Increased risk of adult sexual assault (ASA) among women who experienced child sexual abuse (CSA) is well established. The strategies these women use to reduce negative affect secondary to CSA, such as sexual contact, may mediate the link between CSA and later ASA. Two waves of data from a racially diverse sample (i.e., 46% Black, 46.1% White, 7.9% other) of community women (\(N = 776\)) were analyzed using structural equation modeling. A history of CSA was associated with a twofold increase in the likelihood of experiencing ASA between the two measurement occasions (approximately 6 years). Psychological distress (i.e., depression, anxiety) and use of sex to reduce negative affect partially mediated the relation between CSA and prospective ASA. Implications for the treatment of CSA and prevention of sexual assault are discussed.

In both retrospective as well as prospective research designs (e.g., Gidycz, Hanson, & Layman, 1995), a history of childhood sexual abuse (CSA) is associated with increased risk of adolescent and adult sexual assault (ASA) among women, a phenomenon known as sexual revictimization (see Arata, 2002; Roodman & Clum, 2001, for reviews). A search for potential mediators (which may serve as targets for risk-reduction prevention programming) of the relation between CSA and ASA has sparked a growing body of work (e.g., Messman-Moore & Long, 2003).

Adverse psychological reactions that develop following CSA might increase risk for adult sexual assault (e.g., Messman-Moore & Long, 2003). Childhood sexual abuse has been consistently linked to long-term dysphoric reactions (e.g., borderline personality disorder, depression, posttraumatic stress disorder, anxiety; Saunders, Kilpatrick, Hanson, Resnick, & Walker, 1999). Given the higher levels of psychological distress (and concomitant dysphoria), perhaps the resultant strategies for regulating negative affect secondary to CSA may serve to increase risk for assault. Briere (1992) notes that in coping with the extreme dysphoria secondary to CSA, survivors may engage in a number of potentially harmful tension-reducing activities (e.g., self-mutilation, substance abuse, sexual activity, eating, spending sprees) to “anesthetize, soothe, interrupt, or forestall painful affect” (p. 63). Tension-reducing activities are frequently effective in temporarily reducing negative affect and are thus, negatively reinforcing (Briere & Elliot, 1994). Briere and Elliot (1994) note that “sexual arousal and positive sexual attention can temporarily mask or dispel chronic abuse-related emotional pain by providing more pleasurable or distress-incompatible experiences” (p. 61).

A history of CSA has been frequently associated with higher numbers of consensual sexual partners (e.g., Krahe, Scheinberger-Olwig, Waizenhofer, & Kolpin, 1999) and higher levels of dysfunctional sexual behavior. This behavior has an indiscriminant quality and the potential for self-harm, or may be used inappropriately to accomplish nonsexual goals (e.g., have sex to feel powerful, get attention, or avoid sadness; Briere & Elliot, 2003). Thus,
among women with a history of CSA, increased sexual activity may reflect a tendency to use sexual intercourse to accomplish nonsexual goals, such as reducing negative affect.

**Using Sex to Reduce Negative Affect and Risk for Adult Sexual Assault**

Using sex to reduce negative affect may place women at higher risk of sexual assault through several possible mechanisms, including increased numbers of sexual partners and impaired sexual decision making. First, a woman who uses sex to reduce negative affect may be more likely to create or take advantage of opportunities to have sex, and thus, may have increased numbers of sexual partners. Indeed, Cooper, Shapiro, and Powers (1998) found in a community sample of men and women that higher levels of using sex to reduce negative affect were significantly positively related to total number of sexual partners as well as number of poorly known sexual partners. Having increased numbers of consensual partners has been linked to risk for sexual assault (e.g., Greene & Navarro, 1998) although the exact mechanism is not known. At the most basic level, because most assailants are known to the victim (Tjaden & Thoennes, 2000), having more sexual partners increases the odds of encountering a sexually aggressive male (see e.g., Merrill et al., 1999).

Second, using sex to reduce negative affect may place women at higher risk of sexual assault via impaired sexual decision-making. Tice, Bratslavsky, and Baumeister (2001) argue that when people’s immediate desire for escape from emotional distress comes into conflict with other self-regulatory goals and longer-term best interests, this conflict is often resolved by prioritizing reducing negative affect. Thus, a woman’s motivation to relieve emotional distress, perhaps secondary to CSA, via sexual contact may take priority over conflicting motivations or information that might otherwise inhibit involvement with a potential partner (e.g., “I don’t know this person very well so maybe it’s not the best idea to invite him back to my place.”). If a woman enters a potential sexual situation (with a new sexual partner) with a strong motivation to reduce negative affect, her ability to evaluate information about risk and trustworthiness may be compromised. In sum, we theorize that the use of sex to reduce negative affect increases risk of sexual assault via increased numbers of sexual partners and impaired sexual decision-making.

**The Present Study**

Using data from a longitudinal study of a representative community sample of women, the present study examined the potential mediating roles of psychological distress and the use of sex to reduce negative affect in the relation between CSA and prospective ASA. Consistent with prior research, we hypothesized that a history of CSA would be prospectively associated with increased ASA. We further hypothesized that a history of CSA would be significantly related to increased levels of psychological distress, and that increased levels of psychological distress would positively predict the use of sex to reduce negative affect. Higher levels of use of sex to reduce negative affect were hypothesized to positively predict prospective ASA. In addition, given the multiple pathways through which strategies to reduce negative affect may increase risk for ASA (e.g., substance use), the effect of psychological distress on ASA was not expected to be fully mediated through the use of sex to reduce negative affect; higher levels of psychological distress were also hypothesized to positively predict prospective ASA. Finally, we hypothesized that the relationship between a history of CSA and prospective ASA would be at least partially mediated (or accounted for) by psychological distress and use of sex to reduce negative affect.

**Method**

**Design and Participants**

Data were obtained from Waves 2 and 3 of a longitudinal study. Participants were interviewed initially in 1989–1990 (Time 1) and reinterviewed in 1994–1995 (Time 2) and 1999–2003 (98% of participants were reinterviewed between 2000 and 2001, Time 3). At Time 1 (T1), random digit-dial techniques were used to identify a sample of 2,544 male and female adolescents. Telephone exchanges in primarily Black areas of the city were oversampled to yield a final sample that was 48% White, 44% Black, and 8% other racial groups. Eighty-one percent of eligible participants were interviewed (n = 2,052) (eligible participants had to be aged 13 to 19, living within Buffalo city limits, and able to complete the questionnaire in English). Completion rates did not differ by age, race, and parental occupation rank (U.S. census categories). However, completion rates did differ significantly on gender (a higher percentage of females than males were interviewed, 83% vs. 79%) and parental education level (the education level was higher among interviewed than noninterviewed participants, 13.1 vs. 12.8 years) (see Cooper, Peirce & Huselid, 1994, for more detail about the methodology).

The sample for the present study is drawn from female participants who completed interviews at Time 2
Sex to Reduce Negative Affect as a Mediator  

(T2) and Time 3 (T3). Specifically, of the 1,033 female participants interviewed at T1, 800 participants (77.4%) were reinterviewed at both T2 (approximately 4 1/2 years later) and T3 (approximately 6 years after T2). We are not including data from T1 because history of CSA was not assessed until T2.

The average age was 21.23 years (SD = 2.11) at T2 and 27.19 years (SD = 2.13) at T3. The sample was 46.0% Black, 46.1% White, and 7.9% other ethnicity. In terms of sexual orientation, 86.1% identified as 100% heterosexual, 9.4% as mostly heterosexual, 1.8% as bisexual, 0.5% as mostly homosexual, 0.1% as 100% homosexual, and 2.1% as not sure. At T2, 15.8% achieved less than a high school degree or equivalent, 32.2% had achieved a high school degree or equivalent, and 52.1% had at least some college (8.4% had a college degree and 1.8% had some graduate school). At T3, 9.8% had achieved less than a high school degree or equivalent, 22.9% had a high school degree or equivalent, 50.7% had some college, 10% had a college degree, and 7.4% had some graduate school.

To assess differences due to attrition, those responding at T2 and T3 (n = 800) were compared with those not included in the present study (n = 233) on a number of T1 variables. Nonresponders were significantly older at T1, 17.2 versus 16.6 years, t(1,031) = 4.39, p < .001, but did not differ on race, χ² (2, N = 1,033) = 2.47, ns, parental education, t(1001) = −1.32, ns, or parental employment status, χ² (1, N = 1008) = .36, ns.

**Procedure**

At both time points, participants completed an approximately 2-hour interview that was generally conducted face-to-face although some participants were interviewed over the telephone (4.1% at T2 and 21.5% at T3). Interviewers were professionally trained and were always matched on gender of the participant. The interview was computer-administered and consisted of both interviewer- and self-administered (for particularly sensitive items, including all primary variables of interest in the present study) portions. Interviews that occurred face-to-face were completely private (no other people were present besides the interviewer and participant). We had less control over privacy for phone interviews although privacy was assessed at the time of the scheduled phone call as well. Informed consent was obtained at both times. Participants were assured of confidentiality and, further, their responses were protected by a certificate of confidentiality. Participants were compensated $40 to $80 for their participation (depending on distance traveled to the interview). At the end of the interview, participants were debriefed.

There was one significant difference on our primary variables of interest as a function of being interviewed over the phone versus face-to-face. Being interviewed over the phone at T2 or T3 was not significantly associated with reports of CSA (at T2) or ASA (at T3), use of sex to reduce negative affect, or number of sexual partners. Participants interviewed over the phone at T2, however, reported significantly less distress than participants interviewed face-to-face, 0.76 versus 1.02, t(798) = 2.06, p < .05.

**Measures**

**Potential Covariates**

Race, age at T2 (in weeks), reinterview interval between T2 and T3 (in weeks), parental socioeconomic status (SES) at Time 1, achieved SES at T2, childhood psychological abuse, and childhood physical abuse were evaluated as possible inclusion as covariates in our analyses. Race (coded as Black [n = 368, 46.1%], White [n = 369, 46.1%], and Other [n = 63, 7.9%]) was dummy coded as two variables, Black versus not Black, and White versus not White. Parental SES at T1 was a standardized composite of highest attained education level of either parent (1 = less than high school to 7 = graduate degree) and whether either parent was employed outside the home (0 = neither employed, 1 = either employed). Participant’s Achieved SES at T2 was a standardized composite of attained education level (6 = less than 7th grade through 19 = doctoral degree) and employment status (0 = unemployed and 1 = employed).

Given the covariation between CSA and other forms of childhood abuse (see e.g., Gould et al., 1994), childhood physical abuse and childhood psychological abuse were also included as possible covariates. The Psychological Maltreatment Scale (Briere & Runtz, 1990) was used to assess childhood psychological abuse. Seven specific abusive behaviors (i.e., yell at, insult, criticize, try to make you feel guilty, ridicule or humiliate, embarrass you in front of others, and make you feel like you were a bad person) were assessed for up to two caregivers (defined by the participant as the person or persons who was most responsible for care while growing up). Participants indicated the frequency of each behavior on a 7-point scale with the following anchors: 0 (never), 1 (once a year), 2 (twice a year), 3 (3 to 5 times a year), 4 (6 to 10 times a year), 5 (11 to 20 times a year), and 6 (more than
20 times a year). Childhood physical abuse was assessed with five items (i.e., slapping, hitting, beating, punching, and kicking) from the Family Experiences Questionnaire (Briere & Runtz, 1990). Using the same response scale and procedure as the psychological maltreatment scale, participants indicated the average frequency of each behavior per caregiver. For both psychological and physical abuse, an average of the items was taken for each caregiver (7 for psychological abuse and 5 for physical abuse) and these two scores were averaged to form one score.

**History of Childhood Sexual Abuse**

The content and structure of questions was modeled after Wilsnack and colleagues (Wilsnack, Vogeltanz, Klassen, & Harris, 1997). At T2, participants were first asked whether they had experienced any of eight specific sexual experiences before the age of 16 (e.g., asked you or forced you to show them any of your private or sexual parts, showed you their private or sexual parts, touched or fondled any of your private or sexual parts). Computer-administration of questions allowed for what is sometimes called “extreme tailoring.” That is, the exact content of what each respondent was asked depended on her answer, or in some cases patterns of answers, to earlier questions. In general, however, affirmative responses to any of the eight experiences listed were followed with a series of questions about the relationship to one’s perpetrator and the nature of the experience itself. The program also allowed for the possibility that individuals had been abused by more than one perpetrator, and were asked detailed questions for up to two different perpetrators. From these data, a single dichotomous variable was created in accordance with Russell’s (1986) definition. Participants were scored as having experienced CSA if they reported (a) any unwanted sexual experiences with a family member before age 16, (b) any sexual experience with a family member who was 5 or more years older before the age of 16, (c) any unwanted sexual experience with a nonfamily member before age 14, or (d) unwanted intercourse with a nonfamily member between the ages of 14 and 16.

**Adult sexual assault between T2 and T3.** At T3, participants indicated how many times in their lifetime they had “had sexual intercourse with a boy or man when you didn’t want to because he used any physical force (twisted your arm, held you down, etc.)?” If participants reported ever experiencing this, they were asked the most recent time this occurred. Participants who indicated that assault had occurred since the last interview (T2) were considered to have experienced forced sexual intercourse between T2 and T3 (ASA). Participants were also asked about lesser forms of sexual assault (i.e., verbal pressure, physical force to do something sexual other than intercourse); however, we focused on behaviors that unequivocally met the definition of completed rape, that is, “unwanted completed penetration by force or the threat of force” (Fisher, Cullen, & Turner, 2000, p. 15). Use of disparate definitions continues to limit comparability across revictimization studies (Roodman & Clum, 2001). Thus, we erred on the more restrictive side by including only completed rape. Further, because this measure was administered only to sexually active participants at T3, 18 of the 800 participants (2.3%) who were virgins at T3 were not included in the final analyses.

**Use of sexual intercourse to reduce negative affect.** Participants indicated on a 5-point scale ranging from 1 (almost never/never) to 5 (almost always/always) how often they had sex for the following reasons: (a) to cope with upset feelings, (b) to help deal with disappointment in your life, (c) to feel better when feeling lonely, (d) to feel better when feeling low, and (e) to cheer up (see Cooper et al., 1998, for additional information about measure development and construct validity). Although modeled as a latent variable, a mean score was calculated for descriptive purposes (see Table 1); internal consistency was good (Cronbach’s alpha = .81). A subset of participants (n = 67) were not sexually active at T2 and were not administered this measure. Forty-nine of these 67 participants, however, were sexually active by T3. Thus, to maintain the largest sample possible given the low base rate of ASA at T3, these 49 participants (6.1%) were assigned their T3 value on the use of sex to reduce negative affect measure.

**Psychological distress.** Psychological distress was assessed with three subscales (depression, general anxiety, & hostility) from the Brief Symptom Inventory (BSI: Derogatis & Melisaratos, 1983). Participants indicated how bothered they had been by symptoms in the past 30 days on a 5-point scale ranging from 0 (not at all) to 4 (extremely). Depression was assessed with six items (e.g., feeling lonely), general anxiety with six items (e.g., nervousness or shakiness inside) and hostility with five items (e.g., temper outbursts you could not control). The BSI is sensitive to low levels of distress in nonclinical samples (Derogatis & Melisaratos, 1983). Internal consistency was good (Cronbach’s alpha for depression was .84, hostility was .81, and anxiety was .83). Although modeled as a

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*The final model was essentially unchanged when the 67 women who were virgins at T2 were either deleted from the model or were recoded to the lowest value on use of sex to reduce negative affect (1 = almost never/never). This was done rather than substituting the T3 value on use of sex to reduce negative affect for the 49 participants who became sexually active by T3.*
Table 1. Means, Standard Deviations, and Correlations for Study Variables

<table>
<thead>
<tr>
<th>Variables</th>
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</thead>
<tbody>
<tr>
<td>1. Age in years at T2</td>
<td>21.23</td>
<td>5.96</td>
<td>.46</td>
<td>.46</td>
<td>2.03</td>
<td>2.05</td>
<td>1.74</td>
<td>1.08</td>
<td>.24</td>
<td>1.01</td>
<td>.59</td>
<td>.06</td>
<td>3.49</td>
<td>.62</td>
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<td>2. Weeks between T2 and T3</td>
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<td>3. Race (0 = Non-Black/1 = Black)</td>
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<td>4. Race (0 = Non-White/1 = White)</td>
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<td>5. Parental SES at Time 1</td>
<td>-.05</td>
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<td>6. Achieved SES at Time 2</td>
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<td>7. Childhood psychological abuse</td>
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<td>8. Childhood physical abusea</td>
<td>-.06</td>
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<td>9. CSA (0 = no/1 = yes)</td>
<td>-.04</td>
<td>.05</td>
<td>.07</td>
<td>-.06</td>
<td>.06</td>
<td>-.05</td>
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<td>10. Psychological distress at T2</td>
<td>-.14</td>
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<td>11. Use of sex to reduce negative affect at T2²</td>
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<td>12. ASA (0 = no/1 = yes)</td>
<td>-.07</td>
<td>.01</td>
<td>.12</td>
<td>-.12</td>
<td>-.04</td>
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<tr>
<td>13. Number of sexual partners between T2 and T3</td>
<td>-.20</td>
<td>.07</td>
<td>.06</td>
<td>-.06</td>
<td>.05</td>
<td>-.06</td>
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<td>14. Frequency of alcohol use with sex during past 6</td>
<td>.13</td>
<td>.01</td>
<td>-.11</td>
<td>.11</td>
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<td>.08</td>
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<td>months at T2²</td>
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| M           | 21.23 | 5.96 | .46  | .46  | 2.03 | 2.05 | 1.74 | 1.08 | .24  | 1.01 | .59  | .06  | 3.49 | .62  |
| SD          | 2.11  | .62  | .50  | .50  | .93  | .77  | 1.37 | .91  | .43  | .70  | .69  | .24  | 3.30 | .82  |
| Minimum value| 16.75 | 4.83 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Maximum value| 25.83 | 8.75 | 1    | 1    | 4    | 3.94 | 6    | 3.88 | 1    | 3.94 | 3.08 | 1    | 13   | 3.31 |

Note. Coefficient alphas (where appropriate) are on the diagonal. T2 = Time 2; T3 = Time 3; CSA = child sexual abuse; ASA = adult sexual assault.

aVariable was transformed to reduce non-normality.

* p < .05, † p < .10.
latent variable, we computed a mean score of the three subscales (Cronbach’s alpha = .91) for descriptive purposes (see Table 1).

**Number of sexual partners between T2 and T3.** We estimated the number of sexual partners between T2 and T3 by taking the greater of two quantities: the difference between the number of lifetime partners reported at adjacent waves (e.g., T3 partners minus T2 partners) or the number of partners in the last year, as reported at T3.

**Frequency of alcohol use with sex during the past six months at T2.** To examine, in supplemental analyses whether frequency of alcohol use with sex moderates the relationship between use of sex to reduce negative affect and ASA, we computed an average of two items, frequency of drinking with sexual intercourse and frequency of drinking to intoxication with sexual intercourse. The items utilized a 1 (none of the time) to 7 (every time) scale and asked about drinking behavior in the 6 months prior to the interview.

**Results**

**Descriptive Statistics and Preliminary Analyses**

Several variables were determined to be significantly skewed and/or kurtotic and were transformed prior to analysis. Specifically, childhood physical abuse, use of sex to reduce negative affect at T2 (overall score and item parcels), and frequency of alcohol use with sex during the past 6 months at T2 were Blom transformed and rank normalized; this resulted in nonsignificant skew and kurtosis levels. Means, standard deviations, and correlations among key study variables are presented in Table 1. As shown in Table 1, we included seven of the eight covariates in our structural model (age at T2, weeks between T2 and T3, both dummy race variables, participant achieved SES at T2, childhood physical abuse, and childhood psychological abuse) because they were significantly correlated with at least one of the key variables in the structural model (i.e., CSA, use of sex to reduce negative affect, psychological distress, and ASA). Parental SES at T1 was not correlated with the key variables in the structural model; therefore, we did not include this in our model.

**Prevalence of Childhood Sexual Abuse and Adult Sexual Assault and Evidence of Prospective Revictimization**

At T2, 193 women (24%) reported CSA. Forty-six women reported experiencing a rape between T2 and T3 (5.8% of the sample). The most recent assault was within the 3 months prior to T3 for 11 participants, 4 to 12 months prior for 5 participants, 1 to 2 years prior for 10 participants, and 2 to 4 years prior for 20 participants. Among participants reporting no history of CSA, 4.4% were sexually assaulted between T2 and T3 whereas among those reporting a history of CSA, 9.8% were sexual assaulted between T2 and T3, $\chi^2 (1, N = 800) = 7.87, p < .01$. Similarly, in a logistic regression analysis that controlled for all seven covariates, CSA was associated with a twofold increase in the probability of experiencing ASA between T2 and T3, $b = .69$, Odds Ratio (OR) = 1.99, $p < .05$. Thus, consistent with the results of earlier studies, there was evidence of prospective revictimization in the present sample.

**Mediation Analyses**

Psychological distress and use of sex to reduce negative affect were examined as possible mediators of the effects of CSA on ASA experienced between T2 to T3. Psychological distress and use of sex to reduce negative affect were modeled as latent variables. The three BSI subscales (i.e., depression, general anxiety, and hostility) were used as manifest indicators for the latent variable of psychological distress. The five use-of-sex-to-reduce-negative-affect items were combined randomly into two 2-item parcels and a single item to create the three manifest indicators of the use-of-sex-to-reduce-negative-affect latent variable (see Little, Cunningham, Shahar, & Widaman, 2002, for a review of item parceling). Childhood sexual abuse (assessed at T2) and adult sexual assault between T2 and T3 (assessed at T3) were each modeled as causal indicators with a dichotomous score (i.e., did the person experience CSA or ASA, respectively) serving as the manifest indicator. Analyses were conducted in Mplus (Version 3; Muthen & Muthen, 1998–2004) using maximum likelihood estimation. Missing data were minimal and were deleted using listwise deletion prior to modeling ($N$ for final sample was 776).

**Measurement model.** The initial measurement model was estimated with covariances among all 11 variables (i.e., age at T2, weeks between T2 and T3, both dummy race variables, participant-achieved SES at T2, childhood physical abuse, childhood psychological abuse, use of sex to reduce negative affect, psychological distress, CSA, and ASA) freely estimated. Paths between manifest indicators and error terms were constrained to 1, whereas error variances were freely estimated. All item parcels

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6The correlation matrix for the measurement model can be obtained from the first author. The pattern of correlations among variables included in the measurement model is essentially the same as the pattern among those same variables in Table 1. Of course, the measurement model...
Sex to Reduce Negative Affect as a Mediator

To examine the significance of our proposed mediators (i.e., psychological distress and use of sex to reduce negative affect), we estimated the model predicting ASA depicted in Figure 1. Without the two proposed mediators in the model, CSA was significantly related to increased prospective ASA ($\beta = .08, z = 2.29, p < .05$). However, when psychological distress and use of sex to reduce negative affect were included in the model, the coefficient was reduced by 25% and CSA was no longer significantly related to prospective ASA ($\beta = .06, z = 1.63, ns$). The model fit was quite good, $\chi^2 (45) = 84.17, p < .001$, RMSEA was .03 with a 90% confidence interval of .02 to .05, comparative fit index (CFI) = .99, and Tucker–Lewis Index (TLI) = .97.

The reduction of 25%, resulting in a nonsignificant coefficient in the path from CSA to ASA suggests that psychological distress and use of sex to reduce negative affect partially mediate this relationship. Additionally, we tested the significance of both indirect paths. In the first path, CSA was significantly related to increased psychological distress and psychological distress significantly predicted higher ASA. In the second path, CSA was significantly related to increased use of sex to reduce negative affect, and use of sex to reduce negative affect was significantly related to higher ASA. Using the product of coefficients test for the intervening

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**Fig. 1.** Sex to reduce negative affect at T2 and psychological distress at T2 as potential mediators of the relation between child sexual abuse (CSA) and forced sexual intercourse (ASA) between T2 and T3. Coefficients are standardized. The numbers in parentheses represent the significance level of the path coefficients and values $\geq 1.96$ are significant at $p < .05$. The model is estimated controlling for age at T2, weeks between T2 and T3, both dummy race variables, participant achieved SES at T2, childhood physical abuse, and childhood psychological abuse. $N = 776$. $\chi^2 (45) = 84.17, p < .001$, RMSEA = .03, CFI = .98, TLI = .97. (*) The coefficient for the direct effect of CSA on ASA without other variables in the model.

T2 = Time 2. T3 = Time 3. For each latent variable, the underlined factor loading was set to 1 for identification purposes.
variable effect (MacKinnon, Lockwood, & Williams, 2004) we compared the critical values to the standard normal distribution (i.e., values greater than 1.96 are significant at $p < .05$). The sum of the indirect effects was significant ($z = 2.73$, $p < .05$) and the indirect effect from CSA to psychological distress to ASA was also significant ($z = 2.24$, $p < .05$). The indirect path from CSA to psychological distress to use of sex to reduce negative affect to ASA was marginally significant ($z = 1.76$, $p = .08$). Thus, in the present model, CSA results in increased psychological distress which is directly and, to a lesser (i.e., trend finding only) extent, indirectly (via use of sex to reduce negative affect) significantly associated with increased prospective ASA.

**Sex to Reduce Negative Affect: Potential Mechanisms**

We conducted several supplemental analyses to examine if use of sex to reduce negative affect may increase risk of sexual assault via increased numbers of sexual partners and impaired sexual decision-making.

**Number of sexual partners.** Given the argument that greater quantity of sexual partners may be a mechanism through which use of sex to reduce negative affect increases risk for ASA, we estimated the model depicted in Figure 2. Use of sex to reduce negative affect was significantly related to increased prospective ASA ($\beta = .13$, $z = 3.13$, $p < .05$); however, when number of sexual partners between T2 and T3 was included in the model, the coefficient was reduced by 15% although use of sex to reduce negative affect was still significantly related to prospective ASA ($\beta = .11$, $z = 2.79$, $p < .05$). The model fit was quite good, $\chi^2 (18) = 21.57$, $p < .001$, RMSEA was .02 with a 90% confidence interval of .00 to .04, CFI = .99, and TLI = .99. Using the product of coefficients test for the intervening variable effect (MacKinnon et al., 2004), the indirect effect from use of sex to reduce negative affect to ASA via number of sexual partners was significant ($z = 2.14$, $p < .05$). Thus, one mechanism through which use of sex to reduce negative affect may increase risk of prospective ASA is via increased numbers of sexual partners.

**Frequency of alcohol use with sex during six months prior to T2.** With regard to impaired sexual decision-making, we hypothesized that frequency of alcohol use with sex would moderate the relationship between use of sex to reduce negative affect and prospective ASA. Using logistic regression and controlling for all seven covariates, use of sex to reduce negative affect was associated with an almost twofold increase in the probability of experiencing ASA between T2 and T3 ($b = .59$, OR = 1.81, $p < .01$). However, frequency of alcohol use with sex was not significantly associated with ASA ($b = -.19$, OR = .83, ns). The interaction between the two terms was not significant ($b = .20$, OR = 1.22, ns). Thus, frequency of alcohol use during sex in the 6 months prior to T2 did not confer increased risk of prospective ASA, independently or in conjunction with using sex to reduce negative affect.

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**Fig. 2.** Number of sexual partners between T2 and T3 as a potential mediator of the relation between sex to reduce negative affect at T2 and forced sexual intercourse (ASA) between T2 and T3. Coefficients are standardized. The numbers in parentheses represent the significance level of the path coefficients and values $\geq 1.96$ are significant at $p < .05$. The model is estimated controlling for age at T2, weeks between T2 and T3, both dummy race variables, participant achieved SES at T2, childhood physical abuse, and childhood psychological abuse. $N = 776$, $\chi^2 (18) = 21.57$, $p = .25$, RMSEA = .02, CFI = .99, TLI = .99. (*) The coefficient for the direct effect of sex to reduce negative affect on ASA without other variables in the model.

T2 = Time 2. T3 = Time 3. For each latent variable, the underlined factor loading was set to 1 for identification purposes.
Discussion

In the present, racially diverse community sample, a history of CSA was associated with a prospective twofold increase in ASA (almost 10% of women with CSA were assaulted as compared with 4% of women without CSA). This finding is an important contribution to the literature, given that relatively few prospective studies on revictimization have been conducted, especially with noncollege samples. Despite the robust nature of the revictimization phenomenon, however, relatively little is known about the potential mediators of revictimization, i.e., how CSA confers risk for later ASA. Messman-Moore and Long (2003) highlight the need to examine the function or outcome of symptomatology secondary to CSA when investigating revictimization. Given the consistent relationship between CSA and dysfunctional sexual behavior, it seems important to examine the function that sexual behavior serves.

The current findings are consistent with a theoretical model proposing that dysphoria secondary to CSA increases risk for ASA via use of affect regulation strategies (e.g., use of sex to reduce negative affect) which, in turn, heighten exposure and vulnerability to sexual assault. As hypothesized, psychological distress and use of sex to reduce negative affect partially mediated the relationship between a history of CSA and prospective ASA. These results suggest that sexual activity may serve the purpose of decreasing distress secondary to CSA.

Unfortunately, using sex to reduce negative affect may increase risk of sexual assault by way of contact with multiple, poorly known partners and impaired decision-making in potentially sexual situations. In supplemental analyses, the number of sexual partners between T2 and T3 was found to partially mediate the relationship between use of sex to reduce negative affect and ASA, implying that this is one mechanism through which risk is increased. These analyses represent only a first step in examining potential mechanisms, as key contextual information about the partners (e.g., whether or not they were poorly known) was undetermined. However, number of partners failed to mediate fully the relationship, which indicates that an increase in sexual partners does not solely account for the prospective effects on ASA. Rather than simply impacting the quantity of partners, use of sex to reduce negative affect may impact risk for ASA through multiple pathways that likely include decision-making (Tice et al., 2001).

Although decision-making was not specifically assessed, the moderating effects of use of alcohol with sexual intercourse were explored, given that alcohol use is common in acquaintance rape (see Abbey, 2002, for a review) and may lead to the prioritization of negative affect regulation over other conflicting motivations (Steele & Josephs, 1990). Use of sex to reduce negative affect was associated with higher levels of alcohol use during sexual intercourse, but a specific moderating effect on ASA was not found. Nevertheless, the potential interactive effect of risky drinking and use of sex to reduce negative affect may be an important avenue for understanding the means by which risk of ASA is increased. The current study’s global assessment of alcohol use with sex may not have been sensitive enough to situational differences.

Although the use of sex to reduce negative affect was associated with increased risk of prospective ASA, psychological distress continued to exert a significant direct effect on ASA. This pattern is consistent with previous findings regarding the predictive influence of distress (e.g., depression, anxiety) on revictimization (e.g., Gidycz et al., 1995) and suggests the existence of additional intervening variables.

The finding that revictimization may be mediated by the use of sex to reduce negative affect has important implications for treatment and prevention. Specifically, in risk-reduction prevention programming, providing information about risk may be insufficient to produce behavior change. To change behaviors associated with increased risk of ASA, such as sex with poorly known partners, interventions must target the function that the behavior serves. For example, if sexual contact provides a way to reduce negative affect secondary to CSA, interventions designed to reduce distress and teach women alternative strategies for self-soothing may be more effective in reducing risks for sexual revictimization. In particular, interventions designed to increase distress tolerance, improve emotion regulation, and reduce experiential avoidance may have preventive utility (e.g., dialectical behavior therapy; Linehan, 1993), Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 1999), or mindfulness-based approaches (see Baer, 2003, for a review).

Despite the pattern of clear and theoretically meaningful findings in the present study, several limitations should be acknowledged. Although the direct effect of CSA on prospective ASA was reduced by 25%, its size was rather small ($r = .08$) when psychological distress and use of sex to reduce negative affect were included in the model. Given the dichotomous outcome, however, it is important to remember that there was a twofold increase among women with CSA in the probability of ASA, a significant increase in risk.

History of CSA was assessed retrospectively at T2 and is, therefore, subject to biases of both self-report and time. Some evidence exists that women may not report CSA that was previously documented (Williams, 1994). In addition, a single item assessed prospective ASA.
Although assault due to physical force was assessed, assault due to incapacitation from substance use (which may not involve force) was not measured. Hence, the present findings may underestimate rates of sexual assault.

Only 46 women (5.9%) reported experiencing ASA between T2 and T3; hence, the current results are based on a relatively small sample of women. Additionally, Black women (as compared to non-Black women) were more likely to endorse CSA, ASA, and use of sex to reduce negative affect; the present study is not unique in finding higher rates of victimization among Black women (Arata, 2002). Despite the ample sample size \((N = 800)\), 46 women had been prospectively assaulted, which was not a large enough number to split across race categories for cross-group modeling and examination of invariance, a more sophisticated analysis of the model.

Adolescent victimization has been found to be predictive of adult victimization (e.g., Humphrey & White, 2000). However, due to the manner in which sexual assault history was assessed at T1 and T2, adolescent sexual assault could not be included in the model. Future research might productively examine the relationships between trajectories of both affect regulation strategies and victimization histories across times, ideally through adolescence and into adulthood.

In the present study, participants were asked to retrospectively report on how frequently they use sex to reduce negative affect. While the validity of self-report methodology has been a longstanding concern, more recently, the accuracy of retrospective recall of coping responses has also been in question (e.g., Schwartz, Neale, Marco, Shiffman, & Stone, 1999; Smith, Leffingwell, & Ptacek, 1999). Despite their limitations, self-reports remain the most feasible and widely used method for assessing internal and unobservable cognitive, affective, and behavioral processes such as the ones under current investigation (e.g., motivation, sexual activity), particularly when those responses occurred in the past.

Although the vast majority of participants were interviewed face-to-face at T2, as opposed to over the phone, this percentage had decreased at T3. Childhood sexual abuse, adult sexual assault, and the use of sex to reduce negative affect did not differ as a function of interview format. However, at T2, participants reported significantly less psychological distress over the phone than those interviewed in person (responding privately via computer). Given the small number of participants phone interviewed at T2 and the robust nature of the results concerning psychological distress, this difference is not likely to be a particular problem with regard to the overall pattern of findings.

Finally, because PTSD symptoms may represent a particular risk for revictimization (see e.g., Messman-Moore, Brown, & Koelsch, 2005), it is necessary to acknowledge that the present study employed a measure of general distress rather than investigating the differential impact of specific symptom responses. Future studies may want to examine a range of symptomatology. Of importance as well is the fact that sampling did not occur from a clinical population. Although women who experienced CSA reported significantly greater psychological distress than women without a CSA history, on average, those values would not be considered clinical levels of distress. Thus, replication of the present findings with a more highly distressed sample (i.e., individuals who might be even more motivated to take steps toward reducing negative affect) would be particularly informative.

Despite these limitations, the present findings contribute significantly to the literature on mediators of revictimization. Given the reliance on cross-sectional designs in this area, the current prospective design, diverse community sample, and use of structural equation modeling represent unique strengths of the study. It appears that for some women, a vicious cycle may ensue, with victimization leading to distress, use of sexual contact to reduce the distress, later revictimization, and further distress. Preventive and treatment approaches targeting affect-regulation strategies may help to interrupt this cycle.

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**References**


