

Childhood sexual abuse and sexual transmission risk behaviour among HIV-positive men who have sex with men

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Abstract Previous studies have indicated an association between childhood sexual abuse (CSA) and adult sexual risk behaviour among women and among men who have sex with men (MSM). However, no studies to date have tested the hypothesis that a history of CSA predicts sexual behaviour carrying risk of transmission of HIV to others, i.e. in a known HIV-positive cohort. The present study tested this hypothesis among a sample of 456 HIV-positive MSM recruited from community venues in New York and San Francisco. CSA history was found to be significantly associated with past (in the last 90 days) unprotected anal sex acts, both insertive (33% versus 20%, $p < 0.05$) and receptive (43% versus 27%, $p < 0.02$), with partners of HIV-negative or unknown serostatus. Further, several potential mediators of this effect were tested, and three found to be predicted by CSA history. Each of these potential mediators was associated with sexual risk behaviour, but differentially: anxiety and hostility were significantly associated with insertive acts, while anxiety, hostility and suicidality were associated with receptive acts. Mediation analyses supported the hypothesis that these factors significantly (albeit partially) accounted for the association of CSA with receptive anal intercourse. Nonsignificant mediation effects were found for insertive sex, suggesting the operation of unmeasured mediating variables. These results highlight the importance of mental health services for individuals who have been sexually abused, both for personal and for public health benefit, and also indicate a need for further research into mediators of CSA effects on transmission-related behaviour.

Introduction

Sexual abuse in childhood is experienced by both men and women. The prevalence of child sexual abuse (CSA) in the general population is not known with precision, as definitions differ among studies. Estimates for females range from a low of 4.5% of girls reporting sexual abuse by a father or stepfather (Russell, 1986), to highs of around 13–27% if sexual abuse is defined more broadly (Finkelhor & Dzuiba-Leatherman, 1994; Finkelhor *et al.*, 1990; Koss & Dinero, 1989). In one study that defined CSA to include non-contact episodes (such as genital

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exposure without touching), it was reported by more than half of matched samples of white and African American women (Wyatt, 1985). In a large national study, Finkelhor *et al.* (1990) found that 16% of men, compared to 27% of women, had experienced sexual abuse as a child. Population-based estimates of CSA among men who have sex with men (MSM) have been reported to be as high as a third (Bartholow *et al.*, 1994).

A growing number of studies indicate that CSA history predicts adult engagement in behaviours that carry risk for HIV and other sexually transmitted diseases, including unprotected sexual intercourse, sex with multiple partners and brief sexual relationships with casual partners. This has been shown both for women (Thompson *et al.*, 1997; Wyatt, 1988; Zierler *et al.*, 1991) and for men who have sex with men (Bartholow *et al.*, 1994; Carballo-Dieguez & Dolezal, 1995; Jinich *et al.*, 1998).

Indeed, victims of CSA exhibit a variety of emotional and behavioural sequelae. These include unhealthy behaviours such as alcohol use and drug use (Felitti *et al.*, 1998; Wilsnack *et al.*, 1997). CSA has been associated with a number of sexual factors, such as earlier sexual debut, more partners and compulsive sexual behaviour, compared with non-abused women (Browne & Finkelhor, 1986; Polusny & Follette, 1995). They are also more likely to be depressed, anxious and suicidal and to have higher rates of other psychiatric disorders (Briere, 1991; Herman *et al.*, 1986). Findings from a study of MSM found that CSA was associated with mental illness, psychoactive drug use, low social support and suicidality as well as sexual risk behaviour (Bartholow *et al.*, 1994).

These sequelae of CSA may comprise pathways for its effects on sexual risk behaviour. Recently some efforts to identify mediators have been made. Miller (1999) presented a theoretical model hypothesizing three potential mediators: substance use; problems with sexual adjustment; and psychopathology, e.g., depression. Kalichman and colleagues (2001) tested, in a sample of gay men, several possible mediators, including substance use, dissociative processes, trauma-related anxiety and borderline personality disorder. Men who had been sexually abused in childhood or adulthood did exhibit more of these symptoms; however, adjusting CSA in the model did not change the results. Morrill *et al.* (2001) collected data from men and women with substance abuse histories to test the possible mediating effects of substance abuse and depression, obtaining evidence that, among women, depression does partly mediate the relationship.

Hypotheses concerning these mechanisms are best explored via mediation analysis (Baron & Kenny, 1986) using data sets containing the independent variable (CSA history), dependent variable (sexual risk behaviour) and potential mediating variables. Identifying mediators that account for links between CSA and HIV risk behaviour is an important task. Mediators may offer points of intervention that might prevent the childhood events from transforming into HIV infection and illness. For example, depression and substance use are two common sequelae of CSA that might lead to the adoption of risky behaviour and that if changed via behavioural/psychotherapeutic intervention might prevent the risky behavior and HIV.

In the studies of MSM cited above, most participants were HIV-negative and analyses were not conducted by serostatus-derived sub-groups. No study to date has sought to evaluate the relationship between CSA and sexual transmission risk behaviour by HIV-positive individuals. Behaviour that puts others at risk of HIV could, in theory, be determined by very different forces than those driving behaviour that threatens the self. For example, suicidality, a known consequence of CSA (Bartholow *et al.*, 1994), may be an important factor mediating self-risk but would not as logically be related to transmission risk behaviour.

Anal sex by MSM is a directional behaviour: the individual can be either the insertive partner or the receptive one. With respect to the potential for infection (assuming condoms

are not used), receptive sex is considerably riskier for an uninfected partner. However, the risk of transmitting the virus is greater when the infected person is the insertive partner and yet, receptive anal sex does carry some risk to the insertive uninfected partner. Thus, in a seropositive sample, both insertive and receptive anal sex carry transmission risk, although to different degrees, and the psychosocial dynamics (e.g. CSA-related mediators) may differ between the two.

The present study sought to examine these processes in the context of the CDC-funded Seropositive Urban Men's Study (SUMS). A total of 456 men from New York and San Francisco were recruited into a cross-sectional study of qualitative and quantitative predictors of transmission risk behavior. Our aims in the present analysis were first, to replicate earlier findings of an association between CSA and unprotected anal sex but with a seropositive sample, and second, to identify possible mediators of this effect. In the latter, we considered the possible roles of drug and alcohol use, anxiety, depression, hostility, sexual compulsivity and suicidality.

Method

Participants

Participants were recruited through active staff outreach, via posted advertisements, and through limited friend referral. Quotas based on ethnicity were designed to result in roughly equivalent numbers of white, African American, and Latino participants; in addition, both sites made concerted efforts to recruit Asian/Pacific Islanders. Additional quotas were set for recruitment venue, with the goal of recruiting roughly equivalently from AIDS service organizations (ASOs); mainstream gay environments (MGEs) such as pride events and gay bars; and public sex environments (PSEs) such as commercial sex venues and outdoor cruising areas.

Entry criteria included: (1) self-reported HIV-positive status; (2) sex with other men within the previous year; and (3) age 18 or older. Table 1 gives basic demographic information for the entire sample, and separately for participants with and without a history of CSA.

Procedure

Potential participants called a toll-free telephone number to be screened for eligibility. Those who met criteria were scheduled to meet with an interviewer for a qualitative interview that elicited, among other factors, detailed narratives describing recent sexual episodes including, if appropriate, protected/safe sex, unprotected/unsafe sex, and sex with a woman. When this one-hour interview was completed, participants were asked to complete a paper-and-pencil questionnaire eliciting information regarding sexual behaviour, social-cognitive and other quantitative predictors of risk behaviour, health care utilization and mental health factors. Respondents were permitted to complete the instrument at the interview site, or to take it home and mail it in. They were paid \$30.00 for both the interview and the questionnaire completion for a total of \$60.00. All of the data included in the present analyses were obtained from the questionnaire. All study procedures were approved by the Institutional Review Boards at the Centers for Disease Control and Prevention and the participating institutions.

Table 1. Demographic characteristics of the sample and of those reporting CSA history or No CSA history

Variable	Total (N = 456)	CSA history (N = 68)	No CSA history (N = 388)
Age (M, SD)	37 (8.0)	36 (8.3)	38 (7.8)
Ethnicity (%)			
White	30	24	31
African American	29	28	29
Latino	24	24	24
Asian/Pacific Islander	6	7	6
Other	11	18	10
City of residence (%)			
New York	61	62	61
San Francisco	39	38	39
Educational background (%)			
Not completed high school	7	9	7
HS diploma/GED	19	21	19
Some college	38	40	38
Bachelor's degree	23	21	24
Masters/doctorate	11	10	11

Measures

Sexual risk behaviour. Men indicated whether, within the previous 90 days, they had engaged in each of several sexual practices. Estimates were made for main and other partners, and for HIV-positive, -negative and unknown status partners. For the present manuscript, unprotected anal sex with any partners (main or other) of seronegative or unknown status are the outcomes of interest in that these behaviours carry high risk of transmitting the virus. Because the psychological dynamics of receptive versus insertive sex may be different (for example, the latter is considerably riskier for transmission), we examined these separately.

Childhood sexual abuse. To assess CSA, we asked a series of questions: first, 'Have you ever been pressured, forced or intimidated into doing something sexually that you did not want to do? These situations may have involved sexual fondling, oral sex, penetration with a finger or object, or intercourse'. Response options included: 'Yes', 'No', 'I don't know' and 'I'd rather not say'. Second, those responding in the affirmative were then asked to indicate the age of first occurrence. Third, respondents indicated the abuse *frequency*, that is, whether this abuse was 'an isolated incident (it happened one time)' or 'part of a series of unwanted sexual experiences (it happened more than once)'. The response option, 'I'd rather not say', was endorsed by a small number of individuals. Finally, based on evidence that coerced sexual contact need not be upsetting (Carballo-Dieguez & Dolezal, 1995), respondents indicated how *upsetting* the experience had been: 'Not at all', 'Mildly', 'Moderately', or 'Extremely'. Only 12% of respondents found the event(s) not upsetting. A dichotomous measure of whether first-abuse occurred under the age of 16 was used in all analyses, as results were very similar when a measure weighted by 'upsettingness' was employed.

Brief Symptom Inventory: depression and hostility. Participants completed three subscales of the Brief Symptom Inventory (Derogatis & Lazarus, 1994). The six items comprising the Anxiety scale, the seven from the Depression sub-scale, and five comprising the Hostility sub-scale were used in the present analyses. Respondents indicate how much each symptom has

Table 2. Percentages of men reporting any unprotected anal sex acts with seronegative or status unknown partners in previous 90 days

	CSA history (%)	No CSA history (%)	<i>t</i>
Insertive anal	33	20	2.03*
Receptive anal	43	27	2.47**

* $p < 0.05$; ** $p < 0.02$.

bothered them during the past week on a five-point scale ranging from 'Not at all' to 'Extremely'. Example items from the anxiety sub-scale are 'Suddenly scared for no reason' and 'Feeling tense or keyed up'. Items from the depression sub-scale include 'Feeling blue' and 'Feeling worthless'. Examples of hostility items include 'Getting into frequent arguments' and 'Having urges to break or smash things'. Coefficient alphas for these sub-scales in our sample were 0.87 for anxiety, 0.91 for depression and 0.85 for hostility. It should be noted that, while mood states were observed for the prior week only, we assume that they reflect enduring dispositions (Watson & Pennebaker, 1989).

Alcohol use. Heavy use of alcohol was assessed with the following item: 'In the last three months, how often have you gotten drunk?' Response options varied from 'Never' to 'Every day' on a scale that ranged from 1 to 5.

Recreational drug use. Participants indicated the frequency with which they used each of ten non-injection and four injection drugs on a five-point scale ranging from 'Never' to 'Every day'. These included non-injection amphetamines, barbiturates/tranquilizers, cocaine, crack, ecstasy, GHB, hallucinogens, heroin, marijuana, amyl nitrate and 'other' as well as four injection drugs, heroin, cocaine, amphetamine and speedball. The mean of these frequencies became the drug use score, which thus ranged from 1 to 5.

Sexual compulsivity. Participants completed the Sexual Compulsivity Scale (Kalichman & Rompa, 1995; Kalichman *et al.*, 1994; Kalichman *et al.*, 1997). Four items were rated on a four-point scale ranging from 'Not at all like me' to 'Very much like me'. The scale is created by averaging item scores. Example items are 'My desires to have sex have disrupted my daily life' and 'I think about sex more than I would like'. Coefficient alpha for the subscale in our sample was 0.87.

Suicidality. Suicidal intentions were assessed with the single item, 'Have you ever seriously considered or tried to commit suicide?' Responses were 'Yes' and 'No'.

Data analysis

In order to establish relationships between CSA and sexual risk behaviour, *t*-tests were performed between the CSA measure and each of the two anal sex measures (insertive and receptive). To address the question of mediation, two steps are required (Baron & Kenny, 1986): (1) determine whether the independent variable (CSA) is related to each hypothesized mediator; and (2) determine whether the relationship between the independent variable and the dependent variable (sexual behaviour) is attenuated when the hypothesized mediators are

included in the model. Additionally, in cases for which CSA predicted the mediator, we assessed the degree of association between the mediator and the sexual risk variables.

Results

Table 2 presents the percentage of men reporting unprotected anal sex with partners of seronegative or unknown status, for those reporting CSA and those not reporting it. Results of *t*-tests, also presented in Table 2, indicated significant associations between CSA and insertive anal sex, as well as receptive anal sex.

In order to complete the first test of mediation, each of the possible mediators was regressed onto the CSA measure. In these analyses, whose results are presented in Table 3, nonsignificant results were obtained for drug use, frequency of heavy alcohol use, depression and sexual compulsivity. Significant results were obtained for anxiety, hostility and suicidality.

Analyses were then conducted to establish whether these three significant potential mediators were related to either of the sexual risk measures. Results are presented in Table 4. As can be seen from examination of the table, anxiety and hostility were significantly associated with insertive anal sex, while both of these measures and suicidality were associated with receptive anal sex.

The second step of mediation analysis was performed by comparing the models regressing including each risk behaviour on CSA, reported above, with models including the potential mediator as well as CSA. The CSA betas were compared in order to examine whether statistical adjustment of the mediators attenuated the relationship of CSA to the risk behaviour. Behaviours that were significantly predicted by each mediator were included in these analyses. Addition of the three mediators to the model predicting insertive anal sex reduced the CSA beta from 0.65 to 0.56; however, this reduction failed to achieve statistical

Table 3. Levels of potential mediators among men with and without CSA history

Mediator (mean, SD)	CSA history	No CSA history
Drug use	1.18 (.33)	1.16 (.23)
Frequency drunk	2.96 (1.04)	2.88 (.91)
Sexual compulsivity	1.88 (.67)	1.79 (.73)
BSI Anxiety	12.9 (5.6)	11.3 (5.0)*
BSI Depression	17.3 (7.5)	15.8 (6.9)
BSI Hostility	9.7 (4.2)	8.5 (3.6)*
Suicidality	0.46 (.50)	0.28 (.45)**

* $p < 0.05$; ** $p < 0.01$.

Table 4. Significant CSA sequelae and any unprotected anal sex acts with a partner of negative or unknown HIV-serostatus in previous 90 days

Mediator	Insertive anal			Receptive anal		
	Yes	No	<i>t</i>	Yes	No	<i>t</i>
BSI Anxiety	13.0 (5.9)	11.2 (4.8)	2.80**	12.5 (4.7)	11.2 (5.2)	2.46*
BSI Hostility	9.39 (4.3)	8.45 (3.6)	1.98*	9.2 (3.9)	8.4 (3.7)	1.98*
Suicidality	0.30 (.46)	0.31 (.46)	NS	0.42 (.50)	0.26 (.44)	3.11***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

significance, $z = 1.46$, $p = 0.14$. Adding the mediators to the model for receptive anal sex also reduced this beta, from 0.72 to 0.57; this did achieve significance, $z = 2.11$, $p < 0.04$, indicating that these mediators do at least partially account for effects of CSA on receptive anal sex.

Discussion

The results of the present study corroborate prior findings indicating that sexual abuse in childhood is associated with increased sexual risk taking in adulthood. The present study extends this literature by demonstrating that the relationship obtains even among HIV-positive individuals whose behaviour puts others at risk of infection. A number of known sequelae of childhood sexual abuse were tested as possible mediators for this link but failed to demonstrate associations with CSA, thus failing the first test of mediation and obviating the utility of conducting the second step. These included psychological depression, drug and alcohol use, and sexual compulsivity. Three additional potential mediators, anxiety, hostility and suicidality, were significantly related to CSA and thus were included in subsequent mediation analyses.

Interestingly, these significant variables were also related to sexual risk behaviour, but differentially for the two risk measures. The finding that hostility was associated with unprotected insertive anal sex suggests the possibility that men who harbor anger may act out this anger by engaging in behaviours that may harm others. This finding, if correct, suggests that providing mental health services to individuals at risk for transmitting STD may confer preventive effects. Suicidality, as well as hostility, was associated with unprotected receptive anal sex. The particular behaviour explored here, engaging in receptive sex with a seronegative or status unknown partner, carries risk for an uninfected insertive partner. It also increases the likelihood that the respondent may become infected with a different, and possibly drug-resistant, strain of HIV or another STD. It may also be that suicidality had contributed to engaging in this behaviour prior to becoming infected, establishing a sexual pattern that was maintained subsequently. In any case, suicide remains a high risk for young gay and lesbian youth generally (McDaniel *et al.*, 2001) and appears to be elevated among MSM with CSA histories (Bartholow *et al.*, 1994). It may also be a reaction to an HIV diagnosis. Anxiety was associated both with insertive and receptive anal sex. It is possible that anxiety is a response to sexual behaviour putting another person or the self at risk for HIV, STD or reinfection. Whether these indices of distress are causally related to unprotected sex or whether they are effects of risky sex, it is crucial that high-quality mental health services be available for these vulnerable populations.

The results of the mediation analyses indicate that, while CSA predicts anxiety, hostility and suicidality, and while these in turn predict sexual risk behaviour, evidence for mediation was obtained for receptive, but not insertive, intercourse. This suggests that the effects of CSA on psychological factors related to distress and suicidality partially account for its association with receptive intercourse. The fact that it fails to entirely account for this association, however, suggests that additional mediators, unmeasured in the present study, are operative. Further, unmeasured pathways must exist that account for the connection with insertive intercourse, the higher transmission-risk behaviour.

Why did CSA history fail to predict commonly observed CSA sequelae, such as drug and alcohol use and depression, in the present study? One possibility is that the study lacked sufficient statistical power to detect true effects. The CSA group comprised only 68 individuals, a relatively small number. It is also possible that a more detailed and

comprehensive assessment of CSA, for example one that took into account relationship of the perpetrator to the participant, specific sexual behaviours performed, and more detail regarding disclosure, family response and other potentially moderating factors, might have permitted us to identify a true relationship. Unfortunately, concern for participant burden precluded us from including such a detailed measure.

Limitations of the study should be mentioned. The sample was not a population-based one, and thus may not be reflective of MSM as a population. Unfortunately, the only population-based sampling strategy that would be possible would be to sample 'gay ghettos' in larger urban areas that have largely gay neighbourhoods. Such an approach has been utilized (Stall *et al.*, 2001) and has yielded samples of primarily white, middle-class men. It can be argued that such samples are of limited generalizability to the MSM population as a whole, for different reasons. However, it is interesting to note that levels of CSA obtained in the present study (15%), despite the high-risk, low-SES nature of the sample, are not especially high. In a population-based probability sample that operationalized CSA by age difference of partners (Jinich *et al.*, 1998), higher levels (28%) were obtained. Another limitation is that the retrospective self-reports of CSA relied on accuracy of memory, which can produce both inaccurate forgetting and 'false memories' (Freyd, 1997; Gleaves & Freyd, 1997). However, all of the literature in the area of CSA and STD/HIV suffers from this measurement problem.

These two sets of events, sexual abuse in childhood and sexual transmission risk behaviour, are generally separated by years. Thus, the search for mediation by intervening events and conditions remains an important one for all populations at risk for HIV infection and transmission. Identifying the specific mediators that account for the CSA-HIV link in a specific risk group may help to inform intervention strategies and their timing to reduce HIV and other STD risk. Primary prevention of the sexual abuse of children is of fundamental importance. But until CSA can be stopped altogether, access of CSA survivors to mental health services related to the CSA experience as well as its numerous sequelae, is of paramount importance. Indeed, the relationship between CSA and HIV found in this and other studies illustrates that mental health services are important for public health reasons as well as alleviation of pain experienced by the affected individual.

Acknowledgements

These results were reported at the XIII International AIDS Conference in Durban, South Africa, July 2000.

This research was conducted as part of the Seropositive Urban Men's Study (SUMS). It was supported by the Centers for Disease Control and Prevention through cooperative agreements with New Jersey City University (U62/CCU213605) and University of California, San Francisco (U62/CCU913557), and Rutgers University (U62/CCU2133607). The authors wish to recognize the contributions of the SUMS Study Team: New Jersey City University: Jeffrey Parsons, PhD, PI, Perry Halkitis, PhD, Co-PI, Mike Storratt, MS, Project Director; University of California at San Francisco: Cynthia Gomez, PhD, PI, Robert Hays, PhD, Co-PI, Colleen Hoff, PhD, Project Director; Rutgers University: Ann O'Leary, PhD, PI, Robert Remien, PhD, Co-PI, Timothy K. Ambrose, MS, Project Director; Centers for Disease Control and Prevention, Richard Wolitski, MS, PI, David Purcell, PhD, Co-PI and Jim Carey, PhD, Co-Investigator. The authors wish to thank Cynthia Lyles for statistical assistance.

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