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Elucidating Posttraumatic Stress Symptom Profiles and Their Correlates Among Women Experiencing Bidirectional Intimate Partner Violence

Julianne C. Hellmuth¹, Véronique Jaquier¹, Suzanne C. Swan², and Tami P. Sullivan¹

¹Yale University School of Medicine

²University of South Carolina

Abstract

Objective—This study employed latent class analysis to identify profiles of women experiencing intimate partner violence (IPV) based on the severity of posttraumatic stress disorder (PTSD) symptoms.

Method—Self-report data from a sample of 369 women experiencing bidirectional IPV was used.

Results—A 3-class solution comprising low, moderate, and high PTSD severity profiles best fit the data. Profiles were differentially related to whether IPV victimization was considered traumatic (PTSD criterion A); whether functioning was impaired as a result of PTSD symptoms (PTSD criterion F); whether the woman met full diagnostic criteria for PTSD; depression symptom severity; and severity of psychological, physical, and sexual IPV victimization and use of IPV. An extremely high percentage of women in the high (96%) and moderate (88%) severity classes experienced functional impairment, although many did not meet full diagnostic criteria for PTSD.

Conclusions—Findings support the need for interventions individually tailored to one's treatment needs based on the nature of one's traumatic stressor and the impact of PTSD on daily functioning.

Keywords

traumatic stress; PTSD; intimate partner violence; domestic violence; women's aggression; substance use; depression

Posttraumatic stress is frequently conceptualized as a highly complex and multifaceted problem (Harned, Jackson, Comtois, & Linehan, 2010; Resick et al., 2012; Schnurr, 2009). One recent advancement in the posttraumatic stress literature is the identification of problems associated with “subthreshold,” “subclinical,” or “partial” posttraumatic stress disorder (PTSD; see Cukor, Wyka, Jayasinghe, & Difede, 2010 for review). While there is no consensus among researchers and clinicians on an operationalization of these terms, they

refer to experiencing substantial traumatic stress symptoms without meeting full diagnostic criteria for PTSD (Cukor et al., 2010). Research has found that individuals whose symptoms are consistent with subthreshold PTSD experience distress and functional impairment with similar severity and in similar domains to those who meet full diagnostic criteria for PTSD (Cukor et al., 2010; Marshall et al., 2001).

Other recent advances in the posttraumatic stress literature are based on findings that the type, number, and severity of traumatic events that individuals experience influence their posttraumatic stress symptomatology (Anders, Frazier, & Frankfurt, 2011; Elhai et al., 2009; Kubany, Ralston, & Hill, 2010; McNally & Robinaugh, 2011). For example, research suggests that post-traumatic stress symptoms among people who experience interpersonal traumatic stressors are more severe and persistent compared to those who experience other types of traumatic stressors (Anders et al., 2011; Elhai et al., 2009; Kubany et al., 2010; McNally & Robinaugh, 2011). One potentially unique traumatic stressor is intimate partner violence (IPV). The existing literature suggests that this population has unique trauma-related treatment considerations and that not all evidence-supported PTSD treatments may be appropriate in the context of recent IPV victimization. For example, one cognitive-behavioral treatment has been tailored to reduce PTSD specifically among IPV-victimized women in shelter (Johnson & Zlotnick, 2009).

Understanding different levels of overall symptom severity, severity of each of the different PTSD symptoms, and their associations with other commonly occurring mental health problems may provide researchers and clinicians with new information about the trauma-related treatment needs of IPV-exposed women. Specifically, classifying women into different groups of symptom severity may help those referring women to mental health treatment to do so more effectively, and may also help those providing mental health treatments to more clearly conceptualize the treatment needs of IPV-exposed women. Nevertheless, no studies, to our knowledge, have explored and classified posttraumatic stress symptoms among women who are experiencing IPV.

An additional limitation of the research on posttraumatic stress among IPV-exposed women is that the scant available research has focused primarily on samples of women recruited because of their IPV victimization without regard to women's use of IPV (Coker, Weston, Creson, Justice, & Blakeney, 2005; Pico-Alfonso, 2005; Sullivan & Holt, 2008). However, bidirectional IPV, where both partners are victimized by and use IPV, is the most common type of IPV in the United States (Langhinrichsen-Rohling, Selwyn, & Rohling, 2012; Straus, 2008). Therefore, it is essential to examine posttraumatic stress among this highly prevalent but understudied population. Doing so may enhance the representativeness and generalizability of findings and their implications for future research and interventions (Leisring, 2011).

Five studies have applied latent class analysis (LCA) to the study of posttraumatic stress symptom profiles, but none have been conducted among a known sample of women experiencing bidirectional IPV. Four of the five studies found a three-class solution reflecting no, intermediate, and pervasive disturbance.

Breslau, Reboussin, Anthony, and Storr (2005) examined two mixed-gender, trauma-exposed community samples comprising adults and adolescents. This study found a three-class solution in both samples (no disturbance, intermediate disturbance, and pervasive disturbance). A qualitative difference also emerged suggesting that the pervasive disturbance class had more severe emotional numbing symptoms compared to the other two classes. This study also found that those in the pervasive disturbance class were more likely than those in the other two classes to use medical care or to report disruptions in daily life and activities.

Ayer and colleagues (2011) examined a national probability sample of adolescent boys and girls across two time points and found a three-class solution comprising no, intermediate, and pervasive disturbance. This study also found that at wave 1, the pervasive disturbance class had more severe scores on three numbing and two hyperarousal symptoms compared to the intermediate disturbance class. At wave 2, the pervasive disturbance class had more severe scores on three re-experiencing, one avoidance, and one hyperarousal symptom compared to the intermediate disturbance class. This study also found that at wave 1, the no disturbance class was least likely to have a PTSD diagnosis and report functional impairment, while the pervasive disturbance class was the most likely to endorse these problems.

Both Steenkamp and colleagues (2012) and Wolf and colleagues (2012) examined Vietnam veterans. Each of these studies found a three-class solution characterized by low, moderate, and high PTSD symptom severity. Steenkamp and colleagues (2012) found that those in the high severity class reported the highest combat exposure, readjustment difficulties, and dissociative experiences compared to the other two classes. Wolf and colleagues (2012) found that the high severity class reported higher childhood and adult sexual trauma compared to the other two classes.

A fifth study, by Naifeh, Richardson, Del Ben, and Elhai (2010), demonstrates the exception to findings of a three-class solution by finding a two-class solution (i.e., high and low PTSD symptom severity) among Canadian veterans. In this study, the high severity class had qualitatively higher emotional numbing and dysphoria symptoms compared to the low severity class. Class membership was associated with age and the presence of a depression diagnosis. Collectively, these studies suggest that three classes of PTSD symptom severity most often reflect the symptom characteristics across samples and populations.

The present study addressed the longstanding gap in the literature identified by Basile, Arias, Desai, and Thompson (2004) to examine posttraumatic stress symptom profiles by employing LCA to identify homogeneous groups of women currently experiencing bidirectional IPV. Similar to aforementioned LCA studies, the present study used LCA to determine whether distinct posttraumatic stress symptom profiles exist in our sample based on women's self-reported severity of each of the 17 PTSD symptoms outlined by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association [APA], 1994).

In addition to examining a unique population (i.e., women experiencing bidirectional IPV), the present study is distinct in that we examined unique correlates of class membership, namely, those commonly co-occurring with IPV and PTSD. We examined whether the means and variances of IPV victimization and use of IPV severity, depression symptom severity, and alcohol and drug problem severity differed across symptom profiles. We also examined differences across symptom severity profiles regarding the proportion of women who met PTSD diagnostic criterion A (i.e. whether the traumatic stressor, IPV victimization, involved threatened death or serious injury to oneself or others, and whether one's response involved intense fear, helplessness, or horror), PTSD diagnostic criterion F (i.e., functional impairment related to posttraumatic stress symptoms), and full PTSD diagnostic criteria.

This study's covariates were selected for several reasons. Women's IPV victimization and use of IPV were chosen because we sought to determine whether the severity of women's IPV experiences was associated with the severity of their posttraumatic stress symptoms in this sample. Depression and alcohol and drug problem severity were chosen because across populations of women, these problems commonly co-occur with PTSD (Hassija, Jakupcak, Maguen, & Shipherd, 2012; Hedtke et al., 2008; Sullivan & Holt, 2008).

We examined PTSD diagnostic criteria A and F and full PTSD diagnostic criteria because some studies have challenged the reliability and validity of the current DSM-IV (APA, 1994) PTSD diagnostic criteria. Some studies have questioned the extent to which meeting full PTSD diagnostic criteria and endorsing criteria A and F are conceptually and practically sound (Anders et al., 2011; Boals & Hathaway, 2010). For example, researchers have argued that PTSD diagnostic criteria lack sufficient specificity, allowing individuals who experience normative psychiatric distress in response to a stressor to be misdiagnosed (Bodkin, Pope, Detke, & Hudson, 2007). Others have argued that those who endorse subclinical or subthreshold PTSD may be mischaracterized as having a normative response to a stressor when, in fact, they experience substantial distress and functional impairment (Jakupcak et al., 2007; Marshall et al., 2001; Zlotnick, Franklin, & Zimmerman, 2002).

These challenges are essential to consider because both the DSM-IV's (APA, 1994) and the DSM-V's (APA, 2013) defining characteristics of PTSD diagnosis inform how researchers and providers characterize posttraumatic stress symptom severity, functional impairment, and treatment eligibility (Boals & Hathaway, 2010; Hathaway, Boals, & Banks, 2010; Osei-Bonsu et al., 2012; Spitzer, First, & Wakefield, 2007).

The goal of this exploratory study is to determine if a three-class solution of posttraumatic stress symptom severity emerges in this sample of women similar to the majority of previously conducted LCA research on posttraumatic stress. We also seek to determine if the severity of women's IPV victimization and use of IPV, depression severity, and alcohol and drug problem severity differ significantly between latent classes that emerge within our sample. As such, we have no specific hypotheses regarding the outcomes.

Method

Participants

The sample comprised community women ($N = 412$) recruited via flyers advertising the Women's Relationship Study placed within an urban community at locations such as health clinics, libraries, salons, grocery stores, and laundromats. Women who responded were screened by phone to determine eligibility. Data were originally collected to examine a theory of women's use of IPV in intimate relationships. Therefore, inclusion criteria indicated that participants (a) were between 18 and 64 years of age, (b) were currently involved in a heterosexual intimate relationship of at least 6 months duration, (c) reported at least one act of physical IPV against their current male partner in the last 6 months, (d) lived in the surrounding urban area, (e) identified their ethnicity as African American, Latina, or White, and (f) reported a household income of less than \$50,000 annually, determined a priori to methodologically control for varying access to resources associated with income.

To enhance the representativeness of the sample used in the present analyses, an additional inclusion criterion was applied for the purposes of these analyses: Women also had to have experienced physical IPV from their current male partner to be included in the present study's analyses, which produced a final sample of women who reported bidirectional IPV.

Our final sample comprised 369 women (134 African American, 131 Latina, and 104 White). On average, women in our sample were 36.67 years old (standard deviation [SD] = 8.95), and had been in their current intimate relationship for approximately 8 years (mean [M] = 7.97, SD = 6.74). The majority of participants ($n = 148$, 40.1%) had the equivalent of a high school level education ($M = 12.44$, $SD = 2.30$), and 118 (32.0%) had some college or vocational training. Most participants were married or cohabiting with their partner ($n = 242$, 65.6%) and had at least one child ($n = 282$, 76.4%). Most participants were currently unemployed or unable to work ($n = 235$, 63.7%), while 128 participants (34.7%) worked full or part-time and six (1.6%) were students.

Procedures

All study procedures were approved by the institutional review board of the primary investigator's home institution. Data were collected via self-report survey and interview with a trained female researcher of the same race/ethnicity. Women who met eligibility criteria and provided informed consent completed a 2-hour protocol via computer-assisted interview in English or Spanish. Approximately half (49%) of the Latina participants elected to have the protocol administered in Spanish. Upon completion of the protocol, participants were debriefed, remunerated \$50 for their time, and provided with a list of various community resources.

Measures

Posttraumatic stress symptoms—Posttraumatic stress symptoms consistent with the PTSD diagnostic criteria outlined by the DSM-IV (APA, 1994) were assessed using the 49-item self-report Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995). A reference period of 6 months was used to assess women's experiences of the severity of the 17 symptoms in

relation to IPV victimization by their current partner. The severity of each of the 17 symptoms was rated on a 4-point Likert scale, ranging from 0 (*not at all or only one time*) to 3 (*five or more times a week/almost always*). Whether or not a participant endorsed PTSD criteria A or F or met full PTSD diagnostic criteria were each examined dichotomously (0 = *did not meet*, 1 = *met diagnostic criterion/criteria*). Reliability of the full scale was good (range = 0–49; $M = 18.80$, $SD = 10.74$; Cronbach's $\alpha = .90$). Approximately one third (33.6%, $n = 124$) of participants met full diagnostic screening criteria for PTSD.

PTSD criterion A, whether or not an event is considered traumatic, was assessed using six items: four items asked participants if they or someone else had been physically injured or if they thought their life or someone else's life was in danger, and two items asked whether participants felt helpless or terrified during the incident(s) (Cronbach's $\alpha = .72$). Approximately half the participants in this sample reported that their IPV victimization met PTSD diagnostic criterion A ($n = 182$, 49.3%).

The severity of posttraumatic stress criterion B symptoms (re-experiencing; range = 0–15; $M = 4.45$, $SD = 3.65$; Cronbach's $\alpha = .85$) was assessed using five items (e.g., “experienced physical reactions when you were reminded of the violent or abusive events with your partner [e.g., breaking out in a sweat, heart beating fast]”). The severity of posttraumatic stress criterion C symptoms (avoidance and numbing; range = 0–20; $M = 7.30$, $SD = 4.98$; Cronbach's $\alpha = .80$) was assessed using seven items (e.g., “feeling distant or cut off from people around you”).

The severity of posttraumatic stress criterion D (hyperarousal; range = 0–15; $M = 6.96$, $SD = 3.97$; Cronbach's $\alpha = .76$) was assessed using five items (e.g., “feeling irritable or having fits of anger”). PTSD criterion F, assessed using nine items, asked participants whether their posttraumatic stress symptoms impaired their ability to function in various life domains (e.g., household chores and duties, relationships with friends and family, work). Cronbach's $\alpha = .82$. The majority of participants (72.2%, $n = 267$) reported functional impairment related to their posttraumatic stress symptoms.

IPV—Three measures were used to assess IPV victimization and use of IPV during the past 6 months. Psychological IPV was assessed using 21 items from the Psychological Maltreatment of Women Inventory-Short version (PMSI-S; Tolman, 1999) in combination with the emotional verbal abuse subscale of the Revised Conflict Tactics Scale (CTS-2; Straus, Hamby, & Warren, 2003) and one item developed for this study. To obtain the most comprehensive assessment of psychological IPV, we used the PMWI-S in its entirety and eight 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 victims of IPV (Basile et al., 2004; Basile & Hall, 2011), which was not included in the two aforementioned measures. Response options ranged from 1 (*never*) to 5 (*very frequently*). The psychological IPV score was a sum of these 21 items (Victimization range = 8–219; $M = 84.37$, $SD = 44.97$; Cronbach's $\alpha = .86$; Use range = 7–185; $M = 69.95$, $SD = 32.52$; Cronbach's $\alpha = .77$).

Physical IPV was assessed using 12 items comprising the physical IPV subscale from the CTS-2 (Straus et al., 2003). Response options on the CTS-2 are as follows: never, once, twice, 3–5 times, 6–10 times, and more than 10 times in the past 6 months. Responses were recoded according to procedures outlined by Straus et al., 2003 (i.e., 3–5 times [recoded to 4]; 6–10 times [recoded to 8]; and more than 10 times [recoded to 11]), then summed to obtain a total score. Higher scores are indicative of greater physical IPV victimization (Victimization range = 1–111; $M = 20.14$, $SD = 23.39$; Cronbach's $\alpha = .85$; Use range = 1–104; $M = 18.73$, $SD = 19.70$; Cronbach's $\alpha = .79$).

Sexual IPV was assessed using the 10-item Sexual Experiences Survey (SES; Koss & Gidycz, 1985). The original SES response options are yes/no. For the purposes of this study, the response options and scoring system from the CTS-2 (Straus et al., 2003) were used. Items were summed with higher scores indicative of greater sexual IPV victimization and use of sexual IPV (Victimization range = 0–96; $M = 8.46$, $SD = 15.77$; Cronbach's $\alpha = .88$; Use range = 0–50; $M = 2.74$, $SD = 7.26$; Cronbach's $\alpha = .79$).

Depression—Depression was measured using the 20-item Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). Participants rated the frequency of varying depression symptoms on a 4-point scale, ranging from 1 (*rarely or none of the time*) to 4 (*most or all of the time*). For example, participants were asked how often in the past week they “could not shake off the blues even with help from my family or friends.” Total scores were obtained by summing the score from each item. Higher scores are indicative of greater severity of depression and scores of 16 or more are considered clinically significant. Observed scores ranged from 0–56; $M = 22.71$, $SD = 12.17$; Cronbach's $\alpha = 0.83$. The majority of participants (69.4%, $n = 256$) met screening criteria for depression.

Alcohol problems—Alcohol problems were assessed using the 10-item Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). This measure was developed by the World Health Organization to assess alcohol consumption, drinking behavior, adverse reactions, and problems related to alcohol use. Each item is scored from 0 (*never*) to 4 (*daily or almost daily*). For example, participants were asked how often they had “found that you were not able to stop drinking once you had started” or “failed to do what was normally expected of you because of drinking.” A total severity score was obtained by summing each item. Higher scores are indicative of greater alcohol problems. Among community women, a score of six or above is indicative of alcohol problems (Reinert & Allen, 2002, 2007; Selin, 2003). Observed severity scores ranged from 0–36; $M = 4.69$, $SD = 6.91$; Cronbach's $\alpha = 0.89$. Approximately one quarter of participants in this sample (26.6%, $n = 98$) met screening criteria for alcohol problems.

Drug problems—Drug problems were assessed using the 20-item Drug Abuse Screening Test (DAST; Skinner, 1982). Each item assesses the presence of problems related to the participant's drug use such as occupational or relational problems, regret, or illegal activities. Each item has a yes/no response option, where 0 = no and 1 = yes. For example, participants were asked, “Can you get through the week without using drugs” and “Are you always able to stop using drugs when you want to?” A total severity score was obtained by summing each item. For this study, a cutoff of six or above indicated a substantial degree of

problems related to drug abuse (Skinner, 1982). Observed severity scores ranged from 0–18; $M = 2.53$, $SD = 4.09$; Cronbach's $\alpha = 0.92$. Seventy-five participants (20.3%) met screening criteria for drug problems.

Data Analytic Approach

LCA (Lubke & Muthén, 2005; McCutcheon, 1987) using Mplus™ version 6 (Muthén & Muthén, 1998–2010) was used to (a) identify latent classes (i.e., homogeneous subgroups based on post-traumatic stress symptom profiles) within our sample and (b) relate these latent classes to auxiliary variables outlined in the following paragraph. The severity scores for each of the 17 PTSD symptoms were employed as indicator variables (PDS items 22–38, range 0–3), which are used to determine latent class membership in the present analyses (not to statistically compare each individual indicator variable across latent classes). PDS items 22–26 assess PTSD criterion B (re-experiencing symptoms), items 27–33 assess PTSD criterion C (avoidance and numbing symptoms), and items 34–38 assess PTSD criterion D (hyperarousal symptoms).

The function of an auxiliary variable is to examine whether statistically significant differences are present between latent classes on these variables. Auxiliary variables included three dichotomous variables (i.e., whether women met PTSD diagnostic criteria A, F, and full PTSD diagnostic criteria) and nine continuous variables (i.e., severity of psychological, physical, and sexual IPV victimization, use of psychological, physical, and sexual IPV severity, depression symptom severity, and alcohol and drug problem severity). Means and variances of each auxiliary variable were examined using posterior probability-based multiple imputation and pseudo-class Wald chi-square significance tests.

Among its many advantages over traditional variable-centered approaches such as regression or analysis of variance, LCA, which is a person-centered approach, allows variance among classes to differ, provides formal statistical fit indices for maximal accuracy when interpreting results, and allows flexible measurement error. Consistent with the recommendations outlined by the existing literature (Nylund, Asparouhov, & Muthén, 2007), multiple indices of fit were examined in the present analysis. These fit indices included Akaike's information criterion (AIC), sample-size adjusted Bayesian information criterion (BIC), entropy, and Lo-Mendell-Rubin likelihood ratio test p -value for ($K-1$) classes (LMR LRT). Model fit was assessed by comparing AIC and BIC from one model to the next and determining whether LMR LRT is statistically significant (i.e., $p < .05$). Smaller AIC and BIC and a significant LMR LRT are indicative of goodness of fit. Entropy indicates what percent of the time participants are correctly classified into classes. Entropy as close to one as possible is optimal. All models included auxiliary variables except the one-class model.

Results

Fit statistics and class proportions of the examined LCA models are presented in Table 1. A three-class solution best fit the data. Class 1, the “low severity class” was characterized by consistently lower severity of all 17 symptoms compared to the other two classes. Class 2, the “moderate severity class” had severity of symptoms higher than Class 1 but lower than

Class 3. Class 3, the “high severity class”, had the highest severity of all symptoms compared to the other two classes. The three-class solution is represented in Figure 1, where the mean score for each of the 17 posttraumatic stress symptom items in each group is presented. All symptoms were reported in all latent classes.

A variation in the symptom severity pattern was observed with five symptoms, although not compared statistically. On PDS item 26, which ascertains the extent to which participants “experienced physical reactions when you were reminded of the violent or abusive events with your partner,” the high severity class reported higher severity than the other two classes. On PDS items 27, 31, 34, and 35, which ascertain the extent to which participants “tried not to think about, talk about, or have feelings about the violent or abusive events with your partner,” “felt distant and cut off from people around you,” “had trouble falling or staying asleep,” and “felt irritable or had fits of anger,” respectively, the moderate and high severity classes were similar to one another and higher than the low severity class. No specific symptom cluster differentiated one class from another.

The proportion of women who endorsed PTSD diagnostic criterion A (i.e., danger of harm to self or others, experienced fear, helplessness, or horror), criterion F (i.e., functional impairment related to posttraumatic stress symptoms), and full diagnostic criteria in each class is presented in Table 2. Among women in the low severity class, 58 (34%) endorsed their IPV victimization as a criterion A stressor, 91 (53.5%) endorsed functional impairment consistent with criterion F, and 15 (8.8%) met full criteria for PTSD. Among women in the moderate severity class, 84 (57.9%) endorsed IPV victimization as a criterion A stressor, 127 (87.6%) endorsed functional impairment consistent with criterion F, and 73 (50.3%) met full criteria for PTSD. Among the high severity class, 40 (87.0%) endorsed their IPV victimization as a criterion A stressor, 44 (95.7%) endorsed functional impairment consistent with criterion F, and 37 (80.4%) met full criteria for PTSD.

Differences on auxiliary variables across classes are also presented in Table 2. The classes differed significantly on the proportion of women who endorsed PTSD diagnostic criteria A and F, the proportion of women who met full diagnostic criteria for PTSD, and the severity of their depression symptoms, psychological and physical IPV victimization, and use of psychological and physical IPV. Women in each class met criteria A and F, with the largest proportion of women found in the high severity class, followed by the moderate and low severity classes.

Similarly, women in each class met full diagnostic criteria for PTSD. The largest proportion of women was found in the high severity class, followed by the moderate severity class, and the lowest proportion was found in the low severity class. The highest mean severity of depression symptoms was found in the high severity class, followed by the moderate severity class, and then the low severity class. The high and moderate severity classes reported clinically significant depression symptoms that exceeded the cutoff score of 16 by more than 10 and 9 points, respectively. The highest mean severity of psychological, physical, and sexual IPV victimization occurred within the high severity class, followed by the moderate severity class, and then the low severity class. Women in the moderate and severity classes reported significantly more severe use of psychological and physical IPV

compared to the low severity classes. However, the moderate and high severity classes did not differ on their use of psychological or physical IPV. Only women in the low and moderate classes differed on the severity of their use of sexual IPV. Classes did not differ significantly on the severity of their alcohol or drug problems¹.

Discussion

Using LCA, this study identified three homogenous subgroups in a sample of community women experiencing bidirectional IPV in their current relationships. These subgroups reflect three distinct posttraumatic stress symptom profiles: a low severity class, a moderate severity class, and a high severity class. This three-class model is consistent with previous research that has applied LCA to the study of PTSD in various populations (Ayer et al., 2011; Breslau et al., 2005; Naifeh et al., 2010; Steenkamp et al., 2012; Wolf et al., 2012). Women in all three classes experienced re-experiencing, avoidance/numbing, and hyperarousal symptoms.

In contrast to findings presented by Breslau et al. (2005) and Naifeh et al. (2010), where emotional numbing symptoms differentiated high severity participants from other participants, no one symptom cluster differentiated among classes in the present study. Five symptoms distinguished classes and were distributed across symptom clusters, including one from criterion B (reexperiencing), two from criterion C (avoidance and numbing), and two from criterion D (hyperarousal). No statistically significant differences emerged between classes regarding the severity or prevalence of alcohol and drug problems in this study; the prevalence was distributed fairly evenly across classes.

Women in each of the classes endorsed PTSD criteria A and F and full diagnostic criteria for PTSD. Women in the high severity class were more likely than women in the other two classes to endorse their IPV victimization as traumatic (PTSD criterion A stressor), endorse functional impairment related to their posttraumatic stress symptoms (PTSD criterion F), and to meet full diagnostic criteria for PTSD. Severity of depression and IPV experiences also varied across classes.

Consistent with literature outlining the prominent co-occurrence of PTSD symptoms and depression across populations, women in the high severity class for posttraumatic stress symptoms reported the most severe depression symptoms compared to the other two classes. Women in the high severity class reported the most severe psychological and physical IPV victimization and use of IPV compared to the other two classes. This finding contextualizes the emergence of the three groups. Namely, given that the indicator variables were directly tied to IPV victimization in the interview process, our findings suggest that higher severity of IPV victimization is connected with a higher severity of PTSD symptoms and membership in a higher severity class.

¹In addition to examining group differences in depression, alcohol, and drug problems using continuous severity scores we examined group differences using dichotomous scores of the proportion of people who met screening cutoff scores. Results of analyses using dichotomous scores were identical to those with continuous severity scores. Therefore, results of analyses with continuous severity scores are presented in Table 2.

It is also noteworthy that the moderate and high severity class did not differ on the severity of their use of psychological or physical IPV. These two groups used comparable levels of these types of IPV, despite the fact that substantial differences were found between these two groups on their IPV victimization. Future studies equipped with larger sample sizes should aim to explore both IPV victimization and use of IPV by type as indicator variables to further distinguish the relationships between IPV experiences and PTSD symptoms.

In our overall sample as well as within each class, a large discrepancy emerged between the number of women who endorsed functional impairment related to their posttraumatic stress symptoms (diagnostic criterion F) and the number who met full diagnostic screening criteria for PTSD. These findings suggest that despite the distress and complications their symptoms cause, women who experience significant functional impairment but are not diagnosed with PTSD may not be identified as in need of further assessment or assistance for mental health problems. Therefore, our findings suggest that future research directed at developing and testing interventions for posttraumatic stress among IPV-exposed women should also include participants who experience subthreshold PTSD.

Examining group differences on the efficacy of treatment interventions between those who meet full diagnostic criteria for PTSD and those who meet subthreshold PTSD criteria is essential. More specifically, treatment approaches that transcend specific mental health diagnoses to improve overall well-being and functioning are necessary to explore. Our findings also suggest that in future revisions to PTSD diagnostic criteria, the value of attributing more weight to functional impairment in relation to meeting a specific number and distribution of diagnostic criteria should be explored.

While some posttraumatic stress symptoms may overlap with symptoms of other disorders such as anxiety or depression, and the etiology of one's functional impairment is critical to address for proper diagnosis, some women who do not meet exact PTSD diagnostic criteria may still benefit from treatment. Findings from the current study showed that not everyone in the high severity group met full PTSD diagnostic criteria, although almost all (96%) experienced functional impairment. Both individually and collectively, these findings suggest that PTSD diagnostic criteria, as they are written and assessed in the DSM-IV and DSM-V (APA, 1994, 2013), may not accurately capture women's experiences of posttraumatic stress in relation to IPV. Additionally, our findings suggest that there is a need to conduct research to investigate the treatment needs of women who experience some posttraumatic stress symptoms but do not identify posttraumatic stress as their primary treatment need. Increasingly, treatments for PTSD are being augmented to prioritize specific treatment needs of other populations, such as addressing suicidality and addiction in the context of PTSD treatment (Back, 2010; Foa, Keane, & Friedman, 2009). However, appropriate mental health treatments for women who experience IPV have been explored less frequently.

Elucidating posttraumatic stress symptom profiles among women experiencing bidirectional IPV advances the existing literature in several ways. First, it raises awareness about the variability of women's experiences of bidirectional IPV and the relevance of a nuanced understanding of IPV-related posttraumatic stress. While we know that interpersonal

traumatic stressors are associated with more severe and persistent posttraumatic stress symptoms compared to other types of traumatic stressors (Anders et al., 2011; Elhai et al., 2009; Kubany et al., 2010; McNally & Robinaugh, 2011), this study suggests that variability in the response to IPV also exists among women who experience bidirectional IPV. Further, women who experience IPV differ in the nature and extent of their trauma-related distress, functional impairment, and co-occurring mental health problems. Similar to other traumatic stressors, individuals can experience similar events and interpret them in widely varying ways. These findings demonstrate a need for future research to explore factors that may exacerbate or reduce women's propensity for posttraumatic stress and co-occurring problems in response to IPV.

An abundance of literature suggests that posttraumatic stress is a construct that can be conceptualized and measured in varying ways (see Yufik & Simms, 2010, for review). Our findings underscore the complex, multifaceted nature of posttraumatic stress among women experiencing bidirectional IPV, and suggest that it is important for clinical research and intervention to consider the referent traumatic stressor and subjective meaning of various symptoms to different individuals and populations. Considering symptom variability, the differential ways in which symptoms might manifest and the affect that those symptoms have on individuals' activities of daily living are crucial steps toward improving our ability to understand and meet peoples' treatment needs.

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Limitations

The following limitations are worthy of note. First, our measure of posttraumatic stress relied on women's self-reported symptoms and thus is subject to self-report bias, while the retrospective nature of the data makes it more vulnerable to recall bias. Second, the cross-sectional nature of the study prevents us from examining change in symptom severity and profiles over time. Thus, the findings are not necessarily indicative of the course of posttraumatic stress symptoms. Future research can improve upon the current study's approach by employing larger sample sizes and analytic techniques such as latent transition analysis to provide a more reliable estimate of posttraumatic stress symptom profiles and correlates over time.

This study examined a sample of women experiencing bidirectional IPV, lending strength to the generalizability of our findings (Archer, 2000). However, our sample size did not allow us to analyze other factors such as women's motivations for using IPV or the perceived consequences of IPV beyond posttraumatic stress symptoms. Similarly, this study did not control for protective factors (e.g., social support, health services) that might have influenced symptom severity. Although conducted with an ethnically diverse sample, the majority of women in the study were from low-income settings and unemployed.

Further, it is expected that women who were experiencing the most severe IPV at the time of recruitment (e.g., were prohibited from leaving their homes or had their whereabouts monitored or restricted) did not volunteer for the study. Therefore, women experiencing more severe IPV might present with different posttraumatic stress symptom profiles, and women who experienced IPV victimization but did not use IPV might present with different posttraumatic stress symptoms and ultimately have different profiles. Future studies should aim to determine if these findings can be replicated among other samples of women experiencing IPV.

Conclusion

This study added to the existing literature by showing that women currently experiencing bidirectional IPV reported posttraumatic stress symptoms in varying levels of severity and that a significant portion of women in each class endorsed PTSD diagnostic criteria A and F and met full diagnostic criteria for PTSD. These findings suggest that it is essential to conceptualize women's IPV-related posttraumatic stress in terms of its severity and impact on functioning. The existence of nuanced symptom profiles supports the application of a continuum of interventions that are individually tailored to take into account the client's severity of symptoms as well as the nature and extent of functional impairment.

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Figure 1.
Posttraumatic stress severity symptom profiles.

Table 1

Comparison of Fit Statistics Between Latent Class Models

Fit statistic	1 class	2 class	3 class	4 class
AIC	17512.46	16040.65	15679.41	15514.39
BIC	17536.53	16077.47	15728.98	15576.69
LMR LRT <i>p</i> -value	-	< .001	.02	ns
Entropy	-	.920	.900	.897
Class membership	n%	n%	n%	n%
Class 1:	369 (100%)	212 (57.5%)	172 (46.7%)	158 (42.8%)
Class 2:	-	157 (42.5%)	147 (39.8%)	112 (30.4%)
Class 3:	-	-	50 (13.5%)	53 (14.3%)
Class 4	-	-	-	46 (12.5%)

Note. AIC = Akaike's information criterion; BIC = sample-size adjusted Bayesian information criterion; LMR LRT = Lo-Mendell-Rubin likelihood ratio test *p*-value for ($K - 1$) classes. All models included auxiliary variables except the 1 class model.

Table 2
Differences Between Latent Classes on PTSD Diagnostic Criteria and Co-Occurring Mental Health Problems

Variable	Low severity class <i>N</i> = 170 <i>n</i> (%)	Moderate severity class <i>N</i> = 145 <i>n</i> (%)	High severity class <i>N</i> = 50 <i>n</i> (%)	Overall Wald chi-square	Low vs. moderate	Low vs. high	Moderate vs. high
PTSD criterion A	58 (34.0%)	84 (57.9%)	40 (87.0%)	53.45***	15.95***	64.12***	15.97***
PTSD criterion F	91 (53.5%)	127 (87.6%)	44 (95.7%)	2.44*	2.36*	2.81*	.76
Full diagnostic criteria for PTSD	15 (8.8%)	73 (50.3%)	37 (80.4%)	116.62***	64.60***	117.41***	14.95***
	Mean (SE)	Mean (SE)	Mean (SE)				
Psychological IPV victimization	62.87 (2.72)	97.06 (3.88)	120.97 (6.78)	75.78***	49.95***	64.72***	9.37***
Use of psychological IPV	57.47 (2.35)	78.71 (2.87)	80.70 (5.87)	34.45***	30.82***	13.51***	.09
Physical IPV victimization	11.73 (1.07)	23.25 (2.16)	43.56 (4.80)	44.13***	21.22***	41.91***	14.57***
Use of physical IPV	15.22 (1.43)	22.21 (1.93)	27.89 (3.65)	12.64**	7.87**	10.48***	1.85
Sexual IPV victimization	3.38 (.59)	10.86 (1.52)	20.91 (3.54)	30.00***	20.51***	23.83***	6.63***
Use of sexual IPV	1.74 (.41)	3.79 (.76)	3.61 (1.34)	4.67	5.53*	1.79	.01
Depression severity	15.41 (.74)	26.71 (.84)	35.76 (1.66)	130.66***	83.28***	116.64***	23.73***
Alcohol problem severity	4.28 (.52)	4.76 (.59)	5.86 (1.16)	.63	1.85	.67	1.79
Drug problem severity	5.45 (4.63)	3.26 (.91)	3.23 (.65)	.01	1.65	1.71	1.81

Note. PTSD = posttraumatic stress disorder; IPV = intimate partner violence; Dx = DSM-IV PTSD diagnostic criteria met; SE = standard error. Drug use problem severity and physical and sexual IPV variables were Log 10 transformed.

* $p < .05$.

** $p < .01$.

*** $p < .001$.