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Does Child Abuse Predict Adolescent Pregnancy?

Kevin Fiscella, MD, MPH*; Harriet J. Kitzman, PhD‡; Robert E. Cole, PhD§; Kimberly J. Sidora, MPH‡; and David Olds, PhD||

ABSTRACT. *Objective.* To determine whether sexual and nonsexual childhood abuse are risk factors for early adolescent sexual activity and pregnancy.

Design. Cross-sectional study.

Setting. Prenatal clinic within an inner-city teaching hospital from June 1990 to August 1991.

Population. One thousand twenty-six primiparous, African-American women enrolled in a randomized clinical trial of nurse home visitation.

Main Outcome Measures. Four measures of child abuse were used: sexual abuse, incidents of physical abuse, any major physical abuse, and emotional abuse. The outcome measures were age of first consensual coitus and age of first pregnancy.

Results. After adjustments for household income, parental separation, urban residence, age of menarche, and teen smoking, sexual abuse during childhood was associated with younger age at first coitus (7.2 months; 95% confidence interval [CI], 2.6 to 11.7 months) and younger age at first pregnancy (9.7 months; 95% CI, 3.0 to 16.3 months). Incidents of physical abuse showed minimal effect on age at first coitus (1.2 days per incident; 95% CI, 0.5 to 1.9 days) and no effect on age of first pregnancy. A history of major physical abuse or emotional abuse showed no effect on age of first coitus or first pregnancy.

Conclusion. Child sexual abuse, but not child physical or emotional abuse, seems to be a risk factor for earlier pregnancy among African-American adolescents. *Pediatrics* 1998;101:620–624; *child abuse, sexual abuse, adolescent pregnancy, sexual activity.*

ABBREVIATIONS. PARQ II, Parental Acceptance-Rejection Questionnaire II; CI, confidence interval.

There is conflicting evidence regarding the impact of child sexual abuse on early sexual activity and adolescent pregnancy. Although several studies have reported large effects,^{1–4} others have shown limited effects.^{5–7} These conflicting findings are probably attributable to differences in study population, study design, and control for confounding. Early sexual activity and adolescent pregnancy are influenced by multiple risk factors including poverty, race, community, and family characteris-

tics.^{8–10} Studies of abuse must control for such potential confounders to tease out the independent effect of sexual abuse.

Although child sexual abuse has attracted considerable attention, few studies have examined the role of nonsexual child abuse in early sexual activity and adolescent pregnancy. Based on the commonalities between types of child abuse,^{11,12} nonsexual child abuse might be expected to show similar effects on sexual activity and adolescent pregnancy. Specifically, child abuse often involves perceived parental rejection or psychological abuse.¹³ Perceived parental rejection may promote low self esteem, adolescent acting out, and over-identification with deviant peer cultures.^{14,15} Parental rejection has been linked to problem behaviors including poor academic performance,¹⁶ physical aggression, crime,¹⁷ delinquency,¹⁸ and substance abuse.¹⁹ These problem behaviors have, in turn, been linked to early sexual activity and/or adolescent pregnancy.^{20–23} In fact, Jessor²⁴ has postulated that substance abuse, delinquent behavior, and sexual activity constitute a “problem behavior syndrome” that is preceded by common psychological, environmental, and behavioral factors.

Nonsexual child abuse and perceived parental rejection may also foster attempts by adolescents to satisfy unfulfilled intimacy needs through early sexual relationships and premature pregnancy. This hypothesis, termed love-for-sex substitution, is supported by a study on the intergenerational transmission of adolescent parenthood. The authors concluded “that emotional deprivation, particularly at an early age, may predispose adolescents to seek emotional closeness through sexual activity and early parenthood.”⁹

Nonsexual child abuse shares common demographic and family risk factors with adolescent pregnancy. These multiple risk factors include low socioeconomic status,^{10,25} having adolescent parents,^{26,27} growing up in single parent homes,^{28,29} coming from a larger family,¹⁰ and low family strength and concern.^{20,29–31} Although these risk factors may confound the relationship between child abuse and adolescent pregnancy, it is also conceivable that child abuse may partly mediate the relationship between these risk factors and adolescent pregnancy.

Although sexual and nonsexual child abuse may share many common characteristics, sexual abuse may have unique effects on sexual functioning.^{32,33} Finkelhor³⁴ has suggested that child sexual abuse possesses a distinct set of traumatogenic dynamics including traumatic sexualization, betrayal, stigma-

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tization, and powerlessness. Consequently, sexual and nonsexual child abuse may have different effects on sexual activity and rates of adolescent pregnancy.

We examined the effect of child sexual abuse, child physical abuse, and child emotional abuse on age of first sexual intercourse and age of first pregnancy. We used a sample of young, pregnant, African-American women from the Memphis New Mothers Study for this analysis.

PATIENTS AND METHODS

Design

This cross-sectional study was part of a randomized controlled trial of nurse home visitation on birth outcomes, child development, and child health.

Population and Sample

The population sampled for this study consisted of low-income primiparous African-American women who were residents of the Memphis area and who registered for prenatal care at the Regional Medical Care (the Med). Eighty-five percent of all low-income women in Memphis obtained prenatal care at the Med and its satellite clinics during the study period. During the recruitment phase of the study (June 1, 1990 through August 31, 1991), 7706 women registered for prenatal care and were screened for eligibility. To be eligible to participate in the trial, the women must have been less than 29 weeks pregnant, have had no previous live births, no chronic illnesses associated with fetal growth retardation or preterm delivery, no previous stillbirths, no more than two spontaneous or therapeutic abortions, and at least two of the following sociodemographic characteristics: 1) unmarried, 2) less than 12 years education, 3) unemployed.

One thousand two hundred ninety women screened met the eligibility criteria and were invited to participate. Of these, 1139 women were enrolled and randomized yielding an acceptance rate of 88%. Compared with women who declined enrollment, those who agreed to participate were more likely to be African American (89 vs 74%; $P < .0001$), younger (average age, 18 vs 19 years; $P < .001$), and non-high school graduates (89 vs 84% high school education; $P < .01$).

Data Collection

Data were collected during the intake interview conducted during registration for the randomized trial. The interviews were completed after informed consent was obtained but before randomization. The data were gathered by well-trained, culturally diverse, female interviewers using structured questionnaires. Women were asked about various types of abuse that occurred during their childhood (defined as the period from age 6 to 12). The original protocol for the randomized trial was approved by the Human Subjects Review Boards of the University of Rochester and by the Regional Medical Center at Memphis.

Independent Variables

Physical abuse was measured using an adaptation of Straus's Conflict Tactics Scale.³⁵ Two scales were used. The first was a dichotomous variable for the self-report of any major abuse such as beating up, throwing objects, kicking, choking, or threatening with knives or guns. The scale showed a statistically significant inverse correlation with current mental health functioning as measured by the Rand Mental Health Inventory ($r = -0.13$; $P < .0001$). The second scale was a continuous variable that assessed the number of physical acts of violence the subject recalled receiving between the ages of 6 and 12 years. The scale demonstrated good internal consistency (Cronbach's α of 0.79) and also correlated inversely with current mental health functioning ($r = -0.12$; $P < .0001$).

Emotional abuse was measured using a composite score derived from the shortened version (30 item) of Rohner's Parental Acceptance-Rejection Questionnaire II (PARQ II).³⁶ The original PARQ II is a 60 item self-report questionnaire with which the subject reflects back to her childhood and assesses the degree of warmth/affection, hostility/aggression, indifference/neglect, and

undifferentiated rejection she experienced from her primary caretaker/parent. The full-length PARQ II reliability and construct validity have been well demonstrated.³⁷ The subscales were measured by a 5-point Likert-type scale ranging from "almost always true" to "almost never true". Questions included: "totally ignored me;" "hit me, even when I did not deserve it;" "punished me severely when he/she was angry;" "was too busy to answer my questions;" "said many unkind things to me;" "went out of (his/her) way to hurt my feelings;" "frightened or threatened me when I did something wrong;" "compared me unfavorably with other children when I misbehaved." The scale showed a Cronbach's α coefficient of 0.65 and correlated inversely with the Rand Mental Health Inventory ($r = -0.16$; $P < .0001$).

Sexual abuse was measured with a dichotomous variable using questions derived from Finkelhor's³⁸ work on sexual abuse. Consistent with previous work, childhood sexual abuse was defined as nonconsensual sexual contact before the age 13. Sexual contact included sexual intercourse, being touched on the genitals or breasts, and being forced to touch the perpetrator's genitals. A dichotomous measure was used (no sexual abuse versus any sexual abuse) because of the potential trauma associated with even a single instance of child sexual abuse. The scale correlated inversely with the Rand Mental Health Inventory ($r = -0.21$; $P < .0001$).

Dependent Variables

Age at first coitus was defined as the age (year and month) that the subject recalled her first consensual sexual intercourse. Age of first pregnancy was based on the date of conception of the first pregnancy. It was calculated based on the age of the subject (years and months) and gestation (months) at the time of the current pregnancy for primigravidas or previous pregnancy for multigravidas.

Covariates

To control for confounding, the following covariates were included in the regression model for age of first coitus: household discretionary income, parental separation, urban residence, and age of menarche. Each of these variables may confound because each has been reported to be associated with early sexual activity and most with child abuse.^{10,25,28,29,39,40} These covariates together with adolescent smoking were included in the regression model for age of first pregnancy.

Family income was measured as the amount of discretionary income available to the family at the time of the intake interview. Although the vast majority of families were poor by federal poverty guidelines, there was considerable variability in the financial resources of the homes in which the women were living. Household discretionary income was estimated using self-reported annual household income, number of persons in the household, and Medicaid eligibility data. An annual minimum subsistence cost per person based on Medicaid eligibility data was calculated. This subsistence cost was then multiplied by the number of persons in the household to obtain a total household annual minimum subsistence cost. Discretionary income was then calculated as the difference between this minimum household subsistence cost and the total reported household income.

Parental separation during childhood was assessed by asking the subject if the parents ever lived apart before her 13th birthday. Urban residence was assessed based on whether the subject had grown up in an urban environment. Age of menarche was assessed based on the subject's recollection of her age in years and months when she first began menstruating. Adolescent smoking was assessed by asking the subject whether she ever smoked and if she smoked at what age she began. Any smoking before the age of 18 was considered adolescent smoking.

Data Analysis

The data were analyzed using SAS.⁴¹ Data were initially analyzed using descriptive statistics including Student's t test for comparison of means involving continuous variables, χ^2 tests for comparisons between categorical variables, and Pearson's correlation coefficients for correlations. Multivariate analyses were performed using linear regression to control for confounders. The 95% confidence intervals (CI) were calculated based on parameter estimates and standard errors.

RESULTS

After excluding 16 women for whom data were incomplete, the study sample was comprised of 1026 young, indigent, primigravid African-American women. The mean age of women in the sample was 17.9 years. Nearly all the women (99%) were unmarried and 85% were below 100% of the federal poverty level. The mean age of first coitus was 15.5 years and the mean age of first pregnancy was 17.3 years. The majority of the women (82%) grew up in the city of Memphis, and 69% reported that their parents were separated before they reached the age of 13. Less than 4% of women in the sample reported smoking during adolescence. More than 12% of the women reported child sexual abuse before the age of 13 and 62% reported at least one incident of physical abuse. This rate of sexual abuse is within the lower range reported in Finkelhor's⁴² review of the literature.

Table 1 summarized the characteristics of women who reported abuse (the 90th percentile scores for emotional abuse were used for purposes of comparison). All types of abuse were associated with statistically significant lower mental health scores. The mean unadjusted age of first coitus was significantly lower in the sexually abused group, 14.9 years versus 15.6 years in the nonabused group. The mean unadjusted ages of first coitus were slightly lower in the physically abused and emotionally abused groups, but these differences were not statistically significant. Similarly, the mean unadjusted age of first pregnancy was significantly lower in the sexually abused group, 16.7 years versus 17.4 years. There was a trend toward lower unadjusted age of first pregnancy among the physically abused and emotionally abused that did not reach statistical significance possibly because of smaller sample sizes in these groups.

Predictors of Age of First Coitus

Only sexual abuse and number of incidents of physical abuse showed statistically significant unadjusted negative correlations with age of first coitus. Major physical abuse and emotional abuse did not significantly correlate with age of first coitus. After adjustment for confounding, sexual abuse and incidents of physical abuse remained significant predictors of age of first coitus (Table 2). Child sexual abuse was associated with initiation of consensual sexual intercourse 7.2 months earlier (95% CI, 2.6 to 11.7

months). Incidents of physical abuse was associated with a trivial effect on age of first coitus that reached marginal statistical significance. Each incident of abuse was associated with a 1.3 day decrement in age of first coitus (95% CI, 0.5 to 2.0 days). Lower household income, younger age at menarche, urban residence, and parental separation also showed statistically significant effects on age of first coitus. The full regression model explained 9% of the variance in age of first coitus.

Predictors of Age of First Pregnancy

Only sexual abuse demonstrated a statistically significant unadjusted correlation with age of first pregnancy (Table 1). After controlling for the effects of teenage smoking, age of menarche, household income, single parent household, and urban upbringing, child sexual abuse remained a statistically significant predictor of age of first pregnancy (Table 3). Any instance of sexual abuse was associated with significantly younger age at first pregnancy (9.7 months; 95% CI, 3.1 to 16.3 months). The full regression model explained 9% of the variance in age of first pregnancy. Of this, child sexual abuse explained roughly 1%. Substitution of a dichotomous variable for the continuous physical abuse variable did not alter the finding of no relationship between physical abuse and age of pregnancy. Other significant predictors of earlier pregnancy included younger age at menarche, lower family income, urban residence, and parental separation. Smoking during adolescence was associated with older age at first pregnancy. Smoking has been reported in numerous studies to be associated with reductions in rate of pregnancy.⁴³⁻⁴⁹

DISCUSSION

Among this sample of young, pregnant, primiparous, African-American women who were unmarried and largely unemployed and who registered for prenatal care, those women who were sexually abused during childhood reported consensual intercourse 7 months earlier and became pregnant nearly 10 months earlier than did women who did not report sexual abuse.

The findings from this study have important theoretical and clinical implications. First, the findings suggest that different forms of child abuse are associated with unique effects on adolescent sexual-

TABLE 1. Comparison of Characteristics of Nonabused and Abused Groups

Variable (Units)	No Abuse (n = 831)	Sexual Abuse (n = 126)	Major Physical Abuse (n = 81)	Emotional Abuse* (n = 106)
Age at intake (y)	18.0	17.3†	17.6	17.6
Rand Mental Health Score (points)	3.78	3.34§	3.42§	3.39§
Age of first coitus (y)	15.6	14.9†	15.2	15.5
Age of first pregnancy (y)	17.4	16.7†	16.8	16.9
Age of menarche (y)	12.4	12.7	12.1	12.4
Discretionary income (\$/y)	766	167	-49	-1273†
Teen smoker (yes/no)	3.1%	6.3%†	6.2	4.7%
Parental separation (yes/no)	68%	80%**	69.1%	71.7%
Urban upbringing (yes/no)	82%	79%	82.7%	84.9%

* Based on 90 percentile scores for emotionally abused.

† Based on comparison with the no abuse group $P < .05$; † $P < .01$; § $P < .001$.

TABLE 2. Risk Factors for Age of First Coitus*

Risk Factor	Effect on Age of First Coitus (Months)	95% Confidence Interval (Months)	P Value
Sexual abuse	-7.2	-2.7 to -11.7	.0018
Family income	0.004	0.001 to 0.006	.0004
Incidents of physical abuse	-0.04	0.06 to 0.02	.0005
Parental separation	3.6	1.2 to 6.1	.0035
Urban upbringing	-5.7	-2.0 to -9.4	.0028
Age of menarche	1.5	1.1 to 2.0	.0001

* Based on linear regression model.

TABLE 3. Risk Factors for Age of First Pregnancy*

Risk Factor	Effect on Age of First Pregnancy (Months)	95% Confidence Interval (Months)	P Value
Sexual abuse	-9.7	-3.0 to -16.3	.0018
Family income	0.006	0.001 to 0.008	.0004
Parental separation	7.4	3.8 to 11.1	.0035
Urban upbringing	-6.8	-2.0 to -9.4	.0028
Age of menarche	1.7	1.1 to 2.4	.0001
Teen smoking	36.7	24.0 to 49.4	.0001

* Based on linear regression model.

ity and adolescent pregnancy. Although sexual, physical, and emotional abuse all showed significant associations with lower current mental health functioning, only sexual abuse showed statistically significant and appreciable independent effects on age of first coitus. Incidents of physical abuse showed statistically significant, but very slight effects on age of first coitus. These effects may represent a chance finding. However, only sexual abuse showed independent effects on age of first pregnancy. These findings support Finkelhor's³⁹ contention that sexual abuse possesses unique traumatogenic effects on sexual behavior and suggest that nonsexual forms of abuse are not significant risk factors for adolescent pregnancy in African Americans. Therefore, clinicians should consider a report of child sexual abuse from an adolescent to be a red flag for early sexual activity. Such adolescents should receive appropriate family planning counseling and be referred for mental health counseling to reduce the risk of premature pregnancy.

Second, the findings do not support the hypothesis of love-for-sex substitution; ie, that emotional rejection promotes intimacy through earlier sexual relationships and premature parenthood. The measure of emotional abuse used in this study, based on the PARQ II, showed no adjusted or unadjusted effects on age of first coitus or age of first pregnancy. Although it is possible that an alternative measure of emotional abuse might have shown different results, the PARQ II is an internationally validated measure of hostile rejection that showed appropriate correlation with mental health functioning in this population. Thus, the supposition that adolescents, at least African Americans, seek solace in early sexual activity and pregnancy may be more myth than reality.

Third, although child sexual abuse showed statistically significant effects on age of first pregnancy,

other variables including household income, parental separation, age of menarche, and teenage smoking also showed strong effects. In fact, sexual abuse was reported by only 12% of the women and only explained a small portion of the variance in age of first pregnancy. These findings differ from those reported by Butler and Burton³ from a predominately white rural population where child sexual abuse seemed to explain a large portion of the variance in adolescent pregnancy. Thus, programs designed to reduce adolescent pregnancy rates in the African-American community cannot focus only on sexual abuse. Pregnancy prevention probably requires a multilevel intervention including extensive family and community involvement to be successful.⁵⁰

These findings differ in some ways from those based on recently published prospective data of the effect of child abuse on future sexual behavior and adolescent pregnancy. Specifically, substantiated incidents of child sexual abuse and neglect, but not child physical abuse predicted future prostitution.⁶ However, neither sexual abuse, neglect, or physical abuse predicted adolescent pregnancy. Differences in the findings from this study may reflect differences in study populations, measures of abuse, recall bias, or control for smoking. Nonetheless, the failure of either study to find a statistically significant relationship between nonsexual abuse and adolescent pregnancy, strongly suggest that such kinds of abuse are not strongly related to risk of adolescent pregnancy.

This study is subject to several important limitations including selection bias and recall bias. Findings from this highly selected sample of pregnant, indigent, African-American women cannot be generalized to women who do not become pregnant or to women of different socioeconomic status or ethnicity. Because the sample was limited to pregnant women, the findings cannot exclude the possibility that a subset of sexually abused women may avoid sexual intercourse and as a consequence never become pregnant. Such a possibility is best evaluated using prospectively collected data.

Furthermore, because risk factors for early sexual activity and adolescent pregnancy may differ according to ethnicity, these findings may not be applicable to non-black ethnic groups. Specifically, adolescent pregnancy may involve less stigmatization among blacks than among whites⁵¹ and early sexual activity may not cluster with deviant behavior including drug abuse and delinquency as it does among white youth.^{52,53} Similarly, the findings cannot be generalized to black women who are married or of higher socioeconomic status. The question of whether emotional rejection and physical abuse are risk factors for adolescent pregnancy among other groups of women requires further study.

The study is also limited by the biases inherent in self-reports of childhood abuse. Self-reports of childhood events, especially abuse, are potentially subject to recall bias. Pregnant women, in particular, may prefer not to recall painful events that occurred during their own childhoods. Nevertheless, there is no a priori reason to postulate a selective recall bias among women who experienced earlier coitus or

earlier pregnancy. Consequently, recall bias seems to be an unlikely explanation for these findings.

In summary, in this population of indigent, pregnant, African-American women, a self-report of child sexual abuse, but not nonsexual child abuse, predicted significantly younger age at first pregnancy. These findings suggest the need for a prospective study of the effects of abuse on adolescent pregnancy involving women from differing ethnic and socioeconomic groups.

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Kevin Fiscella, Harriet J. Kitzman, Robert E. Cole, Kimberly J. Sidora and David Olds

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