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Sexual and physical abuse history and adult sexual risk behaviors: Relationships among women and potential mediators

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Abstract

Objective—While research has supported associations between experiencing abuse and engaging in risky sexual behaviors during adolescence, research regarding these associations among adult women is much more equivocal. In addition, few studies have attempted to identify potential pathways from abuse experiences to sexual risk behaviors. The current study examined the associations between a history of physical or sexual abuse and recent sexual risk behaviors among adult women. Additionally, this study evaluated binge drinking and depressive symptomatology as potential mediators of any relationships between abuse history and sexual risk behaviors.

Methods—A total of 1,428 women between 18 and 40 years of age attending family planning clinic appointments completed a self-report survey regarding their recent sexual behaviors and sexual and physical abuse history. Logistic regressions using backward elimination were conducted to identify factors associated with sexual risk behavior.

Results—A history of physical abuse by a romantic partner was associated with several sexual risk behaviors. Few significant associations between intrafamilial physical or sexual abuse and recent sexual risk behaviors were found. Additionally, there was no evidence that these relationships were mediated by binge drinking or depressive symptomatology.

Conclusions—Familial abuse experiences are not necessarily associated with recent sexual risk behaviors among adults. In contrast, physical abuse experiences, particularly those perpetrated by a romantic partner, are associated with engaging in adult sexual risk behaviors among women. However, these associations are not mediated by alcohol use or depressive symptomatology.

Introduction

An association between abuse and sexual risk behaviors, including having multiple sexual partners, inconsistent use of condoms, early age of sexual debut, and use of substances before sex, has been observed among adolescent women (e.g., Fergusson, Horwood, & Lynskey, 1997;Lodico & DiClemente, 1994;Raj, Silverman, & Amaro, 2000;Stock, Bell, Boyer, & Connell, 1997). In addition, several studies support an association of sexual abuse in childhood or adolescence with sexual risk behaviors in adulthood (e.g., Cohen et al., 2000;Hamburger et al., 2004;Rosenberg, Bayona, Brown, & Specter, 1994;Steel & Herlitz, 2005;Testa, VanZile-Tamsen, & Livingston, 2005;Zierler et al., 1991). However, one limitation of these studies has

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been that most have examined *lifetime* sexual risk behaviors, and thus these findings do not definitively support that a history of childhood or adolescent abuse is associated with the persistence of sexual risk behaviors into adulthood. Studies examining the relationship between a history of childhood or adolescent abuse and recent sexual risk behaviors in adults have had mixed findings. Some studies have found an association between abuse and recent adulthood sexual risk behaviors (Rosenberg et al., 1994;Thompson, Potter, Sanderson, & Maibach, 1997), whereas others have found no such association (Hamburger et al., 2004;Parillo, Freeman, Collier, & Young, 2001;Petrak, Byrne, & Baker, 2000;Simoni, Sehgal, & Walters, 2004;Wingood & DiClemente, 1997;Zierler et al., 1991).

Additionally, a number of studies in this area have been conducted on higher risk populations, such as women who are HIV positive, women attending STD clinics, or women who report a history of intercourse with an injection drug user (Cohen et al., 2000;Hamburger et al., 2004;Parillo et al., 2001;Thompson et al., 1997), limiting the generalizability of findings to lower risk populations. Also, given the association between childhood victimization and experiencing victimization in adulthood (Gidycz, Hanson, & Layman, 1995;Gilbert, El-Bassel, Schilling, & Friedman, 1997;Himelein, 1995;Maker, Kemmelmeier, & Peterson, 2001;Testa et al., 2005), it seems imperative to examine whether any relationship between adult risk behaviors and childhood abuse experiences is confounded by other abuse experiences, such as domestic violence. Indeed, two studies found that a history of domestic violence among women was associated with recent sexual risk behaviors (Hamburger et al., 2004;Thompson et al, 1997).

Another limitation of extant research is that while a number of pathways from abuse to sexual risk behaviors have been proposed, they have not been extensively empirically investigated. For example, it has been theorized that some women turn to substance use to cope with abuse experiences, memories of those experiences, and psychological distress. Substance use then leads to sexual risk behaviors because of impairment in judgment/problem solving during substance use or in order to obtain drugs or alcohol (Miller, 1999). Alternatively, abuse can lead to the development of psychopathology. Psychopathology then fuels self-destructive behavior (e.g., having sex with multiple partners) as well as a perceived lack of control in high risk sexual situations (e.g., negotiating condom use with a new partner; Miller, 1999). Morrill, Kasten, Urato, and Larsen (2001) examined these potential mediators among treatment-seeking substance users and did not find evidence for a mediational role of substance abuse severity or depressive symptoms, although their findings may have been affected by limited variance on some of the key constructs. In contrast, Simoni and colleagues (2004) found evidence for the role of injection drug use as a mediator between lifetime sexual risk behaviors and sexual trauma history among a sample of Native American women, but no evidence of a relationship between sexual trauma history and recent (past year) sexual risk behaviors.

Given the above noted limitations of extant research, the current study sought to investigate the relationships among victimization and adult sexual risk behaviors in more detail. The relationships among sexual and physical victimization experiences by different perpetrators (i.e., family members, romantic partners, strangers) and recent sexual risk behaviors were examined in a tri-ethnic sample of women attending routine family planning appointments. In addition, binge drinking and depressive symptomatology were examined as potential mediators of any relationships found between abuse history and sexual risk behaviors.

This study advances the literature in this area in several ways. First, the association between abuse experiences and sexual risk behaviors are evaluated in a population that is not restricted only to high risk individuals. Second, the association between sexual risk behaviors and abuse experiences that occurred in different developmental periods and with different perpetrators are examined. Third, the association between abuse experiences and recent sexual risk

behaviors are evaluated, and thus, the results can speak more directly to whether childhood abuse experiences are associated with a persistence of increased sexual risk behavior into adulthood. Finally, two potential mediators of the association between abuse experiences and sexual risk behavior are evaluated.

Method

Participants

Data were collected as part of a larger study of health status and risk behaviors (Berenson, Radecki Breitkopf, & Wu, 2003). In the current study, analyses were restricted to self-identified European American, Latina, and African American women between the ages of 18 and 40 who between October of 1999 and November of 2000 visited one of two clinics (affiliated with the University of Texas Medical Branch; UTMB) offering comprehensive reproductive healthcare to low income women in Southeast Texas. Analyses were restricted to these women because there were insufficient women in the sample who were not of reproductive age or who were of other ethnicities to make meaningful comparisons. The refusal rate was approximately 20%. Latinas were overrepresented among women who refused. Specifically, 50% of women who refused to participate identified themselves as Latina as compared to 38% of the women who participated in the study. The final sample consisted of 1,428 women. There was no compensation for participation and the study was approved by the UTMB IRB.

The average age of women in the final sample was 25 (SD = 5.9). Thirty-five percent (n = 505) identified themselves as European American, 38% (n = 543) as Latina, and 27% (n = 380) as African American. Thirty-one percent reported that they did not complete high school, whereas 53% reported at least some technical school/college education. The median monthly household income reported was $800, with 15% of women reporting no household income and only 10% reporting a monthly household income over $1700.

Procedure

The design and procedures of the survey have been described in detail elsewhere (Berenson et al., 2003). Clinic patients were informed that their responses to a paper-and-pencil survey, available in both Spanish and English, would be confidential and that information would be extracted from their medical chart.

In addition to demographic questions, women were asked if they had ever experienced sexual or physical abuse. Specifically, women were asked if anyone had ever forced them to have sex and if they had ever been hit, slapped, kicked, or otherwise physically hurt by someone. Women could then indicate whether the individual or individuals who abused them fell into three relationship categories: family members, romantic partners, or strangers. Women were also asked to indicate how long ago the last abuse incident had occurred with the following response options: 1 month ago or less, 2 to 6 months ago, 7 to 12 months ago, and more than 1 year ago. While definitive statements could not be made about what stage in the woman's lifespan abuse had occurred (with the exception of recent abuse incidents), it was presumed that the majority of intrafamilial incidents of abuse occurred in childhood or adolescence and the majority of incidents involving a romantic partner occurred in adolescence or adulthood.

The survey also included a number of questions about women's recent sexual and substance use behaviors. Women were asked how often they had used condoms during sex in the past 3 months, how often they had engaged in sexual intercourse after taking alcohol or drugs in the past 3 months, and frequency of binge drinking episodes in the past month (defined as having 5 or more alcoholic drinks within a couple of hours). The number of sexual partners they reported having in the past year was obtained from their medical chart. Sexual intercourse after

using substances was included as a sexual risk behavior given the association between substance use, especially alcohol, before sex and engaging in casual sexual activity, having unprotected sex, and having difficulties in condom use negotiation (Kalichman & Cain, 2004;Morris & Albery, 2001;Weinhardt & Carey, 2000).

Women were administered the Beck Depression Inventory Short Form (BDI-SF; Beck & Beck, 1972) to assess current depressive symptoms. The BDI-SF is a 13-item version of the original Beck Depression Inventory. This shortened version has been shown to be highly correlated with the full measure (r = .90; Beck & Beck, 1972). In addition, it has been shown to have good sensitivity and specificity when compared to a clinician-administered interview (Bennett et al., 1997). In the current study, the Cronbach's alpha of the BDI-SF was .87 and was similar among women who self-identified as European American, Latina, or African American.

Scoring and analysis plan

Women with missing data for particular items on the questionnaire (ranging from 2% to 6% of women for each item) were excluded from analyses of those variables. Women who had not had sexual intercourse in the past 3 months (10%) were excluded from analyses regarding recent sexual behavior (i.e., frequency of condom use, frequency of having sex after drinking alcohol or using drugs). For women who did not have extensive missing data on the BDI-SF (less than 25% of items missing), the weighted mean substitution procedure developed by Gale and Hawley (2001) was used. This procedure involves substituting a missing item response with a participant's mean item score weighted by the proportion of the total variance on the measure typically accounted for by that item. Thirteen percent of women had extensive missing data on the BDI-SF and were excluded from analyses of the role of depressive symptoms as a potential mediator of recent sexual risk behaviors.

A number of participant responses were dichotomized into qualitatively meaningful groups because they were measured on ordinal scales that did not represent equal-appearing intervals or because attempts to normalize the distribution of the data were not successful (Tabachnick & Fidell, 2001). Condom use was dichotomized as consistent condom use versus inconsistent or no condom use and number of sexual partners in the past year was dichotomized as multiple versus one or none. Binge drinking and use of alcohol or drugs before sex were coded as having occurred versus not having occurred. For the demographic variables, women were coded as having a high school education or higher versus less than a high school education. Two ethnicity dummy variables were also created, the first with European Americans as the reference group and the second with African Americans as the reference group.

To examine the impact of sexual and physical abuse history on sexual risk behaviors, logistic regressions were performed using backward elimination; the criteria for deletion using the Wald's statistic was conservatively set at p = .051, as opposed to using the default value of p = .10. To conduct regression using backward elimination, all potential predictors of the outcome variable are initially entered into the model. Then, predictors are deleted from the model, one at a time, based on which predictor would result in the smallest amount of change in variance explained when deleted. Predictors continue to be deleted from the model, one at a time, until deletion of any of the remaining predictors results in a meaningful reduction in variance explained (Pedhauzer, 1997). This procedure yields a final model in which only statistically significant predictors of risky sexual behaviors were retained (p < .05). The adjusted odds ratios (AOR) in the final model estimates the increased likelihood of engaging in sexual risk behaviors associated with a one-unit increase in the predictor when controlling for the other variables in the model (Wright, 1995). A statistically significant odds ratio is defined as one where the 95% confidence interval does not contain the value of 1.00. Predictors entered in each model were physical and sexual abuse by each type of perpetrator, women's

age in years, the dichotomous education variable, marital status, romantic partner status, and the dummy coded ethnicity variables.

The three step procedure developed by Baron and Kenny (1986) was used to examine if substance use or depressive symptomatology mediated any relationships found between abuse history and sexual risk behaviors. Specifically, in step one the independent variable (abuse history) must emerge as a significant predictor of the mediator variable (substance use or depressive symptomatology). Step two requires that the independent variable (abuse history) is a significant predictor of the outcome variable (sexual risk behavior). Finally, in Step 3, the outcome variable (sexual risk behavior) is regressed on both the mediator (substance use or depressive symptomatology) and the independent variable (abuse history). If there is mediation, the mediator should emerge as a significant predictor of the outcome variable in the final regression, but the adjusted odds ratio of the independent variable should be decreased.

Results

Sexual (i.e., history of forced sex) and physical abuse experiences were common among women and varied by self-identified ethnicity (Table 1). Results of Pearson chi square analyses showed that European American women were more likely to report a history of forced sex compared to women of the other two ethnicities, while Latina women were least likely to report such a history. Of the Latina women reporting a history of forced sex, a smaller proportion reported forced sex by a stranger. Similarly, Latina women were less likely than women of the other two ethnicities to report physical abuse and among Latina women reporting a history of physical abuse, a smaller proportion reported physical abuse by either a stranger, family member, or romantic partner. Among abused women, African American women were more likely to report physical abuse by a romantic partner, whereas European American women were more likely to report physical abuse by a family member. Most women did not report experiencing abuse recently; 90% of women who experienced forced sex reported that the last incident occurred over a year ago, and only 4% reported having experienced forced sex in the past month. Similarly, 77% of women who had experienced physical abuse reported that the last incident had occurred over a year ago, and only 7% reported having experienced physical abuse in the past month. Thus, for the vast majority of women in this sample, their abuse experiences began and ended prior to the time period for which sexual risk behaviors were assessed.

Sexual risk behaviors and binge drinking were also fairly common (Table 2) and varied by ethnicity. African American women were less likely than women of the other two ethnicities to report inconsistent condom use during the past 3 months or not using a condom during their last sexual encounter. Latina women were less likely than women of the other two ethnic groups to report having multiple sexual partners in the past year or using substances before having sex in the past 3 months. Finally, European American women were more likely than women of the other two ethnic groups to report binge drinking in the past month.

Logistic regressions with backward elimination were conducted to evaluate if a history of forced sex or physical abuse perpetrated by family members, strangers, or romantic partners was related to recent risk behaviors (Table 3). All regression analyses were statistically significant, based on the likelihood ratio test of the final model. A history of sexual abuse perpetrated by a stranger was associated with a decreased likelihood of having used a condom during last intercourse (AOR = 0.25). Condom use at last intercourse was also predicted by marital status, partner status, age, and ethnicity. Experiencing physical abuse by a romantic partner was associated with an increased likelihood of having sex after drinking or using drugs in the past 3 months (AOR = 1.99). Having sex after drinking or using drugs was also predicted by marital status and ethnicity. Both a history of forced sex by a family member (AOR = 2.11)

and a history of physical abuse by a romantic partner (AOR = 2.28) were associated with an increased likelihood of having multiple sexual partners in the past year. Having multiple partners in the past year was also predicted by age, marital status, and ethnicity. Abuse history was not a significant predictor of consistent condom use in the past 3 months. Consistent condom use was predicted by age, marital status, and partner status.

To satisfy step one in Baron and Kenny's (1986) procedure for assessing mediation (i.e., the independent variable must be a significant predictor of the mediator variable), the abuse variables that emerged as predictors of sexual risk behaviors, (satisfying step two of Baron and Kenny's procedure; the independent variable is a significant predictor of the outcome variable) were entered as predictors of binge drinking and BDI scores in separate logistic regressions with backward elimination. Demographic variables were also entered as potential predictors. A history of physical abuse by a romantic partner emerged as a significant predictor of binge drinking, χ^2 (3) = 75.0, $p < .001$, AOR = 1.37. All of the abuse variables emerged as significant predictors of women's BDI score: physical abuse by a romantic partner, F (1, 923) = 28.7, $p < .001$, β = .17, forced sex by a stranger, F (2, 922) = 9.4, $p < .001$, $\beta = .13$, and forced sex by a family member, F (1, 923) = 3.9, $p < .05$, $\beta = .07$.

Variables that satisfied both steps one and two of Baron and Kenny's (1986) procedure for identifying mediators were entered as predictors of sexual risk behaviors in separate logistic regressions along with demographic variables that previously emerged as significant predictors of these behaviors. All of the analyses for which the potential mediator variable emerged as a significant predictor are summarized in Table 4. The results of these analyses did not support a mediational role of either binge drinking or depressive symptomatology in explaining the relationships between abuse history and sexual risk behavior. Instead, binge drinking emerged as an independent predictor of having multiple partners in the past year and having sex after drinking or using drugs. Depressive symptomatology was not a significant predictor of sexual risk behaviors (data not shown).

Discussion

In this sample of low income women attending reproductive health care clinics, experiencing physical abuse by a romantic partner was the most consistent predictor of recent sexual risk behaviors. Women who reported physical abuse by a romantic partner were more likely to have had multiple sexual partners in the past year and to have had sex after drinking or using drugs in the past 3 months. In contrast, the results did not support strong associations between experiencing familial sexual (defined as forced sex) or physical abuse and engaging in recent sexual risk behaviors. The results also did not support the role of depressive symptoms or binge drinking as mediators of the relationship between abuse experiences and sexual risk behaviors.

It is likely that there are multiple trajectories for women who experience familial abuse which could explain why the association between familial abuse and recent risk behaviors was not stronger. Some abused women engage in risky behaviors for a period of time, likely during adolescence, but later stop engaging in those behaviors, perhaps because they leave the abusive environment or because of maturational processes. There are also some abused women who do not engage in risky sexual behavior at any point during their lifetime. Indeed, Kenney, Reinholtz, and Angelini (1998) found that 36% of young adult women who were sexually abused in childhood did not report subsequently engaging in risky sexual behaviors. Finally, a minority of women who experience familial abuse begin engaging in risky behaviors at an early age and persist in these behaviors. This may be more likely to occur when women experience severe and chronic abuse or when they experience re-victimization, such as abuse by a romantic partner, during adolescence or adulthood.

As previously stated, support was not found for a mediational role for either depressive symptoms or binge drinking behavior in explaining the relationships between abuse and recent sexual risk behaviors. This suggests that other potential pathways for explaining these relationships should be explored. One possibility is that women with a history of abuse, particularly partner abuse, may be more likely to be involved in deviant social networks, either as a result of experiencing abuse or because involvement in such networks is a risk factor for having an abusive relationship. Involvement in these networks then leads to a normalization of risky behaviors, such as having multiple sexual partners (Miller, 1999). Similarly, physical partner abuse could be associated with social isolation either as a result of the abuse or because being socially isolated is a risk factor for involvement in an abusive relationship, increasing the likelihood of engaging in sexual risk behaviors to cope with feelings of loneliness and isolation (Miller, 1999). In addition, women involved in deviant peer groups or without adequate support are also less likely to have their risky behaviors directly challenged by peers.

Another possibility is that experiencing sexual abuse early in life has a negative effect on sexual development or overall interpersonal functioning, increasing the likelihood that women will engage in sexual risk behaviors or become involved with risky and violent partners. For example, women who have experienced sexual abuse may rely on sex as a way of coping with distress or use sex in an attempt to gain intimacy (Cinq-Mars, Wright, Cyr, & McDuff, 2003;Luster & Small, 1997). Women who have been sexually abused also may not feel able to be assertive in sexual situations, such as insisting that their partners use a condom (Cinq-Mars et al., 2003;Luster & Small, 1997). Indeed, some studies found that women who experienced childhood or adolescent physical or sexual abuse report more concerns about their partner's response if they insist on condom use (Kalichman, Williams, Cherry, Belcher, & Nachimson, 1998;Petrak et al., 2000;Thompson et al., 1997). In addition, a recent study found that women who had a history of sexual abuse in childhood were more likely to become involved with a risky partner, defined as a partner with a history of multiple partners or who has been unfaithful (Testa et al., 2005). Finally, while depressive symptoms did not mediate the relationship between abuse and sexual risk behaviors, it is possible that other forms of psychopathology may act as a mediator. In particular, forms of psychopathology that are closely related to impulsive or self-destructive behaviors such as post-traumatic stress disorder may mediate these relationships.

Limitations of the study should be noted. First, the results represent self-report data, and thus it is possible that they were affected by a social desirability bias. Second, the study examined the association between sexual or physical abuse and risk behaviors, and it is therefore not known if similar associations existed in the case of other forms of abuse such as child neglect, emotional and verbal abuse, and abuse by other perpetrators. Third, as participants did not report their age when the abuse occurred, it was not possible to identify when the abuse occurred developmentally, although it seems probable that the vast majority of instances of intrafamilial sexual or physical abuse occurred in childhood or adolescence. Similarly, it is likely that the vast majority of instances of abuse by a romantic partner occurred in adolescence or adulthood. Fourth, because most women did not report recent abuse and because of the imprecision in which occurrence of last abuse was assessed, it was not possible to analyze whether the relationship between abuse and risk behaviors was moderated by how long ago the abuse had occurred. Fifth, the sample was drawn from women seeking family planning services, and thus women engaging in very high risk sexual behaviors were likely underrepresented because they would be less likely to seek routine medical care. Sixth, the fact that Latina women were overrepresented among refusers and were less likely to report abuse experiences suggests that caution should be observed when attempting to generalize the findings to Latina women. Finally, due to the cross-sectional nature of the study, the ability with which one can draw causal inferences is more limited than in longitudinal research.

The current results present important implications for future research. It is apparent that longitudinal studies are necessary to develop a clearer understanding of the complex relationships between abusive experiences and adult sexual risk behaviors given that thus far only one such investigation has been conducted, and this study focused on high risk women only (Zierler et al., 1991). It is also important that future work examines how multiple forms of abuse including physical, sexual, and emotional abuse occurring at different developmental stages affect sexual risk behaviors. In addition, future work should examine potential mediators of these relationships including social support, sexual schemas, relationship factors, and psychopathology. Finally, there is a clear need for the development, assessment, and refinement of interventions targeting women who engage in chronic sexual risk behaviors that take into account both contextual and historical influences on these behaviors.

To conclude, results support that the relationships among abuse experiences and sexual risk behaviors is complex. The current study found that sexual risk behaviors among adult women were most closely associated with experiences of physical abuse by romantic partners. In contrast, intrafamilial physical and sexual abuse were not associated with sexual risk behavior, with the exception of an association between intrafamilial sexual abuse and having had multiple sexual partners. Finally, while binge drinking is associated with sexual risk behavior, it does not mediate the relationship between abuse and sexual risk behavior.

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Table 1

Percentage of women reporting histories of abuse overall and percentage of abused women reporting abuse by family members, romantic partners, and strangers

	European American	African American	Latina	*p*
History of forced sex	27.5%	16.1%	10.6%	.000
Forced sex by a family member	**21.9%**	**25.0%**	**17.9%**	**.646**
Forced sex by a romantic partner	**66.4%**	**58.3%**	**67.9%**	**.475**
Forced sex by a stranger	**23.4%**	**21.7%**	**7.1%**	**.031**
History of physical abuse	42.3%	39.4%	27.0%	.000
Physical abuse by a family member	**31.7%**	**20.5%**	**16.8%**	**.003**
Physical abuse by a romantic partner	**57.2%**	**75.3%**	**39.4%**	**.000**
Physical abuse by a stranger	**10.1%**	**6.8%**	**2.9%**	**.040**

Note: Percentages do not total to 100% because women could select multiple abuse perpetrators or could have been abused by a perpetrator not included in the response options (e.g., an acquaintance)

Table 2

Percentage of European American, African American, and Latina women reporting recent sexual risk behaviors and binge drinking

	European American	African American	Latina	*p*
Inconsistent condom use in past three months	85%	82%	89%	.047
Did not use a condom during last sexual encounter	77%	64%	78%	.000
Had sex after drinking alcohol or using drugs in past three months	42%	39%	20%	.000
Multiple sexual partners in past year	26%	27%	12%	.000
Binge drinking in past month	35%	19%	19%	.000

Table 3

Results of final model of logistic regressions utilizing backward elimination analyzing abuse history by different perpetrators and demographic variables as predictors of recent sexual risk behaviors

	χ^2	AOR	95% CI
Condom use at last sex	97.7**		
Age		**0.93**	**0.91-0.96**
Current romantic partner		**0.47**	**0.32-0.69**
Marital status (married)		**0.31**	**0.20-0.48**
Ethnicity (African American)		**1.54**	**1.16-2.06**
Forced sex by a stranger		**0.25**	**0.09-0.71**
Sex after drinking alcohol or using drugs in the past three months	99.9**		
Marital status (married)		**0.52**	**0.38-0.69**
Ethnicity (European American)		**2.32**	**1.70-3.17**
Ethnicity (African American)		**1.75**	**1.23-2.48**
Physical abuse by a romantic partner		**1.99**	**1.47-2.69**
Multiple sexual partners in the past year	171.1**		
Age		**0.94**	**0.91-0.96**
Marital status (married)		**0.19**	**0.12-0.30**
Ethnicity (European American)		**1.48**	**1.10-2.00**
Physical abuse by a romantic partner		**2.28**	**1.65-3.15**
Forced sex by a family member		**2.11**	**1.09-4.08**
Consistent condom use in past three months	34.3**		
Age		**0.96**	**0.93-0.99**
Current romantic partner		**0.38**	**0.23-0.64**
Marital status (married)		**0.24**	**0.13-0.44**

** $p < .01$

Note: χ^2 values represent results of likelihood ratio test for final model, AOR = odds ratio adjusted for other variables in final model, 95% CI = 95% confidence interval for adjusted odds ratio

Table 4

Logistic regressions examining binge drinking as a potential mediator of the relationship between abuse history and sexual risk behaviors

	χ^2	AOR	95% CI
Multiple sexual partners in the past year	160.6**		
Age		**0.94**	**0.91-0.97**
Marital status (married)		**0.23**	**0.14-0.39**
Ethnicity (European American)		**2.08**	**1.38-3.14**
Ethnicity (African American)		**1.89**	**1.13-2.90**
Physical abuse by a romantic partner		**2.14**	**1.51-3.02**
Binge drinking in the past month		**1.80**	**1.28-2.53**
Sex after drinking alcohol or using drugs in the past three months	343.3**		
Ethnicity (European American)		**2.43**	**1.67-3.55**
Ethnicity (African American)		**2.56**	**1.67-3.92**
Physical abuse by a romantic partner		**2.18**	**1.52-3.14**
Binge drinking in the past month		**11.77**	**8.36-16.58**

** $p < .01$

Note: χ^2 values represent results of likelihood ratio test for final model, AOR = odds ratio adjusted for other variables in model, 95% CI = 95% confidence interval for adjusted odds ratio