Childhood Abuse and Neglect and the Risk of STDs In Early Adulthood

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CONTEXT: *Given the threat posed by STDs in young adulthood, identifying early predictors of STD risk is a priority. Exposure to childhood maltreatment has been linked to sexual risk behaviors, but its association with STDs is unclear.*

METHODS: *Associations between maltreatment by parents or other adult caregivers during childhood and adolescence and STD outcomes in young adulthood were examined using data on 8,922 respondents to Waves 1, 3 and 4 of the National Longitudinal Study of Adolescent Health. Four types of maltreatment (sexual abuse, physical abuse, supervision neglect and physical neglect) and two STD outcomes (self-reported recent and test-identified current STD) were assessed. Multivariate logistic regression analyses, stratified by sex, tested for moderators and mediators.*

RESULTS: *Among females, even after adjustment for socioeconomic and demographic characteristics, self-report of a recent STD was positively associated with sexual abuse (odds ratio, 1.8), physical abuse (1.7), physical neglect (2.1) and supervision neglect (1.6). Additionally, a positive association between physical neglect and having a test-identified STD remained significant after further adjustments for exposure to other types of maltreatment and sexual risk behaviors (1.8). Among males, the only association (observed only in an unadjusted model) was between physical neglect and test-identified STD (1.6).*

CONCLUSIONS: *Young women who experienced physical neglect as children are at increased risk of test-identified STDs in young adulthood, and exposure to any type of maltreatment is associated with an elevated likelihood of self-reported STDs. Further research is needed to understand the behavioral mechanisms and sexual network characteristics that underlie these associations.*

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Approximately 19 million STD diagnoses are made each year in the United States,[1] and the public health burden they impose is staggering. STDs are implicated in a range of serious health outcomes, including pelvic inflammatory disease,[2] infertility[3] and increased risk of HIV transmission.[4] Adolescents and young adults are particularly vulnerable to STDs and their sequelae; nearly half of all new infections occur among 15–24-year-olds.[1] Accordingly, identifying childhood factors that predict STD risk in adolescence and early adulthood is a priority.

One prevalent and important potential predictor of STD risk is childhood maltreatment by parents and other adult caregivers. Each year, at least 1–4% of all U.S. children are victims of maltreatment,[5,6] and this experience has been associated with a number of adverse sexual health outcomes in adolescence and early adulthood, including sexual victimization, inconsistent contraceptive use, prostitution and multiple sexual partners.[7–13]

Despite this apparent association, however, evidence linking maltreatment to future STD risk is equivocal at best and characterized by a number of key gaps and limitations. First, because many findings come from clinical samples[8,14] or other special populations (e.g., homeless or detained youth),[15] their generalizability to the broader population is uncertain.[16] Further hampering efforts to compare findings, the measurement of past and current STD status has been inconsistent across studies. Third, some studies may have overestimated the strength of the relationship between maltreatment and STD risk by reporting only bivariate associations[17,18] or adjusting for a limited set of potential socioeconomic confounders.[19] Fourth, despite evidence that the predictors of STD may differ by sex[20] and race or ethnicity,[21] few studies have evaluated these characteristics as potential moderators of the association between maltreatment and STD risk. Finally, although neglect accounts for more than half of all cases of maltreatment,[5,6] it is rarely examined in relation to STD risk. In analyses of one of the few prospective data sets to include information on experiences of neglect and subsequent STD risk, Wilson and Widom found no association between childhood neglect and increased risk of self-reported lifetime diagnoses of herpes, syphilis, human papillomavirus, gonorrhea or chlamydia by middle adulthood.[22] The prevalence of test-identified HIV infection appeared to be approximately twice as high among individuals with a history of neglect as among those with no history of maltreatment, but the difference did not reach statistical significance (perhaps partly because HIV prevalence in the sample was low).[11] As a result of these limitations, our understanding of the association between

maltreatment and STD risk is derived largely from studies based on select samples and focused exclusively on childhood sexual abuse.[7,8,14,15,18,23–27]

In this article, we address these gaps and limitations in the following ways. We study the link between maltreatment by a parent or other adult caregiver during childhood and STD risk in early adulthood using a national probability sample to obtain population-level estimates, and we model both self-reported and test-identified measures of STD status. Our analysis adjusts for an expanded set of possible confounders and evaluates potential moderators and mediators of the relationship between maltreatment and STD risk. Lastly, we evaluate childhood and adolescent exposure to four major types of maltreatment—including two forms of neglect—to estimate their individual and shared association with STD risk.

METHODS

Sample

We used data from the National Longitudinal Study of Adolescent Health (Add Health), a prospective cohort study of a national probability sample of U.S. adolescents in grades 7–12 in 1994–1995. To construct the original Add Health sample, researchers selected 80 high schools with unequal probability of selection; for each high school, a feeder middle school was also selected with probability proportional to its contribution to the high school student population. All students from participating schools who were present on the day of survey administration were eligible to complete an in-school questionnaire; 20,745 respondents were selected to complete a 90-minute Wave 1 in-home interview. Also at Wave 1, 85% of parents of participating adolescents completed a 30-minute in-home interview. Follow-up interviews were conducted in 1996 (Wave 2), 2001–2002 (Wave 3) and 2008 (Wave 4). At each survey, questions on sensitive topics were administered through audio computer-assisted self-interview. A more detailed description of the Add Health study design is available elsewhere.[28]

The analytic sample for our study is based on the 13,034 respondents who were interviewed at Waves 1 (ages 11–19), 3 (ages 18–26) and 4 (ages 24–32); we included only those who had a valid Wave 4 sample weight and had complete data on test-identified and self-reported STD status, maltreatment exposure and all other covariates. Applying these restrictions yielded a final sample of 3,967 males and 4,955 females.

Measures

•***Outcomes.*** Our outcome variables were two indicators of STD status—test-identified current STD and self-reported recent STD. At Wave 3, respondents were asked to provide a specimen of first-stream urine, which was analyzed for the presence of three common sexually transmitted pathogens: *Chlamydia trachomatis, Neisseria gonorrhoeae* and *Trichomonas vaginalis.* Results were coded as 1 if the tests indicated the presence of one or more STDs, 0 if they indicated none or missing if data on any STD test were missing. In the Wave 3 in-home survey, respondents reported whether in the past 12 months they had been told by a doctor or nurse that they had any of these same STDs. The coding scheme for this variable was the same as that for the STD test variable.

•***Childhood maltreatment.*** Add Health assessed exposure to childhood maltreatment by parents or other adult caregivers retrospectively at Wave 3 and Wave 4, using modified items from prior surveys;[29,30] the maltreatment prevalence obtained from Add Health data are similar to levels seen in other national surveys.[31]

To determine exposure to two kinds of neglect during childhood (supervision and physical), we used items from Wave 3. (Add Health did not assess neglect during adolescence because of the difficulty of defining this type of maltreatment in an adolescent population.) The following statement preceded these items: "The next set of questions is about your parents or other adults who took care of you before you were in sixth grade. How often had each of the following things happened by the time you started sixth grade?" The item on supervision neglect asked how often respondents' parents or other adult caregivers had "left you home alone when an adult should have been with you." The question on physical neglect was how often parents or other adult caregivers had "not taken care of your basic needs, such as keeping you clean or providing food or clothing."

At Wave 4, respondents reported exposure to physical and sexual abuse by parents or other adult caregivers prior to age 18. The item measuring physical abuse was "How often did a parent or adult caregiver hit you with a fist, kick you, or throw you down on the floor, into a wall, or down stairs?" The question assessing contact sexual abuse was "How often did a parent or other adult caregiver touch you in a sexual way, force you to touch him or her in a sexual way or force you to have sexual relations?"

Consistent with prior research,[32,33] we dichotomized responses to each maltreatment question; responses were coded 1 if the specific type of maltreatment had happened at least once and 0 if it had never happened.

•***Sexual risk behavior.*** We examined three measures of sexual risk behavior as potential mediators of the relationship between maltreatment and STD status: number of sexual partners in the past 12 months (zero, one, 2–3, or four or more), consistency of condom use in the past 12 months (none of the time, sometimes or all of the time) and age at sexual debut (before 16, 16–18 or after age 18). We coded sexually inexperienced respondents as having had no sexual partners in the past 12 months and as having used condoms all of the time, since these categories represent the lowest level of behavioral risk. To ensure that maltreatment exposure preceded risky sexual behaviors, we drew sexual risk behavior measures from Wave 3.

•***Socioeconomic and demographic characteristics.*** A number of socioeconomic and demographic characteristics, measured at Wave 1, were included as controls. Using household roster information, we classified family

TABLE 1. Percentage distribution of a sample of respondents to Waves 1, 3 and 4 of the National Longitudinal Study of Adolescent Health, by selected characteristics, according to sex

Characteristic	All (N=8,922)	Females (N=4,955)	Males (N=3,967)
Test-identified current STD*			
Yes	6.0	6.9	5.1
No	94.0	93.1	94.9
Self-reported STD diagnosis in past 12 months**			
Yes	3.9	5.3	2.4
No	96.1	94.7	97.6
Supervision neglect by sixth grade**			
Any	40.3	38.1	42.8
None	59.7	61.9	57.2
Physical neglect by sixth grade**			
Any	11.4	8.4	14.8
None	88.6	91.6	85.2
Sexual abuse by age 18**			
Any	4.7	7.0	2.1
None	95.3	93.0	97.9
Physical abuse by age 18			
Any	16.9	16.9	17.0
None	83.1	83.1	83.0
Family structure			
Two biological parents	57.7	56.3	59.2
Other two-parent	15.7	16.1	15.4
Single mother	19.0	20.0	18.0
Single father	2.7	2.5	2.9
Other	4.9	5.2	4.5
Parent education			
<high school	11.0	11.5	10.3
High school/GED	29.7	29.5	29.9
Some postsecondary	20.7	21.5	19.9
College graduate	33.7	32.7	34.7
Missing	5.0	4.8	5.1
Race/ethnicity**			
White	68.1	68.4	67.8
Black	14.2	15.1	13.2
Hispanic	9.7	9.0	10.5
Multiracial	3.7	4.0	3.4
Other	4.2	3.5	5.1
Family income			
>$15,000	66.9	66.7	67.1
≤$15,000	12.5	12.4	12.7
Missing	20.6	21.0	20.2
Total	100.0	100.0	100.0

*p<.05. **p<.01. *Notes:* Wave 1 was conducted in 1994–1995 (when respondents were 11–19 years old), Wave 3 in 2001–2002 and Wave 4 in 2008. Percentages are weighted to yield national probability estimates for youth in grades 7–12 in 1994–1995. STD measures, supervision neglect and physical neglect were assessed at Wave 3. Sexual and physical abuse were assessed at Wave 4. All other variables were measured at Wave 1.

structure as two biological parents, other two-parent family (e.g., stepfamily), single mother, single father or any other. We used respondents' self-identified race and Hispanic ethnicity to derive a measure of race and ethnicity consisting of five mutually exclusive categories: Hispanic of any race, non-Hispanic black, non-Hispanic white, non-Hispanic multiracial and non-Hispanic other. Respondents' report of the highest educational level attained by each resident parent consisted of a five-category variable, coded as less than high school; high school diploma or GED, some postsecondary (i.e., college or business, trade or vocational education), college graduate or missing. For households in which both parents were present, the higher educational level was used. We dichotomized family income to reflect poverty cutoffs in 1994; respondents with incomes of $15,000 or less, as reported by parents, were classified as poor, and those with incomes above $15,000 were classified as nonpoor.

Analysis

We first conducted bivariate analyses to examine sex differences in all independent, control and outcome measures. We then estimated the association between each type of maltreatment and each outcome variable, using four logistic regression models. Model 1 examines the unadjusted relationship between each type of maltreatment and STD status. Model 2 adds socioeconomic and demographic characteristics. Model 3 includes all four types of abuse, to estimate the independent effect of each type of maltreatment. Model 4 adds sexual risk behaviors, to assess the extent to which they mediate the association between maltreatment and STD status, following the procedure proposed by Baron and Kenny.*[34] We used interaction terms to examine differences by race and ethnicity in the association between maltreatment and STD status, with alpha levels for interactions set at .10. In preliminary analyses, interactions between chronological age and maltreatment history were largely nonsignificant and not easily interpretable; we therefore omitted these results from our final models.

Analyses were conducted in STATA/SE, version 9.0, and employed survey commands to adjust for Add Health's complex survey design. Sampling weights were applied to yield national population estimates. All models were stratified by biological sex.

RESULTS

Sample Characteristics

Overall, 6% of respondents tested positive for at least one STD at Wave 3, and 4% reported having received a diagnosis of chlamydia, gonorrhea or trichomoniasis in the last 12 months (Table 1). Females were more likely than males both to have a test-identified STD (7% vs. 5%) and to say that they had had a recent diagnosis (5% vs. 2%). Consistent with estimates from other national data sources,[29,30] exposure to childhood and adolescent maltreatment was common in this cohort. Some 40% of respondents reported having experienced supervision neglect prior to sixth grade, and 11% physical neglect; both kinds of neglect were more common among males

*Under this approach, the following conditions have to be met for our analyses to establish mediation. First, maltreatment must be associated with sexual risk behavior. Second, both maltreatment and sexual risk behavior must be associated with STD status, and sexual risk behavior must remain significant after adjustment for maltreatment. Finally, the association between maltreatment and STD status must be attenuated after sexual risk behaviors are controlled for.

TABLE 2. Odds ratios (and 95% confidence intervals) from logistic regression analyses assessing the likelihood that respondents reporting specific types of maltreatment during childhood had an STD during young adulthood, by STD outcome, according to sex

Characteristic	Model 1	Model 2	Model 3	Model 4
SELF-REPORTED STD IN PAST 12 MONTHS				
Males				
Sexual abuse by age 18	0.88 (0.24–3.22)	0.80 (0.22–2.88)	0.70 (0.19–2.60)	0.63 (0.13–3.13)
Physical abuse by age 18	1.15 (0.59–2.27)	1.16 (0.58–2.33)	1.15 (0.57–2.32)	1.00 (0.48–2.06)
Supervision neglect by sixth grade	1.32 (0.81–2.14)	1.36 (0.84–2.20)	1.33 (0.81–2.20)	1.11 (0.67–1.83)
Physical neglect by sixth grade	1.45 (0.81–2.61)	1.21 (0.62–2.36)	1.07 (0.54–2.12)	0.88 (0.41–1.86)
Females				
Sexual abuse by age 18	1.84 (1.11–3.03)*	1.77 (1.03–3.04)*	1.42 (0.79–2.57)	1.33 (0.71–2.50)
Physical abuse by age 18	1.97 (1.29–2.98)**	1.73 (1.16–2.58)**	1.47 (0.94–2.28)†	1.30 (0.84–2.01)
Supervision neglect by sixth grade	1.80 (1.28–2.55)**	1.64 (1.14–2.36)**	1.38 (0.96–1.99)†	1.28 (0.89–1.85)
Physical neglect by sixth grade	2.69 (1.64–4.40)**	2.11 (1.23–3.62)**	1.68 (0.96–2.97)†	1.57 (0.89–2.78)
TEST-IDENTIFIED CURRENT STD				
Males				
Sexual abuse by age 18	1.96 (0.75–5.13)	1.44 (0.59–3.52)	1.50 (0.61–3.70)	1.30 (0.51–3.29)
Physical abuse by age 18	0.92 (0.59–1.44)	0.83 (0.53–1.30)	0.77 (0.50–1.19)	0.76 (0.50–1.16)
Supervision neglect by sixth grade	1.37 (0.94–2.01)	1.28 (0.88–1.87)	1.27 (0.86–1.89)	1.24 (0.85–1.81)
Physical neglect by sixth grade	1.60 (1.03–2.49)*	1.18 (0.76–1.84)	1.06 (0.67–1.70)	1.03 (0.65–1.64)
Females				
Sexual abuse by age 18	1.14 (0.66–1.95)	1.12 (0.64–1.94)	1.04 (0.59–1.85)	1.06 (0.61–1.86)
Physical abuse by age 18	1.15 (0.80–1.66)	1.02 (0.70–1.50)	1.02 (0.80–1.29)	0.99 (0.67–1.46)
Supervision neglect by sixth grade	1.10 (0.81–1.48)	1.01 (0.75–1.35)	0.92 (0.67–1.27)	0.90 (0.65–1.23)
Physical neglect by sixth grade	2.10 (1.42–3.11)**	1.67 (1.13–2.49)*	1.73 (1.12–2.68)*	1.75 (1.14–2.70)*

*p<.05. **p<.01. †p<.10. *Notes:* For each row, the reference group is respondents who did not report the specific type of maltreatment. Model 1 is unadjusted and includes only the type of maltreatment being assessed. Model 2 adjusts for family structure, race and ethnicity, age, parent education and poverty status. Model 3 adds controls for the three other maltreatment types. Model 4 adds controls for condom use, sexual debut timing, and number of partners in past 12 months.

than among females (43% vs. 38% for supervision and 15% vs. 8% for physical). Including experiences during both childhood and adolescence, 5% reported sexual abuse, and 17% physical abuse; as in prior research,[29] sexual abuse was more prevalent among females than among males (7% vs. 2%). At Wave 1, the majority of respondents lived with two biological parents (58%), had at least one parent with postsecondary education (54%) and were white (68%); 13% lived in households with reported income of $15,000 or less. On average, respondents were 15.9 years old at Wave 1 (not shown).

STD Status and Child Maltreatment

•***Self-reported recent STD.*** Among males, maltreatment was not associated with respondents' reports of having had an STD in the past year (Table 2). Unadjusted results for females (model 1) showed that each form of maltreatment was associated with increased odds of self-reported recent STD. These associations remained in model 2, which adjusted for socioeconomic and demographic characteristics (odds ratios, 1.8 for sexual abuse by age 18, 1.7 for physical abuse by age 18, 1.6 for supervision neglect before sixth grade and 2.1 for physical neglect before sixth grade). Consistent with well-documented correlations among forms of maltreatment victimization,[5] the associations did not hold after further adjustment to assess each type of maltreatment while controlling for the others (model 3).

•***Test-identified STD.*** A different pattern of results emerged for test-identified current STD status. Among both males and females, physical neglect prior to sixth grade was the only type of maltreatment associated with testing positive for an STD. This association was significant for males only in an unadjusted analysis (odds ratio, 1.6 in model 1), but it remained significant for females after adjustment for socioeconomic and demographic characteristics and exposure to other types of maltreatment (1.7 in both model 2 and model 3).

We found no evidence that increased sexual risk-taking (defined by early sexual debut, inconsistent condom use and multiple sexual partners) accounted for the elevated risk of current STDs among females in our sample who had experienced physical neglect. These variables showed little association with maltreatment.* When they were included in the analyses, the odds of testing positive for an STD remained significantly elevated among females who reported a history of physical neglect (1.8—model 4).

•***Interactions.*** Further examination of our key finding regarding physical neglect and test-identified STD status among females indicated no significant interactions by race and ethnicity. Associations between maltreatment and self-reported recent STD were also generally similar among nonwhite and white females.

*In preliminary analyses, physical neglect was only marginally associated with involvement in sexual risk behavior: Females who reported childhood physical neglect were marginally more likely to have initiated sexual activity before age 16 than to have done so at ages 16–18, and to report 2–3 sexual partners in the past 12 months rather than only one (not shown).

DISCUSSION

Although childhood maltreatment is associated with a number of adverse health outcomes, its relationship to STD risk is unclear. We found that among females in a nationally representative sample, physical neglect during childhood was associated with almost a doubling of the odds of testing positive for an STD in young adulthood. We also observed that physical neglect, physical abuse, supervision neglect and sexual abuse were associated with elevated odds of self-reported recent STD among females even in analyses with stringent controls for socioeconomic and demographic characteristics. The fact that these associations were rendered nonsignificant after adjustment for a history of other types of maltreatment suggests substantial overlap among maltreatment experiences, but is still consistent with prior research[19,22] showing that maltreatment is associated with elevated subsequent self-reported STD risk.

The pattern of results in our models predicting self-reported STDs—the outcome most commonly used in prior research—differed substantially from the pattern in our models predicting test-identified STDs. A number of factors may explain these discrepancies. Self-reported STD measures significantly underestimate actual prevalence[35,36]—particularly the prevalence of asymptomatic infections.[16] Furthermore, several studies have documented inconsistencies in self-reported measures of sexual health. Most recently, an analysis of the National Survey of Adolescent Males found that more than 90% of respondents who ever reported an STD recanted that report in later waves.[36] Additionally, the test-identified STD measure may capture current infections among asymptomatic individuals who think that their risk of infection is low and are therefore unlikely to seek testing. However, the absence of associations between other forms of maltreatment and test-identified STDs does not support this possibility and is consistent with findings from other studies using test-identified measures.[37] Although the two STD measures used in our analysis are not fully comparable, our findings suggest that the exclusive use of self-reported STD measures—particularly in analyses that do not adequately adjust for socioeconomic characteristics or that use clinic-based or otherwise select samples—may overstate the association between child maltreatment and STD risk.

The association between physical neglect and STD risk in young females is consistent with a growing body of research suggesting that—like physical and sexual abuse—childhood neglect poses a considerable threat to subsequent health, and may even have unique associations with certain outcomes. For example, physical neglect appears to be more strongly predictive of internalizing symptoms (e.g., depression, anxiety and social withdrawal) during childhood than other types of maltreatment.[38,39] Early neglect also disrupts the formation of secure attachments to caregivers and may lead to low expectations of support and nurturance within relationships.[40] Such attachment disturbances may increase the likelihood of involvement with high-risk sexual partners, although we were unable to test this hypothesis with available data. To the extent that neglected individuals do not perceive these encounters as high-risk, they may forgo STD testing; as a result, analyses relying on self-reported measures alone may underestimate STD risk.

We observed notable sex differences in the association between physical neglect and test-identified STD status in young adulthood. After socioeconomic and demographic characteristics were included as controls, a history of childhood physical neglect was associated with elevated odds of a positive STD test result in young adulthood among females, but not among males. Several other studies have reported sex differences in the health-related consequences of maltreatment,[22,41–43] but little information exists on the specific adaptations and developmental pathways that lead to these differences. One possibility is that our findings reflect differences in responses to stressful or traumatic life events. Females are generally more likely to exhibit internalizing, rather than externalizing, symptoms in response to stress,[44,45] and internalizing symptoms have been linked to sexual risk behavior.[46,47] Females' vulnerability to experiencing internalizing symptoms—combined with the association between neglect and internalizing symptoms—may contribute to the sex differences we observed.

Strengths and Limitations

Our study offers a number of methodological improvements over past research. First, we employed a large probability sample that provides national estimates of the association between maltreatment and STD risk. Second, rather than relying exclusively upon self-reports of STD status, we also used a measure based upon results of laboratory tests for three common STDs. Finally, whereas much prior research has limited maltreatment exposure to sexual or physical abuse, we examined four types of maltreatment and, in the case of physical and sexual abuse, included exposure up to age 18. And we provided an estimate of the unique association between each maltreatment type and STD risk that is adjusted for exposure to the other types of maltreatment.

We also acknowledge several limitations regarding the interpretation of these findings. Maltreatment histories were based upon retrospective self-report; respondents may have been reluctant to disclose maltreatment histories or unable to recall them accurately. However, Add Health attempted to minimize underreporting by administering maltreatment questions via computer-assisted self-interviewing technology. While our analyses are strengthened by the inclusion of physical and sexual abuse up to age 18, these exposures were relatively rare; as a result, we could not assess whether the association between abuse and STD status varied by the developmental period during which abuse began or by the frequency of abuse. We also lacked data on the duration of abuse and therefore could not test whether the association between maltreatment and STD risk varied by duration and timing, as some studies have suggested.[38,48] Additionally, the results of our interaction analyses should be interpreted

with caution because data limitations prohibited us from evaluating interactions for less prevalent types of maltreatment and because of heterogeneity in our categories of race and ethnicity (particularly the "other" group).

Data limitations also constrained our choice of sexual risk behaviors. Condom use, age of sexual debut and number of partners in the last 12 months likely capture only a limited number of behavioral patterns that may differ between physically neglected respondents and others, but that likely contribute to increased STD risk in this population; indeed, they were only marginally associated with neglect exposure. Our failure to observe associations between physical neglect and number of sexual partners, in particular, is consistent with prior research suggesting that maltreatment is not positively related to number of partners,[49] and—particularly in the case of sexual abuse—may even result in sexual aversion and avoidance.[9] Given evidence that sexually active victims of child maltreatment report riskier sexual partners than others,[26] information on the characteristics of respondents' sexual networks—and the extent to which they are characterized by STD exposure—may be more useful than data on individual behaviors in explaining the association between neglect and STD status. This possibility is consistent with the sex differences we observed in the association between maltreatment and STD risk. Since women are biologically more vulnerable than men to contracting certain STDs, they may be more likely to become infected if they are involved in a high-risk sexual network.[50]

Conclusions

Our findings add to a large body of research documenting the broad range of negative psychosocial, physical and sexual health outcomes associated with exposure to maltreatment during childhood and adolescence. However, they also highlight the complexity of the relationship between maltreatment and subsequent STD risk with respect to biological sex, self-reported versus test-identified STD measures and type of maltreatment. Our findings focus attention on the understudied effects of physical neglect and underscore the need to consider childhood experiences that may contribute to elevated STD risk later in life. Additional research is needed to identify the behavioral, affective, social and cognitive consequences of childhood maltreatment (particularly with respect to physical neglect) that link this experience to STD acquisition. Better understanding of the mechanisms underlying this association—such as involvement with high-risk sexual partners and exposure to risky sexual networks—will allow health professionals and program planners working with maltreated youth to tailor interventions that will effectively promote sexual and reproductive health in this population.

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