Factors Mediating the Effects of Childhood Sexual Abuse on Risky Sexual Behavior Among College Women

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ABSTRACT. We surveyed 157 college women regarding sexual abuse, age at first intercourse, reactions to first intercourse, sexual attitudes, and sexual risk behavior outcomes to clarify the relationship between early sexual experiences and risky sexual behavior. Women who had been sexually abused in childhood reported greater numbers of lifetime sexual partners. This relationship was partially explained by adolescent/adult sexual abuse, age at first intercourse, permissive sexual attitudes, and reaction to first intercourse. Childhood sexual abuse was indirectly associated with more frequent use of alcohol or drugs during sexual activity through its relationships with adolescent/adult sexual abuse, age at first intercourse, permissive sexual attitudes, and reaction to first intercourse. Implications for therapists are discussed.

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FACTORS MEDIATING THE EFFECTS OF CHILDHOOD SEXUAL ABUSE ON RISKY SEXUAL BEHAVIOR AMONG COLLEGE WOMEN

Early sexual experiences often have an influence on later sexual behavior. When early sexual experience is abusive, it can exert specific effects on subsequent sexual behaviors that increase the risk of sexually transmitted infections (STIs), including HIV. Survivors of childhood sexual abuse engage in risky sexual behavior at higher rates than individuals who have not experienced such abuse (see reviews in Putnam, 2003; Wyatt, 1991). Risky sexual behaviors exhibited by women who have experienced sexual abuse as children or adolescents include having many sexual partners (Batten, Follette, & Aban, 2001; Johnsen & Harlow, 1996; Krahé, Sheinberger-Olwig, Waizenhofer, & Kolpin, 1999; Meston, Heiman, & Trapnell, 1999; Noll, Trickett, & Putnam, 2000), having anal sex (Wingood & DiClemente, 1997), and failing to use condoms (Batten et al., 2001; Johnsen & Harlow, 1996; Meston et al., 1999; Noll et al., 2000).

Additionally, women sexually abused in childhood have reported a higher frequency of intercourse and a greater range of sexual experience than women not sexually abused in childhood (Meston et al., 1999). A similar relationship with risky sexual behavior exists for lifetime experience of sexual abuse or assault (Campbell, Sefl, & Ahrens, 2004; Gore-Felton & Koopman, 2002). Women who have been sexually abused in childhood are at risk for subsequent sexual victimization as adolescents or adults (Johnsen & Harlow, 1996; Krahé et al., 1999; Lodico, Gruber, & DiClemente, 1996). Greater severity of sexual abuse, such as revictimization, may be particularly associated with risky voluntary sexual behavior (Campbell et al., 2004; Gore-Felton & Koopman, 2002).

Female adolescents who have been sexually abused report younger ages at first voluntary intercourse than those who have not been sexually abused (Kellogg, Hoffman, & Taylor, 1999; Miller, Monson, & Norton, 1995; Noll et al., 2000). In turn, researchers addressing early sexual experiences and sexual behavior (not including sexual abuse) have consistently found that those engaging in earlier voluntary sexual intercourse have more sexual encounters, more lifetime partners, and
more permissive sexual attitudes; they are less likely to practice safer sex (STI and pregnancy prevention methods), and ultimately, have a greater risk of HIV infection and teenage pregnancy (Kupek, 2001; Langille & Curtis, 2002; Sarkar, 2000; Smith, 1997). Early initiation of intercourse appears to be strongly associated with STIs for older adolescents, but not for adults over the age of 23 (Kaestle, Halpern, Miller, & Ford, 2005). Sexually abused girls who have early physical relationships that may or may not include intercourse (e.g., kissing, fondling) are more likely to later engage in risky sexual behavior than those who do not have such relationships (Noll et al., 2000). It is not clear if the relationship between childhood sexual abuse and risky sexual behavior stems primarily from the association of childhood sexual abuse with early voluntary sexual intercourse or whether both childhood sexual abuse and early voluntary sexual intercourse have independent associations with risky sexual behavior. The relationship between early voluntary sexual experiences and adult sexual attitudes and behavior may depend on whether the individuals having early voluntary sexual experiences viewed them as positive or negative (Bauserman & Davis, 1996).

Childhood sexual abuse influences attitudes toward sexuality as well. Women who have experienced childhood sexual abuse have been found, in comparison with women who have not experienced sexual abuse, to be more preoccupied with sex (Miller et al., 1995; Noll et al., 2000) and to have more permissive attitudes toward sexual activity, such as positive attitudes toward having several sexual partners (Meston et al., 1999; Miller et al., 1995; Nagy, Adcock, & Nagy, 1994; Redfearn & Laner, 2000), as well as more negative attitudes regarding their own sexuality and sexual behaviors (i.e., believing that sex is dirty or being frightened by sex; Johnsen & Harlow, 1996; Noll et al., 2000).

Alcohol and drug use is associated with both childhood sexual abuse and STI/HIV sexual risk behavior. The use of alcohol or drugs is related to engaging in risky sexual behavior such as having sexual intercourse at a younger age (Staton et al., 1999), having greater number of sexual partners, a greater frequency of sexual activity, and lower rates of condom use (O’Hare, 2001; Staton et al., 1999), particularly when alcohol is consumed prior to engaging in sexual activity (O’Hare, 2001; Prince & Bernard, 2002). Women who have been sexually abused as children report more current use of alcohol (Smith, Davis, & Fricker-Elhair, 2004; Wingood & DiClemente, 1997) and hard drugs (Johnsen & Harlow, 1996; Smith et al., 2004).
In sum, childhood sexual abuse is associated with STI/HIV risk factors such as early age at first intercourse, permissive sexual attitudes, high numbers of sexual partners, and use of alcohol/drugs. Additionally, sexual abuse before adolescence is related to sexual abuse in adolescence and adulthood, both of which are associated with sexual risk behavior and alcohol/drug use. The purpose of the current study was to clarify the relationships among early sexual experiences such as sexual abuse and age at first intercourse, reactions to first intercourse, sexual attitudes, and risky sexual behaviors. The sexual risk behaviors we addressed were number of sexual partners and the use of alcohol and/or drugs during sexual activity. Based on our review of the literature, we believed that whether survivors of sexual abuse engaged in risky sexual behavior, such as having multiple sex partners or combining alcohol/drug use with sexual activity, would depend on how permissive their attitudes toward sex were, their age at first intercourse, and whether they viewed their first intercourse experience as positive or negative. We hypothesized that more permissive sexual attitudes, earlier age at first intercourse, and negative reactions to the first experience of intercourse would mediate the relationship between sexual abuse and number of sexual partners, and between sexual abuse and the use of alcohol or drugs during sex (see Figure 1).

Specifically, it was expected that the associations between childhood sexual abuse and number of sexual partners, as well as the use of alcohol or drugs during sex would be at least partially mediated by adolescent/adult sexual abuse, age at first intercourse, attitudes toward sex, and reaction to first intercourse. Thus, we predicted that women who had experienced more severe childhood sexual abuse would also report more severe adolescent/adult sexual abuse, younger ages at first intercourse, more permissive attitudes toward sex, and negative reactions to first intercourse. We hypothesized that women reporting more severe adolescent/adult sexual abuse would also have more permissive attitudes toward sex and negative reactions to first intercourse. Women who had more permissive attitudes toward sex and negative reactions to first intercourse were expected, in turn, to report a greater number of sexual partners and greater use of alcohol or drugs during sex. No hypotheses were made about whether adolescent/adult sexual abuse and age at first intercourse would directly predict number of partners and the use of alcohol or drugs during sex, or whether they would be related to these outcome variables through their associations with permissive attitudes and reactions to first intercourse.
METHOD

Participants

Two hundred twenty-six undergraduate students (186 women and 38 men; 2 participants did not report their gender) recruited from introductory psychology courses at a large midwestern university volunteered to participate. Only female participants were included in the analyses described here because of the small number of men who reported childhood sexual abuse experiences (n = 5). One hundred sixty-four female participants were sexually experienced, while 22 women had not had sexual intercourse. These 22 participants were excluded from the analyses as were participants with data missing (n = 6) or extreme outliers (n = 1) on the variables of interest. The final sample included N = 157 women, of whom 88% were White/European-American, 6% were African-American, and 2% were Hispanic; the remaining participants were Native American, Asian, or multiracial (all 1.3%), or unspecified (4%). The mean age of participants in the final sample was 21.60 (SD = 4.18, Range = 18-43). The vast majority (90.9%) of participants were single.

Instruments

The survey instrument included the Physical and Sexual Abuse Questionnaire (Leserman, Drossman, & Zhiming, 1995), a modified version of the Sexual Attitudes Scale (Hendrick, Hendrick, Slapion-
Foote, & Foote, 1985), and questions about sexual experiences and demographics.

The Sexual/Physical Abuse History Questionnaire (Leserman et al., 1995) assesses sexual abuse and physical abuse both in childhood (13 and younger) and adolescence/adulthood (14 and older). Only questions pertaining to sexual abuse were used for this study. Respondents answered yes or no to six questions related to witnessing the exposure of sex organs, unwanted touching, threats of and actual forced sex, and other unwanted sexual experiences for both childhood and adolescence/adulthood. An affirmative response to the experience of unwanted exposure of sex organs is used to categorize women as having experienced sexual abuse only when it occurred at age 13 or younger (i.e., childhood sexual abuse). The questionnaire has been found to have good reliability and validity, with test-retest reliability of .81 and 81% overall agreement between the questionnaire and an interview pertaining to sexual abuse (Leserman et al., 1995). Though Leserman, et al. (1995) used the questionnaire to categorize individuals as having been sexually abused or not abused (a dichotomous variable), to provide an index of the extent of unwanted sexual experiences classified as sexual abuse (similar to ones used by Meston et al., 1999 and Wayment & Aronson, 2002), sexual abuse severity index scores were calculated based on the number of affirmative responses to the six questions (Randolph & Reddy, in press). One point was assigned to each affirmative response and points were summed to provide an overall score, with a score of zero indicating no sexual abuse and a score above zero indicating sexual abuse. Higher scores indicated a greater severity of sexually abusive experiences in either childhood or adolescence/adulthood. However, an affirmative response to the question, “Has anyone ever forced you to have sex when you did not want to do this?” was given two points to reflect the more severe nature of experiencing forced intercourse (Meston et al., 1999). Though it was not used to categorize women as having experienced adolescent/adult sexual abuse, the experience of unwanted exposure of sex organs was included in the severity score when it was accompanied by other unwanted sexual experiences as it likely reflected the perceived severity of these experiences.

Eleven items selected from the Permissiveness subscale of the Sexual Attitudes Scale (Henrick & Henrick, 1987) were used to compute a permissiveness score ($\alpha = .90$ in the present study). The permissiveness construct does not address specific acts, but rather focuses on
sexual attitudes toward casual sex, many partners, acceptability of manipu-
larating someone into having sex, and the meaningfulness of sex. Participants responded to questions such as, “Casual sex is accept-
able,” “It is ok to have ongoing relationships with more than one per-
son at a time,” and “Sex without love is meaningless” on a five-point scale from “strongly agree” to “strongly disagree.” The possible range of scores was 11 to 55, with lower scores indicating greater permis-
siveness.

Questions about sexual experiences included: age of first inter-
course, how participants felt about their first intercourse at the time, how many lifetime sexual partners they had had, and how many sexual experiences involved alcohol/drugs. Reactions to first intercourse were assessed on a five-point scale from “negative” to “positive.” The question referring to alcohol and drug use asked, “Of your sexual ex-
periences, how often were drugs/alcohol involved?” The five-point scale ranged from “none” to “all.”

Procedure

Surveys were distributed in five introductory psychology classes at a midsized public university in the Midwest to students expressing in-
terest in participating. Students were informed that the study con-
cerned sexual attitudes and experiences. They were instructed to sign informed consent forms and complete the surveys outside of class. They returned the surveys and consent forms to separate boxes in the departmental office within a two-month period. Students received extra credit for their participation.

Data Analysis

Path analysis was used to develop and test models predicting number of sexual partners and the use of alcohol or drugs during sex. Path analy-
is is a technique that allows the user to essentially conduct simulta-
aneous multiple regressions on more than one dependent variable. Path coefficients correspond to partial regression beta weights and are inter-
preferted in the same way. Both direct and indirect paths or effects are tested using the t statistic as in regression analysis. Variance accounted for (R²) can be calculated for each dependent variable in the model.

We tested the models using path analysis with generalized least squares estimation in Lisrel 8.71 (Jöreskog & Sörbom, 2004). After
eliminating cases with missing data, 157 cases were included in all path analyses. The participants with missing data did not differ in the variables of interest from those included in the models. We first tested models with direct paths from child sexual abuse to adolescent/adulthood sexual abuse, age at first intercourse, reaction to first intercourse, and number of partners in the first model, and from child sexual abuse to adolescent/adulthood sexual abuse, age at first intercourse, reaction to first intercourse, and the use of alcohol or drugs during sex in the second model. Nonsignificant paths were then removed to test mediated and partially-mediated models. Model fit was assessed using recommended fit indices. The chi-square statistic measures absolute fit of the model to the covariance matrix of the data. The comparative fit index (CFI) and nonnormed fit index (NNFI) test the overall proportionate improvement in fit by comparing the model with an independence model, in which variables are unrelated, while the root-mean-square error of approximation (RMSEA) measures closeness of fit to the covariance matrix of the data (Kelloway, 1998). By convention, adequate model fit is indicated by a non-significant $\chi^2$ statistic, CFI, NNFI, and GFI values greater than .90, and a RMSEA of .10 or less; whereas good fit is indicated by a non-significant $\chi^2$ statistic, CFI, NNFI, and GFI values greater than .95, and a RMSEA of .05 or less (Kelloway, 1998).

**RESULTS**

Descriptive data for the variables included in the path analysis are presented in Table 1 and the correlation matrix for these variables is presented in Table 2. There was a high rate of sexual abuse as measured by sexual abuse severity index scores greater than 0: 28.7% reported sexual abuse before the age of 14 (childhood sexual abuse; 3.8% experienced exposure to sex organs only) and 51% had experienced sexual abuse at the age of 14 or older (adolescent/adulthood sexual abuse). Both childhood and adolescent/adulthood sexual abuse were experienced by 22.3% of participants. As indicated by mean severity scores, women who had been sexually abused as adolescents/adults reported more severe sexual abuse in adolescence/adulthood ($M = 3.10, SD = 1.61$) than women reporting sexual abuse experienced in childhood ($M = 2.05, SD = 1.31$), $t(121) = 3.68, p < .001$ (Figure 2).

Separate models predicting number of sex partners and the use of alcohol or drugs during sexual encounters were analyzed using path analysis. The model predicting number of partners, Model 1a, was first run
TABLE 1. Descriptive Data for Path Analysis Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child sexual abuse experiences</td>
<td>.61</td>
<td>1.22</td>
<td>0-6</td>
</tr>
<tr>
<td>Adolescent sexual abuse experiences</td>
<td>1.58</td>
<td>1.93</td>
<td>0-7</td>
</tr>
<tr>
<td>Age at first intercourse</td>
<td>17.12</td>
<td>1.76</td>
<td>12-23</td>
</tr>
<tr>
<td>Reaction to first intercourse</td>
<td>3.51</td>
<td>1.32</td>
<td>1-5</td>
</tr>
<tr>
<td>Permissiveness</td>
<td>42.96</td>
<td>7.49</td>
<td>18-55</td>
</tr>
<tr>
<td>Number of sex partners</td>
<td>4.47</td>
<td>4.94</td>
<td>1-35</td>
</tr>
<tr>
<td>Alcohol/drugs during sex</td>
<td>2.55</td>
<td>1.15</td>
<td>1-5</td>
</tr>
</tbody>
</table>

TABLE 2. Correlations Between Variables Included in the Path Analyses

<table>
<thead>
<tr>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Child sexual abuse</td>
<td>--</td>
<td>.35***</td>
<td>-.11</td>
<td>.03</td>
<td>-.19*</td>
<td>.37***</td>
</tr>
<tr>
<td>2. Adolescent sexual abuse</td>
<td>--</td>
<td>-.23**</td>
<td>-.31***</td>
<td>-.13</td>
<td>.26***</td>
<td>.22**</td>
</tr>
<tr>
<td>3. Age 1st intercourse</td>
<td>--</td>
<td>.07</td>
<td>.23**</td>
<td>-.42***</td>
<td>-.31***</td>
<td></td>
</tr>
<tr>
<td>4. Reactions</td>
<td>--</td>
<td>-.03</td>
<td>-.17*</td>
<td>-.20*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Attitudes</td>
<td>--</td>
<td>-.36***</td>
<td>-.40***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Partners</td>
<td>--</td>
<td>.34***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Alcohol/drugs during sex</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p ≤ .05, **p ≤ .01, ***p ≤ .001

with direct paths from childhood sexual abuse severity to adolescent/adulthood sexual abuse severity, age at first intercourse, sexual attitudes, reaction to first intercourse, and number of partners.

More severe childhood sexual abuse predicted more severe adolescent/adulthood sexual abuse (β = .35, p < .01), more positive reactions to first intercourse (β = .16, p < .05), more permissive sexual attitudes (β = -.16, p < .05), and greater number of partners (β = .29, p < .01), but not age at first intercourse. The nonsignificant paths from childhood sexual abuse to age at first intercourse and from adolescent/adulthood sexual abuse to number of partners were removed one by one to create a more parsimonious model, Model 1b (see Figure 2). Model 1b demonstrated good fit to the data, χ² (5) = 0.86, p = .97, CFI = 1.00, NNFI = 1.18, GFI = 1.00, RMSEA = .00. This model did not differ significantly
from Model 1a, \( \chi^2_{\text{change}} (2) = .20, p > .05 \), but was judged to be superior, as it was the more parsimonious model. Model 1b accounted for 35% of the variance in number of partners.

In Model 1b, childhood sexual abuse severity index scores had a significant indirect effect on the number of sexual partners (\( \beta = .07, p < .05 \)) as well as a direct effect (\( \beta = .29, p < .01 \)), which partially confirmed the hypothesis that the effects of childhood sexual abuse on number of sexual partners would be mediated by adolescent/adulthood sexual abuse, age at first intercourse, permissive sexual attitudes, and reactions to first intercourse. Additionally, women with higher childhood sexual abuse severity index scores who also had higher adolescent/adulthood sexual abuse severity scores, were more likely to be younger at first intercourse (indirect \( \beta = -.08, p < .05 \)) and to report more negative reactions to first intercourse (indirect \( \beta = -.13, p < .01 \)). Women with higher adolescent/adulthood sexual abuse severity index scores who were younger at first intercourse had more permissive sexual attitudes (indirect \( \beta = -.05, p < .05 \)). More severe adolescent/adulthood sexual abuse was also associated with a greater number of partners (indirect \( \beta = .15, p < .01 \)) through more negative reactions to first intercourse and younger age at first intercourse. Correspondingly, women who were younger at first intercourse and who also had more permissive attitudes had a greater number of partners (indirect \( \beta = -.05, p < .05 \)).

To assess whether the association between age at first intercourse and number of partners was simply due to the greater length of time
available for sexual activity for women who had sex at younger ages, a hierarchical multiple regression analysis was conducted on number of partners. Age at first intercourse was subtracted from current age to create a variable indicating the length of time women had been sexually active. This variable was entered in the first step and age at first intercourse in the second step. Younger age at first intercourse independently predicted a greater number of sexual partners ($\beta = -.38, p < .001$), after controlling for length of time women had been sexually active ($\beta = .29, p < .001$), $F(2, 151) = 26.93, p < .001, R^2 = .26$, adjusted $R^2 = .25$. Thus, the effect of age of first intercourse on number of sexual partners was not due to the length of time women had been sexually active.

Model 2a, in which the main outcome was alcohol or drug use during sexual activity, contained direct paths from age at first intercourse, reaction to first intercourse, sexual attitudes, adolescent/adulthood sexual abuse, and childhood sexual abuse to alcohol or drug use during sex. In contrast to Model 1 which examined number of sexual partners, childhood sexual abuse did not directly predict the use of alcohol and drugs during sexual encounters. More severe childhood sexual abuse was directly associated with more severe sexual abuse in adolescence/adulthood ($\beta = .35, p < .01$) and negative reactions to first intercourse ($\beta = .16, p < .05$).

Again, nonsignificant paths were removed to create a more parsimonious model, Model 2b (see Figure 3). Women with higher childhood sexual abuse severity index scores had higher adolescent/adulthood sexual abuse severity index scores, more permissive sexual attitudes, and more negative reactions to first intercourse, while more severe adolescent/adulthood sexual abuse was associated with younger age at first intercourse and more negative reactions to first intercourse. In turn, the younger women were at first intercourse, the more permissive their attitudes toward sex were and the more negative their reactions to first intercourse were, the more likely they were to use alcohol or drugs during sexual activity. Model 2b did not significantly differ from Model 2a, $\chi^2_{\text{change}}(4) = 1.32, p > .05$, but was more parsimonious. Model 2b demonstrated good fit, $\chi^2(6) = 1.86, p = .93$, CFI = 1.00, NNFI = 1.19, GFI = 1.00, RMSEA = .00, and explained 25% of the variance in the use of alcohol and drugs during sexual encounters.

There was an indirect effect of childhood sexual abuse on the use of alcohol and drugs during sexual encounters through adolescent/adulthood sexual abuse, age at first intercourse, reaction to first intercourse, and permissive sexual attitudes. However, this relationship did not meet
FIGURE 3. Mediated Path Model 2b Predicting the Use of Alcohol or Drugs During Sexual Activity. Path Coefficients Are Partial Regression Beta Weights.

the criteria for mediation as given by Baron and Kenny (1986), as childhood sexual abuse was not significantly correlated with the use of alcohol and drugs during sexual encounters. Women reporting more severe childhood sexual abuse, more severe adolescent/adult sexual abuse, younger age at first intercourse (indirect $\beta = -.08, p < .05$), and negative reactions to first intercourse (indirect $\beta = -.13, p < .01$) were more likely to use alcohol or drugs during sexual encounters (indirect $\beta = .08, p < .05$). Adolescent/adult sexual abuse severity index scores indirectly predicted alcohol/drug use during sexual activity ($\beta = .14, p < .01$), with this relationship meeting criteria for mediation by age at first intercourse and reaction to first intercourse (Baron & Kenny, 1986). The association of greater severity of adolescent/adult sexual abuse with more frequent alcohol/drug use during sexual activity depended on whether women were younger at first intercourse and whether first intercourse was a negative experience. Women who had experienced more severe adolescent/adult sexual abuse and were younger at first intercourse also had more permissive sexual attitudes (indirect $\beta = -.05, p < .05$). In turn, women who were younger at first intercourse and had more permissive attitudes, were more likely to use alcohol/drugs during sexual activity (indirect $\beta = -.07, p < .05$).

**DISCUSSION**

Although sexual abuse, early onset of intercourse, and sexual attitudes have been found to be associated with each other and with risky
sexual behavior in previous research, these factors have not been previ-
ously addressed together in a comprehensive model. In the current
study, we found that women who experienced more severe childhood
sexual abuse reported greater numbers of sexual partners. This relation-
ship was both direct and indirect through three different pathways.
Women reporting more childhood sexual abuse who also report greater
severity of adolescent/adult sexual abuse, younger age at first inter-
course, and more permissive sexual attitudes had more sexual partners,
as did women with more severe childhood sexual abuse histories and
more permissive attitudes. The third pathway linking more severe child-
hood sexual abuse with a greater number of sexual partners was through
more severe adolescent/adult sexual abuse and negative reactions to
first intercourse. More severe adolescent/adult sexual abuse was associ-
ated with greater numbers of sexual partners only if women were also
younger at first intercourse and had more permissive sexual attitudes, or
if they had negative reactions to first intercourse. Women who had been
sexually abused as children were at significant risk for revictimization
in adolescence and early adulthood and at risk for having a greater num-
ber of sexual partners. A follow-up analysis testing whether the rela-
tionship between younger age and greater number of sexual partners
was simply due to the greater length of time women who started having
sex at younger ages had been sexually active found that age at first inter-
course still independently predicted the number of sexual partners after
controlling for the length of time women had been sexually active.

Independently of adolescent/adult sexual abuse, more severe child-
hood sexual abuse actually predicted more positive reactions to first in-
tercourse, perhaps indicating that when the first experience of inter-
course was not related to sexual abuse (as it perhaps was for those who
had experienced adolescent/adulthood sexual abuse), it was viewed
more positively by women scoring higher on the sexual abuse index in
comparison to their abusive experiences. However, the indirect rela-
tionship between childhood sexual abuse and reactions to first inter-
course was a negative one, suggesting that women who had experienced
more severe childhood and adolescent/adult sexual abuse reported more
negative reactions to first intercourse.

Greater childhood sexual abuse severity did not directly predict the
use of alcohol and drugs during sexual activity. Its indirect effect was
due to mutual associations through similar pathways to those partially
mediating the relationships between childhood sexual abuse and num-
ber of partners. Women with more severe experiences of childhood sex-
ual abuse who reported greater severity of adolescent/adult sexual
abuse, younger age at first intercourse, and more permissive sexual attitudes as well as those who had histories of more severe adolescent/adult sexual abuse and negative reactions to first intercourse, had more sexual encounters that involved alcohol or drugs. Additionally, women reporting more severe childhood sexual abuse who had more permissive sexual attitudes also engaged more frequently in sexual activity after using alcohol or drugs. The association of adolescent/adult sexual abuse with the use of alcohol and drugs during sexual activity was mediated by age at first intercourse and permissive sexual attitudes, as well as by reaction to first intercourse. Women who had experienced more severe sexual abuse in adolescence or adulthood and who were younger at first intercourse, had more permissive sexual attitudes, and those who reported greater severity of adolescent/adult sexual abuse and who had negative reactions to first intercourse were more likely to use alcohol or drugs before sexual activity.

More than twice as many women in the sample had experienced adolescent/adulthood sexual abuse (51%) than had experienced childhood sexual abuse (28.7%). Sexually abused women reported a greater severity of sexually abusive experiences in adolescence/adulthood than in childhood. The prevalence of childhood sexual abuse was much higher than the rate of 9% in Johnsen and Harlow’s (1996) sample of college women, although they hypothesized that their two-item measure provided only a cursory examination of childhood sexual abuse and likely underestimated the actual rate in their sample. The proportion of women who had experienced childhood sexual abuse in the current sample was similar to the prevalence rate in at least one college sample (21.8% in Kinzl, Traweger, & Biebl, 1995) but lower than the rate in other college samples, which reported proportions of 40% (Bartoi & Kinder, 1998; Meston et al., 1999). These latter studies likely found a higher rate in large part because they included a larger age range for childhood sexual abuse, which was defined as sexual abuse before the ages of 16 (Bartoi & Kinder, 1998) and 18 (Meston et al., 1999), whereas in the current study childhood sexual abuse was defined as sexual abuse before the age of 14.

The observed association between childhood sexual abuse and permissive sexual attitudes suggests that there is a direct relationship between more extensive or severe sexual abuse in childhood and more permissive sexual attitudes that is not simply due to early onset of voluntary sexual intercourse. This result is in accord with Meston et al.’s (1999) finding that sexual abuse in women was related to permissive sexual attitudes. The relationship between permissive sexual attitudes and childhood sexual abuse may seem difficult to reconcile with
Finkelhor’s (1985) concepts of traumatic sexualization and powerlessness, which suggests that women with childhood sexual abuse histories have negative attitudes towards sex. However, having negative attitudes toward one’s personal sexual activity (i.e., “sex is dirty”) does not preclude having permissive attitudes toward sexual activity in general (i.e., “casual sex is acceptable”). Women who have had involuntary childhood sexual experiences may be socialized to view their sexual experience as typical (Redfearn & Laner, 2000). Thus, they might develop sexual attitudes that are consistent with their experience, which would then influence the likelihood of their engaging in subsequent risky sexual behavior.

As a cross-sectional study, causation could not be assessed through analysis of the models proposed here. Paths presented in the model could instead be bidirectional or reversed. For example, permissive attitudes could cause individuals to have sex at younger ages or the two factors could influence each other. However, number of sexual partners and the use of alcohol/drugs during sexual activity cannot cause age at first intercourse, reaction to first intercourse, or sexual abuse.

Another limitation of the study is that it did not address other important sexual risk behaviors, such as inconsistent condom use, that also increase the risk of STIs and HIV. Models were limited by what variables were included. Contextual variables related to sexual abuse may also be related to age at first intercourse, reactions to first intercourse, permissive sexual attitudes, and number of sexual partners. Similarly, situational and family background variables not included in the models likely influence the use of alcohol or drugs as well.

This sample predominantly consisted of White women, and as such, may not generalize to other groups of women. Models should be tested with women of various ethnicities, non-college women, and men from each of these groups. Additionally, self-selection may have influenced who participated in the study. Individuals who had more sexual experience or who were more interested in sexual issues may have been more likely to complete the survey. However, approximately 10% of survey respondents had not yet had sexual intercourse. Furthermore, this sample was similar in reported sexual behavior to other college samples (Johnsen & Harlow, 1996; Netting & Burnett, 2004).

Although college students in general are not at high risk of HIV infection, they are an appropriate sample for studying the relationship between sexual risk factors and alcohol/drug use. The rate of STIs has risen in this population, with approximately two-thirds of STIs occurring in individuals under 25 (Flemming, 1997; Institute of Medicine...
Committee on Prevention and Control of Sexually Transmitted Diseases, 1997). The prevalence of risky sexual behavior in college populations is a cause for concern, particularly in large, urban universities where high rates of risky sexual behavior have been documented (Lewis & Malow, 1997). The use of alcohol and/or drugs during sexual activity is also an important risk factor to study, particularly given the high rates of underage and binge drinking that occurs on college campuses (Vicary & Karshin, 2002; Windle, 2004).

The connection between sexual abuse and risky sexual behavior makes it imperative to discover which women with childhood or adolescent/young adulthood sexual abuse histories are most at risk for risky sexual behavior potentially leading to STIs, unwanted pregnancy, and HIV/AIDS. The current study suggests that childhood sexual abuse survivors who have experienced adolescent/adult sexual abuse, had an early onset of intercourse, have permissive sexual attitudes, and who had a negative first experience with intercourse are at higher risk than women who have not had all of these experiences. Therapists working with survivors of sexual abuse need to be aware of mediating factors that put survivors at greater risk for STIs, unwanted pregnancy, and HIV/AIDS. Specifically, they may need to assess adolescent clients’ risk for early initiation of intercourse as well as all clients’ attitudes toward sexual activity and discuss the implications these attitudes might have on clients’ sexual behavior. The presence of permissive attitudes among survivors of sexual abuse may indicate a greater likelihood of subsequent participation in risky behaviors and should be addressed. Correspondingly, healthcare workers or researchers developing STI/HIV prevention interventions should incorporate components that address voluntary and involuntary sexual experiences and attitudes toward sexual behavior if they are to have a greater impact on women who have experienced sexual abuse.

NOTE

1. One participant reported 88 sexual partners. As this number was approximately 16 standard deviations above the mean number of sexual partners, this individual was removed from all analyses. Path analysis with this individual included differed from the reported results in that childhood sexual abuse did not directly predict number of sexual partners in the first model. Models predicting the use of alcohol/drugs during sexual encounters differed only in slightly smaller partial regression path coefficients for many of the paths.
REFERENCES


