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Internalizing and Externalizing Subtypes in Female Sexual Assault Survivors: Implications for the Understanding of Complex PTSD

Mark W. Miller and **Patricia A. Resick**

National Center for PTSD, VA Boston Healthcare System Boston University

Abstract

This study replicated and extended findings of internalizing and externalizing subtypes of posttraumatic psychopathology (Miller, M. W., Greif, J. L., & Smith, A. A. (2003). Multidimensional Personality Questionnaire profiles of veterans with traumatic combat exposure: Internalizing and externalizing subtypes. *Psychological Assessment*, 15, 205–215; Miller, M. W., Kaloupek, D. G., Dillon, A. L., & Keane, T.M. (2004). Externalizing and internalizing subtypes of combat-related PTSD: A replication and extension using the PSY-5 Scales. *Journal of Abnormal Psychology*, 113, 636–645) to a female sample of rape survivors with chronic PTSD. Cluster analyses of Schedule for Nonadaptive and Adaptive Personality (Clark, L. A. (1996). *SNAP—Schedule for Nonadaptive and Adaptive Personality: Manual for administration, scoring, and interpretation*. Minneapolis: University of Minnesota Press.) temperament scale profiles from 143 women with PTSD partitioned the sample into a simple PTSD cluster, defined by normal range personality scores and moderate symptomatology, and 2 more “complex” clusters distinguished by more severe tendencies towards externalizing or internalizing psychopathology. Externalizers were characterized by disinhibition, substance dependence, and Cluster B personality disorder features; internalizers by low positive temperament, high rates of major depressive disorder, and elevations on measures of schizoid and avoidant personality disorder.

The human response to psychological trauma is characterized by extensive inter-individual variability in the severity, form, and expression of posttraumatic distress. Posttraumatic stress disorder (PTSD) may be the most common psychiatric syndrome to develop following trauma (Green, Lindy, Grace, & Leonard, 1992; Kulka et al., 1990), but other conditions frequently co-occur with the disorder, or develop independently of it, including other anxiety disorders and the unipolar depressive, substance-related, and personality disorders (Breslau, Davis, Andreski, & Peterson, 1991; Breslau, Davis, Peterson, Schultz, 2000; Davidson, Hughes, Blazer, & George, 1991; Golier et al., 2003; Helzer, Robins, & McEvoy, 1987; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Kulka et al., 1990; Orsillo et al., 1996). Considerable interindividual variability exists in patterns of comorbidity and other manifestations of posttraumatic distress. Predominant negative affects vary widely across individuals, spanning the spectrum from anger and rage through shame and sadness. In the interpersonal domain, responses to trauma range from withdrawal/avoidance to pronounced antagonism and aggression.

Two prior studies that examined the heterogeneity of posttraumatic psychopathology found evidence of qualitatively distinct personality-based subtypes of posttraumatic adjustment that differed on dimensions related to internalizing versus externalizing psychopathology (Miller, Grief, & Smith, 2003; Miller Kaloupek, Dillon, & Keane, 2004). In both studies, cluster

analyses of personality inventories completed by male veterans with histories of traumatic combat exposure revealed (a) an “externalizing” subtype with personality profiles defined by low constraint (i.e., impulsivity) coupled with high negative emotionality and aggression, and (b) an “internalizing” subtype defined on personality measures by high negative emotionality with low positive emotionality. Externalizers were further characterized by high rates of substance-related disorder, antisocial personality disorder, and histories of delinquent behavior prior to joining the military, whereas internalizers showed high rates of comorbid anxiety and major depressive disorders. In both studies, a third lower pathology cluster was characterized by normal range personality scale scores along with relatively few comorbid diagnoses. Miller et al. (2003, 2004) hypothesized that the qualitative differences between these subgroups reflect the influence of personality on core psychopathological processes thought to be fundamental to the structure and organization of mental disorders broadly (Achenbach & Edelbrock, 1978, 1984; Kendler, Prescott, Myers, & Neale, 2003; Krueger, Caspi, Moffitt, & Silva, 1998; Krueger, McGue, & Iacono, 2001) and the form and expression of posttraumatic responses more specifically.

A major limitation of this work was the exclusive focus on male combat veterans, which left open questions about the generalizability of the findings to other populations of trauma survivors. Thus, the primary objective of this study was to examine whether similar subtypes would be found among a sample of women with PTSD. To address this question, we analyzed archival data collected for a study of female rape survivors with chronic PTSD (Resick, Nishith, Weaver, Astin, & Feuer, 2002). The data set included the Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, 1996), a factor-analytically derived, self-report inventory designed to assess trait dimensions in the domain of personality disorders. The SNAP features three temperament scales, Positive Temperament, Negative Temperament, and Disinhibition (i.e., the inverse of Constraint) that correspond closely, both conceptually and statistically, to scales on the Multidimensional Personality Questionnaire (MPQ; Tellegen, in press) and the Personality Psychopathology Five Scales for the MMPI-2 (PSY-5; Harkness, McNulty, & Ben-Porath, 1995; Harkness, McNulty, Ben-Porath, & Graham, 2002) that were used for the cluster analyses in the two prior studies.

Our primary hypothesis was that a cluster analysis of the SNAP temperament scales would replicate Miller et al.’s (2003 2004) prior findings and partition the sample into subgroups representing internalizing, externalizing, and simple types of posttraumatic psychopathology. To test this hypothesis we replicated prior analyses, specifying a priori a three-cluster solution, and predicted that we would find subgroups with the following characteristics: First, we expected to find a lower pathology or “simple PTSD” group defined by SNAP scale scores falling at or near the normative mean along with lower levels of psychiatric disturbance relative to the other two groups. Second, we expected to find an “externalizing” cluster defined by high Disinhibition and Negative Temperament scores on the SNAP, high rates of substance-related disorders, and elevated scores on measures of the Cluster B personality disorders (i.e., the “dramatic-emotional” disorders characterized by marked impulsivity combined with labile emotionality: antisocial, borderline, histrionic, and narcissistic). Third, we predicted an “internalizing” cluster defined by high Negative Temperament and low Positive Temperament scores on the SNAP along high rates of comorbid anxiety and depressive disorders. In addition, given evidence for the covariation of the internalizing disorders and the Cluster C subgroup of personality disorders characterized in *DSM-IV* as “anxious-fearful” (Sander-son, Wetzler, Beck, & Betz, 1994; Sanderson, Wetzler, Beck, & Betz, 1992; Zuckerman, 1999), we also expected individuals in this cluster to show elevated scores on the SNAP Avoidant, Dependent, and Obsessive-Compulsive Personality Disorder scales.

Subtypes of Complex PTSD?

The second major objective of this study was to examine the relevance of this typology to the construct “complex PTSD.” Complex PTSD, also known as “Disorder of Extreme Stress Not Otherwise Specified” (DESNOS; Herman, 1993), refers to marked alterations in personality functioning and diverse severe symptoms that are thought to result from prolonged, repeated trauma of an interpersonal nature. Theorists have argued that it captures essential aspects of posttraumatic psychopathology not reflected in the 17 *DSM-IV* symptoms of PTSD (van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). Herman (1992) conceptualized complex PTSD as involving (a) symptoms that are more complicated, diffuse, and persistent than in simple PTSD (i.e., as defined by the 17 symptoms listed in *DSM-IV*; American Psychiatric Association [APA], 1994), including somatic complaints, dissociation, and dysregulation of affect and impulse control, (b) marked personality disturbance, including alterations in patterns of interpersonal relatedness and identity; and (c) heightened vulnerability to repeated harm, both self-inflicted and otherwise. The *DSM-IV* (p. 425) describes these symptoms in the “associated features” section of the PTSD diagnosis. Inspection of the broad array of symptoms listed there, and implicated in the disorder in other research (e.g., Zlotnick et al., 1996), suggests that some features of complex PTSD should covary with indices of internalizing (e.g., feelings of ineffectiveness, shame, despair and hopelessness, social withdrawal, somatic complaints), whereas others should correlate more with externalizing (e.g., self-destructive and impulsive behavior, hostility).

Although controversial, a growing number of empirical studies have supported the validity of complex PTSD and its distinction from simple PTSD (Ford, 1999; van der Kolk et al., 2005; Zlotnick et al., 1996). Yet, while personality disturbance is central to the construct of complex PTSD, no prior study has examined the personality inventory profile of individuals with the disorder, and only one published investigation has addressed the possible presence of subtypes of complex PTSD. In that study, Allen, Huntoon, and Evans (1999) performed cluster analyses on Millon Clinical Multiaxial Inventory-III (Millon, 1994) personality disorder scale data obtained from an inpatient sample of women with “severe trauma-related disorders.” Their analyses revealed a five-cluster solution that bore close resemblance to the subgroups more recently described by Miller et al. (2003, 2004). Two clusters, labeled by Allen et al. as “alienated” and “aggressive,” resembled externalizers and showed elevated scores on measures of anger, aggression, antisocial and borderline personality disorder, alcohol dependence, drug abuse, and mania. Two other clusters, labeled “withdrawn” and “suffering,” like internalizers, were characterized by marked elevations on scales measuring depression, avoidant and schizoid personality disorder, along with extremely low scores on scales measuring histrionic and narcissistic tendencies. The fifth cluster, termed “adaptive,” like the lower pathology groups, showed low scores on measures of psychopathology and high scores on indices of coping resources suggestive of a “simple PTSD” group.

These findings were generally consistent with Miller et al.’s (2003, 2004) typology and suggest that this model may offer a useful heuristic for conceptualizing and organizing the heterogeneous symptoms associated with the complex PTSD syndrome. One hypothesis derived from this framework is that differences between the low/adaptive and higher pathology subgroups correspond to the distinction between simple and complex PTSD. Accordingly, we define “simple PTSD” as the presence of circumscribed trauma-related symptoms accompanied by low diagnostic comorbidity and normal range personality functioning. In contrast, following Herman (1993) and others, we define “complex” PTSD as PTSD accompanied by marked personality dysfunction, a broad array of symptoms spanning the domains of dissociation, impaired affect regulation, disturbed interpersonal relations, and identity disturbance, and higher rates of psychiatric comorbidity.

Thus, the second major objective of this study was to evaluate these propositions by examining hypothesized associations between internalizing and externalizing subtypes and features of complex PTSD indexed by the SNAP trait scales, the Trauma Symptom Inventory (TSI; Briere, 1995), the Internalized Shame Scale (ISS; Cook, 1987), the State-Trait Anger Expression Inventory (STAXI; Spielberger, 1988), the Toronto Alexithymia Scale (TAS; Taylor, Bagby, Ryan, & Parker, 1990), and the Pennebaker Inventory of Limbic Languidness (PILL; Pennebaker, 1982). Our specific hypotheses were as follows:

1. On the basis of our prior work, we predicted that internalizers would show the highest scores of the three clusters on the SNAP Detachment scale, the ISS, the PILL, and the Anger In scale of the STAXI (in addition to elevated scores on SNAP measures of Cluster C personality disorders that were predicted earlier).
2. Externalizers were expected to show the highest scores on the Aggression, Entitlement, Exhibitionism, and Manipulativeness scales of the SNAP and the Trait Anger and Anger Out scales of the STAXI. Their difficulties in the domains of impulsivity and negative emotionality were expected to be reflected in elevated scores on the TSI Tension Reduction Behavior scales (in addition to the elevated scores on SNAP measures of the Cluster B personality disorders that were predicted earlier). Finally, given evidence for an association between externalizing traits and sexual risk-taking behavior (for a review, see Hoyle, Fejfar, & Miller, 2000), we predicted that externalizers would achieve the highest scores on the TSI Dysfunctional Sexual Behavior and Sexual Concerns scales.
3. Finally, on the basis of Herman's (1992) conceptualization of complex PTSD, and evidence for the role of early developmental trauma and repeated traumatization in the etiology of the disorder (Ford, 1999; McLean & Gallop, 2003; Resick, Nishith, & Griffin, 2003; Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997), we hypothesized that internalizers and externalizers would report more extensive trauma histories and be more likely to endorse histories of childhood sexual abuse than those in the simple/low pathology PTSD group.

Method

PARTICIPANTS

Participants were women evaluated at the beginning of a clinical trial of cognitive-behavioral therapy for sexual-assault-related PTSD. Two hundred sixty-seven women were assessed for possible participation. Seventy-four were excluded because they did not meet criteria for PTSD. Twenty-two others were excluded due to other factors including ongoing domestic violence, current substance dependence or suicidal intent, or changes in medication (see Resick et al., 2002, for additional details). Analyses were based on data for all participants who completed the SNAP ($N=143$). The sample had an average age of 32.3 years with a mean of 14.4 years of education. The majority of the women were never married (48%) or were divorced or separated (26%). The sample was 67% White, 28% African American, and 5% had other racial backgrounds. The length of time since the index rape varied from between 3–12 months for 26% of the sample, 12–60 months for 24%, and more than 60 months for the remaining half of the sample.

Instruments

INTERVIEWS

Clinician-Administered PTSD Scale (CAPS; Blake et al., 1995)—The CAPS is a structured diagnostic interview designed to assess *DSM-IV* PTSD symptoms. Clinicians rate the frequency and intensity of each symptom using behaviorally referenced scales ranging from

0 to 4. Diagnoses were based on criteria specified in the *DSM-IV*. Positive symptoms were endorsed with an intensity of 1 or greater and a frequency of 2 or greater within the last month. CAPS interviews were audiotaped, and interrater reliability was assessed using a random sample of 66 tapes from the parent study (Resick et al., 2002). Kappa for the diagnosis of PTSD was .74, with 92% interrater agreement; the correlation between interviewer and reliability rater scores for the continuous index, total CAPS score, was .97.

Structured Interview for DSM-IV—Patient version (SCID; First, Gibbon, Spitzer, & Williams, 1996)—The SCID was administered to assess current diagnoses of major depression and panic disorder and lifetime diagnoses of alcohol and substance dependence. Interrater reliability was assessed on a subsample of 45 audiotapes and kappa values ranged from .80 to 1.00.

Self-Report Psychopathology and Personality Scales. Internalized Shame Scale (ISS; Cook, 1987)—The ISS is a 33-item, 5-point Likert-type scale (0–4) self-report instrument measuring the negative affect of internalized shame. Items assess feelings of inferiority, worthlessness, inadequacy, and alienation. Cook (1987) reported internal consistency reliabilities around .95 in undergraduate and clinical samples and 6- to 8-week test-retest reliability coefficient among undergraduates of .81. Internal consistency computed using the pretreatment administration data from this sample was .97.

Pennebaker Inventory of Limbic Languidness (PILL; Pennebaker, 1982)—The PILL is a 54-item inventory of physical symptoms and complaints (e.g., racing heart, chest pain, indigestion, diarrhea) that are rated on a 5-point Likert-type scale of frequency during the past year ranging from “never or almost never experienced the symptom” to “experienced the symptom more than once every week.” There are two methods of scoring: simple summing and binary. We used the simple summing technique in which item scores are added because it provides a more straightforward and sensitive metric. (To score with the binary technique, the total number of items scored C, D, or E [every month or so, or more frequently] are summed.) The summing technique also yields slightly higher indices of internal consistency and test-retest reliability (alphas=.91 for summing and .88 for binary; test-retest=.83 for summing and .79 for binary). The PILL’s validity has been supported by data showing that its scores are positively associated with the frequency of physician and health-center visits, use of aspirin, health-related work absences (Pennebaker, 1982) and other measures of health complaints (Watson & Pennebaker, 1989). Alpha for the current sample was .95.

Toronto Alexithymia Scale (TAS; Taylor, Bagby, Ryan, & Parker, 1990)—The TAS is a 26-item measure of alexithymia, a trait involving a deficit in the ability to identify and discriminate one’s own emotional feelings. It is associated with reluctance to express emotion, a lack of fantasy or imagination, and a tendency to think and problem-solve in concrete terms (Taylor et al., 1990). The TAS is positively correlated with neuroticism/negative emotionality, negatively correlated with extraversion/positive emotionality (Parker, Taylor, & Bagby, 1989), and it has been linked to a range of psychopathological processes and syndromes including PTSD severity (Monson, Price, Rodriguez, Ripley, & Warner, 2004), other anxiety disorders, hypochondria, eating disorders (Taylor & Bagby, 2000), and dissociation (Grabe, Rainermann, Spitzer, Gansicke, & Freyberger, 2000). Alpha for the current sample was .80.

Trauma Symptom Inventory (TSI; Briere, 1995; Briere, Elliott, Harris, & Cotman, 1995)—The TSI is a 100-item inventory that measures a broad array of the sequelae of traumatic experiences in the domains of general negative affectivity (e.g., depression, anxiety, anger), trauma-specific symptoms (e.g., intrusions, avoidance), and self-disorder. Analyses for this study focused exclusively on the Dissociation scale and the Self-Disorder scales:

Dysfunctional Sexual Behavior, Impaired Self-Reference, Sexual Concerns, and Tension Reduction Behavior. All other TSI subscales were omitted from analysis because they were redundant with other essential measures already included in these analyses. The TSI Dissociation scale is composed of items assessing depersonalization, derealization, and other elements of dissociation. The Dysfunctional Sexual Behavior scale is composed of items relating to the inappropriate use of sex to accomplish nonsexual goals and risky or self-destructive sexual behavior. Impaired Self-Reference assesses identity confusion, impaired interpersonal boundaries, and difficulties in decision making. The Sexual Concerns scale assesses sexual dissatisfaction, sexual dysfunction, and unwanted sexual thoughts or feelings. Finally, the Tension-Reduction Behavior scale assesses the tendency to attempt to reduce internal tension or distress through methods such as self-mutilation, angry outbursts, and suicide threats. Published alpha coefficients for these four scales range from .74 to .88 (Briere, 1995). In this sample, the alpha coefficients were .82, .89, .86, .87, and .76 for the Dissociation, Dysfunctional Sexual Behavior, Impaired Self-Reference, Sexual Concerns, and Tension Reduction Behavior scales, respectively.

Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, 1996)—The SNAP is a factor-analytically derived, self-report inventory composed of 375 true/false items designed to assess trait dimensions in the domain of personality disorders. It is composed of 12 trait scales, 13 diagnostic scales assessing symptoms of the *DSM-III-R* personality disorders, and 3 temperament scales: Positive Temperament, Negative Temperament, and Disinhibition. Clark (1996) reported that the Positive Temperament scale is correlated .73 with the MPQ (Tellegen, in press) Well-Being scale and .59 with Extraversion on the NEO–Personality Inventory (NEO; Costa & McCrae, 1985). Negative Temperament is correlated .88 with the MPQ Stress Reaction scale and .74 with the NEO’s Neuroticism scale. Disinhibition is correlated $-.71$ with Control on the MPQ and $-.56$ with Conscientiousness on the NEO. Clark reported alpha coefficients from a sample of female psychiatric patients of .83, .91, and .83 for the Positive Temperament, Negative Temperament, and Disinhibition scales, respectively, and 1-week test-retest reliabilities for state hospital patients were .89, .86, and .76, respectively.

State-Trait Anger Expression Inventory—Research Edition (STAI; Spielberger, 1988)—The STAXI is a 44-item self-report measure of the experience and expression of anger. The subscales selected for analysis in this study included Anger-In, an 8-item scale measuring the frequency with which angry feelings are held in or suppressed, and Anger-Out, an 8-item scale assessing how often an individual expresses anger toward other people or objects in the environment. Spielberger (1988) reported alpha coefficients in female samples of .81 and .75 for the Anger-In and Anger-Out scales, respectively. Alphas for this sample were .73 and .84, respectively.

MEASURES OF TRAUMA HISTORY

Trauma across the lifespan was assessed using the Standardized Trauma Interview (Resick, Jordan, Girelli, Hutter, & Marhoefer-Dvorak, 1988). Analyses focused on (a) the number of years since the index rape, (b) whether a participant had a history of childhood sexual abuse, and (c) the number of times a participant was a victim of crime. The interview included the Assessing Environments-III-Physical Punishment Scale (AE-III-PP; Rowan, Foy, Rodriguez, & Ryan, 1994), which consists of 12 behaviorally anchored true/false items designed to assess a range of childhood physical discipline events from mild forms of physical discipline (e.g., spanking) to potentially injurious physical events identified in the literature as common forms of abusive parenting. The AE-III-PP scale has been shown to successfully discriminate between abused and non-abused individuals with a score of 4 or higher suggesting a history of childhood physical abuse. The AE-III-PP total score was the focus of analysis.

PROCEDURE

Data were collected during two sessions that took place within 1 week. During the first session, participants provided written informed consent and underwent the CAPS and SCID interviews. The remaining measures were administered during the second session.

DATA ANALYSES

Cluster analyses—We performed a K-means analysis of the SNAP temperament scales (Positive Temperament, Negative Temperament, Disinhibition) with a priori specification of three clusters to examine the replicability of Miller et al.'s (2003) findings. K-means is an iterative partitioning approach that seeks to identify similarities among individuals on variables included in the analysis and partitions the sample into a specified number of subgroups according to those similarities. Raw SNAP scale scores were used in the cluster analysis but findings are presented in *T* scores based on published norms (Clark, 1996) to facilitate between-scale comparisons and interpretation of results. In a second analysis, we examined the replicability of the K-means cluster solution using Ward's method and found that this second algorithm assigned 85% of cases to the same cluster as the K-means algorithm. The average-measure intraclass correlation for cluster assignments between the two methods was .90.

Analyses examining differences between clusters—Differences between clusters were tested using parametric ANOVAs for continuous variables and nonparametric (Kruskal-Wallis) ANOVAs for categorical variables. Family-wise error was controlled through Bonferroni corrections based on the number of comparisons within each set of variables listed in a table. Post hoc comparisons were performed using Tukey HSD (parametric) and Mann-Whitney (nonparametric) tests with alpha set at .05.

Results

SNAP

The K-means analysis performed on the SNAP Temperament scales resulted in assignment of 49 (34%) cases to Cluster 1 (simple PTSD group), 30 (21%) cases to Cluster 2 (externalizers), and 64 (45%) cases to Cluster 3 (internalizers). Mean scores for these scales are listed by cluster in Table 1. One-way ANOVAs revealed significant group differences on all three scales. Individuals in Cluster 2 and 3 (complex PTSD groups) achieved significantly higher scores than those in Cluster 1 (simple PTSD group) on the Negative Temperament scale. Clusters 2 and 3 were distinguished by their high Disinhibition and low Positive Temperament scores, indicative of "externalizing" and "internalizing" profiles, respectively.

Also listed in Table 1 are mean scores for the SNAP trait scales by cluster. Analyses showed that internalizers scored higher than the other two groups on Detachment and lower than the other two groups on Entitlement. In contrast, externalizers exceeded the other two groups on Aggression, Exhibitionism, Impulsivity, and Manipulativeness, whereas their scores on Propriety and Workaholism were lower than the others. Individuals in the simple PTSD group produced significantly lower scores than the other two clusters on the Aggression and Self-Harm scales, and no significant group differences were observed on the Mistrust and Eccentric Perceptions scales.

Results for the SNAP personality disorder diagnostic scales are listed by cluster in Table 2. Analyses showed that externalizers produced significantly higher scores than the other two clusters on scales measuring antisocial, borderline, histrionic, and narcissistic features. Externalizers also showed a trend towards higher scores on the Dependent scale compared to the simple PTSD group. Internalizers, on the other hand, showed higher scores than those in

the other two groups on the Schizoid and Avoidant scales. There were no significant differences between groups on the Paranoid, Schizotypal, and Obsessive-Compulsive scales.

CURRENT AND LIFETIME SCID DIAGNOSES

The prevalence of current comorbid diagnoses of major depression and panic disorder and lifetime diagnosis of alcohol and substance dependence is listed in Table 3 by cluster. Internalizers were significantly more likely to meet criteria for current major depressive disorder than those in the other two clusters. There were no significant differences between groups in the prevalence of comorbid panic disorder. As noted earlier, only lifetime diagnostic information was available for alcohol and substance dependence due to study exclusionary criteria. Analyses revealed that externalizers were significantly more likely to have met criteria for a substance-related disorder in the past than those in the other two clusters and a trend in the same direction was observed for alcohol dependence.

OTHER CLINICAL CORRELATES

Mean scores on other clinical correlates of interest are listed in Table 4 by cluster. Externalizers showed significantly higher scores than the other two groups on the STAXI Anger-Out and the TSI Dysfunctional Sexual Behavior and Tension Reduction Behavior scales. Internalizers, on the other hand, showed higher scores than the other two groups on the TAS and trends toward higher scores than the simple PTSD group on the CAPS, the ISS, and the PILL.

DEMOGRAPHIC CHARACTERISTICS AND TRAUMA HISTORY VARIABLES

Table 5 lists the results for demographic variables by cluster. Analyses showed no significant group differences in years of education, annual income, or any of the four indices of trauma history. However, it is noteworthy that internalizers were roughly 50% more likely to endorse a history of childhood sexual abuse than individuals in the other two clusters. There were also trends toward externalizers being the youngest and the least likely to be African American of the three groups.

Discussion

The primary objective of this study was to replicate, in a female sample of rape survivors with chronic PTSD, prior findings of personality-based internalizing and externalizing subtypes of posttraumatic psychopathology observed in two studies of male combat veterans (Miller et al., 2003, 2004). The assessment featured the SNAP, a factor-analytically derived, self-report inventory that measures trait dimensions and clinical syndromes in the domain of personality disorders (Clark, 1996). The three SNAP temperament scales (Positive Temperament, Negative Temperament, and Disinhibition) were submitted to a cluster analysis that partitioned the sample into a lower pathology or “simple PTSD” cluster, defined by normal-range temperament scores and relatively low levels of symptoms across multiple indices of psychopathology, and two more pathological or “complex PTSD” clusters that differed on variables related to the externalization versus internalization of distress.

The externalizing cluster was defined by high scores on the Disinhibition and Negative Temperament scales. Individuals in this cluster described themselves as prone to act impulsively with little regard for the consequences of their actions (i.e., high disinhibition), as well as easily upset, chronically nervous, stressed, and worried (i.e., high negative temperament). On the SNAP trait and personality disorder scales they described themselves as more exhibitionistic, manipulative, and unconventional than individuals in either of the other two clusters. They also endorsed more features of borderline, antisocial, narcissistic, and histrionic personality disorder. On the TSI, externalizers produced the highest scores of the three groups on the Dysfunctional Sexual Behaviors scale (measuring the inappropriate use of

sex to accomplish nonsexual goals and risky or self-destructive sexual behavior) and the Tension Reduction Behavior scale (measuring efforts to reduce distress through maladaptive means such as self-mutilation, angry outbursts, and suicide threats). SCID interviews showed externalizers to be the most likely of the three groups to have a history of substance dependence.

These findings suggest that a substantial subset of women with chronic PTSD exhibit many of the core personality features and clinical correlates observed previously in externalizing male veterans with PTSD (Miller et al., 2003, 2004). It is noteworthy, however, that the *proportion* of cases assigned to the externalizing cluster in this study was somewhat smaller than that observed in Miller et al.'s prior studies. Twenty-one and 45% of women with PTSD in this sample were assigned to the externalizing and internalizing clusters, respectively. By comparison, collapsing across the two prior studies of male combat veterans ($N=808$), Miller et al. observed that 27% and 42% of cases were assigned to the externalizing and internalizing groups, respectively, suggesting that the proportion of externalizers in this female sample was somewhat smaller than that observed in males.¹ This observation is in line with prior research suggesting that women may be less likely than men to develop externalizing disorders (e.g., Kessler et al., 1997; Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993; Rende & Plomin, 1992) and evidence that female adolescents exposed to trauma are more likely to exhibit internalizing symptoms whereas males are more likely to evidence externalizing ones (Kurz, Drescher, Klein, Gusman, & Schwartz, 2001; Schwab-Stone et al., 1999). Otherwise, the proportion of cases assigned to the three clusters in this study was consistent with results of Miller et al.'s two prior studies, and overall, results suggest that male and female externalizers with PTSD share many of the same characteristics, i.e., marked difficulties in the domains of impulsivity, anger, aggression, antisociality, and substance abuse.

In contrast to their externalizing counterparts, internalizers were defined by low scores on the SNAP Positive Temperament scale and high scores on Negative Temperament. Individuals in this cluster described themselves as unenthusiastic, uninspired, easily fatigued, lacking interests, (i.e., low positive temperament), and like externalizers, prone to experiencing frequent and intense negative emotions (i.e., high negative temperament). The internalizers' SNAP Trait scale profile suggests that they tend to have few friends, are aloof and distant from others, and prefer to spend time alone (high detachment). In contrast with the exhibitionistic and narcissistic tendencies of the externalizers, they tend to be self-effacing, humble, and do not feel particularly special, admirable, or talented (low entitlement). Internalizers also achieved the highest scores of the three groups on the Schizoid and Avoidant Personality Disorder scales, suggesting a restricted range of emotions in interpersonal settings, social inhibition, feelings of inadequacy, and hypersensitivity to negative evaluation. As in Miller et al.'s (2003, 2004) two prior studies, internalizers showed the highest rates of comorbid major depression of the three groups.

Measures of shame (ISS), physical complaints (PILL) and alexithymia (TAS) expanded upon these characterizations, offering new insights into the psychopathology of the internalizer. Internalizers produced the highest scores of the three clusters on the ISS, an inventory assessing shameful feelings that have been internalized as part of one's identity and are reflected in feelings of inferiority, inadequacy, or deficiency (Cook, 1987). This finding may reflect an essential aspect of the psychopathology of the internalizer: the tendency to incorporate into his/her identity shameful aspects of the traumatic experience. Internalizers also produced significantly higher scores on the TAS and PILL than individuals in the simple PTSD group, suggesting a relative deficit in the capacity to identify and describe emotions and a greater frequency of physical complaints. These findings are consistent with other research suggesting

¹An important caveat to this conclusion is that although the same analysis was employed across studies, the measures employed were different in each one, thereby complicating the interpretation of observed differences between male and female samples.

a link between alexithymia and somatization (Cohen, Auld, & Brooker, 1994; Lumley & Norman, 1996) and evidence that these characteristics tend to covary with PTSD severity (Monson et al., 2004; Zlotnick, Mattia, & Zimmerman, 2001), the internalizing disorders (Achenbach & Rescorla, 2003; Marchesi, Brusamonti, & Maggini, 2000), and the primary personality substrate of these disorders, negative emotionality (Watson & Pennebaker, 1989).

Along the same lines, internalizers endorsed significantly more severe hyperarousal symptoms than the other two groups and received significantly higher PTSD severity scores on the CAPS than the simple PTSD group with a trend in the same direction observed in comparison to the externalizers. A tendency for internalizers to exhibit more severe PTSD symptoms was also observed in the second of the two prior studies by Miller et al. (2004), who suggested that it may reflect the greater construct overlap between the PTSD syndrome, as defined by *DSM-IV*, and the psychopathology of the internalizing subtype. This reasoning was based on findings of comorbidity research suggesting that PTSD tends to covary primarily with the “anxious-misery” disorders (i.e., major depression, dysthymia, and generalized anxiety disorder; Cox, Clara, & Enns, 2002) that load together on a latent internalizing dimension of psychopathology (Krueger et al., 1998; Krueger et al., 2002) and factor analyses showing that many of the symptoms of PTSD load on a broad dysphoria factor shared by these disorders (Simms, Watson, & Doebbeling, 2002).

IMPLICATIONS FOR THE CONCEPTUALIZATION OF COMPLEX PTSD

The three groups observed in this and Miller et al.’s (2003/2004) prior studies may inform the understanding of the heterogeneous array of symptoms termed complex PTSD and help to define their relation to simple PTSD. Herman (1992) conceptualized complex PTSD as involving (a) symptoms that are more extensive and severe than in simple PTSD, (b) marked personality disturbance, and (c) heightened vulnerability to repeated harm. The measures selected for analysis in this study were chosen with the aim of capturing the essential aspects of the complex PTSD construct including dissociation, impaired self-concept, physical complaints, dysfunctional sexual behavior, internalized shame, and anger, as well as measures of personality disturbance indexed by the SNAP. The finding of a lower pathology PTSD cluster defined by normal range scores on the SNAP contrasted with two higher pathology PTSD subgroups defined by marked personality disturbance and severe and diverse symptomatology is consistent with Herman’s conceptualization of the distinction between simple and complex PTSD and prior descriptive research (e.g., Ford, 1999; Zlotnick et al., 1996). Internalizers and externalizers showed higher scores than the simple PTSD group on an array of scales measuring constructs central to the concept of complex PTSD, including indices of impaired interpersonal functioning, self-harm behavior, physical complaints, identity disturbance, dysfunctional sexual behavior, internalized shame, and anger. However, the findings also underscore the heterogeneous presentations of individuals with complex PTSD and suggest the presence of clinically meaningful subtypes of the disorder. They also suggest that the SNAP may be useful for differentiating simple from complex forms of PTSD and internalizing and externalizing variants of the latter.

Contrary to prediction, there were no significant differences between groups on measures of trauma history. We had hypothesized, on the basis of Herman’s (1992) conceptualization and evidence for the role of early developmental trauma and repeated traumatization in the etiology of the complex PTSD (Ford, 1999; McLean & Gallop, 2003; Resick et al., 2003; Roth et al., 1997), that internalizers and externalizers would report more extensive trauma histories and be more likely to endorse histories of childhood sexual abuse than those in the simple PTSD group. This was a severely and repeatedly traumatized sample of rape survivors who reported high rates of childhood physical and sexual abuse as well as adult criminal victimization. As a result, we found high but rather restricted ranges of scores on measures of trauma exposure.

It may be that the hypothesized association between early abuse and complex PTSD is more likely to be observed in samples with greater variability in the severity and type of trauma histories reported. That said, this is not the first study of this type to find no differences between individuals with and without complex PTSD on measures of childhood trauma (cf. Allen et al., 1999) and it is also possible that factors other than the nature and severity of the trauma, including pre-trauma vulnerability toward internalizing and externalizing psychopathology (Miller, 2003, 2004), may play important roles in the etiology of complex PTSD.

STUDY LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The present findings should be evaluated in the context of the study's strengths and limitations. First, the fact that the sample was comprised exclusively of women with diagnoses of PTSD rendered it impossible for us to evaluate whether similar subtypes would be evident in individuals with primary diagnoses other than PTSD. Psychiatric epidemiology studies suggest that similar solutions would be found in some, but not all, mental disorders with the determining factor being the degree of heterogeneity and breadth of comorbidity associated with the index disorder. Of the anxiety disorders, PTSD shows the most severe and diverse pattern of diagnostic comorbidity (Brown, Campbell, Lehman, Grisham, & Mancill, 2001), with frequently co-occurring conditions ranging from those of the internalizing spectrum, including the unipolar mood and anxiety disorders, to the externalizing spectrum, such as antisociality and substance abuse. Certain other disorders show similar patterns of comorbidity spanning these spectra. For example, there is a strong similarity between the internalizing and externalizing subtypes found in this work and Cloninger's (1987) Type I and Type II alcoholics. The former (internalizing type) is characterized by the use of alcohol in association with heightened negative affectivity to avoid, dampen, or escape those states, whereas the latter (externalizing type) reflects alcohol problems stemming from propensities toward sensation-seeking, risky and/or uninhibited behavior.

On the other hand, disorders with a narrower range of comorbidity—and perhaps more distinct and circumscribed phenotypes—rarely co-occur. For example, Kessler et al. (2005) recently reported that the internalizing spectrum disorders OCD and separation anxiety disorder were negatively correlated with the externalizing syndromes drug dependence and conduct disorder. Generalizing from this, one would not expect to find large numbers of externalizers among samples composed of individuals with prototypic internalizing diagnoses, especially those related to pathological fear, or vice versa (e.g., antisocial personality disorder is not a problem commonly found among individuals with specific phobia). In sum, while we can not, and would not, claim this typology to be unique to posttraumatic psychopathology, we do believe that our data showing the presence of temperament-based internalizing and externalizing subtypes of complex posttraumatic psychopathology and their distinctions from simple PTSD offers a useful heuristic for organizing and conceptualizing the broad heterogeneity in clinical presentations of trauma survivors.

A second major limitation of the study was that etiological inferences about the extent to which these subtypes reflect the influence of premorbid personality are limited by the cross-sectional methods that were employed. Evidence for the longitudinal stability of personality traits in other research (e.g., Costa & McCrae, 1977, 1992; Watson & Walker, 1996) and indications of greater pre-military delinquency in the externalizing group in our prior studies (Miller et al., 2003; Miller et al., 2004) raise the possibility that these subtypes reflect the influence of premorbid traits on the expression of posttraumatic symptomatology. However, this does not exclude the additional possibility that personality traits may be altered as a consequence of the development of PTSD. The latter is based on two basic tenets: (a) adaptive personality functioning involves the inhibition of pathological behavioral tendencies, including dispositions toward internalizing and externalizing psychopathology, and (b) PTSD

compromises these self-regulatory processes resulting in the accentuation of pathogenic traits relative to premorbid levels (cf. Miller, 2003; Miller, Vogt, Mozley, Kaloupek, & Keane, 2006). These propositions are consistent with the observations of prior theorists who conjectured that traumatic events operate on individuals by accentuating pathological tendencies evident in their premorbid functioning (Allport, Bruner, & Jandorf, 1941).

Future studies should examine these propositions using prospective longitudinal designs incorporating the assessment of personality and psychopathology pre- and posttrauma exposure and/or behavioral genetics designs that would permit examination of the degree of similarity among identical twins discordant for trauma exposure on measures of personality and psychiatric symptomatology. It would also be useful in future work to examine the influence of these subtypes on the course of symptomatology using longitudinal analyses, such as growth curve analysis, which permit the examination of individual trajectories representing change over time. On a related note, the study would also have benefited from the inclusion of data other than self-reports and interviews; for example, laboratory measures, biological indices, or measures of family history might lend support to the validity of the internalizing/externalizing typology or shed additional light on the etiological processes involved.

A third limitation was that, although a primary objective of this study was to examine the relevance of the internalizing/externalizing typology to the understanding of complex PTSD, the assessment did not include a measure specifically designed to assess complex PTSD or DESNOS. Instead, we relied upon a collection of measures that are conceptually related to, and provide good coverage of, the construct as it has been defined by other theorists, but have not yet been validated as such. Fourth, the sample sizes for individual clusters were modest and some important group differences failed to achieve statistical significance after controlling for family-wise error.

Regarding its strengths, this study represents a novel effort to clarify the psychometric distinction between simple and complex PTSD, and it provides new insight into the structure of post-traumatic psychopathology in the domain of personality disorders. It also provided an important replication of the 3-group typology previously observed only in male combat veterans (Miller et al., 2003; Miller et al., 2004). Moreover, the close correspondence between the subtypes identified in this work and three major personality “types” identified by developmental psychologists (i.e., resilient, overcontrolled, and undercontrolled; Asendorpf & van Aken, 1999; Hart, Hofmann, Edelstein, & Keller, 1997; Robins, John, Caspi, Moffitt, & Stouthamer-Loeber, 1996) lends support to the validity of this typology and its relation to a fundamental structure of individual differences. In future research, it may be useful to examine the relevance of this typology to the understanding of symptom heterogeneity in related conditions such as borderline personality disorder, which is characterized by both extreme externalizing (e.g., self-mutilation, shoplifting, displays of anger, combative and antagonistic interpersonal relationships) and internalizing behavior (e.g., major depression, anxiety, poor self-image, interpersonal withdrawal; APA, 1994). Finally, identification of valid subtypes of posttraumatic psychopathology may facilitate the study of the underlying genetic or neurobiological mechanisms, advance the understanding of diagnostic co-occurrence, and contribute to the development and evaluation of treatments that more effectively address the considerable heterogeneity in presentation among individuals with PTSD.

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Table 1

SNAP Invalidity index, temperament, and trait scale (*T* scores) by cluster

Measure	Clusters		<i>F</i>	<i>p</i>	Pairwise contrast
	Simple (1)	Externalizer (2)			
Invalidity Index	52.3 (10.4)	54.8 (9.3)	ns	ns	ns
Temperament Scales					
Disinhibition	42.0 (5.8)	60.1 (6.6)	85.0	.001	2>1 & 3
Negative Temperament	53.5 (8.7)	63.0 (4.5)	28.5	.001	2 & 3>1
Positive Temperament	49.8 (6.2)	47.0 (9.1)	109.0	.001	1 & 2>3
Trait Scales					
Aggression	49.5 (8.1)	58.1 (10.4)	6.8	.001	2>3>1
Dependency	47.7 (10.3)	53.4 (11.2)	4.6	.010 ^a	3>1
Detachment	60.0 (10.4)	56.4 (9.5)	19.8	.001	3>1 & 2
Eccentric Perceptions	53.6 (11.3)	58.2 (11.1)	ns	ns	ns
Entitlement	48.5 (11.2)	49.2 (11.0)	10.8	.001	1 & 2>3
Exhibitionism	40.0 (8.5)	47.2 (10.1)	29.0	.001	2>1>3
Impulsivity	45.6 (6.0)	61.0 (9.5)	34.7	.001	2>1 & 3
Manipulativeness	45.4 (6.5)	57.5 (8.7)	33.6	.001	2>1 & 3
Mistrust	60.1 (9.2)	63.9 (9.3)	ns	ns	ns
Propriety	51.6 (9.5)	48.4 (10.2)	6.1	.003	3>2
Self-harm	62.8 (14.5)	72.9 (15.6)	7.6	.001	2 & 3>1
Workaholism	58.5 (9.6)	52.7 (9.1)	3.8	.024 ^a	1 & 3>2

Note. Table lists group means with standard deviations in parentheses. For all ANOVAs, $\alpha = .003$; pairwise contrasts, $\alpha = .05$.

^aDenotes *p*-value that failed to achieve significance after controlling for family-wise error.

Table 2

SNAP diagnostic scales (*T* scores) by cluster

Measure	Cluster		F	p	Pairwise contrast
	Simple (1)	Externalizers (2)			
Cluster A					
Paranoid	59.1 (9.6)	63.3 (9.0)	64.3 (10.9)	ns	ns
Schizoid	61.6 (11.5)	59.6 (11.8)	71.3 (10.9)	15.2	.001 3>1 & 2
Schizotypal	58.7 (10.4)	62.5 (10.9)	62.8 (10.4)	ns	ns
Cluster B					
Antisocial	50.4 (8.9)	64.1 (10.5)	52.4 (11.5)	17.6	.001 2>1 & 3
Borderline	51.8 (7.2)	67.7 (7.6)	59.0 (10.0)	31.3	.001 2>1 & 3
Histrionic	42.7 (9.4)	52.8 (8.9)	36.3 (7.5)	38.7	.001 2>1>3
Narcissistic	49.3 (8.0)	58.4 (9.4)	46.5 (7.6)	22.1	.001 2>1 & 3
Cluster C					
Avoidant	58.5 (9.2)	59.3 (10.0)	71.4 (8.0)	36.0	.001 3>1 & 2
Dependent	51.0 (10.8)	58.4 (12.8)	55.7 (9.9)	4.8	.010 2>1
Obsessive-Compulsive	55.3 (9.1)	55.5 (9.1)	58.4 (8.3)	ns	ns

Note. Table lists group means with standard deviations in parentheses. For all ANOVAs, $\alpha = .005$; pairwise contrasts, $\alpha = .05$.

Table 3

SCID DSM-IV diagnoses by cluster

Diagnosis	Clusters		χ^2	p	Pairwise contrast	
	Simple (1)	Externalizer (2)				
Current						
Major Depressive Disorder	46.2	40.0	63.6	8.8 .013	3>1 & 2	
Panic Disorder	6.3	17.2	16.3	ns ns	ns	
Lifetime						
Alcohol Dependence	33.3	46.7	35.0	ns ns	ns	
Substance Dependence	13.3	43.3	21.3	9.2 .010	2>1 & 3	

Note. Table lists the percentage of cases within each cluster meeting full criteria for each disorder. All participants met criteria for current PTSD. Study candidates who met criteria for current alcohol and/or substance-related disorder diagnoses were excluded from study participation; therefore, only lifetime diagnoses were available for these disorders. For χ^2 analyses, $\alpha = .013$; pairwise contrasts, $\alpha = .05$.

Table 4

Other clinical correlates by cluster

Measure	Cluster		F	p	Pairwise contrasts
	Simple (1)	Externalizer (2)			
CAPS (PTSD)					
Total Score	72.6 (16.6)	75.4 (18.4)	82.1 (20.3)	3.8 .025 ^a	3>1
Cluster B Symptoms	17.5 (7.0)	18.6 (7.1)	19.8 (8.5)	ns	ns
Cluster C Symptoms	32.0 (9.6)	33.3 (9.5)	35.4 (9.7)	ns	ns
Cluster D Symptoms	23.2 (6.7)	23.5 (6.9)	26.9 (5.8)	5.7 .004	3>1 & 2
ISS Total (Shame)	53.0 (25.0)	59.5 (25.4)	68.6 (22.6)	5.2 .007 ^a	3>1
PILL (Physical Complaints)	121.1 (30.7)	130.9 (29.4)	141.0 (34.5)	4.6 .011 ^a	3>1
STAXI (Anger)					
Anger In	19.8 (5.5)	20.5 (4.7)	20.5 (3.5)	ns	ns
Anger Out	14.3 (3.4)	18.7 (5.1)	16.1 (5.3)	7.7 .001	2>1 & 3
TAS (Alexithymia)	69.5 (13.8)	70.2 (10.7)	76.9 (9.9)	5.9 .003	3>1 & 2
TSI Scales (Trauma Symptoms)					
Dissociation	11.8 (5.4)	12.7 (5.2)	13.5 (6.5)	ns	ns
Dysfunctional Sexual Behavior	5.5 (5.7)	10.8 (7.4)	5.7 (6.5)	7.3 .001	2>1 & 3
Impaired Self-reference	13.1 (6.3)	14.9 (6.5)	15.0 (5.8)	ns	ns
Sexual Concerns	10.9 (6.9)	13.4 (6.6)	11.6 (7.0)	ns	ns
Tension Reduction Behavior	5.6 (4.7)	9.3 (4.6)	6.2 (4.1)	7.3 .001	2>1 & 3

Note. Table lists group means with standard deviations in parentheses. For all ANOVAs, $\alpha = .0045$. All pairwise contrasts were significant at $p < .05$. CAPS=Clinician Administered PTSD Scale; ISS=Internalized Shame Scale; PILL=Pennebaker Inventory of Limbic Languidness; STAXI=State-Trait Anger Expression Inventory; TAS=Toronto Alexithymia Scale; TSI=Trauma Symptom Inventory.

^aDenotes p -value that failed to achieve significance after controlling for family-wise error.

Table 5

Demographic variables by cluster

Measure	Clusters			F	χ^2	p	Pairwise contrasts
	Simple (Cluster 1)	Externalizers (Cluster 2)	Internalizers (Cluster 3)				
Age	32.4 (9.4)	28.1 (9.5)	33.5 (10.2)	3.1		.050 ^a	3>2
% with annual income<\$10K	27.0	24.0	39.2		ns	ns	ns
Race disability							
African American (%)	30.6	10.0	35.9		6.8	.030 ^a	1 & 3>2
White (%)	67.3	83.3	59.4		ns	ns	ns
Other (%)	2.0	6.7	4.7		ns	ns	ns
Years of Education	14.7 (2.4)	14.6 (2.3)	14.0 (2.3)	ns		ns	ns
Trauma History							
AE-III-PP Total (Child physical abuse)	4.1 (2.6)	4.3 (3.8)	3.9 (2.3)	ns		ns	ns
# of times a victim of crime	6.6 (4.8)	6.7 (5.2)	7.1 (4.9)	ns		ns	ns
Years since index rape	6.4 (8.7)	6.6 (7.4)	9.4 (8.9)	ns		ns	ns
Hx of childhood sexual abuse (%)	35%	33%	47%		ns	ns	ns

Note. Table lists either group means with standard deviations in parentheses or group proportions. All pairwise contrasts were significant at $p<.05$. AE-III-PP=Assessing Environments-III-Physical Punishment Scale.

^a Denotes p -value that failed to achieve significance after controlling for family-wise error.