

Child Sexual Abuse, Peer Sexual Abuse, and Sexual Assault in Adulthood: A Multi-Risk Model of Revictimization

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This study explored the predictors and consequences of sexual assault occurring after the age of 16 years in a nonclinical sample of women. Child sexual abuse occurring before the age of 16 years was the only predictor of later sexual assault among comorbid risk factors. Peer sexual abuse, number of perpetrators, age at time of sexual abuse, and severity of sexual abuse did not increase the risk for later sexual assault. Adult sexual assault victims showed lower levels of mental health functioning than did survivors of child or peer sexual abuse. We discuss a specificity model of revictimization and the differential effects of child, peer, and adult sexual trauma on the developmental trajectory of sexual violence and psychosocial functioning.

KEY WORDS: child sexual abuse; sexual revictimization.

Researchers have termed the occurrence of multiple traumas across the life span as “revictimization.” The concept of “revictimization” has been defined as at least one incident of sexual abuse in both childhood and adulthood (Wyatt, Guthrie, & Notgrass, 1992). This definition originated in research documenting that victims of childhood sexual abuse are often at greater risk of experiencing adult sexual assault (Gidycz, Coble, Latham, & Layman, 1993; Shields & Hanneke, 1988; Stevenson & Gajarsky, 1991). Childhood sexual abuse is also correlated with sexual assault among adolescents (Fergusson, Horwood, & Lysnkey, 1997). Others have extended the definition of revictimization to include at least one incident of

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sexual abuse in childhood and at least one incident of physical abuse in adulthood (Messman & Long, 1996). Childhood sexual abuse is also a predictor of battery and marital rape in adult relationships (Briere & Runtz, 1987; Shields & Hanneke, 1988).

Based on the evidence that childhood trauma increases the risk for violence, we examined comorbid childhood stressors that are traumatic in nature and have parallel negative consequences to assess the predictors of adult sexual assault. Given the frequent co-occurrence and similar nature of child sexual abuse, peer sexual abuse, and adult sexual assault, we also attempted to identify their unique and cumulative impact on a range of symptoms and behaviors in women. This study builds on previous work in examining whether findings obtained in clinical samples (e.g., Messman & Long, 1996) apply to nonclinical samples.

Defining Sexual Trauma

In this study, we utilized Finkelhor's (Finkelhor, 1979) and Russell's (Russell, 1986) definition of child sexual abuse, peer sexual abuse, and adult sexual assault. Child sexual abuse (CSA) was defined as any unwanted and nonconsensual sexual behaviors occurring before the age of 16 years with a perpetrator who is at least 5 years older than the victim at the time of the abuse. Peer sexual abuse (PSA) was defined as any unwanted and nonconsensual sexual behaviors occurring before the age of 16 years with a perpetrator who is less than 5 years older than the victim at the time of the abuse. Adult sexual assault (ASA) was defined as any nonconsensual sexual act occurring after the age of 16 years, irrelevant of the age difference between victim and perpetrator. The CSA/PSA distinction allowed us to explore varying consequences of each type of sexual victimization, and whether both child and peer sexual abuse are predictors of ASA.

Comorbid Childhood Risk Factors

The research on revictimization has often examined CSA as an isolated risk factor, even though sexual abuse frequently coexists with other traumatic experiences that could be potential predictors of adult victimization. For example, sexual and physical abuse are two forms of maltreatment that frequently co-occur in families with domestic violence (Henning, Leitenberg, Coffey, Turne, & Bennett, 1996) and parental substance abuse (Famularo, Kinscherff, & Fenton, 1992). We also consider parental antisocial behaviors as a risk factor given the growing evidence of the link between parental sociopathy and parental substance abuse (Kosson, Steuerwald, Newman, & Widom, 1994) and CSA (Becker & Quinsey, 1993; Maker, Kimmelmeier, & Peterson, 1999). Witnessing marital violence and

child physical abuse are also predictors of violence in adult dating relationships and ASA (Cloitre, Tardiff, Marzuk, & Leon, 1996; Maker, Kimmelmeier, & Peterson, 1998).

Physical abuse, witnessing marital violence, and parental substance abuse might also be associated with later assault because they have consequences similar to those of sexual abuse, such as aggression, depression, somatic symptoms, anxiety, and suicidal gestures (Brown & Finkelhor, 1986; Domenico & Windle, 1993; McDonald & Jouriles, 1991; Williams & Corrigan, 1992). Although children can experience a range of stressors from death of a parent to divorce, we are choosing to explore traumatic risk factors that frequently coexist in abusive homes and have parallel negative ramifications, and are thus more likely to be predictors of assault in adulthood.

Specificity Model of Trauma

Individual childhood traumas may have unique debilitating effects, suggesting a specificity model of trauma. Child sexual abuse critically damages sexual identity, sexual functioning, and sexual relationships (Brown, 1995; Wenninger & Heiman, 1998). This damage may lead to greater high-risk sexual behaviors and decreased self-protective skills, increasing the risk for ASA. Hence, we expected CSA and PSA to be the only predictors of ASA. Because severity of the traumatic experience is a critical risk factor for psychological consequences (Brand, King, Olson, & Ghaziuddin, 1996), we also explored if severity of sexual abuse was associated with a higher risk of revictimization.

Psychological Outcomes

The research on CSA and ASA has documented negative outcomes of each trauma, including posttraumatic symptoms, depression, substance use, helplessness, negative attributions, and anxiety (Brown & Finkelhor, 1986; Wyatt, Guthrie, & Notgrass, 1992). Unfortunately, most researchers investigating the impact of CSA or ASA have failed to control the potentially confounding presence of the other. Thus, studies that assessed the consequences of CSA, but did not control for the presence of ASA may actually have tapped into the ramifications of the more recent trauma of ASA. This possibility is troubling as measures of psychological functioning may be more sensitive to the effects of recent sexual trauma than to the impact of more distal child abuse. Moreover, researchers have not assessed differences in outcomes between CSA and PSA. The age difference between victim and perpetrator, perhaps reflecting power and relationship differentials, may have unique debilitating effects, as suggested by Koverola, Proulx, Battle, and Hanna

(1996). This study also highlights the importance of investigating the independent and joint consequences of multiple traumas across time.

The Present Study

Our study extends previous research on the predictors and outcomes of sexual revictimization. To enhance the generalizability of our findings, we studied the relationship between CSA, PSA, and ASA in a nonclinical sample of women. Utilizing a multirisk model, we examined a variety of risk factors that frequently coexist in violent homes (physical abuse, sexual abuse, parental alcohol and drug use, and parental antisocial behaviors).

Hypotheses

We expected multiple risk factors to be clustered, implying substantial correlation between various stressors. However, based on a specificity model of trauma, we hypothesized that CSA and PSA would be the only predictors of ASA among varying risk factors. We predicted that severity of sexual abuse and number of sexual perpetrators would also be predictors of ASA. However, age at time of abuse would not be related to ASA as sexual abuse at any developmental stage can be debilitating. Given a cumulative model of trauma, survivors of multiple sexual traumas across time were expected to show lower levels of psychological functioning as compared with the control group and survivors of a single sexual trauma. Finally, we assessed the impact of ASA while controlling for CSA and PSA to better understand the unique debilitating effects of each trauma.

Method

Participants

A total of 131 women participated in this study. The ages of the respondents ranged from 18 to 43 years, with a mean age of 22.2 years ($SD = 5.09$). 69% of the respondents indicated that they were Caucasian, 15% African American, and 4% Asian American. Regarding marital status, 86% reported never being married, 9% were currently married, and 4% were separated or divorced. We utilized Hollingshead and Redlich's (Hollingshead & Redlich, 1958) two-factor index of social status that allows a 5-point rating of socioeconomic status based on parental educational level and occupation. According to this index, the majority of the sample came from middle class families ($M = 2.81$, $SD = .98$).

Procedure

Contact was made with approximately 200 women in various Arts and Sciences classes at three colleges in the Midwest. The principal investigator (PI) visited a variety of classes and read a standardized statement to inform potential participants about the project. Each participant was offered \$15 upon completion of a battery of questionnaires. Of the 200 women who learned about the study, 180 respondents agreed to participate and were given questionnaires at the time of contact; 131 women (72%) returned completed questionnaires by mailing them back to the PI. The remaining women who did not return the questionnaires were contacted and asked why they did not participate. Most said that they did not have time or were too busy studying for exams. Approximately 5% of these women stated that they were not interested.

Measures

Child sexual abuse (CSA) and peer sexual abuse (PSA). Items pertaining to CSA and PSA were derived from Finkelhor's (Finkelhor, 1979) Childhood Victimization Questionnaire. Respondents were provided with a list of 20 unwanted and nonconsensual sexual behaviors and asked to indicate whether they had experienced any of them before the age of 16 years. Only women who reported an unwanted sexual behavior with a perpetrator who was at least 5 years older than the victim at the time of the abuse were categorized as having experienced CSA. Only victims sexually abused by a perpetrator who was less than 5 years older than them at the time of the abuse were categorized as having experienced PSA. The two sexual abuse categories (CSA vs. PSA) did not overlap. A *yes* response to any of the 20 items was scored as 1 and a *no* response was scored as 0, which resulted in dichotomous variables for CSA and PSA. Individuals who had not experienced any CSA or PSA were assigned a score of 0. Respondents also provided their own age at the time of the sexual abuse, the number of perpetrators, and their relationships with them.

Severity of CSA and PSA. According to Russell (1986), 6 of the 20 unwanted sexual behaviors listed pertained to noncontact sexual abuse and were classified as least severe sexual abuse (e.g., exposing sex organs). The remaining 14 behaviors addressed contact abuse and were classified as severe abuse (e.g., touching genitals), or very severe sexual abuse (e.g., vaginal/anal intercourse). We combined all responses into a summary score (Cronbach's $\alpha = .88$), which served as an indicator of the severity of CSA and PSA.

Adult sexual assault (ASA). The identical 20 questions from Finkelhor's (Finkelhor, 1979) measure used to assess CSA and PSA were utilized for the measurement of ASA. Participants reported on unwanted sexual behaviors that occurred after they were 16 years old. We used a dichotomized version of this

variable (no ASA = 0; ASA = 1), and only individuals who had not experienced sexual assault after the age of 16 were assigned a score of 0. The summary score across all 20 unwanted sexual behaviors served as an indicator of the severity of ASA ($\alpha = .93$). Participants also indicated the number of perpetrators and their relationship with them.

Measures of Comorbid Risk Factors

Witnessing physical conflict between parents. The Parental (Husband–Wife) Violence Scale of the Conflict Tactics Scale (CTS; Straus, 1979) was used to assess how many times respondents had witnessed physical conflict between their parents before the participants were 16 years old. Items ranged from hitting the other to using a knife or gun on the other. The violence items were scored 1 if the respondent had ever witnessed the violent act and 0 if she had never witnessed it. We added the number of *yes* responses for a total score ($\alpha = .80$).

Childhood physical abuse. Seven items from Finkelhor's (Finkelhor, 1979) Childhood Victimization Questionnaire were used to assess childhood physical abuse before the age of 16 years. Respondents were asked to respond *yes* or *no* to seven acts ranging from moderate abuse (e.g., spanked with a switch or belt) to severe physical abuse (e.g., caused a bone to break). The combined score reflected the number of different physically abusive acts they had experienced and served as an indicator of the severity of childhood physical abuse. The internal consistency of the scale was adequate (standardized $\alpha = .54$).

Parental drug use. Participants reported on parents' frequency of drug use before participants were 16 years old (e.g., marijuana, cocaine, and speed). These 18 items were adopted from a substance use survey created by the University of Michigan Substance Abuse Center (Foot, 1993). Each parent received a score on a continuum based on the frequency of drug use known to the child. In the current study, the mothers' drug form had an internal consistency of $\alpha = .75$, and the fathers' drug form had $\alpha = .55$.

Short Michigan Alcoholism Screening Test (SMAST). This measure assesses fathers' (F-SMAST) and mothers' (M-SMAST) alcoholism as reported by children (Crews & Sher, 1992). Participants were asked to respond *yes* or *no* to the presented list of nine behaviors that captured parental alcohol problems before the participants were 16 years old. The F-SMAST and M-SMAST have a high temporal stability and show good agreement across siblings (Crews & Sher, 1992). In this study, the internal consistency for the mothers' SMAST was Cronbach's $\alpha = .87$, and for the fathers' SMAST Cronbach's $\alpha = .74$.

Parental antisocial behaviors. The Antisocial Behavior Checklist, a 42-item instrument, was used to assess parental sociopathy (Zucker, Ham, & Fitzgerald, 1993). These authors reported high internal consistency (α from .67 to .97) and excellent test-retest reliability ($r = .94$). Participants reported on a range of parental

behaviors, such as stealing, trouble with the law, and number of arrests the respondents had witnessed before they were 16 years old. Participants were asked to respond *yes*, *no*, or *don't know* for each item. All *yes* responses received a score of 1, whereas *no* and *don't know* responses received a score of 0. Each parent received a score equal to the sum of antisocial behaviors known to the child. The internal consistencies for the mothers' and fathers' scales were $\alpha = .86$ and $\alpha = .89$, respectively. To obtain an overall indicator of parental sociopathy, we performed *z*-transformations on the fathers' and mothers' scores and then averaged these standardized scores.

Psychological Outcomes

The Trauma Symptom Checklist (TSC). The TSC was used to assess trauma symptoms (Briere & Runtz, 1989). We used 40 items that comprised six subscales: dissociation ($\alpha = .74$), anxiety ($\alpha = .74$), depression ($\alpha = .73$), postsexual abuse trauma ($\alpha = .74$), sleep disturbance ($\alpha = .80$), and sexual dysfunction ($\alpha = .74$). Respondents indicated how often they experienced each symptom in the last 2 months on a scale ranging from never to very often. We also computed a total trauma symptom score based on all 40 items ($\alpha = .90$).

Beck Depression Inventory. A short form of the Beck Depression Inventory (BDI) with 13 items was used to assess current depressive symptoms (Beck, 1972). Scores on the long and short forms of the BDI correlate between .89 and .97 (Beck, Steer, & Garbin, 1988). Each item consisted of four alternative statements to reflect the severity of the particular symptom, which were summed to produce a total depression score ($\alpha = .83$).

Behavioral Outcomes

Relationship violence. The Parental (Husband–Wife) Violence Scale of the CTS was used to assess if participants had ever experienced or engaged in physical conflict (Straus, 1979). Items ranged from hitting the other to using a knife or gun on the other. Respondents indicated how many times they had ever experienced or enacted each of these behaviors with their dates/partners. There were two separate versions of the scale, one measuring the participants' behaviors as a perpetrator of violence, and another version assessing the participant as a victim of violence. For both versions, every violent behavior was scored as 1 independent of its frequency of occurrence, and as 0 if it had not occurred at all. These scores were added up separately to produce two violence indexes, one for violence enacted by the respondent and one for violence experienced by the respondent.

Partner/date substance use. Participants were asked how many partners they had dated whom they felt had a serious drug or alcohol problem.

Alcohol use. Participants reported the average number of alcoholic drinks they consumed per week.

Antisocial behaviors. We adapted the Antisocial Behavior Checklist by Zucker, Ham, and Fitzgerald (1993) and added items that specifically tap antisocial behaviors in young women to measure participants' criminal behaviors, truancy, and arrests during their lifetime (e.g., sexual acts in exchange for money, housing, or other material goods). Participants responded to 74 items on a 4-point scale with 1 = *never* and 4 = *often*. Only antisocial acts that occurred after the age of 16 were included in the present analysis. The scale had a high level of reliability ($\alpha = .89$), and we used the mean across all items as an index of antisocial behaviors.

Results

Characteristics of Sexual Abuse Before the Age of 16 Years

Analyses focus on the 126 women who provided complete and usable data. In the present sample, 46% of respondents reported having experienced unwanted sexual behaviors before the age of 16. Of these, 24% had been sexually abused by a person who was at least 5 years older than them (CSA), and 20% had experienced sexual abuse by a person who was less than 5 years older than them (PSA). The proportion of CSA victims is comparable to those found in other studies (see Rind, Tromovitch, & Bauserman, 1998). The two sexual abuse groups did not differ on the severity of the experienced abuse ($M = 6.65$, $SD = 3.85$ and $M = 6.91$, $SD = 4.10$, respectively; $t < 1$). Also, the groups did not differ with regard to the number of perpetrators ($M = 1.52$, $SD = 1.08$ and $M = 1.72$, $SD = 1.11$, respectively; $t < 1$).

As can be expected, respondents in the PSA group were significantly older at the time of their first unwanted sexual experience than were participants in the CSA group, $t(56) = 2.58$, $p < .05$ (see Table 1). As also shown in Table 1, there was no reliable difference between groups in terms of SES. The proportion of minorities was comparable across the three groups (proportion of Caucasians: control 71%; PSA 62%; CSA 72%), $\chi^2(2, N = 126) = .88$, $p > .64$, and the proportion of married or divorced individuals did not vary significantly (control 9%; PSA 11%; CSA 25%), $\chi^2(2, N = 126) = 4.99$, $p < .10$.

To assess the comorbidity of multiple childhood stressors, we compared the CSA group, the PSA group, and the control group on the risk factors listed in Table 1. Using a multivariate analysis we found the three groups to be significantly different, $\Lambda = .72$, $F(16, 198) = 2.25$, $p < .01$. When we followed up with univariate analyses, significant differences emerged with regard to both mothers' and fathers' sociopathy, and mothers' drug use. In all three instances, the CSA group differed from the control group with the PSA group falling in-between, but without

Table 1. Correlations Between Pre-16 Years Sexual Abuse and Comorbid Stressors in Survivors of Child Sexual Abuse, Peer Sexual Abuse, and the Control Group

| Demographic variables | Control (<i>n</i> = 68) | PSA (<i>n</i> = 26) | CSA (<i>n</i> = 32) | One-way ANOVA <i>F</i> (2, 125) ^a |
|------------------------------|-----------------------------|---------------------------|---------------------------|--|
| Age of participant | 21.44 _a (4.15) | 21.38 (4.59) | 24.19 _b (6.43) | 3.79* |
| Hollingshead's SES index | 2.61 (.94) | 2.88 (.99) | 3.09 (1.06) | 2.76 |
| Childhood risk factors | | | | |
| Physical abuse | 1.22 (1.03) | 1.62 (1.36) | 1.72 (1.25) | 2.53 |
| Parental domestic violence | 4.96 (16.62) | 3.13 (12.25) | 13.10 (25.87) | 2.42 |
| Parent's Antisocial behavior | | | | |
| Mother | 1.03 _a (.05) | 1.04 _a (.07) | 1.11 _b (.14) | 9.44*** |
| Father | 1.08 _a (.14) | 1.19 _b (.22) | 1.20 _b (.19) | 7.30** |
| Parental alcoholism | | | | |
| Mother | .25 (1.11) | .31 (.97) | .53 (1.37) | .63 |
| Father | .95 (1.97) | .40 (1.00) | 1.63 (2.50) | 2.73 |
| Parental drug use | | | | |
| Mother | 2.70 _a (4.50) | 4.84 _{ab} (6.57) | 7.03 _b (1.41) | 3.88* |
| Father | 2.92 (5.72) | 2.88 (3.50) | 3.73 (4.32) | .30 |

Note. Values are means and standard deviations (the latter in parentheses). Means that do not share the same subscript differ at $p < .05$.

^aBecause of missing data, there was some variation in the degrees of freedom in the denominator (minimum 117).

* $p < .05$.

** $p < .01$.

*** $p < .001$.

being different from the control group. The only exception was fathers' antisocial behavior where the PSA group was reliably distinct from the control group. This suggests that fathers' sociopathy is not only an antecedent of CSA as has been previously documented (Maker et al., 1999), but may also be associated with PSA.

Characteristics of Adult Sexual Assault (ASA)

In the present sample, 49% of respondents indicated that they had been sexually assaulted after the age of 16 years. We compared ASA survivors with those individuals who had not experienced ASA on all the childhood risk factors, but the two groups did not differ in the multivariate comparison, $\Lambda = .96$, $F < 1$, except that fathers of ASA survivors exhibited more antisocial behaviors than did fathers of no-ASA individuals (see Table 2).

In this study there was no significant age difference between participants with and without ASA. Hence, the presence of ASA cannot be explained by the fact that, with a given rate of ASA in the population, older individuals were more likely to have experienced ASA. Lastly, the proportion of minorities was almost equal (proportion of Caucasians: no-ASA 70%; ASA 68%; $\chi^2 < 1$), and the proportion of married or divorced individuals was comparable (no ASA 14% vs. ASA 14%; $\chi^2 < 1$).

Table 2. Correlations Between Post-16 Years Sexual Assault and Comorbid Stressors in Survivors of Adult Sexual Assault and the Control Group

| Demographic variables | Control (<i>n</i> = 64) | ASA (<i>n</i> = 62) <i>M SD</i> | One-way ANOVA, <i>F</i> (1, 125) ^a |
|------------------------------|--------------------------|-------------------------------------|--|
| Age of participant | 21.65 (4.79) | 22.89 (5.46) | 1.83 |
| Hollingshead's SES index | 2.74 (.96) | 2.84 (1.05) | .31 |
| Childhood risk factors | | | |
| Physical abuse | 1.28 (1.11) | 1.58 (1.24) | 2.06 |
| Parental domestic violence | 6.40 (18.87) | 7.06 (18.87) | .04 |
| Parents' Antisocial behavior | | | |
| Mother | 1.04 (.07) | 1.06 (.11) | 1.63 |
| Father | 1.10 (.13) | 1.16 (.19) | 4.12* |
| Parental alcoholism | | | |
| Mother | .26 (1.14) | .46 (1.19) | .83 |
| Father | .92 (1.09) | 1.09 (2.10) | .14 |
| Parental drug use | | | |
| Mother | 4.11 (8.88) | 4.59 (5.78) | .13 |
| Father | 3.24 (4.87) | 3.12 (5.22) | .02 |

Note. Values are means and standard deviations (the latter in parentheses).

^aBecause of missing data, there was some variation in the degrees of freedom in the denominator (minimum 120).

**p* < .05.

Predictors of Revictimization

To determine the risk of revictimization, we examined the likelihood of CSA and PSA survivors becoming the victims of ASA. Specifically, 66% of those who had experienced CSA and 58% of those who had experienced PSA reported having been sexually assaulted after the age of 16. By contrast, only 38% of the no-sexual-abuse control group reported an experience of ASA, $\chi^2(2, N = 126) = 7.48, p < .01$. To test this relationship more directly and to detect possible differences between CSA and PSA, we used a logistic regression model predicting whether the person had experienced ASA from whether they had experienced CSA or PSA. The resulting model had a good fit, $\chi^2(2, N = 126) = 8.05, p < .05$, and showed that CSA was indeed a reliable predictor of ASA, OR = 3.08 (95% CI = 1.28–7.42), but that this was not the case for PSA, OR = 2.20 (95% CI = 0.88–5.52). To test the robustness of this finding we controlled for those childhood risk factors that had previously been found to be associated with CSA, PSA, or ASA, namely mothers' and fathers' antisocial behavior and mothers' drug use. Results of this expanded logistic regression model showed that CSA was still reliable as a predictor of ASA, OR = 2.63 (95% CI = 0.99–6.99), *p* = .053. However, PSA was clearly not reliable in this model, OR = 1.87 (95% CI = 0.71–4.90). We concluded that CSA was the only predictor of ASA among the variables examined.

We conducted another set of logistic regression analyses to include severity of CSA (continuous variable) in the model, and regressed ASA on CSA and PSA (both dichotomous variables), and the severity of CSA. However, this expanded logistic

regression model did not explain additional variance nor provide a better model fit than that for the model containing only CSA and PSA as predictors, $\Delta\chi^2 < 1$. We conducted similar analyses entering the number of CSA perpetrators and age of onset of CSA as additional predictors in the logistic regression model. Because neither variable improved the model fit, we concluded that the experience of CSA alone, independent of its severity, number of perpetrators, or age of onset, was sufficient to predict ASA.

Outcomes of Experiencing Child Sexual Abuse, Peer Sexual Abuse, Sexual Assault, or All of These

We suggested that the consequences of experiencing ASA should not be addressed independently from the consequences of experiencing earlier sexual abuse as both yield parallel mental health outcomes. To be able to separate the effects of these traumas, we divided our participants into six groups according to the pattern of trauma experienced: those who had experienced neither CSA, PSA, nor ASA ($n = 42$); CSA only ($n = 11$); PSA only ($n = 11$); ASA only ($n = 26$); ASA and CSA ($n = 21$); and, finally, ASA and PSA ($n = 15$).

To be able to discern the effects of pre-16 years sexual abuse on the one hand, and post-16 years sexual assault on the other hand, we chose a two-factorial multivariate analysis of variance (MANOVA) that included all 13 outcome variables listed in Tables 3 and 4. This two-factorial analysis yielded three significant effects: A main effect for pre-16 years sexual abuse (no pre-16 years sexual abuse control group vs. CSA vs. PSA), $\Lambda = .63$, $F(26, 178) = 1.79$, $p < .05$; a main effect for post-16 years sexual assault (no ASA vs. ASA), $\Lambda = .78$, $F(13, 89) = 1.96$, $p < .05$; and an interaction effect between pre-16 years sexual abuse and post-16 years sexual assault, $\Lambda = .64$, $F(26, 178) = 1.79$, $p < .05$. Because some of the outcome measures were associated with the respondent's age, we controlled for this variable in all subsequent analyses. We followed up with a series of two-factorial univariate ANOVAs to examine mean differences between groups on individual measures.

Effects of Pre-16 Years Sexual Abuse (No Pre-16 Sexual Abuse Group vs. CSA vs. PSA)

Mental health outcomes. An inspection of the last columns of Table 3 reveal that the number of pre-16 years sexual abuse effects were limited. We only found main effects for postsexual abuse trauma and sexual dysfunction; $F(2, 115) = 4.09$, $p < .05$ and $F(2, 117) = 7.33$, $p < .01$, respectively. Independent of ASA, postsexual abuse trauma symptoms were significantly more pronounced in the CSA group ($M = 5.10$, $SD = 4.10$) than in the control group ($M = 2.64$, $SD = 2.71$), with the PSA group falling in-between without being reliably different from the

Table 3. Outcome Measures as a Function of Experiencing Pre-16 Years Sexual Abuse, Post-16 Years Sexual Assault, or Both Mental Health

| | No ASA | | | ASA | | | ANOVA ^a | |
|--|---------------------------------|---------------|---------------|-------------------|---------------|---------------|-----------------------------|-------------------|
| | No pre-16 sexual abuse (n = 42) | PSA (n = 11) | | Only ASA (n = 26) | PSA (n = 15) | | Main effects pre-16 post-16 | IA pre-16 post-16 |
| | | CSA (n = 11) | CSA (n = 11) | | CSA (n = 21) | | | |
| Beck Depression Trauma Symptom Checklist | 17.51 (5.06) | 17.27 (4.00) | 18.42 (2.84) | 20.74 (5.37) | 18.33 (3.54) | 21.26 (4.66) | | * |
| Dissociation | 2.64 (2.99) | 3.00 (2.28) | 2.50 (2.50) | 3.88 (4.20) | 4.20 (2.54) | 6.06 (3.70) | | ** |
| Anxiety | 4.09 (3.12) | 6.00 (3.22) | 4.83 (3.01) | 6.75 (4.46) | 6.80 (3.17) | 8.00 (4.46) | | ** |
| Depression | 4.53 (3.19) | 5.64 (2.91) | 4.92 (3.78) | 7.38 (4.58) | 6.20 (3.08) | 8.89 (4.15) | | ** |
| Postsexual abuse trauma | 2.02 (2.52) | 2.45 (2.21) | 2.64 (2.46) | 3.75 (2.74) | 4.80 (3.23) | 6.61 (4.22) | | *** |
| Sleep disorder | 5.02 (3.32) | 4.91 (3.08) | 5.92 (4.44) | 6.04 (3.65) | 5.73 (2.87) | 7.79 (3.46) | | * |
| Sexual dysfunction | 1.74 (2.07) | 4.18 (3.66) | 3.00 (2.45) | 4.40 (2.65) | 4.87 (3.13) | 7.89 (4.24) | | *** |
| TSC Total score | 18.88 (12.66) | 23.45 (12.34) | 21.22 (12.11) | 29.52 (15.57) | 29.00 (13.87) | 41.06 (14.32) | | *** |

Note. Values are means and standard deviations (the latter in parentheses). PSA refers to peers sexual abuse and CSA to childhood sexual abuse. IA pre-16 × post-16 in the last column of the table stands for the interaction between type of pre-16 years sexual abuse and type of post-16 years sexual abuse. The TSC Total score was not included in the multivariate analyses reported in the text.

^aBecause of missing data, there was some variation in the degrees of freedom in the denominator (minimum 120).

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 4. Outcome Measures as a Function of Experiencing Pre-16 Years Sexual Abuse, Post-16 Years Sexual Assault, or Both Behavioral Outcomes

| | No ASA | | | | | | ANOVA ^a | |
|-------------------------------------|---------------------------------|---------------|-------------------|---------------|---------------|----------------|---------------------|----|
| | No pre-16 sexual abuse (n = 42) | | ASA | | Main effects | | IA pre-16 × post-16 | |
| | PSA (n = 11) | CSA (n = 11) | Only ASA (n = 26) | PSA (n = 15) | CSA (n = 21) | pre-16 post-16 | | |
| Antisocial behavior | 20.65 (14.53) | 32.55 (17.37) | 30.33 (18.42) | 30.72 (19.17) | 37.13 (16.04) | 45.47 (19.26) | ** | ** |
| Violence in relationship | | | | | | | | |
| By partner | .05 (.11) | .26 (.25) | .06 (.21) | .20 (.21) | .39 (.31) | .34 (.30) | * | ** |
| By self | .05 (.12) | .33 (.24) | .02 (.08) | .19 (.25) | .24 (.26) | .15 (.17) | *** | * |
| No of chemically dependent partners | .64 (1.03) | 1.18 (1.33) | .92 (1.24) | .96 (.68) | 1.53 (2.45) | 2.50 (1.62) | * | ** |
| Drug consumption | 1.03 (.13) | 1.10 (.16) | 1.19 (.26) | 1.19 (.36) | 1.28 (.32) | 1.18 (.24) | | * |
| Drinks per week | 1.71 (1.11) | 2.51 (1.18) | 1.88 (1.03) | 1.86 (1.07) | 1.95 (1.05) | 2.13 (1.09) | | |

Note. Values are means and standard deviations (the latter in parentheses). PSA refers to peers sexual abuse and CSA to childhood sexual abuse. IA pre-16 × post-16 in the last column of the table stands for the interaction between type of pre-16 years sexual abuse and type of post-16 years sexual abuse. The TSC Total score was not included in the multivariate analyses reported in the text.

^aBecause of missing data, there was some variation in the degrees of freedom in the denominator (minimum 120).

* $p < .05$.

** $p < .01$.

*** $p < .001$.

other two groups ($M = 3.81, SD = 3.03$). Further, we found that the CSA group experienced significantly more sexual dysfunction ($M = 6.10, SD = 4.36$) than did the PSA group ($M = 4.58, SD = 3.41$), which, in turn, was reliably higher than what the control group experienced ($M = 2.72, SD = 2.62$). These findings indicate that PSA may not be as detrimental to long-term mental health functioning as CSA. Also, when we control for the impact of ASA some of the expected negative outcomes associated with CSA as documented in previous literature (for example, depression and anxiety) do not hold.

Behavioral outcomes. As summarized in Table 4, pre-16 sexual abuse was found to be related to antisocial behaviors, $F(2, 118) = 5.01, p < .01$; number of chemically dependent partners, $F(2, 116) = 3.76, p < .05$; and relationship violence as both victim and perpetrator, $F(2, 112) = 4.09, p < .05$ and $F(2, 112) = 8.85, p < .01$, respectively.

Antisocial behaviors. Post hoc comparisons revealed that the control group was significantly lower on antisocial behaviors ($M = 1.25, SD = .15$) than were the PSA group ($M = 1.38, SD = .17$) and the CSA group ($M = 1.40, SD = .22$).

Chemically dependent partners. The control group also had, on average, fewer chemically dependent partners ($M = .76, SD = .92$) than did the CSA group ($M = 1.87, SD = 1.66$). The PSA group was not reliably different from the other two groups ($M = 1.38, SD = 2.02$).

Relationship violence. Both the PSA group and the CSA group experienced significantly more violence by their partners than did the control group ($M = .27, SD = .28$ and $M = .23, SD = .30$ vs. $M = .11, SD = .17$, respectively). However, this pattern was different for violence enacted by the self in dating relationships: post hoc tests showed that women who had experienced PSA reported higher levels of self-enacted violence ($M = .28, SD = .25$) than did both the control group ($M = .10, SD = .19$) and the CSA group ($M = .10, SD = .15$). Unfortunately, because we did not assess participants' age when they were victims or perpetrators of relationship violence, it is unclear if the violence occurred in the context of the sexual trauma.

Effects of Post-16 Years Sexual Assault (No ASA vs. ASA)

Mental health outcomes. As summarized in Table 3, we found that independent of pre-16 years sexual abuse, ASA resulted in significant differences on all mental health variables, with the single exception of the TSC sleep disorder subscale. In all instances, the ASA group exhibited more negative outcomes than did the control group. Thus, ASA seems to be associated with a pervasive impairment of current psychological functioning.

Behavioral outcomes. ASA was related to more antisocial behavior, more partner violence, a greater number of chemically dependent partners, and higher level of drug consumption than was the control group. Perhaps the recency of adult

sexual victimization can explain the more pervasive and debilitating psychosocial impact. These findings also highlight that ASA has consequences similar to CSA and PSA, which underscores the need to control for varying sexual traumas.

The Interaction Between Pre-16 Years Sexual Abuse and Post-16 Years Sexual Assault

We hypothesized that the detrimental effects of sexual trauma would accumulate in a nonlinear way supporting a multiplicative model of trauma. In the present analyses, such a pattern would show up as an interaction effect. On two of our outcome variables we found evidence for such a pattern: For sexual dysfunction, there was a significant interaction effect between pre-16 years sexual abuse and post-16 years sexual assault, $F(2, 117) = 3.30, p < .05$. For the no-CSA control group and the CSA group, the experience of ASA was linked to a marked increase in sexual dysfunction, pairwise $F(1, 117) = 18.57, p < .01$, and $F(1, 117) = 12.04, p < .01$, respectively. However, although in the same direction, this difference was not significant for the PSA group, $F(1, 117) = .25, p > .62$ (see Table 3). Further, we found a significant interaction effect for self-enacted relationship violence, $F(2, 112) = 3.45, p < .05$. Surprisingly, although victims of ASA showed comparable levels of enacted violence across all three pre-16 years sexual abuse groups (no-CSA control group: $M = .19, SD = .25$; PSA: $M = .24, SD = .26$; CSA: $M = .15, SD = .17$), there was much greater variation among those who had not experienced ASA. Specifically, those who had experienced only PSA committed significantly higher levels of relationship violence ($M = .33, SD = .24$) than did individuals in the no-CSA control group and CSA group ($M = .05, SD = .12$ and $M = .02, SD = .08$). This finding indicates the potential of PSA as a predictor of self-enacted violence, perhaps in self-defense, in dating relationships.

Discussion

This study examined comorbid risk factors as predictors of ASA. Victims of CSA were more likely to be sexually assaulted after the age of 16 than women who had experienced PSA and women who had not been sexually abused in childhood, supporting previous research findings and clinical observations (Gidycz et al., 1993; Stevenson & Gajarsky, 1991). CSA was also the only predictor of ASA among coexisting risk factors. The present results do not replicate findings by Cloitre et al. (1996) that showed both childhood physical and sexual abuse were associated with adult sexual assault. Perhaps the discrepant findings can be explained through Cloitre's use of an inpatient clinical sample of women versus our nonclinical sample. Future research should assess multiple stressors in different samples to better clarify risk factors for revictimization in varied populations.

Our data is consistent with a specificity model of trauma in that CSA places women on a unique developmental trajectory for sexual revictimization over time. Our present findings did not show that severity of CSA, number of CSA perpetrators, and age at onset of CSA increased the risk for sexual revictimization after the age of 16. Rather, our results suggest that even less severe abuse and being victimized by just one perpetrator in childhood may be sufficient to place the survivor at higher risk for later sexual assault.

Surprisingly, a similar finding was not obtained for PSA and PSA was related to only a few negative outcomes. This suggests that there may be qualitative differences between CSA and PSA, with the age difference between perpetrator and victim reflecting power, status, and relationship differentials that may shape long-term consequences. However, given our modest sample size, we hesitate to rule out PSA as a risk factor for later sexual revictimization or as having fewer negative psychological ramifications. Future research should explore PSA as a separate phenomenon from CSA to better assess its unique predictors and psychological consequences.

With regard to the consequences of pre-16 years and post-16 years sexual victimization, we found that that the latter was associated with lower levels of functioning on many of the mental health and behavioral outcomes. By contrast, pre-16 years sexual trauma (CSA or PSA) was only related to some maladaptive behavioral and psychological consequences. The pattern of findings is consistent with the assumption that more recent trauma has a greater impact on psychosocial functioning than more distal child abuse. This does not mean that CSA and PSA are less detrimental, but perhaps that women have had a longer time to cope with the effects of CSA in comparison to that of ASA (cf. Rind et al., 1998).

The present results are also quite consistent with the findings by Koverola et al. (1996). We found independent effects for pre-16 years sexual abuse and post-16 years sexual assault resulting in more detrimental outcomes for those individuals who had experienced both traumas. In this sense, experiencing both earlier sexual abuse and adult sexual assault are additive. However, we only found limited evidence for a multiplicative effect of traumas across time.

We acknowledge that this study has a number of limitations. First, retrospective self-reports are susceptible to exaggeration and denial. Second, one should be cautious when drawing causal inferences from these data. Although researchers may have more confidence in concluding that earlier traumatic events (e.g., pre-16 years abuse) are responsible for subsequent psychological outcomes, the same is difficult to determine for later victimization and psychosocial functioning assessed for the same period of time, as the exact sequence is not clear.

From a theoretical point of view, another shortcoming is that this study did not examine the underlying mechanisms for the increased risk for sexual revictimization. Future studies should explore characteristics and behaviors related to CSA, such as victim identity, high-risk sexual behaviors, learned helplessness, and

incorrect attributions that might place CSA survivors at higher risk for ASA. Also, our study did not allow for a systematic comparison of various ethnic groups. For example, Rao, DiClemente, and Ponton (1992) found cross-cultural differences in long-term consequences of child sexual abuse, with Asian American women exhibiting less sexual risk-taking behaviors than Caucasian, Latina, and African American women do. Again, future studies need to explore the relationship between CSA and ASA and their ramifications in different populations

In sum, this study reconfirms the relationship between child sexual abuse and adult sexual revictimization in a nonclinical sample of women. The present findings point out the need for further research to capture the developmental trajectory of sexual victimization across the life span based on early sexual trauma. The need for clinicians to develop preventative interventions for childhood survivors to reduce the risk for later sexual assault is also clear. It is important that future research on revictimization include comorbid childhood stressors and assess peer sexual abuse as a separate risk factor to better identify the unique relationships among varying childhood traumas, later sexual assault, and psychosocial consequences.

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