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Intimate Partner Aggression-related Shame and Posttraumatic Stress Symptoms: The Moderating Role of Substance Use Problems

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Abstract

A dearth of literature has examined the consequences of women's use of aggression in intimate relationships. Women's use of aggression against their intimate partners, regardless of their motivation (e.g., self-defense, retaliation), may elicit shame. Shame, in turn, may contribute to the maintenance and/or exacerbation of posttraumatic stress disorder (PTSD) symptoms, which are commonly experienced in this population. Further, emerging research suggests that emotionally-avoidant coping strategies, such as substance use, may strengthen the relation between shame and PTSD symptoms. The goal of the present study was to examine whether women's shame concerning their use of intimate partner aggression is associated with their PTSD symptoms, and whether drug and alcohol use problems moderate this association. Participants were 369 community women who had used and been victimized by physical aggression in an intimate relationship with a male partner in the past six months. The intimate partner aggression-related shame $\times$ drug (but not alcohol) use problems interaction on PTSD symptom severity was significant. Analysis of simple slopes revealed that women's intimate partner aggression-related shame was positively associated with their PTSD symptoms when drug use problems were high, but not when drug use problems were low. Findings have implications for the potential utility of

PTSD treatments targeting a reduction in shame and maladaptive shame regulation strategies (i.e., drug use) in this population.

Keywords

intimate partner aggression; intimate partner victimization; shame; drug use; alcohol use; posttraumatic stress disorder symptoms

Intimate partner violence (IPV) victimization is associated with a wide range of deleterious outcomes among women (Brown, Finkelstein, & Mercy, 2008; Golding, 1999; Walby, 2009), including posttraumatic stress disorder (PTSD; see Golding, 1999 for a review). Indeed, whereas the lifetime prevalence of PTSD among women in the general population is 10.4% (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), heightened lifetime prevalence rates of 31–84% have been detected among IPV-victimized women (Golding, 1999). Notably, although bidirectional IPV, whereby both partners use and are victimized by IPV, is the most common pattern of IPV in the United States (Langhinrichsen-Rohling, Selwyn, & Rohling, 2012), a dearth of research has examined the impact of women's use of aggression on their psychological well-being and recovery from IPV victimization. Initial evidence suggests that PTSD is prevalent among women who use intimate partner aggression (Abel, 2001; Leisring, Dowd, & Rosenbaum, 2003; Stuart, Moore, Gordon, Ramsey, & Kahler, 2006), with one study finding that 44% of women arrested for intimate partner aggression met diagnostic criteria for PTSD (Stuart et al., 2006). It is possible that women's use of intimate partner aggression elicits aversive emotions, such as shame, that maintain and/or exacerbate PTSD symptoms stemming from their IPV victimization, although no studies have examined this possibility. Therefore, the goal of the present study was to examine shame as one potential consequence of intimate partner aggression that relates to PTSD symptoms in a sample of women who have used and been victimized by IPV.

A growing body of research suggests that intimate partner aggression may elicit shame. Shame involves the global negative evaluation of the self as flawed or defective, resulting in a sense of worthlessness and powerlessness and urges to withdraw or hide from others (Lewis, 1971). Lewis (1987) suggested that shame is a common consequence of aggressive behavior, such that individuals' interpretations of their aggressive behavior as being inappropriate or unjust may contribute to shame. Consistent with this theory, men who use intimate partner aggression have been found to demonstrate heightened levels of shame (Hundt & Holohan, 2012; Kivisto, Kivisto, Moore, & Rhatigan, 2011; Maguen et al., 2009). For instance, in one study, levels of shame distinguished male veterans with and without a history of intimate partner aggression above and beyond other important risk factors for intimate partner aggression, such as guilt, depression, and PTSD symptoms (Hundt & Holohan, 2012). Likewise, shame has been found to be significantly positively related to men's use of psychological and sexual aggression in intimate relationships (Kivisto et al., 2011). Of note, although little research has explored the relation between shame and women's use of intimate partner aggression, initial findings provide support for this association (e.g., Kim, Talbot, & Cicchetti, 2009).

There is considerable support for the role of shame in the development, maintenance, and exacerbation of PTSD symptoms (Ehlers & Clark, 2000; Resick & Schnicke, 1992). For instance, according to Ehlers and Clark (2000), shame-related appraisals of trauma or its sequelae result in maladaptive behavior and cognitive processing styles that directly produce PTSD symptoms. Likewise, a growing number of empirical studies highlight the relation between shame and PTSD (Andrews, Brewin, Stewart, Philpott, & Hejdenberg, 2009; Beck et al., 2011; Leskela, Dieperink, & Thuras, 2002; Robinaugh & McNally, 2010; Street & Arias, 2001), such that, among women victimized by an intimate partner, shame has been found to be positively associated with PTSD symptoms (Beck et al., 2011; Street & Arias, 2001). Consistent with this theoretical and empirical literature, shame-related experiences were included as criteria for PTSD in the DSM-5 (American Psychiatric Association, 2013), and include persistent negative beliefs and expectations about oneself (PTSD Criteria D2), blame of self for causing the trauma or resulting consequences (PTSD Criteria D3), and negative trauma-related emotions (PTSD Criteria D4). While evidence suggests that shame resulting from victimization is associated with PTSD, little is known about the role of shame resulting from aggressive behavior in PTSD.

Based on this aforementioned literature, one goal of the current study was to investigate the role of intimate partner aggression-related shame in PTSD symptoms in a sample of women who have used and been victimized by IPV. This aim addresses important limitations of extant research. First, despite evidence to suggest that bidirectional aggression in intimate relationships is the norm, not the exception (Langhinrichsen-Rohling et al., 2012), little research has examined outcomes of women's aggression. Findings of this study will improve our understanding of the impact of women's aggression on their PTSD symptoms. Second, past studies in this area have relied on static (i.e., trait) assessments of shame, despite evidence to suggest that shame is dynamic, whereby particular situations may be more or less likely to elicit shame (Budden, 2009). To better elucidate the shame-PTSD relation among women who have used and been victimized by IPV, investigation of women's shame stemming from their intimate partner aggression is needed. It is our intention that such investigations will inform the development of interventions tailored to the unique needs of women who have used and been victimized by IPV. Third, cross-sectional studies in IPV populations have conceptualized and tested shame as an antecedent of aggression in intimate relations (Beck et al., 2011; Harper, Austin, Cercone, & Arias, 2005; Hundt & Holohan, 2012; Sippel & Marshall, 2011). Given that shame is often re-directed into anger (i.e., humiliated fury; Lewis, 1971; Scheff & Retzinger, 2001), it is not surprising that shame is a predictor of IPV; however, as was noted earlier, research indicates that shame is also a consequence of aggressive behavior (Lewis, 1987), particularly within traumatized populations (Ehlers & Clark, 2000). Thus, the present study examines whether shame results from women's intimate partner-related aggression.

Finally, while research provides support for an association between shame and PTSD symptoms, no studies have examined factors that may moderate the shame-PTSD relation among women who have used and been victimized by IPV. Research suggests that the shame-PTSD relation may be strongest among women who rely on emotionally-avoidant strategies, such as substance use, to reduce their levels of shame. Specifically, theorists note that it is not the experience of aversive emotions (e.g., shame) alone that drives

psychopathology and risky health behaviors, but instead the reliance on maladaptive strategies for regulating aversive emotions (Gratz & Roemer, 2004; Gratz & Tull, 2010; Linehan, 1993). Indeed, emotionally-avoidant strategies are often paradoxical in nature (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996), exacerbating the frequency and duration of aversive emotions in the long-term. Regarding PTSD in particular, reliance on emotionally-avoidant strategies may prevent exposure to corrective information, such as encountering trauma-related stimuli without the feared consequence (Foa & Kozak, 1986). Substance use is one emotionally-avoidant strategy that often co-occurs in individuals struggling with PTSD (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004; Khantzian, 1997). Women who use intimate partner aggression report high rates of substance use problems (Stuart et al., 2006; Stuart et al., 2008; Sullivan, Cavanaugh, Ufner, Swan, & Snow, 2009). Substance use problems are associated with greater PTSD symptoms (Peters, Khondkaryan, & Sullivan, 2012; Sullivan, Cavanaugh, Buckner, et al., 2009; Sullivan & Holt, 2008) and higher levels of shame (Dearing, Stuewig, & Tangney, 2005; Meehan, O'Connor, Berry, Weiss, & Acampora, 1996; O'Connor, Berry, Inaba, Weiss, & Morrison, 1994), although this latter association has not been examined in women who have used and been victimized by IPV. Little research has considered the potential impact of emotionally-avoidant strategies, such as substance use, on shame and mental health outcomes following traumatic exposure.

Given the absence of a comprehensive measure assessing intimate partner aggression-related shame, first we sought to develop and validate a measure that assesses women's shame stemming from their use of aggression against their male partners. Following this, we examined whether women's shame stemming from their use of intimate partner aggression (from here forward referred to as women's shame) is associated with their PTSD symptoms. Finally we explored whether drug and alcohol use problems moderate the association between women's shame and their PTSD symptoms. Of note, we did not evaluate women's experiences of guilt related to their use of intimate partner aggression in the current study. While shame and guilt are conceptually similar (i.e., they are both self-conscious emotions; Lewis, Sullivan, Stanger, & Weiss, 1989), there are important differences between these emotions (Tangney, 1995; Tangney et al., 1996). Indeed, shame is related to negative evaluations of the self as flawed or defective and is associated with deleterious outcomes (Dearing & Tangney, 2011), whereas guilt is related to negative evaluations of specific behavior and is associated with prosocial and empathetic behavior (Baumeister, Stillwell, & Heatherton, 1994; Leith & Baumeister, 1998). In fact, research has found shame (but not guilt) is related to PTSD symptoms (Beck et al., 2011; Street & Arias, 2001).

Consistent with past research, we predicted that women's shame would be positively associated with their drug and alcohol use problems and their PTSD symptoms. Further, given evidence to suggest that the association between shame and PTSD symptoms may be strongest for women who rely on emotionally-avoidant strategies, such as substance use, to reduce their levels of shame, we predicted that drug and alcohol use problems would moderate the relation between women's shame and their PTSD symptoms. Specifically, we expected women's experiences of shame to be more strongly associated with PTSD symptoms among women with high (vs. low) levels of drug and alcohol use problems.

Method

Participants

The general purpose of this study was to examine bidirectional aggression among women in heterosexual relationships (but not lesbian and bi-sexual IPV-relationships because the dynamics in these relationships may differ from the dynamics found in heterosexual relationships; Johnson & Ferraro, 2000); therefore, the sample consisted of 369 community women, all of whom had used physical aggression against a current male partner, and been victimized by that partner, in the past six months. Additional inclusion criteria were (a) African American, White, or Latina race/ethnicity and (b) yearly family income of no more than \$50,000 (to reduce income disparities between racial/ethnic groups). Women ranged in age from 18 to 65 ($M_{age} = 36.67$, $SD = 8.95$). In terms of racial/ethnic background, 36% of participants self-identified as African American, 36% identified as Latina, and 28% identified as White. Most women were unemployed for over a month prior to the study ($N = 241$, 65%). Mean level of education was 12.44 years ($SD = 2.23$); 28% of the women did not complete high school, 40% completed a high school degree or equivalent, and 32% reported some vocational or college experiences. Forty-four percent of women reported a yearly family income of less than \$10,000, whereas 28% reported between \$10,000 and \$19,999, 16% between \$20,000 and \$29,999, 7% between \$30,000 and \$39,999, and 5% between \$40,000 and \$49,999. Over half of the participants were living with their partner ($N = 225$, 61%) or saw him on a daily basis ($N = 308$, 84%). Mean years in the current relationship was 7.97 ($SD = 6.74$) and 76% ($N = 282$) of women had children.

Procedure

All procedures were reviewed and approved by the authors' Institutional Review Board. Flyers were posted in multiple community locations (e.g., health care clinics, churches, grocery stores), and stated "Come share your experience in a study about women's relationships with the men in their lives. You can earn \$50 by participating in a 2 hour study." Eligibility was determined via a phone screen. Questions on the screen included demographic items and physical aggression items from the CTS-2 (Straus, Hamby, & Warren, 2003). Women who met the screening criteria were interviewed individually by female interviewers of the same race/ethnicity. Latina participants were interviewed by a bilingual/bicultural interviewer and had the option of being interviewed in Spanish. Following informed consent, participants completed a semi-structured, computer-assisted interview administered by trained master- or doctoral-level female research associates or postdoctoral fellows in private offices to protect participants' safety and confidentiality. After completion of the interview, participants were debriefed, remunerated \$50, and provided with a list of community resources.

Measures

Intimate partner aggression-related shame—The Intimate Partner Aggression-related Shame Scale (IPARS) is a 9-item self-report measure developed to assess women's experiences of shame stemming from their use of aggression in intimate partner relationships. This measure was developed for the purposes of this study given that an empirically validated measure of shame regarding a person's aggressive behavior towards

his/her intimate partner did not exist. Participants were asked to indicate the degree to which they agree or disagree with each item, with responses ranging from 1–4 (1 = *strongly disagree*, 4 = *strongly agree*). Items are shown in Table 1 and a factor analysis of the measure is described in the results.

Posttraumatic stress symptom cluster severity—PTSD symptom severity was measured using the *Posttraumatic Stress Diagnostic Scale* (PDS; Foa, Cashman, Jaycox, & Perry, 1997). Items assess the presence of intrusion, avoidance, numbing, and hyperarousal PTSD symptoms. To the extent that it was possible, symptom severity was assessed in relation to victimization by the current male partner. Specifically, the following instructions were utilized: “Next is a list of reactions to stress that people sometimes have when their partner does hurtful or violent things to them. Listen to each one carefully and choose the answer that best describes how often the problem has bothered you in the past 30 days. Rate each problem with respect to the times your partner did hurtful or violent things to you.” Participants were asked to indicate the degree to which they agree or disagree with each item, with responses ranging from 0–3 (0 = *not at all or only one time*, 3 = *5 or more times a week or almost always*). A PTSD symptom severity score was calculated by summing all items. Cronbach’s $\alpha = .90$.

Drug use problems—The *Drug Abuse Screening Test* (DAST; Skinner, 1982) is a 10-item self-report questionnaire designed to assess the presence of problems related to drug use, such as occupational or relational problems, illegal activities, or regret. Responses to each item have 1 (*yes*) and 0 (*no*) options. A drug use problems score was obtained by summing all items. Cronbach’s $\alpha = .93$.

Alcohol use problems—The *Alcohol Use Disorders Identification Test* (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) is a 10-item measure that assesses alcohol consumption, drinking behavior, adverse reactions, and problems. Each item is scored from 0–4 (0 = *never*, 4 = *daily or almost daily*). An alcohol use problems score was obtained by summing all items. Cronbach’s $\alpha = .90$.

Intimate partner aggression and victimization—Physical IPV victimization and aggression were measured by 12 items each from the *Revised Conflict Tactics Scale* (CTS-2; Straus et al., 2003). Psychological IPV victimization and aggression were measured by 14 items each from the *Psychological Maltreatment of Women – Short version* (PMWI-S; Tolman, 1999), six items each from the CTS-2 emotional verbal scale (Straus et al., 2003), and one psychological victimization item developed for this study. Both the PMWI and CTS-emotional verbal scale were included because they each measure different dimensions of psychological IPV (e.g., the PMWI assesses dominance and isolation whereas the CTS-2 does not). To obtain the most comprehensive assessment of psychological IPV, we used the PMWI-S in its entirety and included items from the CTS emotional-verbal abuse scale that did not overlap with the PMWI-S. We added the item, “has your partner followed you out of the house to check on what you were doing?” a stalking tactic experienced by IPV victims (Basile, Arias, Desai, & Thompson, 2004; Basile & Hall, 2011). Sexual IPV victimization was measured by the 10-item *Sexual Experiences Survey* (SES; Koss & Oros, 1982) because

this measure assesses sexual victimization more comprehensively than the CTS-2 (e.g., the CTS-2 does not measure sexual coercion using drugs or alcohol). The 1982 version of the SES has been used primarily with college populations and requires a fairly high reading level. Item wording was simplified based on concerns that the measure would be difficult to understand for many participants, similar to another study published soon after our data collection (Testa et al., 2004). Also, because the SES was originally designed to measure women's experiences of sexual victimization by any man, items were modified in order to collect information specifically regarding sexual aggression between partners. The same 10 items were used to assess sexual IPV aggression (20 items total were administered). A referent time period of six months was used to assess victimization and aggression. Response options for all scales were based on CTS-2 response options coded as: 0 (never), 1 (once in the past 6 months), 2 (twice in the past 6 months), 4 (3–5 times in the past 6 months), 8 (6–10 times in the past 6 months), 11 (more than 10 times in the past 6 months), and 0 (not in the past 6 months but it happened before). The category “not in the past 6 months but it happened before” was recoded as 0 to limit the assessment to occurrences in the past 6 months. The 12 physical victimization items, 21 psychological victimization items, and 10 sexual victimization items were summed to create a total intimate partner victimization score. The 12 physical aggression items, 20 psychological aggression items, and 10 sexual aggression items were summed to create a total intimate partner aggression score. Cronbach's α s were .89 for the victimization score and .85 for the aggression score.

Motives for using intimate partner aggression—To test the validity of the IPARS, motives for using IPV aggression were assessed with the 25-item Motives and Reasons for IPV scale (Caldwell, Swan, Allen, Sullivan, & Snow, 2009) and included self-defense (e.g., “To get your partner to stop hitting or hurting you”), control (e.g., “To make your partner do the things you wanted him to do”), jealousy (e.g., “Because you thought your partner was unfaithful”), tough-guise (e.g., “To intimidate your partner”), and expressing negative emotions (e.g., “Because he made you angry”). Participants were asked how often they use violence, such as slapping, and hitting for the listed reasons, with responses ranging from 0–3 (0 = *never*, 3 = *almost always*). Subscale scores were calculated by summing their respective responses. It was expected that women would report significantly greater intimate partner aggression-related shame when aggression was more often motivated by non-self-defense reasons (i.e., control, jealousy, tough-guise, and expressing negative emotions). Cronbach's α s were .86 for self-defense, .78 for control, .73 for jealousy, .82 for tough guise, and .82 for expressing negative emotions.

Coping strategies—To test the validity of the IPARS, coping strategies were assessed using the 33-item *Coping Strategies Indicator* (CSI; Amirkhan, 1990). The CSI assesses individuals' typical levels of coping with relational conflict across three domains: avoidance (e.g., “Avoided being with people in general”), problem-solving (e.g., “Brainstormed all possible solutions before deciding what to do”), and social support (e.g., “Confided fears and worries to a friend or a relative”). Participants were asked to rate each item, with responses ranging from 1–3 (1 = *not at all*, 3 = *a lot*). Subscale scores were calculated by summing their respective responses. The avoidance and social support subscales were examined in relation to the IPARS to determine its validity. Specifically, given evidence to

suggest that shame leads individuals to withdraw, escape, and/or hide (Lewis, 1971; Tangney et al., 1996), it was expected that intimate partner aggression-related shame would be significantly positively related to avoidance coping and significantly negatively related to social support coping. Cronbach's α s were .70 for avoidance coping and .88 for social support coping.

Demographic information—All participants reported demographic information for age, racial/ethnic background, education, and income in the past year. These characteristics were examined as potential covariates.

Data Analysis

As recommended by Tabachnick and Fidell (2007)_ENREF_62_ENREF_57, study variables were assessed for and met the assumption of normality. An exploratory factor analysis (EFA) was conducted to test the factor structure of the IPARS. Descriptive statistics as well as reliability and validity data for the IPARS were examined. Next, Pearson product-moment and point-biserial correlations were conducted to identify potential covariates (i.e., age, education, race/ethnicity, income, and women's use of and victimization from intimate partner aggression) by examining their relations with PTSD symptoms (i.e., the dependent variable). Pearson product-moment and point-biserial correlations between the primary study variables (i.e., shame, drug and alcohol use problems, and PTSD symptoms) were then examined. To explore the primary question of whether shame, drug and alcohol use problems, and/or their interaction predict PTSD symptoms, we conducted two hierarchical multiple regression analyses. Variables were centered and sequentially entered into the model. In the first regression analysis, identified covariates were entered in the first step, shame and drug use problems were entered in the second step, and the interaction of shame and drug use problems was entered in the final step. The second regression analysis was identical except alcohol use problems was substituted for drug use problems. Any significant interactions were explored following the methods described by Aiken and West (1991). First, regression lines were plotted one standard deviation above and below mean levels of shame and drug or alcohol use problems. Then, follow-up tests were conducted to test whether the slopes of the regression lines differed significantly from zero.

Results

Psychometric Properties of the IPARS

An EFA using the principal axis factoring extraction method and promax oblique rotation was conducted on the nine IPARS items. The scree test (Cattell, 1966) was used as the criterion for retaining factors, a decision supported by recommendations that the scree test is a more accurate method for retaining factors than the criterion of eigenvalues > 1.00 (i.e., Kaiser-Guttman criterion; Cattell & Vogelman, 1977). The scree test suggested retaining two factors. Assignment of items to the two factors was based on factor loadings of $.40$. One of the identified factors consisted of only two items (Item 6 ["I feel guilty about my abusive behavior towards my partner"] and Item 9 ["I feel guilty after I have been abusive to my partner"]). Given evidence indicating the differential nature and consequences of shame and guilt (Tangney, 1995; Tangney, Miller, Flicker, & Barlow, 1996), as well as potential

problems associated with the reliability of a two-item subscale, these items were excluded from further analyses, resulting in a one-factor solution. Items with loadings below .40 were also excluded from further analyses. On the basis of these criteria, two additional items were deleted: Items 3 (“My friends know that sometimes I am abusive to my partner” [reverse-scored]) and 7 (“I know that I am not supposed to hit my partner”), with loadings of $-.33$ and $.11$, respectively.

All remaining items exhibited factor loadings of $.40$ (range = $.53 - .79$). These items are consistent with extant conceptualizations of shame (i.e., negative evaluation of the self, concerns about others’ evaluation of the self, and hiding behavior; see Lewis, 1971; Tangney & Dearing 2002; Tangney et al., 1996; Tracy & Robins, 2007). A second EFA using the principal axis factoring extraction method and promax oblique rotation was conducted on the remaining five items to ensure that the factor loadings remained $.40$ (see Table 1). Upon extraction, the remaining factor accounted for 52.16% of the total variance of the variables (Initial Eigenvalues: Total = 2.61, % Variance = 52.16; Extraction Sums of Squares Loadings: Total = 2.04, % Variance = 40.87).

See Table 1 for the IPARS items. IPARS scores ranged from 5 to 20 ($M = 12.02$, $SD = 2.98$). Cronbach’s alpha was calculated to determine the internal consistency of the final scale. Results revealed adequate internal consistency ($\alpha = .76$). Item-by-item correlations ranged from $r = .23$ to $r = .53$. Correlations among the IPARS and subscales on the Motives and Reasons for IPV scale and the CSI were calculated as an initial test of the convergent validity of the IPARS. As expected, the IPARS was significantly positively associated with control ($r = .32$, $p < .001$), jealousy ($r = .20$, $p < .001$), tough-guise ($r = .13$, $p = .01$), and expressing negative emotions ($r = .18$, $p < .001$), but not self-defense ($r = .06$, $p = .26$), motives. Further, and also consistent with expectations, the IPARS was significantly positively related to avoidant coping ($r = .12$, $p = .02$) and significantly negatively related to social support coping ($r = -.11$, $p = .04$). These results provide preliminary support for the factor structure, reliability, and validity of the IPARS.

Covariate Analyses

A series of Pearson product-moment and point-biserial correlation analyses were conducted to explore the impact of demographic factors on PTSD symptoms. Age ($r = -.05$, $p = .33$), race/ethnicity ($r_{pb} = -.04$, $p = .39$), and education ($r_{pb} = .04$, $p = .41$) were not significantly correlated with PTSD symptoms; however, income was significantly negatively associated with PTSD symptoms ($r = -.18$, $p < .001$; see Table 2). We also examined whether women’s use of, and victimization by, intimate partner aggression were significantly correlated with their PTSD symptoms. Significant positive associations were detected between PTSD symptoms and both intimate partner victimization ($r = .52$, $p < .001$) and intimate partner aggression ($r = .33$, $p < .001$; see Table 2). Thus, to explicate the effect of shame and its interaction with drug and alcohol use on PTSD above and beyond demographic confounds and women’s intimate partner victimization and aggression, subsequent analyses controlled for income and women’s intimate partner victimization and aggression.

Primary Analyses

Means, standard deviations, and ranges of all study variables, as well as their zero-order correlations, are presented in Table 2. Counter to the hypotheses, shame was only significantly related to women's use of IPV aggression ($r = .17, p = .001$). Drug and alcohol use problems were significantly associated with each other ($r = .55, p < .001$), as well as with IPV victimization (drug use problems: $r = .19, p < .001$; alcohol use problems: $r = .11, p = .04$) and aggression (drug use problems: $r = .14, p = .01$; alcohol use problems: $r = .12, p = .02$). PTSD symptoms were significantly related to IPV victimization ($r = .53, p < .001$) and aggression ($r = .32, p < .001$).

A hierarchical multiple regression analysis was conducted to examine the main and interactive effects of shame and drug use problems on PTSD symptom severity (see Table 3). Income and women's use of and victimization by intimate partner aggression were entered into the first step of the model and accounted for 26% of the variance in PTSD symptom severity, $F(3, 363) = 44.49, p < .001$. The inclusion of shame and drug use problems in the second step did not significantly improve the model, $F(2, 358) = 1.47, p = .23, R^2 = 0.01$, and shame and drug use problems were not found to be significant predictors of PTSD symptoms. However, consistent with our hypothesis, the addition of the shame $\times$ drug use problems interaction to the model in the third step significantly improved the model, $F(1, 357) = 8.87, p = .003, R^2 = 0.02$. The shame $\times$ drug use problems interaction was significant in the final model and is plotted in Figure 1. Analysis of simple slopes revealed that shame was positively associated with PTSD symptom severity when drug use problems were high ($+1 SD$), $b = 0.65, t = 3.08, p = .01$, but not when drug use problems were low ($-1 SD$), $b = -0.29, t = -1.20, p = .23$. Using Bauer and Curran's (2005) J-N technique, which allows us to delineate the regions of the interaction at which the other term has a statistically significant relationship with the outcome, we found that shame predicted PTSD symptom severity significantly only at drug use problem values of 1.39 and greater. The influence of shame and drug use problems on PTSD symptom severity is presented in Figure 2.

A second hierarchical regression analysis was conducted to examine the main and interactive effects of shame and alcohol use problems on PTSD symptom severity (see Table 4). Income and women's use of and victimization by intimate partner aggression were entered into the first step of the model and accounted for 28% of the variance in PTSD symptom severity, $F(3, 352) = 47.71, p < .001$. Counter to the hypotheses, the inclusion of shame and alcohol use problems in the second step did not significantly improve the model, $F(2, 351) = 1.16, p = .31, R^2 = 0.01$, and shame and alcohol use problems were not found to be significant predictors of PTSD symptoms. Further, the addition of the shame $\times$ alcohol use problems interaction to the model in the third step did not significantly improve the model, $F(1, 350) = 2.11, p = .15, R^2 = 0.004$.

We examined the main and interactive effects of shame and drug and alcohol use problems on each PTSD symptom cluster separately (i.e., intrusion, avoidance, numbing, and hyperarousal). The results of the analyses of the symptom clusters were the same as for the total PTSD symptoms score and followed the same pattern (both direction and significance) across each symptom cluster; therefore, we report only on the total PTSD symptoms. In addition, given evidence to suggest that inclusion of covariates in non-randomized designs

may remove a portion of the variance attributed to the independent variable (Miller & Chapman, 2001), we reran analyses excluding covariates. The shame $\times$ drug use problems interaction was significant, $F(1, 364) = 6.48, p = .01, R^2 = 0.02$, whereas the shame $\times$ alcohol use problems interaction was nonsignificant, $F(1, 359) = 2.65, p = .11, R^2 = 0.01$.

Discussion

The goal of the present study was to explore the link between shame and PTSD symptoms among women who have used and been victimized by IPV. We developed a measure of intimate partner aggression-related shame (i.e., the IPARS), and subsequently examined whether women's shame regarding their use of aggression was related to their PTSD symptoms. Following this, and consistent with suggestions that the PTSD-shame relation may become apparent among women who rely on emotionally-avoidant strategies, such as substance use, to reduce aversive emotions (e.g., shame), we explored the moderating role of drug and alcohol use problems in this relation. Our results provide initial support for the factor structure and reliability of the IPARS. Further, although the relation between women's shame and their PTSD symptoms was non-significant, drug (but not alcohol) use problems were found to moderate this association, such that women's shame was positively associated with their PTSD symptoms when drug use problems were high, but not when drug use problems were low. These findings highlight shame as one negative consequence of women's intimate partner aggression that may contribute to their negative health outcomes (i.e., PTSD symptoms), and indicate that high levels of drug use problems, together with intimate partner aggression-related shame, lead to greater PTSD symptoms.

In addition to advancing research on the PTSD-shame relation, our findings have important clinical implications. Women's drug use problems were found to moderate the PTSD-shame relation, such that PTSD symptoms were highest among women reporting elevated levels of both shame and drug use problems. As such, women who use and are victimized by aggression in their intimate relationships may benefit from learning non-emotionally-avoidant strategies for effectively regulating shame and other aversive emotions when they occur (because drug use often serves an emotionally-avoidant function; Baker et al., 2004; Khantzian, 1997). Indeed, there is some evidence to suggest that acceptance-based interventions focused on facilitating self-compassion and acceptance of emotions may be useful in treating shame (e.g., Compassionate Mind Training [Gilbert & Proctor, 2006]), Compassion Focused Therapy [Gilbert, 2009], Mindful Self-Compassion [Neff & Germer, 2013], Acceptance and Commitment Therapy [Hayes, Strosahl, & Wilson, 1999], Dialectical Behavior Therapy [Linehan, 1993], Mindfulness-based Stress Reduction [Segal, Williams, & Teasdale, 2002]). For example, Rizvi and Linehan (2005) provided initial support for the utility of brief treatment utilizing the "opposite action" skill (most notably found in Dialectical Behavior Therapy; Linehan, 1993) in reducing shame among women with borderline personality disorder. Briefly, opposite action requires women to identify action urges associated with their unwanted emotions, determine the actions that are opposite to those urges, and then engage in those opposite actions. Thus, for women who avoid or withdraw when experiencing shame, treatment may focus on approaching (emotionally, cognitively, or behaviorally [if safe]) their shame. For example, instead of using drugs to

escape or avoid experiences of shame, women may approach their shame by talking with a safe person or keeping a journal. Future research is needed to examine the utility of the aforementioned interventions in reducing maladaptive shame regulation strategies, such as drug use, in this population. Further, research is needed to better understand whether teaching strategies to reduce emotionally-avoidant coping early in the recovery process may prevent the development of drug use problems among IPV-victimized women.

Alternatively, given evidence to suggest that drug use moderates the link between shame and PTSD symptoms, interventions targeting drug use may also result in improvements in shame and PTSD symptoms in this population. At present, there are very few treatments designed to specifically address drug use among IPV-victimized women. However, findings from pilot studies are promising. For example, *Relapse Prevention and Relationship Safety* (RPRS; Gilbert et al., 2006) was found to result in reductions in intimate partner victimization, depressive symptoms, PTSD symptoms, and drug use in a sample of women experiencing IPV and using drugs. Larger-scale efficacy trials are needed to compare RPRS to other gold standard substance use interventions, as well as to identify longer-term gains and maintenance of outcomes. Research would also benefit from examining the extent to which RPRS reduces women's use of intimate partner aggression and related experiences of shame.

Of note, counter to expectations, alcohol and drug use problems were not significantly associated with intimate partner aggression-related shame and PTSD symptoms. A growing body of research suggests that substance use may demonstrate a curvilinear, U-shaped (versus linear) relation with health outcomes, such that substance use is associated with problematic health outcomes at low and high, but not moderate, levels (e.g., Lipton, 1994; Rodgers et al., 2000). Further, an increasing number of theorists have emphasized the importance of considering the context in which substance use occurs, including the function it serves, in determining its relation with health outcomes. Research is needed to better understand the aforementioned relations among women who use and experience IPV. Such investigations may identify women who use and experience IPV for whom PTSD and substance use are functionally related and thus would most benefit from treatments targeting both PTSD and substance use.

Also counter to our hypothesis, alcohol use problems did not moderate the shame-PTSD symptoms relation. Notably, our drug use measure only assessed problems stemming from drug use, whereas our alcohol use measure assessed alcohol consumption and problems. Thus, it is likely that many of the women in our study who endorsed items on our alcohol use measure were consuming alcohol but not experiencing alcohol use problems. Alcohol use for these women may not have served emotionally-avoidant function (e.g., alcohol may have served to elicit, maintain, or enhance positive emotional states; Cox & Klinger, 1988). Future research is needed to identify motives for drug and alcohol use in this population and their relation to intimate partner aggression-related shame and PTSD symptoms. Further, while we propose that drug use served an emotionally-avoidant function for women in our sample, it is likely that other drug use problems-related factors influenced the shame-PTSD relation. Thus, future research is needed to better understand *why* substance use problems moderate the shame-PTSD relation.

Finally, it is important to note that women's victimization demonstrated the strongest association with their PTSD symptoms. This finding is not surprising as all of the women in this study reported current victimization in their intimate relationships, and PTSD symptoms were assessed in relation to this victimization. Women's use of aggression, at many times, is motivated by self-defense (Babcock, Miller, & Siard, 2003; Caldwell et al., 2009; Stuart et al., 2006; Swan & Snow, 2003). For example, Stuart et al. (2006) found that 39% of women arrested for using aggression against an intimate partner were motivated by self-defense. Likewise, Saunders (1986) found that 31% of women who had used minor physical aggression were motivated by self-defense, compared with retaliation (23%) or first strike (11%) motivations. These findings suggest that treatment for women who have used and been victimized by IPV should be primarily focused on re-establishing safety (e.g., reducing the risk for revictimization) and reducing PTSD symptoms stemming from women's victimization. However, in doing so, clinicians should be aware of the potential for women to experience shame related to their use of aggression in intimate relationships and its possible contribution to their PTSD symptoms (particularly when women also have drug use problems). Identifying intimate partner aggression-related shame among women who use and are victimized by intimate partner aggression and teaching skills for effectively modulating intimate partner aggression-related shame may improve PTSD treatment outcomes in this population.

Although findings of the present study extend research on the PTSD-shame relation among women who have used and been victimized by IPV, it is worth noting several limitations. First, the cross-sectional and correlational nature of the data precludes determination of the precise nature and direction of the relationships of interest. Future studies should address this concern through prospective, longitudinal investigations. A second limitation is the exclusive reliance on self-report measures of women's aggression and victimization and their substance use problems, all of which may be influenced by women's willingness and/or ability to report accurately (particularly given the potential stigma associated with this behavior). Additionally, while theory suggests that substance use may function to escape or avoid shame (Baker et al., 2004; Khantzian, 1997), we were not able to directly test this hypothesis. Future investigations utilizing experience-sampling methods (e.g., daily assessment of behavior in real time) may provide further evidence of the shame-avoidant function of substance use within this population by elucidating the temporal relations among shame, substance use, and PTSD symptoms. It also warrants mention that our measure of PTSD symptoms in the present study was based on the DSM-IV classification of PTSD. Thus, research is needed to replicate these findings using DSM-5 guidelines for the assessment of PTSD. In addition, although this study examined aspects of both the reliability (i.e., internal consistency) and validity (i.e., construct validity) of the IPARS, a comprehensive evaluation of the psychometric properties of this measure was not possible. Therefore, future research is needed to investigate other aspects of the reliability and validity of the IPARS, including its: (a) test-retest reliability, (b) discriminant validity, (c) construct validity, (d) predictive validity, and (e) incremental validity. Further, our results do not speak to the extent to which findings are unique to women who have used and been victimized by IPV. Future studies are needed to examine the extent to which the interrelations of intimate partner aggression-related shame, substance use problems, and PTSD symptoms differ

among women in relationships with and without bidirectional aggression (e.g., women not experiencing victimization by a current partner who use intimate partner aggression). Likewise, although our focus on women who have used and been victimized by IPV may be considered a strength of this study, our findings cannot be assumed to generalize to other IPV populations (e.g., men, women in clinical settings, women in bi- or homo-sexual relationships, women who identify as Asian, American Indian/Alaska Native, Native Hawaiian or other Pacific Islander, or multi-racial) or aggression in general.

Finally, additional research is needed to test the causal directionality of the PTSD-intimate partner aggression relationship. Results of the current study suggest that women's intimate partner aggression may elicit shame that maintains PTSD symptoms stemming from IPV victimization. However, current research evidence indicates several other mechanisms through which women's use of intimate partner aggression may relate to their PTSD symptoms. PTSD may be a risk factor for intimate partner aggression (see Taft, Watkins, Stafford, Street, & Monson, 2011 for a meta-analysis). For instance, PTSD may result in deficits in information processing and emotion regulation that subsequently heighten the risk for aggression, such that women's use of intimate partner aggression may be a learned response to fear stemming from experiences of IPV (Chemtob, Novaco, Hamada, Gross, & Smith, 1997) or a consequence of difficulties with impulse control (Teten, Miller, Bailey, Dunn, & Kent, 2008). Alternatively, women's aggression against their intimate partners may be related to their PTSD symptoms given its association with IPV victimization, such that it may increase their risk for victimization by their partners (Capaldi & Owen, 2001; Milan, Lewis, Ethier, Kershaw, & Ickovics, 2005) or be motivated by self-defense (Babcock et al., 2003; Caldwell et al., 2009; Stuart et al., 2006; Swan & Snow, 2003). Longitudinal studies are needed to explicate the temporal relations among women's intimate partner aggression and their PTSD symptoms.

Despite these limitations, results of the present study extend research on the PTSD-shame relation among women who have used and been victimized by IPV. Specifically, results of the present study provide support for the moderating role of drug use problems in the relation between women's experiences of shame related to their use of intimate partner aggression and their PTSD symptoms, such that women's intimate partner aggression-related shame was positively associated with their PTSD symptoms when their drug use problems were high, but not when their drug use problems were low. This finding underscores shame as an important target for interventions aimed at reducing PTSD symptoms among community women who have used and been victimized by IPV and report problematic drug use. Future research is needed to examine the utility of PTSD treatments adapted for this population in reducing shame and maladaptive shame regulation strategies (e.g., drug use).

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References

- Abel EM. Comparing the social service utilization, exposure to violence, and trauma symptomology of domestic violence female “victims” and female “batterers”. *Journal of Family Violence*. 2001; 16:401–420. DOI: 10.1023/A:1012276927091
- Aiken, LS., West, SG. Multiple regression: Testing and interpreting interactions. Thousand Oaks, CA: Sage; 1991.
- American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5. Washington, DC: Author; 2013.
- Amirkhan JH. A factor analytically derived measure of coping: The Coping Strategy Indicator. *Journal of Personality and Social Psychology*. 1990; 59:1066–1074.
- Andrews B, Brewin CR, Stewart L, Philpott R, Hejdenberg J. Comparison of immediate-onset and delayed-onset posttraumatic stress disorder in military veterans. *Journal of Abnormal Psychology*. 2009; 118:767–777. DOI: 10.1037/0022-3514.59.5.1066 [PubMed: 19899846]
- Babcock JC, Miller SA, Siard C. Toward a typology of abusive women: Differences between partner-only and generally violent women in the use of violence. *Psychology of Women Quarterly*. 2003; 27:153–161. DOI: 10.1111/1471-6402.00095
- Baker TB, Piper ME, McCarthy DE, Majeskie MR, Fiore MC. Addiction motivation reformulated: An affective processing model of negative reinforcement. *Psychological Review*. 2004; 111:33–51. DOI: 10.1037/0033-295X.111.1.33 [PubMed: 14756584]
- Basile KC, Arias I, Desai S, Thompson MP. The differential association of intimate partner physical, sexual, psychological, and stalking violence and posttraumatic stress symptoms in a nationally representative sample of women. *Journal of Traumatic Stress*. 2004; 17:413–421. DOI: 10.1023/B:JOTS.0000048954.50232.d8 [PubMed: 15633920]
- Basile KC, Hall JE. Intimate partner violence perpetration by court-ordered men: Distinctions and intersections among physical violence, sexual violence, psychological abuse, and stalking. *Journal of Interpersonal Violence*. 2011; 26:230–253. DOI: 10.1177/0886260510362896 [PubMed: 20410373]
- Baumeister RF, Stillwell AM, Heatherton TF. Guilt: an interpersonal approach. *Psychological Bulletin*. 1994; 115:243–267. DOI: 10.1037/0033-2909.115.2.243 [PubMed: 8165271]
- Beck JG, McNiff J, Clapp JD, Olsen SA, Avery ML, Hagewood JH. Exploring negative emotion in women experiencing intimate partner violence: shame, guilt, and PTSD. *Behavior Therapy*. 2011; 42:740–750. DOI: 10.1016/j.beth.2011.04.001 [PubMed: 22036001]
- Black, MC., Basile, KC., Breiding, MJ., Smith, SG., Walters, ML., Merrick, MT., ... November, MRS. National intimate partner and sexual violence survey. Atlanta, GA: Centers for Disease Control, National Center for Injury Prevention and Control, Division of Violence Prevention; 2011.
- Brown DS, Finkelstein EA, Mercy JA. Methods for estimating medical expenditures attributable to intimate partner violence. *Journal of Interpersonal Violence*. 2008; 23:1747–1766. DOI: 10.1177/0886260508314338 [PubMed: 18314507]
- Caldwell JE, Swan SC, Allen CT, Sullivan TP, Snow DL. Why I Hit Him: Women’s Reasons for Intimate Partner Violence. *Journal of Aggression, Maltreatment & Trauma*. 2009; 18:672–697. DOI: 10.1080/10926770903231783
- Capaldi DM, Owen LD. Physical aggression in a community sample of at-risk young couples: Gender comparisons for high frequency, injury, and fear. *Journal of Family Psychology*. 2001; 15:425–440. DOI: 10.1037/0893-3200.15.3.425 [PubMed: 11584793]
- Cattell RB. The scree test for the number of factors. *Multivariate Behavioral Research*. 1966; 1:245–276. DOI: 10.1207/s15327906mbr0102_10 [PubMed: 26828106]
- Cattell RB, Vogelmann S. A comprehensive trial of the scree and KG criteria for determining the number of factors. *Multivariate Behavioral Research*. 1977; 12:289–325. DOI: 10.1207/s15327906mbr1203_2 [PubMed: 26804294]
- Chemtob CM, Novaco RW, Hamada RS, Gross DM, Smith G. Anger regulation deficits in combat-related posttraumatic stress disorder. *Journal of Traumatic Stress*. 1997; 10:17–36. DOI: 10.1002/jts.2490100104 [PubMed: 9018675]

- Cox WM, Klinger E. A motivational model of alcohol use. *Journal of Abnormal Psychology*. 1988; 97:168–180. DOI: 10.1037/0021-843X.97.2.168 [PubMed: 3290306]
- Crespo M, Arinero M. Assessment of the efficacy of a psychological treatment for women victims of violence by their intimate male partner. *The Spanish Journal of Psychology*. 2010; 13:849–863. DOI: 10.1017/S113874160000250X [PubMed: 20977033]
- Dearing RL, Stuewig J, Tangney JP. On the importance of distinguishing shame from guilt: Relations to problematic alcohol and drug use. *Addictive Behaviors*. 2005; 30:1392–1404. DOI: 10.1016/j.addbeh.2005.02.002 [PubMed: 16022935]
- Dearing, RL., Tangney, JP. *Shame in the therapy hour*. Washington, DC: American Psychological Association; 2011.
- Ehlers A, Clark DM. A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy*. 2000; 38:319–345. DOI: 10.1016/S0005-7967(99)00123-0 [PubMed: 10761279]
- Foa EB, Cashman L, Jaycox L, Perry K. The validation of a self-report measure of posttraumatic stress disorder: The Posttraumatic Diagnostic Scale. *Psychological Assessment*. 1997; 9:445–451. DOI: 10.1037/1040-3590.9.4.445
- Foa EB, Kozak MJ. Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin*. 1986; 99:20–35. DOI: 10.1037/0033-2909.99.1.20 [PubMed: 2871574]
- Gilbert P. Introducing compassion-focused therapy. *Advances in Psychiatric Treatment*. 2009; 15:199–208. DOI: 10.1192/apt.bp.107.005264
- Gilbert L, El-Bassel N, Manuel J, Wu E, Go H, Golder S, ... Sanders G. An integrated relapse prevention and relationship safety intervention for women on methadone: Testing short-term effects on intimate partner violence and substance use. *Violence and Victims*. 2006; 21:657–672. DOI: 10.1891/0886-6708.21.5.657 [PubMed: 17022356]
- Gilbert P, Procter S. Compassionate mind training for people with high shame and self-criticism: Overview and pilot study of a group therapy approach. *Clinical Psychology and Psychotherapy*. 2006; 13:353–379. DOI: 10.1002/cpp.507
- Golding JM. Intimate partner violence as a risk factor for mental disorders: A meta-analysis. *Journal of Family Violence*. 1999; 14:99–132. DOI: 10.1023/A:1022079418229
- Gratz KL, Roemer L. Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*. 2004; 26:41–54. DOI: 10.1023/B:JOBA.0000007455.08539.94
- Gratz, KL., Tull, MT. Emotion regulation as a mechanism of change in acceptance-and mindfulness-based treatments. In: Baer, RA., editor. *Assessing Mindfulness and Acceptance: Illuminating the Theory and Practice of Change*. Oakland, CA: New Harbinger Publications; 2010. p. 105-133.
- Harper FWK, Austin AG, Cercone JJ, Arias I. The role of shame, anger, and affect regulation in men's perpetration of psychological abuse in dating relationships. *Journal of Interpersonal Violence*. 2005; 20:1648–1662. DOI: 10.1177/0886260505278717 [PubMed: 16246922]
- Hayes, SC., Strosahl, K., Wilson, KG. *Acceptance and Commitment Therapy: An Experiential Approach to Behavior Change*. New York, NY: Guilford Press; 1999.
- Hayes SC, Wilson KG, Gifford EV, Follette VM, Strosahl K. Experiential avoidance and behavioral disorders: a functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology*. 1996; 64:1152–1168. DOI: 10.1037/0022-006X.64.6.1152 [PubMed: 8991302]
- Hundt NE, Holohan DR. The role of shame in distinguishing perpetrators of intimate partner violence in U.S. veterans. *Journal of Traumatic Stress*. 2012; 25:191–197. DOI: 10.1002/jts.21688 [PubMed: 22522734]
- Johnson MP, Ferraro KJ. Research on domestic violence in the 1990s: Making distinctions. *Journal of Marriage and Family*. 2000; 62:948–963. DOI: 10.1111/j.1741-3737.2000.00948.x
- Johnson DM, Zlotnick C, Perez S. Cognitive behavioral treatment of PTSD in residents of battered women's shelters: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology*. 2011; 79:542–551. DOI: 10.1037/a0023822 [PubMed: 21787052]

- Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB. Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*. 1995; 52:1048–1060. DOI: 10.1001/archpsyc.1995.03950240066012 [PubMed: 7492257]
- Khantzian EJ. The self-medication hypothesis of substance use disorders: A reconsideration and recent applications. *Harvard Review of Psychiatry*. 1997; 4:231–244. DOI: 10.3109/10673229709030550 [PubMed: 9385000]
- Kim J, Talbot NL, Cicchetti D. Childhood abuse and current interpersonal conflict: The role of shame. *Child Abuse & Neglect*. 2009; 33:362–371. DOI: 10.1016/j.chiabu.2008.10.003 [PubMed: 19457556]
- Kivisto AJ, Kivisto KL, Moore TM, Rhatigan DL. Antisociality and intimate partner violence: The facilitating role of shame. *Violence and Victims*. 2011; 26:758–773. DOI: 10.1891/0886-6708.26.6.758 [PubMed: 22288094]
- Koss MP, Oros CJ. Sexual Experiences Survey: A research instrument investigating sexual aggression and victimization. *Journal of Consulting and Clinical Psychology*. 1982; 50:455–457. DOI: 10.1037/0022-006X.50.3.455 [PubMed: 7096751]
- Kubany ES, Hill EE, Owens JA. Cognitive trauma therapy for battered women with PTSD: Preliminary findings. *Journal of Traumatic Stress*. 2003; 16:81–91. DOI: 10.1023/A:1022019629803 [PubMed: 12602656]
- Kubany ES, Hill EE, Owens JA, Iannce-Spencer C, McCaig MA, Tremayne KJ, Williams PL. Cognitive trauma therapy for battered women with PTSD (CTT-BW). *Journal of Consulting and Clinical Psychology*. 2004; 72:3–18. DOI: 10.1037/0022-006X.72.1.3 [PubMed: 14756610]
- Langhinrichsen-Rohling J, Selwyn C, Rohling ML. Rates of bidirectional versus unidirectional intimate partner violence across samples, sexual orientations, and race/ethnicities: A comprehensive review. *Partner Abuse*. 2012; 3:199–230. DOI: 10.1891/1946-6560.3.2.199
- Leisring PA, Dowd L, Rosenbaum A. Treatment of partner aggressive women. *Journal of Aggression, Maltreatment & Trauma*. 2003; 7:257–277. DOI: 10.1300/J146v07n01_11
- Leith KP, Baumeister RF. Empathy, shame, guilt, and narratives of interpersonal conflicts: Guilt-prone people are better at perspective taking. *Journal of Personality*. 1998; 66:1–37. DOI: 10.1111/1467-6494.00001
- Leskela J, Dieperink M, Thuras P. Shame and posttraumatic stress disorder. *Journal of Traumatic Stress*. 2002; 15:223–226. DOI: 10.1023/A:1015255311837 [PubMed: 12092914]
- Lewis HB. Shame and guilt in neurosis. *Psychoanalytic Review*. 1971; 58:419–438. [PubMed: 5150685]
- Lewis, HB. The role of shame in symptom formation. Hillsdale, NJ: Lawrence Erlbaum Associates; 1987.
- Lewis M, Sullivan MW, Stanger C, Weiss M. Self development and self-conscious emotions. *Child Development*. 1989; 60:146–156. DOI: 10.2307/1131080 [PubMed: 2702864]
- Linehan, MM. Cognitive Behavioral Treatment of Borderline Personality Disorder. New York, NY: Guilford Press; 1993.
- Lipton RI. The effect of moderate alcohol use on the relationship between stress and depression. *American Journal of Public Health*. 1994; 84:1913–1917. DOI: 10.2105/AJPH.84.12.1913 [PubMed: 7998629]
- Maguen S, Metzler TJ, Litz BT, Seal KH, Knight SJ, Marmar CR. The impact of killing in war on mental health symptoms and related functioning. *Journal of Traumatic Stress*. 2009; 22:435–443. DOI: 10.1002/jts.20451 [PubMed: 19842160]
- Meehan W, O'Connor LE, Berry JW, Weiss J, Acampora A. Guilt, shame, and depression in clients in recovery from addiction. *Journal of Psychoactive Drugs*. 1996; 28:125–134. DOI: 10.1080/02791072.1996.10524385 [PubMed: 8811581]
- Milan S, Lewis J, Ethier K, Kershaw T, Ickovics JR. Relationship violence among adolescent mothers: Frequency, dyadic nature, and implications for relationship dissolution and mental health. *Psychology of Women Quarterly*. 2005; 29:302–312. DOI: 10.1111/j.1471-6402.2005.00224.x
- Miller GA, Chapman JP. Misunderstanding analysis of covariance. *Journal of Abnormal Psychology*. 2001; 110:40–48. DOI: 10.1037/0021-843X.110.1.40 [PubMed: 11261398]

- Neff KD, Germer CK. A pilot study and randomized controlled trial of the mindful self-compassion program. *Journal of Clinical Psychology*. 2013; 69:28–44. DOI: 10.1002/jclp.21923 [PubMed: 23070875]
- O'Connor LE, Berry JW, Inaba D, Weiss J, Morrison A. Shame, guilt, and depression in men and women in recovery from addiction. *Journal of Substance Abuse Treatment*. 1994; 11:503–510. DOI: 10.1016/0740-5472(94)90001-9 [PubMed: 7884834]
- Peters EN, Khondkaryan E, Sullivan TP. Associations between expectancies of alcohol and drug use, severity of partner violence, and posttraumatic stress among women. *Journal of Interpersonal Violence*. 2012; 27:2108–2127. DOI: 10.1177/0886260511432151 [PubMed: 22258078]
- Resick PA, Galovski TE, Uhlmansiek MO, Scher CD, Clum GA, Young-Xu Y. A randomized clinical trial to dismantle components of cognitive processing therapy for posttraumatic stress disorder in female victims of interpersonal violence. *Journal of Consulting and Clinical Psychology*. 2008; 76:243–258. DOI: 10.1037/0022-006X.76.2.243 [PubMed: 18377121]
- Resick PA, Nishith P, Weaver TL, Astin MC, Feuer CA. A comparison of cognitive-processing therapy with prolonged exposure and a waiting condition for the treatment of chronic posttraumatic stress disorder in female rape victims. *Journal of Consulting and Clinical Psychology*. 2002; 70:867–879. DOI: 10.1037/0022-006X.70.4.867 [PubMed: 12182270]
- Resick PA, Schnicke MK. Cognitive processing therapy for sexual assault victims. *Journal of Consulting and Clinical Psychology*. 1992; 60:748–756. DOI: 10.1037/0022-006X.60.5.748 [PubMed: 1401390]
- Rizvi SL, Linehan MM. The treatment of maladaptive shame in borderline personality disorder: A pilot study of “opposite action”. *Cognitive and Behavioral Practice*. 2005; 12:437–447. DOI: 10.1016/S1077-7229(05)80071-9
- Robinaugh DJ, McNally RJ. Autobiographical memory for shame or guilt provoking events: Association with psychological symptoms. *Behaviour Research and Therapy*. 2010; 48:646–652. DOI: 10.1016/j.brat.2010.03.017 [PubMed: 20403584]
- Rodgers B, Korten AE, Jorm AF, Jacomb PA, Christensen H, Henderson AS. Non-linear relationships in associations of depression and anxiety with alcohol use. *Psychological Medicine*. 2000; 30:421–432. DOI: 10.1017/s0033291799001865 [PubMed: 10824662]
- Saunders DG. When battered women use violence: Husband-abuse or self-defense? *Violence and Victims*. 1986; 1:47–60. [PubMed: 3154140]
- Saunders JB, Aasland OG, Babor TF, De la Fuente JR, Grant M. Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*. 1993; 88:791–791. DOI: 10.1111/j.1360-0443.1993.tb02093.x [PubMed: 8329970]
- Scheff, TJ., Retzinger, SM. *Emotions and violence: Shame and rage in destructive conflicts*. Lincoln, NE: iUniverse; 2001.
- Segal, ZV., Williams, JMG., Teasdale, JD. *Mindfulness-based Cognitive Therapy for Depression: A New Approach to Preventing Relapse*. New York, NY: Guilford; 2002.
- Sippel LM, Marshall AD. Posttraumatic stress disorder symptoms, intimate partner violence perpetration, and the mediating role of shame processing bias. *Journal of Anxiety Disorders*. 2011; 25:903–910. DOI: 10.1016/j.janxdis.2011.05.002 [PubMed: 21641765]
- Skinner HA. The drug abuse screening test. *Addictive Behaviors*. 1982; 7:363–371. DOI: 10.1037/t03979-000 [PubMed: 7183189]
- Straus, MA., Hamby, SL., Warren, WL. *The conflict tactics scales handbook*. Los Angeles, CA: Western Psychological Services; 2003.
- Street AE, Arias I. Psychological abuse and posttraumatic stress disorder in battered women: Examining the roles of shame and guilt. *Violence and Victims*. 2001; 16:65–78. [PubMed: 11281225]
- Stuart GL, Moore TM, Gordon KC, Ramsey SE, Kahler CW. Psychopathology in women arrested for domestic violence. *Journal of Interpersonal Violence*. 2006; 21:376–389. DOI: 10.1177/0886260505282888 [PubMed: 16443597]
- Stuart GL, Temple JR, Follansbee KW, Bucossi MM, Hellmuth JC, Moore TM. The role of drug use in a conceptual model of intimate partner violence in men and women arrested for domestic violence.

- Psychology of Addictive Behaviors. 2008; 22:12–24. DOI: 10.1037/0893-164x.22.1.12 [PubMed: 18298227]
- Sullivan TP, Cavanaugh CE, Buckner JD, Edmondson D. Testing posttraumatic stress as a mediator of physical, sexual, and psychological intimate partner violence and substance problems among women. *Journal of Traumatic Stress*. 2009; 22:575–584. DOI: 10.1002/jts.20474 [PubMed: 19960546]
- Sullivan TP, Cavanaugh CE, Ufner MJ, Swan SC, Snow DL. Relationships among women's use of aggression, their victimization, and substance use problems: A test of the moderating effects of race/ethnicity. *Journal of Aggression, Maltreatment, & Trauma*. 2009; 18:646–666. DOI: 10.1080/10926770903103263
- Sullivan TP, Holt LJ. PTSD symptom clusters are differentially related to substance use among community women exposed to intimate partner violence. *Journal of Traumatic Stress*. 2008; 21:173–180. DOI: 10.1002/jts.20318 [PubMed: 18404637]
- Swan SC, Snow DL. Behavioral and psychological differences among abused women who use violence in intimate relationships. *Violence Against Women*. 2003; 9:75–109. DOI: 10.1177/1077801202238431
- Tabachnick, BG., Fidell, LS. Using multivariate statistics. New York, NY: Harper Collins; 2007.
- Taft CT, Watkins LE, Stafford J, Street AE, Monson CM. Posttraumatic stress disorder and intimate relationship problems: A meta-analysis. *Journal of Consulting and Clinical Psychology*. 2011; 79:22–33. DOI: 10.1037/a0022196 [PubMed: 21261431]
- Tangney JP. Recent advances in the empirical study of shame and guilt. *American Behavioral Scientist*. 1995; 38:1132–1145. DOI: 10.1177/0002764295038008008
- Tangney JP, Miller RS, Flicker L, Barlow DH. Are shame, guilt, and embarrassment distinct emotions? *Journal of Personality and Social Psychology*. 1996; 70:1256–1269. DOI: 10.1037/0022-3514.70.6.1256 [PubMed: 8667166]
- Testa M, VanZile-Tamsen C, Livingston JA, Koss MP. Assessing women's experiences of sexual aggression using the Sexual Experiences Survey: Evidence for validity and implications for research. *Psychology of Women Quarterly*. 2004; 29:345–352. DOI: 10.1111/j.1471-6402.2004.00143.x
- Teten AL, Miller LA, Bailey SD, Dunn NJ, Kent TA. Empathic deficits and alexithymia in trauma-related impulsive aggression. *Behavioral Sciences & The Law*. 2008; 26:823–832. DOI: 10.1002/bsl.843 [PubMed: 19039794]
- Tolman RM. The validation of the Psychological Maltreatment of Women Inventory. *Violence and Victims*. 1999; 14:25–37. DOI: 10.1037/t02499-000 [PubMed: 10397624]
- Walby, S. The cost of domestic violence: Up-date 2009. Lancaster University; Lancaster: 2009.

Figure 1. Intimate Partner Aggression-related Shame (IPARS) by Drug Use Problems Interaction for PTSD Symptom Severity (Controlling for Income, Intimate Partner Victimization and Aggression, and the Main Effects of IPARS and Drug Use Problems)

Figure 2. J-N Regions of Significance for the Conditional Relation between Intimate Partner Aggression-related Shame (IPARS) and PTSD Symptom Severity across all Levels of Drug Use Problems.

Item-by-item Correlations, Factor Loadings, and Descriptive Statistics for the Intimate Partner Aggression-related Shame (IPARS) Items Included in the Final Factor Analysis

Table 1

	Item-by-Item Correlations								Factor Loadings		Descriptive Statistics	
	1	2	4	5	8						<i>M</i>	<i>SD</i>
Item 1: I am embarrassed about how I sometimes abuse my partner	--	.33	.38	.45	.23				.53		2.34	0.95
Item 2: Other people tend to look down on you if they know you have been violent with your partner	--	--	.37	.37	.42				.56		2.57	0.80
Item 4: I do not tell people that I sometimes am abusive towards my partner	--	--	--	.53	.40				.67		2.37	0.81
Item 5: I would be embarrassed if anyone found out about my abuse towards my partner	--	--	--	--	.51				.79		2.36	0.82
Item 8: Some of my friends would look down on me if they knew about my abusive behavior	--	--	--	--	--				.62		2.39	0.77

Note. IPARS = Intimate partner aggression-related shame.

Table 2

Descriptive Data and Intercorrelations for the Primary Study Variables

	1	2	3	4	5	6	7	<i>M</i>	<i>SD</i>	Range
1. IPARS	--	.07	-.01	.04	-.08	.17**	.07	11.98	2.98	5–20
2. Drug Use Problems	--	--	.55***	.07	.19***	.14**	-.09	2.37	3.95	0–18
3. Alcohol Use Problems	--	--	--	.08	.11*	.12*	-.10	4.69	6.91	0–36
4. PTSD Symptom Severity	--	--	--	--	.53***	.32***	-.17**	18.37	10.82	0–49
5. Women's Victimization	--	--	--	--	--	.52***	-.16**	106.79	71.26	1–379
6. Women's Aggression	--	--	--	--	--	--	-.14**	89.78	48.53	1–280
7. Income ^a	--	--	--	--	--	--	--	--	--	--

Note.

^aPoint-biserial correlation. IPARS = Intimate partner aggression-related shame. PTSD = Posttraumatic stress disorder. Income: 0 = Less than \$10,000, 1 = \$10,000–\$19,999, 2 = \$20,000–\$29,000, 3 = \$30,000–\$39,999, 4 = \$40,000–\$49,999.

*

p .05.

**

p .01.

p .001.

Table 3

Hierarchical Regression Analysis Exploring the Roles of Intimate Partner Aggression-related Shame, Drug Use Problems, and their Interaction in PTSD Symptom Severity Controlling for Income and Women's Victimization and Aggression

	<i>B</i>	<i>t</i>	<i>sr</i>	<i>R</i> ²	<i>R</i> ²	<i>F</i>	<i>F</i>
Step 1				.28		48.76	***
Income	−0.08	−1.79	−0.08				
Women's Victimization	0.48	9.16	***	0.41			
Women's Aggression	0.07	1.32	0.06				
Step 2				.29	0.01	30.30	***
Income	−0.09	−2.02	*	−0.09			
Women's Victimization	0.51	9.42	***	0.42			
Women's Aggression	0.05	0.89	0.04				
IPARS	0.08	1.75	0.08				
Drug Use Problems	−0.06	−1.26	−0.06				
Step 3				.30	0.02	27.15	***
Income	−0.09	−2.10	*	−0.09			
Women's Victimization	0.51	9.54	***	0.42			
Women's Aggression	0.04	0.82	0.04				
IPARS	0.07	1.48	0.07				
Drug Use Problems	−0.08	−1.67	−0.07				
IPARS x Drug Use Problems	0.13	2.88	**	0.13			

Note. IPARS = Intimate partner aggression-related shame. PTSD = Posttraumatic stress disorder. *sr* = semi-partial correlation.

*
p .05.

**
p .01.

p .001.

Table 4
Hierarchical Regression Analysis Exploring the Roles of Intimate Partner Aggression-related Shame, Alcohol Use Problems, and their Interaction in PTSD Symptom Severity Controlling for Income and Women's Victimization and Aggression

	<i>B</i>	<i>t</i>	<i>sr</i>	<i>R</i> ²	<i>R</i> ²	<i>F</i>	<i>F</i>
Step 1				.28		47.71	***
Income	−0.08	−1.67	−0.08				
Women's Victimization	0.48	9.10	***				
Women's Aggression	0.07	1.30	0.06				
Step 2				.28	0.005	29.12	***
Income	−0.08	−1.82	−0.08				
Women's Victimization	0.50	9.21	***				
Women's Aggression	0.05	0.85	0.04				
IPARS	0.07	1.52	0.07				
Alcohol Use Problems	0.004	0.08	0.004				
Step 3				.29	0.004	24.69	***
Income	−0.09	−1.85	−0.08				
Women's Victimization	0.50	9.25	***				
Women's Aggression	0.04	0.75	0.03				
IPARS	0.07	1.56	0.07				
Alcohol Use Problems	0.01	0.13	0.01				
IPARS x Alcohol Use Problems	0.07	1.45	0.07				

Note. IPARS = Intimate partner aggression-related shame. PTSD = Posttraumatic stress disorder. *sr* = semi-partial correlation.

*
p .05.

**
p .01.

p .001.