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# An Investigation of Posttraumatic Stress Disorder and Depressive Symptomatology among Female Victims of Interpersonal Trauma

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## Abstract

This study examined factors associated with PTSD-depression comorbidity among a sample of 162 adult female rape or assault victims with PTSD, as well as potential differential predictors of PTSD and depression severity. PTSD-only participants reported higher levels of childhood sexual abuse than those with comorbid PTSD and depression, and the PTSD/MDD group reported relatively more distorted trauma-related beliefs, dissociation, PTSD severity, and depression severity. Distorted trauma-related beliefs and dissociation were the strongest unique predictors of higher PTSD and depressive symptoms. Rates of PTSD and depression comorbidity did not appear to be a function of symptom overlap. Study findings suggest possible explanations for the high PTSD and depression comorbidity rates commonly found among victims of interpersonal violence.

### Keywords

Posttraumatic stress disorder; Depression; Comorbidity; Violence; Abuse

A nationally representative survey found that more than half (52%) of all women indicate a past history of physical assault victimization at some point in their lives (Tjaden and Thoennes 1998). Further, 18% of respondents reported a completed or attempted rape, and 25% reported previous intimate relationship physical or sexual violence victimization. Some of these women suffer from a range of mental health problems as a result of their victimization, particularly posttraumatic stress disorder (PTSD) and depression (Koss et al. 2003). Further, those with PTSD evidence high rates of depression comorbidity. For example, studies of battered women with PTSD report rates of depression ranging from 43% to 64% (Cascardi et al. 1999; Nixon et al. 2004; Stein and Kennedy 2001). There are surprisingly few investigations that have

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examined comorbid depression among interpersonal violence victims with PTSD, despite findings from other trauma groups indicating that comorbid PTSD and depression leads to more disability than either disorder alone (e.g., Momartin et al. 2004). Moreover, research in this area has focused almost exclusively on battered women, which may not generalize to samples of women who experience a broader range of physical and/or sexual aggression.

It is not clear why some female assault victims develop PTSD alone while others develop PTSD in conjunction with depression. The current study represents an examination of factors that may explain comorbidity between PTSD and depression among a treatment sample of women with PTSD who report various forms of physical and/or sexual assault victimization, as well as potential differential predictors of PTSD and depression severity. The examination of factors that distinguish those who suffer from PTSD only and those that also develop clinically significant depressive symptoms may assist in understanding the etiology of comorbid PTSD and depression, which may have implications for interventions with this population. Relatedly, it is important to elucidate the factors associated with each problem to help determine if they represent the same underlying construct, or are related yet distinct problems with distinct etiologies.

Investigations examining PTSD and depression among samples of battered women have focused largely on the differential predictors of these two mental health variables, with mixed results obtained across studies. Cascardi et al. (1999) found some differing predictors of PTSD symptoms and depressive symptoms among a sample presenting to treatment for marital problems and who reported intimate partner physical aggression victimization. Specifically, while severe physical aggression victimization was positively associated with both problems, PTSD symptoms were also predicted by the experience of domination/isolation tactics by their partners, and depressive symptoms were also predicted by poorer relationship adjustment. Stein and Kennedy (2001), in a sample of female relationship abuse victims seeking help from domestic abuse agencies and community medical clinics, found significant, positive associations between measures of relationship aggression victimization and PTSD symptoms, and no associations between relationship aggression victimization and depression.

Cascardi et al. (1999) and Stein and Kennedy (2001) also examined the degree to which women suffering from both PTSD and depression differed from those with PTSD only on several variables in an attempt to explain the high comorbidity between these two disorders. Cascardi et al. (1999) reported no significant differences between a PTSD group and comorbid PTSD/depression group on measures reflecting relationship aggression frequency, spouse-specific fear, PTSD symptoms, and depressive symptoms. Stein and Kennedy (2001) similarly did not find differences between these two groups on relationship aggression severity measures, or on PTSD or depressive symptoms.

Consistent with earlier studies, Nixon et al. (2004), in a study of women recruited from domestic violence agencies and shelters, did not find differences between individuals with comorbid PTSD and depression and those with only PTSD on variables reflecting physical aggression severity, or on measures of pre-abuse mental health and childhood trauma history. However, these groups were distinguished by adult rape and psychological aggression victimization, as well as higher severity of PTSD and depressive symptoms, suggesting that PTSD-depression comorbidity may partly represent a function of the severity of the trauma and trauma-related psychopathology. The PTSD/MDD group also evidenced relatively more maladaptive beliefs on a measure of non-trauma specific schemas (Young 1990), but these beliefs were not predictive of comorbidity caseness in a separate logistic regression accounting for other significant predictors. The authors concluded that beliefs directly related to the trauma may be more salient with respect to the prediction of comorbidity than a general cognitive style, and thus, such beliefs were examined in the current study.

Dissociative experiences are widely thought to be important for the development and maintenance of PTSD symptoms, primarily because they interfere with the integration of traumatic memories into one's existing memory networks (Foa and Rothbaum 1998). A relatively small research base has also linked dissociative experiences with depressive symptomatology (Griffin et al. 1997; Lemos-Miller and Kearney 2006; Punamaki et al. 2005). Dissociative experiences may be associated with depression due to failures in trauma memory integration, because dissociation may prolong stress reactions, and/or because those who have less interaction with their environment may be less likely to have exposure to sources of positive reinforcement. Some evidence also suggests the possibility that depressive symptoms place individuals at risk for dissociative experiences and subsequent PTSD (Fullerton et al. 2000). We attempted to determine if dissociation was similarly associated with PTSD and depressive symptoms in the current sample, and whether dissociative experiences serve to distinguish those with PTSD and comorbid depression from those with only PTSD.

Symptom overlap across PTSD and depression might also explain their high comorbidity (Brady et al. 2000). Both diagnoses share a loss of interest in activities, difficulties falling or staying asleep, and concentration difficulties. No previous published study of women reporting physical and/or sexual assault victimization has examined comorbidity levels when accounting for overlapping symptoms. Blanchard et al. (1998), in their motor vehicle accident survivor sample, examined the possibility that the diagnostic threshold for depression should be increased among those with PTSD because of its overlapping symptoms. Among those with PTSD in their sample, those with seven or more depressive symptoms did not significantly differ from those with five or six symptoms across indices of distress and impairment, suggesting that symptom overlap across these two disorders does not represent a clinically significant issue.

In the current study, it was expected that higher prior interpersonal victimization in childhood and adulthood, more distorted trauma-related beliefs, higher dissociation, and higher PTSD and depression severity would be found in the comorbid PTSD/depression group relative to the PTSD-only group. Higher interpersonal victimization, distorted trauma-related beliefs, and dissociation were also expected to be associated with higher PTSD and depression symptom severity. We also examined rates of "moderate to severe" depression when considering all depression symptom items, and only those that did not overlap with the PTSD symptom items. A high degree of concordance was predicted between these two rates, with the expectation that the high comorbidity levels found in victims of interpersonal violence are not due to symptom overlap.

## Method

### Data Source and Sample

Participants were 162 adult female rape or first-degree assault victims who participated in a clinical trial to dismantle cognitive processing therapy, including pilot cases as well as the intention to treat sample (Resick et al. in press). Inclusion criteria were as follows: participants (a) were at least 18 years of age; (b) were at least 3-months post crime; (c) met DSM-IV criteria for PTSD according to the Clinician-Administered PTSD Scale (CAPS; Blake et al. 1995); (d) were not currently in an abusive intimate relationship; and (e) in cases of marital rape or domestic violence, were out of the relationship for at least six months. A total of 256 women were assessed for eligibility. Of these women, 78 did not meet inclusion criteria, and 16 dropped out during the assessment process.

Thirty-two percent of the participants were African American, 64% were Caucasian, 1% were Asian, and 1% were American Indian or Alaskan Native. Two percent of participants defined their race as "other." Participants averaged 35.7 years (*SD*=12.5 years) of age and 13.8 years

(*SD*=2.8 years) of education. Twenty percent of participants were married or cohabitating, 49% were single, 28% were divorced or separated, and 3% were widowed.

## Measures

*The Clinician-Administered PTSD Scale* (CAPS; Blake et al. 1995) was used to diagnose PTSD to determine study inclusion. The CAPS is a 22-item semi-structured PTSD interview. Interviewers assign frequency and intensity scores for PTSD symptoms on a 5-point scale (0–4). We used the original CAPS scoring rule described by Blake et al. (1990), which requires symptom frequency to be greater than one and symptom intensity to be greater than two for a positive endorsement of a symptom. Several studies of the CAPS indicate its strong interrater reliability, internal consistency, and its convergent validity with other measures of PTSD (Weathers et al. 2001). In this study, interrater reliability was established by using training tapes and having more experienced faculty interviewers supervise and rate initial live interviews. High item reliability and 100% diagnostic reliability was established followed by ongoing supervision. A random sample of 31 tapes was selected for evaluation of interrater reliability. Categorical diagnostic analyses revealed that the kappa coefficient for the overall PTSD diagnosis was 1.00 with 100% agreement.

*The Structured Clinical Interview for DSM-IV* (SCID; First et al. 1994) mood disorders module was used for the diagnosis of depression for the purposes of comparing the PTSD-only and the comorbid PTSD-depression (PTSD/MDD) subgroups on the predictors of interest. The SCID is a diagnostic interview based on Axis I disorder symptom criteria from the DSM-IV (American Psychiatric Association 1994). In response to nine items, each representing one of the DSM-IV depression symptoms, interviewers reported whether the symptom was *absent*, *subthreshold*, or *threshold*. The participant met criteria for depression if at least five items were rated as threshold, including at least one of depressed mood or loss of interest in all or almost all activities. The SCID has well-established reliability and validity in clinical and non-clinical samples (Williams et al. 1992). Interrater reliability for the SCID was established with the same procedure as used for the CAPS. A random sample of 40 tapes was selected for evaluation of diagnostic reliability on the SCID. The kappa value for the diagnosis of depression was .80 with 90% agreement.

*The Physical Punishment scale of the Assessing Environments-III* (AE-III-PP; Berger et al. 1988) was used to assess childhood physical abuse victimization. The AE-III-PP examines the experience of punishment during childhood (before age 16) with 12 true or false items. Punitive behaviors in the AE-III-PP range from mild (e.g., spanked) to physically damaging (e.g., severely beaten). A total score was computed by summing the positively endorsed items, with a higher score reflecting more physical abuse experiences. Research has established the validity and test-retest reliability of the AE-III-PP (Berger et al. 1988). In the current study, the internal consistency reliability estimate for this measure was .84.

*The Sexual Abuse Exposure Questionnaire* (SAEQ; Rowan et al. 1994) was used to measure childhood sexual abuse. The SAEQ is a 10-item questionnaire that assesses different types of sexual abuse experienced during childhood (prior to age 16). The SAEQ includes such items as: “Did a person ever expose his/her genitals to you or disrobe in front of you in a manner that made you uncomfortable?”; “Did a person ever have you observe sexual acts such as intercourse or masturbation?”; and “Did a person ever insert his/her finger, or other object(s) into your vaginal or rectal opening?” The 10 items were binary-coded 0 (*no*) and 1 (*yes*), reflecting whether the participant had experienced each abusive behavior. Items were then summed, with a higher score denoting more childhood sexual abuse experiences. Rodriguez et al. (1991) found the SAEQ to demonstrate acceptable split-half reliability and construct validity. The internal consistency reliability estimate for the SAEQ in the current study was .86.

*The Conflict Tactics Scale* (CTS; Straus 1979) 8-item Physical Assault subscale was used to assess physical assault victimization. This scale includes items such as "*Has your partner slapped you?*" and "*Has your partner threatened you with a knife or gun*?" Participants reported the frequency of each abusive behavior experienced from current partners during the past year and previous partners during the last year of the relationship on a scale ranging from 0 (*never*) to 6 (*more than 20 times*). Each item was recoded to estimate the frequency of the behavior (e.g., *3 to 5 times* equals a score of 4), and total frequency scores were computed by summing the recoded frequency scores (see Straus 1990). The CTS has excellent psychometric properties (Straus 1979). The internal consistency reliability estimate for this scale was .85 in the current study.

*Adulthood sexual assault victimization* was examined with three interview items adapted from the High-Magnitude Stressor Events Structured Interview (Kilpatrick and Resnick 1992). The participant reported the number of times in her adulthood someone had raped her, attempted to rape her, and forced her to do something sexual other than intercourse. These items were rated on a 7-point scale from 0 (*never*) to 6 (*more than 20 times*). The items were recoded in order to estimate the frequency of sexual assault victimization (e.g., *3 to 5 times* equals a score of 4) and then summed. The internal consistency reliability for these items was .62.

*The Personal Beliefs and Reactions Scale* (PBRS; Mechanic and Resick 1999) examined trauma-related beliefs. The PBRS is a 50-item measure that was developed to assess disruptions in beliefs that typically form following sexual assault. Distortions in cognitive schemas are measured with 8 subscales, including safety, trust, power, esteem, intimacy, negative (rape/sexual abuse) beliefs, self-blame, and undoing. Each item is rated on a scale from 1 (*not true at all*) to 6 (*completely true*). We used total scores in this study, consistent with Resick et al. (in press). Higher total scores on the PBRS reflect less distorted cognitions. PBRS subscales have been found to be significantly correlated with PTSD severity (Owens and Chard 2001). Mechanic and Resick (1999) established both the validity and reliability of the PBRS among a large sample of assault victims. The internal consistency reliability estimate for the PBRS was .89 in the current study.

*The Multiscale Dissociation Inventory* (MDI; Briere 2002) was used to measure dissociative responses and trauma avoidance. The MDI is 30-item self-report measure composed of scales that assess six types of dissociative responses: disengagement, depersonalization, derealization, emotional constriction, memory disturbance, and identity dissociation. Each item was rated based on its frequency of occurrence, using a scale ranging from 1 (*never*) to 5 (*very often*), and these items were summed to create an overall composite score. Higher scores indicate higher levels of dissociation and trauma avoidance. The MDI has good psychometric qualities in both general and clinical populations (Briere et al. 2005). The internal consistency reliability estimate for the MDI was .96 in the current study.

*The Posttraumatic Stress Diagnostic Scale* (PDS; Foa et al. 1997) was used to assess PTSD symptoms. The PDS consists of trauma screening questions and 17-items corresponding to the DSM-IV (American Psychiatric Association 1994) PTSD diagnostic criteria. Respondents rate the frequency of each item on a 4-point scale ranging from 0 (*not at all or only one time*) to 3 (*five or more times a week/almost always*), and these items were summed to obtain an overall PTSD symptom severity composite score, with higher scores indicating more severe PTSD symptomatology. Studies have shown that the PDS demonstrates high internal consistency and test-retest reliability, convergent and discriminant validity, and diagnostic accuracy (Foa et al. 1997; Sheeran and Zimmerman 2002). The internal consistency reliability estimate for the PDS was .85 in the current study.

*The Beck Depression Inventory-2* (BDI-2; Beck et al. 1996), a 21-item self-report questionnaire, was used to measure depressive symptoms. Each item has 4 sets of statements, which reflect degrees of symptoms ranging from neutral (e.g., *I do not feel sad*) to severe (e.g., *I am so sad or unhappy that I can't stand it*). These items are summed, with higher scores indicating more severe depressive symptomatology. This measure has been widely used to assess the attitudes and symptoms of depression among clinical and normal populations, and has been shown to be a reliable and valid measure (Dozois et al. 1998). The internal consistency reliability estimate for the BDI-2 in the current study was .91.

### Procedure

Participants were recruited through agencies, therapists, advertisements, flyers, and word of mouth. Initial screenings were conducted via telephone by graduate research assistants, who ascertained the date of the most recent crime, by whom it was committed, and the age of the participant. The initial screening also included questions regarding the other exclusion criteria. If the woman met the initial inclusion requirements, and she agreed to participate after the project had been described, an appointment was set up at the study site clinic. The session began with diagnostic interviews and a standardized trauma interview, conducted by trained clinicians. Individuals who were diagnosed with PTSD and chose to continue participation in the study completed self-report symptom scales and the cognitive scales, which were programmed into a laptop computer. Participants also had the option to complete biological and physiological assessments, which are not a part of this report.

### Analyses

First, descriptive statistics and bivariate correlations were computed for all study variables. Independent sample *t*-tests were also conducted to examine differences between the PTSD-only and PTSD/MDD groups on each of the aforementioned predictor variables. Next, two separate multiple regression analyses were conducted to examine relative strength of associations between significant correlates of PTSD and depressive symptom severity, respectively. PTSD and depression comorbidity was further explored by examining the depression classification of participants when the overlapping symptoms between PTSD and depression were not considered. Kappa coefficients (Cohen 1960) and confidence intervals were then computed for the rates of those who were classified in the moderate to severe range on the BDI-2 when: (a) considering all of the BDI-2 items; and (b) considering only the nonoverlapping BDI-2 items with the PDS (eliminating 3 BDI-2 items reflecting irritability, loss of interest, and sleep disruption). Effect sizes were interpreted in terms of suggestions made by Cohen (1988) for small, medium, and large values.

## Results

All participants met criteria for PTSD based on the CAPS and 52% of the participants met SCID criteria for a depression diagnosis. Table 1 presents other descriptive statistics for the total sample, PTSD-only group, and the PTSD/MDD group. The average score on the AE-III-PP for the total sample was slightly higher than 4, which has been used as a cut-off score for childhood physical abuse victimization (Zaidi et al. 1989). Participants reported experiencing an average of 28 abusive behaviors from current and previous intimate partners, and approximately 10 instances of sexual assault in adulthood. The mean score on the SAEQ is comparable with those reported in a battered women's sample (Clark and Foy 2000). Average scores on variables reflecting trauma-related beliefs, dissociation, and symptom severity were generally consistent with those reported in prior studies of those exposed to trauma (Briere 2002;Foa et al. 1997;Owens et al. 2001).

Table 1 also presents the *t* values for the independent sample *t*-tests. Findings indicate that the PTSD-only group reported more frequent childhood sexual abuse than the PTSD/MDD group. The PTSD/MDD group reported relatively more distorted trauma-related beliefs and dissociation, as well as more severe PTSD symptoms and depressive symptoms. Effect sizes (*r*) for these difference tests were generally in the small-to-medium range, with the exceptions being a medium-sized effect for PTSD symptoms and a large effect for depressive symptoms.

Bivariate associations among all study variables are reported in Table 2. As this table indicates, childhood physical abuse victimization was positively associated with higher childhood sexual abuse (medium effect) and adulthood intimate partner physical assault victimization (small effect), and higher dissociation (small effect). Intimate partner physical assault victimization was also associated with more sexual assault in adulthood and more severe PTSD symptoms, with these associations generally in the medium range of magnitude. Finally, distorted trauma-related beliefs, PTSD symptoms, and depressive symptoms were all highly intercorrelated in the expected direction.

In order to determine the unique predictive ability of the significant correlates of PTSD and depressive symptoms, separate regressions were run for each of these two outcomes with the variables associated with PTSD and depression severity (Table 2) entered as predictors. Results from this analysis are reported in Table 3. These analyses indicate that distorted trauma-related beliefs and dissociation were associated with both PTSD and depression severity, and intimate partner physical assault victimization was also associated with PTSD symptom severity. These associations were generally in the medium range of magnitude.

With respect to analyses examining the impact of PTSD and depression symptom overlap on comorbidity, 75.5% of participants met or exceeded the cutoff for moderate to severe depression on the BDI-2 (a score of greater than or equal to 19; Beck et al. 1996) when considering all of the BDI-2 items. The 95% confidence interval for this rate was .69–.82. Upon removal of BDI-2 items that overlapped with PTSD symptom items (assessing irritability, loss of interest, and sleep disruption), 63.2% of participants fell in the moderate to severe depression range. The 95% confidence interval for this rate was .56–.71. Thus, as expected, the confidence intervals for these two rates overlap, suggesting that the proportions are not substantially different. The kappa obtained between these two rates was .72, $p<.001$, indicating a substantial level of agreement (Landis and Koch 1977), or a high degree of similarity.

## Discussion

Comparisons of the PTSD-only group with the PTSD/MDD group indicated that those in the former group reported relatively more childhood sexual abuse, and those in the PTSD/MDD group reported relatively more distorted trauma-related beliefs, dissociation, PTSD symptoms, and depressive symptoms. Similar patterns of associations were found for PTSD symptoms and depressive symptoms with respect to the predictors of interest. For both psychopathology variables, distorted trauma-related beliefs and dissociation were the strongest predictors. Intimate partner physical assault victimization was also positively associated with PTSD symptoms. As expected, moderate to severe depression rates were highly concordant when considering all of the depression items (75.5%) and rates derived from items that did not overlap with PTSD symptom items (63.2%). These two rates also evidenced overlapping confidence intervals, further suggesting that they were not substantially different from one another and that the relationship between the two disorders is not due to mere overlap in symptoms.

Findings for trauma-related beliefs are consistent with research among women reporting relationship abuse indicating that trauma-related cognitive disruptions are associated with posttrauma psychopathology (Coffey et al. 1996; Dutton, et al. 1994), as well as

conceptualizations of mental health problems that highlight the role of trauma processing (Dunmore et al. 1999; Ehlers and Clark 2000; Foa et al. 1989; Resick and Schnicke 1992). Results suggesting that negative trauma-related beliefs are an important factor in discriminating those with PTSD only from those who develop both PTSD and depression are interesting in light of one previous investigation reporting that a measure of general maladaptive schemas did not distinguish these two groups (Nixon et al. 2004). As Nixon et al. suggested, it appears that potentially maladaptive beliefs directly related to the trauma may be particularly important in determining whether or not individuals with PTSD develop comorbid depression. The possible etiological role of trauma-related cognitions in PTSD-depression comorbidity is further supported by recent findings that treatment for individuals with co-occurring PTSD and depression may be more effective if it includes a component devoted to examining problematic trauma-related cognitions (Nishith et al. 2005).

Results for dissociation were consistent with previous research indicating that dissociative experiences are associated with severity of PTSD and depression (e.g., Lemos-Miller and Kearney 2006). Dissociative experiences may hinder trauma processing, interfering with the integration of traumatic experiences into one's memory networks, placing women at risk for the development of post-trauma psychopathology and prolonged stress reactions (Foa and Rothbaum 1998). Dissociative experiences may also be linked to avoidance behaviors associated with trauma and/or maladaptive cognitions (e.g., "I am crazy) that lead to social isolation, and in turn, lower exposure to positive reinforcement in one's natural environment and the development of comorbid depression. The mechanisms responsible for explaining the pathways whereby dissociation lead to PTSD and depression comorbidity have been largely unexamined and require further investigation.

In contrast with some prior research among battered women (Astin et al. 1995; Campbell et al. 1997), the childhood trauma variables were not associated with the mental health outcomes at the bivariate level. Counter to expectations, those in the PTSD-only group reported higher child sexual abuse victimization than those with comorbid PTSD and depression. These counter-intuitive and relatively weak findings require replication. Because this was a highly and multiply traumatized treatment-seeking group of women, it is possible that psychological distress in this sample was primarily a function of more recent trauma exposure.

Findings regarding the relationship between intimate partner physical assault victimization and mental health outcomes were consistent with those of Stein and Kennedy (2001), who similarly found physical assault severity to be associated with PTSD symptoms and not depressive symptoms. Findings are partially at odds with those obtained by Cascardi et al. (1999), who found physical assault frequency to be associated with both PTSD symptoms and depressive symptoms. Consistent with both of these studies, physical assault victimization did not distinguish participants with PTSD only and those with comorbid PTSD and depression. Moreover, adulthood sexual assault victimization did not distinguish these two groups in the current study, in contrast to findings obtained by Nixon et al. (2004), who reported higher incidence of adult sexual assault victimization among a PTSD/MDD group than a PTSD only group. Current study results suggest that PTSD and depression comorbidity among female interpersonal violence victims is not primarily a function of interpersonal violence victimization severity, but due to conflicting findings across studies, further work in this area appears warranted.

As reported by Nixon et al. (2004), those with PTSD/MDD reported relatively higher PTSD symptoms and depressive symptoms than those in the PTSD-only group. Some previous investigations have not reported such group differences (Cascardi et al. 1999; Stein and Kennedy 2001). Findings suggest that, at least in the current sample, the high comorbidity rate may be a function of more severe overall symptom severity. Symptom overlap, on the other

hand, did not appear to explain the high PTSD and depression comorbidity in this sample. Results indicated that 84% of participants classified as moderately to severely depressed according to the entire BDI-2 were still classified as such when the three overlapping PTSD/depression BDI-2 items were excluded. Moreover, high levels of agreement were found for rates of moderate to severe depression when considering the full and more limited BDI-2 item set, and confidence intervals for these two rates were overlapping. These data are consistent with findings within a subsample of PTSD-positive motor vehicle survivors in which non-significant differences on indicators of "caseness" were found among those meeting thresholds of seven or more depressive symptoms versus those with five or six depressive symptoms (Blanchard et al. 1998).

The use of retrospective reports for a number of variables represents a study limitation, because encoding and memory alterations have been linked with the presence of dissociation and trauma symptoms (Bremner et al. 1998; Zoellner et al. 2003). The retrospective reports of participants may also have been influenced by their emotional or psychological state. Prospective studies are clearly needed to better understand the relationship between PTSD and depression among women who have experienced assault, and the factors that lead to each of these serious mental health problems. There are also generalizability issues to consider. The current sample consisted entirely of a treatment-seeking sample of women who reported a prior sexual and/or physical assault and high levels of previous trauma exposure. Thus, findings cannot be generalized to the larger population of women who do not experience elevated rates of trauma or actively seek treatment. In addition, future studies should include fuller assessments of trauma and sexual victimization.

These limitations notwithstanding, study results highlight the salience of negative trauma-related beliefs and avoidance in particular with respect to the development of PTSD symptoms and depressive symptoms. These factors, taken together with adult trauma exposure, PTSD severity, and depression severity, appear to also play an important role in helping to explain the high depression comorbidity among traumatized women with PTSD (Cascardi et al. 1999; Nixon et al. 2004; Stein and Kennedy 2001). It is hoped that future research will further assist in our understanding of this comorbidity and the discriminability of the PTSD and depression constructs in order to help guide intervention efforts with female victims of interpersonal violence.

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**Table 1**

Descriptive statistics for study variables

| Variable | Total Sample | | PTSD-only Group | | PTSD/MDD group | | *t* | *r* |
|---|---|---|---|---|---|---|---|---|
| | ***N*=162** | | ***n*=77** | | ***n*=84** | | | |
| | *M* | *SD* | *M* | *SD* | *M* | *SD* | | |
| AE-III-PP | 4.40 | 2.83 | 4.14 | 2.68 | 4.64 | 2.97 | 1.12 | .09 |
| SAEQ | 3.27 | 2.93 | 3.77 | 3.03 | 2.85 | 2.78 | −2.01* | −.16 |
| CTS | 28.01 | 43.02 | 24.45 | 39.55 | 31.43 | 46.18 | 1.03 | .08 |
| Sexual assault in adulthood | 9.99 | 14.95 | 9.45 | 14.98 | 10.61 | 15.04 | 0.49 | .04 |
| PBRS | 157.06 | 38.19 | 166.40 | 38.01 | 148.89 | 36.57 | −2.97** | −.23 |
| MDI | 65.02 | 23.57 | 59.01 | 19.31 | 70.24 | 25.63 | 2.95** | .25 |
| PDS | 29.19 | 9.59 | 25.36 | 8.10 | 32.74 | 9.59 | 5.21*** | .38 |
| BDI-2 | 26.70 | 11.24 | 20.71 | 8.51 | 32.04 | 10.66 | 7.40*** | .51 |

Note. Depression diagnosis information was missing for one participant. AE-III-PP = Assessing Environments-III, Physical Punishment; SAEQ = Sexual Abuse Exposure Questionnaire; CTS = Conflict Tactics Scale; PBRS = Personal Beliefs and Reactions Scale; MDI = Multiscale Dissociation Inventory; PDS = Posttraumatic Diagnostic Scale; BDI-2 = Beck Depression Inventory-2

* $p<.05$;

** $p<.01$;

*** $p<.001$

**Table 2**

Intercorrelations among study variables

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 1. AE-III-PP | – | | | | | | | |
| 2. SAEQ | .38** | – | | | | | | |
| 3. CTS | .18* | .00 | – | | | | | |
| 4. Sexual assault in adulthood | .12 | .04 | .43** | – | | | | |
| 5. PBRS | −.12 | .00 | −.10 | −.11 | – | | | |
| 6. MDI | .19* | .01 | .06 | .13 | −.52** | – | | |
| 7. PDS | .05 | −.05 | .28** | .14 | −.54** | .49** | – | |
| 8. BDI-2 | .12 | −.15 | .09 | ..09 | −.56** | .59** | .60** | – |

Note. AE-III-PP = Assessing Environments-III, Physical Punishment; SAEQ = Sexual Abuse Exposure Questionnaire; CTS = Conflict Tactics Scale; PBRS = Personal Beliefs and Reactions Scale; MDI = Multiscale Dissociation Inventory; PDS = Posttraumatic Diagnostic Scale; BDI-2 = Beck Depression Inventory-2

* $p<.05$;

** $p<.01$

## Table 3

Significant predictors of PTSD and depressive symptoms

| **Variables** | **PTSD Symptoms** | | |
|---|---|---|---|
| | *β* | *t* | *Partial r* |
| CTS | .20 | 2.95 | .24** |
| PBRS | −.37 | −4.64 | –.37*** |
| MDI | .28 | 3.63 | .30*** |
| $R^2$=.39, *F* (3, 138) = 28.78, *p*=.00 | | | |
| Variables | Depressive Symptoms | | |
| | *β* | *t* | *Partial r* |
| PBRS | −.36 | −4.79 | –.38*** |
| MDI | .41 | 5.52 | .42*** |
| $R^2$=.44, *F* (2, 139) = 55.55, *p*=.00 | | | |

Note. CTS = Conflict Tactics Scale; PBRS = Personal Beliefs and Reactions Scale; MDI = Multiscale Dissociation Inventory

** *p*<.01;

*** *p*<.001