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Sexual Risk Behaviors Among Youth in the Child Welfare System

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Abstract

This study uses data from the National Survey of Child and Adolescent Well-Being (NSCAW) to provide estimates of sexual risk behaviors for 877 youth, age 11–14 at baseline, in the child welfare system. It examines the association between baseline psychosocial risk and protective factors on engagement in sexual risk behaviors after 36 months. It further compares rates of sexual risk behaviors between youth placed in out-of-home care and those who remained with their biological family. Key findings include a high rate of pregnancy, a high percentage of youth who initiated sexual activity at or before age 13 as well as a limited role of protective factors in moderating sexual risk behaviors. A history of placement into out-of-home care is not significantly associated with greater engagement in sexual risk behaviors. Implications for intervention development and child welfare policy for this population are discussed.

Youth who become involved with the child welfare system have long been described as a population at risk for adverse outcomes in multiple domains (Curtis, Dale & Kendall, 1999; Fanshel & Shinn, 1978). They present with risk factors, such as histories of maltreatment, family instability and dysfunction, parental substance abuse and poverty that are believed to increase their vulnerability for engagement in health-risking behaviors (Elze, Auslander, McMillen, Edmond & Thompson, 2001; Harden Jones, 2004; Simms, Dubowitz & Szilagyi, 2000). The growing body of risk factor research suggests that this vulnerability may be amplified as protective factors such as parental involvement, positive family relationships and parent-child communication tend to be absent or compromised in the lives of maltreated youth (DiClemente et al., 2001; Perrino, Gonzalez-Soldevilla, Pantin & Szapocznik, 2000). Whether out-of-home placement, which occurs for about one-fifth of child maltreatment victims investigated by the child welfare system (U.S. Department of Health and Human Services [USDHHS], 2008), presents an added risk factor or an opportunity for resilience remains a matter of debate (Harden Jones, 2004; Rutter, 2000). Research to date has been equivocal about the effects of out-of-home placement on developmental outcomes (Berger, Bruch, Johnson, James & Rubin, in press; Newton, Litrownik & Landsverk, 2000; Pears & Fisher, 2005; Rubin, O'Reilly, Luan, & Localio, 2007).

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Despite obvious vulnerabilities, relatively few studies have studied risk behaviors among children in the child welfare system, a gap that is particularly glaring in the area of sexual risk. This is of concern given previously reported high rates of early pregnancy among foster youth (Courtney & Dworsky, 2006) and rising rates of HIV/AIDS infection during adolescence overall. Of the 56,300 newly reported HIV cases in 2006, more infections occurred among young people under the age of 30 (aged 13–29) than any other age group, confirming that youth and young adults are at highest risk of contracting the virus (Center for Disease Control [CDC], 2008). Rates of HIV/AIDS infection are particularly high among African Americans (Hall et al., 2008), a group who is also disproportionately represented in the foster care system (Fluke, Yuan, Hedderson & Curtis, 2003).

Theoretical Framework

Risk behavior research is generally informed by the social development model, which integrates knowledge about the effect of empirical predictors or risk factors, in the development of health-risking behavior (Catalano & Hawkins, 1996; Hawkins, Catalano & Miller, 1992). There is considerable empirical evidence that biological, psychological and social factors at multiple levels in different social domains (individual, family, school, peer group and community) contribute to varying degrees to the development of health-risking behaviors. Common psychosocial risk factors for adverse developmental outcome are child maltreatment, violence exposure, lack of parental monitoring, parental substance use and deviance, parental discord, association with delinquent peers, poor academic functioning and poverty. The model also incorporates “protective factors,” which are hypothesized to mediate or moderate the effects of risk exposure. Common protective factors identified in the literature are parental monitoring, connectedness to a parent or adult, religiosity, school engagement, and future expectations. An explicit aim of risk and resilience research is the development of targeted and empirically guided interventions to alter risk trajectories and reduce engagement in risk-taking behaviors (e.g., Hawkins & Weis, 1985; Hawkins et al., 1992).

Overview of Literature on Sexual Risk Behavior Among Youth in Child Welfare

Current knowledge about sexual risk behaviors among foster youth is based on national data involving foster care alumni (Pecora et al., 2003), a sub-analysis of a national population-based study [National Survey of Family Growth] (Carpenter, Clyman, Davidson & Steiner, 2001; CDC, n.d.), several regional studies (Barth, 1990; Courtney & Dworsky, 2006; Dembo et al., 2007; McDonald, Allen, Westerfelt & Piliavin, 1993; Polit, White & Morton, 1990; Risley-Curtiss, 1997) as well as a few outcome studies, which tested the effects of sexual-risk prevention programs on sexual risk behaviors among youth in residential placements (Slonim-Nevo, 2001; Slonim-Nevo & Auslander, 1996; Slonim-Nevo, Auslander & Ozawa, 1995; Slonim-Nevo, Ozawa & Auslander, 1991). These studies report prevalence estimates or descriptive data related to various sexual risk behaviors, such as age at first intercourse, number of sexual partners, safe sex practices, and pregnancy rates. This body of literature is unequivocal about the elevated rate of pregnancy among youth in out-of-home care. There is less consistency regarding rates of other sexual risk behaviors, and it is difficult to compare rates given differences in methodology and target samples, i.e., foster care alumni, youth who “aged out” of the foster care system, and youth in group care settings.

A number of papers report on risk and protective factors for health-risking behaviors among foster youth (Auslander et al., 2002; Edmond, Auslander, Elze & Bowland, 2006; Elze et al., 2001; Polit, White & Morton, 1990; Slonim-Nevo et al., 1995; Taussig, 2002; Taussig &

Talmi, 2001). Findings from these studies identify older age and presence of behavior problems to be the most consistent predictors of sexual risk behaviors. The effect of prior sexual abuse on sexual risk behaviors has not been consistently established in foster care samples although this variable has been found to be a significant predictor in other high risk samples (Johnson, Rew & Sternglanz, 2006; Rotheram-Borus, Mahler, Koopman & Langabeer, 1996). Auslander and associates (2002) report that a co-occurrence of sexual abuse with externalizing behavior problems has a stronger effect on sexual risk behaviors than either variable alone. Other predictors that have been positively associated with sexual risk in single studies include drug use (Risley-Curtiss, 1997), lower scores with regard to perceived social acceptance (Taussig, 2002), educational aspiration and relationships with teachers (Slonim-Nevo et al., 1995). One study suggests that there is no variation in sexual risk behavior by placement type, i.e., family foster care versus kinship care (Carpenter et al., 2001). Finally, a recent analysis involving foster youth finds religious service attendance to reduce the odds of engagement in sexual risk behavior (Scott, Munson, McMillen & Ollie, 2006).

The current study extends the limited body of research in this area in several ways: (1) It uses data from the National Survey of Child and Adolescent Well-Being, the first probability study of children and families referred for child welfare services, to provide national estimates of sexual risk behaviors among youth involved with the child welfare system. The NSCAW sample is larger and more geographically representative than any other existing child welfare dataset. (2) The NSCAW data also enable us to examine the association between a range of psychosocial risk and protective factors and sexual risk behaviors. Many of these factors have been found to be significant with regard to sexual risk behaviors in other high-risk samples, but to date have only been studied with youth in out-of-home placement to a limited degree. We are particularly interested in examining the moderating effect of psychosocial protective factors in this sample given that youth-caregiver relationships are frequently disrupted or compromised for children who come into contact with the child welfare system. (3) Finally, the NSCAW sample includes youth in out-of-home placement as well as those who had involvement with the child welfare system but remained in the home following investigation of maltreatment. This provides a unique opportunity to examine the relationship between placement history and engagement in sexual risk behaviors.

Methods

The National Survey on Child and Adolescent Well-being was authorized under the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 (P.L. 104-193). It is the first national longitudinal study of its kind and examines the characteristics, needs, experiences, and outcomes of children and families referred to child welfare services (NSCAW Research Group, 2002).

Survey Design and Sample

NSCAW used a stratified two-stage cluster sampling strategy to select 100 primary sampling units (PSU) from a national sampling frame, with the probability of PSU selection proportional to the size of the PSU's service population. Of the 100 PSUs identified by the sampling strategy, the NSCAW study ultimately collected child-level data in 92 PSUs representing 96 counties in 36 states. In participating counties, children were randomly selected from among the population of children, age 0–14, for whom an investigation of abuse or neglect had been opened by the child welfare system during a 15-month period beginning in October 1999. The final NSCAW sample included 5,501 children. The NSCAW sampling strategy generates national estimates for the full population of children and families referred for child welfare services (NSCAW Research Group 2002). The

current analysis reports on a subset of pre-adolescent and adolescent youth who (1) were 11 and older at baseline (n=1180); (2) were interviewed at Wave 4/36-month (n=1030); and (3) for whom sexual risk behavior data were available (n=877). The final study sample included 877 youth.

Survey Procedures

Field representatives conducted face-to-face interviews with youth, biological parents and/or foster caregivers, and caseworkers over a 36-month period at four waves (baseline, 12 months, 18 months and 36 months). All data were directly entered into laptop computers. Field representatives participated in 12 days of training, including specific interview content and procedures for conducting effective interviews with diverse study respondents. They also completed certification exercises with regard to mastery of data collection procedures at the end of training.

Current Study Design and Measures

For the current analysis, we examined engagement in sexual risk behaviors at Wave 4 (36 months) when study participants were 14 years and older. The longitudinal design of the study allowed us to examine the relationship between baseline risk and protective factors on subsequent sexual risk behaviors. Investigating the association between Wave 1 indicators and subsequent outcomes is worthwhile because assessments of risk factors and youth functioning are most likely when youth come into contact with the child welfare system.

Sexual risk behavior variables—Sexual risk behaviors were measured through four variables gathered through youth interviews at Wave 4: (1) consensual sexual intercourse (lifetime); age at first consensual intercourse (younger than 13; 13 or older); (3) use of protection during consensual intercourse (never/rarely/sometimes; often/always); (4) ever been pregnant (consensual).¹

Risk and protective factors—Table 1 presents a detailed overview of all our variables, their conceptual and operational definition as well as the data sources and measures used. Information on sociodemographic characteristics (age, gender, race/ethnicity) and case status-related risk factors (primary type of maltreatment, initial risk assessment), which determined a youth's initial case deposition within the child welfare system, were collected from caseworkers at Wave 1. Information on most psychosocial risk factors (behavior problems, substance use, delinquency, peer deviancy, abusive caregiver behavior) and baseline protective factors (school engagement, future expectations, religiosity, caregiver monitoring, caregiver connectedness) were obtained from the youth themselves. Caseworkers provided placement history data, and caregivers informed about their educational background.² Most of the variables used are based on standardized measures or involve items that were adapted for the NSCAW study from national studies involving adolescents.³

¹A variable on pregnancy that included boys was not included in the analysis as less than 10% of the boys reported having gotten someone pregnant, and it is likely that there is significant underreporting. We also considered inclusion of two additional variables: ever paid for having sex; ever forced someone to have sex. Given the small percentage of youth (1–2%) who engaged in such behaviors and given that these variables seem to be more related to the construct of 'deviancy' rather than sexual risk behavior, we decided not to include these variables as DVs.

²We used caregiver education as a proxy for poverty as the poverty variable had a lot of missing data (n=187) that could not easily imputed.

³The major criteria guiding selection of measures in the NSCAW study were the relevance of the measures to the conceptual model of the NSCAW study, data collection burden on participating agencies, economy of data collection operations, psychometric properties of the instruments and validity and reliability of the data sources (U.S. Department of Health and Human Services n.d.). For greater detail on the measures and interview protocols, please see the User Guide for the NSCAW study (NSCAW, 2002).

Analysis

Descriptive analyses were conducted for each of the dependent variables to derive estimates of sexual risk behaviors. The dependent variables represent different sub-samples. The rate of consensual sexual intercourse was investigated for the entire study sample of 877. Age at first consensual intercourse and use of protection during consensual intercourse were examined for those youths who reported being or having been sexually active (n=417). Finally, pregnancy rates among those who had consensual sex were reported for all girls (n=500).⁴

Analyses further tested the association between risk and protective factors and the odds of having engaged in any of the sexual risk behaviors. We also performed correlations between all risk and protective variables (results not shown here) and tested for multicollinearity; tolerance values fell into an acceptable range (0.32–0.91). Subsequently, logistic regressions were performed for each dependent variable to estimate the odds of a dichotomous outcome. In logistic regression, predictor variables do not have to be normally distributed, linearly related, or of equal variance within each group, thereby making logistic regression a very flexible and robust statistical method (Menard, 2002). Logistic regression diagnostics were performed to assure models are appropriately fitted. Sample weights and the two-stage cluster sample design were accounted for in all analyses using the statistical software SUDAAN (version 9.0). Wave 4 weights adjusted for attrition between Waves 1 and 4 and were constructed to represent the original target population based on data from study participants present at Wave 4. Standard errors for percentages and other parameter estimates reflect the clustering of cases within counties. Unless otherwise indicated all data in text, tables and figures provided in this article are weighted.

Missing Data

Like most longitudinal studies, NSCAW contains a considerable amount of missing data, and final multivariate models were performed on reduced sample sizes (see Table 3). Given that nonresponse analyses have suggested that missing data in NSCAW “is unlikely to be consequential for most types of analyses” (USDHHS, 2005, p. 2–12), and problems inherent to data imputations (Brick & Kalton, 1996), we used listwise deletion, but conducted sensitivity analyses to explore patterns of missing data. No statistically significant differences were found for any of the covariates when comparing the eligible sample sizes with the final sample sizes. There were two variables that contributed the most to the missing data: primary abuse type (n=70) and risk assessment (n=69). Both variables were considered too important conceptually to simply exclude from the analysis. We also decided to use caregiver education as a proxy variable for poverty as the original poverty variable had more than 100 missing cases.

Results

Table 2 displays descriptive and bivariate findings of sexual risk behaviors by Wave 1 risk and protective factors. Figures in the ‘total’ columns describe the overall characteristics of the study sample and sub-samples.

Sample Description

Sociodemographic characteristics—The sample of 877 youth were 15.3 years old on average (SE=0.07). Fifty-four percent of the sample was female. More than half of the

⁴We also generated descriptive statistics for sexually active girls only (n=245). However, given small cell sizes parameters were so unstable that our multivariate models for this group were compromised.

youths were white, 27.9 percent were African American, 13.3 percent Hispanic, and 6.7 percent fell into the category “other” racial/ethnic background.

Placement history—Seventy-seven percent of youth in this child welfare sample had never been placed in out-of-home care over the course of the 36-month study period. Episodes in out-of-home placement, which were experienced by 23.1 percent of the youth, included episodes in relative or nonrelative foster care, treatment foster care, group homes, residential treatment or inpatient psychiatric care.⁵

Case status-related risk factors—In 42.3 percent of the cases, neglect and/or caregiver absence were cited as the primary reason for referral to child welfare, followed by physical abuse (32.0%), other types of abuse or reasons (14.5%) and sexual abuse (11.2%). Family risk assessments conducted by caseworkers at baseline indicated an average risk rate level of 0.3 (SE=0.01), which means that on average 6–7 risk factors were reported. As indicated in Table 1, the risk measure consists of 21 risk items and includes items such as caregiver substance abuse, domestic violence in the home, and caregiver mental health problems.⁶

Wave 1 psychosocial risk factors—Slightly more than one-half of youth (51.1%) exhibited behavior problems in the clinical range (a score of ≥ 64) as measured by Achenbach’s Youth Self Report (Achenbach, 1991). Twenty-eight percent of youth reported using alcohol, cigarettes and marijuana during the last 30 days, and 15 percent indicated lifetime use of “harder” drugs, such as cocaine, crack or heroin. The sample reported an average of 6.1 delinquent acts (SE=1.5) during the past six months. Sixty-three percent of youth indicated ever spending time with peers who got into trouble. Youth reported experiencing on average 8.6 punitive or abusive acts by caregivers during the past 12 months (SE=1.1), which included behaviors such as yelling, hitting, cursing or slapping. With regard to caregiver education, 26.9 percent had less than a high school diploma, 38.9 percent had a high school diploma or equivalency exam and 34.2 percent reported education beyond high school.

Wave 1 protective factors—Youth reported being engaged in school “often” (Mean=3.0, SE=0.03) and participating in religious activities once or twice a month (Mean=3.2, SE=0.1). Future expectations were high with most youth reporting it as “pretty likely” (Mean= 4.0, SE= 0.03) that good things would happen to them in the future (i.e., graduate from high-school, have a family). Youth also reported being monitored “pretty often” by their caregivers (Mean=4.1; SE=0.1) and stated that being close to one caregiver during the 36-month study period was “sort of true” (Mean=3.3; SE=0.03).

Estimates of Sexual Risk Behaviors

About half of the sample (50.4 percent) reported having experienced consensual sexual intercourse. Of those that experienced consensual sexual intercourse, 40.5 percent reported being 13 or younger at age of first consensual intercourse.⁷ More than two-thirds (68.2 percent) of sexually active youth reported using protection during consensual sex “often” or “always.” Twenty percent of all girls in the full sample indicated having gotten pregnant at some time.⁸

⁵Cell sizes for different types of out-of-home placement were too small to determine the effects of different types of placements (e.g., group homes, kinship care) on the dependent variables.

⁶The risk rate was calculated as follows: number of risk items/total number of risk items (=21).

⁷When calculated for the entire sample, the rate of youth initiating sexual intercourse at age 13 or younger is 20.4.

⁸Of the girls who were sexually active, 39.3 percent reported having gotten pregnant at some time. Additional analyses indicated that of the girls who reported having been pregnant slightly more than one-half (54 percent) reported having children, with one-quarter reporting having a second child.

Bivariate Findings

The odds of engaging in sexual risk behaviors were first examined for each of the risk and protective factors individually. Several risk factors predicted having experienced sexual intercourse: older age ($p<.0001$), presence of clinically significant behavior problems ($p<.05$), use of drugs – both gateway drugs ($p<.01$) as well as ‘other’ drugs, such as heroin and cocaine ($p<.01$), a higher rate of delinquent behavior ($p<.001$), hanging out with deviant peers ($p<.0001$) and experiencing more acts of abusive caregiver behavior ($p<.05$). With regard to protective factors, youth who engaged in sexual intercourse had a lower score on school engagement ($p<.01$), and a lower score on caregiver monitoring ($p<.001$).

Four Wave 1 risk or protective factors explained differences between youth who experienced their first intercourse at age 13 or younger versus those who were older. Youth with very early onset of sexual activity had a higher rate of hard drug use ($p<.01$) and delinquency ($p<.01$). They also scored lower in the area of school engagement ($p<.05$) and future expectations ($p<.05$). Youth who indicated “never or sometimes” using protection during consensual sex were more likely to be Hispanic or of other racial/ethnic background than either white or African American ($p<.01$), were more likely to have used gateway drugs during the last 30 days ($p<.05$), scored lower on religiosity ($p<.01$) and reported a lower degree of caregiver connectedness ($p<.01$).

Finally, several risk factors provided an explanation for increased odds of pregnancy. Older girls were significantly more likely to report having been pregnant ($p<.0001$). Race/ethnicity was also a risk factor with the highest rate of pregnancy among Hispanic girls (41.5%), followed by Caucasian girls (19.0%), girls of “other” racial/ethnic background (12.5%) and African American girls (10.9%). Girls with higher delinquency scores ($p<.01$) and deviant peers ($p<.05$) were more likely to have been pregnant. Gateway drug use was approaching statistical significance ($p=.054$) as was caregiver education ($p=.055$) in differentiating between girls who had been pregnant and those who had not. No protective factors were associated with the risk of getting pregnant. The absence of statistically significant differences between children with and without episodes in out-of-home care should be noted.

Multivariate Findings

Multivariate findings show final logistic regression results for each of the dependent variables (see Table 3). Each model controlled for sociodemographic characteristics (age, race/ethnicity, and gender where applicable), after which all other variables were entered in blocks of variable groups. Results are presented for the final model for each dependent variable, with each block of variables having been entered. The size of effects should be interpreted with caution as small cell sizes for some variables affected the stability of parameters for these variables. It should be noted that only the hard drug use variable was entered into the multivariate model given considerable correlation between gateway and hard drug use (0.57). This correlation became stronger the older the children were. Overall, there were few statistically significant results.

The risk of having sexual intercourse increased more than two times with each additional birthday ($p<.001$). A 1-unit increase in the ‘delinquent behavior’ score increased odds by 8 percent ($p<.01$). Having deviant peers was also associated with ever having experienced sexual intercourse ($p<.01$). Youth who reported a higher degree of future expectations were more likely to have experienced sexual intercourse ($p<.05$), but were less likely by 42% to report caregiver monitoring ($p<.05$). The only Wave 1 risk factor that approached significance in predicting the likelihood of having early onset sexual intercourse was behavior problems at the clinical cutoff ($p=.052$). Three variables were associated with the

use of protection during intercourse. Hispanic youth were significantly more likely than Caucasian youth to report seldom or never using protection during consensual sex whereas African American youth were more likely to report the use of protection ‘always/often’ ($p < .05$). The likelihood of “never or seldom” using protection ($p < .05$) was reduced with unit increases in religiosity ($p < .05$) as well as caregiver connectedness ($p < .01$). In other words, youth with higher scores on religiosity and caregiver connectedness were more likely to report using protection “always or often.” Finally, the odds of pregnancy were associated with four risk factors: older age ($p < .0001$) significantly increased the chance of pregnancy; Hispanic girls were significantly more likely to become pregnant than Caucasian girls ($p < .05$) whereas African American girls were less likely to become pregnant ($p < .05$). Having deviant peers at Wave 1 increased the odds of pregnancy ($p < .001$) whereas the risk of pregnancy was lessened for youth who had caregivers with at least a high school diploma ($p < .05$). Primary maltreatment type approached statistical significance in this model ($p = .057$) with a primary reported maltreatment type of physical abuse and neglect/abandonment compared to “other” maltreatment reducing the risk of pregnancy. It needs to be noted that a youth’s placement history was not significantly related to their engagement in any of the sexual risk behaviors.

Discussion

This paper reports estimates of sexual risk behaviors in the first nationally representative sample of children and families involved with the child welfare system. The study further investigates variation in sexual risk behaviors by baseline sociodemographic and case status-related variables as well as psychosocial risk and protective factors. Special attention was paid to the role of protective factors in moderating engagement in sexual risk behaviors as well as the question of whether youth with episodes in out-of-home care present with an increased risk for engagement in sexual risk behaviors compared to maltreated youth who have remained with their biological family. Overall, multivariate findings were sparse. We suspect that given the importance of this developmental phase and the many events that occur for this population during the study period, baseline risk and protective factors may be of limited value in predicting engagement in sexual risk behaviors three years later. Given the dearth of knowledge in this area as it relates to children in the child welfare system, findings nonetheless contribute to the knowledge base. It should be cautioned that results of this study have to be interpreted within the context of NSCAW’s limitations and strengths.

Study Limitations and Strengths

NSCAW is a clinical survey, which measures psychosocial functioning across multiple domains, and does not specifically target sexual risk behavior. This might be considered a significant limitation by sexual risk researchers who are used to more specific and comprehensive measures of sexual risk behavior. However, the absence of nationwide data on the prevalence of sexual risk behaviors among youth involved with the child welfare system nevertheless warrants investigation of this topic in the only nationally representative sample currently available. While limited in the choice of outcomes, this study does provide a within-group perspective about sexual risk behaviors in this sample of maltreated youth.

Like most studies in this area of research, this study is also plagued by questions about the validity and reliability of data obtained from youth about their sexual behavior. Fear of loss of privacy, concerns about repercussions and issues of social desirability may undermine accurate reporting on sensitive personal behaviors (Tourangeau & Smith, 1996; Turner et al., 1998). Such concerns might be amplified for youth involved with the child welfare system that may have experienced first-hand that revelation of personal events can have significant consequences, namely intervention by a public institution in the form of continued monitoring and supervision, and in some cases removal from the biological

family. Youth that experienced multiple placement disruptions in out-of-home placement may also be concerned about loss of another placement if their reported behaviors violate rules set forth by their foster caregiver. These methodological concerns warrant further investigation specifically with this population.

Prevalence of Sexual Risk Behaviors

It is difficult to make exact comparisons between the rates of risky behaviors in our sample and other national normative adolescent samples (e.g., Add Health Study and the CDC's Youth Risk Behavior Surveillance Survey [YRBSS]) as youth in our sample were somewhat younger, are different from normative youth in many respects, and measures were not perfectly comparable. While it was not the purpose of our study to conduct a comparison study of prevalence rates of sexual risk behavior in our sample with normative national adolescent samples, we want to attempt to place sexual risk behavior for this sample within the context of adolescent sexual risk behavior in general. The rate of sexual activity among our sample (which at Wave 4 was 15.3 years old on average) resembles that reported for 9th to 12th graders in high school students in both the Add Health as well as YRBSS studies reported for the late 1990s (Kann et al., 2000; Resnick et al., 1997). Given the younger age of our sample, this indicates overall higher rates of sexual intercourse. We also found a high percent of sexually active youth who reported initiating consensual sex at age 13 or younger. Almost 41 percent of sexually active youth report such early onset of sexual activity. When calculated for the entire sample of 877 youth (including sexually as well as not sexually active youth), the rate is 20.4 percent. This compares with 8.3 percent of 9th to 12th graders in the YRBSS study who reported initiating sexual intercourse before age 13 years (Kann et al., 2000). Early initiation of sexual intercourse along with frequency of sex, number of sexual partners and use of protection during intercourse have been found to be key behavioral determinants of unintended pregnancy and sexually transmitted diseases, including HIV (Miller, Forehand & Kotchick, 2000). With regard to use of protection during consensual sex, NSCAW used a variable that is less precise than the commonly reported variables in other sexual risk behavior studies, which refer specifically to condom use or other contraceptive protection during last sexual intercourse. The question posed in this study asked about "ever" using protection during sexual intercourse, and it is difficult to assess what "often" or "sometimes" meant to responding youth. Two-thirds of youth reported using protection during consensual sex "always or often." Pregnancy rates were considerably higher than those reported by national studies. Results for the 1999 YRBSS study indicated that female students in grades 11 and 12 had pregnancy rates of 8.1 percent and 13.8 percent, respectively (Kann et al., 2000). Overall, 20 percent of girls in our sample reported being pregnant at some time.⁹ It is important to note that almost one-half of the girls reporting to have been pregnant indicated that they did not currently have a baby. It is unknown whether this was due to abortion, miscarriage, stillbirths or adoption. Regardless, the many adverse effects of unintended and early pregnancy have been discussed in many studies, and include a significantly increased risk of rapid repeat pregnancy (Klerman, 2004), depression (Barnet, Arroyo, Devoe & Duggan, 1996), school dropout (Barnet et al., 2004) and reduced chances for future economic independence (Coley & Chase-Lansdale, 1998). In addition, the children of young mothers appear to be at increased risk of maltreatment (de Paül & Domenech, 2000).

Risk and Protective Factors

Findings regarding risk and protective factors for sexual risk behaviors for this sample were generally sparse although most findings converged with those reported by other studies. Not

⁹This rate almost doubles when only sexually active girls are considered (results not shown).

surprisingly, older age of the youth was a significant predictor for having sexual intercourse as well as for pregnancy (Corcoran, Franklin & Bennett, 2000). Eighty percent of youth aged 17 years reported having engaged in sex, and each additional year in age increased the risk of pregnancy manifold. Many prior studies have examined racial/ethnic differences in sexual risk behaviors and outcomes (Aarons & Jenkins, 2002; Boyer et al., 2000; Santelli, Lindberg, Abma, McNeely & Resnick, 2000). Data from national studies continue to report higher estimates of engagement in sexual intercourse by African American youths compared to white and Hispanic youths (Santelli et al., 2000). However, during the last decade births to Hispanic female youth have surpassed those of African American youth (Corcoran et al., 2000). Our study did not find onset of sexual intercourse or age of onset to be significantly predicted by race/ethnicity. However, use of contraceptive protection and pregnancy were predicted by this variable. Hispanic youth were significantly more likely to “never or only sometimes” use protection compared to white youth. African American youth, however, had higher self-reported rates of use of protection than white youth (Davis, Sloan, MacMaster & Kilbourne, 2007). Similarly, as reported in other studies Hispanic females were more likely to report having been pregnant than African American youth (Corcoran et al., 2000). Despite longer years of sexual activity due to early onset of sex, African American youth had lower pregnancy rates than white youth in our study, which is likely due to their indicated higher levels of protection during intercourse.

Primary reported maltreatment type approached significance only with regard to pregnancy. Many prior studies have reported a link between histories of child maltreatment, in particular sexual abuse, and teenage pregnancy as well as engagement in sexual risk behaviors (Herrenkohl, Herrenkohl, Egolf & Russo, 1998; Polit et al., 1990; Romano, Zoccolillo & Paquette, 2006). It would appear that in our sample, maltreatment occurred at such universally high rates across groups that it may have masked the independent effects of maltreatment on the targeted outcomes.

With regard to psychosocial risk factors, the pattern of association was somewhat inconsistent, demonstrating that the relationship between risk factors and sexual risk behavior is rarely simple and direct (Leigh, 1999). Behavior problems in the clinical range increased the odds of early onset of sexual intercourse, approaching statistical significance. A link between emotional and behavioral problems and teenage pregnancy as well as other sexual risk behaviors has previously been established (Martin et al., 2005; Moffitt, 2002; Romano et al., 2006). Lifetime experience of intercourse was also affected by delinquency and deviant peers. Hanging out with deviant peers was also significantly associated with higher pregnancy rates. In our multivariate models, use of hard drugs was not statistically significant, which may be due in part to relatively high correlations between drug use and delinquency (even though thresholds for multicollinearity were not met). In the literature, there is evidence of a clustering of risk factors, which along with sexual risk behaviors frequently includes behavior problems and substance abuse (Burrow, Tubman & Gil, 2007). The influence of peer norms and behavior on sexual risk behaviors has been supported in studies with both normative and high risk samples (Romer et al., 1994; Whitaker & Miller, 2000). Whitaker and Miller specifically studied the moderating impact of parent-teen discussions on sex and condom use, and found that peer norms were more strongly related to sexual risk behavior for teens who had not discussed these topics with a parent. Abusive and changing caregivers make youth involved with the child welfare system particularly vulnerable to the potentially negative influences of peers, which were high in our study sample. Finally, caregiver education, which can be regarded as a proxy variable for poverty, significantly increased the risk of pregnancy, confirming findings from previous studies (Corcoran et al., 2000).

One of the more notable findings was the limited role of protective factors in moderating sexual risk behaviors in this sample. During the last decade, numerous studies have focused on identifying protective factors in youth's environment that could be strengthened to reduce engagement in risk behaviors (DiClemente et al., 2001; Perrino et al., 2000). In our study, sexual intercourse was indeed moderated by increased caregiver monitoring, and more frequent use of protection was more likely when the youth reported feeling connected to a caregiver over the course of the study period. These findings underscore the vulnerability of this population. Many youth involved with the child welfare system have experienced abuse or neglect at the hand of a parent. Close to one-fifth are placed in out-of-home care, with many children experiencing changes in caregivers over time (USDHHS, 2007). Finally, two findings were counterintuitive. Youth with higher future expectations were more likely to have had sex, and youth who reported always/often using protection had higher scores in the area of religiosity. In prior studies, these variables have had protective effects (e.g., Kirby, 1999; Rostosky, Regnerus & Wright, 2003; Scott et al., 2006). This is not true for this sample, warranting further investigation. With regard to religious participation, it is possible that some children are required (i.e., by parents, foster parents, etc.) to attend religious activities, and that they are not freely choosing to do so, potentially limiting the protective impact of religiosity.

Differences in Sexual Risk Behaviors by Placement History

Contrary to our expectations, whether a youth had a history of out-of-home placement versus remaining in their original home following a child abuse investigation did not explain differences in rates of sexual behaviors at a statistically significant level. However, findings generally fell into the expected direction. Descriptive statistics (see Table 2) suggest higher rates of lifetime sexual intercourse, onset of sexual activity at age 13 or before as well as pregnancy among youth in out-of-home placement. The lack of statistically significant differences between youth living with their biological family and those in out-of-home placement underscore that youth in the child welfare system, regardless of their placement status, are a vulnerable population.

Implications for Child Welfare Policy and Prevention

The relatively high rate of engagement in sexual behavior, and the very early onset of sexual activity for a significant number of youth in this sample coupled with high rates of pregnancy beg the question who is currently taking on the task of talking to children and youth in the child welfare system about their sexuality, sexual risks and ways to protect themselves from unwanted pregnancy and sexually-transmitted diseases. Qualitative research with foster youth suggests that they have limited access to information about sex and that the information they do receive is often provided too late (Love et al., 2005). Research also indicates that parents play an important role in youth's decisions about sex and that involving parents in interventions can positively affect knowledge and attitudes about sexual risk-taking behaviors (Lederman, Chan & Roberts-Gray, 2008; Whitaker, Miller, May & Levin, 1999). However, talking to teenagers about sexuality can be difficult even under the best of circumstances (Whitaker et al., 1999). In the case of children and families involved with the child welfare system, the role of the parent is usually seriously compromised; it is highly unlikely that effective parent-youth communication about such a critical and difficult topic is taking place. This might explain why youth who remained with their biological family did not have significantly lower rates of sexual risk behavior than youth with a history of out-of-home placement. Other groups of adults involved in the care of youth in the child welfare system include foster caregivers, child welfare workers, teachers and sometimes therapists. It is unclear who is charged with the responsibility or is best equipped to provide guidance to youth in the area of sexuality. While foster parent training integrates training on developmental issues, including sexuality (e.g., Puddy &

Jackson, 2003), it is not known what percentage of foster parents actually address this topic with their foster youth or to what degree they implement strategies suggested in foster parent training. There is a great need to systematically study how discussions about sexual health can best be facilitated with youth involved in the child welfare system. At this point, the research is too scant to even begin to formulate policy changes. While the limited research on the impact of foster parent training suggests that enhanced training is associated with better outcomes (e.g., Chamberlain, Moreland & Reid, 1992; Sanchirico & Jablonka, 2000), including reductions in behavior problems (Price et al., 2008), it is unclear whether and if so how a youth who might have experienced multiple caregiver changes could best be engaged in such a discussion. We further need to know more about the role of child welfare workers, teachers, therapists or mentors in addressing this topic.

Finally, an explicit aim of risk and resilience research is the development of targeted and empirically guided interventions to alter risk trajectories and reduce engagement in risk-taking behaviors. What implications do findings from this study have for primary and secondary prevention efforts with this population? Only a small number of studies have reported on the effects of sexual risk reduction programs among youth in the care of the child welfare system. These studies suggest that existing cognitive-behavioral and skill-based sexual risk reduction interventions, which are effective with other adolescent populations, might not have the same effect with this group (Becker & Barth, 2000; Slonim-Nevo, 2001; Slonim-Nevo et al., 1991; Slonim-Nevo & Auslander, 1996). Factors such as significant mental health problems, the absence of a dependable family or social network, exposure to sexual abuse and violence, and educational deficits are believed to undermine foster youths' problem-solving abilities and compromise the effectiveness of preventive approaches that might otherwise be effective (Brown, Reynolds & Lourie, 1997; McMillen et al., 2005). Our findings regarding the absence of protective relational factors suggest that interventions for youth involved with the child welfare system might have to integrate components that focus on helping build such protective factors as supportive and stable relationships (e.g., mentoring relationships). This is congruent with recommendations by national organizations, which have begun to draw attention to the issue of pregnancy among foster youth (Love et al., 2005).

Our study illustrates that there is need and justification in examining sexual risk behaviors among youth involved with the child welfare system. There is particular urgency to investigate the high rates of pregnancy in this group, and to determine whether prevalent explanatory models of teenage pregnancy need to be adapted for this population. We encourage further inquiry in this area in particular as it pertains to intervention development.

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Table 1

Overview of Risk and Protective Factors

Variable	Operationalization of Variable	Respondent/Wave	Measure and Psychometrics
<i>Youth Socio-Demographic Risk Factors</i>			
Sex	Male/female	Caseworker; W1	Collected as part of the initial case identification procedures; confirmed through caregiver and child welfare worker interview
Age	Age at Wave 4	Caseworker; W1	
Race/Ethnicity	Caucasian, African American, Hispanic, Other	Caseworker; W1	
<i>Case Status-Related Risk Factors</i>			
Type of Maltreatment	Primary maltreatment type reported: (1) sexual abuse; (2) physical abuse; (3) neglect/caretaker absence; (4) other	Caseworker; W1	Modified Maltreatment Classification Scale (Manly, Cicchetti and Barnett 1994); interrater reliability for different maltreatment subtypes ranges from .89–.98 (Price and Glad 2003).
Risk Assessment	Initial assessment of 21 risk items, determining case decisions, including prior history of abuse or neglect, caregiver substance abuse, domestic violence in the home, caregiver mental health problems, poor parenting skills, excessive discipline, etc. A family risk rate was developed to capture the proportion of total risks present during the investigation for each family.	Caseworker; W1	Project-developed; no psychometric information
<i>Psychosocial Risk Factors</i>			
Behavior Problems	Categorical variable indicating which youth ever fell at or above the clinical cut-point (T 64) on internalizing, externalizing or total problems across the 3 waves	Youth; W1	Youth Self Report (Achenbach 1991); Test-retest reliability: $r=.79$ (Total Problems), $r=.80$ (Internalizing), $r=.81$ (Externalizing); construct validity: problem items cluster into meaningful scales; problem scales correlate highly with similar scales from other checklists and with corresponding DSM diagnoses; criterion-related validity: in research studies, the problem scales have discriminated between a number of different childhood problem groups and their respective comparison groups
'Gateway' Drug Use	Use of alcohol, cigarettes, and marijuana during the last 30 days (yes/no)	Youth; W1	Outcomes of the Drug-Free Schools and Communities Act (DFSCA) (Sponsor: U.S. Department of Education); adapted for NSCAW
Use of Hard Drugs	Lifetime use of 'sniffing' or 'hard drugs', such as heroin, cocaine, or crack (yes/no)	Youth; W1	Outcomes of the Drug-Free Schools and Communities Act (DFSCA) (Sponsor: U.S. Department of Education); adapted for NSCAW
Delinquency	Total delinquency score (sum of 36 items) indicating the number of times a given delinquent act has occurred during the past six months (e.g., running away, being drunk in public, destroying property, setting fire)	Youth; W1	Youth Self Report - Modified Self-Report of Delinquency (Achenbach 1991); general psychometric information for YSR (see above 'behavior problems')
Peer Deviancy	Dichotomous variable, indicating any peer deviancy as reported by youth or caretaker in response to the question/item whether youth 'hangs around others who get in trouble.'	Youth or Caregiver; W1	Youth Self Report (Achenbach 1991); general psychometric information for YSR (see above 'behavior problems')

Variable	Operationalization of Variable	Respondent/Wave	Measure and Psychometrics
Caregiver Education	Categorical variable with three items: less than HS; HS diploma or equivalency; more than HS (<i>used as a proxy for poverty due to too much missing data for the poverty variable</i>)	Caregiver; W1	Project-created items
Caregiver Punitive or Abusive Behavior	22-items capturing how many times during the past 12 months, caregivers have engaged in punitive or abusive acts toward the youth, e.g., hitting with a fist, yelling, slapping, shaking, cursing, etc. 1=1 time; 2=2 times; 3=3-5 times; 4=6-10 times 5=11-20 times; 6=more than 20 times; 7=not in the past 12 months, but happened before; 0=never happened	Youth; W1	Adaptation of Parent-Child Conflict Tactics Scale (Straus et al. 1998) Alpha reliability: $r=-.02$ (severe physical assault); the low internal consistency reliability of the severe assault scale is because the items measure rare events
Placement History	Dichotomous variable capturing whether youth ever experienced out-of-home placement during the course of the study	Caseworker; W1,3,4	Information on placement status/type was provided via caseworker review of case record.
Psychosocial Protective Factors			
School Engagement	School achievement; student's disposition toward learning and school (e.g., enjoyment of school, frequency of assignment completion, getting along with teacher). Average of 11 items; 4-point scale (1=never; 2=sometimes; 3=often; 4=almost always)	Youth; W1	Outcomes of the Drug-Free Schools and Communities Act (DFSCA) (Sponsor: U.S. Department of Education); adapted for NSCAW
Future Expectations	Expectations related to children's life experiences (e.g., expectation to graduate from HS, to have a family, obtain a good job) Average of 6 items; 5-point scale (1=no chance; 2=some chance; 3=about 50-50; 4=pretty likely; 5=it will happen)	Youth; W1	Adapted for NSCAW from Expectations About Employment, Education, and Life Span Section from National Longitudinal Study of Adolescent Health (AddHealth n.d.)
Religiosity	Importance of religion or spirituality; attendance of religious services or engagement in spiritual activities during past year Average of 2 items; 4-point scale (1=never; 2=rarely/occasionally; 3=once or twice/month; 4=once a week or more)	Youth; W1	Longitudinal Studies of Child Abuse and Neglect (Sponsor: National Center on Child Abuse and Neglect, DHHS); items from Resiliency Scale (Runyan et al. 1998); adapted for NSCAW
Caregiver Monitoring	Extent to which caregiver has ever monitored the child's activities Average of 6 items; 5-point scale (1=never; 2=almost never; 3=once in a while; 4=pretty often; 5=very often)	Youth; W1	UNOCCAP: Use, Need, Outcomes, and Costs in Child and Adolescent Populations (Sponsor: NIMH, 1996-1999). Nationwide household survey; parental monitoring measure adapted for NSCAW
Closeness to Caregiver(s)	Degree of supportive relationships between child and parents or other significant adults. Average of 12 items; 4-point scale (1=not at all true; 2=not very true; 3=sort of true; 4=very true)	Youth; W1	National Longitudinal Study of Adolescent Health (AddHealth n.d.)

Table 2
Prevalence of Wave 4 Sexual Risk Behaviors by Wave 1 Risk and Protective Factors

	Full Study Sample (n=877)		Sexually Active Sample (n=417)			All Girls (n=500)		TOTAL (n=877)		
	Had consensual sexual intercourse (lifetime)		Age at 1 st intercourse (consensual)		Use of protection during consensual sex		Ever gotten pregnant as a result of consensual sex			
	Yes	No	<=13	>13	Never/Sometimes	Always/Often	Yes		No	
<u>Youth Sociodemographic Factors (W1)</u>										
Age	****									
11	18.3	81.7	57.6	42.4	35.6	64.4	***	0	100	23.6
12	40.8	59.2	46.1	53.9	30.7	69.3		7.1	92.9	22.2
13	52.4	47.6	28.8	71.2	36.7	63.3		30.5	69.5	25.3
14	83.6	16.4	42.0	58.0	22.7	77.3		34.1	65.9	21.2
15+	78.6	21.4	41.3	58.7	42.8	57.2		37.3	62.7	7.7
Gender										
Male	49.9	50.1	48.1	51.9	32.2	68.0		NA	100.0	45.8
Female	50.8	49.2	34.2	65.8	30.7	69.3		20.0	80.0	54.2
Race/Ethnicity					**			**		
African American	50.6	49.4	50.6	49.4	17.5	82.5		10.9	89.1	27.9
Caucasian	52.0	48.0	35.6	64.4	27.8	72.2		19.0	81.0	52.1
Hispanic	47.9	52.1	46.1	53.9	64.7	35.3		41.5	58.5	13.3
Other	41.2	58.8	27.4	72.6	60.4	39.6		12.5	87.5	6.7
<u>Placement History (W1,3,4)</u>										
Ever in Out-of-Home Care										
Yes	58.5	41.5	52.3	47.7	30.8	69.2		25.9	74.1	23.1
No	47.9	52.1	36.2	63.8	31.5	68.5		18.2	81.8	76.9
<u>Case-Status Related Risk Factors (W1)</u>										
Primary abuse										
Physical abuse	50.1	49.9	53.9	46.1	45.2	54.8		15.9	84.1	32.0
Sexual abuse	67.8	32.2	25.3	74.7	17.1	82.9		36.1	63.9	11.2
Neglect	48.8	51.2	35.3	64.7	28.5	71.5		11.2	88.8	42.3

	Full Study Sample (n=877)		Sexually Active Sample (n=417)			All Girls (n=500)		
	Yes	No	Age at 1 st intercourse (consensual)	>13	Never/Sometimes	Always/Often	Ever gotten pregnant as a result of consensual sex	
Other	40.9	59.1	42.4	57.6	24.6	75.4	20.4	
Risk Assessment (Range .05-1.06)							**	
Mean	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
<i>Psychosocial Risk Factors (WJ)</i>								
Behavior Problems	*							
>=64	57.8	42.2	46.4	53.6	35.2	64.8	23.3	76.7
<64	41.1	58.9	30.9	69.1	26.0	74.0	12.4	87.6
Gate Drug	**				*		†	
Yes	77.0	23.0	36.4	63.6	40.8	59.2	39.5	60.5
No	41.4	58.6	43.8	56.2	24.5	75.5	11.5	88.5
Hard Drug Use	**		**					
Yes	69.7	30.3	58.9	41.1	41.8	58.2	25.5	74.5
No	47.8	52.2	36.4	63.6	28.9	71.1	17.8	82.2
Delinquency	***		**				**	
Mean	10.6	1.2	17.4	5.9	13.4	9.3	11.7	2.1
SE	2.8	0.3	6.2	1.4	3.9	3.6	2.8	0.4
Deviant Peers	***						*	
Yes	63.9	36.1	42.9	57.1	33.8	66.9	28.1	71.9
No	27.6	72.4	31.5	68.5	24.2	75.8	8.8	91.2
Abusive Caregiver Behavior	*							
Mean	11.6	5.3	13.2	10.5	13.8	10.6	15.5	7.6
SE	1.9	0.8	2.3	2.4	2.7	2.2	2.8	1.5
Caregiver Education							†	
Less than HS	53.4	46.6	27.6	72.4	23.0	77.0	27.9	72.1
HS or Equivalency	48.5	51.5	45.7	54.3	33.7	66.3	16.0	84.0
More than HS	47.9	52.1	44.7	55.3	36.3	63.7	13.4	86.6
TOTAL (n=877)								

	Full Study Sample (n=877)		Sexually Active Sample (n=417)			All Girls (n=500)	
	Had consensual sexual intercourse (lifetime)	Age at 1 st intercourse (consensual)	>13	Never/Sometimes	Always/Often	Ever gotten pregnant as a result of consensual sex	TOTAL (n=877)
	Yes	No	<=13			Yes	No
<i>Protective Factors (WL)</i>							
School Engagement (1-4)	**		*				
Mean	2.9	3.1	2.8	2.9	2.9	3.0	3.1
SE	0.1	0.0	0.1	0.1	0.1	0.1	0.0
Future Expectations (1-5)			*				
Mean	4.0	4.0	3.9	3.9	4.0	3.9	4.1
SE	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Religiosity (1-4)				**			
Mean	3.1	3.2	3.1	2.8	3.2	3.3	3.2
SE	0.1	0.1	0.1	0.2	0.1	0.1	0.1
Caregiver Monitoring (1-5)	***						
Mean	3.9	4.2	3.8	3.8	3.9	4.1	4.2
SE	0.1	0.0	0.1	0.1	0.1	0.2	0.1
Caregiver Connectedness (1-4)				**			
Mean	3.3	3.4	3.1	3.0	3.4	3.2	3.3
SE	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Sexual Risk Behaviors	50.4	49.6	40.5	31.8	68.2	20.0	80.0
			59.5				100

Note. --- All figures represent weighted percentages

* p<.05

** p<.01

*** p<.001

**** p<.0001

† p=.05

Table 3
Multivariate Logistic Regression Models for Wave 4 Sexual Risk Behaviors by Wave 1 Risk and Protective Factors

	Full Study Sample		Sexually Active Sample		All Girls	
	Had consensual sexual intercourse (lifetime) ^a Ref=no OR (CI)	Age at 1 st Intercourse (consensual) Ref>13 OR (CI)	Use of Protection During Consensual Sex Ref=always/often OR (CI)	Pregnancy Among Girls Ref=no OR (CI)		
Age	2.17 (1.60, 2.94) ***	N/A	1.04 (0.60, 1.80)	4.37 (2.09, 9.14) ***		
Gender/Female	0.81 (0.39, 1.69)	2.89 (0.69, 12.17)	1.44 (0.59, 3.50)	N/A		
Race/white			*	****		
Hispanic	1.48 (0.69, 3.17)	2.31 (0.53, 10.14)	5.70 (1.66, 19.60)	11.14 (3.35, 37.12)		
Black	1.14 (0.58, 2.25)	2.27 (1.01, 5.09)	0.67 (0.24, 1.86)	0.09 (0.01, 0.66)		
Other	0.49 (0.14, 1.72)	1.68 (0.34, 8.33)	2.48 (0.50, 12.23)	0.09 (0.00, 3.03)		
Placement History/IH	0.92 (0.40, 2.10)	1.37 (0.49, 3.85)	1.22 (0.47, 3.17)	1.97 (0.41, 9.45)		
Primary Maltreatment				‡		
Type/other						
Sexual Abuse	1.50 (0.46, 4.90)	1.20 (0.18, 7.88)	1.31 (0.23, 7.36)	0.22 (0.03, 1.40)		
Physical Abuse	0.56 (0.22, 1.42)	2.22 (0.42, 11.63)	2.24 (0.51, 9.86)	0.14 (0.03, 0.64)		
Neglect/Abandonment	0.86 (0.33, 2.26)	1.19 (0.29, 4.82)	1.38 (0.35, 5.46)	0.10 (0.01, 0.86)		
Risk Assessment	1.18 (0.83–1.68)	1.38 (0.75–1.91)	0.95 (0.56–1.59)	0.85 (0.30–1.14)		
Behavior Problems/<64	0.94 (0.40, 2.18)	2.63 (0.99, 6.98) ‡	1.13 (0.42, 3.09)	1.25 (0.28, 5.51)		
Use of Hard Drugs	1.56 (0.47, 5.13)	1.10 (0.32, 3.76)	2.28 (0.61, 8.47)	0.71 (0.12, 4.28)		
Delinquency	1.08 (1.03, 1.14) **	1.02 (0.99, 1.05)	0.99 (0.96, 1.02)	1.08 (0.99, 1.18) ‡		
Deviant Peers	3.30 (1.45, 7.50) **	1.37 (0.39, 4.76)	1.23 (0.40, 3.79)	7.43 (2.27, 24.30) **		
Caregiver Abuse	1.01 (0.99, 1.03)	0.99 (0.98, 1.01)	1.01 (0.99, 1.03)	1.01 (0.98, 1.03)		
Caregiver Education/<HS				*		
HS Diploma/Equivalent	0.80 (0.39, 1.63)	1.17 (0.39, 3.48)	1.57 (0.46, 5.39)	0.15 (0.03, 0.84)		
Some College	1.05 (0.50, 2.23)	1.66 (0.51, 5.42)	0.94 (0.28, 3.14)	0.12 (0.02, 0.87)		
School Engagement	0.79 (0.34, 1.85)	0.65 (0.21, 2.04)	1.29 (0.56, 2.93)	1.24 (0.34, 4.55)		
Future Expectations	1.88 (1.07, 3.33) *	0.77 (0.36, 1.65)	1.51 (0.56, 4.06)	0.61 (0.22, 1.71)		
Religiosity	0.95 (0.60, 1.51)	0.91 (0.43, 1.92)	0.44 (0.23, 0.84) *	1.68 (0.78, 3.65)		
Caregiver Monitoring	0.58 (0.34, 0.99) *	1.01 (0.58, 1.73)	1.44 (0.76, 2.73)	1.07 (0.45, 2.52)		

	Full Study Sample		Sexually Active Sample		All Girls
	Had consensual sexual intercourse (lifetime) ^d Ref=no OR (CI)	Age at 1 st Intercourse (consensual) Ref >13 OR (CI)	Use of Protection During Consensual Sex Ref=always/often OR (CI)	Pregnancy Among Girls Ref=no OR (CI)	
Caregiver Connectedness	1.47 (0.74, 2.90)	0.57 (0.22, 1.44)	0.32 (0.14, 0.73)**	0.84 (0.23, 3.12)	

Note:-

^a based on n=700;

^{b,c} based on n=320;

^d based on n=401

* p<.05;

** p<.01;

*** p<.001;

**** p<.0000

[†] approaching significance (.05 <p<.08)