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Sexual Risk Behavior and STI Contraction Among Young Women With Prior Juvenile Justice Involvement

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Abstract

Girls in the juvenile justice system are at increased risk for contracting HIV/AIDS. Sexual risk behavior was examined in 166 females with juvenile justice involvement who were followed from adolescence to young adulthood. Results indicated that childhood sexual abuse increased the incidence of unsafe sex during young adulthood, which was subsequently associated with contraction of a sexually transmitted infection (STI). Further, girls' comfort in talking with their partners about safer sex practices during adolescence moderated the association between childhood sexual abuse and unsafe sex, such that girls who had been sexually abused and were uncomfortable talking to their partners about safer sex during adolescence had an 8.5-fold increase in unsafe sex in young adulthood. The identification of behaviors amenable to intervention in the prevention of HIV/AIDS risk in this high-risk population is discussed.

Keywords

Juvenile justice; girls; STI; sexual risk behavior; partner communication

Official arrest data show a striking increase in the proportion of girls in the juvenile justice system (Puzzanchera & Adams, 2011; Snyder, 2008). One decade ago, girls accounted for 20% of all juvenile arrests. Current data show a 50% increase, with girls now accounting for 30% of all juvenile arrests (Puzzanchera & Adams, 2011). However, girls with conduct problems seek and receive mental health and social services less frequently than do their male counterparts (Merikangas et al., 2010; Offord, Boyle, & Racine, 1990). Compared with the general population of adolescents, youths in the juvenile justice system have increased rates of unprotected sex and STI contraction (Dembo, Belenko, Childs, & Wareham, 2009; Teplin, Mericle, McClelland, & Abram, 2003). In particular, girls in the juvenile justice system have a constellation of risk factors that increases their likelihood of engaging in sexual risk-taking behaviors and contracting STIs, including HIV/AIDS (Odgers, Robins, & Russell, 2010). The purpose of this study was to examine sexual risk behavior and associations with STI contraction in females with juvenile justice involvement who have

been followed from adolescence to young adulthood in a 9-year longitudinal study. We focus on predictors of STI contraction that are likely to be amenable to intervention, with the goal of informing service delivery providers about potential intervention opportunities that could reduce HIV/AIDS contraction rates among this vulnerable and underserved population.

Child Maltreatment as a Risk Factor

Studies of youths in the juvenile justice system indicate that females are likely to have been victims of sexual and/or physical abuse (e.g., Cauffman, Feldman, Waterman, & Steiner, 1998; Johansson & Kempf-Leonard, 2009; Wareham & Dembo, 2007). In addition, adjudicated girls and girls at risk for adjudication who have a history of sexual abuse tend to have more extreme delinquency outcomes than do those without such a history (Goodkind, Ng, & Sarri, 2006; Wareham & Dembo, 2007). Studies consistently indicate that rates of childhood sexual and physical abuse are significantly higher for girls in the juvenile justice system than for boys, with rates from 3.5 to 10 times higher for girls than for boys (Johansson & Kempf-Leonard, 2009; Leve & Chamberlain, 2005). Prospective longitudinal studies provide additional confirmation of the association between maltreatment and juvenile justice involvement. In a landmark prospective study of court cases of child abuse and neglect in children younger than age 12, Widom (1989) found that abused and neglected youths had higher rates of criminality and arrests for violent offenses between ages 16 and 32 than did nonmaltreated matched control individuals. Thus, child maltreatment, and in particular sexual abuse, is a central risk factor related to girls' involvement in juvenile justice and their later sexual risk behavior.

Sexual Risk Behavior in Juvenile Justice Girls

Extant studies show that girls in the juvenile justice system have high rates of sexual risk behavior (Biswas & Vaughn, 2011; Canterbury et al., 1995; Dembo et al., 2009; Kelly, Blair, Baillargeon, & German, 2000). A study of girls in a short-term juvenile justice facility indicated that 76% were sexually active, with first sexual experiences occurring, on average, before age 14 (Lederman, Dakof, Larrea, & Li, 2004). This stands in contrast to national norms, which indicate that 46% of high school females have ever had sexual intercourse, and only 3% of high school females have had sexual intercourse before age 13 (Centers for Disease Control and Prevention [CDC], 2010). Detained girls also have high rates of STI contraction as evaluated during a physical exam, with 20% testing positive in one study (Crosby et al., 2004) and 42% testing positive in a second study (Odgers, Robins, & Russell, 2010). By comparison, 24% of females age 14–19 in a nationally representative sample had any of five STIs (Forhan et al., 2009).

A comparison of chlamydia and gonorrhea rates in a population-based sample of 15- to 19-year-old females suggested a fourfold increase in rates of infection among the subset of females who were entering juvenile justice facilities (3.4% versus 14.5% for chlamydia, and <1% versus 4.1% for gonorrhea, for females not involved in juvenile justice versus for females involved in juvenile justice, respectively; CDC, 2011b). This is not surprising, given that more than half of detained girls reported having had 3 or more sex partners and 10%

reported having traded sex for money during adolescence (Odgers et al., 2010). Another study of detained girls age 14 to 18 years old indicated that the average number of lifetime sex partners was 8.8 (Crosby et al., 2004), increasing the risk for STI contraction beyond that of nondetained populations of girls. Conversely, only 11% of high school females reported having had sexual intercourse with 4 or more persons (CDC, 2010). Other samples of juvenile justice girls reported similarly high rates of sexual risk behavior and associations between sexual risk behavior and delinquent activity (Dembo, Childs, Belenko, Schmeicler, & Wareham, 2009; Smith, Leve, & Chamberlain, 2006). Further, one study showed that 66% of girls who tested positive for an STI were released back into the community after arrest (Dembo, Belenko, et al., 2009), thereby potentially increasing the spread of STIs.

Communication About Safer Sex as a Buffer Against Risk

Comfort in discussing safer sex practices with partners may be amenable to intervention, which may ultimately influence STI rates in juvenile justice girls. Some evidence indicates that talking about sexual behavior, in particular, having conversations about safe sex practices, can reduce sexual risk behavior. Increasing safe sex communication with partners has been a focus of several AIDS/HIV risk prevention programs that have included samples of incarcerated adolescents, although most have relied on nonrandomized designs with juvenile justice males (Lauby et al., 2010; Magura, Kang, & Shapiro, 1994) or have yet to demonstrate long-term effects (Marvel, Rowe, Colon-Perez, DiClemente, & Liddle, 2009; Swendeman & Rotheram-Borus, 2010; Woodson, Hives, & Sanders-Phillips, 2010). One promising approach that used a randomized clinical trial design with a sample of juvenile justice youths found that youths randomly assigned to the intervention condition reported more open conversations with their sex partners about HIV/AIDS and safe sex practices at a 6-month follow-up than did youths who were assigned to services as usual, with a moderate effect size (Marvel et al., 2010). Youths assigned to the intervention condition in this study also reported an increase in protected sex acts and a decrease in STI incidence rates. This intervention included a focus on enhancing youths' awareness about STIs and HIV and providing communication skills with partners in the context of family therapy sessions, suggesting that communication with partners may be a critical factor in the prevention of HIV-risk behaviors in juvenile justice populations.

Current Study

As noted previously, juvenile justice girls' engagement in sexual risk behavior constitutes a serious public health concern in need of intervention services. However, few longitudinal studies of this high-risk population traverse the transition from adolescence to young adulthood—a developmental period in which rates of STI and HIV/AIDS contraction rates accelerate (CDC, 2011a). In this study we assessed a sample of girls in the juvenile justice system across 9 years to examine correlates of their young adult sexual risk behavior. First, we evaluated whether documented childhood physical abuse and sexual abuse predicted greater likelihood of contracting an STI in young adulthood. Second, we examined whether unsafe sex practices mediated this association (see Figure 1). Third, we evaluated whether the link between early physical/sexual abuse and unsafe sex practices was moderated by a girl's comfort level in discussing safer sex practices with her partner during adolescence.

We hypothesized that both sexual abuse and physical abuse would be associated with unsafe sex practices in young adulthood; that unsafe sex practices would then be associated with subsequent STI contraction in young adulthood; and that adolescent girls' comfort in discussing safer sex practices would moderate the associations between childhood sexual abuse and unsafe sex. Specifically, we hypothesized that girls who were sexually abused as children but had higher comfort levels in discussing safer sex practices with partners during adolescence would be less likely to engage in unsafe sex in young adulthood, whereas girls who were sexually abused but were less comfortable discussing safer sex practices would be more likely to engage in unsafe sex.

Method

Participants

Participants were girls involved in a two-cohort, continuously run, randomized controlled trial of an intervention to prevent delinquency conducted between 1997 and 2006 ($N = 166$; $n = 81$ for Cohort 1 and $n = 85$ for Cohort 2). The trial contrasted two interventions for youths in the juvenile justice system that were specifically aimed at reducing delinquent behavior: Multidimensional Treatment Foster Care (MTFC) and Group Care (GC; services as usual). Intervention condition was not a focus in the current study, but it was included as a control variable in analyses (for more information about the intervention, see Chamberlain, 2003). The girls enrolled in the study had been mandated to community-based, out-of-home care because of their chronic delinquency. Inclusion criteria included the following: (a) female, (b) age 13–17, (c) at least one criminal referral in the prior 12 months, (d) referred to the study by the juvenile justice facility, (e) resided within a 2.5-hour drive of the research site, and (f) entered an out-of-home placement. One exclusion criterion was applied: girls known to be pregnant at the time of enrollment were excluded from participation. Initially, 251 girls were approached for inclusion into the original study, 60 of whom did not meet the study's enrollment criteria (primarily because of failure to meet inclusion criteria c and f). Of the remaining 191 girls, 21 girls or their caregiver or caseworker refused to participate (11%), and 4 could not be located at the start of the baseline assessment (2%), resulting in a participation rate of 87% of eligible girls. The project coordinator randomly assigned (coin flip) girls to MTFC ($n = 81$) or GC ($n = 85$). Girls provided assent and their legal guardian provided consent for the girl to participate. All study procedures were approved by the institutional review board at the senior author's institution. Girls' mean age was 15.30 years ($SD = 1.17$) at baseline. Eighty-four percent of the girls reported that they had been sexually active in the 6–12 months prior to baseline. Additional demographic information is reported in Table 1.

Measures

Prior to entering their out-of-home placements, each girl and her parent or other primary preplacement caregiver participated in a 2-hour baseline (T1) assessment. Staff members responsible for data collection and data entry were blind to participants' group assignment and were not involved in the delivery of the intervention. The current study used data collected at baseline (T1) and at 18 months postbaseline (T2) from the original study, and data collected across five 6-month intervals during young adulthood (T3–T7) from a follow-

up study. Because the young adult follow-up study combined data from two consecutive cohorts of participants, there was variability in the length of time between baseline and the young adulthood follow-up. The mean was 7.34 years between the baseline assessment and the first young adult follow-up assessment ($SD = 2.86$). The average age at T3 was 22.29 ($SD = 3.16$). No intervention-related adverse events occurred during the study.

Childhood maltreatment—The girls' cumulative maltreatment experiences at T1 were drawn from child welfare caseworker reports taken at the baseline assessment. Caseworkers provided data on whether the youths had a documented history of child sexual abuse and/or child physical abuse. Maltreatment rates were as follows: 61% had at least one incident of physical abuse, 55% had at least one incident of sexual abuse, and 35% had incidents of both physical and sexual abuse.

Comfort discussing safer sex practices—At T2, girls were asked for their level of comfort in discussing safer sex practices with their partner with the following question: “*How comfortable do you feel talking about safe-sex practices (use of condoms, blood tests, etc.) with someone you might have sex with?*” The responses were as follows: *very comfortable* ($n = 73, 67.6\%$), *somewhat comfortable* ($n = 12, 11.1\%$), *neutral* ($n = 18, 16.7\%$), and *very uncomfortable* ($n = 5, 4.6\%$); $n = 58$ were missing, either because the participant did not have a partner at this assessment or because the participant chose to skip this question. Given that the strong skew of this variable threatened to introduce bias into our analysis, we dichotomized this variable such that *very comfortable* was considered representative of “comfortable discussing safer sex,” and the other responses (i.e., *somewhat comfortable, neutral, etc.*) were not.

Unsafe sexual practices—At the first young adult follow-up assessment (T3), girls were asked the percentage of time in the past 6 months they had used safer sexual practices: “*In the last 6 months, what percentage of the time when you’ve had sexual relations (oral, vaginal or anal) did you USE safe sex practices to prevent sexually transmitted diseases—condoms, blood tests, dental dams, etc.)?*” Only three women reported no sexual relations during the young adult follow-up assessments, and those who did not report sexual relations were not asked this question. The responses were as follows: *never*, 0% ($n = 57, 46.7\%$); *rarely*, $1\%–15\%$ ($n = 7, 5.7\%$); *occasionally*, $15\%–40\%$ ($n = 7, 5.7\%$); *about half the time*, $40\%–60\%$ ($n = 3, 2.5\%$); *usually*, $60\%–85\%$ ($n = 8, 6.6\%$); *most of the time*, $85\%–99\%$ ($n = 10, 8.2\%$); and *every single time*, 100% ($n = 30, 24.6\%$); $n = 44$ were missing. Given that the u-shaped distribution of this variable might introduce bias into the analysis, we dichotomized this variable such that *never, rarely, and occasionally* were considered representative of “unsafe sexual practices,” and other responses (i.e., *half the time, usually, etc.*) were not.

Sexually transmitted infections—At the second through fifth young adulthood follow-up assessments (T4–T7), girls indicated whether they had contracted an STI in the previous 6 months. Responses were combined across all waves (2 years) to indicate whether a girl had contracted an STI at any time during the young adult follow-up period. In this sample, 28 of 150 girls (18.7%) were coded as positive for a new STI across the 2-year period.

Control variables—Given the variability in age at the young adult assessments and the possibility that age may influence the likelihood of using safer sex practices, we controlled for age at T3. We also controlled for the original intervention condition (MTFC = 1 or GC = 0).

Analysis Plan

We evaluated the ability of unsafe sexual practices to mediate the association between early sexual and physical abuse and later likelihood of contracting an STI (see Figure 1). There was a moderate degree of missing data, but these data were missing completely at random (MCAR); Little's MCAR test, $\chi^2(2) = 2.61$, *ns*, indicated that the missing data did not introduce bias into the analyses (see Table 1 for *ns* for each measure, range = 108–166). As described later, the analysis approach used (full information maximum likelihood) provides unbiased estimates in the presence of missing data and uses all available information in model testing.

In general, requirements for mediation include a significant direct effect of the predictor on a presumed mediator (i.e., Paths A1 and A2 in Figure 1) and on the distal outcome (i.e., Paths C1 and C2 in Figure 1), a significant direct effect of the mediator on the outcome (i.e., Path B), and a significant indirect effect of the predictor on the outcome by means of the mediator (i.e., Paths A1*B and A2*B; Judd, Kenny, & McClelland, 2001; MacKinnon & Dwyer, 1993). However, such an approach may be too restrictive, and MacKinnon and colleagues (2002) have advocated for the consideration of other approaches that focus solely on the joint significance of the paths between the predictor and the outcome. In the absence of a direct effect of the predictor on the outcome, MacKinnon et al. (2002) refer to purported mediators as *intervening variables* rather than as *mediators* per se. Thus, in this study, if we were to find direct effects of physical/sexual abuse on STI contraction, we would evaluate unsafe sexual practices as a mediator; if direct effects were not present, we would evaluate this construct as an intervening variable, or a variable that is affected by the predictor that can, in turn, influence outcomes and thus is theoretically and clinically meaningful (Sandler, Schoenfelder, Wolchik, & MacKinnon, 2011).

The outcome measure (i.e., presence of an STI) and the purported mediator (i.e., unsafe sexual practices) were dichotomous variables, so logistic regression was used with a log-based link function. In logistic regression, predictions are expressed as odds ratios, with ratios less than 1 predicting a decrease in the likelihood of the outcome, and ratios greater than 1 predicting the opposite. In this paper, we initially fit a “direct effects” model in which early physical and sexual abuse directly predict the likelihood of contracting STIs; subsequently, we fit a “full” model in which unsafe sexual practices was inserted into the model (see Figure 1). Finally, if any of the links between early physical/sexual abuse and unsafe sexual practices were significant, we evaluated the ability of “comfort discussing safer sex practices” to moderate these links.

We fit the model to the data using structural equation modeling with Mplus (Muthén & Muthén, 2006). We used full information maximum likelihood analysis, which can provide unbiased estimates in the presence of missing data and uses all available information such that no data are discarded, even when a participant has data for one variable but not for

another. This approach is considered to be one of most robust methods for handling missing data and is superior to listwise deletion, which can introduce bias (Enders, 2010). Mplus does not provide standard indices of fit for models with dichotomous outcomes, so none are reported. We assessed moderation of the link between early sexual/physical abuse and unsafe sexual practices by means of a chi-square deviance test. We fit a model in which this link was constrained to be equal for both groups (i.e., low vs. high level of comfort discussing safer sex practices) and compared the fit to a model in which the link was estimated freely across groups. If the freely estimated model demonstrated significantly better fit according to a chi-square difference test, we would conclude that moderation was present.

Results

Variable means are reported in Table 1 and intercorrelations are reported in Table 2. We analyzed both cohorts together given the continuous nature of the study, but also tested for cohort differences. There were no cohort differences in rates of physical or sexual abuse; however, Cohort 1 reported slightly more unsafe sexual practices at T3, $\chi^2(1) = 4.24, p < .05$, and less discomfort discussing safer sex practices with their partners, $\chi^2(1) = 7.28, p < .01$. The cohort difference in unsafe sexual practices is likely a result of their older age compared with the age of Cohort 2 participants at the T3 assessment. As noted earlier, age was included in the models to control for its effects.

We initially fit a direct effects model in which physical and sexual abuse (and the control variables) directly predicted the likelihood of contracting an STI. As seen in Table 3, neither physical nor sexual abuse significantly predicted the likelihood of an STI. We allowed all predictors to correlate, but no correlations were significant ($r_s < .10, ns$; see Table 2).

In the full model, sexual abuse significantly predicted a higher likelihood of using unsafe sexual practices (Path A2); in turn, unsafe sexual practices significantly predicted a higher likelihood of contracting an STI (Path B). The indirect effect (Path C2) of early sexual abuse on the later likelihood of contracting an STI was significant ($OR = 4.37, p < .05$).

Because the link between early sexual abuse and unsafe sexual practices was significant, we examined whether this link was moderated by girls' comfort in discussing safer sex practices with their partner at T2. We found that the chi-square test for moderation was significant, $\chi^2(1) = 5.01, p < .05$. For girls with low levels of comfort discussing safer sex, there was a link between early sexual abuse and unsafe sexual practices ($OR = 8.55, p = .05$); for sexually abused girls who were very comfortable discussing safer sex, this link was not significant ($OR = .89, ns$).

Discussion

This study is the first that we are aware of that has examined sexual risk behavior in juvenile justice girls across the transition from adolescence to young adulthood. The transition to young adulthood (age 18–29) has been shown to be a period of risk during which the rate of unprotected sex peaks (Arnett, 2000; Blumstein, Cohen, & Farrington, 1996). Adolescents with chronic delinquency and juvenile justice involvement might be particularly ill prepared

for the complexities of young adulthood because of their failure to meet normative developmental milestones during adolescence. The current study confirmed the risky nature of this developmental period for this population. Girls with juvenile justice involvement were at high risk for STI contraction during young adulthood: 18.7% contracted a new STI during the 2-year young adult assessment period, a rate far greater than population norms for women age 20–24 years (CDC, 2011b). The elevated rate of STI contraction in this sample was present regardless of whether the young woman had been sexually or physically abused during her childhood. This finding extends previous research on sexual risk behaviors in juvenile justice adolescents (Biswas & Vaughn, 2011; Canterbury et al., 1995; Dembo et al., 2009; Kelly et al., 2000) to sexual risk outcomes in young adulthood.

Study results also showed that having a documented history of sexual abuse was a precursor to a cascade of problems leading to later STI contraction. Specifically, sexual abuse during childhood was associated with engagement in unsafe sexual practices during young adulthood, which was associated with subsequent STI contraction. Conversely, physical abuse was not shown to be associated with unsafe sex or with STI contraction, suggesting that childhood maltreatment has different effects, depending on the type of maltreatment. Sexual abuse appears to be directly linked to engagement in unsafe sexual behavior during young adulthood, whereas physical abuse does not (within a female juvenile justice population). The association between sexual abuse and unsafe sexual behavior is not new; this study replicates existing work demonstrating this association (e.g., Jones et al., 2010), some of which has also used official records to verify maltreatment events (e.g., Leslie et al., 2010; Noll, Haralson, Bulter, & Shenk, 2011; Thornberry, Henry, Ireland, & Smith, 2010; Trinkett, Noll, & Putnam, 2011). We were able to rigorously examine associations between childhood maltreatment and unsafe sexual practices in a high-risk sample through the inclusion of official reports of childhood abuse from the girls' caseworker, and by following the girls for 9 years after the initial assessment to examine the sequelae of childhood maltreatment.

A second key finding from this study was the protective role of communicating with one's sexual partners about safer sex practices. Adolescent girls who were sexually abused as children and who did not feel comfortable talking to their partners during adolescence about safer sex practices were more than 8 times more likely to engage in unsafe sexual practices in young adulthood than were those who were comfortable talking about the topic (odds ratio of 8.55). Conversely, there was no association between sexual abuse and unsafe sexual practices in young adulthood among girls who did express comfort about talking to their partners about safer sex practices, indicating the protective role that this behavior can have within this high-risk segment of the population (juvenile justice girls with a history of sexual abuse). This finding builds upon promising partner-focused communication interventions for juvenile justice youths (e.g., Marvel et al., 2010) by suggesting that girls with a history of sexual abuse might be particularly likely to benefit from such interventions.

Implications for Practice

Social service programs could benefit from the knowledge gained in this study in several ways. First, the high levels of STI contraction in the sample indicate that juvenile justice

girls are at increased vulnerability for contracting HIV/AIDS. As such, this population would benefit from additional services to prevent their engagement in unsafe sex. These could include prevention-oriented services provided to parents and caregivers before a youth has been confined in detention and education-based programs delivered by juvenile justice authorities when youths are in detention. Our prior work with juvenile justice girls indicated that this population has very inaccurate knowledge of safer sex behaviors and has false beliefs about behaviors associated with STI contraction (Leve & Chamberlain, 2005). Thus, in school, home, and juvenile justice settings, providing boys and girls and their parents or other adult caregivers with information about behaviors that can increase and decrease risk for STI contraction, and disseminating information about safer sex methods to prevent STI contraction, may ultimately help to reduce the high rates of STIs in this population. The challenge is to present this information in ways that engage both youth and parents and to increase their comfort level in discussing the use of safe sex practices with each other.

Second, our results indicated that juvenile justice girls with a history of sexual abuse were at the greatest risk of engaging in sexual risk behaviors during young adulthood that were associated with later STI contraction. It might therefore be beneficial to focus specifically on this subset of the juvenile justice population when delivering social service programs targeting safer sex behaviors and the prevention of HIV/AIDS. Education-based services could be delivered in the context of case worker responsibilities when a positive history of sexual abuse is identified.

Third, comfort talking with ones' partners during adolescence about safer sex eliminated the association between sexual abuse and unsafe sexual behavior. This finding suggests great potential in the development and delivery of interventions that increase girls' comfort in talking with their partners about safer sex, particularly if there is a history of sexual abuse. Girls who have experienced sexual abuse may be particularly anxious about having conversations about sex because of their histories and therefore less inclined to have a dialog with their partners about safer sex. Study results suggest that increasing this population's ability to engage in such conversations has the potential to completely eliminate the association between prior sexual abuse and unsafe sexual behavior in young adulthood. Evidence-based interventions such as those tested by Marvel et al. (2010), which include a focus on enhancing youths' awareness about STIs and HIV and providing communication skills with partners and parents in the context of family therapy sessions, hold promise to provide this population with the communication skills needed to increase protected sex acts and decrease STI incidence rates.

Study Limitations

Several limitations of this study should be noted. First is the self-report nature of STI contraction across the young adult assessments. Future studies that incorporate physical examinations and testing for STIs could provide more robust confirmation of the associations identified in the study. Second, our indicator of comfort discussing safer sexual practices with partners was missing for some participants and was measured by a single item, which does not permit a very thorough picture of partner communication patterns. Additional questions related to frequency of partner communication and the bidirectional

nature of these conversations (e.g., partners' contributions to this dialog) would provide additional insights into the specific aspects of partner communication that may be most beneficial for reducing future sexual risk behaviors. Third, our measures spanned a developmental window that enabled us to examine the sequencing from childhood maltreatment, to later partner communication, to later unsafe sexual practices, and finally, to later STI contraction. Although this is informative from a developmental vantage point, inclusion of each measure at all time points would provide additional depth to the likely reciprocal nature of the associations. For example, sexual abuse experienced from partners during adolescence or young adulthood may be important outcomes of childhood sexual abuse that are also related to STI contraction. We were unable to examine these associations. These limitations notwithstanding, this study provides new information about two potential intervention targets—increasing girls' comfort in discussing safer sex practices with partners during adolescence, and decreasing girls' engagement in unsafe sex during young adulthood—that would reduce risk for STI and HIV/AIDS contraction in this underserved population.

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Figure 1.
Hypothesized model.

Table 1

Demographic Information and Variable Descriptives

Variable (N)	Mean
Ethnicity (166)	
Caucasian, non-Hispanic	68.1
Multiracial	16.9
Hispanic	11.4
African-American	1.8
Native American	0.6
Asian	0.6
Other/Unknown	0.6
Single parent home (166)	63%
< \$10,000 income/yr family income (166)	54%
Intervention condition (166)	.49
T1 Childhood physical abuse (157)	61%
T1 Childhood sexual abuse (161)	55%
T2 Comfort discussing safer sex (108)	68%
T3 Unsafe sexual practices (122)	58%
T T3 Age (136)	22.29
T4–T7 Contraction of STI (150)	18.7%

Table 2

Correlation Among Variables Included in Model Testing

Variable	1	2	3	4	5	6	7
1. Intervention condition	–						
2. Childhood physical abuse (T1)	.04	–					
3. Childhood sexual abuse (T1)	.01	.09	–				
4. Comfort discuss safer sex (T2)	–.03	–.05	.23**	–			
5. Unsafe sexual practices (T3)	–.03	–.02	.25**	.18	–		
6. Age (T3)	.09	.13	.08	–.18*	.22*	–	
7. Contraction of STI (T4–T7)	–.04	–.05	–.02	.07	.22*	.02	–

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

Table 3

Model Coefficients (Odds Ratios)

	Direct effects model	Full model
Path C1	.74	.84
Path C2	.92	.63
Path A1	–	.81
Path A2	–	2.74*
Path X1	–	1.16*
Path X2	–	.93
Path X3	.82	.78
Path B	–	4.42**

*
 $p < .05$;

**
 $p < .01$.