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Posttraumatic Growth and Recovery from Post Traumatic Stress Disorder

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1. Introduction

The inclusion of Posttraumatic Stress Disorder in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III, American Psychiatric Association [APA], 1980) prompted a plethora of research attempting to categorise the effects of trauma through quantification and statistical procedures. This process has greatly increased our understanding of the destructive effects of traumatic experiences that are reflected in the PTSD core symptom dimensions of hyperarousal, re-experiencing, and avoidance. This research has also led to a belief that traumatic events shatter the individual's core beliefs, leading the person to question their view of themselves, the world and the interaction between the two. Thus, traumatic events produce disruptions to the person's sense of self and identity as well as physiological and psychological distress.

As research has progressed, understanding of the impact on the person's sense of self and identity has grown. Contemporary accounts of the impact of trauma now identify beneficial as well as detrimental outcomes on a person's sense of self and world view. This chapter discusses these contemporary views of trauma, outlining the relationship between the disruptive and destructive processes and the constructive processes that can be experienced in the aftermath of a traumatic event. After an initial discussion of the development of PTSD, four questions are addressed: What role does the traumatic event play in the formation of symptoms as well as the recovery process?; what kind of changes to the self occur in the aftermath of trauma?; what cognitive processes determine whether the changes are positive or negative?; and are the changes long lasting?

1.1 What is PTSD and how is it currently defined?

In the contemporary psychometric literature, trauma is defined as an event that involves "actual or threatened death, serious injury, or other threat to one's physical integrity" (APA, 2000, p. 463). Posttraumatic stress disorder (PTSD) is a common psychological and physiological response to a traumatic event. According to the DSM-IV-TR (APA, 2000), the essential feature of this disorder is that symptoms occur as a direct result of exposure to a traumatic event involving either direct personal experience, or witnessing or learning about an event that involves another person (APA, 2000). The person must also feel "intense fear, helplessness, or horror" (APA, 2000, p. 463) in response to the event, as well as persistently

re-experiencing the traumatic event, avoiding trauma-related stimuli, demonstrating a numbing of general responsiveness, and experiencing increased arousal and significant distress or impairment for at least one month after trauma (APA, 2000, Full criteria are listed in Table 1). Epidemiological studies have established that PTSD develops for about 55% of rape victims, 35% of childhood sexual or physical abuse survivors, 17% of those experiencing physical and armed assaults, and 7% of individuals following severe accidents (Kessler et al., 1995; Maercker et al., 2004). The DSM-IV-TR (APA, 2000) report that lifetime prevalence rates of Posttraumatic Stress Disorder are approximately 8% of the adult population in the United States. Other studies have reported lower rates in national representative samples in the Netherlands (7.4%, de Vries & Olff, 2009), Australia (5.8%, Gould et al., 2011), and New Zealand (6%, Oakley Browne et al., 2011).

1.2 The history of trauma through the DSM

PTSD was included in the International Classification of Diseases (ICD, World Health Organization, [WHO], 1992) around the same time as it was first cited in the DSM. Both classification systems have adjusted the diagnostic criteria several times and are largely consistent with each other. The current classification of PTSD in both the DSM-IV-TR (APA, 2000) and ICD-10 (WHO, 1992) can be found in Table 1. The focus is on the DSM criteria which have been routinely applied in the majority of the literature on trauma.

The original edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM, APA, 1952), published in 1952, was the first time that trauma-induced psychopathology was systematically defined. In this version, the impact of trauma was recognised as an anxiety disorder known as Traumatic Neurosis (APA, 1952) and stressful events were viewed as having a modifying effect on mental health; stress could worsen or lengthen the presentation of disorders or symptoms, but the effect was brief or transient (O'Brian, 1998). At this time, the term trauma generally referred to a physical trauma, such as brain damage, that resulted in psychological problems. If the trauma was due to combat stress, the appropriate diagnosis was an "adjustment reaction of adult life", which was "fear associated with military combat and manifested by trembling, running and hiding" (APA, 1968). This definition appeared again in the DSM-II (APA, 1968). However, the theoretical views of the effects of trauma shifted between the second and third editions due to discoveries from research into the impact of war on men and sexual assault on women (Hunt, 2010). Trauma was now considered to be an antecedent of symptoms rather than a modifier. This change in view was reflected in the DSM-III, with trauma-induced psychopathology now appearing under the title Posttraumatic Stress Disorder.

Despite the controversy caused by the shift in theoretical perspective at the time, the inclusion of PTSD into the DSM-III (APA, 1980) was an important step. PTSD's inclusion as a diagnosable disorder enabled more rigorous empirical evaluation of the impact of trauma by providing clear diagnostic criteria by which to assess such events. It also provided support for the emerging biopsychosocial premise that an individual and their environment interact and affect one another (Van der Kolk, 1996). Another benefit was that the creation of PTSD criteria recognised and supported the claims of many individuals reporting ongoing or long-term detrimental effects after trauma (Andreasen, 2004). Moreover, clinicians and researchers could now recognise communalities in the core aspects of psychological trauma and its aftermath across seemingly disparate trauma types, such as natural disaster, combat,

Criterion	ICD10-DCR	DSM-IV-TR
Criterion A: Stressor	A. Exposure to stressor <i>No subjective Stressor Criterion</i>	A1 . Exposure to stressor A2. Emotional reaction to stressor
Criterion B: Re- experiencing	B. Persistent remembering of the stressor in one of: * Intrusive Flashbacks * Vivid memories or recurring dreams * Experiencing distress when reminded of the stressor	B. Requires one or more of: B1. Intrusive recollections B2. Distressing dreams B3. Acting/ feeling as though event were recurring B4. Psychological distress when exposed to reminders B5. Physiological reactivity when exposed to reminders
Criterion C: Avoidance	C. Requires only one symptom of actual or preferred avoidance <i>Does not specify avoidance symptoms</i> <i>Does not include numbing symptoms</i>	C. Requires three or more of: (Includes both numbing and avoidance symptoms) C1 . avoidance of thoughts, feelings or conversations associated with the stressor C2. avoidance of activities, places or people associated with the stressor C3. inability to recall C4. diminished interest in significant Activities C5. detachment from others C6. restricted affect C7. sense of foreshortened future
Criterion D: Hyperarousal	Either D1, or two of D2: D1. Inability to recall D2. Two or more of: A. sleep problems B. Irritability C. concentration problems D. hypervigilance E. exaggerated startle response	D. Two or more of: D1. sleep problems D2. Irritability D3. concentration problems D4. Hypervigilance D5. exaggerated startle response
Criterion E:	E. Onset of symptoms within 6 months of the stressor	E. Duration of the disturbance is at least 1 month
Criterion F:	<i>Does not specify level of distress or impairment</i>	F. Requires significant distress or impairment

Table 1. Diagnostic Criteria for Posttraumatic Stress Disorder: Comparison of the ICD-10 and DSM-IV-TR Criteria.

and sexual assault. Finally, it was in this edition of the DSM that a stressful life event was etiologically related to mental health diagnoses (Long & Elhai, 2009). The perception that PTSD was caused by an external event, rather than an intrinsic weakness or character fault, was a considerable change within models of mental health (Brunner, 2002).

The etiological connection between a traumatic event and PTSD symptomatology makes this diagnosis unique among psychiatric disorders. Criterion A, also known as "The Stressor Criterion", is considered to be the "gatekeeper" of PTSD diagnosis as this disorder cannot be diagnosed without this criterion being satisfied. In the DSM-III, criterion A was defined as "a recognisable stressor that would evoke significant symptoms of distress in almost everyone" (APA, 1980, p.236). This definition referred to events such as war, torture, bombings, rape, natural disasters, and man-made disasters such as airplane crashes; situations that were considered to be distinct from more common life stressors such as bereavement, divorce and chronic illness (Long & Elhai, 2009). Responses to more 'common' stressors were identified as Adjustment Disorders rather than PTSD at this time (APA, 1980). The distinction between 'traumatic' and 'common' stressors was based on the assumption that people were able to adapt to ordinary stressors but their abilities to adapt would be overwhelmed by traumatic stressors.

The PTSD criteria were revised over the subsequent DSM versions. The Stressor Criterion received the most attention due to criticisms suggesting that it lacked specificity and only included traumatic events of great magnitude or severity (Long & Elhai, 2009). The change in view of trauma from a modifier (i.e., could worsen symptoms) to an antecedent of psychiatric symptoms also prompted an ongoing debate regarding the appropriateness of linking PTSD with a limited group of stressors (e.g., Gold et al., 2005; Lasiuk & Hegadoren, 2006b). In response to such criticisms, the Stressor Criterion has been expanded with each DSM edition in an effort to cover a broad range of traumatic experiences.

In the DSM-IV (APA, 1994), the structure of the Stressor Criterion was broken into two parts, both of which must be satisfied to enable a PTSD diagnosis. First, Criterion A1 specifies the type of exposure by outlining situations in which the person "experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or the threat to physical integrity of self or others" or "learning about the unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate" (APA, 1994, p. 427-428). These statements are accompanied by an extensive list of events believed to result in PTSD symptomatology. Second, Criterion A2 requires that the individual responded to the event with "intense fear, helplessness, or horror" (APA, 1994, p.428). This created further controversy as traumatised individuals report a myriad of emotions but not always fear, helplessness, or horror (e.g., O'Donnell et al., 2010). This two-part structure has remained in the current DSM-IV-TR (APA, 2000). Although the Stressor Criterion has been broadened, the debate is still ongoing.

2. What role does the traumatic event play in the formation of symptoms as well as the recovery process?

The debate around the Stressor Criterion has concentrated on whether it should be broad or restrictive (Kilpatrick et al., 1998). Those that argue for a broad definition believe that Criterion A1 should include any event that prompts the development of PTSD symptoms,

including low magnitude events such as divorce or job loss (Anders et al., 2011). It is argued that this will enable those who suffer PTSD symptoms resulting from non-Criterion A1 traumatic events, to obtain treatment or compensation currently available to those who have experienced a qualifying event (Kilpatrick et al., 2009). Conversely, those who argue for a restrictive definition consider that broadening the criterion could prompt "frivolous" use of the diagnosis (Kilpatrick et al., 2009). Finally, others argue the Criterion A is redundant and diagnosis should focus on the core symptoms of Criterion B-F (e.g., Brewin et al., 2009).

Since the release of the DSM-IV (APA, 1994) Criterion A2 has also attracted attention. Criterion A2 states that the person's response to a traumatic event must involve "intense fear, helplessness or horror" (APA, 2000, p. 467). Some argue that this criterion has no impact on the prevalence of PTSD and should be separated from the Stressor Criterion and developed into its own "acute response for the emergence of PTSD" criterion (e.g., Breslau & Kessler, 2001). However, other researchers argue that Criterion A2 works well as a screening measure for early PTSD identification and narrows the definition from previous DSM versions (Weathers & Keane, 2007). The following review discusses both of these arguments, and an argument is made that an individual's response to a potentially traumatic event is of crucial importance in determining its ongoing impact. The source of recovery lies, therefore, in how the person relates the event to the self.

2.1 Criterion A1 – the type of traumatic event

The list of potentially traumatic events has increased across each DSM edition, leading some experts to argue that Criterion A1 has become too broad. In the current DSM-IV-TR (APA, 2000), the mode of exposure has also been expanded to enable individuals to experience, witness or be confronted with a traumatic event to meet diagnostic criteria. Many researchers argue that specifying the mode of exposure has led to misapplication of the construct and inappropriate diagnoses. For example, Spitzer et al. (2007) stated that although experiencing or witnessing a traumatic event is in keeping with the original definition of the construct, the term "confronted with" is vague enough to enable such events as "hearing the news of a loved one being hurt" (First et al., 2002, p. 253) as being considered a qualifying event. The broadening of the Stressor Criterion and misapplication of the construct has been referred to as the "conceptual bracket creep" for the PTSD diagnosis (McNally, 2003).

Conversely, some researchers are advocates for an even broader criterion to allow the inclusion of less severe, but still serious, stressful life events such as childbirth, chronic illness, sexual harassment and bullying as these events are empirically associated with PTSD symptomatology (e.g., Avina & O'Donohue, 2002; Lev-Wiesel et al., 2006; Palmieri & Fitzgerald, 2005). Experts argue that as individuals can develop PTSD after experiencing low magnitude stressors, the strict criterion is preventing many individuals from accessing health services and receiving appropriate treatment and compensation that is available to those who experience a qualifying event. To rectify the dilemma over which events can qualify as 'traumatic' and satisfy the Stressor Criterion, and those that are distressing but below the 'traumatic' threshold, many researchers (e.g., Anders et al., 2011; Kilpatrick et al., 1998), argue that decisions should be based on empirical data.

2.2 Research into frequency and severity of PTSD

After the release of DSM-III (APA, 1980), the debate was prompted by epidemiological data demonstrating that some traumatic events, such as car accidents and sexual assault, were not "outside the range of (normal) human experience" (APA, 1987) but could still evoke the full range of PTSD reactions. For example, PTSD symptoms have been experienced by individuals following events considered to be normal human experiences, such as childbirth (e.g., Olde et al., 2006); marital affairs, disruption, and divorce (e.g., Burstein, 1995; Dattilio, 2004); unsuccessful adoption arrangements (e.g., Burstein, 1995); money problems and employment stressors (e.g., Scott & Stradling, 1994; Solomon & Canino, 1990); bereavement (Zisook et al., 1998); and losing a close relationship (Solomon, & Canino, 1990). Such findings led researchers, such as Breslau and Davis (1987), to question the validity of explicitly linking "a distinct symptomatic configuration with a distinct class of stressors" (p.255).

The argument was further supported by research demonstrating that the prevalence of traumatic events and PTSD was greater than previously thought. For example, a number of studies showed that up to three quarters of the population in the United States have been exposed to a traumatic event in their lifetime that could meet the DSM-III-R (APA, 1987) PTSD Stressor Criterion (Green, 1994). Vrana and Lauterbach (1994) reported that 84% of a sample of undergraduate students reported experiencing at least one event of sufficient intensity to potentially warrant a PTSD diagnosis, and Kilpatrick and Resnick (1993) found that 75% of a community sample of women reported at least one crime victimisation, with 24-53% reporting a sexual assault. Sexual assault or abuse emerged as one of the most prevalent traumatic events. For example, Feldhaus et al. (2000) reported that 39% of women in an emergency department population had experienced at least one sexual assault/abuse incident in their lifetime, and in Koss et al.'s (1987) study of over 3800 American college women, over 54% nationwide acknowledged experiencing some form of sexual victimisation. Furthermore, Finkelhor et al. (1990) established the prevalence of childhood sexual abuse as 16% of men and 27% of women in a US national phone survey. Taken together, these findings demonstrate that events that can precipitate distress and PTSD symptomatology are quite common and not outside normal human experience.

Such findings led the authors of the DSM-III-R (APA, 1987) to broaden the types of events that could satisfy the Stressor Criterion. It was only in the development of DSM-IV (APA, 1994), however, that an attempt was made to address the issue of how Criterion A1 should be defined during the PTSD field trial. The field trial explored the frequency and symptom severity of PTSD symptoms following from Criterion A1-qualifying traumatic events and non-qualifying events among 400 treatment-seeking and 128 community adults and adolescents. Participants were asked to complete measures of exposure to both Criterion A1 and non-Criterion A1 events using checklists of both types of events (Kilpatrick et al., 1998). Individuals who reported experiencing at least one Criterion A1 event were included in the Criterion A1 group. Most of the A1 group (72%) had also experienced non-A1 events with only 13% ($n=66$) of the sample identifying only non-A1 events. Results revealed that the lifetime prevalence rate of PTSD among those reporting at least one A1 event was 51% and the current prevalence rate was 36%. In contrast, the lifetime prevalence rate for PTSD for those reporting only non-A1 events was 12% and the current prevalence rate was 9%. Although these results indicate that Criterion A1 events are more likely to be associated

with PTSD symptoms than non-A1 events, there are methodological issues. Specifically, A1 and non-A1 events were not assessed separately for the majority of the sample; PTSD symptoms were assessed in reference to multiple events within a person's history. Therefore, PTSD symptoms could relate to either A1 or non-A1 events.

Since the publication of the PTSD field trial in 1998, many researchers have also explored the relation of Criterion A1 and PTSD prevalence rates to symptom levels. These investigations have yielded mixed results. For example, a recent study by Kilpatrick et al. (2009) hypothesized that A1 events may prompt greater PTSD symptoms than non-A1 events. Their results supported this premise with a probability of 6% among adolescents that have experienced an A1 event compared to a probability of 1% among adolescents who had only experienced non-A1 events. In another study, Boals and Schuettler (2009) argued that events that satisfied A1 and A2 were more likely to cause probable PTSD and result in more PTSD symptoms than events that failed to meet the two 'A' criteria. Although their results were supportive of this premise, once variables such as time since the event, depression and perceived stress, were controlled for, A1 events were no longer associated with PTSD symptoms. Other studies have demonstrated that individuals who have experienced qualifying events do not report any more PTSD symptoms than those who experienced non-A1 events (e.g., Green et al., 2000; Spitzer et al., 2000), whereas other researchers have shown non-traumatic events to be associated with greater levels of PTSD symptoms than qualifying events (e.g., Gold et al., 2005; Long et al., 2008). A similar study using a large community sample in the Netherlands also reported greater prevalence of PTSD symptoms among those experiencing non-A1 events (Mol et al., 2005). However, their results were dependent on the amount of time that had elapsed since the event.

2.3 Current status of Criterion A1

The mixed findings can be taken as evidence that there is very little difference in PTSD symptom severity or prevalence rates between A1 and non-A1 events. Many researchers believe that such findings are evidence that Criterion-A1 is flawed (e.g., Gold et al., 2005; Long & Elhai, 2009). This has led some experts to argue that Criterion A1 should be modified to include a wider range of events (e.g., Lev-Wiesel et al., 2006; Olde et al., 2006; Palmieri & Fitzgerald, 2005). Others argue that the data suggest the Stressor Criterion is unnecessary and should be removed entirely from the diagnostic criteria (e.g., Gold et al., 2005; Mol et al., 2005). Some also argue that the inconsistent findings are evidence that the event does not contribute to the presentation of symptoms (e.g., Boals & Schuettler, 2009; Cameron et al., 2010). Instead, they suggest that the individual's emotional and behavioural responses may more accurately predict the risk for PTSD symptomatology. For example, Boals and Schuettler (2009) posit that it is not the event that is related to PTSD symptoms but the individual's emotional response to the event. They argue that if an event elicits intense fear, then fear conditioning may result in the development and maintenance of PTSD symptoms. This premise is in line with many PTSD theories stating that classical conditioning, particularly fear conditioning, underlie PTSD symptoms (e.g., Pitman, 1989; Rothbaum & Davis, 2003). However, different traumas have been found to result in different emotional profiles (Amstatder & Vernon, 2008), implying that the event does play an integral role in the development of PTSD symptoms, even if only to explain the individual's emotional response.

Similarly, Cameron et al. (2010) argued that it is the individual's cognitive and behavioural response to the event, rather than the event itself, that is a significant risk factor for psychological distress. Their study exploring the prevalence and severity of PTSD symptoms among individuals who had experienced criterion-A1 and non-criterion-A1 events, found that those who developed PTSD symptoms, regardless of the event, reported significantly higher tendencies to suppress unwanted thoughts. This is in line with previous studies demonstrating that thought suppression is associated with greater PTSD symptoms (Amstadter & Vernon, 2008), the maintenance of PTSD symptoms (Shipherd & Beck, 2005), and the frequency of negative autobiographical memories (Neufiend et al., 2009). However, Chatard et al. (2011) found that individuals with high levels of PTSD symptoms who were exposed to the possibility of dying, did not suppress death-related thoughts. Instead, mortality salience increased death-related thought accessibility for these individuals. Although Cameron et al. suggests that consideration of the event is unnecessary, some traumas carry a greater chance of dying than other traumas (i.e., assault or war compared to divorce). Therefore, future research may reveal that differences exist in the extent of the thought suppression conducted (i.e., thoughts only related to the event or un-associated information) across different traumatic events.

2.4 How else could these results be interpreted?

Although the inconsistent findings have been interpreted as evidence that the Stressor Criterion is obsolete, the mixed results could also be indicating that a dichotomous categorisation of traumatic versus non-traumatic events based on how "extreme" the stressor is, does not adequately capture the impact that certain events may have on people, or consider the individual differences in people's perceptions, resilience or coping strategies (Weathers & Keane, 2007). Research suggests that such variables affect the individual's response to trauma as well as the course and severity of PTSD symptoms. It is well established that some people do not develop PTSD after a qualifying event (Rubonis & Bickman, 1991); different types of traumatic events are associated with distinct probabilities of developing PTSD (Kessler et al., 1995) and certain types of traumatic events are associated with specific clinical presentations (e.g., Elklit & Christiansen, 2010). The DSM-IV-TR (APA, 2000) text also acknowledges that different types of events can affect the course of PTSD by stating that the "disorder may be especially severe or long lasting when the stressor is of human design (e.g., torture, rape)" (p. 464). The text also describes a specific constellation of symptoms that are commonly seen following an interpersonal stressor such as sexual or physical abuse, or domestic battering (p. 465); this cohort presents with more dissociative symptoms than victims of other trauma types (e.g., Dancu et al., 1996). This suggests that the course and severity of PTSD symptoms vary depending on the type of traumatic event experienced and emphasise the importance of considering the event as part of the causal pathway to PTSD. Thus, to suggest that the inconsistent findings are evidence that the event should be removed from diagnosis seems short sighted.

These findings may in fact reflect our lack of understanding or consideration of the quintessential links shared by traumatic events that can cause PTSD symptoms. The mixed findings may also reflect individual differences in how people respond, interpret, or cope with such events. Many agree that an event is considered traumatic because of the individual's perception and response to that situation (e.g., Hendricks & Byers, 2006; Janoff-

Bulman, 1992). If this is the case, it is possible to conclude from the evidence that the event plays an integral role in the course and symptom profile of the disorder and that the current criteria do not effectively capture those aspects of the event which cause such distress. Many authors agree that the classification of traumatic events is underdeveloped (e.g., Luz et al., 2011) and acknowledge the need for a standardised description (e.g., Braga et al., 2008; Long & Elhai, 2009). Therefore, although the Stressor Criterion may require revision, the etiological connection between the event and the resulting symptoms warrants being retained as the event is likely to hold the key to the best course of treatment, and thus adjustment and recovery.

2.5 Criterion A2 - the emotional response to the stressor

The second part of the Stressor Criterion, Criterion A2, specifies the type and magnitude of the emotional response required to warrant a diagnosis of PTSD. This criterion requires that an individual responds to a traumatic event with "intense fear, helplessness, or horror" (APA, 2000, p. 463). This assumes that all people who develop PTSD symptoms will always respond with these three intense emotions. In support of this premise, a number of studies have demonstrated that individuals who develop PTSD report significantly higher levels of fear, helplessness, and horror than those who did not develop PTSD symptoms (e.g., Brewin et al., 2000; Kilpatrick et al., 1997; O'Donnell et al., 2010) and most individuals who develop PTSD experience these emotions peri- and posttrauma (Bedard-Gilligan & Zoellner, 2008).

Despite such supporting evidence for the current definition of A2, this criterion has also been criticised on a number of grounds. A2 has been said to add very little to the predictive ability of PTSD except with regard to the actual experience of a traumatic event (Bedard-Gilligan & Zoellner, 2008); PTSD prevalence rates remain constant, regardless of the inclusion or exclusion of A2 in diagnosis (Breslau & Kessler, 2001; Kilpatrick et al., 1997; Schnurr et al., 2002); and only a small proportion of those who experience fear, helplessness or horror after a traumatic event subsequently develop PTSD (e.g., Bedard-Gilligan & Zoellner, 2008; O'Donnell et al., 2010).

It also appears that individuals who develop PTSD without experiencing fear, helplessness, or horror, instead experience other intense negative emotions. For example, O'Donnell et al. (2010) found that all of the individuals who developed PTSD in their study reported more intense and comprehensive emotional experiences peri-trauma than those outlined in Criterion A2, compared to those who did not develop PTSD. These included emotions such as sadness, guilt, shame, and frustration. Brewin et al.'s (2000) study using victims of violent crimes also found that guilt and shame were associated with the development of PTSD (B-F Criteria) and Adler et al. (2008) reported that soldiers returning from Iraq who did not meet A2, but developed PTSD, experienced extreme anger at the time of their traumatic event. Similarly, Amstadter and Vernon (2008) found anger to be a stronger emotional response than fear peri- and posttrauma for individuals who had been physically assaulted.

In sum, the evidence indicates that the emotions prescribed by Criterion A2 are not always the most powerful emotions associated with PTSD symptom development (O'Donnell et al., 2010). Individuals who develop PTSD experience a wider range of emotions than currently outlined in the DSM-IV-TR (APA, 2000). This could be interpreted as evidence that Criterion A2 is not necessary for the diagnosis of PTSD and could be removed from PTSD diagnosis.

Many of these studies, however, have methodological limitations as they require traumatised individuals, with and without PTSD, to retrospectively report on their emotional response at the time of the event (e.g., Bedard-Gilligan & Zoellner, 2008; Breslau & Kessler, 2001). That methodological design is flawed as much research indicates a bias or distortion in declarative memories after trauma (e.g., Amir et al., 2010). Additionally, some trauma victims, especially those involved in motor vehicle accidents, often have no memory of the event or the emotions they experienced (O'Donnell et al., 2010). Indeed, Criterion A2 may, in fact, be preventing individuals with a poor memory of their traumatic event, or those who display different emotional profiles, from receiving a diagnosis and potentially denying them access to healthcare services. There is also the possibility that different traumas result in different emotional responses and that the intensity of emotion may be the essential element of this criterion. If this is the case, this criterion could be expanded to include a wider range of emotional responses. In support of this premise, Amstadter and Vernon (2008) explored different emotional responses peri- and posttrauma to four different types of traumatic events (sexual assault, physical assault, transportation accidents, and illness) and found each type of trauma produced its own emotional profile with different levels of intensity at different time points. Once more, these findings indicate that the event plays an integral role in the course, severity and symptom profile of PTSD.

2.6 Implications of removing the Stressor Criterion

Although we believe that the Stressor Criterion should be retained as it clearly distinguishes PTSD from other disorders and may provide the key to adjustment, some (e.g., Maier, 2007) continue to argue that both parts of Criterion A are redundant and PTSD diagnoses should be based on Criteria B-F. It is argued that without the Stressor Criterion, a greater diversity of posttraumatic experiences will emerge, potentially leading to a better understanding of the impact of trauma. Conversely, it could hinder the discovery of an accurate symptom pattern (McNally, 2003; Simms et al., 2002; Watson, 2005). Removal of Criterion A could also result in professionals mistakenly attributing PTSD symptoms to a mood, psychotic or other anxiety disorder, thus increasing the rate of misdiagnosis. For example, an individual who seeks treatment for hallucinations or other perceptual disturbances that may be present during PTSD "flashbacks", these flashbacks could be misinterpreted as indicators of a psychotic disorder, such as schizophrenia, or dissociative disorders. Similarly, individuals displaying a loss of interest and avoidance of activities that used to be enjoyed, could be misdiagnosed with a mood disorder. This could then lead the person to receive inappropriate medical and psychological treatment, could cause the individual further distress, and could disrupt the recovery process.

Bodkin et al.'s (2007) study provides support for this premise. They found that PTSD Criteria B-F symptoms (symptom clusters B-D, duration of at least 1 month, and impairment of functioning) were commonly reported in a psychiatric outpatient population seeking treatment for depression, regardless of whether or not they had experienced a traumatic event. Furthermore, they found that the prevalence of PTSD was just as high for individuals who had experienced a severe trauma as those who had had no such experience. Spitzer et al. (2007) suggested that these results may have occurred because some of the PTSD symptoms (e.g., difficulty concentrating, difficulty sleeping, diminished interest in activities) are not only commonly found in psychiatric outpatient presentations of

depression, but are also included in the criteria of other mental disorders, such as Major Depressive Disorder and Generalised Anxiety Disorder. This suggests that the Stressor Criterion may be the only aspect of this diagnosis, as currently outlined in the DSM-IV-TR (APA, 2000), that clearly distinguishes PTSD from other disorders.

Spitzer et al. (2007), and McHugh and Treisman (2007) have suggested that, instead of discarding the Stressor Criterion, Criteria B, C, and D (re-experiencing, avoidance, and arousal, respectively) should be evaluated for their specificity and ability to differentiate PTSD from other mood and anxiety disorders. On the basis of this, they recommend only to retain symptoms that are directly related to trauma exposure. Spitzer et al. argue that these criteria (B-F) include too many general symptoms of negative effect, and are so broadly interpretable that they could be construed to encompass normal responses. Indeed, this may explain the vast literature reporting PTSD symptoms precipitating from non-traumatic events (e.g., Gold et al., 2005; Mol et al., 2005). Furthermore, Wakefield (in Spitzer et al., 2007) suggests that the symptom descriptions should be more restrictive to ensure that the descriptors are distinct to PTSD and indicative of pathology rather than normal responses to negative life events. In support of this proposal, the authors point out how insufficiently the current criteria separates normal from disordered responses (See Spitzer et al., 2007).

The DSM-V's Posttraumatic Stress Disorder and Dissociative Disorders Sub-Work Group have recently drafted new criteria which broadly support the claims made by Spitzer et al. (2007), McHugh and Treisman (2007), and others. The proposed criteria retain Criterion A1 (Criterion A2 has been removed from Criterion A, expanded to include a wide variety of negative emotional states, and now exists as a new criterion, Criterion D4) and have revised Criteria B-F to represent symptoms directly related to trauma exposure (APA, 2010). The wording of Criterion-A1 has also been revised to distinguish between traumatic events and events that are distressing but do not exceed the traumatic threshold. The list of different types of trauma in the newly drafted criterion A seems to corroborate researchers' beliefs that a better description of the criteria for traumatic events is necessary. Luz et al. (2011) suggest that the list of qualifying events in the new criterion A may contribute to a better definition of this criterion. In turn, this could enable identification of more homogenous groups of traumatised individuals; the recognition of similarities and differences in people's psychological responses; and possibly uncover distinct clinical profiles that are dependent on the type of event that triggered the PTSD symptomatology (Luz et al., 2011).

This line of research is integral to our understanding of the relationship between trauma and PTSD. Although the debate has been ongoing for decades, the discussions have prompted research and highlighted the need for further exploration into the interaction between the type of event and the behavioural, cognitive, and emotional responses that precipitate PTSD. This may provide greater insight into how to predict the risk of subsequent PTSD symptomatology. It is clear that a traumatic event increases the risk of developing PTSD symptoms. However, the role that the characteristics of the event plays, as well as the person's perceptions and responses to the event, to the development of PTSD remains unclear. Thus, until we further understand how traumatic events result in such symptoms, and the variations in symptoms across individuals, the etiological link between the event and the resulting symptoms should be retained as the event distinguishes PTSD from other disorders and may hold the key to the best course of treatment, and thus adjustment and recovery.

3. What kind of changes to the self can occur in the aftermath of trauma?

Trauma research has traditionally focused on the negative symptoms resulting from trauma with much of the literature detailing the severity and chronicity of symptoms and the development of psychological disorders (e.g., Joseph et al., 1993). Although this research has greatly increased our understanding of the negative impact of trauma, the hermeneutic dimensions of experience, and thus the impact on the individual's identity and sense of self, have been largely overlooked. Yet, the negative symptoms of PTSD provide clear indicators of the impact that trauma has on the person's sense of self.

3.1 Negative changes in the self resulting from trauma

The symptoms of PTSD have been said to simply reflect the individual's level of pain and distress (Wilson et al., 2001). However, the experiences of hyperarousal, avoidance and re-experiencing outlined in the PTSD criterion go beyond distress and reflect the disruption of the system and the internal struggles of the person to come to terms with and integrate the event into their self narrative. Such disruptions are often experienced as a fracture in the person's sense of wholeness. Trauma impacts the psychic core, the very soul of the person and thus their identity (Wilson et al., 2001). The alteration to formative processes often lead to a decentring of the self, a loss of relatedness to others, and a loss of sameness and consistency (Lifton, 1976, 1979, 1993; Putnam, 1997). Changes in psychosocial function also occur and include altered ego states and a shift in life-course developmental trajectories (Wilson et al., 2001). Fracturing of ego identity has consequences for psychological stability, well-being, and psychic integration, believed to be a cause of dissociation (van der Kolk et al., 1997). Krystal (1968) and Lifton (1979) also noted that such a fracturing of a person's sense of self and identity may be a precursor to mood disorders and, in extreme cases, suicidality and death. However, it is this shattering of one's core beliefs, and thus the self, that is believed to generate a search for meaning as to why the event occurred as well as drive the person to question, reformulate and reconstruct their very basic core beliefs in an attempt to adjust or recover from the event (Janoff-Bulman, 1992).

Core beliefs are the essence of how we see ourselves, other people, the world, and the future (Janoff-Bulman, 1992). They develop overtime, usually from childhood and through the experience of significant life events. Core beliefs are strongly-held, rigid, and inflexible assumptions about the world that are maintained by the tendency to focus on information that supports the belief and ignore evidence that contradicts it. Once these assumptions are broken, however, people are thrown into disarray, unable to conceive recent events; understand or recognise current experiences and one's own reactions and responses to such events; or consider a possible future, as life now is riddled with inconsistency and unpredictability. Individual variation in the degree of disruption to core beliefs, self-efficacy in coping, and resources may explain the range in the severity of symptoms reported.

Interestingly, the shattering of assumptions has also been found to lead to the experience of many positive changes. In parallel to the exploration of negative symptoms resulting from trauma, researchers and clinicians have documented that many traumatised individuals also report positive changes to the self in the aftermath of trauma. Some survivors mostly experience positive changes and do not develop disorders, such as PTSD (Rubonis & Bickman, 1991). In fact, far more individuals report positive changes following trauma than

those reporting psychiatric disorders (Calhoun & Tedeschi, 2004; Salminen et al., 2002). Currently, the most widely used term for positive changes following trauma is Posttraumatic Growth (Tedeschi & Calhoun, 1996).

3.2 Posttraumatic growth and the positive changes in the self resulting from trauma

Posttraumatic Growth (PTG) is the experience of substantial positive psychological change resulting from the struggle to overcome highly challenging life circumstances (Calhoun et al., 2000; Calhoun & Tedeschi, 1999, 2001; Tedeschi & Calhoun, 2004). The term describes the experience of individuals whose development, at least in some areas, has surpassed what was present before the crises occurred. Tedeschi and Kilmer (2005) posited that PTG is different from constructs like resilience, arguing that resilience can be considered as effective coping and adaptation in the face of major life stress, whereas PTG goes beyond resilience and transforms the person. Not only has the person survived, but they have experienced changes that are viewed as important, and exceeding their previous level of adaptation, functioning, or life awareness (Zoellner & Maercker, 2006).

These positive changes are believed to be activated by an event so traumatic that it significantly threatens or shatters the fundamental schemas of the individual (Calhoun & Tedeschi, 2004). This premise is in line with Janoff-Bulman's (1992) theory that traumatic events shatter one's assumptions of the world. Tedeschi and Calhoun's (1996) PTG model compares trauma to an earthquake, claiming that trauma must be "seismic" in nature to significantly threaten or shatter the fundamental schemas of the individual (Calhoun & Tedeschi, 2004). It is through this destruction of schemas that the individual is able to question previous assumptions of the world and start rebuilding or restructuring their lives. In support of this premise, research indicates that the degree of challenge to core beliefs about the world is correlated with the amount of PTG reported (Cann et al., 2010).

Tedeschi and Calhoun (2004) posit that people can experience positive change across three areas of life: relating to others, sense of self, and life philosophy. For example, in regard to changes in how the person relates to others, people often report feeling an increase in closeness and intimacy with their loved ones (Tedeschi & Calhoun, 2004). Constructive changes are also found in relation to the self and a changed philosophy. In relation to the self, individuals exposed to trauma often report feeling a new sense of vulnerability while feeling stronger and more self-efficacious concurrently (Tedeschi & Calhoun, 2006). This may come from learning from the trauma that they are not impervious to harm which in turn reduces the desire to enter into unnecessary risk-taking behaviours. At the same time, the struggle to overcome the trauma can create an improved sense of personal strength and a belief that they can handle adversity in the future.

In respect to changes in philosophy, people report an increased sense of appreciation of life. Through the process of reconstructing the self, people are forced to reassess their lives and their priorities. This leads some to work harder towards areas of their life that they deem important, such as education or families. It can also increase the pleasure obtained from everyday activities; activities that may have previously been taken for granted.

3.3 Research on posttraumatic growth

Since Tedeschi and Calhoun (1996) reintroduced the idea of positive change following adversity into the research community, this phenomenon has been systematically theorised

and empirically investigated (e.g., Affleck & Tennen, 1996; Tedeschi & Calhoun, 1996; Tedeschi et al., 2007). Early PTG research focused on the prevalence and occurrence of growth. PTG has been found to emanate from many different types of traumatic events, including sexual assault (e.g., Grubaugh & Resick, 2007), physical assault (e.g., Amstadter & Vernon, 2008), combat (e.g., Maguen et al., 2006), natural disasters (e.g., Cryder et al., 2006), cancer (e.g., Cordova et al., 2001, 2007; Weiss, 2004), terrorism (e.g., Hobfall et al., 2007), and HIV/AIDS (e.g., Milam, 2004).

Prevalence rates for PTG vary widely across studies and trauma types with So-kum (2007) reporting 30% of natural disaster victims demonstrating growth and Pietrzak et al. (2010) reporting rates as high as 72% for war veterans. Although Tedeschi and Calhoun (2006) cite studies reporting PTG prevalence rates ranging from 3% to 100%, they noted that the rates commonly reported in the literature usually span from 30% to 80%.

Recently, the focus of research has shifted from prevalence and occurrence of growth to the cognitive processes involved in producing growth (e.g., Cann et al., 2011); the individual differences and variations in the experience of growth (Lindstrom et al., 2011); and the relationship between PTG and distress (Kunst et al., 2010). This shift was prompted by research suggesting that PTG involves a variety of constructs. Some of these constructs represent a positive outcome, some are related to coping processes, and others involve illusory self-enhancement strategies that enable traumatised individuals to alleviate some of the distress experienced (e.g., Helgeson et al., 2006; Zoellner & Maercker, 2006). Furthermore, although PTG is common, as outlined above, not all trauma survivors experience PTG. In an attempt to understand the differences between those who report growth and those who do not, researchers have explored the relationship between PTSD symptoms and PTG.

3.4 The relationship between PTSD and PTG

As PTSD symptoms are a negative outcome of trauma, and PTG refers to the positive outcomes, it seems logical to view these outcomes as opposite ends of a continuum. Yet, theories of PTG suggest otherwise. In fact, numerous studies show that PTSD symptoms and PTG often coexist in traumatised individuals (e.g., Taku et al., 2008). For example, several researchers have reported that individuals who report severe PTSD symptoms also report more PTG than those experiencing a lower level of PTSD symptoms (McMillen et al., 1997; Park et al., 2008; Park et al., 1996; Snape, 1997). However, other researchers have found the opposite where individuals who experience more severe PTSD symptoms report less growth (e.g., Aldwin et al., 1994; Frazier et al., 2001; Ickovics et al., 2006) and in some studies no relationship is evident between PTG and PTSD symptoms (e.g., Cordova et al., 2001; Powell et al., 2003). Such mixed findings have prompted some researchers to suggest that the relationship between PTSD symptoms and PTG is best explained as a curvilinear relationship where distress is required to start the growth process, but high levels of distress prevent the growth process from occurring (e.g., Butler, 2007; Kleim & Ehlers, 2009; Lechner et al., 2006). However, recent meta-analyses have not found a consistent relationship between PTG, PTSD symptoms and distress (Linley & Joseph, 2004; Stanton et al., 2006; Zoellner & Maercker, 2006). Linley and Joseph (2004) reported mixed results with PTSD symptoms negatively associated with positive life changes following sexual assault, but positively related to stress-related growth in Oklahoma residents following the 1995

bombing. Stanton et al. (2006) found from their meta-analysis that the majority of studies examined did not show a significant relationship between PTG and distress, and Zoellner and Maercker reported weak correlations between PTG and PTSD measures ranging from $r = -.2$ to $r = .2$ among a variety of cohorts.

3.5 Research on the positive and negative changes following trauma

The positive and negative changes to the self that can result from trauma have predominantly been researched independently of each other. Some have argued that focusing solely on the possible positive changes is problematic as this may increase the likelihood of a positive response bias from a desire to appear well adjusted (Tomich & Helgeson, 2004; Park & Lechner, 2006). This biased response style can also inadvertently lead to overly positive self-reports and inflated PTG prevalence ratings. Furthermore, Park and Lechner (2006) claimed that exploring traumatic changes without consideration of the negative consequences of trauma has limited the research and our understanding of the nuances of posttraumatic changes.

Only a few studies have attempted to simultaneously examine the positive and negative consequences (e.g., Joseph et al., 1993; Park et al., 2008). However, these studies examined self-reported positive and negative changes across different domains. For example, Joseph et al. examined positive and negative changes resulting from trauma and their impact on mental health after a shipwreck, whereas Park et al. explored positive and negative changes in health behaviour, such as sleep, diet, and exercise, in cancer survivors. A common finding of these studies was a non-significant relationship between positive and negative changes, suggesting that these experiences of change are independent. These studies concluded that there was a need for a scale that could measure a variety of responses which are believed to be experienced by individuals after a traumatic event. Many other authors have made similar claims, suggesting that a scale that can measure positive and negative changes simultaneously is required (e.g., Dansky et al., 1990; Harvey et al., 2006; Tomich & Helgeson, 2004).

3.6 Simultaneous measurement of the positive and negative effects of trauma

To date, a few scales have been designed to measure the positive and negative changes resulting from trauma simultaneously (e.g., Joseph et al., 1993, 2005; McMillen & Fisher, 1998). However, these scales do not measure the positive and negative effects in the same domains, suggesting that the positive items are still subject to the same response biases as scales that only measure positive changes (Baker et al., 2008).

Recently, Baker et al., (2008) designed an expanded version of the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), the Paired Format Posttraumatic Growth Inventory (PTGI-42), which measures posttraumatic growth (PTG) and posttraumatic depreciation (PTD). This scale enables individuals to report both positive and negative changes within the same personal domains. This measure is intended to provide a more detailed understanding of the positive and negative changes experienced by many trauma victims. For example, an individual may report growth in some aspects of social support, such as improved relationships with family members, while concurrently demonstrate reductions in social functioning, such as one's inability to converse with strangers or to trust

others. As this scale enables respondents to consider both the positive and negative aspects of their experience, it is thought to reduce the likelihood of positive response biases and overly positive self-reports.

To date, only two studies have examined PTG and PTD simultaneously (Baker et al., 2008; Cann et al., 2010). Interestingly, in both studies PTG and PTD were uncorrelated. This supports previous studies demonstrating that positive and negative changes are independent (e.g., Joseph et al., 1993; Park et al., 2008). This finding also raises the possibility that these two outcomes of a highly stressful life experience, PTG and PTD, might be differently associated with variables assumed to predict growth, and might differentially predict outcome variables assumed to be associated with growth (Cann et al., 2010). For example, it is possible that PTD impacts the type of rumination conducted after trauma. Cann et al.'s study provides some evidence for this premise as they found that PTD was positively related to recent intrusive thoughts and recent intrusive thoughts were negatively correlated with PTG. These findings, however, contradict many studies that have found that intrusive thoughts are negatively related to PTSD (e.g., Shalev, 1992; Snape, 1997) and positively related to PTG and well-being (e.g., Park & Fenster, 2004; Snape, 1997).

Cann et al. (2010) claimed that it was the continuation of intrusive thoughts about the stressful event that appeared to be associated with psychological losses (i.e., depreciation) and posttraumatic symptomatology. Therefore, as PTSD symptoms are thought to be indicative of incomplete emotional processing (Garnefski et al., 2001; Joseph & Linley, 2005); and the distressing elements of the event continue to produce intrusive thoughts until the information is cognitively processed (e.g., Creamer et al., 1992), the amount of cognitive processing conducted after the event may influence or predict whether the potential changes are perceived as positive or negative. Further investigation into the positive and negative changes resulting from trauma and the cognitive processes involved warrant further investigation.

4. What cognitive processes determine whether the changes are positive or negative?

Many post-trauma processing theories claim that trauma-related information must be integrated into a coherent model of the self to enable recovery (e.g., Creamer et al., 1992; Foa & Kozak, 1986). These theories suggest that integration is achieved through an active process of thinking about the traumatic event, as well as the associated feelings and the subsequent implications or consequences, and attempting to make sense of them. This process is thought to enable the individual to regain balance or consistency between the inner and outer worlds (Linley & Joseph, 2004) and has been positively correlated with PTG (Manne et al., 2004).

From this perspective, PTSD can be considered to result from insufficient or incomplete cognitive processing. Many researchers support this premise (e.g., Joseph & Linley, 2005; Park et al., 1996). Joseph and Linley (2005) point out that factors that impede the processing of traumatic information – avoidance of the disturbing situation, refusal or inability to talk, and absence of perceived control – are hallmark symptoms of posttraumatic stress disorder (PTSD) and suggest that PTSD can be conceptualised as indicative of incomplete processing. As the amount of cognitive processing appears to affect the levels of PTSD symptoms and

PTG experienced, it seems possible that cognitive processing may play a moderating role in the relationship between these constructs.

Research into indicators of cognitive processing after trauma have mostly focused on intrusive thoughts (Greenberg, 1995; Horowitz, 1986) and attempts to find the causes or meaning of the trauma (e.g., Taylor, 1983). Intrusions about the trauma have been reported to negatively relate to PTSD (e.g., Patterson et al., 1990; Shalev, 1992; Snape, 1997) and positively to PTG and well-being (e.g., Park & Fenster, 2004; Snape, 1997). Attempts to find the causes or meaning of the trauma also show a positive relation to PTG (e.g., Calhoun et al., 2000; Lepore et al., 2000). Nevertheless, the research on how cognitive processing affects trauma recovery has yielded inconsistent findings. For example, although intrusions are positively related to PTG, a reduction in intrusions can also be associated with better post-trauma adjustment (Lepore, et al., 2000). Furthermore, intrusions lead to avoidance (e.g., Creamer et al., 1992). As high levels of intrusions and avoidance are core elements of PTSD, intrusions can therefore increase PTSD symptoms (e.g., Baum, 1990; Joseph et al., 1996; McFarland et al., 2007).

These findings demonstrate that to date, research has been unable to find meaningful differences in the types of processing that prompt growth and those that do not. This may be due to a focus on inappropriate and problematic indicators of cognitive processing. For example, as intrusions are a core feature of PTSD symptoms, it would be surprising to find that intrusions related more consistently with PTG than PTSD. Additionally, the inconsistent findings may reflect the lack of appropriately sensitive measures. It is difficult to differentiate between "healthy" or "unhealthy" levels of intrusions or "adaptive" or "maladaptive" attempts to find meanings with current scales. Therefore, although the role of cognitive processing in the development of PTG seems to be worthy of exploration, the current focus on intrusions and attempts to find meaning may not be adequate. In response, some researchers have begun to explore whether cognitive processing after trauma might occur through repetitive thought or rumination (e.g., Lindstrom et al., 2011).

4.1 The role of rumination in PTSD and PTG

Rumination, a type of repetitive thought, is commonly defined as a self-focused, negative thinking style about past negative experiences and/or mood that is intrusive, repetitive, cyclical, and uncontrollable (e.g., Nolen-Hoeksema, 1991; Papageorgiou & Wells, 2003; Teasdale, 1999). When defined in this way, research has shown that rumination is a maladaptive type of repetitive thought, and has been linked to significant psychiatric difficulties, such as PTSD, depression and Social Anxiety Disorder (e.g., Kessler et al., 1995; Maercker et al., 2004; Brewin et al., 2010). Rumination is also related to a range of other negative outcomes, such as immune deficiencies, physiological issues, a lowered sense of well-being, and ongoing distress (e.g., Nolen-Hoeksema & Morrow, 1993; Tedeschi & Calhoun, 2004; Watkins, 2008). Rumination is reported to be one of the principal sources of PTSD symptomatology and severity (e.g., Clohessy & Ehlers, 1999; Ehlers & Clark, 2000; Ehlers et al., 2003; Murray et al., 2002; Steil & Ehlers, 2000). However, very little is understood about the mechanisms by which rumination maintains PTSD symptoms (Michael et al., 2007).

Rumination may serve as a cognitive avoidance strategy that inhibits an individual's ability to deploy adaptive coping resources (Fresco et al., 2002). It has been established that those

who ruminate about a trauma experience higher levels of PTSD symptoms following naturalistic and experimental trauma (Baum et al., 1993; Nolen-Hoeksema & Morrow, 1991; Sergestorm & Alden, 2000). Furthermore, individuals who are encouraged to ruminate about their traumatic event experience more negative thinking and dysphoric mood, and have difficulty problem solving (Lyubomirsky et al., 1999; Watkins & Baracaia, 2002).

Although the term 'rumination' has traditionally been used to describe a negative repetitive thinking style, rumination has recently been redefined as also being a thoughtfully reflective style of repetitive thought (Nolen-Hoeksema & Davis, 2004), that enables a deliberate, and purposeful re-examination of the traumatic event and related issues (Calhoun et al., 2000). Rumination can include reminiscing and reflecting on events in an attempt to try and understand the event, as well as find possible solutions to life problems (Lindstrom et al., 2011). It can involve consideration of the possible positive repercussions of the event, as well as a conscious and deliberate effort to remind oneself of possible benefits that may have resulted from being challenged with such an event (Affleck & Tennen, 1996; Folkman, 2008; Lindstrom et al., 2011). Although most trauma survivors experience intrusive, negative rumination, many also engage in deliberate rumination whereby they consciously and explicitly decide to think about the event. This deliberate type of rumination is viewed as constructive, adaptive, and related to Posttraumatic Growth (PTG; Affleck & Tennen, 1996; Calhoun et al., 2000). As extensive research demonstrates that rumination can result in both positive and negative outcomes, these findings raise questions about how these opposing outcomes stem from one cognitive process. In an attempt to address this question, Trapnell and Campbell (1999) suggested that the self-focusing process (i.e., the tendency to focus on the inner aspects of the self) is not unidimensional and argued that different forms of self-focused private attention may lead to different outcomes. They posit that two distinct self-focusing processes may exist, namely inquisitive reflection and neurotic rumination, that explain how rumination can lead to both positive and negative outcomes after trauma. In their definition, rumination is focused in the past; is motivated by anxiety; involves chronic negative thinking about losses, threats, and injustices to the self; and is associated with distress and maladjustment. Reflection however, is motivated by curiosity and self-interest; is future oriented; involves new or alternative perceptions of the self; and is associated with increased self-knowledge and accurate self-perceptions (Trapnell & Campbell, 1999).

In a similar model of rumination, Treynor et al. (2003) made a distinction between two types of rumination which they termed "brooding" and "reflective pondering". Reflective rumination involves a deliberate effort focused on dealing with the situation, and was associated with lower levels of depression over time, whereas brooding rumination is a relatively passive consideration of current conditions and is associated with depression (Nolen-Hoeksema & Davis, 2004). Joormann et al. (2006) investigated the validity of these two factors of rumination and provided supporting evidence that reflective pondering is adaptive and brooding is maladaptive. Many other researchers also provide support for this distinction (e.g., Fresco et al., 2002; Trapnell & Campbell, 1999; Treynor et al., 2003; Siegle et al., 2004; Watkins & Baracaia, 2002; Watkins, 2004).

4.2 Types of rumination and their relationship with PTSD and PTG

As rumination is considered to promote both positive and negative outcomes, Taku et al. (2008) examined how two types of ruminative thought, deliberate and intrusive rumination,

related to distress and posttraumatic growth in bereaved Japanese university students. They found that deliberate rumination led to PTG, whereas intrusive rumination led to distress. In a subsequent study by Taku et al. (2009), intrusive rumination soon after the event was shown to be positively associated with PTG, whereas recent deliberate rumination most strongly predicted current levels of PTG. Similarly, Stockton et al. (2011) reported from a cross-sectional study that deliberate, but not intrusive, rumination was significantly related to PTG. Other studies support these findings (e.g., Chan et al., 2011; Morris & Shakespeare-Finch, 2011).

Recently, Stockton et al. (2011) conducted two cross-sectional studies exploring different types of rumination: brooding and reflection, and deliberate and intrusive rumination. Intrusive rumination and brooding showed no association with PTG but related to distress. In contrast, deliberate rumination and reflection were positively associated with PTG, as long as brooding was low. These findings suggest that reflection may enable the individual to approach both positive (i.e., PTG) and negative (i.e., PTSD) outcomes of their traumatic event from a problem-solving perspective as reflection is focused on dealing with the problem. Thus, reflection may activate PTG and strengthen the relationship between PTG and PTSD symptoms. Conversely, brooding may encourage the individual to dwell on the negative consequences of the trauma and prevent them from thinking constructively. Thus, brooding increases PTSD symptoms, hinders the growth process, and weakens the relationship between PTSD and PTG. So far, these results suggest that PTSD symptoms and PTG are dependent on the type of rumination conducted. This raises the question of how these types of rumination are selected or evoked by an individual after a traumatic event. It also raises questions about whether there could be other forms of rumination operating simultaneously and what impact they have on posttraumatic outcomes. Trapnell and Campbell (1999) suggested that cognitive and affective processes may affect the type of rumination conducted which could explain how brooding rumination can lead to distress and maladjustment while reflective rumination results in growth. The possible impact of these factors on rumination, the PTG process, and PTSD symptomatology will be briefly discussed.

4.2.1 Emotion

Traumatic events produce a range of emotions that play an integral role in the eventual outcome (Taku et al., 2009). For example, the DSM-IV-TR's (APA, 2000) PTSD criteria highlight the impact of negative emotions in psychopathology by requiring that individuals respond with "intense fear, helplessness, or horror" (p. 463). Such negative emotions have also been reported to explain a significant amount of the variance in PTSD symptom severity over time (Michael et al., 2007). In contrast, individuals who focus on positive emotions (e.g., interest, love, gratitude) after 9/11 experienced less distress (Fredrickson et al., 2003).

Affective processes also influence the type of rumination or reflective thought undertaken. For example, Boyraz and Efstathiou's (2011) study exploring PTG in bereaved women found that positive affect mediated the relationship between self-focusing tendencies (i.e., rumination) and PTG. Garnefski et al.'s (2001) model of rumination offered further support by arguing that rumination is a strategy to regulate emotions that arise in response to trauma. Furthermore, Joseph and Linley (2005), drawing on Rachman's (1980) concept of

emotional processing, suggest that factors that impede the processing of emotions after trauma – avoidance of the disturbing situation, refusal or inability to talk, and absence of perceived control – are hallmark symptoms of posttraumatic stress disorder (PTSD). They suggest that PTSD can be conceptualised as indicative of incomplete emotional processing. In support, many researchers have found that affective and cognitive suppression commonly occurs in individuals after a trauma and this can be adaptive at the time of the trauma (e.g., Bryant & Harvey, 1995 ; Solomon et al., 1988; Valentiner et al., 1996). Yet, suppression over an extended period of time is considered to be maladaptive as it interferes with processing the emotions associated with the trauma, and impedes recovery overtime (e.g. Joseph et al., 1997; Pennebaker et al., 1989).

Research also indicates that different types of trauma result in different emotional responses. For example, Amstadter and Vernon (2008) performed a study exploring the peri- and post-trauma emotional responses of individuals after different types of trauma. They found that different types of traumatic events (sexual assault, physical assault, transportation accidents, and illness) produced distinct emotional profiles with differing levels of intensity. Individuals who were sexually assaulted demonstrated greater emotional responses post-trauma compared to individuals who had been traumatised by physical assault, illness or transportation accidents. They also reported that assault victims, whether physical or sexual, experienced increased PTSD symptom severity compared to those whose trauma resulted from transportation accidents or illness.

If different types of trauma result in different emotional responses, and rumination is a regulatory response to such emotions (Garnefski et al., 2001), it seems plausible that different types of trauma may induce different types of rumination. In support of this premise, research suggests that stress-reactive rumination is a predictor of later depression (Robinson & Alloy, 2003) and later ruminative thinking has been linked to more stressful interpersonal interactions (e.g., Abbot & Rapee, 2004; Harvey et al., 2005; Lundh & Sperling, 2002; Mellings & Alden, 2000). Furthermore, Nolen-Hoeksema and colleagues (Lyubomirsky & Nolen-Hoeksema, 1993, 1995; Nolen-Hoeksema & Morrow, 1993) suggested that negative mood is a necessary component for ruminative thought processes, although they did not define the type of rumination that was explored.

Although negative mood is necessary to evoke ruminative processes, Kross et al. (2005), explored whether individuals can process these negative emotions without becoming overwhelmed by them, and how this is connected to the different types of rumination. The authors explored these questions using Metcalfe and Mischel's (1999) hot/cool systems model of self-regulation. In this model, negative emotional experiences are either mentally represented as concrete and emotionally arousing (i.e., "hot" features) or abstract and informational (i.e., "cool" features). These are then thought to be connected to two different regulatory systems. Concrete and emotionally arousing representations elicit reflexive processing that is predominantly controlled by the negative emotional experience. This is an automatic process that leads to defensive behaviours (e.g., avoidance, blame, intellectualisation) and is thought to increase the intensity of the emotions felt. Conversely, abstract and informational representations enable cognitively directed, reflective processing that is more effortful but effective in inhibiting automatic responses activated by concrete, or "hot", representations. Mentally representing negative emotional experiences in this way is thought to allow the individual to contemplate the event without activating intense levels of affect and negative, or brooding, rumination.

Using Metcalfe and Mischel's (1999) model, Kross et al. (2005) examined the impact of the event the type of self-perspective (the vantage point taken when focusing on emotions, i.e., self-immersed vs. self-distanced) and type of emotional focus (the content of thoughts, i.e., what vs. why) on the recovery process. Their results showed that reflective processing of emotions was facilitated when the individual distanced themselves from the emotion, and focused on the reasons underlying the emotions rather than focus on *what* they had experienced. This enabled individuals to think about their trauma and the emotions elicited in a way that they could make sense of without reactivating and reliving the emotions that resulted from the trauma. Furthermore, they claimed that asking oneself *why* they had experienced the event while self-immersed in the emotional experience may have a detrimental effect by enhancing distress and PTSD symptoms. Overall, these results demonstrate that emotions impact on the cognitive processing of trauma.

4.2.2 Cognition

The literature on social comparison processes demonstrates that interpersonal comparisons are a ubiquitous part of life. Individuals' beliefs about how they compare with other people are influential in determining their self-conceptions, affective states, and expectancies for the future (Suls & Miller, 1977; Suls & Wills, 1991; Wood, 1989). Taylor's (1983) cognitive adaptation model suggests that a traumatic event threatens a person's sense of control and self-esteem (e.g., Abramson et al., 1989; Janoff-Bulman, 1989). His model suggests that to cope with the negative feelings engendered by such events, people may construct a variety of cognitive distortions or illusions that enable them to view the experience and themselves in a more positive light (Taylor & Armor, 1996; Taylor & Brown, 1988). This implies that part of the growth in response to a threatening event may represent exaggerations or illusions of positive temporal change designed to help them cope with the distress experienced.

Similarly, McFarland & Alvaro (2000) suggested that those who have experienced a traumatic event have an acute need for favourable self-evaluations in order to overcome their trauma. They posit that this need for positive self-evaluations can prompt the individual to construct temporal comparisons that reflect positively on the self. A temporal comparison is defined as the consideration of how one's current standing on an attribute relates to one's past standing on the attribute (Albert, 1977; Levine & Moreland, 1987; Suls, Marco, & Tobin, 1991).

Albert (1977) believed that temporal comparison was a corollary to social comparison theory (Festinger, 1954). Whereas social comparisons are interpersonal and ostensibly a-historical, temporal comparisons are intrapersonal and are explicit appraisals of the self over time (Keyes & Ryff, 2000). When an individual makes social comparisons, they are presumed to make temporal comparisons as well in order to understand themselves more clearly or to assess and anticipate their own capabilities.

There is considerable research on the cognitive determinants of temporal comparisons. For example, many researchers have attempted to explore how schema-guided processing may affect perceptions of temporal change (e.g., Suls & Mullen, 1984; Suls, Marco & Tobin, 1991). While some research implies that the person's past qualities are affected by their current beliefs (e.g., Heckhausen et al., 1989; McFarland et al., 1992; Ryff, 1982), other research

highlights how people's current qualities are affected by their recollections of their past qualities (e.g., Strack et al., 1985). For example, people assess whether their abilities are improving, whether their memory is deteriorating, and whether they are as happy as they used to be. These "temporal" or "intrapersonal" comparisons may be just as influential as social comparisons in determining our self-evaluations, moods, and expectancies (e.g., Levine & Moreland, 1987; Masters & Keil, 1987; Suls & Mullen, 1982, 1984; Veroff, 1969).

Although the motivational underpinnings of social comparison processes are well documented, the manner in which people's motivations (i.e., needs and desires) affect temporal comparison processes is not yet fully understood. McFarland and Alvaro (2000) explored the affects of motivation on temporal comparisons of traumatised individuals. Their results showed that threatening self-relevant feelings played a causal role in prompting self-enhancing temporal comparisons, and that an individual's perceptions of personal improvement are, in part, motivated illusions designed to help them cope with trauma. Shedler et al.'s (1993) research on the "illusion of mental health" supports McFarland and Alvaro's claim. However, they further suggest that for some individuals, these positive appraisals of improvement may represent defensive denial that is related to maladaptive outcomes. Dohrenwend et al. (2004) suggest that these cognitive distortions may be maladaptive for some but adaptive for others because positive temporal appraisals can represent two different processes: a reformulation of the meaning of the traumatic experience into a positive light which is related to adaptive outcomes; and a defensive denial of the negative features of the traumatic event which is a pathological manoeuvre and related to maladaptive outcomes.

As adaptive appraisals involve a reformulation of the meaning of the event, whereas maladaptive appraisals involve denial, this implies that the manner in which people process information (reflective or ruminative) affects whether their temporal comparisons are adaptive or maladaptive. McFarland et al. (2007) explored the impact of ruminative thought on temporal comparisons and found that people are more likely to view themselves positively when they adopt a reflective orientation to their negative feelings than when they adopt a ruminative orientation. Although this provides partial support for Trapnell and Campbell's (1999) premise that rumination style impacts on cognitive processes involving temporal comparisons, future research into whether temporal comparisons influence the individual's ruminative orientation would provide further information about the relationship between these constructs. Such research may also reveal how adaptive and maladaptive positive appraisals influence whether the changes perceived are temporary or long lasting.

5. Are posttraumatic changes long lasting?

Searching for positive meanings or benefits arising from adversity is believed to reduce PTSD symptoms and to be related to positive outcomes. In support of this premise, cross-sectional studies have associated benefit finding with more positive affect (Tomich & Helgeson, 2002); less negative affect (Revenson et al., 1983); better psychological adjustment (Taylor, 1983; Taylor et al., 1984); better coping (Thompson, 1985); and fewer physical symptoms (van Oyen Witvliet et al., 2010). Although Tedeschi and Calhoun (2004) view growth as a lengthy process, it has been reported soon after the event, even as early as two weeks (Frazier et al., 2001).

McMillen et al. (1997) examined the perceived benefits of individuals after three different types of traumatic events: a tornado, a plane crash, and a mass killing. They found that individuals who perceived benefits 4-6 weeks after the event were less likely to experience PTSD symptoms three years later. Perceived benefits also moderated the impact of the severity of the event on changes to mental health over time. Additionally, the severity of the event was associated with better recovery overtime for those who perceived benefits, whereas the severity of the trauma was associated with worse recovery for those who perceived fewer benefits.

Benefit finding has also been associated with better quality of life (Davis et al., 1998). Davis et al. showed that individuals who perceived some aspect of their experience as positive after 6 months reported lower levels of distress 13 months after the loss of a loved one due to illness. Similarly, in a study by Morrill et al. (2008) on women with early stage breast cancer, benefit finding moderated the relationship between PTSD symptoms, depression and quality of life. Combined, these findings indicate that benefit finding is related to positive outcomes, such as better recovery from trauma and improved quality of life.

Not all studies have shown positive outcomes as a consequence of benefit finding. For example, cross-sectional studies have found that benefit finding does not relate to quality of life, well-being or adjustment in samples of adult bone marrow transplant survivors (Fromm et al., 1996); breast cancer survivors (Cordova et al., 2001); or bereaved individuals (Lehman et al., 1993). In fact, Tomich and Helgeson (2004) found in their study of women with stage II breast cancer, that benefit finding was associated with greater negative affect and reduced mental functioning for individuals with more severe disease. Park et al. (1996, study 3) also found that benefit finding was related to more intrusive and avoidant thoughts in a study of undergraduates who reported negative-stressful events during the past 6 months.

Studies exploring the relationship between posttraumatic growth (PTG) and posttraumatic stress disorder (PTSD) have also yielded mixed results. Some studies have reported a positive relationship (e.g., Wild & Paivio, 2003), whereas others have found a negative relationship (e.g., Hall et al., 2008), some a curvilinear relationship (e.g., Kleim & Ehlers, 2009), and others no relationship at all (e.g., Cordova et al., 2007; Salsman et al., 2009). Contradictory results of the impact of benefit finding on posttraumatic outcomes have been attributed to problems of measurement. For example, Boals et al. (2010) attributed the inconsistent findings to the use of different measures of the construct. In support of Boals et al.'s claim, Helgeson et al.'s (2006) meta-analysis of PTG measures found that the scale administered moderated the relations between benefit finding and anxiety, depression, and distress. This suggests that the current scales may be measuring different aspects of growth. However, these scales have been reported as highly related. For example, Maercker and Langner (2001) reported a correlation of $r=.82$ between the Posttraumatic Growth Inventory (PTGI, Tedeschi & Calhoun, 1996) and the Stress-Related Growth Scale (SRGS, Park et al., 1996); the two most widely used scales to measure growth. Such a high correlation indicates that these two scales are measuring the same construct.

The inconsistent findings have also raised questions as to whether posttraumatic growth is real or simply an illusion whereby the person construes benefits as a way to relieve distress (e.g., Bonnano, 2005). It has been suggested that self-reported changes resulting from trauma

may reflect self-protective and self-enhancing processes that signal a derogation of past selves rather than actual change (e.g., McFarland & Alvaro, 2000). The founders of posttraumatic growth research, Tedeschi and Calhoun (1995) even considered “whether the construal of benefits and the self-perception of growth simply represent another cognitive bias”, rather than reflect actual change (p.119).

Gunty et al. (2011) suggested that the relationship between perceived and actual PTG, would best be assessed by longitudinal studies of changes pre- to post-trauma. However, the lack of data on pre-trauma functioning makes it difficult for self-report changes to be verified, leading some researchers to suggest that third-party reports may provide a reliable indicator of PTG (e.g., Park et al., 1996; Weiss, 2002). Measuring third-party responses rather than the individual's subjective perception of change is said to provide stronger evidence of PTG as third-party accounts are not subject to the same memory biases or self-enhancing response distortions as self-reported measures. However, Park et al. (1996) found that the responses of the traumatised and third-party participants correlated between $r=.21$ and $r=.31$ suggesting a very weak relationship between their perceptions of change. These results are in accord with other studies showing that traumatised individuals are more likely to report greater improvement in their personal attributes after a traumatic event than their acquaintances (e.g., McFarland & Alvaro, 2000). This evidence suggests that third-party responses may not be the most valid or reliable source of information regarding positive change.

There have also been attempts to verify whether growth is actual or perceived by comparing responses across two time points. Ransom et al. (2008) explored increases in the relative importance of intrinsic versus extrinsic goals and positive attributes of cancer patients before and after radiotherapy. PTG was found to be significantly related with actual, but not perceived, increases in the importance of intrinsic goals, and with perceived, but not actual, increases in positive attributes. Gunty et al. (2011) performed a similar study using the same methodology and produced similar results: perceived growth was more strongly related to actual growth for individuals who reported less distress and more life satisfaction post-trauma.

Although Ransom et al. (2008) and Gunty et al.'s (2011) studies provide important information regarding the extent of actual growth involved in PTG, the research has methodological limitations. These studies asked respondents to complete self-report measures of their current attributes and goal orientations (Ransom, Sheldon, & Jacobsen, 2008), and levels of distress and life satisfaction (Gunty et al., 2011) at two time points. At time 2, the participants were also asked to recall their answers on these measures from time 1. To measure actual change, the authors conducted planned comparisons examining the difference between patients' ratings at the two time points. Perceived change was then measured by exploring the difference between patients' ratings at time 2 and their recalled time 1 ratings.

One problem is that these studies rely on the quality of the participant's memory which is widely reported to be biased or flawed after trauma (e.g., Diener et al., 2010; El-Hage et al., 2006). Additionally, the use of self-report measures to assess people's perceptions of themselves, by definition, provide subjective rather than actual information on growth. Although self-report measures are generally considered an appropriate, if not a superior method for gathering subjective information regarding attitudes and values compared to

other approaches (e.g., Howard, 1994; Spector, 1994), the validity of using self-report measures in PTG research has been criticised because such scales are subject to response distortions, such as acquiescence and social desirability (e.g., Andrews, 1998; Linley & Joseph, 2004; Gunty et al., 2011). However, many researchers agree that a traumatic event is characterised not so much by any particular situation as by the individual's perception and response to that situation (Carkhuff & Berenson, 1977; Hendricks & Byers, 2006; Parad, 1971). Therefore, if an event is considered a crisis or not depends on an individual's perception, it seems logical to assess the individual's perception of the event and the possible coinciding growth using self-report measures rather than to use other sources of information.

5.1 Is growth an outcome or a process?

Up until now, growth has been discussed as an outcome of trauma. However, the question has been raised as to whether growth actually reflects a self-enhancing process that assists with the recovery of trauma. For example, Maercker and Zoellner (2004) posit that self-reported posttraumatic growth may partly represent a process of distortion as an attempt to reduce or distance oneself from the event and subsequent emotions experienced after trauma. In support, Park (1999) posited that the inability to find a negative correlation between growth and distress suggests that some people report growth because they are denying the negative impact of the traumatic event, while others are not. Park's argument is plausible as it is generally accepted that reactions to trauma often include denial, avoidance, wishful thinking, and distortions of meaning (Brewin, 1997). Such results raise the possibility that growth is only illusory.

5.2 Is growth only an illusion?

Taylor and colleagues (Taylor, 1983; Taylor and Armor, 1996; Taylor et al., 2000) have explored the illusory, self-deceptive aspects of growth under the title Positive Illusion (Taylor, 1983). They reported three illusions that commonly characterise people's beliefs after traumatic events or information. These include, mildly distorted positive perceptions of themselves, an exaggerated sense of personal control, and unrealistic optimism. Taylor and colleagues suggest that such illusions or distortions are cognitive attempts to adapt to the situation to regain consistency as well as an understanding of the self and the environment. Such illusions are common in individuals who experience health-related traumas, such as cancer patients. These people often develop a perception of themselves as coping better than other patients (Maercker & Zoellner, 2004) which may explain the high rate of reported positive changes in the self as a result of their illness (Taylor & Armor, 1996).

Although such positive illusions may be used to deny, avoid, hope, or distort the meaning of the event, Taylor and Armor (1996) suggested that positive illusions are indicative of people's beliefs about their personal qualities and degree of perceived control, whereas denial and hope represent a desire for events to be different to how they are. If benefit finding signals denial, benefit finding may then become maladaptive over time as it may interfere with effective coping strategies (Lazarus, 1983) and cognitive processing of the traumatic event.

5.3 The janus face model of posttraumatic growth

The contradictory findings for the potential benefits following trauma led Maercker and Zoellner (2004) to propose a two-factor model of posttraumatic growth, The Janus Face Model. In this model, growth is thought to have a positive, constructive and self-transcending side as described by Tedeschi and Calhoun (1996), as well as a self-deceptive, illusionary side. The authors suggested that the constructive side may develop alongside adjustment and cognitive restructuring of traumatic information, whereas the illusionary side may be related to denial, avoidance, wishful thinking, self-consolidation, or palliation. However, these adaptive and maladaptive outcomes of growth are believed to depend on the timing of the growth, the level of continued distress, and the use of habitual coping styles such as optimism, and openness to experience.

Maercker and Zoellner (2004) also posit that growth can be a coping strategy as well as an outcome. In the immediate aftermath of a trauma, benefit finding can reflect a coping process rather than an outcome that has emerged from the stressful event. They argued that the illusory aspects of growth experienced shortly after the event may represent a coping effort that provides a palliative function. This illusory component illustrates the use of self-enhancement cognitions in an attempt to alleviate acute stress after a threatening event and provide the person with temporary relief, or distance from the distress experienced, to facilitate deliberate and constructive rumination of the traumatic information. During the earlier stages of the trauma, it is expected, therefore, that more illusory aspects of growth will be present. If constructive processing occurs, the illusory side is expected to reduce and more constructive, longer lasting benefits to arise as the trauma becomes more distal. Conversely, if the person does not deliberately reflect or ruminate on the trauma, this illusory component represents an attempt to cope with the situation by denying or repressing the traumatic information, rather than adjusting to or recovering from the experience. As the trauma is not effectively processed, illusory growth is likely to have a deteriorating effect on adjustment, hinder recovery, and the person is expected to experience ongoing distress. Thus, the illusory component of growth can also represent a cognitive avoidant strategy that, over time, has a negative effect on adjustment.

5.4 Evidence for the janus face model of posttraumatic growth

Although the Janus Face model provides a plausible explanation for the inconsistent findings of PTG research, very few studies have tested this model. McFarland and Alvaro's (2000) study exploring the effects of motivation on temporal comparisons of traumatised individuals, provide indirect support for the Janus Face model. They found that threatening self-relevant feelings played a causal role in prompting self-enhancing temporal comparisons, and that individual's perceptions of personal improvement are, in part, motivated illusions designed to help them cope with trauma. Shedler et al.'s (1993) research on the "illusion of mental health" also supports this claim and further suggests that for some individuals, these positive appraisals of improvement may represent defensive denial that is related to maladaptive outcomes. Dohrenwend et al. (2004) posit that these cognitive distortions may be maladaptive for some but adaptive for others because positive appraisals can represent two different processes: a reformulation of the meaning of the traumatic experience into a positive light which is related to adaptive outcomes; and a defensive denial of the negative features of the traumatic event which is a pathological manoeuvre and related to maladaptive outcomes.

Additional support for this model comes from Helgeson et al.'s (2006) meta-analysis of literature pertaining to the relationship between benefit finding and psychological and physical health. They found that the relationship between posttraumatic growth and these outcomes was affected by the amount of time that had passed since the onset of the stressor. Growth or benefit finding was more strongly related to greater positive affect and less depression when the time since the traumatic event was greater than two years, whereas benefit finding was associated with more global distress when the time since the trauma was two years or less. Similarly, Frazier et al., (2001) suggested that encouraging growth too early in the adjustment process may be detrimental to the survivor, based on evidence that early onset growth decreases along with an increase in distress (Wortman, 2004).

Only one study has attempted to directly test the Janus Face Model. Zoellner et al. (2008) explored posttraumatic growth among survivors of motor vehicle accidents in Germany. They operationalised the illusory component of PTG as optimism and the constructive side as openness to experience and intense feelings. Although the relationships between PTG and optimism or openness were non-significant, their results provide some evidence for the Janus Face Model as optimism and openness were found to predict PTSD symptomatology. Individuals with higher levels of PTSD symptoms also had higher levels of optimism and PTG. Conversely, individuals with lower levels of PTSD symptoms also had higher levels of openness and PTG. Further, a relationship was apparent between the severity of trauma and PTG, where more severe trauma was associated with higher levels of PTG. As this is the only study to directly test this model, further research is required to ascertain whether this model is the most appropriate way to explain the inconsistent findings of posttraumatic growth research.

6. Conclusion

This chapter has discussed some of the contemporary views of trauma, outlining the relationship between the disruptive and destructive processes, as well as the constructive processes that can be experienced in the aftermath of a traumatic event. Although research into the impact of trauma has traditionally explored the precipitating negative symptoms of PTSD, the recent advent of the posttraumatic growth research has identified, and started to quantify, the beneficial as well as the detrimental outcomes on a person's sense of self and identity. Despite extensive research, many aspects of the impact of trauma remain poorly understood. Furthermore, the themes discussed here, namely posttraumatic growth and depreciation, rumination, and actual versus perceived growth, have largely been examined independently of each other. Further research is needed to clarify the ways in which the different elements of traumatic response relate to each other and to clarify the nature of several key constructs.

This chapter has examined inconsistencies in the literature in relation to the prevalence and severity of PTSD following qualifying and non-qualifying traumatic events; and whether growth or benefit finding lead to positive change and long lasting improvements. The contradictory findings demonstrate the need for further research on the consequences of trauma. One possible explanation for the inconsistencies is that studies have grouped together distinct types of events and overlooked the nuances of different traumas. Exploration of the differences between traumatic events may reveal that different types of trauma produce specific profiles that could be used to predict the course and severity of

symptoms that may ensue. Such research could also enable a more accurate way of categorising traumatic events and the reactions to trauma.

Research on different types of traumas may also reveal that the type of event contributes to the style of cognitive processing conducted. As previously discussed, ruminative thought has been found to prompt growth while also promoting and maintaining PTSD symptoms. Although the literature has distinguished between intrusive and deliberate rumination, and brooding and reflective rumination, a review of the rumination and repetitive thought literature by Watkins (2008) discusses many types of ruminative thought that could potentially impact the processing of a traumatic event (refer to Watkins, 2008 for a review of terms). When you consider the multitude of the different types of repetitive thought identified, as well as the disruption to the individual's cognitions and emotions in the aftermath of trauma, it is difficult to believe that traumatised individuals would only conduct one type of repetitive thought after trauma. Further research on the impact of these different repetitive thinking styles on the outcomes of trauma is therefore warranted. Exploration of how these types of rumination are selected or evoked by an individual may also provide information regarding how adaptive and maladaptive outcomes are formed.

Finally, exploring whether emotional responses after trauma is an externalised or internalised response (i.e., is the emotional response directed at the event, or at the self and one's response to the event) may also contribute to our understanding of the course and severity of symptoms. For example, anger is a strong emotion commonly experienced in the aftermath of trauma (e.g., Adler et al., 2008; Amstadter & Vernon, 2008; Berntsen & Rubin, 2007). Research exploring where the emotion is directed may reveal that anger aimed at the event is processed differently to anger aimed at the self. Anger at the event may become more manageable as the event becomes more distal but anger at how one responded or coped with the event may be more difficult to overcome, be longer lasting and have a greater impact on the reconstruction of the self. Different combinations of emotions may also change the way that the emotions are processed, and the type of ruminative thought conducted, and thus affect the course of PTSD symptoms and/or posttraumatic growth and depreciation. Such data may explain why interpersonal traumas tend to result in specific symptom constellations as well as more severe and longer lasting PTSD symptoms compared to traumas related to natural disasters or illness (APA, 2000). Therefore, research into the emotional profiles of different trauma types is likely to make a major contribution to our understanding of trauma.

7. References

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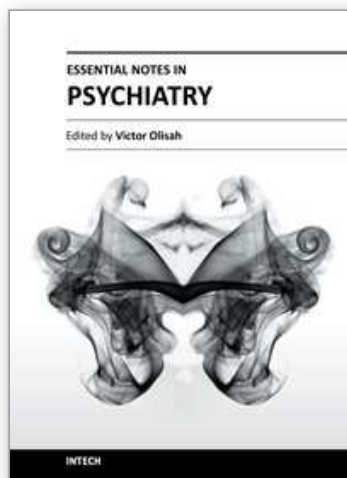
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Psychiatry is one of the major specialties of medicine, and is concerned with the study and treatment of mental disorders. In recent times the field is growing with the discovery of effective therapies and interventions that alleviate suffering in people with mental disorders. This book of psychiatry is concise and clearly written so that it is usable for doctors in training, students and clinicians dealing with psychiatric illness in everyday practice. The book is a primer for those beginning to learn about emotional disorders and psychosocial consequences of severe physical and psychological trauma; and violence. Emphasis is placed on effective therapies and interventions for selected conditions such as dementia and suicide among others and the consequences of stress in the workplace. The book also highlights important causes of mental disorders in children.

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