INVESTIGATION OF TRAUMA TYPE DIFFERENCES USING THE

PERSONALITY ASSESSMENT INVENTORY

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_____
Lindsay Diane Ingram

Certificate of Approval:

_____
Christopher J. Correia
Assistant Professor
Psychology

_____
Frank Weathers, Chair
Professor
Psychology

_____
Bryan Edwards
Assistant Professor
Psychology

_____
Joe F. Pittman
Interim Dean
Graduate School

INVESTIGATION OF TRAUMA TYPE DIFFERENCES USING THE

PERSONALITY ASSESSMENT INVENTORY

Lindsay D. Ingram

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Lindsay Diane Ingram

_____
Signature of Author

May 10, 2008_____
Date of Graduation

THESIS ABSTRACT

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PERSONALITY ASSESSMENT INVENTORY

Lindsay Diane Ingram

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PTSD has been classified as an umbrella disorder, with the resulting syndrome appearing similar in individuals with varied trauma exposure. This concept has been examined from the beginning, with the breadth of events qualifying as Criterion A being thought to contribute potentially differently to the development of, symptoms, and course of the disorder. Currently, the research is lacking in the investigation of trauma type differences and PTSD, especially using a partially DSM-correspondent multi-scale inventory. The current study examined the differences among three groups of trauma-exposed individuals: those having experienced a motor-vehicle accident, a sexual assault, or sudden, unexpected death or loss. The participants were Auburn University students identifying as experiencing a "stressful event" that met Criterion A for a PTSD diagnosis. The profiles of these individuals were examined and compared on the scales of the Personality Assessment Inventory (PAI), due to the high rates of comorbidity with PTSD and other mental disorders. Results replicated previous studies in that the sexual assault

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group produced the most severe symptoms overall.  Additionally, the results revealed

significant differences in profile among the groups, with a departure from parallelism,

indicating the syndromes produced by the different traumas may be distinct from each

other.  The study points to an important area of study in need of further research,

particularly important in terms of potential differential treatment of PTSD resulting from

different types of trauma.

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INTRODUCTION

From the first conceptualization of what is now called posttraumatic stress

disorder (PTSD), discussion of the precipitating events of the disorder has been a central

focus.  The process first began with combat-related trauma in mind, with the first edition

of the Diagnostic and Statistical Manual of Mental Disorders (DSM-I, American

Psychiatric Association, 1952), including the diagnosis of "gross stress reaction."  DSM-

II (American Psychiatric Association, 1968) dropped this diagnosis and provided only

"transient situational disturbance" as a diagnostic category for   classifying stress-related

psychopathology.  However, the problem of apparent maladaptive stress reactions

observed particularly in combat veterans was difficult to ignore, especially during the

post-Vietnam War era when DSM-III (American Psychiatric Association, 1980) was

being written.  The supporters of a diagnosis addressing the issue of psychological

problems resulting from combat exposure championed the battle for inclusion in DSM-

III.  A Working Group comprised primarily of activists and supporters of the existence of

a syndrome resulting from combat stress was established to make a case for a diagnosis,

and the committee members set out to gather evidence for "post-combat disorder," (Scott,

1990).

In the process, the Working Group found striking similarities in the symptoms

and processes experienced between combat veterans and concentration camp survivors.

As the group began to discover additional relevant research, they began to see these same similarities among groups of victims injured on the job and burn survivors as well, giving rise to the question of whether the diagnostic category was "a more generalized phenomenon of which post-combat disorder was but a single example," (Scott, 1990). Following these findings, the Working Group proposed a diagnosis called "catastrophic stress disorder." The proposed diagnosis was later revised by the Committee on Reactive Disorders and labeled "post traumatic stress disorder," (Scott, 1990). The contributors to DSM-III had concluded that the disparate literature involving different traumatic events appeared to share important common characteristics, eventually leading them to the inclusion of PTSD in DSM-III, one common syndrome encompassing stress reactions from a variety of trauma types.

Posttraumatic stress disorder became a diagnosis in DSM-III and remains a diagnosis thought to result from a variety of traumatic events. A diagnosis of PTSD requires fulfillment of Criterion A which, as defined in DSM-IV-TR, is exposure to a traumatic event involving actual or threatened death or serious injury, or a threat to the physical integrity of self or others (American Psychiatric Association, 2000). Exposure, as it applies to the Criterion A definition, involves directly experiencing the traumatic event, witnessing an event of another person, or learning about a traumatic event of a family member or close associate (American Psychiatric Association, 2000). A variety of events, each with a distinct set of attributes and accompanying experience, fulfill Criterion A. These events can vary significantly, ranging from learning about the death of a close friend to witnessing the death of a close friend, to experiencing a concentration camp, for example. Because all events fully meeting Criterion A share common

characteristics in terms of exposure to trauma and resulting reactions of fear, helplessness, and horror, naturally it is assumed that the events lead to essentially the same syndrome.

However, experientially each Criterion A event may be qualitatively different, and vary in terms of others' reactions to the event, level of victim-blaming or associated taboo, the degree of interpersonal involvement, and other non-specific factors. Therefore, given the various trauma types and the experiential differences inherent in each, it is plausible that some differences may exist in the resulting symptom presentations. This issue addresses the underlying assumption that, regardless of the nature of the trauma, the syndrome of PTSD is similar in all individuals. In fact, the contributors to DSM-III hinted at differences in the syndrome in terms of symptoms, course of the disorder, and treatment as a result of the type of precipitating event, leaving the door open to the questioning of the universality of the diagnosis (for full discussion, see Scott, 1990). Further, DSM-IV-TR alludes to the existence of quantitative differences depending on the nature of the experienced trauma, stating that severity and length of symptoms may be increased when the trauma is "of human design," (American Psychiatric Association, 2000). Further, the development of PTSD is partially dependent on "the intensity of and physical proximity to the stressor," (American Psychiatric Association, 2000).

PTSD is a complex syndrome that develops following exposure to a variety of trauma types, but is not largely assumed to differ as a function of the Criterion A event. Differences among trauma types potentially challenge the assumption of commonality. For example, a greater likelihood for development of the syndrome as a function of

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trauma type, particularly combat exposure and sexual assault, has been demonstrated in a variety of studies (Kessler, Sonnega, Bromet, Hughes & Nelson, 1995; Breslau, Kessler, Chilcoat, et al., 1998). Additionally, severity of symptoms has been shown to vary according to trauma type, with greater symptom severity noted in victims of sexual traumas (see Norris, Foster, & Weisshaar, 2002 for a review). Of particular interest is the nature and extent of the differences among trauma types, and the effects they may have on the individual. As previously stated, PTSD is assumed to be a common syndrome, but differences have been observed among trauma types in terms of severity and chronicity of the syndrome. Beyond these findings, little research exists on differences among distinct trauma types with respect to either the core PTSD syndrome or the full clinical presentation including comorbid problems and extent and severity of functional impairment. Further, many of these studies have not utilized a multiscale inventory, and the studies that have each contain important methodological limitations.

Differences in PTSD symptom presentation among distinct trauma types have been investigated in few studies. Goenjian et al. (2000) compared PTSD symptomatology resulting from two types of traumatic events, an earthquake (both mild and severe) in Armenia, and severe political violence in Azerbaijan (Goenjian, Steinberg, Najarian, Fairbanks, Tashijian & Pynoos, 2000). They measured symptom severity 1.5 and 4.5 years after the traumatic events occurred, and found that the two groups classified as withstanding a severe trauma (severe earthquake and severe political violence) did not differ significantly in profile, PTSD symptom severity, or course, but did differ from the mild earthquake group on these dimensions, with the more severe traumatic events yielding greater symptom severity.

Deimling, Boaz, Bowman, and Schaefer (2002) compared differences in PTSD symptom presentations among survivors of three types of cancer. The investigators utilized the PCL-C and found the prevalence of PTSD in the sample was low, in addition to finding no significant differences among the groups in terms of symptom severity. The results of this study may have limited validity due to the erroneous PCL-C scoring method used.

Wilson, Smith, and Johnson (1985), investigated levels of intrusion and avoidance among different trauma types using a variation of the Impact of Event Scale (IES, Horowitz, Wilner, & Alvarez, 1979). They found many significant differences for intrusion and avoidance among the groups, but did not analyze symptom profiles, only mean symptoms.

Additionally, Norris (1992) conducted an epidemiological study identifying and comparing 10 potentially traumatic events. She found that sexual assault produced the highest rates of PTSD, but the 10 events did not differ significantly when analyzed at the symptom level. Additionally, this study utilized the Traumatic Stress Schedule which assesses only 9 of the 17 DSM symptoms of PTSD. The study was limited further by the sample, which was not random.

The discussion of the literature clearly indicates differences among trauma types in prevalence and conditional risk for PTSD. Further, the previous literature indicates trauma type differences in the core PTSD syndrome. Kelley, Weathers, McDevitt-Murphy, Eakin, and Flood (2008) built upon the previous literature findings of quantitative differences in symptom severity and prevalence and took the next step to identify qualitative differences in individual PTSD presentations. Using profile analysis,

the investigators examined the symptom profile shape along with differences among

trauma types in symptom presentations. Kelley et al. found that, like previous studies

had shown, sexual assault (SA) was found to have the highest severity of symptoms

among the three trauma types. But the main finding was that different symptom

presentations may be produced by different trauma types. Therefore, among the PTSD

symptoms, both quantitative and qualitative differences exist. However, the authors

stated that the differences likely suggest only that different trauma types lead to

variations of the syndrome, but the variations do not differ enough to dispel the

assumption of commonality of PTSD as a syndrome. Kelley et al. investigated

qualitative differences among the 17 PTSD symptoms measured by the PTSD Symptom

Checklist (PCL-S).

As the previous literature suggests, some differences exist in PTSD symptom

presentations among trauma types. Therefore, it stands to reason that differences may

also exist in terms of comorbid conditions. PTSD is widely accepted to co-occur with a

variety of mental disorders, further complicating the symptom presentation of the

disorder and opening the door to the possibility that the different trauma types that

precipitate the diagnosis may also vary according to the comorbid symptoms and

disorders they engender. DSM-IV-TR states that PTSD is associated with the following

disorders: major depressive disorder, substance-related disorders, panic disorder,

agoraphobia, obsessive-compulsive disorder, generalized anxiety disorder, social phobia,

specific phobia, and bipolar disorder (American Psychological Association, 2000). The

National Comorbidity Study conducted by Kessler et al. (1995) found strikingly high

comorbidity rates among participants with lifetime PTSD, specifically 88% of men and

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79% of women also meeting lifetime criteria for one or more additional mental disorders. Similarly, as previously reported, McDevitt-Murphy et al. (2007) found that over 83% of the PTSD group in the study also met criteria for at least one additional Axis I diagnosis. Some of the most common comorbid disorders included social phobia, specific phobia, generalized anxiety disorder, and dysthymia (in order of commonness). Holmes et al. (2001) reported high rates of comorbidity of PTSD with depression, somatoform disorders, and substance-related disorders. Studies consistently demonstrate PTSD as co-occurring with a variety of additional DSM diagnoses, complicating the clinical picture of the disorder. In addition, the variety of trauma types constituting Criterion A events, and in turn, potentially precipitating the disorder, further complicate the clinical picture. Therefore, in order to fully assess PTSD and potential comorbid conditions, a well-validated multiscale inventory should be utilized.

In addition to the previous studies focusing on differences in PTSD symptomatology among trauma types, relevant studies involve the use of multiscale inventories, primarily the MMPI-2, focusing less specifically on the core PTSD syndrome and more on profiles with respect to a full range of psychopathology. For example, Kirz et al. (2001) investigated differences in PTSD symptomatology as well as in the broader clinical picture using the Minnesota Multiphasic Personality Inventory (MMPI-2) (Kirz, Drescher, Gussman, Klein & Schwartz, 2001). The results revealed significantly different profiles between a group of combat veterans and one of victims of sexual assault, with combat veterans more frequently endorsing items reflecting externalizing symptoms of the disorder, and the victims of sexual assault more frequently endorsing internalizing symptoms. However, this study was limited by both the use of

the MMPI-2 as the outcome measure, as it is does not directly correspond with PTSD symptoms, and the use of two groups within which there was no overlap of gender.

In another study, Glenn et al. (2002) compared the MMPI-2 profiles of combat veterans from the Gulf and Vietnam wars. Again, the investigators assessed both PTSD symptomatology and symptoms of other psychopathology. The profiles were significantly different as a function of service era, indicating that Vietnam War veterans were experiencing higher levels of depressive symptoms, anxiety, and social isolation/alienation than their Gulf war counterparts.

The aforementioned studies highlight important differences among PTSD symptom presentation as a result of differential trauma exposure, primarily indicating differences in severity of symptoms. In addition to these findings, a number of studies indicate trauma type differences in the broader clinical presentation of PTSD, specifically with comorbid symptoms of other mental disorders. In addition to the two studies utilizing the MMPI-2 reviewed above, relevant studies involve the use of the PAI in the assessment of PTSD and other psychopathology. These studies assessed for a wide range of psychopathology and were not limited to the assessment exclusively of PTSD symptoms. The aforementioned studies all inform the current study, but to date none has used the PAI to compare trauma types. This is an unfortunate deficit in the literature because the PAI is ideal for examining trauma type differences in the broader clinical presentation. The findings of these studies inform and provide evidence in support of the use of the PAI in the current study.

Although the MMPI-2 has previously been regarded as the "gold standard" in personality assessment, the Personality Assessment Inventory (PAI) offers some

additional value to the assessment of personality and psychopathology. The PAI assesses a broad spectrum of psychopathology and has many additional benefits that do not exist in the MMPI-2. As previously stated, the PAI directly corresponds with many of the DSM criteria for PTSD, and the MMPI-2 does not. The MMPI was originally developed using the empirical keying approach, meaning the items were chosen for inclusion based on their ability to discern clinical groups from non-clinical groups. The MMPI utilized empirical item analysis to determine item inclusion. However, the items are not necessarily construct-related, but rather were chosen based on their ability to differentiate groups, potentially devoid of relevant content. As a result, the MMPI is not a DSM-correspondent measure.

The MMPI has been found to demonstrate other inadequacies, one of which was the measure's tendency to reveal elevations on more than one clinical scale. Although the measure was able to appropriately distinguish clinical groups, the clinical scales did not appear to be "pure measures of the symptom syndromes suggested by the scale names," due to elevations on additional scales (Graham, 2006). Further, item overlap among the scales likely contributed to the intercorrelations between scales. The developers of the PAI corrected for this problem by eliminating item overlap among the clinical scales, in addition to utilizing the construct validation approach (Cronbach & Meehl, 1955) for item inclusion.

Construct validity is "the degree to which an assessment instrument measures the targeted construct," (Haynes & Kubany, 1995). It has been stated that "the primary goal of scale development is to create a valid measure of an underlying construct," (Clark & Watson, 1995). The development of the PAI took this approach, valuing above all else

construct validation. As previously stated, the Personality Assessment Inventory (PAI; Morey, 1991) is a self-report measure designed to assess personality and a variety of constructs associated with psychopathology. It is composed of 344 items, which are answered according to the intensity of the feature they describe (Totally False, Slightly True, Mainly True, and Very True). The use of a four-alternative scaling system, as opposed to the True/False system utilized by the MMPI-2, is beneficial for a variety of reasons: The alternatives enable the measure to achieve more true variance per item, allowing even scales with fewer items to be sufficiently reliable; the length of the scales is determined solely by the relevance of the criterion to the construct, as the PAI eliminated scale overlap; appropriate attention is paid to responses that may be indicative of a serious clinical problem, regardless of their frequency or severity (for example suicidal ideation or delusions, where even a Slightly True response would warrant clinical attention); the nature of the alternative, a strict true and false responding system, is problematic when the individual feels that their true response is not accurately reflected on either extreme, but lies somewhere in between true and false (Morey, 1996).

In essence, the PAI was developed in such a way as to ensure that each of the scales are measuring distinct constructs, and the items included in each scale reflect relevance to the construct they serve to assess. The relevance of each item was reviewed by experts to determine inclusion or exclusion from a particular scale. Therefore, the clinical scales on the PAI were all determined to be distinct, the items do not overlap, and each item was carefully selected according to its relevance to the construct being assessed. Additionally, unlike the PCL-S used in Kelley et al., the PAI is able to measure

more than the 17 core symptoms of PTSD, providing information on comorbid symptoms of other psychological disorders.

Cherepon & Prinzhorn (1994) compared the PAI profiles of adult female victims of abuse (physical, sexual, or emotional, occurring during childhood or adolescence) to the profiles of adult females with no prior history of abuse but with primary affective disorders. They found significant differences between the two groups on many PAI scales, specifically finding that the profiles of the abuse survivors closely resembled Morey's Cluster 2 description (and to a lesser extent, his Cluster 7 description), both of which are associated with posttraumatic stress disorder diagnoses (see Morey, 1996). The profile for the abuse survivors included elements of Cluster 2 including elevations on the following scales: Depression (DEP), Anxiety (ANX), Anxiety-Related Disorders (ARD), Suicidal Ideation (SUI), Borderline Features (BOR), Schizophrenia (SCZ), Nonsupport (NON), Somatic Complaints (SOM), and Stress (STR). The specific subscales affected were the three Depression subscales, Social Detachment subscale of Schizophrenia (SCZ-S), and Traumatic Stress subscale of Anxiety-Related Disorders (ARD-T).

Wolfe & Straatman (2006) investigated the long-term psychological impact of childhood physical and sexual abuse inflicted by male surrogate caretakers in religiously-affiliated institutions using the PAI in a sample of adult males. They found that 59.2% of the adult men met criteria for a current Axis I disorder (most frequently PTSD, Alcohol Disorder, and Major Depressive Disorder), and 88.2% had met criteria for an Axis I disorder in the past. The investigators also found that 63.2% of the participants were diagnosed with PTSD, with 42.1% meeting criteria currently and 21.1% meeting criteria

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in the past. The ARD and BOR scales were both significantly elevated in the profiles of the participants, specifically the ARD-T and the Negative Relationships subscale of BOR.

McDevitt-Murphy, Weathers, Adkins, and Daniels, (2005) used the PAI to assess PTSD in women classified as PTSD or non-PTSD according to the Clinician-Administered PTSD Scale (CAPS). The investigators found significant differences on seven of the eleven clinical scales of the PAI (Anxiety, Depression, Anxiety-Related Disorders, Somatic Complaints, Paranoia, Borderline Features, and Schizophrenia), as well as on the Negative Impression scale and two treatment scales, Nonsupport and Treatment Rejection. A significant discrepancy was observed between the groups on the ARD-T subscale, which was found to be strongly correlated with CAPS total severity. Overall, the PTSD group reported more severe symptoms than the non-PTSD group, and the PAI appeared to detect between-group differences, lending support to the use of the PAI in assessing PTSD.

Mozley, Miller, Weathers, Beckham, & Feldman (2005) utilized a variety of measures, primarily the MMPI-2 and PAI, to assess combat-related PTSD in a sample of male veterans. The resulting PAI mean profile revealed Depression as the most elevated scale, followed by Somatic Complaints, Anxiety-Related Disorders, and Schizophrenia. Further, the ARD-T subscale mean score, the highest of all the subscale scores, was 84T. The study encountered a problematic level of malingering (16.2% of profiles were invalid), and the majority of the veterans in the sample were compensation-seeking.

Hom, Haley, & Kurt (1997) attempted to identify a specific, PTSD-like syndrome in Persian Gulf War veterans, referred to as Gulf War Syndrome, using the PAI. The

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veteran participants were divided into two groups, a group reporting war-related symptoms and a control group. The administration of the PAI yielded a clinical profile in the group reporting war-related symptoms that was unlike traditional PTSD or other related disorders (Hom et al., 1997). The GWS veterans were found to be experiencing impaired emotional functioning compared to their control group counterparts, scoring significantly higher on Somatic Complaints (SOM), Anxiety (ANX), Depression (DEP), Schizophrenia (SCZ), and Borderline Features (BOR). However, no difference was found on Anxiety-Related Disorders (ARD), which contains the ARD-T subscale that is often elevated in individuals with posttraumatic stress disorder (Morey, 1996). The investigators found that the veterans profiles were unique, as they did not resemble typical PTSD profiles, nor did they resemble the profiles of other clinical populations such those diagnosed with depression, anxiety, and somatoform disorders.

Holmes, Williams, & Haines (2001) compared the PAI profiles of three groups from a community sample, differentially diagnosed with PTSD, acute stress disorder (ASD) without progression to PTSD, and subclinical responses. The study found that the PTSD group reported more somatic complaints, anxiety, anxiety-related disorders, and depression on the PAI than the other two groups. No significant between-group differences on the Alcohol Problems scale were observed. Additionally, a significant main effect for the Negative Relationships subscale of the Borderline Features scale was found, with the PTSD group scoring significantly higher than the ASD and subclinical groups. The study lends support to the use of the PAI in the assessment of individuals with PTSD, as the PAI was able to identify distinct profiles for each of the groups in the sample (Holmes et al., 2001).

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McDevitt-Murphy, Weathers, and Flood (2007) revealed difficulties distinguishing PTSD from depression using the PAI and MMPI-2. The investigators used a sample comprising primarily female (over 82%) college students with mixed civilian trauma in an attempt to determine the utility of the PAI and the MMPI-2 in discriminating PTSD from other disorders, in this case depression and social phobia. Each of the participants was diagnosed with one of the three disorders or as well-adjusted through the use of structured interviews. The mean profiles differed significantly in both shape and elevation as a function of group. The PAI and the MMPI-2 were able to clearly distinguish the PTSD group from the well-adjusted group and both were able to better differentiate PTSD from social phobia than from depression. However, neither the PAI nor the MMPI-2 was successful in differentiating PTSD and depression diagnoses. As a result of this lack of differentiation, McDevitt-Murphy et al. concluded that PTSD and depression are more similar than the DSM-IV has acknowledged in classifying PTSD as an anxiety disorder, especially since both measures were successful in distinguishing PTSD and social phobia, a fellow anxiety disorder. Additionally, the study found over 83% of the PTSD diagnosed individuals also met criteria for at least one additional Axis I diagnosis. Some of the most common disorders comorbid with the PTSD group included social phobia, specific phobia, generalized anxiety disorder, and dysthymia (in that order of commonness). The social phobia group had a comorbidity rate of 21.1%, and the depression group contained 47.8% with comorbid diagnoses.

The current study builds upon this literature, particularly Kelley et al. (2008), investigating individual symptom presentations using a partially DSM-correspondent multiscale inventory, the PAI, in an effort to detect differences among comorbid

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symptoms as well as differences among the PTSD symptoms. The current study utilizes

the PAI in an effort to measure other symptoms of psychopathology because, when

comorbid conditions are taken into consideration, important qualitative differences could

be observed, potentially lending credence to the possibility that different trauma types

produce distinct disorders rather than one umbrella disorder of PTSD.

The current study compared three types of civilian trauma, sexual assault (SA),

motor vehicle accidents (MVA), and sudden, unexpected death of a loved one (SUD),

each of which is distinct  from the others on some significant dimension.  Further, the

three types of trauma chosen for inclusion in the study are more likely than others to have

been experienced by members of a college population.  SA, commonly thought of as a

prototypical trauma capable of precipitating PTSD, is unique from SUD and MVA

because of the element of interpersonal violation and violence, in addition to the

associated taboo and victim-blaming (secondary victimization) that often occurs with

sexual assaults (see Campbell, Wasco, Ahrens, Sefl, & Barnes, 2001; Campbell & Raja,

2005 for research pertaining to secondary victimization in victims of sexual assault).

MVA is also a commonly experienced Criterion A event capable of precipitating PTSD,

and stands out from SA and SUD because there is usually not an interpersonal component

involved in the trauma, but instead it often predominantly involves life threat, injury, and

fear conditioning.  Finally, SUD was included in the current study because of its

prevalence in a college population and controversial inclusion as a Criterion A event (see

Kaltman & Bonanno, 2003 for discussion of complicated grief and SUD).

PTSD, as originally conceptualized, was assumed to be a common syndrome

resulting from any type of traumatic event.  Although it appears the symptoms are similar

across trauma types, differences do exist in terms of severity and likelihood of development. Of primary interest is the extent of these differences and their effects on the individual. The current study sought to address whether different trauma types are differentially harmful as found in previous studies, the ways in which the trauma types may differ, and the scales on which these differences may exist (differences in comorbid symptoms). Additionally, the current study aimed to explore the distinct symptom presentations among the trauma types. The expectation was to replicate the results from previous studies, finding elevations on DEP, ANX, and ARD across all three trauma types. In addition to these expectations, the current study formed nine hypotheses regarding the PAI profiles of the three trauma types: *Hypothesis 1*: Replication of previous findings, with a main effect for group observed, with SA group scoring the highest in overall severity. *Hypothesis 2*: Replication of results from previous studies, finding a main effect for scale, with the highest elevations across trauma types on the DEP, ANX, and ARD scales. *Hypothesis 3*: Although all three trauma types will likely show elevations on the Depression (DEP) scale (McDevitt-Murphy et al., 2005), SUD will be found to be higher on DEP because of the notion of complicated grief and its parallels with depression. *Hypothesis 4*: Although all three trauma types will likely show elevations on the ANX scale, MVA will be found to elicit higher scores on ANX, followed by SA to a lesser degree, due to the strong classically-conditioned fear component inherent in the trauma types. *Hypothesis 5*: Although all three trauma types will be found to yield elevated scores on ARD and the Traumatic Stress subscale (ARD-T), SA will be found to have the highest scores on ARD, in large part because of previous findings of higher overall scores on ARD-T, a subscale of ARD, and also due to the

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significant symptoms of avoidance in the form of negative reinforcement to reduce anxiety elicited from conditioned stimuli relating to the trauma, inherent in the trauma type. *Hypothesis 6*: Similarly, SA, followed by SUD, will be found to produce higher scores on the Substance Abuse Scales (ALC and DRG), due to the avoidance and numbing symptoms associated more predominantly with the trauma types, as drug and alcohol use can be an avoidance mechanism. *Hypothesis 7*: SA would be found to have the highest scores on the Nonsupport (NON) scale, which measures perceived lack of social support and the quality of the individual's interpersonal relationships, due to the interpersonal nature, and accompanying disconnection and alienation inherent in this trauma type (see Herman, 1997 for review of interpersonal trauma). *Hypothesis 8*: SA would be found to have the lowest scores on the Dominance (DOM) scale due to the accompanying disempowerment (see Herman, 1997), as low scores on DOM indicate a lack of confidence on the part of the respondent, as well as indicate an individual who tends to resign control in relationships. *Hypothesis 9*: SUD would be found to have the highest scores on the Somatic Complaints (SOM) scale, due to the associated health problems found to accompany complicated grief and loss (see Bonanno & Kaltman, 1999, 2001).

METHOD

Participants

Participants were undergraduate Auburn University students enrolled in psychology courses and seeking extra credit. One selection criterion was that the individuals had to be at least 19 or have obtained and submitted a parental consent form. Participants were recruited using postings requesting the participation of individuals who have experienced "a very stressful event, such as a serious accident, natural disaster (tornado, hurricane, and flood), physical or sexual assault, or similarly stressful event." Individuals who chose to participate were administered multiple self-report measures in the first session, and those who reported experiencing a stressful event which both met Criterion A of posttraumatic stress disorder (PTSD) and had reportedly been associated with distress or functional impairment during the last 12 months were invited to participate in an additional session during which they were administered the Clinician-Administered PTSD Scale (CAPS). Initial sessions were conducted three to four times per week until they yielded sufficient participants for the additional sessions. Participants were compensated for their participation in the study by receiving 3 hours of extra credit points for the initial session and an additional 2 hours of extra credit points for those who participate in the additional session. A drawing for a $15 Wal-Mart gift card was held for every 20 participants who appear to have followed the directions of each measure to the

best of their ability, in an effort to minimize error and exclude invalid self-reports from the study.

One hundred and ninety seven participants were included in the sample for the current study. The sample consisted mainly of female ($n$ = 148; 75.1%), Caucasian ($n$ = 157; 79.7%) or African-American ($n$ = 30; 15.2%) participants. Most participants in the sample were single ($n$ = 188; 95.4%), and ranged in age from 17 to 36 years ($M$ = 20.2). The MVA group consisted of 86 participants, mainly female ($n$ = 56; 65.1%), Caucasian ($n$ = 72; 83.7%), single ($n$ = 83; 96.5%), and ranging in age from 17 to 30 years ($M$ = 20.2). The SA group consisted of 38 participants, mainly female ($n$ = 35; 92.1%), Caucasian ($n$ = 26; 68.4%), single ($n$ = 35; 92.1%), and ranging in age from 18 to 36 years ($M$ = 20.7). The SUD group consisted of 73 participants, mainly female ($n$ = 57; 78.1%), Caucasian ($n$ = 59; 80.8%), single ($n$ = 70; 95.9%), and ranging in age from 18 to 26 years ($M$ = 19.9).

Procedure

The study involved two separate sessions, conducted approximately one to two weeks apart. In the first session, the participants completed a battery of self-report measures assessing symptoms of posttraumatic stress disorder, personality functioning and emotional difficulties, anxiety, depression, dissociation, cognitive distortions, trauma-related cognitive schemas, life threat, and betrayal. In the second session, clinicians interviewed the participants using the Clinician-Administered PTSD Scale (Blake, Weathers, Nagy, et al., 1990).

*First Session*. In the first session, undergraduate research assistants administered the packet of measures, providing instructions, and supervising the completion of the

packet of measures. The instructions directed participants to first read and sign the informed consent form provided in the packet, then supply the experimenters with contact information to be utilized if the participant qualified for participation in the second phase and/or was entered into the drawing. Participants were then informed that appropriately and sufficiently attending to the content of each item would earn them entry into a drawing in which 1 in 20 qualifying participants would be randomly selected to win a $15 gift card to Wal-Mart. Next, participants were instructed to complete the self-report measures provided in the packet. Upon completion of the measures, the participants were given a debriefing form containing a brief description of the purpose of the study, as well as a list of available mental health resources, and their three hours of extra credit was either entered using an online tracking system or provided to them handwritten on an extra credit slip.

*Second Session.* For the second session, individuals who meet inclusion criteria (reported experiencing an event that met Criterion A of PTSD and reported distress or functional impairment related to this event in the last 12 months) were recruited by phone or email to participate in the additional interview session. Those who chose to participate were scheduled within one month, typically one to two weeks, following completion of the first session, for an interview conducted by a graduate clinician trained in the use of the Clinician-Administered PTSD Scale. Interviewers were doctoral students in clinical psychology and were trained and supervised by a licensed clinical psychologist. All interviews were conducted in lab rooms of Thach Hall and in therapy rooms in Auburn University Psychological Services Center. The second session began with a review of the informed consent the participants had been given in the first session, and a brief overview

of the structured interview.  The graduate clinicians then administered the CAPS. After the interview, they provided the participants with an additional copy of the debriefing form and an additional two hours of extra credit, either entered using an online tracking system or provided to them handwritten on an extra credit slip.

Measures

Participants completed the packet of self-report measures in the first session. Participants were presented first with a demographics form, and then with self-report measures of trauma exposure.  The participants received the measures in alternating orders in an effort to minimize order effects through random assignment.  For example, the length of the measures were taken into consideration and the longest measures were alternately presented first and last.  Additionally, measures assessing PTSD and trauma exposure were not presented consecutively, but were separated by measures assessing different constructs.

*Trauma Exposure and Posttraumatic Stress*.  In order to assess trauma exposure and posttraumatic stress symptoms, the packet included the Life Events Checklist (LEC), The Clinician-Administered PTSD Scale (CAPS; Blake et al., 1995), The Stressful Events Impact Form (SEIF), and the PTSD Checklist, specific version (PCL-S).  The LEC, the trauma assessment component of the CAPS, was used to assess the respondents' history of trauma.  The LEC includes a list of 17 categories of potential traumatic events, including an "other" category, and assesses the nature of the exposure to each category (happened to me, witnessed it, learned about it, not sure, and does not apply).  Participants identified which event was worst for them, and this information was used to help determine eligibility for the second session of the study.  The Stressful

Events Impact Form (SEIF), was also used in order to determine the respondents'

appropriateness for participation in the second session.  The SEIF asks the respondent to

report any time when the event had caused significant distress and where the respondent

turned for support.  The PTSD Checklist, an inventory assessing PTSD symptoms,

contains 17 items, each corresponding to one of the DSM-IV symptoms of PTSD.  In the

present study, the specific version (PCL-S; Weathers, 1993) was used, in which the

respondent describes his or her traumatic event and then uses the event to complete the

additional questions.  Finally participants who met requirements for participation in the

second session of the study based on the responses on the previous measures were

administered the CAPS.  This interview is widely used to assess the presence of

symptoms, symptom severity, and symptom frequency.  This measure was utilized in the

second session of the study in order to obtain information about the clinical relevance of

the participants' reported symptoms (presence of significant symptoms of posttraumatic

stress).

*Personality Functioning and Emotional Difficulties*.  Personality Assessment

Inventory (PAI; Morey, 1991), is a multiscale self-report inventory developed to assess

personality functioning and psychopathology.  It is composed of eleven clinical scales,

five treatment scales, two interpersonal scales, and four validity scales.

*Anxiety and Depression*.  The Beck Anxiety Inventory (BAI) is a 21-item measure

assessing anxiety symptoms and symptom severity.  The Beck Depression Inventory –

Second Edition (BDI-II) is a 21-item measuring assessing depressive symptoms and

symptom severity within the past two weeks (Beck, Steer, & Brown, 1996).

*Dissociation*.  The Dissociative Experiences Scale – Second Edition (DES-II) is a 28-item measure assessing respondents' past or present experience of symptoms of dissociation (Bernstein & Putnam, 1986).  Respondents are asked to report the percentage of time they have experienced dissociative experiences.

*Cognitive Distortions and Trauma-Related Cognitive Schemas*.  The Cognitive Distortion Scale (CDS) is a 40-item measure assessing the presence of five types of common cognitive distortions over the past month: self-criticism, self-blame, helplessness, hopelessness, and preoccupation with danger (Briere, 2000).  The Inventory of Altered Self-Capacities (IASC) is a 63-item measure assessing Interpersonal Conflicts, Idealization-Disillusionment, Abandonment Concerns, Identity Impairment, Susceptibility to Influence, Affect Dysregulation, and Tension Reduction Activities (Briere & Runtz, 2002).  The Trauma and Attachment Belief Scale (TABS) is an 84-item measure assessing schemas of both self and others in five domains: Safety, Trust, Esteem, Intimacy, and Control (Pearlman, 2003).

*Life Threat and Betrayal*.  The Life Threat and Betrayal Inventory consists of adapted components of measures used by Blanchard, Hickling, Mitnick, et al. (1995), Nixon, Resick, & Griffin (2004), and Freyd, DePrince, & Zurbriggen (2001). The measure as used in the present study, contains three sections assessing the respondents' level of injury, PLT (global rating and narrative about the event they reported as worst for them and what made them feel they were in danger, circumstances at the time, etc.), and betrayal associated with an index traumatic event.

Data Analysis

The data analyses primarily involved profile analyses, based on a multivariate approach to repeated-measures analysis of variance (MANOVA). MANOVA was used based on the PAI scales and subscales as the repeated measure, in group by scale analyses. The grouping variable was the type of trauma experienced: SA, MVA, or SUD. Using MANOVA, the study investigated between-subjects group by scale (on the PAI), and sought to both test for departures from parallelism (an interaction between group and scale) to determine whether the PAI profiles differ as a function of trauma type, and for a level effect, or main effect for group. Significant group differences found using these analyses were followed by one-way analysis of variance (ANOVA) and Tukey post hoc tests. Additionally, Pearson correlation effect sizes were analyzed in pairwise comparisons among the three groups (SA vs. MVA, SA vs. SUD, MVA vs. SUD).

RESULTS

Exclusion Criteria

Prior to data analyses, cases were determined for inclusion based on two criteria: Criterion A for PTSD had to be met, and the four validity scales could not exceed the recommended scores for valid profiles, as suggested in Morey (1996). Participants who reported events that did not meet Criterion A were excluded. Additionally, participants with scores on the Inconsistency scale (ICN) $\geq 73$, the Infrequency scale (INF) $\geq 75$, the Negative Impression Management scale (NIM) $\geq 92$, and the Positive Impression Management scale (PIM) $\geq 68$, were excluded. Significant elevations on the ICN scale suggest that the respondent did not attend to item content, potentially due to random responding, reading difficulty, careless or confusion, or difficulty following instructions. Significant elevations on the INF scale also suggest the respondent did not attend to item content, endorsing many items that are typically infrequently endorsed. Significant elevations on the NIM scale suggest that the respondent attempted to portray themselves in an overly negative manner, and significant elevations on the PIM scale suggest the respondent presented themselves as exceptionally free of shortcomings. Thirty-six participants were excluded based on their failure to meet Criterion A for PTSD, thirteen were excluded due to elevations on ICN, six based on elevations on INF, three based on elevations on NIM, and 6 based on elevations on PIM.

Profile Analyses

Separate profile analyses were performed on 3 groups of scales, 18 scales total, of

the Personality Assessment Inventory: The 11 clinical scales, including Somatic

Complaints, Anxiety, Anxiety-Related Disorders, Depression, Mania, Paranoia,

Schizophrenia, Borderline Features, Antisocial Features, Alcohol Problems, and Drug

Problems; the 5 treatment scales including Aggression, Suicidal Ideation, Stress,

Nonsupport, and Treatment Rejection; and the 2 interpersonal scales including

Dominance and Warmth (Tabachnick & Fidell, 2007). The profile analyses, based on a

multivariate approach to repeated measures analysis of variance (MANOVA),

investigated between-subjects group X PAI scale, and tested for departures from

parallelism, and for a level effect, or main effect for group. The level effect tests for

differences in overall severity as a function of group, and the test for interaction indicates

qualitative differences among the group profiles. The grouping variable in the analyses

was type of trauma, divided into participants who had experienced (1) motor vehicle

accidents, (2) sexual assault, and (3) sudden, unexpected death or loss.

SPSS GLM was used for the major analyses. Using Wilks' criterion, the profiles

of the 11 clinical scales, seen in Figure 1.1, deviated significantly from parallelism, $F$

$(20, 370) = 1.85$, $p = .015$, partial $\eta^2 = .09$. Therefore, the main effect for group was

qualified by a significant group X scale departure from parallelism, supporting the first

hypothesis. For the levels test, statistically significant differences were found among

groups when scores were averaged over all subtests, $F (2, 194) = 3.19$, $p = .04$, $\eta^2 = .03$,

also supporting part of the second hypothesis. These findings indicated that the profiles

differed in shape as well as elevation. Two homogeneous subsets were revealed using

Tukey post hoc tests: Motor vehicle accidents and sudden, unexpected death or loss, and motor vehicle accidents and sexual assault. Groups did not differ within subsets, meaning the motor vehicle accident group did not differ significantly from either group, but the sexual assault group mean profile was significantly higher than that of the sudden, unexpected death or loss group.

Using Wilk's criterion, the profiles for the 5 treatment scales, seen in Figure 1.1, did not deviate significantly from parallelism, $F(8, 380) = 1.86$, $p = .065$, partial $\eta^2 = .03$. Therefore, the main effect for group was not qualified by a significant group X scale interaction. For the levels test, no statistically significant differences were found among groups when scores were averaged over all subtests, $F(2, 193) = 1.90$, $p = .15$, $\eta^2 = .01$. These findings indicated that the profiles did not differ in either shape or elevation. Tukey post hoc tests did not revealed any homogeneous subsets, indicating the three group means did not differ significantly.

The third analyses was conducted with the two interpersonal PAI scales, and using Wilk's criterion, the profiles for each, seen in Figure 1.1, did not deviate significantly from parallelism, $F(2, 194) = .629$, $p = .534$, partial $\eta^2 = .006$. Therefore, the main effect for group was not qualified by a significant group X scale interaction. For the levels test, no statistically significant differences were found among groups when scores were averaged over all subtests, $F(2, 194) = .983$, $p = .376$, $\eta^2 = .01$. These findings indicated that the profiles did not differ in either shape or elevation. Tukey post hoc tests did not revealed any homogeneous subsets, indicating the three group means did not differ significantly.

One-way ANOVAs and Tukey post-hoc tests on the 18 PAI scales and one

subscale (ARD-T) revealed significant group differences on the following scales: ANX,

ARD, ARD-T, DEP, PAR, BOR, SUI, NON, and RXR, with SA consistently exhibiting

the highest scores on all except RXR, in which case SA exhibited the lowest score

indicating more Treatment Rejection than the other two groups.  The groups significantly

differed on ANX (anxiety), ARD (anxiety-related disorders), ARD-T (anxiety-related

disorders, traumatic stress subscale), DEP (depression), BOR (borderline features), NON

(nonsupport), and RXR (treatment rejection), with SA exhibiting significantly higher

severity than both MVA and SUD, which did not differ significantly.  These findings

supported the fifth hypothesis (ARD and ARD-T would be highest in SA), and the

seventh hypothesis (SA would score highest on NON).  However, the findings did not

support the third hypothesis (that SUD would be highest on DEP), or the fourth

hypothesis (that MVA would be highest on ANX).  SA also exhibited significantly higher

severity than MVA on SUI (suicidal ideation), with SUD intermediate to and not

significantly different from the other two groups.  The sixth hypothesis (SA, then SUD

would score highest on ALC and DRG), the eighth hypothesis (SA would score lowest on

DOM), and the ninth hypothesis (SUD would score highest on SOM), were not supported

as no differences were observed among the groups on these scales.

Pearson Correlation Effect Sizes

The means, standard deviations, and the Pearson correlation effect sizes (r) for

pairwise group comparisons for each of the three groups on the three groups of PAI

scales (clinical, treatment, and interpersonal) are presented in Table 1.  The correlation

effect sizes revealed the best differentiation between sexual assault and the other two

groups.  According to Rosenthal et al., correlation effect sizes ($r$) are considered small if $r$ >.10, moderate if $r$ >.30, or large if $r$ > .50 (Rosenthal, Rosnow, & Rubin, 2000). The largest effect sizes for the comparison between MVA and SA were found on the BOR and ARD scales ($r$ = .25, $p$ < .01 for each).  Also significant were the effect sizes on the ANX ($r$ = .20), DEP ($r$ = .22), PAR ($r$ = .19), SUI ($r$ = .22), NON ($r$ = .21), and RXR ($r$ = -.22) scales ($p$ < .05 for each).   The largest effect sizes for the comparison between MVA and SUD were on the SOM ($r$ = -.13) and ANX ($r$ = -.11), but neither effect size was significant ($p$ > .05).  The largest effect sizes for the comparison between SA and SUD were on the ANX ($r$ = -.32), ARD ($r$ = -.30), DEP ($r$ = -.33), PAR ($r$ = -.27), BOR ($r$ = -.24), and NON ($r$ = -.27) scales (p < .01 for each).

DISCUSSION

The study investigated potential group differences in posttraumatic symptomatology using the Personality Assessment Inventory in a sample of undergraduate college students. The PAI profiles were examined comparing the three trauma groups: motor-vehicle accident; sexual assault; and sudden, unexpected death or loss. The results revealed that the profiles of the 11 clinical scales deviated significantly from parallelism, indicating an interaction between group and scale. These findings demonstrated that the differences were not only in severity, but an interaction was also present, supporting part of the second hypothesis. Supporting the first hypothesis and echoing the results of previous research, the findings revealed that the sexual assault group yielded the highest overall severity of symptoms. In addition to sexual assault yielding the highest severity, the current results also suggest that significant differences exist between sexual assault and sudden, unexpected death or loss. The results further indicated that motor vehicle accident trauma is intermediate to and does not differ from either group.

This finding is contrary to results found by Kelley et al. (2008), perhaps suggesting group differences exist in terms of PTSD symptoms experienced by each trauma type, but not in terms of symptoms of additional disorders. DSM-IV-TR states that the "the intensity of and physical proximity to the stressor," are important factors in posttraumatic stress (American Psychiatric Association, 2000), which may shed light on

why sexual assault yields more severe symptoms than sudden, unexpected death or loss-as sexual assault and motor-vehicle accidents are both experienced directly, whereas sudden, unexpected death or loss is not. Interestingly, sexual assault is the only interpersonal trauma included in the study, potentially lending support to the claim that interpersonal trauma, or trauma "of human design," results in increased severity and length of symptoms (American Psychiatric Association, 2000). Sexual assault is also associated with taboo, secondary victimization, and victim-blaming, whereas the other traumas largely do not involve the same association. The presence of these added trauma components (secondary victimization, victim-blaming, etc.) may lend support to the existence of a troubling additive effect of victimization, potentially increasing severity of symptoms (see Campbell, Wasco, Ahrens, Sefl, & Barnes, 2001; Campbell & Raja, 2005 for research related to secondary victimization).

The profiles did not differ on the treatment scales or interpersonal scales of the PAI as a function of group, indicating the posttraumatic stress syndrome demonstrated by each group is similar on dimensions such as Aggression, Stress, Dominance, and Warmth. Finding no differences among groups on the DOM scale fails to support the eight hypothesis, indicating the three groups did not differ in terms of lack of confidence and tendency to resign control in relationships. However, the sexual assault group was found to be most severe on three individual treatment scales: Suicidal Ideation, Nonsupport, and Treatment Rejection. The relative elevation of NON in the sexual assault group confirms the seventh hypothesis, that victims of this type of trauma experience a higher level of perceived lack of social support and reduction in quality of

interpersonal relationships, potentially as a result of the interpersonal component of the trauma and resulting lack of trust.

As previously stated, the findings suggest that individuals who have experienced a sexual trauma experience more severe symptoms of anxiety, anxiety-related disorders, depression, borderline features, feelings of nonsupport, and treatment rejection than victims of motor-vehicle accidents or sudden, unexpected death or loss.  These findings support the fifth hypothesis that ARD and ARD-T would be highest in victims of sexual trauma, replicating the results of previous research and indicating PTSD symptoms are most severe in this sample.

However, the findings of the study also failed to support hypotheses involving the clinical scales.  The third hypothesis that individuals experiencing sudden, unexpected death or loss would experience the highest levels of depression, was not supported, perhaps suggesting that the parallels between complicated grief or sudden, unexpected death or loss, and depression were not apparent in this study.  These results may have been different, however, in a clinical sample.  The fourth hypothesis, that victims experiencing motor-vehicle accidents would experience the highest levels of anxiety, was also not supported.  In a sense, the finding that sexual assault scored highest on ANX is not surprising, as sexual assault is also strongly fear-conditioned, and the motor-vehicle accident group scored intermediate to sexual assault and sudden, unexpected death or loss on this scale.   Contrary to the expectations of the study and sixth hypothesis that sexual assault, followed by sudden, unexpected death or loss would score highest on ALC and DRG, the groups did not differ on these scales.  The lack of differentiation on these scales may be due to the nature of the sample, as college students may be functioning at a higher

level than a clinical sample in terms of functional impairment, and have potentially developed alternative escape contingencies that may interfere less with their status as college students. As previously reported, the findings did not reveal differences on DOM, refuting the eighth hypothesis that SA would score lowest on this scale. Lastly, the expectation and ninth hypothesis that SUD would yield the highest scores on SOM was not supported, as no differences were observed among the groups on this scale. Again, this finding is likely the result of the use of a non-clinical population.

Morey (2003) suggests elevations on ARD, DEP, ANX, PAR, SCZ, MAN, WRM, and AGG or one or more of these scales' subscales are common in diagnoses of PTSD. The current study did not find striking elevations on these scales. However, the current findings indicate that sexual assault most closely resembles Morey's description, as a result of the greatest elevations on the scales were found in the sexual assault group (Morey, 2003). Overall, the findings seem to stray from traditional PTSD diagnoses, likely due in large part to the sub-clinical syndromes in a non-treatment-seeking population.

As previously stated, sexual assault was found to be significantly higher in overall severity than the other two groups, as well as on each scale where significant differences were found, perhaps attesting to the DSM-IV-TR claim that interpersonal trauma or a traumatic event "of human design" may yield more severe symptoms. As sexual assault is the only interpersonal trauma in the sample, our findings may speak to the effects of interpersonal victimization as opposed to the non-interpersonal nature of motor-vehicle accidents and sudden, unexpected death or loss.

This study aimed to address the assumption of commonality in the syndrome of PTSD. However, the results from this exploratory study do not clearly support either side, but rather lend credence to arguments from both. The idea that the nature of the precipitating event does not affect the resulting syndrome rightly gives rise to skepticism. As stated by Andreasen during a discussion of DSM inclusion criteria for PTSD, "Giving the same diagnosis to death camp survivors and someone who has been in a motor vehicle accident diminishes the magnitude of the stressor and the significance of PTSD," (Andreasen, 2004). The nature of the event surely plays a role in the clinical picture on a number of dimensions; it is unclear, however, the magnitude of this role.

Further, our findings did not completely mirror those of previous studies. For example, Mozley et al. (2005), using a sample of combat veterans, found elevations in DEP and ARD similar to the current study, but also found significant elevations in SOM and SCZ, findings that were not replicated in our study. Thus, it is arguable that the resulting syndromes of combat veterans differ from those of our sample, potentially in meaningful ways. Would one treat a client with significant symptoms of schizophrenia the same way one would treat someone with traditional posttraumatic stress symptoms? These differences among groups, albeit only partial, may still affect the course and direction of treatment in a practical sense.

On the other hand, the argument for one umbrella diagnosis of PTSD seems to have merit as well. The syndromes observed in this study do not appear to vary significantly with respect to qualitative differences, but more in terms of severity of the same symptoms, both PTSD symptoms and symptoms of comorbid disorders. Sexual assault had the highest severity on each scale where significant differences emerged.

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Although the profiles were not parallel, neither the motor-vehicle accident or sudden, unexpected death or loss group surpassed sexual assault in severity on any scale. So, as suggested by Kelley et al. (2008), the type of Criterion A event may lead to a variation of the syndrome, but the resulting variations may not differ enough to constitute individual diagnoses dependent on the nature of the traumatic event. The effect of the differences among trauma types is important to understand, as differential treatments may be called for, but the assumption of commonality of PTSD as a syndrome remains a very compelling argument.

The study has several limitations. For example, retrospective self-report was utilized and the study relied solely on the use of questionnaires to obtain information. A non-treatment-seeking sample was used, which yielded largely sub-clinical responses. However, many of the participants did reveal clinically relevant symptoms and would likely benefit from treatment. Although it is acknowledged there are restrictions present when utilizing a college sample, one particular benefit should also be considered: the three trauma types used in this study are prevalent in this population. Another limitation is that the sexual assault group was predominantly female, providing minimal gender overlap in this group. Further, the participants do not differ greatly in educational level, age, race, or marital status.

Overall, elevations observed on the PAI scales were sub-clinical, indicating the presence of comorbid symptoms of other disorders, but not comorbid disorders. Potentially many of our participants would not have met criteria for a diagnosis of PTSD, not to mention additional disorders, as a result of the sub-clinical population. However, use of a clinical sample and diagnostic assessment would allow diagnoses to be made and

would foster investigation of comorbid symptoms and disorders associated with different trauma types. The clinical picture of PTSD, with the numerous events qualifying as Criterion A, in addition to the high prevalence of comorbidity associated with the disorder, remains complex. Many questions remain to be answered in terms of the universality of the disorder, particularly attempts to clarify the complex clinical picture and distinguish the individual syndromes observed in specific Criterion A events. This study and the results point to a problematic gap in the literature, with very little research conducted comparing types of trauma and PTSD symptomology. The results indicate a need for further assessment of group differences, and replication, particularly in a clinical, treatment-seeking sample, would be beneficial to the field. Further, investigating differences in psychophysiology and functional impairment experienced would provide insight into potential practical differences among types of trauma. Expanding comparisons to include other Criterion A events would shed light on potential differential trauma reactions, and, more practically, whether there is a need for differential treatment of trauma types.

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APPENDIX

Table 1
*PAI Scale Means, Standard Deviations, and Correlation Effect Sizes (Pearson)*

| | Group | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | MVA (n = 86) | | SA (n = 38) | | SUD (n = 73) | | SA & MVA | SA & SUD | MVA & SUD |
| Scale | M | SD | M | SD | M | SD | | | |
| *Clinical scales* | | | | | | | | | |
| SOM | 52.56 | 8.7 | 53.26 | 9.2 | 50.35 | 7.6 | .03 | -.16 | -.13 |
| ANX | 56.96 | 11.8 | 62.40 | 12.5 | 54.44 | 10.5 | .20* | -.32** | -.11 |
| ARD | 55.32 | 11.4 | 62.00 | 11.7 | 54.19 | 11.3 | .25** | -.30** | -.05 |
| DEP | 53.05 | 11.4 | 59.23 | 13.8 | 50.95 | 9.6 | .22* | -.33** | -.09 |
| MAN | 54.23 | 11.8 | 52.55 | 9.1 | 54.30 | 10.0 | -.07 | .08 | .00 |
| PAR | 53.52 | 11.0 | 58.31 | 10.9 | 52.28 | 9.4 | .19* | -.27** | -.06 |
| SCZ | 51.43 | 11.0 | 53.13 | 11.0 | 50.75 | 12.2 | .07 | -.09 | -.02 |
| BOR | 55.18 | 11.0 | 61.73 | 12.0 | 55.65 | 11.0 | .25** | -.24** | .02 |
| ANT | 57.13 | 13.2 | 53.63 | 8.3 | 55.52 | 10.7 | -.13 | .90 | -.06 |
| ALC | 53.16 | 11.4 | 54.28 | 10.3 | 54.06 | 11.8 | .04 | -.00 | .03 |
| DRG | 51.41 | 11.9 | 51.42 | 10.3 | 49.94 | 11.8 | .00 | -.06 | -.06 |
| *Treatment scales* | | | | | | | | | |
| AGG | 50.16 | 11.1 | 51.57 | 13.2 | 50.67 | 12.6 | .05 | -.03 | .02 |
| SUI | 48.74 | 9.9 | 54.26 | 14.5 | 50.58 | 10.7 | .22* | -.14 | .09 |
| STR | 50.95 | 9.6 | 53.78 | 8.2 | 50.61 | 8.6 | .14 | -.17 | -.01 |
| NON | 46.57 | 9.1 | 51.44 | 12.0 | 45.73 | 8.2 | .21* | -.27** | -.05 |
| RXR | 50.37 | 9.1 | 45.55 | 10.8 | 50.53 | 11.0 | -.22* | .21* | .01 |
| *Interpersonal scales* | | | | | | | | | |
| DOM | 51.32 | 10.7 | 48.63 | 13.7 | 52.16 | 10.7 | -.10 | .14 | .03 |
| WRM | 53.39 | 11.1 | 51.23 | 9.9 | 52.26 | 12.4 | -.09 | .04 | -.04 |

* *p* < .05. ** *p* < .01
NOTE: PAI=Personality Assessment Inventory; MVA=Motor Vehicle Accident; SA=Sexual Assault; SUD=Sudden Unexpected Death or Loss; ICN=Inconsistency; INF=Infrequency; NIM=Negative Impression; PIM=Positive Impression; SOM= Somatic Complaints; ANX=Anxiety; ARD=Anxiety-Related Disorders; DEP=Depression; MAN=Mania; PAR=Paranoia; SCZ=Schizophrenia; BOR=Borderline Features; ANT=Antisocial Features; ALC=Alcohol Problems; DRG=Drug Problems; AGG=Aggression; SUI=Suicidal Ideation; STR=Stress; NON=Nonsupport; RXR=Treatment Rejection; DOM=Dominance; WRM=Warmth.