

Childhood Sexual Abuse and Sexual Risk Behaviour among Men Who Have Sex with
Men

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ABSTRACT

Previous research indicates a relationship between childhood sexual abuse (CSA) and an increased risk of participating in destructive behaviours during adulthood, including risky sexual practices. This study examined the association between unwanted sexual activity during childhood and adult HIV sexual risk behaviour among a South African sample of men who have sex with men (MSM). Potential pathological outcome measures of CSA such as dissociation and substance abuse were treated as variables mediating the relationship between CSA and sexual risk behaviour. Results indicate that one-third of participants reported a history of CSA. Men who were abused were more likely to engage in unprotected anal intercourse compared to those who were not abused. Men who were abused also scored significantly higher on a measure of dissociation. Regression analyses revealed that specific characteristics of the abuse experience, as well as drug abuse, were associated with greater sexual risk behaviour. The current data suggest that CSA is widespread among men at high risk for HIV infection, and that it may have a debilitating influence on the quality of life and health risk behaviour of these men. Further research is needed into the mediators and, more importantly, into the contextual factors or moderators of the childhood abuse experience that are associated with negative outcomes during adulthood.

Keywords: MSM; childhood sexual abuse; HIV sexual risk behaviour; dissociation; mediators; moderators.

The impacts of child sexual abuse (CSA) have been studied in great detail over the past three decades, with research indicating that a broad range of long-term psychological difficulties are more prevalent among individuals who have been sexually abused than among those with no such experiences (Briere & Elliot, 1994). Adults who report experiences of CSA report significantly elevated rates of psychopathology, including depression, self-destructive behaviour, substance abuse, anxiety, and sexual risk-taking (e.g., Briere & Elliot, 1994; Browne & Finkelhor, 1986; Kendall-Tackett, Williams, & Finkelhor, 1993). Research has indicated that the extent to which an individual demonstrates abuse-related maladjustment is a function of a number of abuse-specific moderator variables¹, as well as personal and environmental factors that existed before, or occurred after, the incidents of sexual abuse (Purcell, Malow, Dolezal, & Carballo-Diiguez, 2002).

Important past research has furthermore indicated that behavioural and psychological consequences of CSA may increase the likelihood of sexual risk behaviours during adulthood, putting individuals in danger for HIV infection (Zierler et al., 1991). Given the fact that a history of CSA is a risk factor for later HIV infection in adulthood, it seems warranted to study CSA in a population that is (even in the absence of a CSA history) at increased risk of exposure to HIV infection: men who have sex with men² (MSM).

According to Bacon et al. (2006), MSM populations are at a particularly increased risk for HIV-infection in that sexual risk-taking among MSM is increasing in many countries and, in fact, the HIV prevalence rate for MSM in the United States is substantially higher than that for the general population. However, although outcome studies focusing on males have increased in recent years, there is still a relative lack of empirical literature regarding the long-term sequelae experienced by male victims of CSA. This paucity of data prevents an accurate understanding of the possible impact of such abuse on adult health and sexual behaviour and the implementation of male-specific programs and policies (Browne & Finkelhor, 1986). Thus, if one is to fully understand

¹ A moderator is a variable that affects the strength or direction of relationship between a predictor (or independent) variable and an outcome (or dependent) variable (Baron & Kenny, 1986).

² The term MSM is used to distinguish sexual behaviour from sexual orientation. Some men engage in sexual activities with members of their own sex but do not consider themselves to be homosexual.

the relationship between unwanted childhood sexual activity and risky sexual behaviours, then it is important to examine the correlates of CSA that might be associated with HIV risk behaviour among a specific population of men that shows high prevalence rates of sexual abuse (Allers & Benjack, 1991; Bartholow et al., 1994; Jinich et al., 1998) and who are at particular high risk for contracting sexually transmitted diseases, including HIV.

A history of CSA has been found to be linked with higher levels of HIV sexual risk behaviour among MSM in (a) a sample of self-reported homosexually active men found at STD clinics in the USA (Bartholow et al., 1994), (b) a clinical sample of predominantly African-American and Hispanic men (Dilorio, Hartwell, & Hansen, 2002), (c) a convenience sample of homosexually active Latin American men (Carballo-Diequez & Dolezal, 1995), and (d) other population-based samples that reflect the broad range of MSM in major US cities (Jinich et al., 1998; O'Leary, Purcell, Remien, & Comez, 2003). Thus, an expanding number of studies indicate that, compared to MSM who do not report a history of sexual abuse, CSA reported by MSM does predict adult engagement in sexually risky behaviour, including unprotected receptive anal intercourse and prostitution (Bartholow et al., 1994; Dilorio et al., 2002), sexual promiscuity (Zierler et al., 1991) and sexual compulsivity (Allers & Benjack, 1991).

Although the association between CSA and HIV sexual risk behaviour among MSM has been reasonably well-studied, the possible mediators³ of the complex relationship between CSA and HIV risk behaviour are the focus of this study. According to Purcell et al. (2002), psychological and behavioural symptoms and syndromes are critical proximal outcomes that mediate the relationship between CSA and sexual risk. For instance, sexual abuse often results in the development of psychopathology, which, consequently, increases the risk of participation in behaviours linked to increased risk of HIV infection (Miller, 1999). It is therefore important to consider possible intervening variables that may put individuals at higher risk for HIV infection.

Several empirical studies have shown that men who report a history of forced sexual activity during childhood are at a greater risk of practicing behaviours (e.g.,

³ Mediation is used to test a model in which an independent variable (X) causes an intervening variable (M), which in turn causes the dependent variable (Y). The mediator is the intervening variable in this model (Baron & Kenny, 1986).

substance abuse) that increase their risk of engaging in unprotected sex (Bartholow et al., 1994; Holmes, 1997). Furthermore, higher rates of depression and anxiety (Briere & Elliot, 1994; Browne & Finkelhor, 1986) and dissociative phenomena (Chu, Frey, Ganzel, & Matthews, 1999; Draijer & Langeland, 1999; Kisiel & Lyons, 2001; Putnam, Helmers, Horowitz, & Trickett, 1995) have been found in adults with a history of CSA. These studies offer some potential mediating variables to understand and conceptualise consistent findings linking CSA to increased sexual risk behaviour among men. It is therefore suggested that the associations between CSA and HIV sexual risk behaviour arise from mediating factors or psychological outcomes such as dissociation that are correlated with increased risks of unsafe sexual behaviours.

Conceptual Models Linking CSA and HIV Risk Behaviour

Purcell et al. (2002) devised a theoretical model linking CSA and HIV risk behaviour in males. Their model proposes that moderators such as frequency of abuse, force or coercion, the relationship to the abuser, and antecedent factors such as adverse family experiences interact with CSA to produce proximal outcomes or mediators of CSA such as substance abuse and psychopathology, as well as distal outcomes, specifically those related to HIV risk behaviour. This is based on research reporting associations between particular characteristics of the CSA experience and adult outcomes (Fassler, Amodeo, Griffin, Cassandra, & Ellis, 2005). CSA researchers have also hypothesised that characteristics of the family environment, such as conflict or adversity, make significant independent contributions to CSA and adult psychological outcomes (Edwards & Alexander, 1992). Furthermore, based on Dolezal and Carballo-Diequez's (2002) finding that not all childhood sexual experiences with older partners are perceived as negative or unwilling and that the harmful consequences of early sexual experiences are not always pervasive or inescapable in males, Purcell et al. (2002) considered perception of the abusive experience as an important variable in the model's causal chain.

Although Purcell et al.'s model has not been empirically tested, it bears particular importance in that past research (Browne & Finkelhor, 1986; Finkelhor, 1979; Kendall-Tackett et al., 1993) indicates that variations in adults' symptomatology may be accounted for by characteristics of the abuse experience. Thus, an understanding of the

connections between abuse-specific moderator variables and outcome measures is required, because several characteristics of the abuse experience may differentially influence outcome measures (Beichtman et al., 1992). It is therefore essential to consider the strength of these variables in order to evaluate the degree of subsequent behavioural, psychological, and sexual problems which may result in adulthood (Basta & Peterson, 1990).

Gore-Felton et al. (2006) also reported a conceptual model examining linkages among sexual abuse, psychopathology (i.e., borderline personality, dissociation, trauma-related anxiety), drug use, and sex trading as predictors of HIV risk behaviour in MSM. Based on a similar conceptual model in women (Miller, 1999), they suggested that a history of CSA has bidirectional relationships with psychopathology and substance abuse, which in turn have direct correlations with sexual and drug risks for HIV-infection. In an empirical test of this model, Gore-Felton et al. (2006) found, contrary to expectations, no strong support for the independent effects of CSA in MSM on indicators of psychopathology, substance use, or engaging in unprotected anal intercourse. CSA history was, however, correlated with a history of sex trading, and the association between CSA and sex trading was mediated by current active drug use. They further found that the strongest predictor of unprotected sex was substance abuse in sexual contexts, and that the best indicator of substance use was psychopathology.

The critical limitation in Gore-Felton et al.'s (2006) model is that it does not take into account other factors besides psychopathology and substance use that are pertinent to explaining the association between CSA and HIV risk behaviour among MSM. For instance, they neglected to examine the above-mentioned abuse-related variables (relationship to the abuser, duration of the abuse, and perceptions of the abuse experience), which previous research has shown have a bearing on later maladjustment (Finkelhor, 1986; Dolezal & Carballo-Diequez, 2002). The current study attempts to remedy this oversight by examining abuse-specific moderator variables that may influence proximal as well as distal outcomes in the relationship between CSA and HIV sexual risk behaviour among MSM.

Gore-Felton et al.'s (2006) major finding that substance use has a significant role in the risks for HIV-infection among MSM is in line with the broader HIV risk behaviour

literature (Bacon et al., 2006; Deiss et al., 2008; Parsons & Halkitis, 2002; Rotheram-Borus et al., 1994). Furthermore, substance abuse is an important proximal outcome that has been found to be significantly related to HIV sexual risk behaviour among MSM with histories of CSA (Allers & Benjack, 1991; Dilorio et al., 2002; Jinich et al., 1998; Paul, Catania, Pollack, & Stall, 2001). According to Briere and Elliot (1994), it seems that substance abuse represents a self-destructive method of coping with child abuse experiences in that it allows the abuse survivor to separate psychologically from disturbing memories, painful internal states and the environment.

Although the majority of studies of MSM have focused on substance abuse as a mediator between sexual abuse and adult maladjustment, research indicates that substance abuse is not the only resort of survivors who attempt to cope with the pain associated with this traumatic experience. A number of studies have assessed the relationship between CSA and dissociation among adult survivors, and dissociation has widely been considered a mediator of psychopathology and risk-taking behaviour (e.g., Kisiel & Lyons, 2001; Nash, Hulsey, Sexton, Harralson, & Lambert, 1993). This relationship, however, has hardly been studied in MSM to date.

According to Briere (1992), dissociation is defined as “a defensive disruption in the normally occurring connections among feelings, thoughts, behaviour, and memories, consciously or unconsciously invoked in order to reduce psychological distress” (p. 36). The literature suggests that dissociation involves a trade-off where the victim sacrifices fully integrated functioning in order to soothe the occasionally overwhelming anxiety associated with complete awareness of traumatic experiences (Putnam, 1993). Thus, dissociation can become an automatic response to stress that can impair functioning and increase vulnerability to serious psychopathology and risk-taking behaviour (Kisiel & Lyons, 2001). An over-dependence of cognitive escape-avoidance coping strategies such as dissociation may later impair the CSA victim’s ability to appraise potentially risky situations and enact behaviours needed to reduce risk (Paul et al., 2001). Behavioural and cognitive coping strategies may thus lead to high-risk sex by undermining interpersonal regulatory abilities that prevent safe sex (Paul et al., 2001). Further, the dependence on coping mechanisms such as sustained substance abuse and dissociation may be a result of

their learned usefulness in managing abuse-related long-term harmful outcomes (Chu & Dill, 1990).

Given that dissociation has been under-studied in relation to sexual risk behaviour in MSM populations, and its importance as a coping strategy providing emotional distance from pain associated with trauma, this study examines dissociation and substance abuse as mental health outcomes of CSA that reduce attention to danger cues and inhibit self-regulatory processes necessary for negotiating and enacting safer sexual practices, thereby increasing the risk of participation in HIV sexual risk behaviour.

Specific Aims and Hypotheses

There is a growing consensus that CSA may manifest various types and degrees of impairment in adult MSM. Much of the research so far has focused on identifying potential mediators of the relationship between CSA and sexual risk behaviour. However, most studies have tended to neglect abuse-specific characteristics as well as precursors of CSA that may account for differential effects among MSM. This study explores the prevalence of CSA among a representative South African sample of adult MSM and explores the relationship between CSA and high-risk sexual behaviour in adulthood. Dissociation and substance abuse as proximal mental health outcomes of CSA are treated as a factors mediating the association between CSA and HIV risk behaviour. Furthermore, important moderator variables (*viz.*, duration, relationship to abuser, perceptions of abuse) and antecedent factors (adverse family experiences) are considered as potential covariates.

The study hypothesises that:

1. Men with a history of CSA will report higher levels of dissociation and more problems with substance abuse than men with no such history.
2. Men with a history of CSA will report greater incidents of unprotected anal intercourse and a greater number of male sexual partners than men with no such history.
3. Those who reported more severe CSA (*i.e.*, those reporting multiple incidents, a close relationship to the abuser, and more negative perceptions of the experience) will score higher on mental health outcomes such as dissociation and substance

- abuse as well as on measures of sexual risk behaviour than those reporting less severe CSA.
4. Demographic characteristics and mental health outcomes will be associated with high-risk sexual behaviours.
 5. CSA severity, the psychological and behavioural symptoms of dissociation and substance abuse, and important demographic variables, will predict high-risk sexual behaviours.
 6. The proximal outcome measures of dissociation and substance abuse will mediate the relationship between CSA and sexual risk behaviour.

METHOD

Research Design

This study is both experimental and correlational. It was designed to compare behavioural and psychological symptoms commonly associated with CSA between MSM with and without a history of childhood sexual abuse. It also tested for differences between these two groups on measures of sexual risk behaviour. Furthermore, regression analyses were conducted to determine the contribution of CSA and other psychological outcome measures to risky sexual behaviour.

Participants

Participants were recruited through various sources. First, a convenience sample of MSM was recruited from a variety of sites (bars, clubs, street intercepts in the “gay village”) in Cape Town. Second, limited friend referral accounted for some of the sample. Third, a poster advertisement was placed on a gay South African internet dating site, and emails containing a link to complete the online survey were randomly sent to MSM accessing that site.

To be included in the final analysis of the study data, men had to be at least 18 years of age.

All study procedures were approved by the Research Ethics Committee of the UCT Department of Psychology. Participants gave informed consent prior to the survey. There were no serious risks of the participants sustaining physical, psychological, or

social harm. The main minimising factors in this regard are that anonymity was ensured; information collected was used for research purposes only; participants were informed about the nature of the research; research participation was voluntary and all participants received the same questionnaire. In those cases where participants were recruited personally, the researcher was present during the administration of the questionnaires.

A possible risk is that memories of CSA might have resurfaced. However, any potential for distress was dealt with through the provision of referral sources in the debriefing form. These referral sources included counselling, therapy, and VCT testing services.

Measures

Participants completed self-administered anonymous surveys that consisted of questions about biographic and demographic information, sexual history, substance use, sexual practices, and dissociative experiences. The following sections describe these measures in more detail, and the complete survey, consent form and debriefing form are presented in the Appendix.

Demographic information. Participants were asked basic biographic and demographic questions relating, amongst others, to their age, ethnicity, education, income, sexual orientation, and marital status.

Alcohol abuse. The study assessed alcohol use problems with the CAGE, a 4-item screening instrument. Respondents answered “yes”, “no”, or “not applicable” to each of the four questions.

Drug abuse. A drug use question determined whether, during the past 3 months, participants had used any addictive substances besides alcohol and tobacco.

Childhood sexual abuse. A screening question opened the survey’s section on CSA. Respondents who answered in the negative to CSA were asked again with a more general question relating to childhood sexual experiences. We believed that a second query might

minimise respondents' avoidance of self-disclosure on this sensitive topic, thereby leading to higher reported rates and greater disclosure (Paul et al., 2001). After indicating the duration of abuse, respondents were asked about their relationship to the abuser. The reason for the inclusion of this question is that previous studies provide evidence that a closer relationship with the abuser may be related to greater distress and maladjustment later in life (Purcell et al., 2002). Finally, based on evidence that forced sexual contact during childhood need not be upsetting (Carballo-diuguez & Dolezal, 1995), respondents indicated how upsetting the experiences were and how strongly they felt they were emotionally and physically hurt by them.

Adverse family experiences. Due to the importance of separating the effects of CSA from the independent effects of dysfunctional family relations (Collings, 1995; Paul et al., 2001), the survey included items relating to adverse family experiences. Three questions assessed parental substance abuse, inter-parental violence, and childhood physical abuse.

Dissociation. The Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986), a widely used 28-item questionnaire with established validity and test re-test reliability ($r = 0.84$) was used to measure the current prevalence of dissociative symptoms. The DES is scored on a 0-100 point scale and contains measures referring to disturbances in identity, memory, awareness, and cognition, as well as feelings of depersonalisation and derealisation.

Sexual practices. Two different sexual risk behaviours were assessed. Firstly, participants were asked to report the number of times they had engaged in anal intercourse (as either the insertive and receptive partner) and the number of times they used or did not use condoms during anal intercourse over the previous 3 months. We paid particular attention to unprotected anal intercourse because of the high HIV transmission-risk that it poses. Secondly, participants were asked to record the number of male partners with whom they engaged in sexual activity over the previous 12 months. The survey utilized open response formats for the sexual behaviour measures to minimise response bias.

Procedure

All participants signed a consent form that outlined the nature of the study and highlighted potential risks and benefits resulting from their involvement in the research. Participants recruited online were greeted with the consent form, thereby giving them the option to accept or decline participation in the survey. Irrespective of the recruitment method, anonymity was ensured in that participants' names were not collected for the study at any time; participants were fully informed about the measures taken to preserve their confidentiality. Furthermore, participants were informed that participation was completely voluntary, and that termination as a research participant was possible at any time. Although participants knew that the survey contained questions of a sexual nature, the various aspects of sexuality involved (recent sexual practices, condom use, and early childhood sexual experiences) were not specified. After completion of the survey, all participants received a debriefing form containing details of the study and referral sources.

Data Analysis

Data on frequency of unprotected insertive and receptive anal intercourse was combined in order to devise an overall measure of sexual risk-taking. Thus, indicators of HIV transmission-risk included the frequency of unprotected anal sex with male partners over the previous 3 months and the number of male sexual partners over the past 12 months.

Data analysis proceeded in five stages. In the first stage, we conducted t-tests to compare averages and standard deviations between the CSA group and the group reporting no CSA history on demographic variables and proximal and distal outcomes. Group comparisons involving categorical variables were carried out with Chi-square contingency tests.

In the second stage, we tested for differences within the CSA group resulting from CSA severity. CSA severity was conceptualised as consisting of the variables duration of abuse, relationship to the abuser, and perceptions of the abuse experience. We used t-tests to determine differences in sexual risk behaviours and scores on mental health indices by level of duration of the abuse and relationship to the abuser. Correlations were also used

to test for an association between perceptions of the abuse experience and outcome measures.

In the third stage, we conducted simple regressions to explore the relationships between demographic and mental health variables with the two sexual risk behaviour dependent variables.

Next, we used a hierarchical multiple regression model with the number of male sexual partners as the dependent variable to examine the association between CSA severity and risky sexual behaviour over and above demographic factors and proximal outcome measures (psychological correlates of CSA). Furthermore, a hierarchical logistic regression analysis was conducted with unprotected anal intercourse as the dependent variable and demographic as well as psychological outcome measures as independent variables.

Finally, we performed mediation analysis to indirectly assess the effect of CSA on sexual risk behaviour through the proposed mediators of substance abuse and dissociation.

RESULTS

Descriptive Statistics

The survey returned 144 completed questionnaires. Of those respondents, 48 reported a history of CSA and 96 reported no such history. Participants that answered positively to the question determining sexual abuse before the age of 13 were placed into the CSA group, and those that responded negatively formed the non-CSA group. A complete demographic description of the sample is presented in Table 1.

Hypothesis 1: Between-Group Comparisons on Demographics, Dissociation, and Substance Abuse

Table 1 shows comparisons on demographic characteristics across the CSA and non-CSA groups. There were no significant relationships between abused and non-abused men with respect to age, sexual orientation, marital / partner status, occupation, education, socio-economic status, and HIV status. Ethnicity, however, was found to be significantly

associated with CSA ($\chi^2(4) = 10.43, p = 0.03$). This piece of data indicates that White men were 0.3 times less likely to report CSA than Coloured men.

Comparisons on dissociation and measures of substance abuse indicated a significant difference on scores of dissociation between men reporting a history of CSA and those reporting no such history. As shown in Table 2, men who were sexually abused as children scored higher on levels of dissociation than men who reported no sexual abuse. In contrast, however, there were no significant between-group differences on measures of alcohol and drug abuse.

Hypothesis 2: Between-Group Comparisons on Sexual Risk Behaviour

Table 2 also shows that there were no statistically significant between-group differences in terms of self-reported number of male sexual partners. However, a significant association was found between CSA and unprotected anal intercourse. The odds ratio indicates that those who reported CSA were 3.1 times more likely to engage in unprotected anal intercourse than those with no CSA history.

Hypothesis 3: Within-Group Comparisons on Dissociation, Substance Abuse, and Sexual Risk Behaviour

Participants who reported CSA were asked to indicate the duration of the abuse (Isolated incident vs. Occurred more than once), their relationship to the abuser (Related vs. Unrelated), and their perceptions of the abuse experience. These three variables constituted the severity of the childhood abuse experience.

Duration of abuse. The two groups that differed in the duration of the abuse were compared on dissociation, substance abuse, unprotected anal intercourse, and number of male sexual partners. Results of those comparisons are presented in Table 3. No significant differences were found on measures of dissociation and drug abuse between those who reported an isolated incident of abuse and those whose abuse occurred more than once. However, those whose abuse constituted an isolated event scored significantly higher on a measure of alcohol abuse compared to those who reported being abused more

than once. There were, however, no statistically significant differences between these two groups on both measures of sexual risk behaviour.

Both groups were also compared on their perceptions of the abuse and on childhood adverse family experiences. Table 4 shows that there was a statistically significant between-group difference in terms of their perceptions of the abuse. Those who were abused more than once had more negative perceptions of the abuse compared to those who were only abused once. The groups were also statistically significantly different on the measure of self-reported childhood adverse family experiences. Contrary to expectations, however, those who were abused only once reported having a more adverse family environment in their childhood than did those who were abused multiple times.

Relationship to the abuser. The two groups that differed in their relationship to the abuser were compared on dissociation, substance abuse, unprotected anal intercourse, and number of male sexual partners. Groups were defined as those who did and did not have a close relationship with their abuser. Table 5 shows that there were no statistically significant between-group differences in terms of the proximal mental health outcome variables and the measures of sexual risk behaviour. However, Table 6 indicates that those who were abused by someone unrelated to the family reported a statistically significantly higher number of adverse family experiences than did those who were abused by someone related or close to them.

Perceptions of the abuse. Table 7 indicates that perceptions of the abuse experience, which constituted the third variable representing CSA severity, was neither correlated with mental health outcomes (dissociation and substance abuse) nor with the measures of sexual risk behaviour.

Hypothesis 4: Associations between Demographic and Mental Health Outcome Variables and the Two Sexual Risk Behaviour Dependent Variables

Table 8 summarises the univariate relationships between demographic variables, dissociation, substance abuse, and the two dependent measures of sexual risk behaviour.

Age was significantly associated with number of male sexual partners ($r = 0.22, p = 0.02$), indicating that as participants' age increased, so did the number of reported sexual partners. Another significant predictor of number of male sexual partners was HIV status ($F(2, 126) = 7.71, p = 0.001$), indicating that those who were HIV positive tended to report higher numbers of male sexual partners than those who were HIV negative. Marital status was found to be significantly associated with unprotected anal intercourse ($\chi^2(5) = 16.90, p = 0.00$). As expected, the odds of engaging in unprotected anal intercourse were 75% lower for men in a closed relationship than men who were single. Occupation was also significantly related to unprotected anal intercourse ($\chi^2(3) = 10.02, p = 0.04$). Participants who were self-employed were 0.09 times less likely to report unprotected anal intercourse than men who were unemployed. Furthermore, the odds were 67% higher for participants who were business employed to report unprotected anal intercourse than those who were self-employed. Adverse family experiences also significantly predicted unprotected anal intercourse ($\chi^2(1) = 5.05, p = 0.03$). Those with more severe adverse family experiences were 1.3 times more likely to report unprotected anal intercourse than those with less severe childhood family backgrounds. Finally, the odds for participants who scored higher on alcohol abuse were 35% more likely to report unprotected anal intercourse than those who scored lower on alcohol abuse ($\chi^2(1) = 4.12, p = 0.04$).

Hypothesis 5a: Creating a Model to Predict Unprotected Anal Intercourse

A hierarchical logistic regression analysis was carried out in order to predict the effects of CSA, particularly more severe CSA, on unprotected anal intercourse after controlling for other contextual factors of the childhood abuse experience (e.g., adverse family experiences), proximal outcomes associated with CSA (i.e., dissociation and substance abuse) and relevant demographic variables. Unprotected anal intercourse in the past 3 months was therefore used as an index of HIV sexual risk behaviour in this logistic regression analysis. Five blocks of predictor variables were entered in the following sequence: (1) variables comprising CSA severity (i.e., duration of abuse, relationship to the abuser, and perceptions of abuse); (2) adverse family experiences; (3) current drug and alcohol abuse; (4) scores on the dissociation; and (5) participant education. Although

education did not correlate significantly with the dependent variable (see Table 8), it was chosen as a predictor in this analysis in that previous research shows a significant association between level of education and unprotected receptive anal sex (Carballo-Diequez & Dolezal, 1995; DiLorio et al., 2002; Jinich et al., 1998).

Table 9 shows odds ratios (*exp b*) and their associated 95% confidence intervals (*CI*) for this analysis. Results indicate that greater CSA severity was not associated with an increased likelihood of reporting unprotected anal intercourse. A significant association was found, however, when unprotected anal intercourse was regressed on adverse family experiences over and above CSA severity. Before adverse family experiences was added, 48.7% of cases were correctly classified, while an extra 23.1% of cases were correctly classified with the addition of adverse family experiences. This association remained significant when substance use variables alone and when the variable measuring dissociation were added in separate models. Including alcohol and drug abuse in the model did not significantly improve the ability to predict unprotected anal intercourse. Furthermore, adding the variable measuring dissociation to the model did not make a significant contribution to the prediction of unprotected anal intercourse. Education, however, was significantly associated with unprotected anal intercourse: Those who had not completed their high school were 0.02 times less likely to report unprotected anal intercourse than participants who had completed their high school. In addition, those with a tertiary education were 0.03 times less likely to report sexual risk behaviour than those with high school only. The effect of adding education to the model led to a significant increase in the amount of correctly classified cases. Finally, the association between adverse family experiences and unprotected anal intercourse remained significant even after education was added to the model. The odds ratio in the final model indicates that those with greater adverse childhood family experiences are 2.45 times more likely to engage in unprotected anal intercourse than those with less adverse family experiences. Furthermore, because both values of the confidence interval are greater than 1, the relationship between adverse family experiences and unprotected anal intercourse found in this sample is likely to be true of the whole population of CSA victims.

Hypothesis 5b: Creating a Model to Predict Number of Sexual Partners

The second part of hypothesis 5 was to predict the effects of CSA severity on the second measure of sexual risk behaviour, the number of male sexual partners. A hierarchical multiple regression analyses was therefore conducted using participants' reported number of male sexual partners as the dependent variable and five blocks of independent variables: (1) variables comprising CSA severity (i.e., duration of abuse, relationship to the abuser, and perceptions of abuse); (2) adverse family experiences; (3) current drug and alcohol abuse; (4) scores on the dissociation; and (5) participant education and ethnicity. Despite the fact that ethnicity did not correlate significantly with number of male sexual partners (see Table 8), it was chosen as a relevant demographic variable in that previous research has indicated a significant relationship between ethnicity and sexual risk behaviour (DiLorio et al., 2002; Jinich et al., 1998).

Pre-diagnostic testing indicated no intercorrelations between the independent variables. Table 10 indicates that CSA severity as a block did not contribute significantly to the number of partners when entered into the model alone. However, perceptions of the abuse was significantly associated with number of partners ($t(34) = 2.07, p = 0.04$), indicating that as perceptions of abuse increased by one unit, the number of sexual partners increased by 6.44 units. This association between more negative perceptions of abuse and an increased number of male sexual partners remained significant when adverse family experiences was added to the model. The addition of adverse family experiences did not lead to a significant change in the amount of variance explained in the number of sexual partners. Substance abuse as a block, however, contributed significantly to the prediction of the number of sexual partners ($F(31) = 8.95, p = 0.00$) over and above CSA severity and adverse family experiences. More specifically, drug abuse was significantly associated with number of partners ($t(31) = 4.01, p = 0.00$), indicating that for every one unit change in substance abuse, the scores on the number of male sexual partners increased by 37.37 units. Perception of the abuse was no longer a significant predictor of number of partners when substance was entered into the model. However, duration of the abuse experience significantly predicted number of partners ($t(31) = -2.27, p = 0.03$) when substance abuse was added to the model. The negative b-value suggests that, contrary to expectations, as the duration of abuse increased by one

unit, the number of sexual partners decreased by 24.70 units. In other words, those who were abused more than once tended to have lower number of sexual partners compared to those whose abuse constituted an isolated event. Duration of abuse and drug abuse remained significant predictors of number of sexual partners when dissociation was added to the model. The addition of dissociation did not lead to a significant change in the amount of variance in the number of sexual partners. Finally, when demographic variables were entered into the model, duration of abuse and drug abuse remained significant predictors of number of sexual partners. Alcohol abuse also turned out to be significantly associated with number of partners in the final model ($t(25) = 2.02, p = 0.05$). This indicates that participant's who scored higher on a measure of alcohol abuse tended to report more sexual partners. Education was also significantly associated with number of partners over and above CSA severity and substance abuse. Those who completed their high school tended to have more sexual partners compared to those who did not complete their high school ($t(25) = 2.01, p = 0.05$). Furthermore, those with a tertiary level education tended to report more sexual partners than those who only completed their high school ($t(25) = 2.95, p = 0.01$).

Hypothesis 6: Testing for Mediation

Mediation analysis was performed in order to identify possible mediators of the effect of CSA on sexual risk behaviour. Two steps are required to address the question of mediation (Baron & Kenny, 1986): (1) determine whether the independent variable (in this case, CSA) is correlated with the proposed mediators (in this case, dissociation, alcohol abuse, and drug abuse); and (2) examine whether the association between the independent variable and the dependent variable (in this case, sexual risk behaviour) is reduced when the proposed mediators are included.

To complete the first test of mediation, each of the mediators had to be regressed onto CSA. This step was already completed as part of the analysis conducted to test Hypothesis 1. As shown in Table 2 and in the text above, statistically significant results were obtained for dissociation, but not for alcohol and drug abuse. The second step of mediation was performed by comparing the models regressing each sexual risk behaviour on CSA, with models including the mediator as well as CSA. The CSA betas were

compared in order to determine whether controlling for the mediators attenuated the association between CSA and sexual risk behaviour. Adding drug abuse and alcohol abuse to the model predicting number of sexual partners failed to reduce the CSA beta; however, addition of dissociation to the model reduced the CSA beta from -0.07 to -0.03. Nonetheless, this reduction failed to achieve statistical significance (Sobel $t = -1.26$; $p = 0.21$). Adding drug abuse to the model for unprotected anal sex reduced the CSA coefficient from -1.13 to -1.08; adding alcohol abuse reduced it to -1.07, and adding dissociation reduced it to -1.10. Coefficients from this model with a dichotomous dependent variable had to be standardised in order to make the coefficients comparable across equations (MacKinnon & Dwyer, 1993). All of these reductions, however, failed to achieve statistical significance ($t = 0.85$, $p = 0.40$; $t = 0.96$, $p = 0.34$; $t = 0.15$, $p = 0.88$). The results indicate that the proposed mediators neither accounted for the effects of CSA on number of male sexual partners nor on unprotected anal intercourse. It is likely that mediation did not occur because CSA was not significantly related to two of the three outcome variables. It failed to predict drug and alcohol abuse. Also, the relationship between CSA and number of male sexual partners was not significant in the first place. These failures may be attributed to the relatively small number of participants in the CSA group and the resulting inadequate statistical power to detect true effects.

DISCUSSION

This study investigated differences, on both proximal and distal outcome measures, between MSM with a history of childhood sexual abuse and those with no such history. It also attempted to specify characteristics of childhood sexual abuse experiences, as well as identify the potential mediating effects of drug abuse, alcohol abuse and dissociation on HIV sexual risk behaviour. The current study extends the literature by demonstrating that moderators of the abuse experience, as well as antecedent factors such as childhood family adversity, significantly predict engagement in sexual risk behaviour. Individual findings, and their linkages to the current literature, will be discussed in the following sections.

Hypothesis 1: Between-group Comparisons on Demographics and Mental Health Outcomes

In the current sample, Coloured men were more likely to report CSA than White men. This is consistent with research that indicates that more men of colour experience CSA than do White men (Holmes & Slap, 1998). A possible explanation is that Coloured men may grow up in poorer, more deprived living conditions. The associated vulnerability may put them at an increased risk for childhood sexual abuse.

In terms of mental health outcomes, dissociation was significantly associated with CSA. The current finding of increased dissociation among sexually abused men, relative to non-abused men, is congruent with other studies in this area linking CSA to the subsequent development of dissociative disorders in women (e.g., Briere & Runtz, 1988; Nash et al., 1993). However, despite its importance in predicting sexual abuse history in the present study, this form of symptomatology has been relatively neglected in abuse research focusing on MSM. Based on the assumption that traumatised individuals experience a progressive decline in their capacity to deal with reality (van der Kolk & van der Hart, 1989), dissociation may originally develop as a way to mentally disengage from negative stimuli during the abuse incident, later becoming a more autonomous symptom that appears under a variety of stressful situations (Briere & Runtz, 1988). The current finding therefore suggests that the pathological use of dissociation as a defense mechanism in MSM with histories of sexual abuse cannot be underestimated. As one of the more primitive defences, dissociation may become an all-too useful escape mechanism in non-adaptive as well as adaptive circumstances (McElroy, 1992).

Hypothesis 2: Between-group Comparisons on Sexual Risk Behaviour

Comparisons between abused and non-abused men on measures of HIV sexual risk behaviour indicated a significant association between CSA and unprotected anal intercourse. This finding is consistent with the extant literature linking CSA to unprotected anal intercourse in MSM (Bartholow et al., 1994; Carballo-Diiguez & Dolezal, 1995; Jinich et al., 1998; O'Leary et al., 2003). In the current sample, men with a history of CSA were more likely than non-abused men to have engaged in unprotected anal intercourse over the previous 3 months. This direct influence of CSA on HIV sexual

risk behaviour can be explained in terms of the victim's "traumatic sexualisation" (Paul et al., 2001, p. 560). CSA experiences may lead to impairments in the victim's ability to trust people or situations and to form intimate attachments (Briere & Elliot, 1994). This, in turn, disrupts the development of long-term relationships, leading to a pattern of short-term sexual relationships (Paul et al., 2001). In the absence of regular condom use, these short-term sexual encounters may increase the risk for HIV infection. People with a history of CSA are also more likely to attract dominating partners that have little concern about the safety of others. In extreme cases, this may lead to physical brutality or adult sexual revictimisation which, in turn, has a high likelihood of involving unsafe sex (Paul et al., 2001). This study did not, however, test for revictimisation in adulthood.

CSA victims therefore show impairments in interpersonal regulatory abilities (Paul et al., 2001), which means that they are unable to accurately evaluate later relationships in adulthood. Furthermore, many abusers model sexually aggressive behaviour and poor impulse control, so that their victims may learn and later exhibit similar hostile emotional and behavioural reactions in their adult sexual relationships. Such aggressive sexual behaviour impedes the development of mutual sexual regulation and healthy sexual communication which, in turn, results in an increased likelihood of risk behaviour. On the other hand, perpetrators may reward passivity and obedience in the face of control, which reinforces more submissive responses (e.g., receptive anal sex) of CSA victims in later sexual situations. Enduring patterns of sexual aggression or sexual passivity often lead to the creation of fixed sexual scripts that increase the risk of unprotected anal intercourse through an inability to either insist on safe sex, an inability to refuse sexually aggressive partners, or an inability to care about the well-being or safety of others (Paul et al., 2001).

Hypothesis 3: Within-Group (CSA Severity) Comparisons on Mental Health and Sexual Risk Behaviour Outcomes

Duration of abuse. Due to the significant association between a history of CSA and higher levels of dissociation among MSM, it was necessary in subsequent analyses to determine whether more severe CSA was associated with greater dissociation. Contrary to expectations, longer duration abuse was not significantly associated with higher levels

of dissociation. Thus, surprisingly, repeated and more severe trauma did not increase participants' tendency to dissociate as adults.

A lack of repeated trauma was, however, significantly associated with alcohol abuse. Those who were repeatedly sexually abused were less likely to report alcohol abuse than those whose abuse constituted an isolated event. This finding may suggest that those who experienced multiple incidents of abuse are, as a result of the trauma and subsequent psychic disturbance, more likely to rely on primitive modes of defense such as denial, splitting or regression (McElroy, 1992), whereas those who were only abused once are more likely to resort to more sophisticated behavioural escape-avoidance strategies such as alcohol abuse. Available evidence also suggests that isolated abuse acts such as rape or solitary violent sexual assault in childhood are associated with high levels of psychopathological symptoms such as substance abuse, whereas abuse of long duration is associated with "lasting" outcome measures such as trauma, anxiety and depression (Beichtman et al., 1992). The finding that those with abuse experiences of short duration tend to score higher on alcohol abuse than those with longer duration experiences also indicates that longer-lasting experiences need not necessarily be as traumatic or distressing as clinical theorising suggests (Browne & Finkelhor, 1986).

In the current sample, duration of the abuse experience was also significantly related to participants' perception of the abuse. Participants with longer-lasting abuse experiences had more negative perceptions of the abuse than did participants with short duration experiences. This finding is inconsistent with previous research relating positive responses to CSA to longer duration of abuse (Holmes & Slap, 1998). Furthermore, Dolezal and Carballo-Diiguez (2002) found no evidence to suggest that the duration of the abuse influenced victims' perception of the abuse experience. The current finding, however, indicates that the length of the abuse is an important aspect of the abuse experience when it comes to distinguishing those who did or did not feel sexually abused or victimised. It would be incorrect to infer that greater duration of abuse is associated with greater perception of trauma. However, it makes sense to suggest that ongoing involuntary sexual relationships that involve force and a younger age may be associated with increased negative perceptions of abuse, harm and distress (Dolezal & Carballo-

Diuguez, 2002). Furthermore, ongoing incest by a relative may negatively influence perceptions of abuse experiences (Purcell et al., 2002).

Data analysis did not reveal an association between adverse family experiences and a history of CSA. This is in contrast to previous studies that have found that adverse family experiences constitute a risk factor for childhood sexual abuse (Collings, 1995; Luster & Small, 1997). Adverse family experiences were, however, significantly related to the duration of the abuse. Contrary to expectations, men with longer-lasting abuse experiences reported fewer adverse family experiences than those whose abuse constituted an isolated incident. This finding suggests that longer-duration abuse experiences do not necessarily imply greater childhood adversity. This finding does, however, demonstrate that children who had experienced sexual abuse of short duration tended to report more family dysfunction or adversity in their childhood. One may speculate that the lack of parental care, supervision and security that results from family adversity produces needy, emotionally deprived children who are more susceptible to becoming entrapped by strangers offering affection and attention (Finkelhor, 1994). Research has indicated that abuse that occurs outside the family (e.g., by a stranger) usually constitutes an isolated event rather than a lasting abuse experience.

Relationship to abuser. The current data analysis showed that, in terms of CSA severity, abuse perpetrated by a family member was not, contrary to other findings, related to adult dysfunction on outcome measures such as dissociation and substance abuse or on measures of sexual risk behaviour. Sexual abuse by a close relative was, however, significantly associated with greater adverse family experiences in childhood. This pattern of data illustrates that children with greater family adversity are more likely to report sexual abuse by a relative. This association between greater childhood family adversity and abuse by a relative is consistent with the fact that incestuous abuse experiences, as opposed to sexual abuse outside the family, may reflect a significant level of family disturbance (Beichtman et al., 1992), parental psychopathology, and overall childhood family adversity.

Hypothesis 4: Associations between Demographic and Mental Health Outcome Variables and Sexual Risk Behaviour

The current data indicate that CSA was not the only variable associated with sexual risk behaviour. Other key variables (*viz.*, adverse family experiences and alcohol abuse) were also associated with sexual risk behaviour (*i.e.*, unprotected anal intercourse). Those with more severe childhood adverse family experiences were more likely to report unprotected anal intercourse. One can speculate that physical abuse in childhood, which constitutes an aspect of adverse family experience, may be an important sign of an imbalance in power dynamics in the child's relationship with his or her parents, and this distortion may later reflect on their adult capacity to accurately evaluate others and interpersonal risk (Paul et al., 2001). Furthermore, children growing up in households marked by parental aggression and family disturbance may learn scripts that emphasise submissive or aggressive sexual roles that make them more vulnerable to participate in unusual risky sexual practices as adults. Such re-enactments of sadomasochistic roles in sexual relationships can result in a failure to prevent unsafe sex or avoid sexual risk (Paul et al., 2001).

The current data also indicated that MSM abusing alcohol were more likely to engage in unprotected anal sex. This finding corroborates previous research linking alcohol abuse to sexual risk-taking in MSM (Ekstrand & Coates, 1990; Kelly et al., 1991). Alcohol abuse may lead to HIV sexual risk behaviour by inhibiting interpersonal regulatory abilities that permit safe sex (Paul et al., 2001), by decreasing perceptions of risk or concerns about safety, or by encouraging sexual sensation-seeking. This finding therefore suggests that alcohol abuse plays a significant role in the maintenance of high-risk sexual practices among MSM.

An additional finding of this study is that marital status and occupation were significantly associated with unprotected anal intercourse. The results showed that those who had reported unprotected anal sex tended to be single and to occupy a lower job position. It makes intuitive sense that more single men reported unprotected anal sex than men who were in a relationship. One possible explanation may be that single men feel more open to experimenting with different forms of sexual pleasure and are less concerned about taking on stereotypical sexual scripts (*e.g.*, established roles of

penetrative versus receptive anal sex). Besides their freedom to engage in a versatility of sexual behaviours, single MSM may also feel less of a need to control their sexual impulses in sexualised situations, thereby putting them at an increased risk for HIV sexual risk behaviour.

In terms of occupation, men who were unemployed and business-employed were more likely to report unprotected anal sex than men who were self-employed. It may be postulated that the independence that comes with being self-employed is associated with greater self-efficacy and a greater sense of personal control which, in turn, may be associated with more sophisticated interpersonal regulation of adult sexual relationships. Evidence suggests that perceived loss of control, low self-efficacy, and powerlessness, all of which may be characteristic of men occupying lower professional positions, may be associated with weak adult interpersonal regulation (e.g., low sexual assertiveness) and subsequent poor enactment of sexual health practices (Paul et al., 2001).

The analysis of the data also showed an association between age and sexual risk behaviour as measured by participants' number of male sexual partners in the previous year: Older men tended to report more sexual partners than younger men. This may be due to the fact that older men grew up in a time when homosexuality was still in the closet and relatively stigmatised (Carballo-Diuguez & Dolezal, 1995). This may have led them to feel inhibited, repressed, and less open to experimenting with sexual partners of the same sex, whereas in the present age of liberation and sexual self-expression, these men may feel the need to compensate for the sexual relations they missed out on in prior decades.

In the current sample, HIV status was also related to participants' reported number of male sexual partners. HIV-positive MSM tended to report more sexual partners than HIV-negative MSM. A possible explanation is that compulsive sexual behaviour may be linked to avoidance or denial of anxiety-provoking thoughts related to the illness, so that excessive sexual activity comes to represent the person's choice to engage in self-destructive behaviours rather than experience the pain associated with complete awareness of the problem. It cannot be ruled out, however, that HIV-positive men may have had more sexual partners all along (i.e., prior to their diagnosis). Thus,

these men may find it hard to change their sexually promiscuous behaviour patterns even in the presence of a diagnosis.

Hypothesis 5: Models Predicting HIV Sexual Risk Behaviour

Another purpose of this study was to test for causal linkages between moderators making up CSA severity and proximal mental health outcomes of CSA in the prediction of HIV sexual risk behaviour. Contrary to expectations, no strong support was found for the independent effects of CSA severity on the index of unprotected anal intercourse. Logistic regression analysis did, however, indicate that antecedents of the abuse experience, such as adverse family experiences, have a crucial impact on the tendency to engage in unprotected anal intercourse over and above other variables commonly associated with CSA. Men with greater adverse family experiences in their childhood were more likely to report unprotected anal sex than those with fewer childhood stressors within the family. As stated previously, children growing up in homes marked by adversity may be more likely as adults to repeat dysfunctional, destructive attachment patterns that put them at a greater risk of engaging in sexual risk behaviour (Paul et al., 2001).

In the current sample, education also predicted engagement in unprotected anal intercourse: Men with tertiary level education were less likely to engage in unprotected anal intercourse than those with Matric only. This suggests that higher levels of education improve men's understanding of the risks of HIV transmission and help them perform safer sex (Carballo-Diequez & Dolezal, 1995). This relationship was reversed, however, when a multiple regression was conducted with number of male sexual partners as the dependent variable. The more educated men were *more* likely than the less educated men to be sexually promiscuous (i.e., have more male sexual partners in the previous year). This reversal suggests that higher levels of education may also provide men with more freedom to rebel against normative conceptions of monogamy and allow them to be flexible and versatile in their sexual behaviours.

The hierarchical multiple regression analysis with number of male sexual partners as the dependent variable also indicated that moderators of the abuse experience, such as the duration of abuse and the person's perception of the experience, significantly predict

risky sexual behaviour. The association between perceptions of the abuse experience and number of male sexual partners indicates that men who felt that they were unwilling participants in the abuse and reported feeling injured as adults reported greater numbers of sexual partners than did those who perceived the childhood sexual experience as voluntary and harmless. This finding is consistent with previous research (e.g., Dolezal & Carballo-Diuguez, 2002) showing that risky sexual behaviour was highest among unwilling participants. A significant association did not remain between perceptions of the abuse and number of partners when other variables were accounted for. Instead, duration of the abuse significantly predicted sexual risk behaviour. The results indicate that those with longer duration abuse experiences tended to report lower numbers of sexual partners than those whose abuse constituted an isolated event. This piece of data corroborates this study's previous finding that longer-lasting abuse does not have to be associated with more severe outcomes in adulthood (such as alcohol abuse and sexual promiscuity). This suggestion is incongruent with the extant literature, which has demonstrated that increased frequency of abuse is associated with more negative outcomes in adulthood (Russell, 1986). The current finding does, however, suggest that isolated incidents of abuse, especially those that involve rape or violent sexual attacks, may often be more severe than longer-lasting abuse experiences and may therefore correlate more powerfully with negative outcomes such as adult sexual risk behaviour.

Substance abuse also explained a substantial amount of variation in the reported number of male sexual partners over and above CSA severity. This finding indicates that MSM who reported substance abuse over the previous 3 months reported significantly more male sexual partners than those reporting no substance abuse. Thus, consistent with the broader HIV sexual risk behaviour literature, drug use specifically plays a crucial role in the risks for HIV infection among MSM (Bacon et al., 2006; Deiss et al., 2008; Gore-Felton et al., 2006; Stall & Purcell, 2000). Substance abuse of any kind may impair the individual's ability to evaluate potentially risky situations and may reduce his capacity to perform behaviours necessary to reduce risk (Paul et al., 2001).

Hypothesis 6: Testing for Mediation

My finding that drug abuse is associated with number of sexual partners suggests that drug abuse might act as a mediator between CSA and sexual risk behaviour. Although drug abuse was not significantly related to CSA, mediation analysis was conducted. The results indicated that drug abuse did not mediate the relationship between CSA and both measures of sexual risk behaviour. Furthermore, no evidence was obtained to suggest that alcohol abuse and dissociation mediated the association between CSA and HIV sexual risk behaviour. These non-significant results are inconsistent with other findings that have established that substance abuse, as an outcome of CSA, does mediate HIV sexual risk behaviour (Paul et al., 2001).

The fact that all three variables failed to account for this association suggests that additional mediators which were not measured in the study are operative (O’Leary et al., 2003). For example, this study did not examine mediators such as depression, anxiety, adult sexual revictimisation, or abusive relationships. It is also possible that unmeasured pathways existed that accounted for the connection with both measures of sexual risk behaviour. A more definitive examination of the negative consequences of CSA would have been beyond the scope of this study. Furthermore, a possible explanation why CSA failed to predict widely observed CSA outcomes such as drug abuse and alcohol abuse is that this study lacked adequate statistical power to discover true effects. This may be as a result of the relatively small number of individuals comprising the CSA group ($N = 48$). It is also possible that a more comprehensive assessment of CSA, with measures allowing for greater precision in defining level of trauma (Paul et al., 2001), might have led to the detection of a true relationship.

Limitations

A major problem with all research in this area is the use of self-report measures that require participants to remember events from their childhood. Retrospective recall of information is highly dependent on memory, which is not always accurate (Schacter, 2001). Furthermore, self-report measures of sensitive behaviours may lead to socially desirable responses (Gore-Felton et al., 2006). This study is further limited by its generalisability of findings. This study was conducted using a convenience sample of gay

and bisexual men attending bars and frequenting internet dating sites that are explicitly sexual in nature. This may have led to an over-reporting of behaviours constituting sexual risk behaviour. Furthermore, this sample consisted predominantly of White, highly educated homosexual men. This sample cannot therefore be considered as representative of the broader population of MSM. This study also overlooked socio-cultural and economic factors that may increase the risk for sexual HIV transmission for MSM in South Africa.

Directions for Future Research

Future studies should focus on clearly defining CSA, as well as assessing multiple aspects of the experience (Purcell et al., 2002). Consistent operationalisations of CSA can help determine which aspects of the abuse are related to negative mental health outcomes. Another methodological issue that needs to be addressed is that population-based sampling strategies are necessary in order to achieve larger samples that are more reflective of South African MSM populations. Furthermore, future studies should consider socio-cultural aspects of sexual behaviour and drug abuse among MSM. Resiliency factors should also be considered in order to determine the factors that protect MSM with histories of abuse from developing negative mental health outcomes in adulthood. Finally, sexual scripts should be considered as pathways from CSA to adult sexual risk-taking. The fact that fixed sexual scripts may impair interpersonal regulatory abilities and determine unsafe sex cannot be underestimated.

Clinical/Policy Implications

Despite some limitations, this study has yielded important findings that may have implications for future research and HIV prevention programmes. The current data suggest that unwanted sexual experiences in childhood represent a prevalent and pervasive problem for MSM in South Africa. A complex connection of substance abuse and dissociation occur with sexual risk-taking in MSM with histories of sexual abuse. It appears that abused men are more vulnerable to psychological symptoms such as dissociation and sexual risk behaviour such unprotected anal intercourse. Furthermore, abuse characteristics such as duration of abuse, antecedent factors such as adverse family

experiences, and behavioural risks such as substance abuse are predictors of HIV sexual risk behaviour in South African MSM. These findings suggest that an increased recognition of sexual abuse among MSM is vital for the optimal development of prevention programs targeting HIV sexual risk behaviour. This is because the choices that MSM make regarding their sexual behaviours are partly influenced by their own sexual development and experiences (Jinich et al., 1998). CSA, which is a critical factor associated with sexual development, may have a crucial impact on a person's likelihood of sticking to risk reduction practices. Unless CSA and associated sexual risk behaviours such as unprotected anal sex are targeted directly, current HIV prevention programmes in South Africa may have a limited effect on some MSM who continue to engage in sexual practices that pose HIV transmission risks. More importantly, the severity of the abuse experience should be considered in intervention programs because of its significant association with sexual risk behaviour. Furthermore, it is necessary to consider the implications that adverse family experiences may have in determining the severity of the abuse experience as well as in determining the risk of engagement in unprotected anal intercourse.

My findings also suggest the need for prevention programmes to focus on issues of substance abuse as it relates to sexual risk behaviour. Because the proportion of men in this sample reporting drug abuse is quite high (40%), it makes sense for public health programs targeting MSM to provide opportunities for counselling around issues of substance abuse. Other implications of this study suggest the importance of making families as well as clinicians aware that sexual abuse may lead to serious negative effects in the later cognitive development of MSM. A greater understanding of the relationship between CSA and dissociation may possibly increase the effectiveness of clinical programmes targeting male survivors of sexual abuse.

REFERENCES

- Allers, C. T., & Benjack, K. J. (1991). Connections between childhood abuse and HIV infection. *Journal of Counseling & Development, 70*, 309-313.
- Bacon, O., Lum, P., Hahn, J., Evans, J., Davidson, P., Moss, A., et al. (2006). Commercial sex work and risk of HIV infection among young drug-injecting men who have sex with men in San Francisco. *Sexually Transmitted Diseases, 33*, 228-234.
- Baron, R. A., & Kenny, D. A. (1986). The moderator-mediator distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Bartholow, B. N., Doll, L. S., Joy, D., Douglas, J. M., Bolan, G., Harrison, J. S., et al. (1994). Emotional, behavioral, and HIV risks associated with sexual abuse among adult homosexual and bisexual men. *Child Abuse & Neglect, 18*, 747-761.
- Basta, S. M., & Peterson, R. F. (1990). Perpetrator status and the personality characteristics of molested children. *Child Abuse & Neglect, 14*, 555-566.
- Beichtman, J. H., Zucker, K. J., Hood, J. E., daCosta, G. A., Akman, D., & Cassavia, E. (1992). A review of the long-term effects of child sexual abuse. *Child Abuse & Neglect, 16*, 101-118.
- Bernstein, E. M., & Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous Mental Disorder, 74*, 727-735.
- Briere, J, N. (1992). *Child abuse trauma: Theory and treatment of the lasting effects*. Newbury Park, CA: Sage.

- Briere, J. N., & Elliot, D. M. (1994). Immediate and long-term impacts of child sexual abuse. *The Future of Children, 4*, 54-69.
- Briere, J., & Runtz, M. (1988). Symptomatology associated with childhood sexual victimization in a nonclinical adult sample. *Child Abuse & Neglect, 12*, 51-59.
- Browne, A., & Finkelhor, D. (1986). Impact of child sexual abuse: A review of the research. *Psychological Bulletin, 99*, 66-77.
- Carballo-Diequez, A., & Dolezal, C. (1995). Association between history of childhood sexual abuse and adult HIV-risk sexual behavior in Puerto Rican men who have sex with men. *Child Abuse & Neglect, 19*, 595-605.
- Chu, J., & Dill, D. (1990). Dissociative symptoms in relation to childhood physical and sexual abuse. *American Journal of Psychiatry, 147*, 887-892.
- Chu, J. A., Frey, L. M., Ganzel, B. L., & Matthews, J. A. (1999). Memories of childhood abuse: Dissociation, amnesia, and corroboration. *American Journal of Psychiatry, 156*, 749-755.
- Collings, S. J. (1995). The long-term effects of contact and noncontact forms of child sexual abuse in a sample of university men. *Child Abuse & Neglect, 19*, 1-6.
- Deiss, R. G., Brouwer, K. C., Loza, O., Lozada, R. M., Ramos, R., Firestone-Cruz, M. A., et al. (2008). *Sexually Transmitted Diseases, 35*, 243-249.
- Dilorio, C., Hartwell, T., & Hansen, N. (2002). Childhood sexual abuse and risk behaviours among men at risk for HIV infection. *American Journal of Public Health, 92*, 214-219.

- Dolezal, C., & Carballo-Diequez, A. (2002). Childhood sexual experiences and the perception of abuse among Latino men who have sex with men. *Journal of Sex Research, 39*, 165-173.
- Draijer, N., & Langeland, W. (1999). Childhood trauma and perceived parental dysfunction in the etiology of dissociative symptoms in psychiatric inpatients. *American Journal of Psychiatry, 156*, 379-385.
- Edwards, J. J., & Alexander, P. C. (1992). The contribution of family background to the long-term adjustment of women sexually abused as children. *Journal of Interpersonal Violence, 7*, 306-320.
- Ekstrand, M., & Coates, T. (1990). Maintenance of safer sexual behaviors and predictors of risky sex: The San Francisco Men's Health Study. *American Journal of Public Health, 80*, 973-977.
- Fassler, I. R., Amodeo, M., Griffin, M. L., Clay, C. M., & Ellis, M. A. (2005). Predicting long-term outcomes for women sexually abused in childhood: Contribution of abuse severity versus family environment. *Child Abuse & Neglect, 29*, 269-284.
- Finkelhor, D. (1979). *Sexually victimized children*. New York: Free Press.
- Finkelhor, D. (1994). Current information on the scope and nature of child sexual abuse. *The Future of Children, 4*, 31-53.
- Frankis, J. S., & Flowers, P. (2006). Cruising for sex: Sexual risk behaviours and HIV testing of men who cruise, inside and out with public sex environments (PSE). *AIDS Care, 18*, 54-59.
- Gore-Felton, C., Kalichman, S. C., Brondino, M. J., Benotsch, E. G., Cage, M., & DiFonzo, K. (2006). Childhood sexual abuse and HIV risk among men who have

- sex with men: Initial test of a conceptual model. *Journal of Family Violence*, 21, 263-270.
- Holmes, W. C. (1997). Association between history of childhood sexual abuse and subsequent, adolescent psychoactive substance use disorder in a sample of HIV seropositive men. *Journal of Adolescent Health*, 20, 414-419.
- Holmes, W. C., & Slap, G. B. (1998). Sexual abuse of boys: Definition, prevalence, correlates, sequelae, and management. *Journal of the American Medical Association*, 280, 1855-1862.
- Horwitz, A. V., Widom, C. S., McLaughlin, J., & White, H. R. (2001). The impact of childhood abuse and neglect on adult mental health: A prospective study. *Journal of Health and Social Behaviour*, 42, 184-201.
- Jinich, S., Paul, J. P., Stall, R., Acree, M., Kegeles, S., Hoff, C., et al. (1998). Childhood sexual abuse and HIV risk-taking behaviour among gay and bisexual men. *AIDS and Behaviour*, 2, 41-51.
- Kelly, J., Kalichman, S., Kauth, M., Kilgore, H., Hood, H., Campos, P., Rao, S, Brasfield, T., & St. Lawrence, J. (1991). Situational factors associated with AIDS risk behavior lapses and coping strategies used by gay men who successfully avoid lapses. *American Journal of Public Health*, 81, 1335-1338.
- Kendall-Tackett, K. A., Williams, L. M., & Finkelhor, D. (1993). Impact of sexual abuse on children: A review and synthesis of recent empirical studies. *Psychological Bulletin*, 113, 163-180.
- Kisiel, C. L., & Lyons, J. S. (2001). Dissociation as a mediator of psychopathology among sexually abused children and adolescents. *American Journal of Psychiatry*, 158, 1034-1039.

- Luster, T., & Small, S. A. (1997). Sexual abuse history and problems in adolescence: Exploring the effects of moderating variables. *Journal of Marriage and the Family*, *59*, 131-142.
- MacKinnon, D. P., & Dwyer, J. H. (1993). Estimating mediated effects in prevention studies. *Evaluation Review*, *17*, 144-158.
- McElroy, L. P. (1992). Early indicators of pathological dissociation in sexually abused children. *Child Abuse & Neglect*, *16*, 833-846.
- Miller, M. (1999). A model to explain the relationship between sexual abuse and HIV risk among women. *AIDS Care*, *11*, 3-20.
- Nash, M. R., Hulsey, T. L., Sexton, M. C., Harralson, T. L., & Lambert, W. (1993). Long-term sequelae of childhood sexual abuse: Perceived family environment, psychopathology, and dissociation. *Journal of Counseling and Clinical Psychology*, *61*, 276-283.
- O'Leary, A., Purcell, D., Remien, R. H., & Gomez, C. (2003). Childhood sexual abuse and sexual transmission risk behaviour among HIV-positive men who have sex with men. *AIDS Care*, *15*, 17-26.
- Parry, C. D., Peterson, P., Dewing, S., Carney, T., Needle, R., Kroeger, K., et al. (2008). Rapid assessment of drug-related HIV risk among men who have sex with men in three South African cities. *Drug & Alcohol Dependence*, *95*, 45-53.
- Parry, C. D., & Pithey, A. L. (2006). Risk behaviour and HIV among drug using population in South Africa. *African Journal of drug and Alcohol Studies*, *5*, 139-156.

- Parsons, J. T., & Halkitis, P. N. (2002). Sexual and drug-using practices of HIV-positive men who frequent public and commercial sex environments. *AIDS Care, 14*, 815-826.
- Paul, J. P., Catania, J., Pollack, L., & Stall, R. (2001). Understanding childhood sexual abuse as a predictor of sexual risk-taking among men who have sex with men: The Urban Men's Health Study. *Child Abuse & Neglect, 25*, 557-584.
- Purcell, D. W., Malow, R. M., Dolezal, C., & Carballo-Diuguez, A. (2002). Sexual abuse of boys: Short- and long-term associations and implications for HIV prevention. In L. J. Koenig, L. S. Doll, A. O'Leary, & W. Pequegnat (Eds.), *From child sexual abuse to adult sexual risk: Trauma, revictimization and intervention* (pp. 93-115). Washington, DC: American Psychological Association.
- Putnam, F. W., Helmers, K., Horowitz, L. A., & Trickett, P. K. (1995). Hypnotizability and dissociativity in sexually abused girls. *Child Abuse & Neglect, 19*, 645-655.
- Rind, B., Tromovitch, P., & Bauerman, R. (1998). A meta-analytic examination of assumed properties of child sexual abuse using college samples. *Psychological Bulletin, 124*, 22-53.
- Rotheram-Borus, M. J., Rosario, M., Meyer-Bahlburg, H. F. L., Koopman, C., Dopkins, S. C., & Davies, M. (1994). Sexual and substance use acts of gay and bisexual male adolescents in New York City. *The Journal of Sex Research, 31*, 47-57.
- Russell, D. E. H. (1986). *The secret trauma: Incest in the lives of girls and women*. New York: Basic Books.
- Schacter, D. L. (2001). *The seven sins of memory: How the mind forgets and remembers*. New York: Houghton Mifflin.

- Stall, R., & Purcell, D. (2000). Intertwining epidemics: A review of research on substance use among men who have sex with men and its connection to the AIDS epidemic. *AIDS and Behaviour, 4*, 181-192.
- van der Kolk, B. A., & van der Hart, O. (1989). Pierre Janet and the breakdown of adaptation in psychological trauma. *American Journal of Psychiatry, 146*, 1530-1539.
- Wechsberg, W. M., Luseno, W. K., Lam, W. K., Parry, C. D., & Morojele, N. K. (2006). Substance use, sexual risk, and violence: HIV prevention intervention with sex workers in Pretoria. *AIDS Behaviour, 10*, 131-137.
- Zierler, S., Feingold, L., Laufer, D., Velentgas, P., Kantrowitz-Gordon, I., & Mayer, K. (1991). Adult survivors of childhood sexual abuse and subsequent risk of HIV infection. *American Journal of Public Health, 81*, 572-575.

TABLES

Table 1
Demographic Characteristics of the Sample and Comparisons by Group

Variable	Total (<i>N</i> = 144)	Percentage (%)	Group		<i>p</i>
			CSA (<i>N</i> = 48)	Non-CSA (<i>N</i> = 96)	
Age (<i>M</i> , <i>SD</i>)			31.18 (10.57)	32.12 (10.76)	.63
			%	%	
Ethnicity					.03*
Black	12	8.33	2.78	5.56	
Coloured	21	14.58	8.33	6.25	
Indian	5	3.47	2.08	1.39	
White	101	70.14	20.14	50.00	
Other	5	3.47	0.00	3.47	
Sexual orientation					.89
Gay	104	72.22	24.31	47.92	
Bisexual	31	21.53	7.64	13.89	
Heterosexual	5	3.47	0.69	2.78	
Other	4	2.78	0.69	2.08	
Marital status					.38
Single	80	55.94	20.28	35.66	
Partner Closed	32	22.38	6.29	16.08	
Partner Open	14	9.79	1.40	8.39	
Married Opposite Sex	8	5.59	2.10	3.50	
Married Same Sex	3	2.10	1.40	0.70	
Divorced	6	4.20	2.10	2.10	
Occupation					.08
Unemployed	4	2.82	2.11	0.70	
Self Employed	36	25.35	6.34	19.01	
Business Employed	81	57.04	22.54	34.51	
Student	19	13.38	2.11	11.27	
Other	2	1.41	0.70	0.70	
Education					.07
< Grade 12	11	7.80	4.26	3.55	
Matric	54	38.30	14.89	23.4	
Tertiary Education	76	53.90	13.48	40.43	
Socio-economic status					.92
< 100 000pa	44	31.21	9.93	21.28	
100 - 200 000pa	42	29.79	10.64	19.15	
200 - 300 000pa	23	16.31	4.96	11.35	
> 400 000pa	32	22.70	6.38	16.31	
HIV status					.38
Negative	115	79.86	25.00	54.86	
Positive	10	6.94	2.08	4.86	
Status Unknown	19	13.19	6.25	6.94	

* *p* < .05.

Table 2
Comparison of Abused vs. Non-abused Participants on Proximal Outcome Variables and Sexual Risk Behaviour

	<u>Group</u>				<i>t</i>	<i>df</i>	<i>p</i>
	CSA		Non-CSA				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Alcohol abuse	1.17	1.33	0.92	1.22	1.13	142	.26
DES	25.2	18.2	13.8	12.5	3.9	69	.00**
	<i>N</i>	%	<i>N</i>	%	χ^2	<i>df</i>	<i>p</i>
Drug abuse					1.18	1	.28
Yes	22	15.28	36	24.31			
No	26	18.06	61	42.36			
Measures of sexual risk behaviour	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Number of male sexual partners	34.32	34.98	45.27	84.64	-1.03	126	.42
	<i>N</i>	%	<i>N</i>	%	χ^2	<i>df</i>	<i>p</i>
Unprotected anal sex					8.49	1	.00**
Yes	22	17.05	24	18.60			
No	19	14.73	64	49.61			

* $p < .01$.

Table 3
Sexual Risk Behaviours and Proximal Outcome Variables by Level of Duration of Abuse

	<u>Duration of abuse</u>				<i>t</i>	<i>df</i>	<i>p</i>
	Isolated Incident (<i>N</i> = 14)		More than once (<i>N</i> = 32)				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
DES score	27.78	13.77	24.56	19.95	-0.54	44	.58
Alcohol abuse	1.64	1.55	0.97	1.20	-1.59	44	.05*
Number of male sexual partners	44.85	43.36	30.04	30.38	-1.25	38	.22
	<i>N</i>	%	<i>N</i>	%	χ^2	<i>df</i>	<i>p</i>
Drug abuse	6	13.04	14	30.43	0.00	1	.96
Unprotected anal sex	7	17.50	14	35.00	0.01	1	.91

* *p* = .05.

Table 4

Perceptions of Abuse and Adverse Family Experiences by Level of Duration of Abuse

	<u>Duration of abuse</u>				<i>t</i>	<i>df</i>	<i>p</i>
	<u>Isolated Incident</u>		<u>More than once</u>				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Perceptions of abuse	3.79	2.12	5.03	1.69	2.12	44	.04*
Adverse family experiences	2.36	1.95	1.34	1.45	-1.96	44	.05*

* $p < .05$.

Table 5

Sexual Risk Behaviours and Proximal Outcome Variables by Level of Relationship to Abuser

	<u>Relationship to abuser</u>				<i>t</i>	<i>df</i>	<i>p</i>
	<u>Related (<i>N</i> = 23)</u>		<u>Stranger/Unrelated (<i>N</i> = 23)</u>				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
DES score	24.30	18.69	25.08	17.76	0.15	44	.88
Alcohol abuse	1.17	1.26	1.26	1.42	0.22	44	.83
Number of male sexual partners	39.95	41.07	27.78	25.83	-1.11	39	.27
	<i>N</i>	%	<i>N</i>	%	χ^2	<i>df</i>	<i>p</i>
Drug abuse	11	23.91	10	21.74	0.09	1	.77
Unprotected anal sex	12	29.27	10	24.39	0.02	1	.90

Table 6

Perceptions of Abuse and Adverse Family Experiences by Level of Relationship to Abuser

	<u>Relationship to abuser</u>				<i>t</i>	<i>df</i>	<i>p</i>
	<u>Related</u>		<u>Stranger/Unrelated</u>				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Perceptions of abuse	4.17	1.77	4.96	1.86	-1.47	44	.15
Adverse family experiences	2.26	1.84	1.17	1.37	2.27	44	.03*

* $p < .05$.

Table 7

Correlations between Perceptions of Abuse and Proximal Outcomes and Sexual Risk Behaviour

	Perceptions of abuse		
	<i>N</i>	<i>r</i>	<i>p</i>
DES score	47	.26	.07
Alcohol abuse	48	.22	.14
Drug abuse	48	-.14	.34
Number of male sexual partners	41	.22	.16
Unprotected anal sex	41	.11	.49

Table 8
Prevalence of Risk Behaviours by Demographic Characteristics and Proximal Outcome Variables

Variable	Number of male sexual partners			Unprotected anal sex	
	<i>M</i>	<i>SD</i>	<i>p</i>	%	<i>p</i>
Age			.02*		.07
Ethnicity			.84		.27
	Black	35.00	31.76	2.33	
	Coloured	31.47	33.51	6.98	
	Indian	26.00	9.06	0.78	
	White	46.49	84.14	25.58	
	Other	18.25	7.45	0.00	
Sexual orientation			.58		.06
	Gay	43.15	66.91	30.23	
	Bisexual	47.19	97.66	4.65	
	Heterosexual	2.75	4.86	0.78	
	Other	12.50	15.37	0.00	
Marital status			.37		.00*
	Single	40.19	68.15	14.06	
	Partner Closed	24.71	31.56	12.50	
	Partner Open	67.23	21.25	4.69	
	Married Opposite Sex	79.87	174.69	1.56	
	Married Same Sex	36.33	45.61	2.34	
	Divorced	44.60	59.52	0.78	
Occupation			.48		.04*
	Unemployed	32.00	35.43	2.36	
	Self Employed	51.19	60.23	5.51	
	Business Employed	44.73	86.21	25.20	
	Student	14.19	17.35	3.15	
	Other	10.00	14.14	0.00	
Education			.81		.1
	< Grade 12	28.20	34.02	0.79	
	Matric	41.32	70.23	15.75	
	Tertiary Education	44.11	79.19	18.90	
Socio-economic status			.15		.67
	< 100 000pa	22.12	29.96	12.70	
	100 - 200 000pa	55.50	70.55	9.52	
	200 - 300 000pa	57.75	95.43	7.14	
	> 400 000pa	43.21	98.11	6.35	
HIV status			.00*		.69
	Negative	34.91	70.64	27.13	
	Positive	134.50	104.45	2.33	
	Status Unknown	39.94	31.22	6.20	
Adverse family experiences			.42		.03*
Proximal outcome variables					
Drug abuse			.07		.09
	Yes	55.69	67.31	17.83	
	No	32.40	75.02	17.83	
Alcohol abuse			.78		.04*
DES score			.13		.27

* $p < .05$; ** $p < .01$.

Table 9

Results of Hierarchical Logistic Regression on Unprotected Anal Intercourse

Step	Variable	<i>B</i> (<i>SE</i>)	95% <i>CI</i> for <i>exp b</i>		
			Lower	Odds ratio (<i>exp b</i>)	Upper
1	Duration	0.24 (0.76)	0.29	1.27	5.62
	Relationship	0.49 (0.69)	0.25	0.96	3.71
	Perception	0.18 (0.19)	0.82	1.20	1.75
2	Duration	-0.34 (0.88)	0.13	0.71	3.97
	Relationship	0.52 (0.81)	0.34	1.68	8.20
	Perception	0.2 (0.21)	0.80	1.22	1.85
	Adverse famliy experiences	0.62 (0.25)*	1.13	1.85	3.03
3	Duration	-0.39 (0.89)	0.12	0.68	3.90
	Relationship	0.46 (0.82)	0.32	1.58	7.83
	Perception	0.17 (0.23)	0.76	1.18	1.84
	Adverse famliy experiences	0.55 (0.26)*	1.02	1.73	2.95
	Drug abuse	-0.44 (0.73)	0.15	0.64	2.72
	Alcohol abuse	0.14 (0.32)	0.62	1.15	2.16
4	Duration	-0.32 (0.90)	0.12	0.73	4.28
	Relationship	0.46 (0.82)	0.32	1.58	7.85
	Perception	0.19 (0.23)	0.77	1.21	1.90
	Adverse famliy experiences	0.55 (0.27)*	1.02	1.74	2.96
	Drug abuse	-0.47 (0.74)	0.15	0.63	2.67
	Alcohol abuse	0.18 (0.33)	0.63	1.19	2.26
	DES score	-0.02 (0.02)	0.94	0.99	1.03
5	Duration	-0.23 (1.11)	0.09	0.80	6.96
	Relationship	0.46 (0.91)	0.27	1.59	9.49
	Perception	0.18 (0.30)	0.66	1.19	2.14
	Adverse famliy experiences	0.89 (0.40)*	1.14	2.45	5.27
	Drug abuse	-0.75 (0.87)	0.09	0.47	2.60
	Alcohol abuse	0.45 (0.42)	0.69	1.56	3.57
	DES score	-0.01 (0.03)	0.94	1.00	1.04
	Education				
	< Grade 12 vs. matric	-4.08 (1.76)*	0.00	0.02	0.54
Tertiary vs. matric	-3.48 (1.71)*	0.00	0.03	0.88	

Note. $R^2 = .36$ (Cox & Snell); $.48$ (Nagelkerke). Model $\chi^2(9) = 17.14, p < .05$.

* $p < .05$.

Table 10
Results of Hierarchical Linear Regression on Number of Male Sexual Partners

Step	Variable	<i>B</i>	<i>SE B</i>	β
1	Duration	-22.40	12.40	-0.30
	Relationship	-13.36	11.37	-0.19
	Perception	6.44	3.18	0.34*
2	Duration	-22.01	13.01	-0.29
	Relationship	-13.76	12.01	-0.19
	Perception	6.42	3.17	0.34*
	Adverse family experiences	0.42	3.55	0.02
3	Duration	-24.70	10.89	-0.33*
	Relationship	-8.17	9.97	-0.12
	Perception	5.09	2.77	0.27
	Adverse family experiences	-3.91	3.19	-0.18
	Drug abuse	37.37	9.32	0.54***
	Alcohol abuse	5.72	4.11	0.21
4	Duration	-24.93	11.16	-0.33*
	Relationship	-8.14	10.14	-0.12
	Perception	5.19	2.88	0.27
	Adverse family experiences	-3.89	3.25	-0.18
	Drug abuse	37.54	9.54	0.54***
	Alcohol abuse	5.76	4.19	0.21
5	DES score	-0.01	0.28	-0.02
	Duration	-24.77	10.47	-0.33*
	Relationship	-6.17	9.35	-0.09
	Perception	2.21	2.88	0.12
	Adverse family experiences	-4.23	3.25	-0.21
	Drug abuse	42.74	9.48	0.61***
	Alcohol abuse	8.19	4.05	0.30*
	DES score	-0.09	0.28	-0.04
	EthnicityDummy1	8.59	21.91	0.11
	EthnicityDummy2	4.79	19.90	0.07
	EthnicityDummy3	34.97	26.65	0.27
EducationDummy1	27.34	13.53	0.38*	
EducationDummy2	38.64	13.11	0.55**	

Note. $R^2 = .18$ for Step 1; $\Delta R^2 = .00$ for Step 2; $\Delta R^2 = .3$ for Step 3 ($ps < .001$); $\Delta R^2 = .00$ for Step 4; $\Delta R^2 = .16$ for Step 5.

* $p < .05$; ** $p < .01$; *** $p < .001$.