Published in final edited form as:
Psychol Trauma. 2012 November 1; 4(6): 605–613. doi:10.1037/a0026079.

Child Sexual Abuse and Adulthood Interpersonal Outcomes: Examining Pathways for Intervention

Brittain E. Lamoureux[1], **Patrick A. Palmieri**[2], **Anita P. Jackson**[3], and **Stevan E. Hobfoll**[4]

[2]Summa Health System

[3]Kent State University

[4]Rush University Medical Center

Abstract

We examined a dual pathway, longitudinal mediational model in which child sexual abuse (CSA) influences adulthood interpersonal functioning and sexual risk through its impact on resiliency resources and psychological distress. Women were recruited from two obstetrics and gynecological clinics serving primarily low-income, inner-city women (N = 693) and interviewed at pretest (Time 1) and 6-month follow-up (Time 2). The proposed mediators were resiliency resources (i.e., self-esteem and self-efficacy) and psychological distress (i.e., depressive and posttraumatic stress symptoms). The interpersonal outcomes were general interpersonal problems (measured via recent loss of interpersonal resources, lack of perceived current social support, and recent social conflict) and HIV/sexual risk (measured via lack of confidence asserting safe sex practices, intimate partner risk, and perceived barriers to safe sex). A respecified partial structural equation model implying full mediation supported our hypotheses (CFI = .96, RMSEA = .05, SRMR = .04). The impact of CSA on interpersonal problems was mediated through its effect on psychological distress, whereas the impact of CSA on HIV/sexual risk was mediated through its effect on resiliency resources. Implications for intervention are discussed.

Keywords

child sexual abuse; interpersonal relationships; sexual risk; resilience; psychopathology

Overview

A recent meta-analysis found that child sexual abuse (CSA) has affected as many as 25.3% of women in United States (Pereda, Guilera, Forns, & Gómez-Benito, 2009). CSA has consistently been linked with poor mental and physical health outcomes for adult women, including depression, posttraumatic stress disorder (PTSD), anger, physical symptoms, and medical diagnoses (Cutajar et al., 2010; Springer, Sheridan, Kuo, & Carnes, 2007). In addition to well-documented *intrapersonal* adulthood sequelae, the impact of CSA on *interpersonal* factors has more recently gained attention (Davis & Petretic-Jackson, 2000; DiLillo, 2001; Heiman, & Heard-Davison, 2004). Because of the intimate interpersonal

[1]Kent State University. To whom correspondence should be addressed at Kent State University, Department of Psychology, 144 Kent Hall, Kent, OH 44242. .

violation involved in CSA, survivors often experience negative outcomes related to interpersonal functioning, particularly intimate interpersonal functioning (Davis, Petretic-Jackson, & Ting, 2001). Among these outcomes, survivors of CSA are at an increased risk for contracting sexually transmitted diseases, including the Human Immunodeficiency Virus (HIV; Senn, Carey, & Venable, 2008).

Although the linkages between CSA and both interpersonal outcomes and adult sexual risk have long been considered theoretically, these models have less often been empirically validated. Even more seldom have these models considered mediating factors that might elucidate pathways for intervention. Importantly, though other researchers have investigated the impact of CSA on interpersonal relationships and adult sexual risk *separately*, this is the first known study to consider *both* within the same model. In the current study, we examined a dual pathway mediational model, such that CSA was examined as to its indirect effect on adulthood interpersonal outcomes and sexual risk via CSA's impact on increasing psychological distress and reducing women's personal resiliency resources. We analyzed longitudinal data from a large sample of inner-city women interviewed at pretest (Time 1) and 6-month follow-up (Time 2) to examine this model.

CSA, Interpersonal Adjustment, & Sexual Risk

CSA has been linked to poor social adjustment and general relationship problems (DiLillo, 2001). It has also been linked to negative intimate relationship outcomes, including decreased satisfaction in romantic relationships, intimate partner violence, and sexual assault in adulthood (Heiman & Heard-Davison, 2004; Liang, Williams, & Siegel, 2006; Messman-Moore & Long, 2003; Testa, VanZile-Tamsen, & Livingston, 2005). Furthermore, women who have experienced CSA demonstrate a greater prevalence of risky sexual behaviors, including having more sexual partners and having sexual partners who are more likely to be physically and sexually aggressive, more likely to have a history of risky sexual behaviors, and less likely to be willing to use condoms consistently (Cohen et al., 2000; Senn & Carey, 2010). These intimate interpersonal sequelae constitute an increased risk of contracting sexually transmitted diseases (STDs), including HIV (Senn et al., 2008). This is a critical area of study given the painful, debilitating, expensive, and often fatal course of HIV.

Potential Mediators: Resiliency Resources and Psychological Distress

Prior research on the impact of CSA on interpersonal outcomes and sexual risk has tended to look for direct effects which offer little insight into the mechanisms that produce this overall association, and therefore limited information to inform intervention. Several theories suggest that CSA has primary effects on both reducing women's personal resiliency resources, and at the same time, in increasing women's psychological distress, and that these in turn negatively impact interpersonal functioning. Both personal resiliency resources and psychological distress are particularly valuable as mediators, as they can effectively be targeted through psychological intervention and are thus potential pathways for improving interpersonal outcomes and decreasing sexual risk.

Self-esteem and self-efficacy are important personal resiliency resources that limit the negative impact of various stressors (Hobfoll, 1998). Self-esteem is most often conceptualized as a unidimensional, global sense of self-worth (Rosenberg, 1965). Women who have experienced CSA often have lower levels of both general and sexual self-esteem (Messman-Moore & Long, 2003). Self-efficacy is defined as individuals' sense of agency, or the belief about abilities to exert control over the self and the environment (Bandura, 1997). Self-efficacy is an important factor in how assertively individuals conduct themselves in relationships and how likely they are to protect themselves in risky sexual situations (Malow, Devieux, & Lucenko, 2006).

Looking first at CSA's impact on personal resiliency resources, conservation of resources theory (COR) (Hobfoll, 1988; 1989; 1998) posits that personal resiliency resources are reduced as a result of encountering major stressful events. COR theory further posits that traumatic stress has the impact of reducing resiliency resources across the lifespan in fundamental ways, making reestablishment of resources difficult as people enter lifetime loss cycles. Finkelhor and Brown (1985) have suggested similarly that decreasing self-esteem and sense of personal efficacy are two principal resiliency deficits that follow CSA. They further argue that these two personal resources are basic to developing healthy, intimate relationships.

In considering the mediating effects of psychological distress, several theories hypothesize that interpersonal deficits follow from CSA's primary impact on psychological distress and associated disturbance in women's cognitions (Davis & Petretic-Jackson, 2000). Thus, several theories overlap in suggesting that psychological distress increases following CSA and that those women with greater psychological distress may feel unworthy of positive relationships, not know how to behave in relationships in healthy ways, and may oversexualize romantic ties (Briere, 1992; Finkelhor & Browne, 1985). At the same time, cognitive distortions may impair their ability to trust others, which can lead to ambivalence about interpersonal closeness and heightened fear of abandonment (Briere, 1992). Further, Polusny and Follette (1995) suggest that those who experience CSA are likely to be high in avoidance, which makes it difficult to be emotionally close and motivates them to avoid intimacy. As depression and PTSD are among the most frequently examined outcomes of CSA and as these two indicators of psychological distress are closely related to the cognitive and emotional outcomes implied by the mediational models that have been theorized, we considered them the best indicators to assess and examine (Polusny & Follette, 1995; Rodriguez, Ryan, Van de Kamp, & Foy, 1997; Roosa, Reinholtz, & Angelini, 1999).

Thus COR theory and the lifetime impact of psychological distress would combine to mediate the impact of CSA on interpersonal outcomes. These two models further beg the question of whether the mediation via loss of resiliency resources and psychological distress are one in the same, or independent. We have little evidence for or against this supposition, but the theories we have reviewed present the two pathways separately and as such we would predict independent (although somewhat overlapping) pathways. While these outcomes surely influence one another, we felt it important to investigate them separately to highlight the possibility of differential mechanisms of influence for CSA on the outcomes. Importantly, in asserting this dual-pathway mediational model we are not suggesting that interpersonal difficulties do not mediate the impact of CSA on resiliency resources and psychological distress. It is likely that both processes co-occur, this being the basis of the transactional stress model (Lazarus & Folkman, 1984).

The Current Study

We sought to add to the current understanding of the negative impact of CSA on adulthood interpersonal problems and HIV/sexual risk. We investigated the following hypotheses with respect to these relationship outcomes.

1. Experience of CSA would be related to poorer relationship outcomes.
2. The effect of CSA on adult relationships would be mediated by resiliency resources (i.e., self-esteem and self-efficacy), such that CSA would negatively impact relationship outcomes via its impact on lowering resiliency resources.
3. The effect of CSA on adult relationships would be mediated by psychological distress (i.e., symptoms of depression and PTSD), such that CSA would negatively impact relationship outcomes via its impact on increasing depression and PTSD.

4. These mediating effects of resiliency resources and psychological distress each would contribute uniquely to these adult relationship outcomes. This would be a critical finding as psychological distress and symptoms and the lack of resiliency resources are often seen as two sides of the same coin, rather than having independent sources and influences.

Method

Participants

A sample of 693 women was recruited from two obstetrics and gynecological clinics serving primarily low-income, inner-city populations. Participants were recruited as part of an ongoing HIV risk reduction project. Women were considered eligible to participate in the study if they were between the ages of 16 and 29, not living with a partner for more than 6 months, not in the third trimester of pregnancy, and demonstrating minimal sexual risk (see Hobfoll, Jackson, Lavin, Johnson, & Schroder, 2002, for more specific inclusion criteria). Most single women in non-monogamous relationships met study criteria.

The sample was 64.1% African American and 30.3% European American. The mean age of participants was 21 years, ranging from 16 to 29 years of age. Sixty-one percent of women had attained at least a high school diploma. Over half (53.6%) of all participants reported an annual household income of less than $10,000, though 39.7% reported being employed. Most women had never been married (90.6%).

Measures

Child sexual abuse—CSA was measured using six self-report items from the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1994) that specifically relate to sexual experiences of abuse. These items measure the frequency of sexual abuse on a 5-point scale, with possible responses of *never true*, *rarely true*, *sometimes true*, *often true*, and *very often true*. This subscale has demonstrated high test-retest reliability and significant convergent validity with the sexual abuse items from the Childhood Trauma Interview (Bernstein et al., 1994). This questionnaire has also demonstrated sound psychometric properties for inner-city women (Schumm, Hobfoll, & Keogh, 2004). In this study, we treated CSA as a dichotomous variable (0 = no CSA, 1 = CSA). Those participants who responded *never true* to all items comprised the no CSA group; those participants who responded in the affirmative to one or more of the items comprised the CSA group. Past studies indicate that the greatest difference is between having, or not having, been abused (Schumm, Briggs-Phillips, & Hobfoll, 2006).

Resiliency Resources—Self-esteem and self-efficacy were assessed at Time 1. *Self-esteem* was measured using the Rosenberg (1965) Self-Esteem Scale, a ten item self-report inventory. Participants responded to items along a 4-point Likert scale from 1 (*strongly agree)* to 4 (*strongly disagree)*. Previous research has demonstrated this measure's internal consistency, test-retest reliability, construct validity, and discriminant validity (Blascovich & Tomaka, 1991). Item responses were summed to yield a total self-esteem score ($\alpha = .89$). *Self-Efficacy* was measured using the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995). This 10 item self-report inventory assesses a general level of perceived self-efficacy using a 7 point Likert scale, ranging from 1 (*not at all true*) to 7 (*exactly true*). This instrument has demonstrated good internal consistency, test-retest reliability, and criterion validity (Luszczynska, Scholz, & Schwarzer, 2005). Items in this scale were summed to yield a total self-efficacy score ($\alpha = .82$).

Psychological Distress—Severity of depressive and posttraumatic stress symptoms were measured at Time 1. *Depressive symptom severity* was assessed using the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). Women indicated how often they had experienced various symptoms of depression in the past week by responding on a 4-point scale from 0 (*rarely or none of the time)* to 3 (*most or all of the time)*. This scale has demonstrated high concurrent and construct validity, as well as good test-retest reliability and internal consistency (Radloff, 1977). Items in this scale were summed to yield a total severity score for depressive symptomatology (α = .89). *PTSD symptom severity* related to abuse or assault was measured using the PTSD Symptom Scale Interview (PSS-I; Foa, Riggs, Dancu, & Rothbaum, 1993). Participants were asked whether they had experienced a period in their lives when they felt very troubled or upset due to abuse or assault. Those women who responded negatively to this item were not asked any further questions about their PTSD symptoms and were assigned a scale score of zero. Those women who responded positively to this item were then asked to indicate how much they had experienced the various symptoms in the prior two weeks from 1 (*not at all)* to 4 (*very much*). Importantly, PTSD was not assessed relative to experiences of childhood sexual abuse specifically, but to experiences of abuse and assault in general. This scale has demonstrated good internal consistency, test-retest reliability, concurrent validity, and convergent validity among similar, trauma-based populations (Foa et al., 1993; Foa & Tolin, 2000; Schumm et al., 2005). Items in this scale were summed to yield a total severity score for PTSD symptomatology (α = .96).

Interpersonal Problems—Interpersonal resource loss, relationship conflict, and lack of social support were assessed at Time 2. *Interpersonal resource loss* was measured using items from the Conservation of Resources Evaluation (COR-E; Hobfoll & Lilly, 1993) related to interpersonal relationships. Participants indicated the degree of loss (or threat of loss) of various interpersonal resources they had experienced in the previous three months along a 4-point scale, with possible responses of *no threat or loss*, *some threat or loss*, *a great deal of threat or loss*, or *not applicable*. This subscale of the COR-E has demonstrated adequate internal reliability and concurrent and predictive validity in community based samples (Hobfoll & Lilly, 1993; Schumm, Hobfoll & Keogh, 2004). Items in this scale were summed to yield a total score for interpersonal resource loss (α = .93). *Relationship conflict* was assessed using five items addressing the frequency of interpersonal conflicts in the past four weeks. Participants indicated whether they had experienced problems, arguments, serious disagreements, excessive demands, and angry or upset feelings in their close relationships by responding from 1 (*never*) to 5 (*very often*). Items in this scale were summed to yield a total score for relationship conflict (α = .89). *Lack of social support* was measured using 10 items from the Social Provisions Scale (SPS; Cutrona & Russell, 1987). Women responded to questions about their *current* relationships with their friends and family by answering *no, sometimes, yes*, or *not sure*. Responses of *not sure*were treated as missing for these analyses. This measure has demonstrated adequate reliability and validity (Cutrona & Russell, 1987). For this study, this scale was reverse-scored to yield a measure of perceived lack of social support. Items in this scale were summed to yield a total score to reflect lack of social support (α =.82).

HIV/Sexual Risk—Lack of confidence negotiating safe sex, barriers to practicing safer sex, and partner risk severity were measured at Time 2. *Lack of confidence negotiating safe sex* was assessed following Bandura's (1997) method for applying self-efficacy to a specific target goal. Items measured women's confidence in negotiating safe sex behaviors with their current or most recent partner. Sample behaviors included "bringing up issues of condoms or safe sex in conversations" and "refusing to have sex if he doesn't agree to safe sex." This scale was reverse-scored to yield a measure of lack of confidence negotiating safe sex. Items

in this scale were summed to yield a total score to reflect a lack of confidence negotiating safe sex (α = .85). *Barriers to practicing safer sex* was assessed using a subset of items from the Barriers to Practicing Safer Sex Scale (Hobfoll, Jackson, Lavin, Britton, & Shepherd, 1994). Participants responded to items along a 4-point Likert scale from 1 (s*trongly disagree)* to 4 (s*trongly agree*). The Barriers to Practicing Safer Sex Scale overall has demonstrated sufficient internal consistency and construct validity (Hobfoll et al., 1994). For this study, items which reflected the belief that one was not at risk due to abstinence or a monogamous relationship with an uninfected partner were not included (items 1, 2, 7, and 8) so that the scale would reflect women's reasons for not practicing safe sex when they believe there is some risk involved. This subset of items demonstrated strong internal consistency (α = .82) for this sample. *Partner risk severity* was measured via four items assessing the likelihood of past partners having common HIV risk factors: use of intravenous drugs, multiple sex partners, serving time in prison, and sex with other men. As with similar life events scales, responses to the items in this scale should not necessarily be consistent across items. Thus, it is not appropriate to subject these responses to analysis of internal consistency. Items in this scale were summed to yield a total score for partner risk severity.

Procedure

Recruitment—Potential participants were approached by trained female psychology graduate students as they waited for their medical appointments at one of the two obstetrics and gynecological clinics. Women who met criteria for participation then provided informed consent. If the participant was under the age of 18, consent of the parent or guardian was obtained in addition to participant assent. Approximately 80% of women who met criteria for participation agreed to participate at Time 1.

Questionnaire administration—A questionnaire including the above measures was administered orally by female psychology graduate students who underwent extensive training and ongoing supervision by two experienced, multiculturally-expert clinicians. This method was used so that interviewers could address any difficulties participants might have understanding the questions, as well as contradictions detected in participants' responses. The interviewers were trained to administer the questionnaire in a standard format, to provide explanation for questions should the content not be comprehended, and in techniques for handling the sensitive issues addressed by the questionnaire. Interviewers reported to a clinical supervisor any symptom endorsement that met or exceeded recommended clinical cutoffs for depression or PTSD. At Time 1, 404 (58.6%) of participants met criteria for depression and 124 (17.9%) met criteria for PTSD. At Time 2, 148 (39.8%) of participants met criteria for depression and 77 (11.1%) met criteria for PTSD. Such participants were referred and contacted for follow-up accordingly.

Following the initial interview, participants were randomly assigned to one of three conditions in the Women's Health Empowerment Study (for a further detailed description see Hobfoll et al., 2002): a small group, 6-session communally oriented HIV prevention intervention (Accelerating Capacity for Conflict Exposure Negotiation Training; ACCENT), a 6-session general health promotion intervention control (General AIDS Competency; GAC) or a one-session brochure-based standard care control (SCC). The same questionnaire was administered at pretest (Time 1) and 6-month post-treatment follow-up (Time 2). Although the intervention was seen as potentially affecting the magnitude of the outcome variables, it should not affect the pattern of relationships among the variables. The impact of group membership on study variables was investigated via multigroup modeling to determine if model fit varied by intervention group.

Analytic Approach

We evaluated a partial structural equation model (SEM) to investigate the hypotheses that CSA is related to negative interpersonal outcomes and that this relationship is mediated by resiliency resources and psychological distress. Raw data were submitted to EQS 6.1 software (Bentler, 2006) for analysis using maximum likelihood parameter estimation. CSA was included in the model as a dichotomous, observed variable. We investigated two latent factors, resiliency resources and psychological distress, as mediating variables. Resiliency resources were measured by the indicator variables self-esteem and self-efficacy. Psychological distress was measured via indicator variables accounting for depressive and posttraumatic stress symptoms. In this model, the disturbance terms for resiliency resources and psychological distress were allowed to be correlated due to the strong correlation typically observed between these factors. Two latent outcome variables were included to assess interpersonal problems and HIV/sexual risk. Interpersonal problems were measured by scales assessing interpersonal resource loss, lack of social support, and social conflict. Intimate relationship risk was measured via indicators of confidence negotiating safe sex, intimate partner risk, and barriers to practicing safer sex.

In order to test the hypothesis that resiliency resources and psychological distress mediate the relationship between CSA and interpersonal outcomes, a certain temporal relationship had to be established between these variables. Thus, CSA and indicators of resiliency resources and psychological distress were measured at Time 1 (pretest). Though experience of CSA was assessed at the same time as resiliency resources and psychological distress, CSA was reported retrospectively while the other variables were related to participant characteristics at the time of the initial questionnaire (Time 1). As participants were all at least 16 years old and CSA was defined as occurring at age 15 or younger, the experience of CSA necessarily predates the interview. Indicators of the outcome variables interpersonal problems and HIV/sexual risk were measured at Time 2 (6-month follow-up).

Model fit was assessed using the chi-square goodness of fit statistic, comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). Less weight will be given to the chi square statistic, as significant values are common for models with large sample sizes. In general, CFI values greater than .90 and RMSEA values less than .06 are considered to indicate reasonably good model fit (Hu & Bentler, 1999). SRMR values less than .10 typically indicate good model fit (Kline, 2005).

Results

Descriptive Results

Two hundred seventy-one (39.1%) participants indicated that they had experienced some form of CSA prior to the age of 16. One hundred seventy-nine (27.0%) reported that they had been sexually molested (i.e., touching of breasts, vagina, or anus) and 152 (21.9%) reported that they had experienced sexual penetration (oral, vaginal, or anal). Means, standard deviations, and correlations for all study variables are shown in Tables 1 and 2. Mean differences for participants who had experienced CSA versus those who had not were significant for all study variables except for Time 2 barriers to safer sex, which was marginally significant (see Table 1). Of note, women in this sample who had experienced CSA were no more likely to have experienced childhood physical or emotional abuse (97.1%) than women who had not (94.3 %). However, women who had experienced CSA were more likely to have also experienced sexual abuse in adulthood (62.1%) than women who had not experienced CSA (23.8%).

The attrition rate for this sample was 47.8% from Time 1 to Time 2. An examination of differences between women with (n=362) and without (n=331) complete data revealed that women in the ACCENT and GAC intervention were more likely to drop out than women in the SCC group and European American women were more likely to drop out than African American women. There were no significant differences between women with and without complete data on any other study variables. Study variables demonstrated sufficient univariate (all skewness ≤ 2.48, all kurtosis ≤ 7.02) and multivariate normality (all Mardia's coefficients ≤ 19.82, with normalized estimates ≤ 11.83) for SEM analysis.

Measurement Model

A measurement model for the hypothesized model was tested using confirmatory factor analysis (CFA) with all indicator variables specified to load only on their hypothesized factors. The four factor model (Time 1 resiliency resources, Time 1 psychological distress, Time 2 interpersonal problems, and Time 2 HIV/sexual risk) fit the data well, χ^2 (29, N = 362) = 48.13, $p < .05$; CFI = .98; RMSEA = .04; SRMR = .04. All factor loadings were significant at $p < .05$.

Structural Models

The hypothesized structural model was analyzed to investigate the proposed impact of CSA on interpersonal problems and HIV/sexual risk, in part, through its effects on resilience and psychological distress. Importantly, this was a partial mediation model, including pathways of both direct (i.e., CSA → interpersonal problems and HIV/sexual risk) and indirect effects (i.e., CSA → resiliency resources and psychological distress → interpersonal problems and HIV/sexual risk). The chi square test was significant, χ^2 (35) = 72.99, $p < .001$, but other fit indices indicated good model fit (CFI = .96, RMSEA = .06, SRMR = .04). The following paths were not significant at the $p < .05$ level: psychological distress to HIV/sexual risk, resiliency resources to interpersonal problems, and CSA to both interpersonal problems and HIV/sexual risk.

A re-specified model that excluded the direct paths from CSA to interpersonal problems and HIV/sexual risk, thus implying full mediation of the effects of CSA on the relationship outcomes via resilience and psychological distress, was then analyzed. The chi square test was significant, χ^2 (37) = 76.40, $p < .001$, but other fit indices indicated good fit (CFI = .96, RMSEA = .05, SRMR = .04). All paths in this model were statistically significant except for two: 1) resiliency resources to interpersonal problems and 2) psychological distress to HIV/sexual risk. A chi-square difference test indicated that this model does not fit significantly worse than the previous model, indicating that the effect of CSA on these outcomes is fully mediated through its impact on resiliency resources and psychological distress, χ^2 (2) = 3.41, $p = .18$.

Results of the full mediation model are provided in Figure 1. CSA had a significant negative impact on resiliency resources (−2.15, standardized estimate = −0.24) and increased psychological distress (7.24, standardized = 0.40) as hypothesized. Fewer resiliency resources at Time 1, in turn, was associated with significantly greater HIV/sexual risk (−0.43, standardized = − 0.39) at Time 2. Greater psychological distress at Time 1 was associated with significantly greater interpersonal problems (0.23, standardized = 0.67) at Time 2. The model explained a substantial amount of variance in interpersonal problems (R^2 = 0.38) and HIV/sexual risk (R^2 = 0.29).

Finally, multigroup analyses were conducted to investigate whether the hypothesized, full mediation model fit equally well across the three intervention groups. First, the multigroup model was run with all corresponding paths left to vary across intervention group, χ^2 (111)

= 156.00, $p < .01$; CFI = .95; RMSEA = .06; SRMR = .06. Next, the multigroup model was run with all corresponding paths constrained to be equivalent across intervention group, χ^2 (135) = 190.94, $p < .01$; CFI = .94; RMSEA = .06; SRMR = .08. A chi-square difference test indicated that the constrained model did not fit significantly worse than the unconstrained model, indicating that the model fit was reasonably equivalent across intervention group, χ^2 (24) = 34.94, $p = .07$. A series of follow-up chi-square difference tests was conducted for each pathway separately (using a more conservative alpha level of .01 due to the number of tests conducted), given that the chi-square difference test for the full model was marginally significant. Results revealed that each pathway was reasonably equivalent across intervention group.

Discussion

This study represents the first known model to investigate the impact of CSA on both interpersonal problems and sexual risk in adulthood, as well as to consider mediators which might illuminate pathways for intervention for these outcomes. Our findings support the dual pathway model and full mediation of the impact of CSA on adulthood relationships through personal resiliency resources and psychological distress. They suggest that the experience of CSA undermines women's personal resilience and psychological functioning to adversely impact important aspects of adult women's interpersonal relationships and sexual health risk in intimate relationships. As hypothesized, the experience of CSA was significantly linked to fewer personal resiliency resources and greater psychological distress in adulthood. These variables, in turn, were significantly associated with interpersonal problems and HIV/sexual risk, though not exactly as predicted. Rather than resiliency resources and psychological distress each influencing both outcomes, our results indicated that resiliency resources only mediated the impact of CSA on HIV/sexual risk and psychological distress only mediated the impact of CSA on interpersonal problems. However, as resiliency resources and psychological distress are negatively correlated, it is likely that resiliency resources indirectly impact interpersonal problems to the extent that they affect psychological distress and that psychological distress indirectly impacts HIV/sexual risk to the extent that it affects resiliency resources.

Our findings are notable in several respects. First, this is one of the largest longitudinal studies of the impact of child sexual abuse on a period of high-risk women's lives. Further, the use of a community sample that is representative of the population of interest increases our confidence in the generalizability of these findings. The women who participated in this study were selected using criteria that placed them in a group that was in the process of forming new intimate attachments or sustaining relatively young romantic relationships. This, along with other sociodemographic factors, places these women in a population which is at a high risk for contracting STDs and experiencing relationship violence. Thus, from a public health standpoint, our sample represents a group of women for whom such research is crucial.

Limitations and Future Directions

Because our study concerned a large group of high-risk, low-income inner-city women, findings cannot be assumed to generalize to all women. Women in this sample were also involved in a health intervention study, which may have affected our findings. Despite this limitation, our multigroup analyses clearly indicated that the model fit well regardless of intervention group membership. This supports the notion that the pattern of relationships among these variables is independent of the health intervention that women experienced. Furthermore, our relatively high attrition rate (47.8%) may limit the generalizability of our findings. Analyses showed that women in the ACCENT and GAC intervention were more likely to drop out than women in the SCC group, likely because these interventions required

a much greater time commitment than the SCC. Also, European American women were more likely to drop out than African American women, which may have been due to European wome's more transitory status in this population. Importantly, these differences in attrition were not significantly related to model variables.

Reliance on self-report data is a difficult issue when studying the impact of child sexual abuse, as this report is retrospective and in many instances cannot be corroborated by either legal or medical records or by someone else in survivors' lives (Shaffer, Houston, & Egeland, 2008; Widom & Morris, 1997). Given that this study examined CSA as a dichotomous experience, it is likely that this retrospective self-report is less problematic than might be if examining specific details of the experience (Widom & Morris, 1997). Also, research has shown that the self-report of childhood maltreatment can be a better predictor of psychological symptomatology than the objective identification of maltreatment (McGee, Wolfe, Yuen, Wilson, & Carnochan, 1995).

This study has other important limitations related to assessment. First, symptoms of PTSD were not assessed only relative to experiences of CSA, but related to experiences of abuse and assault more broadly. Thus, it is possible that participants were responding to items relative to a non-CSA target trauma. Second, several measures used differing time periods for assessment. Though in most cases it was advisable to use the measure to assess the time period for which it was designed and validated, it would have been ideal to have a more common assessment interval. Finally, utilization of mental health services between the two assessment points was not measured. Therefore, it is possible that some participants may have experienced an intervention after Time 1 assessment that led to changes in resiliency resources and/or psychological distress prior to Time 2 measurement.

Our model provides a convincing argument that CSA is a significant contributor to relationship problems in adulthood through its impact on resiliency resources and psychological distress. Yet as with any structural equation model, other plausible models exist. Other research suggests that factors related to family environment, including maternal attachment, may be particularly important to consider (Liang et al., 2006).

Implications for Intervention

We have highlighted interpersonal functioning and sexual risk as important aspects of overall functioning. Psychological interventions commonly employed for women who have experienced CSA generally focus on decreasing psychological distress (Foa, Keane, & Friedman, 2000). Our findings partially support this focus, as decreasing psychological distress significantly led to more supportive and less conflictual interpersonal relationships. Yet, these findings also indicate that interventions to decrease sexual risk in inner-city women would do well to target personal resiliency resources. This possible differential impact should be considered in treatment planning and intervention development.

First-line treatments for PTSD and trauma-related depression, Prolonged Exposure (Foa, Hembree, & Rothbaum, 2007) and Cognitive Processing Therapy (Resick & Schnicke, 1996), are indicated to decrease psychological distress in women who have experienced CSA. Therapies related to positive psychology concepts such as Frederickson's (2001) "broaden-and-build" model may also work well with women with CSA history, such that their strengths and positive emotions could be better developed and become more generalized to positive relationship behaviors. The findings are also consistent with psychoeducational treatments, such as Dialectical Behavior Therapy (DBT; Linehan, 1993), that teach women how to better understand and react to emotions and how to seek comfort in positive ways. Another strength of DBT for women who have experienced CSA is an explicit focus on increasing interpersonal effectiveness. These aspects of the treatment aim

to help women better understand the factors at play in interpersonal interactions and how to communicate more assertively and effectively. Certainly these skills could directly benefit both general interpersonal functioning and safety behaviors in sexual relationships.

Overall, our findings suggest that increasing the emphasis on bolstering resiliency resources is potentially valuable, given that the majority of intervention research emphasizes psychopathology as an indicator of outcome rather than how well individuals are functioning and building their psychosocial resources. As research trends move from pathology to resiliency models, it will be important to remember that these are partially overlapping and partially independent processes. Those with psychopathology still possess attributes that support their wellness and good functioning and those who are more resilient may still have some symptoms of distress that undermine their relationships and increase their relationship conflict.

Acknowledgments

This study was funded by NIH Grant 2 R01 MH45669. This manuscript and the longitudinal data herein have, in part, been previously presented in part at conferences of the American Psychological Association and the International Society for Traumatic Stress Studies.

References

Bandura, A. Self-efficacy: The exercise of control. Freeman; New York: 1997.

Bentler, PM. EQS 6.1 for Windows (Build 90) [Computer software]. Multivariate Software, Inc.; Encino, CA: 2006.

Bernstein DP, Fink L, Handelsman L, Foote J, Lovejoy M, Wenzel K, Sapareto E, Ruggiero J. Internal reliability and validity of a new retrospective measure of child abuse and neglect. American Journal of Psychiatry. 1994; 151:1132–1136. [PubMed: 8037246]

Blascovich, J.; Tomaka, J. Measures of self-esteem. In: Robinson, JP.; Wrightman, LS.; Andrews, FM., editors. Measures of Personality and Social Psychology Attitudes: Volume 1 in Measures of Social Psychological Attitudes Series. Academic Press; San Diego, CA: 1991. p. 115-160.

Briere, J. Child abuse trauma: Theory and treatment of the lasting effects. SAGE; Newbury Park, CA: 1992.

Cohen M, Deamant C, Mark S, Richardson J, Young M, Holman S, et al. Domestic violence and childhood sexual abuse in HIV-infected women and women at risk for HIV. American Journal of Public Health. 2000; 90:560–565. [PubMed: 10754970]

Cutajar MC, Mullen PE, Ogloff JRP, Thomas SD, Wells DL, Sparato J. Psychopathology in a large cohort of sexually abused children followed for up to 43 years. Child Abuse & Neglect. 2010; 34:813–822. [PubMed: 20888636]

Cutrona, CE.; Russell, D. The provisions of social relationships and adaptation to stress. In: Jones, WH.; Perlman, D., editors. Advances in personal relationships. Vol. Vol. 1. JAI Press; Greenwich, CT: 1987. p. 37-67.

Davis JL, Petretic-Jackson PA. The impact of child sexual abuse on adult interpersonal functioning: A review and synthesis of the empirical literature. Aggression and Violent Behavior. 2000; 5(3):291–328.

Davis JL, Petretic-Jackson PA, Ting L. Intimacy dysfunction and trauma symptomatology: Long-term correlates of different types of child abuse. Journal of Traumatic Stress. 2001; 14:63–79.

DiLillo D. Interpersonal functioning among women reporting a history of childhood sexual abuse: Empirical findings and methodological issues. Clinical Psychology Review. 2001; 21(4):553–576. [PubMed: 11413867]

Finkelhor D, Browne A. The traumatic impact of child sexual abuse: A conceptualization. American Journal of Orthopsychiatry. 1985; 55:530–541. [PubMed: 4073225]

Foa, EB.; Hembree, EA.; Rothbaum, BO. Prolonged Exposure Therapy for PTSD: Emotional Processing of Traumatic Experiences. Oxford University Press; New York, NY: 2007.

Foa, EB.; Keane, TM.; Friedman, MJ. Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies. Guilford Press; New York: 2000.

Foa EB, Riggs DS, Dancu CV, Rothbaum BO. Reliability and validity of a brief instrument for assessing post-traumatic stress disorder. Journal of Traumatic Stress. 1993; 6:459–473.

Foa EB, Tolin DF. Comparison of the PTSD Symptom Scale–Interview Version and the Clinician-Administered PTSD Scale. Journal of Traumatic Stress. 2000; 13:181–191. [PubMed: 10838669]

Frederickson B. The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. American Psychologist. 2001; 56:218–226. [PubMed: 11315248]

Heiman, JR.; Heard-Davison, AR. Child sexual abuse and adult sexual relationships: Review and perspective. In: Koenig, LJ.; Doll, LS.; O'Leary, A.; Pequegnat, W., editors. From Child Abuse to Adult Sexual Risk: Trauma, Revictimization, and Intervention. American Psychological Association; Washington, D.C.: 2004.

Hobfoll, SE. The ecology of stress. Hemisphere; New York: 1988.

Hobfoll SE. Conservation of resources: A new attempt at conceptualizing stress. American Psychologist. 1989; 44:513–524. [PubMed: 2648906]

Hobfoll, SE. Stress, Culture, and Community: The Psychology and Philosophy of Stress. Plenum; New York: 1998.

Hobfoll SE, Jackson AP, Lavin J, Britton PJ, Shepherd JB. Women's barriers to safer sex. Psychology and Health. 1994; 9:233–252.

Hobfoll SE, Jackson AP, Lavin J, Johnson RJ, Schroder KEE. Effects and generalizability of communally oriented HIV-AIDS prevention versus general health promotion groups for single, inner-city women in urban clinics. Journal of Consulting and Clinical Psychology. 2002; 70(4): 950–960. [PubMed: 12182278]

Hobfoll SE, Lilly RS. Resource conservation as a strategy for community psychology. Journal of Community Psychology. 1993; 21:128–148.

Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling. 1999; 6:1–55.

Kline, RB. Principles and practice of structural equation modeling. 2nd ed. Guilford Press; New York: 2005.

Lazarus, RS.; Folkman, S. Stress, Appraisal, and Coping. Springer; New York, NY: 1984.

Liang B, Williams LM, Siegel JA. Relational outcomes of childhood sexual trauma in female survivors: A longitudinal study. Journal of Interpersonal Violence. 2006; 21(1):42–57. [PubMed: 16399923]

Linehan, M. Cognitive-behavioral treatment of borderline personality disorder. The Guilford Press; New York: 1993.

Luszczynska A, Scholz U, Schwarzer R. The general self-efficacy scale: Multicultural validation studies. The Journal of Psychology. 2005; 139:439–457. [PubMed: 16285214]

Malow R, Devieux J, Lucenko BA. History of childhood sexual abuse as a risk factor for HIV risk behavior. Journal of Trauma Practice. 2006; 5:13–32.

McGee RA, Wolfe DA, Yuen SA, Wilson SK, Carnochan J. The measurement of maltreatment: A comparison of multiple approaches. Child Abuse & Neglect. 1995; 19:233–249. [PubMed: 7780784]

Messman-Moore TL, Long PJ. The role of childhood sexual abuse sequelae in the sexual revictimization of women: An empirical review and theoretical reformulation. Clinical Psychology Review. 2003; 23:537–571. [PubMed: 12788109]

Pereda N, Guilera G, Forns M, Gómez-Benito J. The prevalence of child sexual abuse in community and student samples: A meta-analysis. Clinical Psychology Review. 2009; 29:328–338. [PubMed: 19371992]

Polusny MA, Follette VM. Long-term correlates of child sexual abuse: Theory and review of the empirical literature. Applied and Preventative Psychology. 1995; 4:148–166.

Radloff LS. The CES-D scale: A self-report depression scale for research in the general population. Applied Psychological Measurement. 1977; 1:385–401.

Resick, PA.; Schnicke, MK. Cognitive processing therapy for rape victims: A treatment manual. Sage; Newbury Park, CA: 1996.

Rodriguez N, Ryan SW, Vande Kamp H, Foy DW. Postraumatic stress disorder in adult female survivors of childhood sexual abuse: A comparison study. Journal of Consulting and Clinical Psychology. 1997; 65:53–59. [PubMed: 9103734]

Rosenberg, M. Society and the Adolescent Self-Image. Princeton University Press; Princeton, NJ: 1965.

Roosa MW, Reinholtz C, Angelini P. The relation of child sexual abuse and depression in young women: Comparisons across four ethnic groups. Journal of Abnormal Child Psychology. 1999; 27:65–76. [PubMed: 10197407]

Schumm JA, Briggs-Phillips M, Hobfoll SE. Cumulative interpersonal traumas and social support as risk and resiliency factors in predicting PTSD and depression among inner-city women. Journal of Traumatic Stress. 2006; 19:825–836. [PubMed: 17195981]

Schumm JA, Hobfoll SE, Keogh NJ. Revictimization and interpersonal resource loss predicts PTSD among women in substance-use treatment. Journal of Traumatic Stress. 2004; 17:173–181. [PubMed: 15141791]

Schumm JA, Stines LR, Hobfoll SE, Jackson AP. The double-barreled burden of child abuse and current stressful circumstances on adult women: The kindling effect of early traumatic experience. Journal of Traumatic Stress. 2005; 18:467–476. [PubMed: 16281244]

Schwarzer, R.; Jerusalem, M. Generalized self-efficacy scale. In: Weinman, J.; Wright, S.; Johnston, M., editors. Measures in health psychology: A users portfolio. Causal and control beliefs. Nfer-Nelson; Windsor, UK: 1995. p. 35-37.

Senn TE, Carey MP. Child Maltreatment and Women's Adult Sexual Risk Behavior: Childhood Sexual Abuse as a Unique Risk Factor. Child Maltreatment. 2010; 15:324–335. [PubMed: 20930181]

Senn TE, Carey MP, Venable PA. Childhood and adolescent sexual abuse and subsequent sexual risk behavior: Evidence from controlled studies, methodological critique, and suggestions for research. Clinical Psychology Review. 2008; 28:711–735. [PubMed: 18045760]

Shaffer A, Houston L, Egeland B. Identification of child maltreatment using prospective and self-report methodologies: A comparison of maltreatment incidence and relation to later psychopathology. Child Abuse & Neglect. 2008; 32:682–692. [PubMed: 18638626]

Springer KW, Sheridan J, Kuo D, Carnes M. Long-term physical and mental health consequences of childhood physical abuse: Results from a large population-based sample of men and women. Child Abuse and Neglect. 2007; 31:517–530. [PubMed: 17532465]

Testa M, VanZile-Tamsen C, Livingston JA. Childhood sexual abuse, relationship satisfaction, and sexual risk taking in a community sample of women. Journal of Consulting and Clinical Psychology. 2005; 73(6):1116–1124. [PubMed: 16392972]

Widom CS, Morris S. Accuracy of adult recollections of childhood victimization, part 2: Childhood sexual abuse. Psychological Assessment. 1997; 9:34–46.

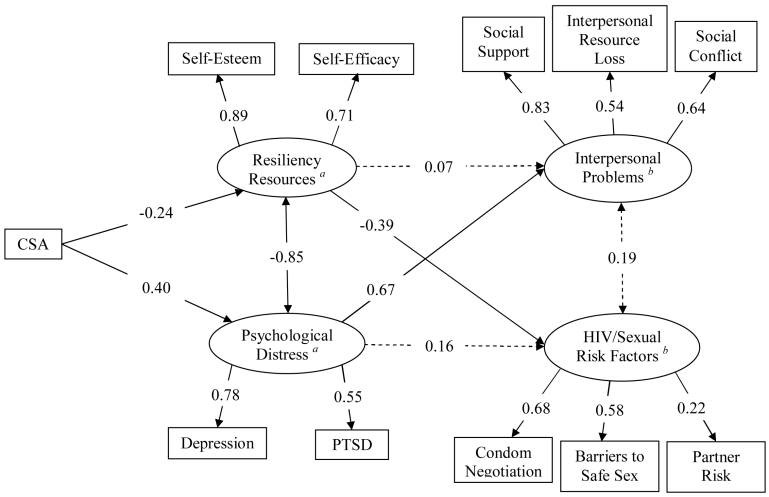

Figure 1.

Hypothesized structural equation model with standardized path estimates. CSA = Child Sexual Abuse. PTSD = Posttraumatic Stress Disorder, ^{a} measured at Time 1, ^{b} measured at Time 2. χ^2 (37) = 76.40, $p < .001$; CFI = .96; RMSEA = .05; SRMR = .04. Paths with solid lines are significant at $p < 0.05$.

Table 1

Means, Standard Deviations, and t-test Results for Model Variables by CSA Group

	No CSA (*n* = 422) M(SD)	CSA (*n* = 271) M(SD)	*t*
Self-Esteem [a]	22.26(4.64)	20.58(5.16)	4.46***
Self-Efficacy [a]	53.34(9.52)	51.13(9.86)	2.94**
Depressive Symptoms [a]	17.50(10.86)	23.39(11.04)	−6.91***
PTSD Symptoms [a]	3.31(8.28)	10.22(12.40)	−8.05***
Lack of Social Support [b]	3.18(3.10)	4.91(4.16)	−4.22***
Interpersonal Resource Loss [b]	1.79(2.12)	2.38(2.44)	−2.35*
Social Conflict [b]	9.35(5.75)	11.75(5.75)	−3.92***
Poor Condom Negotiation [b]	3.54(6.70)	5.76(7.66)	−2.87**
Barriers to Safe Sex [b]	5.41(3.31)	6.11(3.49)	−1.94§
Partner Risk Factors [b]	1.04(0.77)	1.26(0.80)	−2.54*

Note: CSA = Child Sexual Abuse, PTSD = Posttraumatic Stress Disorder,

[a] measured at Time 1,

[b] measured at Time 2,

§ p < .10,

* p < .05,

** p < .01,

*** p < .001 (2-tailed)

Table 2

Correlations of Model Variables for the Hypothesized Model (N = 362)

	1	2	3	4	5	6	7	8	9	10
1. CSA [a]										
2. Self-Esteem [a]	−.21***									
3. Self-Efficacy [a]	−.14**	.63***								
4. Depressive Symptoms [a]	.24***	−.62***	−.48***							
5. PTSD Symptoms [a]	.37***	−.35***	−.27***	.44***						
6. Lack of Social Support [b]	.24***	−.35***	−.38***	.36***	.29***					
7. Interpersonal Resource Loss [b]	.12*	−.19***	−.15**	.27***	.23***	.45***				
8. Social Conflict [b]	.19***	−.29***	−.29***	.32***	.25***	.53***	.32***			
9. Poor Condom Negotiation [b]	.16**	−.30***	−.24***	.24***	.22***	.24***	.20***	.16**		
10. Barriers to Safe Sex [b]	.11*	−.31***	−.23***	.20***	.02	.20***	.09§	.16**	.40***	
11. Partner Risk Factors [b]	.13*	−.15**	−.11*	.13*	.16**	.06	.09§	.12*	.16**	.08

Note: Listwise deletion, CSA = Child Sexual Abuse, PTSD = Posttraumatic Stress Disorder,

[a] measured at Time 1,

[b] measured at Time 2,

§ p < .10,

* p < .05,

** p < .01,

*** p < .001 (2-tailed)