijacking or know someone close to them who has been hijacked. The mean subjective distress reported by participants was 39.96 (SD = 17.64). However, 59 participants either did not answer the IES measure or the questionnaire was incomplete and therefore their responses had to be eliminated. The means of the DRS subscales ranged from 20.5 (SD = 4.31) on the Challenge subscale to 26.38 (SD = 6.06) on the Commitment and 30.31 (SD = 4.89) on the Control subscales.

Since responses of the PTGI were dependent upon reporting the experience of a traumatic event, 53 participants did not complete it and were therefore excluded from the sample, rendering the final sample size to be that of 169.

Table 1. Means and Standard Deviations: Resilience and Covariates

Variables	Mean	Standard Deviation	Minimum	Maximum
Trauma Total[1]	1.8	1.32	0	8
IES-R[2]	39.96	17.64	0	83
DRS[3]	77.18	11.78	1	98
Commitment[a]	26.38	6.06	1	39
Challenge[a]	20.5	4.31	7	32
Control[a]	30.31	4.89	16	41

1 – Total of trauma experienced as measured by the Traumatic Stress Schedule

2 - Impact of Event Scale - Revised

3 - Dispositional Resilience Scale

a - Subscales of the Dispositional Resilience Scale

Table 2 illustrates the means and standard deviations for the PTGI as well as the five subscales of the measure. The average level of posttraumatic growth reported was 56.85, with a standard deviation of 20.61.

Table 2: Means and Standard Deviations: Posttraumatic Growth Inventory and Subscales

Variables	Mean	Standard Deviation	Maximum	Minimum
Factor I[1]	17.85	8.64	0	35
Factor II[1]	11.67	6.42	0	25
Factor III[1]	12.17	4.75	0	20
Factor IV[1]	5.3	3.36	0	10
Factor V[1]	9.5	3.68	0	15
PTGI[2]	56.85	20.61	0	97

1 - Five subscales of the Posttraumatic Growth Inventory (Factor I = Relation to Others; Factor II = New Possibilities; Factor III = Personal Strength; Factor IV = Spiritual Change; Factor V = Appreciation of Life)

2 – Posttraumatic Growth Inventory (Overall)

4.2 Correlational Analysis

4.2.1 Correlations between the Dispositional Resilience Scale Factors and the Posttraumatic Growth Inventory Factors

In order to examine whether a relation exists between resilience and posttraumatic growth, a Pearson's Correlation Analysis was conducted to explore the relationship between the five factors of the PTGI and the three subscales of the DRS. The correlation matrix is depicted in Table 3. For an alpha level of .05, the correlation between Factor I and Challenge was found to be statistically significant (r = .16, p = .03), indicating that the two concepts are related. Factor I was not significantly correlated to either Commitment or Control. Further investigation into the three subscales of the DRS and their relation to the PTGI did not indicate any significant relation.

For an alpha level of .05, the correlation between the DRS subscales of Commitment, Challenge and Control was found to be statistically significant, ranging from r = .23 to r = .28 (p = .0001). In addition, the five factors of the PTGI were also significantly correlated, ranging from r = .38 to r = .65 (p = <.0001), therefore confirming previous findings of the internal reliability of the measurement scale (Linley, Andrews & Joseph, 2007; Tedeschi & Calhoun, 1996). Even though such high inter-correlation would indicate that the overall score of the PTGI would be sufficient to look at when examining the relation between posttraumatic growth and resilience, the study by Taku et al. (2008) found that such high correlation is the result of the factors measuring different interrelated dimensions of the posttraumatic growth construct. As such, the present study continues to examine the five subscales of the PTGI, as opposed to using the global measure of the PTGI in the analysis.

Table 3: Correlation Matrix: Dispositional Resilience Scale Factors and Posttraumatic Growth Inventory Factors

Variables	1	2	3	4	5	6	7	8
1. Factor I[1]	-							
2. Factor II[1]	.48 < .0001*	-						
3. Factor III[1]	.38 <.0001*	.65 <.0001*	-					
4. Factor IV[1]	.52 <.0001*	.48 <.0001*	.42 <.0001*	-				
5. Factor V[1]	.51 <.0001*	.48 <.0001*	.34 <.0001*	.47 <.0001*	-			
6. Commitment[2]	.09 .27	.05 .55	.79 .3	.11 .16	.13 .1	-		
7. Challenge[2]	.16 .03*	.06 .43	.74 .34	.00 .95	.15 .06	.23 .001*	-	
8. Control[2]	.06 .48	-.06 .44	.12 .13	.01 .89	-.00 .98	.6 <.0001*	.28 <.0001*	-

*p<.05

1 – Five subscales of the Posttraumatic Growth Inventory (Factor I = Relation to Others; Factor II = New Possibilities; Factor III = Personal Strength; Factor IV = Spiritual Change; Factor V = Appreciation of Life)

2 – Dispositional Resilience Scale Factors

4.2.2 Correlations between Dispositional Resilience Scale Factors and Covariates

Table 4 presents further Pearson's Correlations among Gender, Trauma Total, IES-R and the DRS subscales. Age and Ethnicity were included in the correlational analysis to enable the researcher to get a preliminary glance at relations between Age, Ethnicity and resilience and posttraumatic growth. These relations will be reflected upon in the discussion in light of suggestions for future research.

For an alpha level of .05, IES-R was significantly negatively correlated with the three subscales of the DRS. Results further showed that there was a significant correlation between Gender and IES-R (r = .43, p = <.0001), as well as Gender and Ethnicity (r = .2, p = <.0003). The data also reflected that gender was negatively correlated with age (r = - .19, p = .004).

Table 4: Correlation Matrix: Resilience Factors, Covariates and Age and Ethnicity

Variables	1	2	3	4	5	6	7	8
1. Gender	-							
2. IES-R[1]	.43 < .0001*	-						
3. Ethnicity	.2 <.003*	.13 .09	-					
4. Trauma Total[2]	-.06 .37	.07 .35	-.04 .6	-				
5. Age	-.19 .004*	-.12 .12	.034 .61	.08 .26	-			
6. Commit[3]	-.04 .52	-.29 .0002*	-.07 .3	-.09 .2	-.04 .59	-		
7. Challenge[3]	-.11 .11	-.16 .05*	-.09 .17	.11 .1	.00 .98	.23 .001*	-	
8. Control[3]	-.12 .09	- .34 <.0001*	-.8 .26	-.07 .3	.04 .56	.6 <.0001*	.28 <.0001*	-

1 - IES-R - Impact of Event Scale Revised *p<.05

2 – Total of trauma experienced as measured by the Traumatic Stress Schedule

3 - Dispositional Resilience Scale Factors

4.2.3 Correlations between the Posttraumatic Growth Inventory Factors, Covariates, and Age and Ethnicity

Lastly, a Pearson's Correlation Analysis was carried out between the covariates (gender, IES-R, Trauma Total), Age, Ethnicity and the five factors of the PTGI. The correlation matrix is depicted in Table 5. Results suggest that all the PTGI factors except Factor IV were significantly related to IES-R. Factor I and Age were also found to be positively correlated (r = .17, p = .03), as were Factor II and Age (r = .21, p = .01). Factor II and Factor IV were significantly related to Ethnicity. Furthermore, data showed that Factor III, IV and V were significantly correlated with Gender. Lastly, Factor V was significantly related to Trauma Total (r = .16; p = .03).

Table 5: Correlation Matrix: Posttraumatic Growth Inventory Factors, Covariates, and Age and Ethnicity

Variables	1	2	3	4	5	6	7	8	9	10
1. Gender	-									
2. IES-R[1]	.43 <.0001*	-								
3. Ethnicity	.2 <.003*	.13 .09	-							
4. Trauma Total[2]	-.06 .37	.07 .35	-.04 .6	-						
5. Age	-.19 .004*	-.12 .12	.034 .61	.08 .26	-					
6. Factor I[3]	.08 .31	.21 .01*	.03 .67	.07 .39	.17 .03*	-				
7. Factor II[3]	.11 .15	.25 .003*	.18 .02*	.02 .81	.21 .01*	.48 <.0001*	-			
8. Factor III[3]	.19 .01*	.2 .01*	.12 .13	-.06 .41	.11 .16	.38 <.0001*	.65 <.0001*	-		
9. Factor IV[3]	.21 .005*	.14 .1	.15 .05*	-.14 .07	-.05 .48	.52 <.0001*	.48 <.0001*	.42 <.0001*	-	
10. Factor V[3]	.16 .03*	.21 .01*	.08 .33	.16 .03*	.11 .16	.51 <.0001*	.48 <.0001*	.34 <.0001*	.47 <.0001*	-

1 - Impact of Event Scale – Revised *p<.05

2 - Total of trauma experienced as measured by the Traumatic Stress Schedule

3 - Five subscales of the Posttraumatic Growth Inventory (Factor I = Relation to Others; Factor II = New Possibilities; Factor III = Personal Strength; Factor IV = Spiritual Change; Factor V = Appreciation of Life)

4.3 Multiple Regression Analysis

4.3.1 Assumptions

The four principle assumptions of regression, namely (1) linearity of the relation between dependent and independent variables, (2) independence of errors, (3) homoscedasticity and (4) normality of the error distribution were tested in order to prevent Type I or Type II error (Osborne & Waters, 2002). All the above assumptions were confirmed expect the assumption of normality for the PTGI and the DRS. Considering that PTG is contingent upon experiencing a traumatic event, it is expected that not everyone in the population will have an equal chance of experiencing posttraumatic growth. Thus, the distribution of the PTGI is expected to be non-normal. The same applies to the DRS, as university students are likely to be more resilient than the general population.

The reliability of the PTGI, the DRS and the IES-R were determined using Conbach's alpha. As most assume that reliability estimates (Cronbach's alphas) of .7-.8 are acceptable (Osborne & Waters, 2002), Cronbach's alpha of .9 for the PTGI, .8 for the DRS, and .9 for the IES indicated excellent internal consistency.

4.3.2 Entry rational

A set of multiple hierarchical regression analyses was conducted to test the hypothesised link between resilience and PTG. Each of the five posttraumatic growth factors was regressed on an ordered sequence of predicators. The rational for the entry was as follows:

Step 1: IES was entered first as various studies found this to be a significant precondition for PTG to occur (Helgeson et al., 2006; Maguen et al., 2006) and its effect on the outcome variable needed to be controlled for.

Step 2: Gender was added in order to control for gender differences in the outcome variable.

Step 3: Trauma Total was entered as Step 3 in order to control for its effect on the outcome variable.

Step 4: The DRS subscale Challenge was entered as Step 4, as it was found to significantly correlate with the PTGI factor, Relating to Others.

Step 5: The DRS subscale Commitment was added to further examine the relation between this subscale and the PTGI factors.

Step 6: The DRS subscale Control was entered in the last step to investigate its relation with the PTGI factors.

4.3.3 Relating to Others

For results of the regression analyses with Factor I as the criterion variable, see Table 6. In Step 1, Relating to Others was significantly predicted by IES-R ($F = 6.77$, $p = .01$), which accounted for 4,5% of the variance of Factor 1. Step 2 and Step 3 did not significantly add to the variance of Relating to Others. With Challenge added into the regression analysis, R^2 rose about .028, increasing the variance that the IES-R and Challenge accounted for in Relating to Others to 7,4%. Challenge significantly contributed to the outcome variable ($F = 4.24$, $p = .04$). All other predictor variables added in Step 5 and 6 were not significant. However, the overall model was not found to be significant ($F = 1.93$, $p = .08$).

Table 6: Hierarchical Multiple Regression predicting Factor I (Relating to Others)

Step	Variables	R-Square	R-Square Δ	F-Value	P-Value
Step 1	**IES-R[1]**	**.045**	**____**	**6.77**	**.01***
Step 2	**Gender**	**.046**	**.001**	**0.20**	**.66**
Step 3	**Trauma Total[2]**	**.046**	**.000**	**0.03**	**.87**
Step 4	**Challenge[3]**	**.074**	**.028**	**4.24**	**.04***
Step 5	**Commitment[3]**	**.077**	**.003**	**0.39**	**.53**
Step 6	**Control[3]**	**.077**	**.000**	**0.03**	**.85**
Overall	**____**	**.077**	**____**	**1.93**	**.08**

* p<.05

1 – Impact of Event Scale Revised

2 –Dispositional Resilience Scale Factors

3 – Total of trauma experienced as measured by the Traumatic Stress Schedule

4.3.4 New Possibilities

The overall model for predicting New Possibilities was found to be significant (F= 2.43, p = .03), with all variables accounting for 9,4% of the variance in Factor II. The results are illustrated in Table 7. IES-R was the only significant predictor variable (F = 9.30; p = <.01). Neither the DRS dimension of Challenge nor that of Commitment and Control contributed significantly to the PTGI factor, New Possibilities.

Table 7: Hierarchical multiple regression predicting Factor II (New Possibilities)

Step	Variables	R-Square	R-Square Δ	F-Value	P-Value
Step 1	**IES-R[1]**	**.060**	**____**	**9.30**	**<.01***
Step 2	**Gender**	**.060**	**.000**	**0.02**	**.87**
Step 3	**Trauma Total[2]**	**.060**	**.000**	**0.01**	**.91**
Step 4	**Challenge[3]**	**.066**	**.006**	**0.83**	**.36**
Step 5	**Commitment[3]**	**.078**	**.012**	**1.92**	**.17**
Step 6	**Control[3]**	**.094**	**.016**	**2.46**	**.11**
Overall	**____**	**.094**	**____**	**2.43**	**.03***

* p<.05

1 – Impact of Event Scale Revised

2 – Total of trauma experienced as measured by the Traumatic Stress Schedule

3 – Dispositional Resilience Scale Factors

4.3.5 Personal Strength

The results of the multiple regression analysis predicting the PTGI Factor, Personal Strength, are shown in Table 8. The six criterion variables significantly predicted Personal Strength ($F = 2.24$, $p = .04$), accounting for 8.8% of the variance. In Step 1, IES-R significantly contributed to the prediction ($F = 6.11$; $p = .01$). When adding Gender in Step 2, R^2 rose 1%. Again, neither of the DRS factors significantly contributed to the variance in the PTGI Factor, Personal Strength.

Table 8: Hierarchical Multiple Regression predicting Factor III (Personal Strength)

Step	Variables	R-Square	R-Square Δ	F-Value	P-Value
Step 1	**IES-R[1]**	**.040**	**____**	**6.11**	**.01***
Step 2	**Gender**	**.050**	**.010**	**1.57**	**.21**
Step 3	**Trauma Total[2]**	**.058**	**.008**	**1.17**	**.28**
Step 4	**Challenge[3]**	**.069**	**.011**	**1.68**	**.20**
Step 5	**Commitment[3]**	**.087**	**.018**	**2.63**	**.11**
Step 6	**Control[3]**	**.088**	**.001**	**0.16**	**.69**
Overall	**____**	**.088**	**____**	**2.24**	**.04***

* p<.05

1 – Impact of Event Scale Revised

2 – Total of trauma experienced as measured by the Traumatic Stress Schedule

3 – Dispositional Resilience Scale Factors

4.3.6 Spiritual Change

The overall model for predicting Spiritual Change was not found to be statistically significant ($F = 1.97$, $p = .07$). The results are depicted in Table 9. However, the model may have been rendered insignificant as it was not a parsimonious one. Gender was the only predictor that significantly contributed to the variance of the PTGI Factor, Spiritual Change ($F = 4.49$, $p = .04$), increasing the variance explained in Spiritual Change 3%. Interestingly, IES-R did not significantly predict Spiritual Change ($F = 2.80$, $p = .10$), nor did either of the DRS subscales.

Table 9: Hierarchical Multiple Regression predicting Factor IV (Spiritual Change)

Step	Variables	R-Square	R-Square Δ	F-Value	P-Value
Step 1	**IES-R[1]**	**.019**	**____**	**2.80**	**.10**
Step 2	**Gender**	**.049**	**.030**	**4.49**	**.04**
Step 3	**Trauma Total[2]**	**.058**	**.009**	**1.47**	**.23**
Step 4	**Challenge[3]**	**.059**	**.001**	**0.06**	**.80**
Step 5	**Commitment[3]**	**.074**	**.015**	**2.25**	**.14**
Step 6	**Control[3]**	**.078**	**.004**	**0.64**	**.42**
Overall	**____**	**.078**	**____**	**1.97**	**.07**

* p<.05

1 – Impact of Event Scale - Revised

2 – Dispositional Resilience Scale Factors

3 – Total of trauma experienced as measured by the Traumatic Stress Schedule

4.3.7 Appreciation of Life

The multiple regression analysis, predicting the PTGI Factor, Appreciation of Life, was found to be significant ($F = 2.89$; $p = .01$) and results are shown in Table 10. The model predicted 11% of the variance in Factor V ($R^2 = .11$). The IES-R appeared to contribute unique variance, since at Step1, and after all other variables were entered, it was still significant ($F = 6.82$; $p = .01$).

Table 10: Hierarchical Multiple Regression predicting Factor V (Appreciation of Life)

Step	Variables	R-Square	R-Square Δ	F-Value	P-Value
Step 1	**IES-R[1]**	**.045**	**____**	**6.82**	**.01***
Step 2	**Gender**	**.057**	**.012**	**1.92**	**.17**
Step 3	**Trauma Total[2]**	**.077**	**.020**	**2.95**	**.09**
Step 4	**Challenge[3]**	**.083**	**.014**	**0.98**	**.32**
Step 5	**Commitment[3]**	**.094**	**.011**	**1.80**	**.18**
Step 6	**Control[3]**	**.110**	**.016**	**2.46**	**.12**
Overall	**____**	**.110**	**____**	**2.89**	**.01***

* p<.05

1 – Impact of Event Scale Revised

2 – Total of trauma experienced as measured by the Traumatic Stress Schedule

3 – Dispositional Resilience Scale Factors

Chapter 5: Discussion, Limitations and Recommendations

5.1 Discussion

The aim of this study was to ascertain whether a significant relation exists between resilience and post-traumatic growth in a sample of individuals who have been exposed to a range of traumas. A secondary aim was to explore the nature of this relation. More specifically, the study examined whether resilience contributed to the occurrence of PTG or whether the two constructs are independent from each other. Although theoretical assumptions have been made about the relation between the two concepts, either suggesting that resilience is a necessary precondition for PTG to occur (Tedechi & Calhoun, 1995), or arguing that resilient persons will in actual fact not engage in any meaning making process as they do not undergo any significant struggle (Westphal & Bonanno, 2007), the relation has not been extensively studied so far. Thus, this study is the first to report a relation between resilience and PTG in a South African convenience sample. Instead of applying the unitary dimension of the PTGI, this study regarded the PTGI as a multidimensional measurement and examined the relation between each of the five factors of PTGI and the three factors of DRS. This is in line with recent research in which the five factors captured by the PTGI where found to be meaningful when making interpretations of posttraumatic growth (Taku et al., 2008).

A hierarchical multiple regression analysis was run in order to examine the nature of a possible relation between the resilience components of challenge, control and commitment and the experience of growth in the PTG domains of Relating to Others, New Possibilities, Personal Strength, Spiritual Change and Appreciation of Life, while at the same time controlling for gender, perceived stress, and the number of traumas a person had experienced. The overall model for predicting posttraumatic growth in relationships with others (Relating to Others) was not found to be statistically significant. The non-significance of the model may be due to the fact that the model was not a parsimonious one. This is possibly due to the fact that only one of the six variables in the model made a significant contribution to the overall model. However, data suggested a significant relation between a person's perception of a stressor as a

challenge (Challenge) and the reporting of growth in relationships with others (Relating to Others), thus confirming the theoretical assumption made by Tedeschi and Calhoun (1995) that resilience is a person characteristic that is related to the occurrence of PTG. Challenge accounted for a significant portion of variance in Relating to Others, indicating that this resilience dimension is a significant contributing factor to the development of PTG, specifically in the area of growth in relationships with other people. The significant relation between challenge and Relating to Others is contrary to Westphal and Bonanno's (2007) assumption that resilient persons will not engage in any meaning making processes and ultimately will not grow after having experienced traumatic events. Tedeschi and Calhoun (1995) argued that for a person to experience growth, they need to be willing to take up challenges as well as a persistently active approach to experiences and problem solving. In addition, individuals who are able to generate creative solutions after realising their own limitations in their ability to exert control and to re-establish the status quo ante, are favoured in their attempt to do so. Persons who have poor coping skills and who perceive themselves as less capable are likely to be overwhelmed by traumas and are therefore incapable to marshal any effective responses (Tedeschi & Calhoun, 1995). Persons high in challenge assume life to be the result of growth and wisdom that is gained from difficult experiences (Maddi & Khoshaba, 1994). They will therefore regard change as a normal challenge that needs to be overcome instead of perceiving it as a threat (Kobasa & Puccetti, 1983). The fact that challenge increases the occurrence of growth in relationship with others can be explained in the following way. Persons who perceive traumatic events as a challenge, through which they have to work through, possibly approach this task by utilizing available support systems such as friends and family to a greater extent than what they would have done previously. Being confronted with a traumatic event and facing the challenge may result in a continuous needs for discussion of the consequences of these event. The need to cope, which persons high in challenge experience, may lead to self-disclosure. Such experiences of self-disclosure provide them with an opportunity to try out these new behaviours, which are directed at the appropriate people in the social support network (Tedeschi & Calhoun, 1995; 1996). Furthermore, having experienced a trauma results in the acknowledgment of one's own vulnerability and the challenge to

cope with such through becoming more emotionally expressive, accepting help and thus employing social support that might have previously been ignored (Tedeschi & Calhoun, 1995).

However, the relation found between perceiving an event as a challenge and experiencing growth in relationships with others has not taken into account the time since the trauma occurred. It is possible that resilience, since it is regarded as a dynamic process rather than a personality trait, may have been enhanced in persons struggling with adversity (Luthar et al., 2000), thus resulting in a significant relation between the two constructs. Future longitudinal studies need to control for this variable when examining the relation between resilience and posttraumatic growth.

Results did not indicate any significant relation between people's experience of growth in relationships and that of being deeply involved, or committed to the activities of one's life (commitment) and people's belief in their ability to influence the course of events (control). Thus, a person may attribute a more positive significance to, for example, friendships and family after having being exposed to a trauma, regardless of whether they perceive themselves as being committed and in control of their lives.

Furthermore, the data did not confirm any significant relation between the three factors of DRS and the PTG domains, specifically the experience of new possibilities, personal strength, spiritual change and appreciation of life, indicating that a person will experience growth in all the other dimensions regardless of whether they are resilient or not. It is possible that other person variables such as locus of control, self-efficacy, optimism or a sense of coherence, to name just a few, play a more prominent role in the occurrence of posttraumatic growth (Tedechi & Calhoun, 1995). The fact that each of the five factors relates differently to resilience supports Janoff-Bulman (2004) and McMillan's (2004) assumption that the five subscales of the PTGI reflect different underlying psychological processes that need to be distinguished when studying posttraumatic growth.

Tedeschi and Calhoun (1995) assumed that a person moderate in resilience will experience the most PTG, compared to those scoring high or low on the resilience measurement scale. It is thus possible that the lack of finding a relation between the remaining DRS subscales and that of the five domains of the PTGI might have been due to examining students, who are considered to be more resilient than the average population. It can be hypothesized that this study primarily examined the relation between populations theorized to be higher on the resilience scale, and their experience of PTG, thus not considering the relation between PTG and people from populations that may be representative of the entire spectrum of resilience.

This study also confirms the assumption that in order for PTG to occur, a person needs to perceive the trauma as extremely distressing (Tedeschi & Calhoun, 1995; 1996). The PTGI domains of Relating to Others, New Possibilities, Personal Strength and Appreciation of Life have all been found to significantly correlate with IES-R. Tedeschi and Calhoun (1995, 1996) assumed that in order for persons to engage in a meaning making process, they need to experience a "psychologically seismic" (Tedeschi & Calhoun, 2004, p.5) event that severely shakes or threatens the individual's schematic structures that have guided a person's understanding, decision making, and meaningfulness. Without such an experience, the person will not engage in the necessary rumination that will lead to the experience of growth. However, Spiritual Change was not significantly correlated with IES, indicating that spiritual change occurs regardless of whether the person finds the trauma stressful or not. However, the small sample size could have also contributed to the lack of such relation.

Gender was significantly related to the PTGI domain, Spiritual Change. In the hierarchical regression analysis, gender accounted for 4.9% of the variance in the PTGI domain. It appears the women more than men develop a stronger belief system after having been faced with a trauma. Research has somewhat supported the fact that women, more than men, experience greater PTG (Helgeson et al, 2006). Even though studies have found that people's spiritual belief often weakened after having experienced an extreme stressor, the struggle to come to terms with the adversity

appears to result in person's developing a stronger belief system (Andrykowski, as cited in Tedeschi & Calhoun, 1995; Schwartzberg & Janoff-Bulman, 1991). The fact that women seem to experience more positive changes in this PTG dimension than men may be linked to gender differences in religion. Various studies have examined such gender differences and found that women tend to be more religious than men (Mahalik & Lagan, 2001; Thompson, 1991). Thompson (1991) hypothesised that gender socialisation may be a contributing factor to such differences in that men are commonly socialised to be competent in their workplace, thus relying on themselves, and women are taught to be the caretakers and to be invested in relationships, thereby gaining strength from it. It is therefore possible that men, after having experienced a trauma, may be more invested in regaining their personal strength and competence, whereas women increasingly rely on a spiritual relationship.

Even though Gender was found to significantly correlate with two other PTGI domains, namely Personal Strength and Appreciation of Life, the hierarchical regression analysis did not detect any unique variance for which Gender accounted for. Thus, being male or female did not affect whether or not a person reports positive changes in their personal strength or their appreciation of life. However, the lack of significant relations could be attributed to the fact that Gender significantly interacted with other variables, specifically that of IES-R and Trauma Total, and such multicollinearity makes it difficult to detect reliable estimates of their unique variance. Another possibility is that there may be perhaps others variables that moderate or mediate the relation between Personal Strength and Gender and Appreciation of Life and Gender. Future research should explore other variables that potentially moderate or mediate the relation between Gender and the PTGI.

The results of this study further examined the relation between the number of traumas experienced and the occurrence of PTG. A significant relation was found between the number of traumas experienced and the occurrence of the PTGI factor Appreciation of Life. Even though the regression showed no significant contribution of the number of traumas on the factor, the p-value approached significance. Perhaps, the present study

did not have sufficient power to detect differences. It is possible that in a larger sample size, the number of traumas experienced would have explained a significant portion of the PTGI factor Appreciation of Life. The number of traumas a person has lived through might possibly increase the stress a person experience, thereby increasing a person's engagement in the meaning making process. However, this has to be investigated in future studies.

Even though the sample consisted of a small range of ages, with the youngest age being 18 and the oldest being 25, age was positively correlated with the experience of growth in relationships as well as finding new possibilities in life after having experienced a trauma. However no causal attributions can be made. Existing research investigating PTG in breast cancer patients has examined the relation between age and gender and found that younger people reported significantly higher level of growth than did older patients (Cardova et al., 2007). Cardova et al. (2007) argued that the results were due to younger people perceiving the trauma as more disruptive of the daily life and world views then older people, as such illness is less consistent with the younger person's phase of life. The contrasting results could be due to the way the samples in each study where operationally defined.

Ethnicity was found to be significantly related to the PTGI factors to New Possibilities and Spiritual Change. However, the nature of such relation has not been further investigated as it would go beyond the scope of this study. The relation between ethnicity and the experience of growth would make up an interesting future research topic, as little research to date exists that examines the contribution that ethnicity has to the occurrence of PTG.

5.2 Limitations

With regard to the current study, a number of limitations need to be considered. The student sample used was a convenience sample and as such, it cannot be seen as representative of the population and the generalizability of the results remains questionable. Furthermore, the study excluded individuals of an older age group who

experienced a trauma. The inclusion of such age group would have made it possible to determine whether age significantly influences the relation between resilience and PTG. In addition, the study drew from a sample of university students who are likely to be more resilient than the general population. Thus, people from populations that are lower or moderate in resilience might have been few and their relation with PTG was possibly not observed. Resilience scores were also not divided into low, moderate and high, therefore making it impossible to see whether a different relation exists between these and the occurrence of PTG. Lastly, the present study has conceptualised the concept of resilience as being an active process and as such, it is possible that resilience will be enhanced after a person has faced a traumatic event. The study did not take this into consideration, therefore making it difficult to establish whether a person's possibly enhanced resilience may have resulted in a significant relation between the DRS domain Challenge and the PTGI domain, Relating to Others.

5.3 Recommendations

This study can be seen as a stepping stone into a field of research that has previously not been extensively studied and as such, it has opened up a considerable amount of future research ideas.

Future studies should examine, whether the relation between resilience and posttraumatic growth is dependent on the person scoring high, moderate, or low on the resilience measure. Tedeschi and Calhoun (1995) have suggested such differentiation, arguing that individuals low in resilience will not engage in any meaning making processes whereas individuals high in resilience will only experience PTG if the stressor was severe enough to be experienced as very stressful. They further argue that only individuals, who score moderately on the resilience measurement, will experience the biggest benefit. It is therefore important to use a very diverse sample with respect to its resilience and investigate it with respect to their relation with PTG.

Furthermore, it will be important to understand why resilience may contribute to growth in some of the PTGI factors and not in others. Future studies should focus on

understanding such underlying growth processes and thus contribute significantly to the understanding of PTG.

Furthermore, it will be of importance to control for time since the trauma as resilience, if regarded as a process, might arise from a trauma rather than being a necessary precondition for PTG to occur. Hoge et al. (2007) in their review of the concept of resilience have stressed the importance to measure resilience before a trauma occurred. Thus, a longitudinal study would be necessary, which measures resilience on impact of the trauma and then continues to measure its relation to PTG in several time intervals.

The interaction between gender and posttraumatic growth requires further investigation. Women have been found to experience trauma as significantly more distressing than men (Anderson & Manuel, 1994; Rausch, Auerbach & Grambling, 2008), which might lead them to construe more benefits arising from crises (Helgeson et al., 2006). However, explanations for such differences remain controversial, ranging from biological differences in stress responses to differences in socialisation of women and men (Anderson & Manuel, 1994) and as such, they would account for interesting future research.

In addition, culture seems to influence a person's growth with regard to spiritual change and new possibilities. This study found a significant interaction between ethnicity and the PTGI factors of New Possibilities and Spiritual Change but such differences could not be further investigated as it was beyond the scope of this study. A study by Morris et al. (2005) found that Australian students reported the least growth on the PTGI factor Spiritual Change. This finding was contrasting to that of U.S. findings and suggested that cultural differences play a role in the expression of PTG (Morris et al., 2005). With South Africa being such an ethnically diverse country it would be interesting to see whether difference between cultural meaning making processes and the expression of PTG exist and to understand possible reasons for it.

Chapter 6: Conclusion

Over the last decade, a growing body of literature has examined growth processes that people report, especially in the aftermath of a traumatic event. Specifically, a vast amount of literature has examined various person variables that possibly alter the occurrence of PTG. However, to date, only theoretical assumptions have been made about the relation between resilience and PTG, either suggesting that resilience is a necessary precondition for PTG to occur or arguing that the two constructs are unrelated. In fact, resilience was assumed to prevent the occurrence of PTG as the person high in resilience would not feel the need to engage in any meaning making processes. The current study is thus one of the first to investigate the relation between resilience and the occurrence of growth in a South African sample. It consisted of a correlational research design and obtained a large sample of university students as its convenience sample. The survey used consisted of a Demographic Schedule, the Traumatic Stress Schedule, which was used to investigate the types and amounts of traumas participants had experienced and the Impact of Event Scale which measured stress symptoms. Furthermore, the survey consisted of the Dispositional Resilience scale which measured the participant's respective resilience and the Posttraumatic Growth Inventory which examined the growth that a person experienced after having been exposed to a trauma.

Using Pearson's Correlation and hierarchical multiple regression analyses, the present study found that people who perceive stressors as a challenge and who assume life to be the result of growth and wisdom (Maddi & Khoshaba, 1994) were more likely to growth in their relationships with other people.

This study did not yield any further significant relations between either of the DRS subscales, specifically Challenge, Commitment and Control, and the five domains of the PTGI. The lack of such findings could possibly be due to the sample being one that consists of persons hypothesised to be higher in resilience and thus, the relation between PTG and individuals with low or moderate resilience may have not been examined in

this study. Furthermore, the stress perceived by participants in relation to traumas was found to be a significant moderating variable in perceiving PTG. A number of limitations were found in this study and the study opened up a number of future research ideas that need to be undertaken in order to understand the concept of PTG further.

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APPENDICES

Appendix 1

- Informed Consent Form

Appendix 2

- Demographic Information Sheet

Appendix 3

- Traumatic Stress Schedule (TSS)

Appendix 4

- Dispositional Resilience Scale (DRS)

Appendix 5

- Impact of Event Scale – Revised (IES-R)

Appendix 6

- Posttraumatic Growth Inventory (PTGI)

Appendix 7

- Debriefing Sheet

Appendix 1: Informed Consent Form

School of Human and Community Development

Private Bag 3, Wits 2050, Johannesburg, South Africa

Tel: (011) 717-4500 Fax: (011) 717-4559

Email: 018lucy@muse.wits.ac.za

Dear Sir/Madam

My name is Anna Schmidt-Ehmcke, and I am conducting research as part of the requirements for my Masters degree in Clinical Psychology at the University of the Witwatersrand. My area of focus is on traumatic experiences in the South African context and how survivors of trauma work through their adversities. I would like to invite you to participate in this study.

Participation of this research will involve completing the attached questionnaires. These questionnaires will take approximately 30 minutes to complete. Participation is voluntary and you will not be advantaged or disadvantaged in any way for choosing to complete them. While questions are asked about your personal experiences, no identifying information, such as your name or I.D. number, is asked for, and as such you will remain anonymous. Your completed questionnaire will not be seen by any other person at Wits other than me, and I will process your answers myself. Your responses will only be looked at in relation to all other responses. This means that the feedback that will be given to the institution will be in the form of group responses and not individual perceptions. The results of the study will be available after completion on the general research notice board in the psychology department.

Given my undertaking to guarantee your anonymity, I request that you answer as openly and honestly as possible. There are no right or wrong answers. You do not have to answer any questions that you do not feel comfortable with. If you choose to participate in the study please collect a questionnaire from one of the assistants and complete the attached questionnaire as carefully as possible. Once you have answered the questions, place the questionnaire in the sealed box provided. I will collect the questionnaires from

the box at the end of the session. This will ensure that no one will have access to the completed questionnaires, and will ensure your anonymity. If you do return your questionnaire, this will be considered consent to participate in the study.

Please note that if you experience some distress in answering some of the questions, then it is recommended that you consult a counselor at the CCDU (Tel: 011 717-9140) on Wits campus or you can contact my supervisor for further assistance. Your participation in this study would be greatly appreciated. This research will contribute to a larger body of knowledge on psychology in gaining a better understanding of the experiences a person has after being exposed to a trauma and how individuals work through such stressors. If you have any questions feel free to email me at schmidtehmcke@hotmail.com.

Kind Regards

Anna Schmidt-Ehmcke

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Appendix 2: Demographic Information Sheet

Age: _____

Gender:

Male	Female

Ethnicity (for statistical purposes only): _____

Home language: _____

Year of study: _____

Appendix 3: Traumatic Stress Schedule (TSS)

1. Did anyone ever take or attempt to take something from you by force or threat of force, such as in a robbery, mugging, or holdup?

□Yes □No

If yes, when □0-3 months □3-6 months □6-12 months
□12-18 months □>18 months

2. Did anyone ever beat you up or attack you?

□Yes □No

If yes, when □0-3 months □3-6 months □6-12 months
□12-18 months □>18 months

3. Did anyone ever make you have sex by using force or threatening to harm you? This includes any type of unwanted sexual activity?

□Yes □No

If yes, when □0-3 months □3-6 months □6-12 months
□12-18 months □>18 months

4. Did a close friend or family member ever die because of an accident, homicide, or suicide?

□Yes □No

If yes, when □0-3 months □3-6 months □6-12 months
□12-18 months □>18 months

5. Has you ever been hijacked or someone close to you been hijacked?

□Yes □No

If yes, when □0-3 months □3-6 months □6-12 months
□12-18 months □>18 months

6. Were you ever in a motor vehicle accident serious enough to cause injury to one or more passengers?

□Yes □No

If yes, when □0-3 months □3-6 months □6-12 months
□12-18 months □>18 months

8. Did you ever serve in combat?

□Yes □No

If yes, when □0-3 months □3-6 months □6-12 months
□12-18 months □>18 months

9. Did you ever suffer injury or property damage because of fire?

□Yes □No

If yes, when □0-3 months □3-6 months □6-12 months
□12-18 months □>18 months

10. Did you ever suffer injury or property damage because of severe weather or either a natural or manmade disaster?

□Yes □No

If yes, when □0-3 months □3-6 months □6-12 months
□12-18 months □>18 months

Appendix 4: Dispositional Resilience Scale (DRS)

Below are statements about life that people often feel differently about. ***Circle*** a number to show how you feel about each one. Read the items carefully and indicate how much you think each one is true in general. There are no right or wrong answers; just give your own honest opinions.

0 = Not at all true **1 = A little true** **2 = Quite true** **3 = Completely true**	**Not at all true**	**A little true**	**Quite true**	**Completely true**
1. Most of my life gets spent doing things that are worthwhile	**0**	**1**	**2**	**3**
2. Planning ahead can help avoid most future problems	**0**	**1**	**2**	**3**
3. Trying hard doesn't pay, since things still don't turn out right	**0**	**1**	**2**	**3**
4. No matter how hard I try, my efforts usually accomplish nothing	**0**	**1**	**2**	**3**
5. I don't like to make changes in my everyday schedule	**0**	**1**	**2**	**3**
6. The "tried and true" ways are always the best	**0**	**1**	**2**	**3**
7. By working hard at university you can always achieve your goals	**0**	**1**	**2**	**3**
8. Most of what happens in life is just meant to be	**0**	**1**	**2**	**3**
9. When I make plans, I'm certain I can make them work	**0**	**1**	**2**	**3**
10. It's usually impossible for me to change things at university	**0**	**1**	**2**	**3**
11. It's very hard for me to change a friend's mind about something	**0**	**1**	**2**	**3**
12. It's exciting to learn something about myself	**0**	**1**	**2**	**3**
13. People who never change their minds usually have good judgment	**0**	**1**	**2**	**3**
14. I really look forward to university	**0**	**1**	**2**	**3**
15. Politicians run our lives	**0**	**1**	**2**	**3**
16. If I'm working on a difficult task at university, I know when to seek help	**0**	**1**	**2**	**3**
17. I won't answer a question until I'm really sure I understand it	**0**	**1**	**2**	**3**
18. I like a lot of variety in my university work	**0**	**1**	**2**	**3**
19. Most of the time, people listen carefully to what I have to say	**0**	**1**	**2**	**3**
20. Daydreams are more exciting than reality for me	**0**	**1**	**2**	**3**

21. Trying your best at university really pays off in the end	**0**	**1**	**2**	**3**
22. My mistakes are usually very difficult to correct	**0**	**1**	**2**	**3**
23. It bothers me when my daily routine gets Interrupted	**0**	**1**	**2**	**3**
24. It's best to handle most problems by just not thinking about them	**0**	**1**	**2**	**3**
25. Most good athletes and leaders are born, not made	**0**	**1**	**2**	**3**
26. I often wake up eager to take up my life wherever it left off	**0**	**1**	**2**	**3**
27. Lots of times, I don't really know my own mind	**0**	**1**	**2**	**3**
28. I respect rules because they guide me	**0**	**1**	**2**	**3**
29 I like it when things are uncertain or unpredictable	**0**	**1**	**2**	**3**
30. I can't do much to prevent it if someone wants to harm me	**0**	**1**	**2**	**3**
31. People who do their best should get full support from society	**0**	**1**	**2**	**3**
32. Changes in routine are interesting to me	**0**	**1**	**2**	**3**
33. People who believe in individuality are only kidding themselves	**0**	**1**	**2**	**3**
34. I have no use for theories that are not closely tied to facts	**0**	**1**	**2**	**3**
35. Most days, life is really interesting and exciting for me	**0**	**1**	**2**	**3**
36. I want to be sure someone will take care of me when I'm old	**0**	**1**	**2**	**3**
37. It's hard to imagine anyone getting excited about university working	**0**	**1**	**2**	**3**
38. What happens to me tomorrow depends on what I do today	**0**	**1**	**2**	**3**
39. If someone gets angry at me, it's usually no fault of mine	**0**	**1**	**2**	**3**
40. It's hard to believe people who say their university work helps society	**0**	**1**	**2**	**3**
41. University work is just too boring to be worth doing	**0**	**1**	**2**	**3**
42. Thinking of yourself as a free person just leads to frustration	**0**	**1**	**2**	**3**

Appendix 5: Impact of Event Scale – Revised (IES-R)

Please ***circle*** a number in the block that best applies to you.

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. DURING THE THREE MONTHS following the _____, how much were you distressed or bothered by these difficulties?

	Not at all	**A little bit**	**Moderately**	**Quite a bit**	**Extremely**
1. Any reminder brought back feelings about it	0	1	2	3	4
2. I had trouble staying asleep	0	1	2	3	4
3. Other things kept making me think about it	0	1	2	3	4
4. I felt irritable and angry	0	1	2	3	4
5. I avoided letting myself get upset when I thought about it or was reminded of it	0	1	2	3	4
6. I thought about it when I didn't mean to	0	1	2	3	4
7. I felt as if it hadn't happened or wasn't real	0	1	2	3	4
8. I stayed away from reminders about it	0	1	2	3	4
9. Pictures about it popped into my mind	0	1	2	3	4
10. I was jumpy and easily startled	0	1	2	3	4
11. I tried not to think about it	0	1	2	3	4
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them	0	1	2	3	4
13. My feelings about it were kind of numb	0	1	2	3	4
14. I found myself acting or feeling as though I was back at that time	0	1	2	3	4
15. I had trouble falling asleep	0	1	2	3	4
16. I had waves of strong feelings about it	0	1	2	3	4

17. I tried to remove it from my memory	0	1	2	3	4
18. I had trouble concentrating	0	1	2	3	4
19. Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart	0	1	2	3	4
20. I had dreams about it	0	1	2	3	4
21. I felt watchful or on-guard	0	1	2	3	4
22. I tried not to talk about it	0	1	2	3	4

IES- R

Appendix 6: Posttraumatic Growth Inventory (PTGI)

Before answering the following questions, please focus on one traumatic or life altering event that has occurred in your life.

Please indicate the type of experience you are thinking of:

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

_____
_____
_____
_____

Time lapsed since event occurred

____ 6 months - 1 year

____ 1 - 2 years

____ 2 - 5 years

____ More than 5 years

Age @ present: _____

Male / Female: _____

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

0 = I did not experience this change as a result of my crisis.

1 = I experienced this change to a very small degree as a result of my crisis.

2 = I experienced this change to a small degree as a result of my crisis.

3 = I experienced this change to a moderate degree as a result of my crisis.

4 = I experienced this change to a great degree as a result of my crisis.

5 = I experienced this change to a very great degree as a result of my crisis.

1. I changed my priorities about what is important in life.

2. I have a greater appreciation for the value of my own life.

3. I developed new interests.

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

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

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.

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

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

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.

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

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

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.

Appendix 7: Debriefing Sheet

Dear Participants:

I would like to thank you for participating in this study. The purpose of this study was to investigate the growth processes that possibly occur after an individual has struggled with a traumatic experience. Both resilience and posttraumatic growth have been associated with such positive adaptation after intense stressors, but little research so far has focused on the connection between the two constructs. Therefore, the study will specifically examine the relation between resilience and posttraumatic growth. If you have any questions regarding, please feel free to contact me on schmidtehmcke@hotmail.com.

If you feel that answering these questions has caused you distress and has brought back memories of the traumatic event, it is recommended that you consult either myself (084 471-8004) or my supervisor (011 717-4517) for further assistance. In addition, you can obtain complementary counselling with a counsellor at CCDU (Tel: 011-717-9140) on Wits campus.

Once again, thank you for your participation.

Sincerely,

Anna Schmidt-Ehmcke