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Childhood sexual abuse characteristics, intimate partner violence exposure, and psychological distress among women in methadone treatment

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Abstract

Traumatic experiences and their biopsychosocial sequelae present complex challenges in substance use treatment. For women with substance use problems, childhood sexual abuse (CSA), intimate partner violence exposure (IPV), posttraumatic stress disorder (PTSD), and overall psychological distress are often co-occurring concerns. To address gaps in knowledge and to strengthen practice regarding these critical issues in substance use treatment, we drew upon cross-sectional and longitudinal data from baseline and 12-month interviews with a random sample of 416 women in methadone treatment to examine relationships between CSA characteristics, particularly the presence of force and involvement of family, IPV and mental health concerns. Although CSA involving force and family was not associated with IPV as hypothesized, it was associated with increased risk of PTSD and overall psychological distress. The multivariate findings underscore the psychological vulnerabilities associated with CSA involving force and family and suggest that drug use and financial circumstances may be important targets to reduce IPV risk.

1. Introduction

Childhood sexual abuse (CSA), intimate partner violence exposure (IPV), and psychological distress are serious co-occurring health concerns for many women in substance use treatment. Studies employing multiple questions regarding specific types of sexual activity suggest that a history of CSA is present among 58 to 66% of women in substance use treatment (Engstrom, El-Bassel, Go, & Gilbert, 2008; Miller, Downs, & Testa, 1993); a lifetime history of IPV is present among 47 to 90% of women in substance use treatment (El-

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Bassel, Gilbert, Schilling, & Wada, 2000; Engstrom, El-Bassel, Go, & Gilbert, 2008; Gilbert, El-Bassel, Schilling, & Friedman, 1997; Schneider, Burnette, Ilgen, & Timko, 2009). These estimates far exceed those found among women in community and college samples(CSA: 20-39%; IPV: 21-34%; Browne, 1993; Pereda, Guilera, Forns, & Gómez-Benito, 2009; Tjaden & Thoennes, 2000; Wyatt, Loeb, Solis, Carmona, & Romero, 1999). As expected with elevated exposure to traumatic events, rates of posttraumatic stress disorder (PTSD) among women in substance use treatment also far exceed those found in the general population of women(26-59% vs. 10-12%; Hien, Nunes, Levin, & Fraser, 2000; Najavits, Weiss, & Shaw, 1997).

Cross-sectional studies find that CSA is associated with increased risk of IPV exposure among women in substance use treatment (El-Bassel, Gilbert, Schilling, & Wada, 2000; Engstrom, El-Bassel, Go, & Gilbert, 2008; Gilbert, El-Bassel, Schilling, & Friedman, 1997; Gilbert, El-Bassel, Schilling, Wada, & Bennett, 2000). Additionally, type or severity of CSA is associated with numerous concerns among women in substance use treatment, including alcohol problems (Miller, Downs, & Testa, 1993), mental health problems (Lee, Lyvers, & Edwards, 2008; Schiff, El-Bassel, Engstrom, & Gilbert, 2002), earlier age of first alcohol use (Hyman, Garcia, & Sinha, 2006), and more days of cocaine use following inpatient treatment for cocaine dependence(Hyman et al., 2008). Research with female andmixed-gender samples of adults in substance use treatmenthas found associations between intrafamilial CSA (e.g., CSA involving a father, stepfather, father figure or male relatives) and alexithymia(Scher & Twaite, 1999), alcohol use problems and treatment(Miller & Downs, 1995), treatment for both alcohol and drug use (Glover, Janikowski, & Benshoff, 1996), and lower self-esteem rating(Glover, Janikowski, & Benshoff, 1996). However, Lee and colleagues (2008) found no association between intra- or extrafamilial relationship and depression among a mixed-gender sample.

With some exceptions(Browne & Finkelhor, 1986; Fleming, Mullen, Sibthorpe, & Bammer, 1999; Jarvis, Copeland, & Walton, 1998; Jonzon & Lindblad, 2005; McClure, Chavez, Agars, Peacock, & Matosian, 2008), research conducted with women in clinical and nonclinical settings outside of substance use treatment suggests that CSA involving a family member or force is associated with more negative sequelae, including increased mental health problems (Banyard & Williams, 1996; Banyard, Williams, Siegel, & West, 2002; Bennett, Hughes, & Luke, 2000; Feinauer, Mitchell, Harper, & Dane, 1996; Russell, 1986),sleep problems(Banyard & Williams, 1996), sexual revictimization (Koverola, Proulx, Battle, & Hanna, 1996; West, Williams, & Siegel, 2000), and sexual risk behaviors (Senn, Carey, Venable, Coury-Doniger, & Urban, 2007).To our knowledge, the influence of CSA involving a family member orforce on the risk of IPV, PTSD and overall psychological distress among women in substance use treatment has yet to be examined.

We draw upon an integrative conceptual framework to understand ways in which CSA involving force and a family member may be associated with greater risk of IPV and mental health concerns. This framework recognizes that CSA can have biological, emotional, cognitive, behavioral, relational, and developmental effects. These long-term, multidimensional effects interact with each other in dynamic ways and are likely to be exacerbated when CSA involves a heightened sense of betrayal, stigma, powerlessness, and

fear—experiences that may be magnified when CSA involves force and a family member (Cloitre & Rosenberg, 2006; DiLillo, 2001; David Finkelhor & Browne, 1985; Herman, 1997; McFarlane & de Girolamo, 1996). These experiences, the meaning people make of them, and their long-term sequelae are influenced by several additional factors, including one's age, the duration of trauma exposure, exposure to multiple traumatic events in childhood, and individuals' familial, social and cultural contexts (Alexander, 1992; Briere, Kaltman, & Green, 2008; Cloitre et al., 2009; McCann & Pearlman, 1990; van der Kolk, 1996).

The involvement of force and family can exacerbate negative effects of CSA on beliefs and expectations about one's self, others, relationships, and the world. These effects can increase the risk of exposure to IPV in several ways. They may contribute to expectations and acceptance of violence in intimate relationships (Ponce, Williams, & Allen, 2004), which, in turn, may limit women's pursuit of positive relationships and improved interactions with intimate partners (Cloitre, Cohen, & Scarvalone, 2002; Cloitre & Rosenberg, 2006).

Further, addressing relational violence or exiting a violent relationship requires a range of psychological, social, and material resources that may not be readily available to women coping with multifaceted, long-term sequelae of CSA involving force and family, particularly for women experiencing co-occurring substance use problems. This absence of readily available resources, including positive beliefs about one's self and one's self-efficacy, energy, social support, and financial resources, together with the action required in a high-risk situation, is likely to constrain women's sense of options and problem-focused coping to address relational violence (Bandura, 1977; Bandura, Adams, & Beyer, 1977; Engstrom, El-Bassel, Go, & Gilbert, 2008; Lazarus & Folkman, 1984). Additionally, ongoing exposure to IPV places women at risk for psychological distress and substance use problems (El-Bassel, Gilbert, Wu, Go, & Hill, 2005; Hedtke et al., 2008; Schiff, El-Bassel, Engstrom, & Gilbert, 2002), which may exacerbate the mismatch between their available resources and those required to address relational violence. As such, women who experienced CSA involving force and family may be at heightened risk for a vicious cycle of victimization, psychological distress, and substance use.

1.1 Current Study

This study aims to accomplish three goals: 1) attend to a gap in knowledge regarding relationships between CSA characteristics and risk of IPV exposure and mental health concerns among women in substance use treatment; 2) address the cross-sectional limitations of prior CSA-IPV research among women in substance use treatment; and 3) inform treatment strategies in more nuanced ways. To achieve these goals, we tested three hypotheses: women whose reported CSA histories involved both force and family would have the greatest risk of lifetime and recent IPV exposure measured at baseline and 12-month follow-up (hypothesis 1), as well as the greatest risk of PTSD (hypothesis 2) and overall psychological distress (hypothesis 3), even when adjusting for sociodemographic characteristics and other potential confounders. Potential confounders (e.g., methadone treatment length, multiple main partners, overall psychological distress, PTSD, HIV status,

substance use, and social support) are based on the integrative conceptual framework that guides the study and prior empirical findings.

2. Materials and Methods

The Women's Health Project was conducted to examine intersections between HIV, substance abuse and IPV among women in methadone treatment. It involved baseline, 6-month follow-up, and 12-month follow-up interviews with a random sample of 416 women in methadone treatment. This secondary analysis examined relationships between characteristics of CSA and risk of IPV, PTSD and psychological distress. All variables, except for the 12-month IPV variable, were drawn from baseline data of the Women's Health Project.

2.1 Participants

A random group of 753 women was selected from a total of 1,708 women in 14 methadone treatment clinics in New York City. From the 753 women who were randomly selected for the study, 559 (74%) completed informed consent procedures and screening interviews; 427 of the 559 women who completed screening interviews were eligible to participate in the study; and 416 ultimately enrolled in the study. Women aged 18-55 were eligible to participate in the study if they were involved in methadone treatment for at least three months, and, in the last year, they engaged in a dating or sexual relationship with someone they described as their boyfriend, girlfriend, spouse, regular sexual partner, or father of their children.

2.2 Procedures

Trained female interviewers conducted in-person interviews in English and Spanish. The interviews were completed in 1.5-2 hours and included questions regarding sociodemographic background, substance use, childhood sexual abuse, intimate partner violence, HIV risk behaviors, psychological distress, overall health, social support, and intimate partner relationships with up to three main partners. The institutional review boards at Columbia University and at the participating methadone treatment clinics approved the research protocol.

2.3 Measures

Childhood sexual abuse was measured with the Childhood Sexual Abuse Interview (CSAI; El-Bassel, Gilbert, & Frye, 1998). The CSAI is based on interview schedules of Finkelhor (1979) and Sgroi (1982) and inquires about exposure, touching, picture taking, penetration and other sexual contact that occurred prior to age 15 and, to be classified as abuse, if the activity involved someone 5 years older than the participant, force, or a relative. For these analyses, a 5-level, mutually-exclusive categorical variable was created across the 11 items of the CSAI: no reported history of sexual abuse; sexual abuse experience(s) involving someone 5 or more years of age, but not involving force or family; sexual abuse experience(s) involving force but not involving family; sexual abuse experience(s) involving family but not force; and sexual abuse experience(s) involving force and family, either

simultaneously (94.5% of cases in this final category) or across discrete events (5.5% of cases in this final category).

Intimate partner violence was identified with the Revised Conflict Tactics Scale (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996), which includes 39 items to assess negotiation and several forms of victimization that participants may have experienced, including psychological aggression, sexual coercion, physical assault, and injury in the past 6 months and in one's lifetime. These subscales have published internal consistencies ranging from .79 to .95 (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). For this study, any positive response on the sexual coercion, physical assault, injury, or psychological aggression subscales, across up to three main male or female partners, was coded as 1, "presence of intimate partner violence." We defined IPV beyond physical and/or sexual violence in recognition of findings which suggest that psychological aggression can affect well-being in ways that are comparable to, and at times greater than, physical and sexual IPV (For review see Follingstad, 2009). The inclusion of psychological aggression added approximately 23 and 32 percentage points to this study's lifetime and recent IPV prevalence estimates, respectively. This study included the measurement of IPV at baseline and at 12-month follow-up. The negative effect of IPV on mental health (Jordan, Campbell, & Follingstad, 2010; Schiff, El-Bassel, Engstrom, & Gilbert, 2002) informed our decision to include it in multivariate analyses predicting PTSD and psychological distress.

Drug and alcohol use was measured with questions that inquired about the frequency of specific substance use in the past six months (El-Bassel, Gilbert, & Frye, 1998). Positive responses to questions regarding the use of heroin; cocaine; crack; speedball (heroin and cocaine); marijuana; non-prescription tranquilizers, barbiturates, or hypnotics; non-prescription stimulants; or non-prescription narcotics were coded as "drug use." Negative responses to any of these items were coded as "no drug use." The same coding was applied to alcohol use. We controlled for substance use in multivariate analyses based on its association with mental health concerns (Rao, Daley, & Hammen, 2000; Schiff, El-Bassel, Engstrom, & Gilbert, 2002) and IPV (Brewer, Fleming, Haggerty, & Catalano, 1998; El-Bassel, Gilbert, Wu, Go, & Hill, 2005).

Psychological distress was assessed in two ways. First, the 49 items of the Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995) were used to measure PTSD. The PDS parallels the DSM-IV diagnostic criteria for PTSD (American Psychiatric Association, 1994), has good agreement with the Structured Clinical Interview for the DSM-III-R (Williams, Gibbon, First, Spitzer, & et al., 1992), and has 82.0% sensitivity and 76.7% specificity (Foa, 1995). Second, the Brief Symptom Inventory (BSI; Derogatis, 1993) was used to measure overall psychological distress. The 53 items of the BSI comprise a global severity index with strong internal consistency with this sample (Cronbach's $\alpha=.97$). For this study, the BSI was used as a continuous scale (scale range: 0-4) when it was a covariate in multivariate models and as a dichotomous measure when it was a dependent variable. We dichotomized this scale to assess psychological distress above and below the published female, outpatient psychiatric median (1.35; Derogatis, 1993) in order to provide a clinically meaningful indicator of distress. The potential for psychological distress to confound the CSA-IPV

relationship informed its inclusion in the multivariate models predicting IPV (Engstrom, El-Bassel, Go, & Gilbert, 2008).

Social support was measured with the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1998) which captures perceived social support from family, friends, and significant other. This study relied on all 12 items of the scale to measure overall social support (scale range: 0-4). The strong internal consistency of this scale with this sample, Cronbach's $\alpha = .88$, is consistent with previous reliability analysis (Zimet, Dahlem, Zimet, & Farley, 1998). The role of social support in mitigating psychological effects of childhood sexual abuse (Collishaw et al., 2007; Hyman, Gold, & Cott, 2003; Lynskey & Fergusson, 1997) and intimate partner violence (Thompson et al., 2000), along with its role in supporting women's efforts to address relational violence (El-Bassel, Gilbert, Rajah, Foleno, & Frye, 2001), made it an important variable to include in this study's multivariate analyses.

Financial independence was determined based on a single question that inquired about contributions to the participant's household and living expenses in the past 6 months across up to three main partners. Financial independence reflected receiving no or almost no contribution from any partner, while financial dependence involved receiving any contribution from up to three main partners. Financial dependence has been shown to be associated with IPV risk (Engstrom, El-Bassel, Go, & Gilbert, 2008; Forte, Franks, Forte, & Rigsby, 1996) and may reflect socioeconomic vulnerability that could influence psychological distress.

Number of main intimate partners was included to control for the potential that women with multiple main partners may be at greater risk for IPV and/or may experience variations in their social support which could influence IPV and mental health. We created a dichotomous variable that indicated one main partner in the past year or more than one main partner in the past year.

HIV-positive status was measured based on participants' self-reported responses regarding the result of their most recent HIV test. Prior findings regarding links between CSA, HIV status, IPV exposure, and mental health concerns prompted our inclusion of this variable in the multivariate analyses (El-Bassel, Witte, Wada, Gilbert, & Wallace, 2001; Gielen et al., 2000; Haug et al., 2005; Paxton, Myers, Hall, & Javanbakht, 2004; Tarakeshwar, Hansen, Kochman, Fox, & Sikkema, 2006; Vosvick, Martin, Smith, & Jenkins).

Childhood physical abuse was included in the multivariate analyses based on findings that exposure to multiple traumatic events in childhood is associated with more negative sequelae (Briere, Kaltman, & Green, 2008; Classen, Palesh, & Aggarwal, 2005; Cloitre et al., 2009). We defined childhood physical abuse by an affirmative response to either of two questions which inquired about childhood experiences (under age 18) of being punched, pushed, hit, shoved, kicked, whipped, beaten, physically injured, choked, strangled, or threatened with a knife, gun, or any other weapon by parents, caretaker or guardian.

2.4 Data Analysis

In order to reduce potential bias related to missing data, the data analysis began with multiple imputation of missing data (Rubin, 1987; Schafer, 2000). Univariate analyses were conducted to obtain descriptive statistics for the sample. Due to skewed data, we used the log of annual income in the multivariate analyses. Bivariate and multivariate analyses involved logistic regression analyses to obtain unadjusted and adjusted odds ratios for the relationship between CSA characteristics and each of the dependent variables of interest: IPV in one's lifetime measured at baseline; IPV in the past 6 months as measured at baseline and 12-month follow-up; PTSD measured at baseline; and overall psychological distress measured at baseline. All analyses, including multiple imputation of missing data, were conducted with Stata/SE 10.1 (StataCorp, 2007).

3. Results

3.1 Characteristics of the Sample

Among the 416 women in this sample, nearly half identified as Latina/Hispanic (47.8%), nearly one-third identified as African American/Black (30.8%) and approximately one-fifth identified as White (16.8%) or another racial/ethnic group (4.6%). The mean age among the sample was 39.9 years (SE=.33). On average, the women were in methadone treatment 9.3 years (SE=.36). They had a mean annual income of \$10,143 (SE=469) and a mean level of education of 11.0 years (SE=.12). Most of the women were single, never married (46.6%), followed by divorced or separated (22.4%), married (19.7%), and widowed (11.3%). Additionally, most of the women identified only one main intimate partner (78.8%), and a minority reported financial independence from their partners (31.7%). The majority of main intimate partners were all male (91.1%), followed by all female (6.3%), and a combination of male and female partners (2.6%).

3.2 Prevalence of CSA, PTSD, Psychological Distress, Substance Use and HIV

Over half of the women reported experiencing childhood sexual abuse (56.9%). More than one in four women in the sample (28.4%) reported CSA experience(s) involving force and family. Approximately one in ten reported experiencing CSA involving family (10.3%), someone who was five or more years older (9.7%), or force (8.5%). More than one-third of the women (37.9%) reported a history of childhood physical abuse. Approximately 90% of the women reported experiencing IPV in their lifetimes (89.8%). More than three-quarters (78.2%) reported experiencing IPV in the six months prior to the baseline interview and nearly two-thirds (63.4%) reported experiencing IPV in the six months prior to the 12-month follow-up interview.

Prevalence of PTSD (28.1%), psychological distress (19.1%), alcohol use (49.5%), other drug use (63.8%), and HIV (20.4%) was high among the participants. Additionally, the mean level of psychological distress among the participants (.82, SE=.03) far surpassed the comparable mean found among nonpatient women (.35; Derogatis, 1993).

3.3 Hypothesis 1—Relationship between childhood sexual abuse involving force and family and intimate partner violence

Although the bivariate analyses lent partial support to the hypothesis that CSA involving force and family would yield the greatest risk for lifetime IPV among the participants (OR=3.13, CI=1.22, 8.06, $p=.018$), this relationship became statistically insignificant when adjusting for potential confounders in the multivariate model. Additionally, there were no statistically significant relationships between CSA involving force and family and recent IPV as reported at baseline or 12-month follow-up.

The change in significance of the relationship between CSA involving force and family and lifetime IPV exposure suggests that the relationship may be mediated by other statistically significant variables in the adjusted model (Baron & Kenny, 1986). To test this possibility, we began by examining the bivariate relationships between CSA involving force and family and drug use, the log of annual income, widowhood, and childhood physical abuse. There were no statistically significant relationships between CSA involving force and family and drug use (OR=1.01, CI=.62, 1.64, $p=.971$) or widowhood (OR=.47, CI=.19, 1.16, $p=.101$); however, CSA involving force and family was associated with the log of annual income ($b=-.24$, $p=.012$) and with childhood physical abuse (OR=6.82, CI=3.84, 12.12, $p=.000$). Although log of annual income and childhood physical abuse meet Baron and Kenny's statistical criteria for a mediator (e.g., each is associated with CSA involving force and family at the bivariate level and with IPV at the multivariate level, and CSA involving force and family is associated with IPV at the bivariate level), uncertain temporal order between CSA and childhood physical abuse and between lifetime IPV exposure and log of annual income at baseline provide a conceptual challenge to these statistical findings.

3.4 Hypothesis 2—Relationship between childhood sexual abuse involving force and family and posttraumatic stress disorder

The multivariate analyses supported the hypothesis that CSA involving force and family would be associated with the greatest risk of PTSD. Among women who reported CSA involving force and family, the likelihood of PTSD was doubled (OR=2.18, CI=1.15, 4.11, $p=.017$), even when controlling for potential confounders. No other CSA experiences were associated with PTSD.

3.5 Hypothesis 3—Relationship between childhood sexual abuse involving force and family and overall psychological distress

CSA involving force and family was associated with the greatest risk of overall psychological distress at the bivariate level (OR=4.36, CI=2.27, 8.40, $p=.000$). CSA involving force and family remained the strongest CSA predictor of overall psychological distress in the multivariate model (OR=2.56, CI=1.22, 5.49, $p=.010$). Visual inspection indicated that CSA involving force was associated with a slightly higher risk of overall psychological distress in the multivariate model (OR=2.83, CI=.97, 8.30, $p=.058$); however, the statistical significance of this relationship was marginal. Thus, hypothesis 3 was supported.

4. Discussion

This study is the first to our knowledge that examines the relationship between CSA involving force and family and risk of IPV, PTSD and overall psychological distress among women in substance use treatment. Although CSA involving force and family was associated with the greatest risk of lifetime IPV exposure at the bivariate level, this association became statistically insignificant when controlling for the influence of confounding variables. Additionally, there were no other statistically significant relationships between CSA characteristics and IPV risk in one's lifetime or in the past 6 months when measured at baseline or 12-month follow-up. These findings differ from prior cross-sectional research that found a mediated relationship between dichotomously-coded CSA and IPV (Engstrom, El-Bassel, Go, & Gilbert, 2008). The contrasting findings may reflect inadequate statistical power to detect subgroup differences associated with specific CSA characteristics. They may also reflect that the experience of CSA in and of itself, particularly when 83% of the experiences involve force, family, or both, may be more salient in IPV risk than its specific characteristics. A similar conclusion was also reached by Fassler and colleagues who examined the value of dichotomous or continuous coding of CSA in predicting psychosocial outcomes among 290 women from a community sample (Fassler, Amodeo, Griffin, Clay, & Ellis, 2005). When CSA characteristics are specified, this study's longitudinal findings indicate that drug use and financial dependence on a partner may be important targets of intervention to reduce IPV risk among women in substance use treatment.

Several conceptual models explicate the relationship between drug use and IPV exposure. To begin, societal and relational power discrepancies are generally seen as primary contributors to IPV (Amaro, 1995; Barnett, 2000). In addition to gender-based power discrepancies among women with male partners, both financial dependence and drug use can limit women's power, sense of options, and use of problem-focused coping to address relational violence. Financial dependence, which has been previously shown to be associated with IPV (Aguirre, 1985; Engstrom, El-Bassel, Go, & Gilbert, 2008; Forte, Franks, Forte, & Rigsby, 1996; Johnson, 1992), clearly reflects a woman's limited socioeconomic power to address relational violence or to end the relationship. In the absence of other material resources, women may perceive limited options to their current situation. As a result, problem-focused coping that would facilitate action may be thwarted (Lazarus & Folkman, 1984). While somewhat less straightforward, women's drug use may limit their relational power, beliefs about themselves, and perceived options through several pathways, including marginalizing societal representations of women who use drugs (Gilbert, El-Bassel, Rajah, Foleno, & Frye, 2001), involvement with partners who use alcohol or other drugs and act violently (Bennett, Tolman, Rogalski, & Srinivasaraghavan, 1994; Chermack, Fuller, & Blow, 2000; Coker, Smith, McKeown, & King, 2000; Fals-Stewart, Golden, & Schumacher, 2003; Gilbert, El-Bassel, Rajah, Foleno, & Frye, 2001; Kantor & Straus, 1989; Walton et al., 2007), reliance on partners for drugs (Amaro & Hardy-Fanta, 1995), conflicts with partners regarding obtaining and sharing drugs (Gilbert, El-Bassel, Rajah, Foleno, & Frye, 2001), states of intoxication that may be exploited with violence by partners, substance-fueled aggression

toward partners (Gilbert, El-Bassel, Rajah, Foleno, & Frye, 2001; Walton et al., 2007), and drug effects that limit women's abilities to recognize and address relational violence.

Additionally, due to complex dynamics that limit the effectiveness of social support among women who are drug-involved (Boyd, 1993; Dunlap & Johnson, 1992; El-Bassel, Chen, & Cooper, 1998; El-Bassel, Gilbert, Rajah, Foleno, & Frye, 2001; Falkin & Strauss; Savage & Russell, 2005; Strauss & Falkin, 2001), they may have limited social resources to assist with addressing relational violence or exiting the relationship (El-Bassel, Gilbert, Rajah, Foleno, & Frye, 2001; Short, McMahon, Chervin, & Shelley, 2000; Sullivan, Tan, Basta, Rumpitz, & et al., 1992). Further, drug use may confound a couple's communication and conflict resolution skills, contributing to heightened risk of IPV (Neidig, Friedman, & Collins, 1985; O'Leary, Heyman, & Neidig, 1999). Finally, other longitudinal studies suggest that there is a bidirectional relationship between drug use and IPV, which varies by drug and results in an ongoing cycle of violence and drug use (Brewer, Fleming, Haggerty, & Catalano, 1998; El-Bassel, Gilbert, Wu, Go, & Hill, 2005; Testa, Livingston, & Leonard, 2003). Women's efforts to address this cycle are likely to be influenced by dynamic interactions between their sense of power; their material, intrapersonal, and social resources; their perceived options; and their coping strategies (Engstrom, El-Bassel, Go, & Gilbert, 2008; Lazarus & Folkman, 1984).

Although CSA characteristics were not associated with IPV exposure as expected, CSA involving force and family was associated with increased risk of overall psychological distress and PTSD. The findings indicate that women exposed to IPV are 2.7 and 3 times more likely to experience these mental health concerns than women without such exposure. Further, the findings suggest that social support, including issues related to widowhood as applicable, warrants focused attention in efforts that address psychological well-being among women in methadone treatment (See also Dodge & Potocky, 2000).

This study's findings underscore the complex interplay between victimization, drug use, and psychological distress among women in substance use treatment and the necessity of treatment approaches that can effectively address these co-occurring concerns. A growing body of literature indicates that integrated treatment approaches yield positive gains for women, including improvements related to substance use (Bennett & O'Brien, 2007; Gilbert et al., 2006; Hien, Cohen, Miele, Litt, & Capstick, 2004; Najavits, Weiss, Shaw, & Muenz, 1998; Zlotnick, Johnson, & Najavits, 2009; Zlotnick, Najavits, Rohsenow, & Johnson, 2003), mental health (Gilbert et al., 2006; Hien, Cohen, Miele, Litt, & Capstick, 2004; Morrissey et al., 2005; Najavits, Weiss, Shaw, & Muenz, 1998; Zlotnick, Johnson, & Najavits, 2009; Zlotnick, Najavits, Rohsenow, & Johnson, 2003), and violence exposure (Bennett & O'Brien, 2007; Gilbert et al., 2006). Recent large scale studies suggest that the gains may be greater among women who begin services with more severe PTSD and substance use concerns (Cusack, Morrissey, & Ellis, 2008; Hien et al., 2010) and with more integrated services (Morrissey et al., 2005). However, this body of knowledge is an evolving one that continues to be refined to better understand what works best for whom and why (Hohmann, 1999). While the recent large scale studies raise considerations regarding targeting integrated treatment for women with more severe PTSD (Cusack, Morrissey, & Ellis, 2008) and the value of integrated versus sequential treatment for PTSD and substance

use (Hien et al., 2010), it is clear that screening, assessment and inter- or intra-agency referral for assistance related to victimization, PTSD and other psychological distress should be routinely available and systematically evaluated in substance use treatment programs. Additionally, routine assessment of financial circumstances, including financial dependence on one's partner and poverty (Moreno, El-Bassel, Gilbert, & Wada, 2002), should be included to identify potential IPV risk factors and to address women's basic needs.

While strengths of the study include its large, random sample and longitudinal IPV data, its limitations include its reliance on self-reports regarding key variables. Additionally, the cross-sectional data used to examine associations with PTSD and psychological distress limit the temporal and causal inferences that can be drawn from the findings. As such, the findings regarding their associations with social support and IPV, in particular, should be interpreted cautiously. Also, prior research suggests that family of origin factors are important considerations in examinations of CSA and its long-term sequelae (Fassler, Amodeo, Griffin, Clay, & Ellis, 2005; Fleming, Mullen, Sibthorpe, & Bammer, 1999; Miller & Downs, 1995; Mullen, Martin, Anderson, Romans, & Herbison, 1996); however, these factors were not measured in this study and were excluded from the analytic models. Further, we did not examine women's aggression toward partners which may heighten their risk of IPV exposure, particularly in the context of situational violence (For discussion see McCollum & Stith, 2008). Additionally, this study collapsed all drugs, other than alcohol, into one dichotomously-coded variable, which may have eclipsed substance-specific findings and findings related to quantity and frequency of use. This study also collapsed all types of IPV into a single dichotomously-coded variable, which may have eclipsed findings regarding relationships between CSA involving force and family and subtypes of physical, sexual and psychological victimization. Future research in this area would benefit from further examination of how these measurement issues may affect observed relationships between key variables. Finally, the study findings may not be generalizable beyond women in urban methadone treatment settings.

Even with these limitations, this study makes novel contributions to our understanding of the relationships between CSA characteristics and risks of IPV, PTSD, and overall psychological distress among women in substance use treatment. The findings underscore the complex intersections between victimization, drug use, and psychological concerns and the need for routine availability and evaluation of multifaceted interventions for women in substance use treatment. However, such comprehensive care is inconsistently available in the U.S. (Mojtabai, 2004). Efforts to build empirically-supported approaches for these serious co-occurring health issues must also be accompanied by efforts to ensure that such vital services are consistently provided.

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Table 1

Characteristics of Participants (N=416)

	M	(SE)
Age in years	39.9	.33
Average annual income (US\$)	10,143	469
Number of years of education completed	11.0	.12
Number of years in methadone treatment	9.3	.36
Psychological distress	.82	.03
Social support	2.56	.04
	<i>n</i>	%
Race/ethnicity		
African American/Black	128	30.8
Latina/Hispanic	199	47.8
White/Other	89	21.4
Legal marital status		
Single, never married	194	46.6
Divorced or separated	93	22.4
Widowed	47	11.3
Married	82	19.7
More than 1 intimate main partner	88	21.2
Gender of main intimate partner(s)		
All male	379	91.1
All female	26	6.3
Male and female	11	2.6
Financial independence from partner	132	31.7
HIV-positive status	85	20.4
Childhood sexual abuse history ^a	237	56.9
CSA with someone 5+ years older	40	9.7
CSA involving force	35	8.5
CSA involving family	43	10.3
CSA involving family and force	118	28.4
Childhood physical abuse history	158	37.9
Intimate partner violence		
IPV in lifetime (Baseline measure)	374	89.8
IPV in past 6 months (Baseline measure)	325	78.2
IPV in past 6 months (12-month measure)	264	63.4
Mental health		
PTSD diagnosis	117	28.1
Psychological distress	80	19.1
Substance use-Past 6 months		
Alcohol use	206	49.5

	M	(SE)
Other drug use	265	63.8

^aTotal and sum of categories differ due to rounding.

Unadjusted and Adjusted Odds Ratios for the Effect of Childhood Sexual Abuse (CSA) on Intimate Partner Violence (IPV), Posttraumatic Stress Disorder (PTSD) and Overall Psychological Distress (N=416)

	Lifetime IPV (Baseline) OR (95% CI)	Past Six Months IPV (Baseline) OR (95% CI)	Past Six Months IPV (12-month follow-up) OR (95% CI)	PTSD OR (95% CI)	Overall Psychological Distress OR (95% CI)
Unadjusted Models					
Model 1: CSA (0-1 coding)	2.57 (1.30, 5.11) **	1.73 (1.07, 2.79) *	1.45 (.92, 2.28)	1.90 (1.18, 3.07) **	3.19 (1.76, 5.79) ***
Model 2: CSA (5 categories)					
No CSA (Reference)	--	--	--	--	--
CSA with someone 5+ years older	2.23 (.64, 7.80)	2.52 (.92, 6.90)	1.82 (.77, 4.32)	1.02 (.43, 2.39)	2.10 (.80, 5.49)
CSA involving force	2.97 (.66, 13.25)	1.62 (.63, 4.20)	1.19 (.53, 2.67)	1.62 (.66, 3.97)	2.76 (1.05, 7.28) *
CSA involving family	1.74 (.57, 5.36)	1.58 (.68, 3.66)	1.35 (.61, 3.03)	1.11 (.48, 2.58)	1.88 (.69, 5.09)
CSA involving family and force	3.13 (1.22, 8.06) **	1.63 (.91, 2.90)	1.48 (.85, 2.57)	2.80 (1.64, 4.79) ***	4.36 (2.27, 8.40) ***
Adjusted Models					
Childhood sexual abuse					
No CSA (Reference)	--	--	--	--	--
CSA with someone 5+ years older	1.52 (.37, 6.30)	2.54 (.82, 7.86)	1.52 (.54, 4.24)	.90 (.35, 2.32)	2.40 (.83, 6.96)
CSA involving force	3.38 (.63, 18.24)	1.53 (.50, 4.65)	1.35 (.48, 3.74)	1.42 (.51, 3.98)	2.83 (.97, 8.30)a
CSA involving family	1.37 (.39, 4.82)	1.30 (.51, 3.30)	1.19 (.46, 3.12)	.94 (.37, 2.35)	1.66 (.57, 4.85)
CSA involving family and force	1.95 (.60, 6.36)	.93 (.44, 1.97)	1.73 (.80, 3.77)	2.18 (1.15, 4.11) *	2.59 (1.22, 5.49) **
Age	.99 (.92, 1.07)	.97 (.91, 1.01)	1.02 (.96, 1.09)	.97 (.93, 1.02)	1.01 (.96, 1.06)
Race/ethnicity					
White/Other (Reference)	--	--	--	--	--

	Lifetime IPV (Baseline) OR (95% CI)	Past Six Months IPV (Baseline) OR (95% CI)	Past Six Months IPV (12-month follow-up) OR (95% CI)	PTSD OR (95% CI)	Overall Psychological Distress OR (95% CI)
Black/African American	2.42 (.77, 7.61)	2.52 (1.12, 5.68) [*]	.67 (.28, 1.57)	.69 (.33, 1.42)	.61 (.27, 1.41)
Latina/Hispanic	1.21 (.44, 3.27)	1.12 (.54, 2.33)	1.04 (.55, 1.96)	.42 (.22, . 82) ^{**}	.92 (.43, 1.93)
Log of annual income	2.14 (1.25, 3.66) ^{**}	1.15 (.78, 1.69)	1.13 (.65, 1.96)	.72 (.51, 1.03)	.79 (.53, 1.18)
Education	1.09 (.95, 1.26)	1.09 (.98, 1.22)	1.07 (.97, 1.19)	.93 (.84, 1.04)	.87 (.77, .98) [*]
Legal marital status					
Single, never married (Reference)	--	--	--	--	--
Divorced or separated	.41 (.16, 1.05)	.73 (.36, 1.47)	.75 (.40, 1.41)	1.43 (.71, 2.88)	1.62 (.80, 3.30)
Widowed	.29 (.09, .96) [*]	.40 (.16, .95) [*]	.73 (.29, 1.82)	3.53 (1.53, 8.16) ^{**}	1.20 (.44, 3.28)
Married	1.07 (.35, 3.28)	.60 (.28, 1.27)	.91 (.46, 1.79)	1.19 (.61, 2.36)	1.86 (.84, 4.13)
Years in methadone treatment	1.01 (.95, 1.07)	1.02 (.98, 1.07)	.97 (.93, 1.01)	.99 (.95, 1.04)	1.00 (.96, 1.05)
More than 1 main partner	2.52 (.78, 8.12)	1.18 (.56, 2.49)	1.09 (.54, 2.19)	1.30 (.72, 2.32)	1.55 (.78, 3.05)
Financial independence	1.48 (.66, 3.30)	.36 (.20, . 64) ^{***}	.54 (.31, .97) [*]	.70 (.39, 1.28)	1.37 (.72, 2.58)
Overall psychological distress	1.59 (.74, 3.41)	1.97 (1.09, 3.54) [*]	1.04 (.63, 1.72)	--	--
(Continuous coding)					
Posttraumatic stress disorder	2.91 (.85, 9.95)	2.31 (1.05, 5.09) [*]	1.09 (.58, 2.02)	--	--
HIV-positive status	2.16 (.67, 6.96)	1.47 (.69, 3.12)	.84 (.40, 1.75)	.70 (.37, 1.32)	1.05 (.51, 2.16)
Alcohol use	1.21 (.56, 2.61)	1.33 (.77, 2.29)	.76 (.47, 1.24)	1.36 (.81, 2.29)	1.38 (.78, 2.45)
Drug use	2.51 (1.15, 5.47) [*]	1.68 (.96, 2.93)	2.08 (1.23, 3.52) ^{**}	1.12 (.64, 1.96)	1.48 (.78, 2.79)

	Lifetime IPV (Baseline) OR (95% CI)	Past Six Months IPV (Baseline) OR (95% CI)	Past Six Months IPV (12-month follow-up) OR (95% CI)	PTSD OR (95% CI)	Overall Psychological Distress OR (95% CI)
Social support	1.31 (.74, 2.33)	1.07 (.72, 1.61)	1.27 (.81, 1.99)	.48 (.33, . 69)***	.54 (.36, .80) **
IPV in the past 6 months at baseline	--	--	4.67 (2.08, 10.51)***	3.03 (1.42, 6.48) **	2.67 (1.12, 6.34) *
Childhood physical abuse	2.66 (1.02, 6.94) *	1.45 (.75, 2.79)	.80 (.44, 1.47)	1.26 (.72, 2.20)	1.87 (1.03, 3.42) *

* $p < .05$

** $p < .01$.

*** $p < .001$.

a $p = .058$.