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An Examination of General Aggression and Intimate Partner Violence in Women with Posttraumatic Stress Disorder

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Abstract

Research has documented significant relationships between PTSD, aggression and intimate partner violence (IPV). Most of these studies have focused on men and measured violence by self-report. The current study examined (1) the association between PTSD and general aggression among women, (2) the association between IPV and PTSD among married and/or cohabitating couples, and (3) the concordance between self and collateral reports of IPV. One hundred twenty participants provided information about PTSD symptoms and general aggression towards others, and 43 married and/or cohabitating couples provided information about PTSD and IPV. Women with PTSD reported more general aggression, IPV perpetration, and IPV victimization. Collateral informants of those with and without PTSD did not differ significantly in their report of IPV. Concordance between participants and spouses or partners was low to moderate. These results are discussed within the context of extant IPV literature.

Keywords

posttraumatic stress disorder; violence; aggression; women

The psychosocial impact of trauma exposure and posttraumatic stress disorder (PTSD) is vast. Approximately two-thirds of adults in the United States have experienced a traumatic event (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), and as many as nine percent of the population meet criteria for current PTSD (Breslau, Davis, Andreski, & Peterson, 1991). Irritability and anger are symptomatic of PTSD (American Psychiatric Association, 2000), and difficulty with anger and aggression cause considerable social impairment for those with PTSD, including greater family conflict, social isolation, relationship distress, conflicts with intimate partners, and intimate partner aggression (Beckham et al., 1996; Chryso, Taft, King, & King, 2005;

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Galovski & Lyons, 2004; Riggs, Byrne, Weathers, & Litz, 1998; Taft, Street, Marshall, Dowdall, & Riggs, 2007; Westerink & Giarratano, 1999).

Much of the literature examining interpersonal violence and PTSD has focused on male military veterans (Galovski & Lyons, 2004; Taft, Monson, Hebenstreit, King, & King, 2009), perhaps due to mixed evidence regarding the impact of combat exposure on the perpetration of interpersonal violence (Beckham, Feldman, Kirby, Hertzberg, & Moore, 1997; Galovski & Lyons, 2004). Male veterans with PTSD report greater hostility and anger, greater acts of violence, and more anger-related job problems than those without PTSD (Beckham, Moore, & Reynolds, 2000; Beckham et al., 1996; Kulka et al., 1990; Calhoun et al., 2002; Chemtob, Hamada, Roitblat, & Muraoka, 1994). These reports are echoed by the partners and/or wives of male veterans with PTSD. Spouses of male veterans with PTSD have reported greater anger than spouses of veterans without PTSD (Calhoun et al., 2002), and spouses of veterans with PTSD have reported more violence perpetrated against them by their spouses, and more violence perpetration themselves towards their spouses with PTSD (Jordan et al., 1992).

Although general aggression and IPV have been well-studied in men with PTSD, especially veterans, there has been relatively little research examining general aggression and IPV perpetrated by women with PTSD, even though women are twice as likely to be diagnosed with PTSD (Kessler et al., 2005). This discrepancy in part reflects the state of the more general violence literature, in which IPV perpetrated by women has received less attention than IPV perpetrated by men (Carney, Buttell, & Dutton, 2007). Existing data indicate, however, that women may initiate IPV as much as men (Stets & Straus, 1990; Swan, Gambone, Caldwell, Sullivan, & Snow, 2008).

A few studies have examined IPV and general physical aggression perpetrated by female veterans with PTSD. The majority of these studies have used data collected from the National Vietnam Veterans Readjustment Study (NVVRS; Taft, Watkins, Stafford, Street & Monson, 2011; Gold et al., 2007; Kulka et al., 1990). While results of these studies indicate higher rates of IPV and general physical aggression perpetrated by male veterans, they have also demonstrated concomitantly high rates of IPV, psychological aggression, and general physical aggression perpetrated by female veterans (Taft, Watkins et al., 2011; Taft et al., 2009; Gold et al., 2007; Kulka et al., 1990). In a study that used data from the NVVRS to examine the correlates of general aggression among male and female Vietnam veterans, Taft and colleagues (2009) found that rates of general aggression perpetrated by women are as high as 32% among female Vietnam veterans compared to a rate of 41% among male veterans. In this sample, rates of severe forms of physical aggression were substantially higher among male veterans, suggesting that although rates of general aggression are similar, male veterans' violence is more severe and has more negative effects (Taft et al., 2009). In this study that included veterans with and without PTSD, PTSD was not significantly associated with general physical aggression in female veterans; only younger age and unemployment were associated with aggression. Taft and colleagues (2009) posited that the lack of association between PTSD and aggression may have been related to the low rates of psychopathology, including PTSD symptoms, in the sample of women.

There is less known regarding rates of general physical aggression and/or IPV perpetrated by civilian women with PTSD. In general, studies suggest that both female civilians and veterans perpetrate general physical aggression and IPV at similar or higher rates than men (Swan et al., 2008). It is important to evaluate rates of IPV and general aggression in women with PTSD, including veterans and non-veterans, because evidence suggests that women's perpetration of violence is different in several ways than men (Swan et al., 2008). Types of violence committed by women may be less severe (Taft, et al., 2009) and women's violence

often occurs in the context of violence against them by male partners (Swan et al., 2008). Although the pattern of IPV is most often bidirectional (Forgey & Badger, 2010), and spouses of male veterans with PTSD have reported greater perpetration of violence towards their spouses with PTSD (Jordan et al., 1992), evidence suggests that PTSD symptoms in women are a unique predictor of subsequent exposure to interpersonal violence victimization (Cogle, Resnick, & Kilpatrick, 2009). For this reason, it is important to examine both victimization and perpetration as it occurs in women with PTSD.

Another important reason for examination of perpetration and victimization of IPV and aggression among women with PTSD is that evidence suggests that psychosocial risk factors for IPV and aggression may be different among men and women. For example, the correlation between PTSD symptom severity and general physical aggression is stronger in men with PTSD than in women with PTSD (Gold et al., 2007; Taft, Watkins et al., 2011). In addition, among women, risk factors include a history of childhood sexual assault and depression (Forgey & Badger, 2010; Swan, Gambone, & Fields, 2005), whereas among men, primary risk factors include substance use and history of violence (Elbogen et al., 2010).

Much of the literature examining aggression and IPV in PTSD is limited by reliance on self-report. In a recent meta-analysis of research on PTSD and relationship problems, Taft, Watkins and colleagues (2011) suggest it is important to obtain self reports and collateral reports of IPV in order to reduce the impact of single-reporter bias. Furthermore, spouses and/or partners are more likely to have observed aggression and IPV in multiple contexts (Taft et al., 1999).

There have been a few studies that have examined concordance between self report and partner/spouse report of PTSD symptomatology, including anger or aggression. One study examining partners' ratings of PTSD symptoms described fair to moderate agreement between male veterans with PTSD and their partners with regards to PTSD symptoms, including avoidance, withdrawal and numbing, and arousal and lack of control (Taft, King, King, Leskin, & Riggs, 1999). Similarly, male veterans with PTSD and their spouses demonstrated moderate concordance with regards to the veterans' anger (Calhoun et al., 2002). Higher rates of intimate partner violence (IPV) among veterans with PTSD have also been observed in studies that relied on reports of violence from veterans and their informants such as spouses (Beckham et al., 1996). While these studies have demonstrated relatively good concordance between male Vietnam veterans with PTSD and collateral informants (Calhoun et al., 2002), another study examining reports of interpersonal violence documented only poor to fair concordance between self and informant reports. Moffitt and colleagues (1997) noted that among a non-clinical community sample, levels of IPV reported by victims are significantly higher than those by their perpetrators, and that inter-rater agreement is only poor to fair. We are not aware of any published studies that have addressed IPV in women with PTSD utilizing both self-report and collateral report. Similarly, we are not aware of any collateral report studies that have examined both perpetration and victimization of IPV in women with PTSD.

Thus, the purpose of this study was to examine general aggression and IPV in a sample of women that included both civilian and veteran women. It was hypothesized that women with PTSD would report greater general aggression and IPV perpetration and victimization than women without PTSD. Similarly, we hypothesize that spouses/partners of women with PTSD would report greater IPV perpetration and victimization. Further, the study examined reports of IPV among spouses or partners in an effort to examine concordance of reports of aggression among cohabitating couples.

Method

Participants

Participants (n=120) were drawn from a larger study designed to evaluate hostility, health, and cardiovascular reactivity in women with and without PTSD (Calhoun, Wiley, Dennis, & Beckham, 2009; Vrana, Hughes, Dennis, Calhoun, & Beckham, 2009). Participants were recruited for the larger study through advertisements placed on bulletin boards at local community hospitals and a VA medical center in Durham, North Carolina. The flyers read “Women who have a history of trauma (such as physical or sexual assault or natural disaster) may be eligible to participate in a research study examining the effects of women’s beliefs and attitudes on health.” All participants provided informed consent before participating in this Institutional Review Board-approved study, and participants were paid \$250 for full study participation. Partial completers of the study were paid for their partial completion. Participants were screened for the parent study (N=193), and 148 participants met preliminary exclusion criteria, which included lifetime, but not current PTSD, psychosis, bipolar disorder, current drug/alcohol abuse/dependence, or seizure disorder and use of medications with significant cardiovascular effects (e.g., high doses of anticholinergic medications). PTSD status was determined using the Clinician-Administered PTSD Scale (CAPS; Blake et al., 1995), and other Axis I diagnostic status was determined using the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1997). See “Measures” below for descriptions of these measures. Results from the larger study of examinations of cardiovascular ambulatory monitoring (Beckham et al., 2008), baroreceptor sensitivity (Hughes, Dennis, & Beckham, 2007), sleep monitoring (Calhoun et al., 2007), and health complaints (Calhoun et al., 2009; Dennis et al., 2009) have been reported elsewhere.

For the current study, because the purpose was to examine the unique effects of PTSD on IPV, only participants who met criteria for current PTSD and a comparison group without current or lifetime PTSD or current major depressive disorder (MDD) were selected for the current study (n=120). Participants were asked to identify a spouse or partner who could complete questionnaires regarding the participant’s psychological symptoms, including IPV. In cases where participants could not identify a spouse or partner, they identified a family member or friend to complete the measures. Because the purpose of our analyses was to examine IPV, only participants who reported a cohabitating spouse or partner were included in the analyses of IPV (N=43). Analyses did not include those participants who identified a family member or friend as an informant. Therefore, herein, the term “informants” refers to only spouses or partners who lived with the participants at the time of the study. Informants provided informed consent by telephone, and were sent a packet of questionnaires to complete and return to study staff. Although informants were informed to complete the questionnaires in private, this could not be enforced given the nature of the recruitment process. Informants were compensated for participation. Throughout the duration of the parent study, careful attention was paid to thorough data collection and entry. Any participant or spouse/partner who missed items on the study questionnaires were contacted by telephone to collect the response. Therefore, we had no missing data for the participants or spouses/partners.

Measures

Demographics—Information about age, gender, ethnicity, education, and employment was obtained from women and their spouses or partners. Level of education and current occupation was summarized as an overall measure of socioeconomic status in the Hollingshead Index score (Hollingshead & Redlich, 1958). Lower scores on the Hollingshead Index indicate higher socioeconomic status (SES).

Clinician Administered PTSD Scale (CAPS)—All participants were evaluated in the screening session for the presence of PTSD using the CAPS (Blake et al., 1995), a structured clinical interview that evaluates the frequency and intensity of the seventeen symptoms of PTSD as defined in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association, 2000). The CAPS is generally considered the “gold standard” for PTSD assessment. Presence of each symptom was determined using the frequency 1/intensity 2 rule (Blake et al., 1995; Weathers, Keane, & Davidson, 2001), which requires a frequency of at least once per month and intensity of at least moderate impairment or distress. The CAPS has excellent reliability and validity within multiple trauma populations (Weathers et al., 2001; Weathers, Ruscio, & Keane, 1999). Eight interviewers administered the CAPS, and inter-rater reliability among the raters on training tapes not specific to this study showed perfect agreement for diagnosis of current PTSD, [mean Fleiss’ (Fleiss & Cohen, 1973) kappa = 1.0].

Structured Clinical Interview for DSM-IV (SCID)—Presence of comorbid DSM-IV Axis I diagnoses was determined in the screening session using the SCID (First et al., 1997). Eight diagnostic raters performed the SCID. Our laboratory has an established procedure for SCID training, which includes an evaluation of inter-rater reliability on the SCID across seven SCID training videos not specific to this study. Inter-rater reliability between the eight interviewers was excellent (mean Fleiss’ kappa = .94).

Davidson Trauma Scale (DTS)—The DTS, which was completed by participants, is a 17-item self-report measure designed to measure the frequency and severity of PTSD symptoms in individuals with a history of trauma. The measure corresponds to DSM-IV PTSD diagnostic criteria, and offers a total PTSD severity score as well as symptom cluster scores for each of the DSM-IV PTSD diagnostic criteria clusters. The scale has strong reliability and validity with CAPS ratings (Davidson et al., 1997), and good internal consistency (alpha = 0.92–0.94; McDonald, Beckham, Morey, & Calhoun, 2009).

Alcohol Use Disorders Identification Test (AUDIT)—Participants completed the AUDIT, a 10 item measure designed to measure alcohol consumption, alcohol dependence, and adverse consequences of alcohol use (Saunders, Aasland, Babor, de la Puente, & Grant, 1993). The range of possible scores is 0 to 40, with higher scores indicating increased probability of an alcohol use disorder.

Beck Depression Inventory – II (BDI-II)—Participants completed the BDI-II, a widely-used 21-item measure designed to measure symptoms of depression (Beck, Steer, & Brown, 1996). The BDI has been shown to have good internal consistency reliability (alpha = .90) and good concurrent validity (Storch, Roberti, & Roth, 2004).

Conflict Tactics Scale (CTS)—Participants and their informants each completed the CTS (Form N) in order to measure both interpersonal violence and general aggression (Beckham et al., 1997). The CTS (Straus, 1979) is a 20-item questionnaire that was designed to measure physical violence and verbal aggression. This measure has been shown to have good reliability and validity (Straus, 1990b). Participants were asked to complete the CTS three times, using different instruction sets each time. The first instruction set directed participants to indicate how often they had perpetrated acts towards the informant (in this case spouse or partner). The second instruction set directed participants to indicate how often they had these acts perpetrated against them by the informant. Finally, the third version directed them to indicate how often they had perpetrated these acts towards anyone (which could include the informant). The construct examined by this third version of the CTS is herein referred to as general aggression. The spouse or partner of each participant

completed two versions of the CTS. In one version, they were asked to indicate how often they perpetrated these acts towards the participant. In another, they were directed to indicate how often they had these perpetrated against them by the participant. Items were rated on a Likert scale from 0 (never) to 6 (more than twenty times in the past year). One method of scoring of the CTS was based on Straus' (1979) method whereby items in each response category are given code values ranging from zero to five. A secondary method of scoring was utilized whereby a dichotomous variable indicating no violence or any violence was created (Straus, 1979). For analyses in the current study, the eight-item standard physical violence index measuring violence within the past year was used. Items on this scale include behaviors directed towards someone, including throwing something, hitting, pushing, beating up, slapping, kicking, threatening with a knife or gun, or using a knife or gun. In addition, the six-item verbal aggression index was used. Items on this scale include insulting someone or swearing, sulking or refusing to talk, stomping out, doing something to spite someone, threatening someone, or throwing, smashing, or hitting something. Internal consistency of these scoring methods is adequate ($\alpha = .79$ to $.83$; Straus, 1979).

Personality Assessment Inventory (PAI)—The PAI is a 344-item measure designed to measure personality constructs and psychopathology (Morey, 1991b). The measure includes several treatment consideration scales that were designed to identify potential treatment complications such as aggression and hostility. One such scale is the Aggression (AGG) scale, which provides information regarding attitude and behavior related to hostility, anger, and aggression. The AGG scale includes three subscales: aggressive attitude (AGG-A), verbal aggression (AGG-V), and physical aggression (AGG-P). AGG-A measures attitudes and beliefs consistent with aggressive behavior, AGG-V measures readiness to express anger verbally, and AGG-P measures history of and attitude towards expression of physical aggression (Morey, 1991a). The AGG scale has been shown to directly correlate with other self-report measures of anger, and to negatively correlate with measures of anger control (Morey, 1991a). The PAI AGG scales have demonstrated reliability and validity among persons with PTSD (Crawford, Calhoun, Braxton, & Beckham, 2007). Internal consistency for the AGG scale is high ($\alpha = .85$ to $.90$), and in the three AGG subscales used in this study is adequate ($\alpha = .67$ to $.84$; Morey, 1991b).

Analysis

Group differences on demographic and clinical variables, were compared using analysis of variance (ANOVA) and chi-square tests. Effect sizes were computed for all pairwise comparisons. A multivariate logistic regression model examining reports of general physical aggression was conducted including age, education, SES, race, veteran status, and PTSD status as independent variables. A similar ordinary least squares regression model examined magnitude of aggression conducted toward anyone.

To examine concordance between self and spouse ratings of IPV, Pearson product moment correlations were computed for participant-reported and informant-reported IPV. As an additional measure of concordance, Cohen's Kappa was calculated based on reports of the presence of any IPV (yes versus no) where any score above 0 on the CTS was scored as a positive response. Next, to avoid problems associated with non-independence of observations (Kenny & Judd, 1986), repeated measures ANOVA with a repeated factor of reporter (participant versus partner report) was used to examine magnitude of IPV among cohabitating couples. A significant main effect for the repeated reporter factor would suggest that participants and informants differ significantly in the level of their ratings of IPV (i.e., there is little convergence between reports.) Separate models were conducted for participant's perpetration of violence towards the informant, and the participant's rating of IPV victimization by the informant.

Results

General Aggression and Violence

Group differences in demographic variables and clinical characteristics of female participants ($N = 120$) are presented in Table 1. Compared to non-PTSD participants, PTSD participants were older, less educated, of lower SES, less likely to be employed, and more likely to be military veterans.

Table 2 provides information about group differences in general aggression and IPV in the main sample. Compared to women without PTSD, women with PTSD had higher levels of aggressive attitudes and physical aggression on the PAI, although mean scores for both groups were in the average range (i.e., below 60T) of the PAI normative sample. The PTSD group reported both more verbal aggression and general physical aggression as measured by the CTS than women without PTSD (see Table 2). In a logistic regression predicting any general physical aggression towards anyone (using version three of the CTS completed by the female participants, see “Measures”), with age, education, socioeconomic status, Veteran status, race (Caucasian vs. minority status), and group (i.e., PTSD, no PTSD) as independent variables, only group was significantly associated with reports of any violence ($X^2 = 4.3$, OR 3.25, 95% CI 1.07–9.86) where PTSD was associated with increased odds of committing violence toward anyone. Similarly, when examining the total amount of general aggression toward anyone as measured by the standard violence index, only group was uniquely associated with level of violence ($b = 0.26$, $t = 2.59$, $p = .01$) and explained an additional 5% of unique variance in total violence beyond age, race, education, SES and veteran status [$F(1,113) = 6.69$, $p = .01$].

Concordance of Violence Reports

Table 3 includes demographic variables for spouses/partners included in the group for subsequent analyses examining concordance of IPV reports ($n = 43$). An analysis of demographic variables suggested that spouses or partners of those participants with PTSD were less likely to be employed than those of participants without PTSD. Although the difference between groups was not significant, there was a trend that spouses or partners of participants with PTSD were older than those of participants without PTSD. Differences in employment status and age were significant for participants in the overall sample, suggesting that informants were similar to their spouses or partners in terms of age and employment status.

In an analysis of agreement between the participant and the informant on measures of IPV on the CTS (as an indexed score), scores were only moderately correlated. Correlation of reports of the participants' perpetration of IPV was $r = .44$, $p = .0041$; correlation of reports of the spouses' or partners' perpetration of IPV was $r = .47$, $p = .001$. In an examination of IPV as a dichotomous variable (no violence versus any violence), there was poor concordance regarding participants' IPV perpetration (Kappa = 0.27). Similarly, there was little agreement in dichotomous reports of spouse/partner's IPV perpetration (Kappa = 0.16).

Group means on IPV measures are presented in Table 4. Averaging across both groups, there were no main effects for reporter. Similarly, averaging across both participant and spouse reports, there were no main effects for group (i.e., PTSD). Planned comparisons indicated, however, that there was a main effect for group when examining participant reports of perpetration of IPV, $F(1,38) = 4.66$, $p = .037$ and participant reports of IPV directed toward them by their partners, $F(1,41) = 5.49$, $p = .024$. In contrast, there was no effect for PTSD based upon partner reports on either IPV directed toward them, $F(1,41) = .06$, $p = .82$, *ns*, or IPV that they directed toward their partners, $F(1,41) = 0.63$, $p = .43$, *ns*.

Discussion

The present study examined general physical aggression and IPV among women with and without PTSD, with IPV measured by both self report and spouse/partner report. The study also examined concordance of self and spouse/partner report with regards to IPV. Overall, compared to women without PTSD, women with PTSD reported greater perpetration of general physical aggression. Results from both logistic and linear regression models indicated that PTSD contributed unique variance to the models examining greater likelihood of general physical aggression, even after accounting for demographic variables known to be associated with violence (e.g., socio-economic status). This suggests that PTSD uniquely contributes to the report of general aggression perpetration by women with PTSD. This finding is different than that found in previous research suggesting that PTSD is more strongly related to violence in men than women (Gold et al., 2007; Taft, Watkins et al., 2011).

Women with PTSD reported greater IPV perpetration and victimization than did women without PTSD. These results extend to a mixed Veteran and non-Veteran sample previous findings regarding differences in self-reported rates of IPV perpetration in a Veteran-only sample of women with and without PTSD (Taft et al., 2009). Similarly, results support previous research (Cogle et al., 2009) that has suggested that PTSD in women predicts interpersonal violence victimization. Current study results suggest that in women, PTSD may also be associated with increased IPV victimization. Results regarding perpetration and victimization are important because they support existing evidence that women's use of violence often occurs in the context of violence against them (Swan et al., 2008), and that the pattern of IPV is often bidirectional (Forgey & Badger, 2010). It is plausible that women with PTSD, due to increased irritability and anger, experience greater relationship conflict than women without PTSD, and therefore may have a greater vulnerability to heated arguments, which may set them up for greater IPV victimization and perpetration. It is important to point out that women's use of IPV may reflect self-defense in some cases, but our study did not example the context in which IPV occurred.

Interestingly, while women with PTSD reported more general aggression than women without PTSD, scores measuring aggression on the PAI were generally within the normative range with mean scores below 60T (see Table 2). One potential concern, therefore, is whether the observed effects for PTSD represent meaningful differences. The convention for which a group difference is defined as "minimally clinically significant" on personality inventories such as the PAI has often been defined as 5T points (Greene, 1987). Based on this convention, the effects shown in Table 2 are noteworthy. Further, while a direct comparison to males can not be drawn from the current study, these findings are important in the context of previous studies which have shown extremely high levels of violence perpetrated by males with PTSD (Beckham et al., 1997).

Although women with PTSD reported more IPV in their relationships with spouses/partners, this report was not echoed by spouses/partners. There were no differences in the rates of IPV victimization or perpetration reported by the spouses/partners of women with PTSD as compared to that reported by spouses/partners of women without PTSD. This finding is different than that found in previous studies of men with PTSD and their spouses or partners; previous studies have suggested that spouses of men with PTSD report significantly more IPV than those of men without PTSD (Beckham, et al., 1997; Jordan et al., 1992). It is unclear why there are differential rates of reports of IPV between women with PTSD and their spouses/partners. It is possible that with a larger sample size, there would have been adequate statistical power to detect differences in the spouse reports. However, the low rates of IPV endorsed by the study sample and the small sample size may

partially account for the non-significant findings. It may be that if IPV is not occurring at high rates, spouses or partners are not as likely to attend to or be attuned to less severe forms of IPV. Alternately, there may be a “halo effect” in place, such that spouses or partners of women with PTSD are less likely to report IPV.

There was relatively little concordance between participant and informant reports of IPV. This finding is consistent with previous research regarding collateral reports of IPV (Moffitt, et al., 1997). Poorer concordance may result from the relatively small sample size, or from the relatively low rates of general aggression and IPV observed in the current study compared to previous studies (i.e. restriction of range). In addition, the PTSD symptom severity reported by women with PTSD in the current sample was lower than that observed in male combat veterans (McDonald et al., 2008).

There are limitations to the present study. The sample size was small, especially the sample used to examine concordance of reporting between participant and spouse/partner. Results are correlational, and as is consistent with other research related to general aggression, IPV, and PTSD (Taft, Watkins et al., 2011), causality cannot be implied. We were not able to examine motivations for IPV, which may be important when examining IPV between spouses or partners (Forgey & Badger, 2010). In addition, examination of depression and/or substance use was not incorporated into the analyses, as participants with depression only and/or substance use disorders were excluded. This reduces the generalizability of the current findings since depression, alcohol use and substance use are often comorbid with PTSD, and are associated with greater rates of general aggression and IPV (Taft et al., 2009; Marshall, Panuzio, & Taft, 2005; Elbogen et al., 2010). Generalizability of results is limited because we included in the couple analyses only those participants who had spouses or partners who were willing to answer questions about IPV in the relationship. Also, all of the women in the current sample examining concordance of reports were currently cohabitating, which may reduce generalizability to all women with PTSD. A methodological limitation is that we were unable to assure that informants completed their questionnaires themselves and in private. In the current sample, we included veterans and non-veterans. Veteran and non-veteran women may have differential exposure to aggression and violence, especially in combat settings; therefore, future research is necessary to determine if psychosocial risk factors for general aggression and IPV are different in veteran and non-veteran women.

Despite these limitations, this study provides some important information regarding aggression and IPV victimization and perpetration among women with PTSD. Given that the costs of IPV in the United States exceed 5.8 billion dollars per year (Department of Health and Human Services, 2003), it is important to continue to examine the correlates, risk factors, and patterns of IPV in women with PTSD. Future research is warranted to further examine the cycle of IPV within violent couples, particularly the impact of continued IPV on PTSD symptom severity and subsequent violence. Future research is needed to examine causality and directionality within the context of IPV and PTSD, motivations to IPV among spouses or partners, and possible points of intervention. In a study of cognitive-behavioral therapy for PTSD and depression, Iverson and colleagues (2011) indicated that reductions in PTSD symptoms were associated with a decreased likelihood of IPV victimization. Given the recent developments in and widespread dissemination of evidence-based treatments for PTSD (Resick, Galovski, O'Brien-Uhlmansiek, Scher, Clum, & Young-Xu, 2008; Foa, Hembree, & Rothbaum, 2007) as well as interventions designed to enhance intimate relationships (Monson, Fredman, & Adair, 2008) and decrease IPV (Taft, Monson et al., 2011), there seems ample opportunity to examine the efficacy of treatment for PTSD in reducing general aggression and IPV.

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Table 1
Participant Demographics and Clinical Characteristics in the Larger Sample(N=120)

Variable	PTSD (n=69)	No PTSD (n=51)	Test Statistic	Effect size
Mean Age (<i>SD</i>)	40.72 (11.39)	34.71 (11.58)	$F(1,118) = 8.08, p=.005^{**}$	$d = 0.52$
Race (%)			$\chi^2(2)=0.93, p=.63$	$V = 0.09$
African-American	30 (43)	22 (43)		
Caucasian	30 (43)	25 (49)		
Other	9 (13)	4 (8)		
Marital Status (%)			$\chi^2 (2) = 11.76, p=.0028^{**}$	$V = 0.31$
Single	22 (32)	30 (59)		
Married	22 (32)	15 (29)		
Divorced/Separated	25 (36)	6 (12)		
Cohabiting (%)	26 (36)	17 (33)	$\chi^2 (1)=0.16, p=.69$	$V = -0.04$
Mean Education (<i>SD</i>)	14.56 (2.58)	16.71 (2.82)	$F(1,118)=18.67, p < .0001^{**}$	$d = -0.80$
Mean SES	45.14 (17.40)	31.53 (14.51)	$F(1,118)=20.62, p < .0001^{**}$	$d=0.85$
Employed (%)	42 (61)	48 (94)	$\chi^2 (1) = 17.29, p<.0001^{**}$	$V = 0.38$
Military Veteran (%)	16 (23)	3 (6)	$\chi^2(1) = 6.59, p = .01^*$	$V = -0.23$
Mean DTS (<i>SD</i>)	62.00 (31.04)	13.00 (17.54)	$F(1,118)=02.7, p < .0001^{**}$	$d = 1.94$
Trauma Exposed (%)	69 (100)	41 (80)	$\chi^2(1)=14.75, p<.0001^{**}$	$V = -0.35$
Time Since Trauma (years)	12.56 (13.06)	11.03 (11.65)	$F(1,108)=0.38, p=.53$	$d = 0.12$
Current MDE ^a (%)	37 (54)	0 (0)	$\chi^2(1) = 39.54, p<.0001^{**}$	$V = -0.57$
Mean BDI-II(<i>SD</i>)	19.03 (9.10)	5.24 (5.46)	$F(1,118)=92.42, p < .0001^{**}$	$d = 1.83$
Other Anxiety disorder (%)	27 (39)	5 (10)	$\chi^2(1) = 12.90, p=.0003^{**}$	$V = -0.33$
Lifetime SUDa (%)	30 (43)	5 (10)	$\chi^2(1)=16.09, p<.0001^{**}$	$V = -0.36$
Mean AUDIT (<i>SD</i>)	2.35 (2.63)	2.65 (2.91)	$F(1,113) = 0.30, p =.58$	$d = -0.11$

Note: *SD* = standard deviation; SES = socioeconomic status; DTS = Davidson Trauma Scale; MDE = Major Depressive Disorder; BDI = Beck Depression Inventory-II; SUD = substance use disorder; AUDIT = Alcohol Use Disorders Identification Test.

^a As diagnosed by the Structured Clinical Interview for DSM-IV.

* $p < .05$,
** $p < .01$.

Table 2

Group Differences in General Aggression and Violence (N=120)

Measure	PTSD (n=69)		No PTSD (n=51)		F(1,118)	Effect size
	M	SD	M	SD		
PAI/AGG Full Scale	53.91	11.85	46.53	8.64	14.49, $p=.005$	$d=0.52$
PAI/AGG-A	53.66	11.97	45.25	12.01	14.79, $p=.0002$	$d=0.70$
PAI/AGG-V	50.89	11.71	47.82	10.16	2.29, $p=.13$	$d=0.28$
PAI/AGG-P	54.20	11.81	45.63	9.11	19.01, $p<.0001$	$d=0.81$
CTS-Violence Standard Index	1.74	1.27	1.19	0.60	8.01, $p=.006$	$d=0.55$
CTS-Verbal Aggression	3.67	1.57	2.60	1.52	13.62, $p=.0003$	$d=0.69$

Note: PAI = Personality Assessment Inventory; AGG = PAI Aggression Scale; AGG-A = PAI Aggressive Attitude Scale; AGG-V = PAI Verbal Aggression Scale; AGG-P = PAI Physical Aggression Scale; CTS = Conflict Tactics Scale.

* $p < .05$,

** $p < .01$.

Table 3

Spouse/Partner Informant Demographics by Participant Group (N=43)

Variable	PTSD (n=26)	No PTSD/No MDD (n=17)	Test Statistic	Effect size
Mean Age (<i>SD</i>)	41.2 (12.5)	34.65 (12.3)	$F(1,41)=2.81, p=.10$	$d=0.52$
Gender (% men)	96.15	94.12	$\chi^2(1)=0.10, p=.76$	$V=0.08$
Race (%)			$\chi^2(2)=2.47, p=.29$	$V=0.08$
African-American	50.00	47.06		
Caucasian	38.46	52.94		
Other	11.54	0		
Employed (%)	56	100	$\chi^2(1)=10.13, p=.0015^{**}$	$V=0.24$

Note: MDD = Major Depressive Disorder; *SD* = standard deviation.

* $p < .05$,

** $p < .01$.

Table 4

Self and Spouse/Partner Reports of IPV(N=43)

Measure	PTSD		No PTSD		F	Effect size
	M	SD	M	SD		
Participant report of own IPV towards spouse/partner	2.04	1.49	1.24	0.44	$F(1,38)=4.66, p=.037^*$	$d=0.72$
Participant report of IPV received from spouse/partner	1.81	1.41	1.00	1.07	$F(1,41)=5.49, p=.024^*$	$d=0.81$
Spouse/partner report of IPV received from participant	1.57	1.38	1.47	1.07	$F(1,38)=6.06, p=.02, ns$	$d=0.08$
Spouse/partner report of own IPV towards participant	1.54	1.17	1.29	0.59	$F(1,41)=0.43, p=.43, ns$	$d=0.27$

Note: IPV = intimate partner violence

* $p < .05$,

** $p < .01$.