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Childhood maltreatment, emotional distress, and early adolescent sexual intercourse: Multi-informant perspectives on parental monitoring

Sarah E. Oberlander, Ph.D.¹, Yan Wang, M.D., Dr.P.H.¹, Richard Thompson, Ph.D.², Terri Lewis, Ph.D.³, Laura J. Proctor, Ph.D.⁴, Patricia Isbell, Ph.D.⁵, Diana E. English, Ph.D.⁶, Howard Dubowitz, M.S., M.D.¹, Alan J. Litrownik, Ph.D.⁴, and Maureen M. Black, Ph.D.¹

¹University of Maryland School of Medicine, Department of Pediatrics

²Juvenile Protective Association, Chicago

³University of Alabama at Birmingham School of Public Health, Department of Health Behavior

⁴San Diego State University, Department of Psychology

⁵University of North Carolina at Chapel Hill Gillings School of Global Public Health, Department of Maternal and Child Health

⁶University of Washington, School of Social Work, Seattle

Abstract

This prospective investigation used multi-informant models to examine whether parental monitoring moderated associations between child maltreatment and either emotional distress or sexual intercourse. Data included 637 youth in the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN). Child maltreatment was determined by lifetime Child Protective Service records and youth self-report, and included sexual, physical, psychological abuse, and neglect (age 12). The moderating variable was youth- and caregiver-reported parental monitoring (age 12). Outcome variables were emotional distress (age 12) and sexual intercourse (age 14). Analyses included multi- and individual-informant models, adjusting for age, ethnicity/race, family income, and study site. Rates of parental monitoring did not differ by gender, but gender-specific analyses found that among girls, but not boys, youth-reported parental monitoring buffered the effect of maltreatment on emotional distress. Subtype analyses found that the buffering effects of monitoring on emotional distress were strongest for sexual and physical abuse and when youth experienced multiple subtypes of maltreatment. Caregiver-reported monitoring was not associated with reduced emotional distress. Youth and caregiver reports of parental monitoring were inversely associated with sexual intercourse, regardless of maltreatment history. Findings suggest that promoting parental monitoring among caregivers, and perceptions of monitoring among youth, may prevent early sexual intercourse regardless of maltreatment history. Promoting parental monitoring among youth with a history of maltreatment, especially girls or those who have experienced sexual or physical abuse or multiple subtypes of abuse, may reduce the likelihood of emotional distress.

Keywords

child maltreatment; sexual intercourse; parental monitoring; emotional distress

Over the past two decades approximately one-third of 9th graders have initiated sexual intercourse (CDC, 2008). The delay of first intercourse is a national objective in both Healthy People 2010 and 2020 (U.S. Department of Health and Human Services, 2007; 2009). Early sexual intercourse is associated with increased risk for multiple sexual partners, inconsistent use of contraceptives, sexually transmitted infections, and pregnancy (Manlove, Terry, Gitelson, Papillo, & Russell, 2000; Manning, Longmore, & Giordano, 2000; Santelli, Lowry, Brener, & Robin, 2000). Less is known about long-term psychological and health outcomes associated with early initiation of sexual intercourse, but they may include depressive symptoms, low self-esteem, sexual risk behaviors, and sexual dysfunction (Meier, 2007; Sandfort, Orr, Hirsch, & Santelli, 2007). Negative consequences of early sexual intercourse are particularly severe for youth who initiate sexual activity before age 14 (Albert, Brown, & Flanigan, 2003).

A childhood history of maltreatment, including sexual abuse, physical abuse, psychological abuse, and neglect, has been identified as a risk factor for early initiation of sexual intercourse (Black et al., 2009; Putnam, 2003). Black and colleagues found that in families where child maltreatment had occurred, children were more likely to experience heightened emotional distress and subsequently to engage in sexual intercourse by age 14. It is possible that maltreated youth feel disconnected from families that did not protect them and subsequently seek sexual relationships to gain support, seek companionship, or enhance their standing with peers (Black et al., 2009).

Child maltreatment has been associated with symptoms of emotional distress during early adolescence (Lansford et al., 2002; Wolfe, Scott, Wekerle, & Pittman, 2001), especially when the maltreatment involved emotional abuse or neglect. Interpreted from attachment theory, child maltreatment may undermine children's sense of security, giving rise to emotional distress (Shaffer, Yates, & Egeland, 2009).

Along with attachment theory, family systems theory provides a conceptual context for examining the associations among child maltreatment, emotional distress, and the early initiation of sexual intercourse during adolescence (Minuchin, 1988). The primary contributions from family systems theory are the emphasis on interdependent relationships among family members and the rules and boundaries that can influence the homeostasis of the family system. Child maltreatment represents a major breakdown in the boundaries that govern family relationships. As a result, children are not protected and family homeostasis is disrupted, potentially resulting in disturbances to the interactive parent-child subsystems that involve reciprocity, cooperation, and coordination (Stattin & Kerr, 2000). In the absence of strong family attachment and security, children may look outside the family for experiences, connections, and perhaps physical comfort. Although extant research does not fully explain how family processes are related to adolescent problem behaviors, such as the initiation of sexual intercourse (Richards et al., 2004), family systems theory suggests that investigations examine reciprocal family subgroup interactions, including parental monitoring.

Parental monitoring has attracted attention as a potential mechanism for reducing adolescent risk behavior, including the initiation of sexual intercourse. Not only is there evidence that monitoring may attenuate the early initiation of sexual intercourse (Huebner & Howell, 2003; Lohman & Billings, 2008; Longmore, Manning, & Giordano, 2001; Rai et al., 2003; Romer et al., 1999; Wight, Williamson, & Henderson, 2006; Zimmer-Gembeck & Helfand, 2008), but monitoring is also amenable to change (Fisher, 2004). Parental monitoring can reduce the opportunity to engage in sexual risk behavior, limit exposure to high risk peers, and provide parents the time to discuss the benefits of delaying sexual intercourse (Sieverding et al., 2005). From a child's perspective, parental monitoring may signal

concern, care, and affection (Rodgers, 1999). Children who are securely attached to their parents may be less likely to seek attachment to others through early sexual intercourse.

The link between parental monitoring and adolescent mental health is less clear (Fröjd, Kaltiala-Heino, & Rimpelä, 2007; Waizenhofer et al., 2004). Monitoring may “buffer” or alter the course of events for children who are at risk for negative consequences. For example, Pettit and colleagues (2001) found that parental monitoring reduced the likelihood of children’s mental health problems. High parental monitoring has been associated with fewer internalizing problems (Stattin & Kerr, 2000), including anxiety and depressive symptoms (Fröjd et al., 2007; Yu et al., 2006) and less distress (Tolou-Shams, Paikoff, McKirnan, & Holmbeck, 2007).

Research on parental monitoring has sometimes been criticized in that it is often based on a single informant (either children or parents) and when reports from multiple informants are available, they are often analyzed separately. Parents and children often have different perspectives on the same behavior (e.g., Achenbach, McConaughy, & Howell, 1987), and both are likely to be valid (Pettit et al., 2001). From a family systems perspective, monitoring should be assessed from multiple informants and analyzed both together and separately. Parental monitoring is an intersection of parental knowledge and action and children’s willingness to share information, underscoring the importance of collecting data from both parties (Kerr & Stattin, 2000). Multi-informant models offer the benefit of simultaneously including both informants, while controlling for the expected correlation between them.

Little is known about which aspects of parental monitoring predict adolescent outcomes (Stattin & Kerr, 2000), and the subjective nature of monitoring underscores the importance of analyzing informants separately (Pettit et al., 2001). Based on family systems theory, the goal of this investigation is to use both multi- and individual-informant measures of parental monitoring to examine longitudinally how parental monitoring and a childhood history of maltreatment relate to emotional distress at age 12 and the initiation of sexual intercourse by age 14 (Figure 1). We tested four hypotheses: 1) that parental monitoring has a direct, inverse association with emotional distress; 2) that parental monitoring moderates the association between a history of childhood maltreatment and emotional distress; 3) that parental monitoring has a direct, inverse association with the initiation of sexual intercourse; and 4) that parental monitoring moderates the association between a history of childhood maltreatment and the initiation of sexual intercourse.

Two exploratory aims were to examine the specificity of the models across genders and across maltreatment subtypes (sexual, physical, psychological abuse, and neglect). Given research suggesting girls report higher levels of parental monitoring than boys (Rai et al., 2003; Richards et al., 2004), we hypothesized that parental monitoring is a stronger predictor of emotional distress and sexual intercourse for girls compared to boys. In a prior investigation, we found that maltreatment history predicted emotional distress and initiation of sexual intercourse across all maltreatment subtypes (Black et al., 2009). In this study we examined whether parental monitoring moderated the relation between maltreatment subtypes (sexual, physical, psychological abuse, and neglect) and both emotional distress and initiation of sexual intercourse.

Method

Study Overview

The Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) include a coordinating center and five study sites. Participants represented a continuum of maltreatment at

recruitment, ranging from at-risk (i.e., demographic or medical risk factors of maltreatment) to substantiated maltreatment severe enough to warrant placement (Runyan et al., 1998). Sites used common protocols and consent procedures approved by local Institutional Review Boards.

Children were enrolled at age 4 and followed in face-to-face interviews. Starting at age 12, interviews were administered using audio-computer assisted self-interviews, with information presented visually on a screen and aurally over headphones (Black & Ponirakis, 2000). The present study includes data from youth and caregiver interviews conducted at ages 12 and 14, and life-time reviews of Child Protective Services (CPS) records.

Participants

Participants included 637 youth with data on maltreatment, emotional distress, and sexual intercourse (Black et al., 2009). The sample was evenly divided by gender (females 50%), 54% African-American ethnicity/race, with a median family income of \$20,000-\$24,999. Few participants lived with foster parents (4.3%). Retention from age 12 to 14 was 81%. Attrition from age 12 to 14 was not associated with gender, ethnicity/race, or maternal education.

Measures

Independent Variables

Maltreatment History: Although many investigators use CPS reports to define maltreatment, relying exclusively on CPS reports may introduce biases and limit the sample to children with problems severe or chronic enough for referral to CPS (Dodge, Pettit, & Bates, 1997). Conversely, relying exclusively on youth self-report may miss children who have been reported to CPS, especially if the abuse occurred at an early age. Following recommendations from investigators who have examined multiple sources of maltreatment information (Cicchetti & Toth, 2005; Everson et al., 2008), we used both CPS records and youth self-report to determine maltreatment history.

CPS Reports: Maltreatment was assessed via CPS case records, which were abstracted and coded (English & the LONGSCAN Investigators, 1997). Inter-rater reliability (90%) was established prior to field entry and on-going assessment of a random sample of records across sites (Kappas>0.70). Maltreatment was defined as a CPS report by age 12 for physical, sexual, psychological abuse or neglect. Given the absence of differentiation between substantiated and unsubstantiated reports in children's likelihood to experience negative outcomes (Leiter, Myers, & Zingraff, 1994), we used CPS reported cases. Sixty three percent of the sample met criteria for at least one type of CPS-reported maltreatment.

Youth Self-Report of Maltreatment: Project-developed measures of self-reported physical, sexual, and psychological abuse were administered at age 12 to assess lifetime maltreatment (Everson et al., 2008). There is no widely agreed upon cutoff for self-reported neglect, therefore, neglect was measured using CPS reports only. Half (49%) of the sample met criteria for self-reported maltreatment.

Maltreatment was defined by either a CPS report or a youth report (0=None, 1=Any). If either data source was missing and the other indicated no maltreatment, the youth was removed from the analysis. Of youth with a history of any type of maltreatment, 20% were self-report only, 38% CPS only, and 42% both. Maltreatment subtype groups were not mutually exclusive.

Dependent Variables

Sexual Intercourse: Sexual intercourse was measured at age 14 by asking, “Have you ever had sex?” (Knight, Smith, Martin, Lewis, & the LONGSCAN Investigators, 2008). The introduction to this item defines sex as sexual intercourse. Qualitative analysis in other samples indicates that youth interpret this question as indicating vaginal intercourse (Stanton et al., 1995).

Emotional Distress: Emotional distress was measured at age 12 using the Trauma Symptom Checklist for Children (TSC-C; Briere, 1996), a standardized 54-item checklist for children and youth ages 8 to 16. Youth report the frequency for each item on a 4-point scale ranging from 0 (never) to 3 (almost all the time). Raw scores are transformed into gender- and age-specific T-scores. T-scores above 65 are considered clinically significant. The scales have excellent internal consistency, reliability and concurrent validity (Briere & Lanktree, 1995; Evans, Briere, Boggiano, & Barrett, 1994). An emotional distress score was created by averaging T-scores for Anxiety, Depression, PTSD, Anger, and Dissociation; Cronbach’s alpha was 0.93. The Sexual Concerns scale was not included because of its inherent association with sexual intercourse.

Moderating Variable

Parental Monitoring: Parental monitoring is conceptualized as caregivers’ knowledge about children’s whereabouts, activities, and associations (Brown, Mounts, Lamborn, & Steinberg, 1993). At age 12, caregivers and youth were asked the same five questions adapted from items used by Patterson and Stouthamer-Loeber (1984) to assess parental monitoring. Items assessed youth’s perception of caregiver knowledge as well as caregiver knowledge of youth’s friends, activities, whereabouts, and money use (e.g., “How much do your parent(s) (you) really know about where you are (your child is) most afternoons after school?”) Response options were: Don’t know (0), Know a little (1), or Know a lot (2). Responses were averaged, with higher scores indicating more parental monitoring. In the analysis sample of individuals with complete data at 12 and 14, Cronbach’s alphas were somewhat lower for caregivers ($\alpha=0.55$) than for youth ($\alpha=0.66$). All items were retained to ensure consistency. Mean parental monitoring scores were right-skewed for caregivers (mean=1.83, SD=0.23) and youth (mean=1.63, SD=0.38), therefore the variables were recoded into low (0, 1) or high (2). Caregiver and youth reports of parental monitoring were significantly correlated ($r=.10$, $p=.01$).

Data Analysis

Actual age at the age 14 interview, gender, ethnicity/race, family income, and research site were included as covariates. Ethnicity/race was dichotomized into White (0) and African American, Mixed, and Latino/a (1). Site was collapsed into two categories based on recruitment criteria: mixture of maltreated, at-risk, and control participants (0) and CPS-documented maltreatment (1). Family income was measured in \$5,000 increments.

Chi-square analyses were conducted to compare caregiver and youth reports of parental monitoring and test the association between monitoring and maltreatment history. To investigate whether overall parental monitoring was associated with emotional distress and initiation of sexual intercourse, caregiver and youth reports of monitoring were paired in multi-informant analyses (Rubio-Stipec, Fitzmaurice, Murphy, & Walker, 2003). Informant data were linked based on methods proposed by Fitzmaurice and colleagues (Goldwasser & Fitzmaurice, 2001; Horton & Fitzmaurice, 2004). These multi-informant generalized linear models include both caregiver and youth reports of parental monitoring and any maltreatment as predictors of emotional distress and initiation of sexual intercourse. In the first step, data were restructured into a long format, and parental monitoring and informant

variables were entered into the models as predictors. Moderation by parental monitoring was tested in a second step by including a maltreatment by parental monitoring interaction term in the generalized linear models predicting emotional distress at age 12 and initiation of sexual intercourse by age 14. Follow-up analyses were stratified by informant. Analyses were replicated by replacing any maltreatment with each maltreatment subtype and the number of maltreatment subtypes experienced. Analyses were also conducted separately by gender. Subtype analyses were not replicated by gender due to small group sample sizes. All analyses were conducted using SPSS v.17 software (SPSS Inc., 2009). Statistical significance was set at $p < 0.05$.

Results

The mean ages of the youth at the 12 and 14 year assessment were 12.39 (SD=0.44) and 14.34 (SD=0.42; see Table 1), respectively. Caregiver informants tended to be biological mothers (63%, $n=397$), adoptive mothers (11%, $n=66$), grandmothers (9%, $n=56$), and biological fathers (5%, $n=33$). Other caregivers (12%, $n=74$) were other relatives, foster parents, or legal guardians. Nearly 40% ($n=242$) of caregivers were married, 34% ($n=215$) were single, 8% ($n=50$) were separated, 15% ($n=94$) were divorced, and 4% ($n=26$) were widowed. Seventy-nine percent of youth ($n=504$) had a history of maltreatment by age 12. Rates of maltreatment subtypes across the sample were: 26% ($n=164$) sexual abuse, 45% ($n=284$) physical abuse, 59% ($n=375$) psychological abuse, and 57% ($n=366$) neglect. Twenty one percent of youth ($n=133$) had no history of maltreatment and composed the comparison group. Twenty two percent of youth ($n=139$) had a history of one subtype of maltreatment, 20% ($n=130$) experienced two subtypes, 23% ($n=149$) experienced three subtypes, and 14% ($n=86$) experienced all four subtypes of maltreatment measured. The mean TSC-C T-score was 40.81 (SD=7.27). At age 14, 21% ($n=132$) of youth reported that they had engaged in sexual intercourse. Boys were more likely to report having engaged in sexual intercourse than were girls ($\chi^2(N=637)=10.91$, $p=.001$) (Table 1, also Black et al., 2009). More caregivers reported high parental monitoring than youth (52% vs. 28%, $\chi^2(N=626)=6.36$, $p=.01$). Caregiver-reported monitoring was not significantly associated with youth's history of maltreatment ($\chi^2(N=626)=0.16$, $p>.60$). Youth-reported monitoring, however, was associated with a history of maltreatment ($\chi^2(N=626)=21.25$, $p<.001$); maltreated youth were more likely to report low parental monitoring (76%) than youth with no maltreatment history (56%). Youth and caregiver parental monitoring scores did not differ by youth gender.

Emotional Distress at Age 12

To test our first hypothesis, we examined whether parental monitoring was inversely associated with emotional distress at age 12 in a multi-informant model adjusting for gender, ethnicity/race, research site, age at 14, and family income. Emotional distress was 0.2 standard deviations lower among youth with high parental monitoring than the youth with low monitoring ($b=-1.40$, $p<.001$, Table 2a). Stratifying the multi-informant analysis by gender, the association between monitoring and emotional distress was statistically significant for girls ($b=-1.89$, $SE=.05$, $p=.001$) and marginally significant for boys ($b=-.93$, $SE=.51$, $p=.07$).

We found support for our second hypothesis; the interaction between any maltreatment history and parental monitoring was statistically significant in a multi-informant model ($b=-1.55$, $SE=.70$, $p=0.03$). After including other covariates, the interaction was marginally significant ($b=-1.36$, $SE=.71$, $p=0.06$). Specifically, for youth with a history of maltreatment, parental monitoring buffered the risk for emotional distress ($b=-1.72$, $SE=.47$, $p<.001$). There was no statistically significant association between parental monitoring and emotional

distress in the non-maltreated group ($b=.01$, $SE=.52$, $p=.99$). Stratifying by gender, parental monitoring was a marginally significant moderator of the association between maltreatment and emotional distress for girls ($b=-1.96$, $SE=1.02$, $p=.06$) but not for boys ($b=-1.07$, $SE=.99$, $p=.28$). Follow-up analyses stratified by informant suggested that the multi-informant effect was primarily due to youth reports. That is, youth-reported, but not caregiver-reported monitoring, significantly moderated the association between maltreatment history and emotional distress. For youth with a history of maltreatment, high youth-reported parental monitoring buffered emotional distress ($b=-3.29$, $p<.001$, Figure 2a; see Figure 2b for caregiver-reported parental monitoring); for youth without a history of maltreatment, high youth-reported parental monitoring was not associated with emotional distress ($b=-.99$, $p>.10$). Multivariate analyses examining whether parental monitoring moderated the association between maltreatment subtypes and emotional distress found significant moderation with sexual abuse ($b=-2.35$, $SE=1.07$, $p=.03$ for the interaction term) and physical abuse ($b=-1.77$, $SE=.87$, $p=.04$), and marginally significant moderation with psychological abuse ($b=-1.28$, $SE=.77$, $p=.097$). The interaction was not significant for neglect ($b=-1.15$, $SE=.79$, $p=.14$). In addition, parental monitoring significantly moderated the association between the number of subtypes of maltreatment and emotional distress ($b=-.57$, $SE=.58$, $p=.04$).

Initiation of Sexual Intercourse by Age 14

Third, we hypothesized that parental monitoring was inversely associated with the initiation of sexual intercourse by age 14. The multi-informant model adjusted for gender, ethnicity/race, research site, age at 14, and family income. High parental monitoring reduced the likelihood of sexual intercourse by age 14 by about 50 percent ($p<0.001$, aOR (adjusted OR) $=.47$, 95% CI=0.34-0.46, Table 2b). Stratifying analyses by informant, both caregiver (aOR=.61, $p=.05$) and youth (aOR=0.42, $p<.001$) reports of high monitoring decreased sexual intercourse by age 14. The multi-informant analysis was then stratified by youth gender. The association between parental monitoring and sexual intercourse was statistically significant for girls (aOR=.58, $p=.03$) and boys (aOR=.41, $p<.001$).

We found no evidence that the relation between history of maltreatment and sexual intercourse was moderated by parental monitoring (Table 2b). Parental monitoring did not significantly moderate the association among any subtype of maltreatment or multiple subtypes and initiation of sexual intercourse (all $ps >.40$).

Discussion

These analyses demonstrated a link between parental monitoring at age 12 and risk of early initiation of sexual activity by age 14. Regardless of maltreatment history, both boys and girls whose caregivers engaged in high levels of monitoring (based on reports from both youth and caregivers) were at lower risk of early initiation of sexual activity. This finding is consistent with previous research (e.g., Lohman & Billings, 2008; Rai et al., 2003). The prevention of sexual intercourse is likely influenced by reduced opportunities to engage in risky behavior as well as youth-perceived sense of support and a connected family relationship.

This finding is consistent with family systems theory and the interactive nature of parent child processes (Minuchin, 1988), which suggests that a strong family attachment may reduce a child's desire to seek connections with others. Pettit and colleagues (2001) found that parental monitoring during adolescence was predicted by proactive parenting early in childhood, which was characterized by anticipation and prevention of problem behaviors. Monitoring should evolve over time as children begin spending more time away from the family of origin, and successful parent-child communication may increase knowledge of adolescents' whereabouts and the likelihood that adolescents will adhere to family rules

(Pettit et al., 2001). Research is needed to examine whether changing technology (e.g., cell phones) has impacted parental monitoring behavior and youth perceived monitoring.

Parental monitoring did not moderate the association between child maltreatment and sexual intercourse, rather the two conditions worked in tandem, decreasing and increasing the likelihood of sexual intercourse by age 14, respectively. This finding suggests that the effects of monitoring on sexual intercourse were not dependent on maltreatment history.

Among youth with a history of maltreatment, emotional distress is a predictor of early initiation of sexual intercourse (Black et al., 2009). In the present study, youth-reported monitoring, but not caregiver-reported monitoring, buffered the risk for emotional distress among youth with a history of maltreatment; a finding that held only for girls. In contrast to research suggesting that adolescent girls report higher levels of monitoring than boys (e.g., Rai et al., 2003; Richards et al., 2004), monitoring in the present study did not differ by gender. However, girls may have perceived the monitoring to be more effective than did boys, thereby leading to the diminished risk for emotional distress. Parental monitoring attenuated the risk for emotional distress in the presence of sexual and physical abuse, multiple subtypes together, and to a lesser extent, psychological abuse. However, there were no effects for neglect. This suggests that the buffering effects of parental monitoring may be limited to clearly defined subtypes of maltreatment and highlights the need for future research to explore whether neglect is rare in families with high parental monitoring.

There are several potential explanations for these findings. One possibility is that youth-reported monitoring may be a marker for feeling loved, which could reduce emotional distress previously linked to maltreatment history (Black et al., 2009). According to family systems theory, youth engaged in warm, close relationships with their parents may be likely to disclose information to parents and accept parental advice about the benefits of delaying sexual intercourse. Other possibilities worthy of future research are that monitoring is a marker of a high functioning family and that maltreated youth with a supportive caregiver may have been exposed to less severe maltreatment. Future research is needed to understand whether these other possible explanations differ by youth gender.

A major strength of this study, extending prior research findings, is the multi-informant approach employed to include both youth and caregiver assessments of monitoring. This approach offers a number of advantages, including the elimination of single-source bias and shared method variance that often plague studies relying on a single source of information. Results indicate that caregiver and youth reports of monitoring were correlated, but the magnitude of the correlation was low. More than half of caregivers reported high parental monitoring, compared to just over one quarter of youth. Caregiver-reported monitoring was not associated with maltreatment history, but youth with a history of maltreatment reported lower levels of monitoring than other youth, perhaps suggesting a feeling of low protection. On the other hand, both youth and caregiver reports of low parental monitoring were associated with early initiation of early sexual intercourse. Future research should examine whether the effects of parental monitoring on emotional distress and initiation of sexual intercourse differ in families with congruent reports of monitoring.

Different levels of parental monitoring and its association with maltreatment may reflect unique interpretations of monitoring between caregivers and youth. For caregivers, monitoring may reflect limiting opportunities to engage in sexual risk behavior or access to high risk peers (Sieverding et al., 2005). For youth, perceived monitoring may reflect feelings of a connected relationship (Rodgers et al., 1999). These potential differences in interpretation should be examined within a family systems theory framework that accounts for interdependent, reciprocal relationships between youth and caregivers.

This longitudinal study has a number of strengths and offers unique contributions to the field. First, it uses multi-informant data to examine the moderating role of parental monitoring in buffering the effects of child maltreatment to reduce early initiation of intercourse and emotional distress. Second, the data are longitudinal and drawn from a large, prospective study, eliminating the directionality limitations in cross-sectional designs. Third, maltreatment history was assessed through youth self-reported histories as well as coded narratives of CPS reports, reducing biases inherent in the reliance on either source alone. Fourth, the examination of maltreatment subtypes and number of maltreatment subtypes provides evidence of the effectiveness of parental monitoring across multiple maltreatment experiences.

Although this study offers a number of methodological and conceptual advantages, some caveats should be acknowledged. First, factors other than monitoring that may influence parental knowledge about youth activities, such as youth's willingness to disclose information, were unmeasured. Such factors could influence both agreement and perceived knowledge about the youth's friends and activities. Second, parental monitoring could be a proxy for other unmeasured family processes (Wight et al., 2006) that could be associated with childhood maltreatment risk, emotional distress, or early initiation of sexual intercourse. In addition, child maltreatment and low parental monitoring may be associated with other risk factors for early sexual intercourse, such as substance use. Third, in some cases, CPS or self-report history of sexual abuse may have included sexual intercourse, which could confound age at initiation of sexual intercourse. However, analyses were replicated after removing youth with a history of sexual abuse ($n=164$) and findings were nearly identical. Therefore, the entire sample was retained in the present analyses. Fourth, maltreatment was not measured at age 14, and perhaps low parental monitoring increased the risk for maltreatment between ages 12 and 14. Fifth, the internal consistency of the parental monitoring scale was low, particularly for caregivers. Finally, the findings with this high-risk sample may not be generalizable to all populations. Nevertheless, this sample offers a unique opportunity to examine the direct and potential moderating effects of parental monitoring on emotional distress and early sexual intercourse in a group of youth at risk for both of these outcomes due to a history of childhood maltreatment. The findings can be useful in suggesting what to target when designing preventive interventions for high risk youth.

Clinical Implications

These findings highlight the importance of targeting parental monitoring for all at-risk youth to prevent early sexual activity, suggesting a potentially useful target for clinical intervention. Promoting monitoring among parents, and perceptions of monitoring among youth, may delay or decrease adolescents' initiation of sexual intercourse and buffer emotional distress symptoms. Clinicians should attend to the research suggesting that parents with knowledge about adolescents' deviant behavior may *reduce* their monitoring behavior in response to youths' signals about how much parental involvement they want (Kerr, Stattin, & Pakalniskiene, 2008). Among children with a history of maltreatment who are at risk for early initiation of sexual intercourse and subsequent sequelae, lower parental monitoring could exacerbate the risks.

An effective clinical strategy may be to foster bidirectional communication between caregivers and youth, such that caregivers actively seek information and youth feel comfortable disclosing information (Kerr & Stattin, 2000). Parental monitoring reduces the risk of early initiation of sexual intercourse among all youth. Delayed sexual initiation is a public health priority, as it avoids risks of sexually transmitted infections, early pregnancies, and possible mental health problems (Manning et al., 2000; Meier, 2007; Santelli et al.,

2000). Maltreated youth are at risk for emotional distress symptoms (Black et al., 2009). For these youth, assisting parents to both monitor their children and to communicate clearly their caring and concern may enhance parent-child attachment and delay initiation of sexual intercourse.

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Figure 1.
Conceptual model

a.

b.

Figure 2.

- a. Interaction between history of maltreatment and child-reported parental monitoring predicting emotional distress
- b. Interaction between history of maltreatment and caregiver-reported parental monitoring predicting emotional distress

Table 1

Sample Characteristics (N=637)

	Any maltreatment (n=504)	No maltreatment (n=133)
	% (n)	% (n)
Youth gender (female)	50, 252	50, 56
Mean age at 12 (SD)	12.37 (0.43)	12.46 (0.47)
Mean age at 14 (SD)	14.34 (0.42)	14.35 (0.45)
Ethnicity/Race		
African American	51 (256)	67 (89)
White	29 (145)	25 (33)
Mixed ethnicity/race	13 (65)	5 (7)
Latino/a	6 (32)	2 (3)
Other	1 (6)	1 (1)
Sexual abuse	32 (164)	--
Physical abuse	56 (284)	--
Psychological abuse	74 (375)	--
Neglect	73 (366)	--
Mean TSC-C score (SD) *	41.47 (7.75)	38.30 (4.21)
High Parental Monitoring (Caregiver)	52 (256)	54 (69)
High Parental Monitoring (Youth) *	24 (118)	44 (57)
Sexual Intercourse by age 14 (yes) *	22 (111)	16 (21)

Note.

* Maltreated youth reported statistically significantly higher levels of emotional distress, lower levels of parental monitoring, and higher rates of sexual intercourse at age 14 than youth with no maltreatment history ($p < .05$). Maltreatment subtypes are not mutually exclusive.

Table 2**a Summary of Multi-Informant GEE Analyses Predicting Emotional Distress at age 12 (N=637)**

Variable	b	SE	Wald Chi-Square	Confidence Interval	
Step 1				Lower	Upper
Gender	-1.02	0.57	3.22 [†]	-2.14	0.09
Ethnicity/Race	-1.77	0.78	5.17 [*]	-3.30	-0.24
Research site	-1.38	0.75	3.38 [†]	-2.85	0.09
Age	0.25	0.66	0.14	-1.04	1.54
Family income	-0.02	0.09	0.03	-0.20	0.17
Informant	-0.33	0.10	11.85 ^{**}	-0.52	-0.14
Any maltreatment	3.62	0.63	35.40 ^{***}	2.39	4.85
Parental monitoring	-1.40	0.38	13.22 ^{***}	-2.15	-0.64
Step 2					
Any maltreatment × parental monitoring	-1.36	0.71	3.67 [†]	-2.75	0.03
Parental monitoring	-0.35	0.54	0.41	-1.41	0.72
Maltreatment	4.24	0.66	41.20 ^{***}	2.95	5.54

b Summary of Multi-Informant GEE Analysis Predicting Initiation of Sexual Intercourse by Age 14 (N=637)

Variable	b	SE	χ^2	Confidence Interval	
Step 1				Lower	Upper
Gender	0.68	0.21	10.2 ^{**}	0.26	1.10
Ethnicity/Race	0.86	0.30	8.32 ^{**}	0.28	1.44
Research site	-0.65	0.24	7.22 ^{**}	-1.13	-0.18
Age	0.46	0.24	3.69 [†]	-0.01	0.94
Family income	-0.001	0.04	0.001	-0.07	0.07
Informant	-0.18	0.04	16.77 ^{***}	-0.26	-0.09
Any maltreatment	0.67	0.29	5.49 [*]	0.11	1.24
Parental monitoring	-0.76	0.17	19.12 ^{***}	-1.09	-0.42
Step 2					
Any maltreatment × Parental monitoring	0.091	0.46	0.15	-0.80	0.98
Parental monitoring	-0.83	0.42	3.90 [*]	-1.65	-0.01
Maltreatment	0.64	0.32	4.08 [*]	0.02	1.27

Note.

[†] $p < .10$.

^{*} $p < .05$.

^{**} $p < .01$.

^{***} $p < .001$.

Gender is coded 0=Female, 1=Male.

Ethnicity/race is coded 0=White, 1=African American, Mixed, and Latino/a.

Research site is coded 0=Mixture of risk, 1= CPS-documented maltreatment.

Informant is coded 0=Youth, 1=Caregiver.
Maltreatment is coded 0=None, 1=Any.
Parental monitoring is coded 0=Low, 1=High.