# PTSD SYMPTOMS AND DOMINANT EMOTIONAL RESPONSE TO A TRAUMATIC

# EVENT: AN EXAMINATION OF DSM-IV CRITERION A2

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To qualify for a diagnosis of posttraumatic stress disorder the DSM-IV requires that individuals report dominant emotions of fear, helplessness, and horror during the trauma. Despite this stipulation, traumatic events can elicit a myriad of emotions other than fear such as anger, guilt or shame, sadness, and numbing. The present study examined which emotional reactions to a stressful event in a college student sample are associated with the highest levels of PTSD symptoms. Results suggest mixed support for the *DSM-IV* criteria. Although participants who experienced a dominant emotion of fear reported high PTSD symptomatology, participants who experienced anger, disgust-related emotions, and sadness reported PTSD symptoms of equivalent severity. Participants also reported experiencing other emotions more frequently than they reported experiencing fear. Coping style was unrelated to dominant emotion experienced; however, dysfunctional coping was associated with worse outcomes in terms of PTSD symptoms. These results have diagnostic and treatment limitations.

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#### CHAPTER 1

#### INTRODUCTION

Posttraumatic stress disorder (PTSD) is a debilitating condition characterized by persistent re-experiencing of trauma, persistent avoidance of stimuli associated with a trauma, and overall increased physiological arousal for at least one month following a traumatic incident (American Psychiatric Association [APA], 2000). APA estimates a lifetime prevalence rate for PTSD of 8% in the adult population in the United States (APA, 2000). Specific populations, including survivors of rape and military combat, seem to be particularly at risk for developing PTSD. In these groups, prevalence rates are estimated to be as high as 50 % of those exposed (APA, 2000). While research has established events such as combat, torture, incarceration, assault, and life-threatening accidents may lead to symptoms of PTSD, debate remains among researchers regarding the best characterization of the type of traumatic event that warrants a diagnosis of PTSD (Brewin, Andrews, & Rose, 2000).

According to APA's *Diagnostic and Statistical Manual of Mental Disorders*, 4<sup>th</sup> edition-text revision (*DSM-IV-TR*, APA, 2000), a traumatic event is currently defined as one in which the individual "experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of others" (Criterion A1) and that the individual's response to the incident involved "intense fear, helplessness, or horror" (Criterion A2) (p. 467). These conditions are necessary for a diagnosis of PTSD to apply. Criterion A2 suggests that individuals experience certain specific intense emotions at the time of these events. There is some empirical support for this assertion, including studies suggesting an association between subjective perceptions of intense threat at the time of

the trauma and the later development of PTSD symptoms (e.g. Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; King, King, Gudanowski, & Vreven, 1995).

Although the DSM-IV states that emotional reactions involving fear, helplessness, or horror result in PTSD, traumatic events can elicit a myriad of emotions other than just intense threat. For instance, in addition to fear, common emotional responses to traumatic events include anger (Andrews, Brewin, Rose, & Kirk, 2000; Brewin et al., 2000; Ehlers, Mayou, & Bryant, 1998; Grey, Holmes, & Brewin, 2001), guilt or shame (Andrews et al., 2000; Brewin et al., 2000; Lee, Scragg, & Turner, 2001), sadness (Berntsen & Rubin, 2007; Dalgleish & Power, 2004), the complete absence of emotion or "numbing" (Roemer, Orsillo, Borkovec, & Litz, 1998), and rumination (Ehlers et al., 1998). In a series of case studies, Grey et al. (2001) reported that patients with PTSD described a variety of emotions including anger, humiliation, and guilt during reliving exercises. Berntsen and Rubin (2007) asked participants to rate their dominant emotions for their most stressful or traumatic event. The most frequent responses were anger and sadness. Fear and shock were not among the most frequently endorsed emotions. Although the authors did not find significant differences in reported PTSD symptoms as a function of which emotion was dominant, there was a non-significant trend that anger was associated with the highest levels of PTSD symptoms.

Ehlers et al. (1998) interviewed patients who had an emergency room visit following a motor vehicle accident. The study was longitudinal in nature and included an initial assessment shortly after the accident, and two follow-up assessments at three months and one year post-trauma. The authors reported that patients who reported anger at the initial assessment were more likely to suffer PTSD at both follow-up sessions. Rumination about the accident was also

associated with PTSD diagnosis and severity at three months and one year post-accident.

In a longitudinal study of victims of violent crime, Brewin et al. (2000) found that intense levels of fear, helplessness, and horror all strongly predicted later PTSD, with helplessness being the greatest predictor. However, the authors noted that some participants did not report experiencing any intense emotions during the trauma. These participants still developed PTSD with a similar level of severity as the other participants. These individuals did report high levels of anger with others or shame, and these emotions were shown to have independent effects on later PTSD. Andrews et al. (2000) also interviewed victims of violent crime. Participants were interviewed both one and six months post-crime. The authors reported that shame and anger with others were the only independent predictors of PTSD symptomotology at the one month interview and shame was the only predictor at the six month follow-up. Roemer et al. (1998) found that although fear and horror were associated with some clusters of PTSD symptoms, helplessness was the only of the three A2 emotions that was significantly associated with all symptom clusters of PTSD. Numbing at the time of the event was also uniquely associated with PTSD symptomatology.

Dalgleish and Power (2004) present a model of PTSD that conceptualizes "emotion non-specific" and "emotion specific" reactions to extreme events to explain the symptoms of PTSD. The non-specific reactions are a result of the individual's attempts to resolve the discrepancy between the traumatic event and pre-existing cognitive schemas. As the individual tries to resolve and understand this discrepancy, the memory of the traumatic event remains active resulting in the intrusive and re-living symptoms of PTSD (Horowitz, 1986). The affect associated with re-experiencing leads to avoidance symptoms of PTSD (Dalgleish & Power,

2004). The emotion-specific reactions to PTSD in the Dalgleish and Power model are conceptualized as intense threat, and therefore, the dominant emotions are fear and anxiety. However, in the context of this emotion non-specific and emotion specific conceptualization of PTSD, the authors propose a "family of PTSD-like psychological reactions to extreme events that will resemble PTSD in terms of emotion non-specific reactions (intrusion and avoidance) but that will differ in terms of emotion-specific components depending on the specific emotional nature of the event" (p. 1073). The authors explain how incidents evoking primary emotions of sadness, anger, and disgust can result in psychological distress similar to PTSD, but resulting from cognitive appraisals different from those seen in fear reactions.

Consider the following example of a psychological reaction resembling PTSD but with a dominant emotion of anger rather than fear. B was a bus driver who was involved in a car accident while sitting at a stop sign. As a result of the accident B seemed to suffer a minor neck injury, which later developed into a severe injury, requiring extensive surgery and resulting in severe disability. At the time of the incident, B reported feeling very angry at the other driver for endangering his life and the life of his passengers. He did not recall experiencing fear or anxiety, as he could not see the other vehicle coming and, thus, did not have a moment of fear. He was involved in an altercation with the other driver and had difficulty calming down following the accident. Several months later, B experienced frequent flashbacks and intrusive thoughts about the accident. B reported intense anger while experiencing these symptoms. He attempted to avoid these feelings by trying not to think about the incident and refusing to talk about it.

In a case like the one presented above, the patient may be diagnosed with PTSD even though the primary emotion experienced at the time of the event was anger rather than fear, helplessness, and horror. A similar case can be thought of for other primary emotions. These syndromes (posttraumatic anger, disgust, and complicated grief) may present like PTSD in a therapeutic setting and may have implications for treatment.

The research summarized above raises several questions concerning whether emotional responses other than fear can result in significant levels of PTSD symptoms. The purpose of the current study is to examine the emotional reactions associated with the highest levels of PTSD symptoms. The diagnostic criteria in the *DSM-IV* suggest that participants who endorse experiencing an event that involved the actual or threatened death or serious injury, or a threat to the physical integrity of others (Criterion A1) and who also endorse experiencing fear, helplessness, and horror at the time of the event (Criterion A2) will report the highest levels of PTSD symptoms.

#### CHAPTER 2

#### **METHOD**

# **Participants**

A total of 598 (204 males) participants were recruited from the University of North Texas to participate in the study. Participants ranged in age from 18 to 57, with an average age of 20.8 years. Three hundred eighty participants (63.5%) described their ethnicity as white, 89 (14.9%) as African American/Black, 43 (7.2%) as Asian/Pacific Islander, 56 (9.4%) as Hispanic, 2 (0.3%) as Native American, and 16 (2.7%) as other. Twelve participants did not provide information about their ethnicity. Participants received partial course credit for their participation.

#### Materials

Traumatic Events Questionnaire (TEQ). The TEQ (Vrana & Lauterbach, 1994) assesses nine events such as experiencing a serious accident (industrial, farm or car), receiving news of serious injury or death of someone, and being a victim of physical or sexual abuse. It also allows unspecified traumatic events to be examined. Participants were asked if they had experienced each type of traumatic event. If they had, they were asked how many times and how old they were when the event occurred. Participants also responded on a 7-point Likert-type scale to items assessing the extent of their injury, the extent to which they felt threatened, how traumatic the event was at the time it occurred, and how traumatic the event is now.

Posttraumatic Stress Disorder Checklist (PCL). The PCL (Blanchard et al., 1996; Weathers, Litz, Herman, Huska, & Keane, 1993) is a self-report measure of PTSD symptomatology that evaluates the severity of 17 symptoms of PTSD experienced over the past

month. Participants responded to each item using a 5-point Likert-type scale ranging from 1 (*not at all*) to 5 (*extremely*). Participants completed the PCL in reference to the "most traumatic event" in their lives. The PCL has been shown to exhibit excellent psychometric properties with both war veterans (Weathers et al., 1993) and the general population (Blanchard et al., 1996).

Criterion A. Participants were asked to respond to items specifically designed to assess Criteria A1 and A2 in the DSM-IV. One question stated, "In the negative event that you used to complete the previous questionnaire, there were probably many emotions. The dominant emotion is best described as \_\_\_\_\_\_." Participants responded by choosing which emotion (anger, disgust, fear, guilt, sadness, shame or embarrassment, shock or surprise, or "other emotion") best applied to their memory. Participants indicated "yes" or "no" as to whether they "experienced, witnessed, or were confronted with an event that involved actual or threatened death or serious injury, or threat to [their] physical integrity or that of others" during their "most traumatic event" (Criterion A1). Participants were also asked, "In the negative event that you used to answer questions 1 to 7, did your response involve intense fear, helplessness, or horror? (Criterion A2)" Participants responded to this question by choosing "yes" or "no."

Brief Coping Orientations to Problems Experienced Scale (Brief COPE). The Brief COPE (Carver, 1997) is a 28-item measure designed to assess the way that individuals cope with stress in their lives. Example items include "I've been turning to work or other activities to take my mind off things" and "I've been getting emotional support from others." Participants rated the extent to which they utilized each of the different coping mechanisms on a 4-point Likert scale ranging from 1 (I haven't been doing this at all) to 4 (I've been doing this a lot). The Brief Cope assesses fourteen subscales of coping including active coping, denial, substance use, use of

emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame. Previous researchers have collapsed these subscales into three broader categories of coping: problem-focused, emotion-focused, and dysfunctional coping (Coolidge, Segal, Hook, & Stewart, 2000; Cooper, Katona, Orrell, & Livingston, 2008). See Appendix for the specific items included in each subscale. *Procedure* 

Participants completed the TEQ, the PCL, the Criterion A questions and the Brief COPE as part of a larger questionnaire study of overall psychological functioning. Participants downloaded and printed the questionnaire off of the psychology department's human subject recruitment website. The questionnaire was completed on their own time and under their own conditions, presumably in the privacy of their homes. Participants turned the questionnaires and consent forms in to a locked box.

#### CHAPTER 3

#### RESULTS

A total of 24 participants did not complete the question concerning dominant emotion and 28 participants did not complete the Posttraumatic Stress Disorder Checklist (PCL). Participants nominated a variety of negative events. The two events most commonly endorsed as "the most traumatic event" from the Traumatic Events Questionnaire (TEQ) were "other event" (did not experience any of the events listed on the TEQ, so nominated their own "most traumatic event") (n = 231) and "unexpected serious injury or death of someone close" (n = 150). The next most commonly endorsed events were a "serious accident, fire, or explosion" (n = 63) and a "serious danger of injury or death" (n = 64). A more detailed list of the negative events nominated is included in Boals and Schuettler (2009). Although they used the same data set, the hypotheses tested in the current study are conceptually distinct from those conducted in Boals and Schuettler and thus are reported in separate papers. As can be seen in Table 1, participants endorsed a variety of dominant emotional reactions to their most traumatic events. The most common dominant emotion was sadness (n = 186), followed by fear (n = 89), shock/surprise (n = 8986), "other emotions" (n = 83), and anger (n = 66). Few participants described their dominant emotion as disgust (n = 27), guilt (n = 16), or shame (n = 19); therefore these categories were collapsed together into a "disgust-related" emotion category (n = 62).

To test whether mean PCL scores varied by dominant emotion applied to participant's most traumatic memory, a 6 (emotion) x 2 (A1 criterion) x 2 (A2 criterion) ANOVA on PCL scores was conducted. The hypothesis that endorsement of both Criteria A1 and A2 would also

Rather, participants who reported a dominant emotion of anger experienced the highest levels of PTSD symptoms. The results revealed a main effect of dominant emotion, F(5, 529) = 6.50, p < .001, and a significant main effect of A2 criterion, F(1, 529) = 17.88, p < .001. There was no significant effect of A1 criterion, F < 1, nor any significant interactions. As reported in Boals and Schuettler (2009) using this same data set, Criterion A1 is not a significant predictor of PCL scores when Criterion A2 is also in the model, suggesting that the specific nature of the incident (i.e., events that involved actual or threatened death or serious injury, or a threat to the physical integrity of others) is not as important as the individual's subjective emotional response to that stressful event. Planned comparisons were conducted to explore which emotions differed in terms of PTSD symptomatology. As can be seen in Table 1, traumatic memories with the dominant emotions of anger, disgust-related emotions, fear, and sadness elicited the highest levels of PTSD symptoms, followed by "other emotions," with shock and surprise eliciting the lowest levels.

As an alternative analysis to examining continuous PCL scores, whether or not participants evidenced a probable PTSD diagnosis was evaluated. Although no formal PTSD diagnoses were made in the current study, a score of 44 or higher on the PCL is indicative of probable PTSD (Blanchard et al., 1996). Participants with PCL scores of 44 or higher were classified as having probable PTSD, whereas participants with PCL scores below 43 were classified as not having probable PTSD. A chi-square analysis revealed consistent results in that probable PTSD status was associated with which dominant emotion was endorsed,  $\chi$ ! (5, N = 572) = 27.70, p < .001. As can be seen in Table 1, participants who endorsed anger as the

dominant emotion evidenced the greatest likelihood of probable PTSD, followed by disgustrelated, sadness, fear, "other emotions", and lastly, shock and surprise.

The relationship between coping style, dominant emotion and PTSD symptoms was also explored. First, possible relationships between dominant emotion experienced at the time of the trauma and coping strategies utilized to cope with that trauma were explored. Bivariate correlations between dominant emotion experienced and coping style were conducted. Dominant emotions were dummy coded as either 0 (did not experience) or 1 (did experience). As can be seen in Table 2, the results suggest that there are significant correlations between sadness and emotion-focused coping and between disgust-related emotions and emotion-focused coping. There is also a significant correlation between shock and dysfunctional coping. All other correlations were non-significant. Given that these are very small correlations, it is likely that they are significant solely as a result of the large sample size. Therefore, these results are difficult to interpret, but suggest that there is little relationship between dominant emotion experienced and coping style employed.

I was also interested in exploring which coping strategies are associated with good and bad outcomes in terms of PTSD symptoms, based on dominant emotion experienced. To test this research question bivariate correlations between coping style and PCL scores were conducted when controlling for dominant emotion experienced. Results are shown in Table 3. For participants who experienced anger as their dominant emotion, dysfunctional coping was significantly correlated with PTSD symptoms. The same pattern of results was found for participants who experienced sadness, shock, and disgust-related emotions. For all three of these dominant emotions, dysfunctional coping was associated with higher scores on the PCL. For

participants who experienced disgust-related emotions (disgust, guilt, shame), emotion-focused, and problem-focused coping were also associated with higher levels of PTSD symptoms.

#### **CHAPTER 4**

# **GENERAL DISCUSSION**

These findings provide mixed support for Criterion A2 in the *Diagnostic and Statistical Manual of Mental Disorders*, 4<sup>th</sup> edition-text revision (*DSM-IV-TR*). Although participants who experienced a dominant emotion of fear also reported relatively high posttraumatic stress disorder (PTSD) symptomatology, participants who experienced other dominant emotions including anger, disgust-related emotions, and sadness, reported PTSD symptoms of similar severity. This is in direct contrast with the predictions of Criterion A2 in the *DSM-IV*. The frequencies of dominant emotions experienced in response to a potentially traumatizing event do provide empirical support for the experiencing of fear. However, the current results suggest that other subjective reactions such as anger, sadness, shock, disgust, shame, and "other emotions" are common reactions to traumatic events and are associated with distress and PTSD-like symptoms.

It is not surprising that emotions other than fear, helplessness, and horror are related to the development of PTSD symptomatology. Although they are included in the *DSM-IV*, fear, helplessness, and horror were not empirically derived, suggesting that investigation into the role of many different emotional reactions to traumatic events is warranted (Roemer et al., 1998). Indeed, Dalgleish and Power (2004) describe a spectrum of PTSD-like conditions resulting from reactions to anger, sadness/guilt, and disgust. They argue that although these syndromes may resemble PTSD, the development of these disorders is different. Currently, PTSD-like conditions such as complicated grief or maladaptive anger reactions cannot be captured by any other

diagnostic category in the *DSM-IV*. Individuals with these variant forms of psychopathology that resemble PTSD in their symptomatology, but differ from it in terms of the primary emotional response to the incident are often diagnosed with and treated for PTSD. For example, Dalgleish and Power (2004) report a case in which a paramedic had to work with a badly decomposing corpse. The paramedic described the scene in terms of the awful smell, horrific visual images, and being physically sick. Following the event, the patient had recurrent nightmares, frequently felt sick, and experienced recurrent intrusive thoughts about the incident. The client acknowledged and described a clear disgust reaction to this traumatic event. She received a diagnosis of PTSD and was treated using established treatment methods for PTSD, despite not meeting Criterion A2.

The findings also suggest that in this sample there was little to no relationship between dominant emotion experienced and coping style, suggesting that participants utilized many different coping strategies. The only significant correlations were small, suggesting that they were due to chance as a result of the large sample size. As expected, dysfunctional coping strategies (behavioral disengagement, denial, self-distraction, self-blame, substance use, and venting) were associated with more severe PTSD symptoms, regardless of dominant emotion experienced. Interestingly, for the participants who experienced a disgust-related emotion (including guilt or shame) during the traumatic event, emotion-focused and problem-focused coping styles were also associated with more PTSD symptoms. These correlations were also relatively small and could also be a result of the large sample size. Future research should further explore the relationship between dominant emotions experienced during the trauma, coping styles utilized, and PTSD outcomes to understand which strategies are most beneficial based on

emotion experienced.

The current results need to be considered in terms of several limitations of the current study. First, Criterion A2 specifically states that a defining characteristic of PTSD is a response to the negative event with fear, helplessness, or horror. This implies these emotions were experienced at the time of the event, or "peritraumatically." This data was collected after the fact ("posttraumatically") and therefore does not reflect the specific emotions the individual felt during the stressful event. Peritraumatic emotions, also known as primary emotions, are conceptualized as a direct result of facing overwhelming circumstances. Secondary emotions arise from cognitive processing following the traumatic event and its associated primary emotions (Brewin, Dalgleish, & Joseph, 1996; Ehlers & Clark, 2000). As the information is recalled at a later time, it has been changed by recall biases. However, it is very difficult to conduct research while participants are experiencing a traumatic incident. Additionally, this issue is relevant in applied settings, as a diagnosis of PTSD cannot be made until one month following the incident. Thus, in a clinical environment, information given by clients will be subject to the same recall biases. A second limitation of the current study is that no formal PTSD diagnoses were made. The methodology simply included a self-report measure of PTSD symptoms. However, the PCL is a well-established measure of PTSD symptomatology that has been used to assess PTSD severity in clinical populations (Weathers et al., 1993) as well as in the general population (Blanchard et al., 1996). Additionally, when examining only those participants who had clinical scores on the PCL, the results replicated. Finally, participants in the study were undergraduates and the majority were Caucasian and young (mean = 20.8 years). This limits the generalizability of these findings to other ethnic and age groups. Future research should include

more heterogeneous samples and formal diagnostic procedures.

Despite these limitations, the current results, taken in consideration with similar studies suggest that *DSM-IV* diagnostic criteria for PTSD are not sufficient or accurate. Future research should utilize clinical populations, methods other than self-report (such as interviews) to assess subjective features of the traumatic event, and based on the findings, measurement of many different peritraumatic emotional responses. Increased understanding of the emotions implicated in PTSD-like symptoms will have diagnostic and treatment implications. Given the upcoming revision of the *DSM-IV* and the ever-increasing number of combat veterans, it will be important to understand the subtle differences in the primary emotional responses to traumatic events.

Table 1

Mean PCL Scores for Dominant Emotion Applied to Stressful Memory

N	Mean PCL Scores (SD)	<i>PCL</i> >= 44
66	34.1 (14.1) <sup>a</sup>	27.3%
89	29.8 (13.2) <sup>a,b</sup>	13.5%
186	30.9 (13.8) <sup>a,c</sup>	18.8%
86	23.7 (9.0) <sup>b</sup>	3.5%
62	33.0 (14.3) <sup>a</sup>	20.9%
83	24.7 (13.0) <sup>b,c</sup>	4.8%
	66 89 186 86 62	66 34.1 (14.1) <sup>a</sup> 89 29.8 (13.2) <sup>a,b</sup> 186 30.9 (13.8) <sup>a,c</sup> 86 23.7 (9.0) <sup>b</sup> 62 33.0 (14.3) <sup>a</sup>

*Note*. Scores with different superscripts are statistically different from each other, p < .05

Table 2

Pearson r Correlation Coefficients for Dominant Emotion and Coping Style

Coping Style	Anger	Fear	Sadness	Shock	Disgust-Related
Emotion-focused	-0.01	0.04	0.13**	-0.00	0.10*
Problem-focused	-0.03	0.03	-0.04	0.02	0.01
Dysfunctional	0.06	0.05	-0.03	-0.09*	0.01

<sup>\*</sup>p<0.05, \*\*p<.01, \*\*\*p<.001

Table 3

Pearson r Correlation Coefficients between Coping Style and PCL Scores when Controlling for Dominant Emotion

Coping Style			PCL Scores		
	Anger	Fear	Sadness	Shock	Disgust-Related
Emotion-focused	0.21	0.01	0.22	0.20	0.27**
Problem-focused	0.10	0.06	0.16	0.11	0.24**
Dysfunctional	0.41***	0.19	0.41***	0.34**	0.41***

<sup>\*</sup>p<0.05, \*\*p<.01, \*\*\*p<.001

# APPENDIX

BRIEF COPE SUBSCALES

Emotion-focused strategies

Acceptance (accepting the reality of the fact that it has happened/learning to live with it)

Emotional support (getting emotional support/comfort and understanding from others)

Humor (making jokes about it/making fun of the situation)

Positive reframing (trying to see it in a different light, make it seem more positive/look for something good in it)

Religion (trying to find comfort in my religious or spiritual beliefs/praying or meditating)

Problem-focused strategies

Active coping (concentrating my efforts on doing something about the situation I'm in/taking action to try to make it better)

Instrumental support (getting help and advice from other people/trying to get advice or help from others about what to do)

Planning (trying to come up with a strategy about what to do/thinking hard about what steps to take)

Dysfunctional coping strategies

Behavioral disengagement (giving up trying to deal with it/the attempt to cope)

Denial (saying to myself "this isn't real"/refusing to believe that it has happened)

Self-distraction (turning to work or other activities to take my mind off things/doing something to think about it less)

Self-blame (criticizing myself/blaming myself for things that happened)

Substance use (using alcohol or other drugs to make myself feel better/to help me get through it)

Venting (saying things to let my unpleasant feelings escape/expressing my negative feelings)

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