

Maternal and Paternal Psychological Control as Moderators of the Link between Peer Attitudes and Adolescents' Risky Sexual Behavior

Journal of Early Adolescence

2014, Vol. 34(4) 413–435

© The Author(s) 2013

Reprints and permissions:

sagepub.com/journalsPermissions.nav

DOI: 10.1177/0272431613494007

jea.sagepub.com



**Barbara A. Oudekerk¹, Joseph P. Allen¹,
Christopher A. Hafen¹, Elenda T. Hessel¹,
David E. Szwedo¹, and Ann Spilker²**

Abstract

Maternal and paternal psychological control, peer attitudes, and the interaction of psychological control and peer attitudes at age 13 were examined as predictors of risky sexual behavior before age 16 in a community sample of 181 youth followed from age 13 to 16. Maternal psychological control moderated the link between peer attitudes and sexual behavior. Peer acceptance of early sex predicted greater risky sexual behaviors, *but only* for teens whose mothers engaged in high levels of psychological control. Paternal psychological control demonstrated the same moderating effect for girls; for boys, however, high levels of paternal control predicted risky sex regardless of peer attitudes. Results are consistent with the theory that peer influences do not replace parental influences with regard to adolescent sexual behavior; rather, parental practices continue to serve an important role either directly forecasting sexual behavior or moderating the link between peer attitudes and sexual behavior.

¹University of Virginia, Charlottesville, VA, USA

²University of Denver, Denver, USA

Corresponding Author:

Barbara A. Oudekerk, University of Virginia, 102 Gilmer Hall, PO Box 400400, Charlottesville, VA 22904, USA.

Email: boudek1@gmail.com

Keywords

psychological control, peer attitudes, risky sexual behavior, gender differences

The social and economic consequences of adolescent risky sexual behavior are long-lasting and costly to adolescents, their families, and society at large. Early-onset sexual intercourse, sex with multiple partners, and unprotected sex increase adolescents' susceptibility to sexually transmitted infections and unplanned pregnancies, costing billions of dollars each year (Chesson, Blandford, Gift, Tao, & Irwin, 2004; Hoffman, 2006; Kaestle, Halpern, Miller, & Ford, 2005). As such, social scientists, practitioners, and policy makers are strongly invested in identifying predictors of adolescent sexual risk-taking so as to develop and implement effective prevention programming.

Research examining adolescent sexual behavior within an ecological framework has drawn attention to the complex nature of adolescent sexual behavior and to the importance of examining multiple risk factors across different contexts (Chen, Thompson, & Morrison-Beady, 2010; Miller, Forehand, & Kotchick, 2000; Small & Luster, 1994). However, the ecological literature on sexual risk-taking focuses primarily on assessing *cumulative* risk across systems rather than examining how experiences within one system might *depend on* experiences in another system (Chen et al., 2010; Miller et al., 2000). In light of growing evidence that both parents and peers can play important roles in adolescents' sexual decision making, one primary concern is the lack of research examining how experiences in the family and peer contexts might interact to predict adolescent sexual behavior (Buhi & Goodson, 2007; Donenberg, Bryant, Emerson, Wilson, & Pasch, 2003; Kotchick, Shaffer, & Forehand, 2001; Wolff & Crockett, 2011). Ecological theories posit that relationships with parents set the stage for peer relationships (Bronfenbrenner, 1979), and suggest that relationships with parents might buffer against or strengthen associations between peer risk factors and adolescent sexual decision making. Interactions between peer and family systems might be particularly likely to occur in adolescence, given the normative developmental shift from reliance on parents to reliance on peers (Helsen, Vollebergh, & Meeus, 2000; Steinberg & Silverberg, 1986). Conceptualizing adolescent sexual behavior within a multisystem framework (Bronfenbrenner, 1979; Miller et al., 2000), this study examined early adolescent maternal and paternal psychological control, peer attitudes, and most importantly, the interaction of psychological control and peer attitudes as predictors of risky sexual behavior before age 16.

Peer Attitudes, Parent Psychological Control, and Risky Sexual Behavior

Friendships with peers who hold more conservative attitudes about sex have been linked to delayed sexual intercourse, and friendships with peers who approve of sex at early ages or who hold less favorable attitudes toward condom use have been linked to increased risky sexual behavior (Carvajal et al., 1999; Dilorio et al., 2001; Santelli et al., 2004; Whitaker & Miller, 2000). Yet, as much as peer attitudes and influences are a source of great concern to parents, ecological, and developmental theories about parent-peer linkages provide strong reason to believe that parents can affect their children's susceptibility to peer influences (Bronfenbrenner, 1979; Ladd & Pettit, 2002). Parenting behaviors, including the parent-child relationship, monitoring styles, and disciplinary styles, are theorized to shape youths' experiences with peers, including the extent to which youth are influenced by peers problematic behaviors (Fuligni & Eccles, 1993; Grolnick & Farkas, 2002; Ladd & Pettit, 2002). The social and emotional skills required to resist peer influences are often developed and practiced in interactions with parents (Laursen & Collins, 2009), and thus poor parent-child interactions increase risk for susceptibility to peer influences. For example, adolescents who have less supportive relationships with their mothers have been found to align their drug use with peers' drug use (Allen, Chango, Szewedo, Schad, & Marston, 2012). A similar dynamic seems likely to apply to adolescent risky sexual behavior.

One particularly powerful way in which adolescent-parent relationships might become problematic occurs when parents use autonomy-undermining or psychologically intrusive methods to handle adolescent strivings for greater independence and control over personal decisions (Barber, 1996). The establishment of healthy emotional and psychological autonomy from caregivers is a task which is critical to adolescent development and their resistance to external pressures, and parents' use of guilt, anxiety, shame, withdrawal of their love, or other psychologically controlling tactics undermines the development of this autonomy (Allen, Hauser, Bell, & O'Connor, 1994; Barber, 1996; Gray & Steinberg, 1999; Rodgers, 1999; Schaefer, 1965). According to continuity models of family-peer linkages, the quality of peer relationships will mirror the quality of family relationships (Allen et al., 2012; Allen, Hauser, O'Connor, & Bell, 2002; Cooper & Cooper, 1992). Thus, adolescents who fail to establish autonomy in relationships with parents are unlikely to demonstrate autonomy within peer relationships, and might be particularly vulnerable to the values and norms of the peer group. Adolescents who perceive their parents as psychologically controlling might

also be less likely to communicate with their parents about sexual activity and instead might turn to peers for guidance, and there is evidence from one cross-sectional study that such communication about sex can reduce associations between perceived peer norms regarding sex and adolescents' risky sexual behavior (Whitaker & Miller, 2000). In contrast, healthy adolescent-parent relationship qualities are likely to facilitate the development of healthy autonomy and communication, protecting against maladaptive peer influences (Allen et al., 2012; Grolnick & Farkas, 2002).

Indeed, adolescents whose parents use psychologically controlling techniques are at increased risk for making decisions that are developmentally immature and poorly reasoned (Conger, Conger, & Scaramella, 1997; Rodgers, Buchanan, & Winchell, 2003). Only a few studies have examined whether parental psychological control relates specifically to sexual risk-taking, but findings consistently reveal that higher levels of parental psychological or intrusive control are associated with risky sexual behaviors (Donenberg et al., 2003; Rodgers, 1999; Upchurch et al., 1999). To our knowledge, however, no research has examined the role of parental psychological control in potentially determining to what extent adolescents' sexual behaviors align with their close peers' values and attitudes about sex.

Gender Considerations

Gender is an inherent consideration when examining parenting behaviors, as unique characteristics of mother-daughter, father-daughter, mother-son, and father-son relationships have long been thought to have consequences for adolescents' developmental outcomes (Russell & Saebel, 1997). Gender differences might also be particularly likely to emerge when examining adolescent sexual activity, given the gendered biological and cultural nature of sexual behavior (O'Donnell, Myint-U, O'Donnell, & Stueve, 2003; Pleck, Sonenstein, & Ku, 1994). To date, however, fathers have often been ignored or examined as "absent fathers" within the sexual decision-making literature (Ellis et al., 2003; Mendle et al., 2009), and there has been very little attention to the ways in which associations between parental psychological control and adolescent sexual behavior might vary as a function of adolescent gender. In the small body of research examining the relationship specifically between risky sexual behavior and psychological control or intrusive control, adolescents' perceptions of their mothers' and fathers' control have typically been averaged together (Donenberg et al., 2003; Rodgers, 1999). However, Rodgers (1999) found that when analyzing paternal psychological control separately from maternal control among sexually active girls, paternal psychological control was associated with increased risky sexual behavior,

whereas maternal psychological control was not. A combined measure of maternal and paternal psychological control was not associated with risky sexual behavior among sexually active boys, so no follow-up analyses were conducted examining whether paternal psychological control predicted riskier sexual health outcomes among boys (Rodgers, 1999).

Yet, there is reason to believe that boys who experience high levels of parental control, especially paternal control, might be more likely than girls to act out sexually. Boys have been shown to report higher levels of psychological control from their fathers and mothers compared to girls (Barber, 1996; Rodgers et al., 2003), and boys' perceptions of their parents attempt to undermine autonomous behaviors are likely in strong opposition to their values of self-assertion and independence (Maccoby, 1990). Moreover, according to popular ideology of "masculinity" in the United States, engaging in sexual activity is one way in which adolescent males can demonstrate their masculinity (Pleck et al., 1994). Boys who experience high levels of restrictive parental psychological control might be motivated to prove their independence and "manhood." Paternal psychological control might be particularly associated with boys' sexual risk-taking. Although both boys and girls report talking to mothers more than fathers about sexual topics, gender differences exist such that girls report talking to mothers more than do boys, and boys feel more comfortable talking to fathers than do girls; boys also discuss a greater range of sexual topics with fathers compared to girls (DiIorio, Kelley, & Hockenberry-Eaton, 1999). Paternal psychological control might undermine the father-son relationship and decrease effective communication between father and sons. Overall, preliminary research suggests that associations between adolescent sexual behavior and parental psychological control might be complex and gender-specific, calling attention to a need for more research examining gender differences.

Study Overview

The current investigation contributes to the ecological systems model for understanding adolescent sexual behavior by analyzing prospective, longitudinal, multireporter data to examine whether the association between peer attitudes and adolescents' risky sexual behavior is moderated by maternal and paternal use of psychological control. Our goal was to better understand *for whom* and *under what familial circumstances* peer attitudes predict adolescent sexual behaviors. A better understanding of the complexities of parent and peer influences on adolescents' sexual decision making is essential to the development of effective prevention and intervention programming (Kotchick et al., 2001).

First, we hypothesized that risky sexual behavior before age 16 would be directly predicted by both more accepting peer attitudes about having sex at earlier ages and by higher levels of maternal and paternal psychological control. Second, we hypothesized the association between peer attitudes and risky sexual behavior would be *moderated* by maternal and paternal psychological control, such that peer acceptance of early sex would be more strongly associated with risky sexual health behavior among youth whose mothers and fathers were psychologically controlling than for youth whose parents were not psychologically controlling. Given the gendered nature of sexual behavior (O'Donnell, Myint-U, O'Donnell, & Stueve, 2003), we also considered the possibility that gender of both parent and adolescent might alter these associations.

Method

Participants

Data for this analysis were drawn from an ongoing longitudinal study of development and functioning across the transition from early adolescence to adulthood among 184 adolescents (53.6% female). On average, participants were 13.36 years old ($SD = 0.63$) at the first wave of data collection, and have completed assessments once every year for 14 years since the first wave. At age 13, adolescents' parents reported a median family income of US\$40,000 to US\$59,999 a year and the sample was ethnically diverse: 58% Caucasian, 29% African American, 8% multi or biracial, and 5% other.

Given our interest in parent psychological control, analyses examining maternal psychological control were based only on participants who reported on the psychological control of a mother-like caregiver present in the home, regardless of who else was in the home. This included 178 participants with a mother-figure in the home. The majority (91.9%) of mothers were biological mothers. Only a few were step-mothers (2.3%) or other caregivers such as adoptive mothers or grandmothers (5.8%). About half (49.7%) of mothers were married to participants' biological father, and of those who were not, 28.9% were divorced, 24.1% were remarried, 20.5% were single, 10.8% were living with a partner, 9.6% were separated from a partner, and 6% were widowed. Similarly, analyses examining paternal psychological control were conducted among those who reported on a father-figure present in the home regardless of who else was in the home. Father figures were present in the home for 131 participants. Fathers included 82.1% biological fathers, 11.4% step-fathers, and 6.5% other caregivers such as mother's boyfriend or an

adoptive father. For 69.9% of the sample, fathers were married to youths' biological mother. Of those who were not, about 60.9% were remarried, 17.4% were living with a partner, 13.0% were divorced, and 8.7% were separated. No youth reported living with same-sex parents.

Procedure

Target adolescents were recruited from a seventh or eighth grade cohort at one public middle school in the Southeastern United States. A recruitment letter was mailed to all eligible students' parents and follow-up efforts were made at school lunches. Of all eligible students, 63% participated either as target participants or as peers providing collateral information. That is, at age 13, adolescents were asked to identify their closest same-sex peer, defined as someone "you know well, spend time with and who you talk to about things that happen in your life." Researchers then recruited close peers to participate in the study. To minimize the overlap between participants and peers, once someone was identified and involved as a close peer in the study, they could no longer be selected as a target participant. However, all youth were in the same school, and thus newly recruited participants sometimes listed youth who were already enrolled in the study as close peers. Only 23.9% of participants were also listed as close peers at the assessment period from which the data are drawn, and moderation analyses found no evidence that being listed or not listed as a close peer by another participant affected any of the results reported below.

All assessments were completed in private offices within an academic institution, and transportation and childcare were provided if necessary. Participants and close peers completed assessments at the same time but in separate rooms with different interviewers. Interviewers were graduate students, postbaccalaureate project coordinators, and advanced undergraduate students, all of whom received extensive training. Both participants' and their peers' assessments lasted between 2 and 2.5 hours. All youth were provided with snacks and offered frequent breaks. The majority of participants' and peers' assessments consisted of self-report surveys, but close peers and participants also participated in a few interactive discussion tasks. All participants and their close peers provided informed assent and parental informed consent was provided for everyone under age 18. At each assessment, researchers explained to participants and their peers that their answers were confidential. All data were protected by a Federal Certificate of Confidentiality issued by the U.S. Department of Health and Human Services. Target adolescents and their peers were paid for their participation.

Measures

Mother and Father Hostile Psychological Control (Mean Age 13). At age 13, adolescents completed the Psychological Control versus Psychological Autonomy subscale of the Childhood Report of Parenting Behavior Inventory (CRPBI; Schaefer, 1965; Schludermann & Schludermann, 1988). This subscale includes 10 items assessing the degree (1: *not like my mother/father*, 3: *a lot like my mother/father*) to which mothers and fathers use guilt, anxiety, love withdrawal, or other hostile psychological methods to control adolescents' behavior. Example items include "My mother figure is a person who is less friendly with me, if I do not see things her way," and "My mother figure is a person who says, if I really cared for her, I would not do things that cause her to worry." Scores across items were summed, and adolescents' perceptions of maternal control were analyzed separately from perceptions of paternal control. Past work has demonstrated good validity and reliability for the CRPBI Psychological Control subscale (Schludermann & Schludermann, 1970, 1988), and it was reliable herein: Cronbach's $\alpha = .82$ for paternal control and $\alpha = .76$ for maternal control.

Peer Acceptance of Early Sex (Mean Age 13). At age 13, each participant's closest same-sex peer was asked "At what age do you think its okay for your friends to have sex." Responses were coded on a 10-point scale: 1 (*after marriage*), 2 (*after 18*), 3 (*18 years old*), 4 (*17 years old*) . . . 9 (*12 years old*), 10 (*under age 12*). Thus, the higher peers' scores, the more accepting they were of sex at earlier ages.

Sexual Health Outcomes Before Age 16. In response to calls for more comprehensive measures of sexual behavior (Miller et al., 2000), risky sexual behavior was examined as a composite score of three different early-onset sexual behaviors. We follow others in defining early sex as sex before age 16, given that sex before this age is associated with more maladaptive behaviors than sex at older ages, and given that many states have laws that deem youth incapable of legally consenting to sex before age 16 (Glosser, Gardiner, & Fishman, 2004; Zimmer-Gembeck & Helfand, 2008).

Participants completed a sexual experiences questionnaire at each yearly assessment between enrolling in the study (on average at age 13) until age 16. Assessments were completed on a computer to ensure confidentiality and to reduce social desirability bias (Kotchick et al., 2001). Adolescents were asked a series of questions about participation in various different types of sexual activity (e.g., hand holding, making out), leading up to "Have you ever had sex or 'gone all the way'?" This was followed by: "Have you ever had

sex that was consensual? This means that you were not forced and that you agreed to have sex” and “How old were you when you first had consensual sex?” Risky sexual behavior was then assessed at each yearly interview by averaging responses on three questions: (a) total lifetime number of sexual partners (0: *none*, 1: *1-2 partners*, 2: *3-5 partners*, 3: *6-10 partners*, 4: *11 or more partners*), (b) total lifetime number of times engaged in sex (0: *never*, 4: *11 or more*), and (c) frequency of not using protection against pregnancy (0: *always*, 4: *never*). Given that scores at each assessment represented “lifetime” risky sexual behavior, participants’ risky sexual behavior score at their age 15 interview was used to index the highest level of *risky sexual behavior before age 16*. However, a small portion of the sample, 7.6% reported a higher “lifetime” risky sexual behavior score in a prior assessment. Concerns about recall biases and the unreliability of retrospective reports of risky sexual behavior have been well documented (e.g., Capaldi, 1996; Fenton, Johnson, McManus, & Erens, 2001); therefore, for these few participants we analyzed their highest lifetime risky sexual behavior score because it was assessed closer to the time they first reported engaging in sexual activity. Cronbach’s α for risky sexual behavior before age 16 was acceptable at .73.

Control Variables. Sociodemographic controls included participant gender (1: *male*, 2: *female*), family income (1: *under US\$5,000 a year*, 8: *US\$60,000 or more per year*), whether participants’ biological parents were married (0: *no*, 1: *yes*), and racial/ethnic minority status (1: *member of racial/ethnic minority group*; 0: *not a member of racial/ethnic minority group*). Past research suggests that risky sexual behavior can be associated with each of these sociodemographic variables (Kotchick et al., 2001; O’Donnell et al., 2003; Small & Luster, 1994; Zimmer-Gembeck & Helfand, 2008), although it is important to note that these variables are conceptualized as proxies for sexual risk, not causes of sexual risk-taking. We examined whether sexual activity was uniquely and significantly associated with parental control and peer attitudes above and beyond these sociodemographic variables.

Missing Data

Due to missing data risky sexual behavior data was not available for 27 (15.2%) participants in the in-home mother sample and 16 (12.2%) participants in the in-home father sample. Using the sample with in-home mothers, Chi-square and *t*-test analyses revealed that youth with missing data were significantly less likely to have married biological parents and more likely to identify as members of racial/ethnic minority groups, but there were no significant differences in income, gender, peer acceptance of early sex, or

youth-reported maternal hostile control. The same pattern emerged among those reporting on in-home fathers. All analyses were conducted in Mplus (Version 6; Muthén & Muthén, 2010) using Full Information Maximum Likelihood (FIML). FIML is widely recognized as providing the least biased parameter estimates compared to listwise deletion, especially when data are missing at random or when the presence of missing data can be predicted from other variables in the model (Little & Rubin, 1987; Raykov, 2005).

Results

Preliminary Analyses

Maternal and paternal psychological control are examined in separate models because a number of youth did not provide data for a paternal figure present in the home and among those who provided data on an in-home mother and father, youths' reports of maternal and paternal psychological control were too highly correlated to examine comfortably in the same model, $r = .74, p < .001$. Before conducting analyses, the distributions of all variables were examined. Risky sexual behavior was skewed and thus log transformed, which resulted in normal distributions among both samples (i.e., skewness and kurtosis $< |1.4|$). Next, preliminary analyses were conducted to examine whether results might be distorted by influential multivariate outlier cases, identified by Cook's d statistic (Fox, 1991). In the final models, 8 cases in the in-home father sample and 5 cases in the in-home mother sample were identified as extreme outliers (i.e., Cook's d statistics were more than three times the interquartile range), changed the pattern of results, and thus were excluded from analyses (Fox, 1991). Among the final samples, 34.2% of adolescents in the in-home mother sample and 26.2% of youth who reported in the in-home father sample engaged in sexual activity prior to age 16.

As expected, preliminary analyses revealed that within the in-home mother and father samples (respectively), residing in a lower income household ($r = -.33, p < .001$; $r = -.30, p = .002$), not having married biological parents ($r = -.37, p < .001$; $r = -.28, p = .003$), and identifying as an ethnic/racial minority ($r = .41, p < .001$; $r = .29, p = .002$) were individually significantly related to higher risky sexual behavior before age 16. In addition, among the in-home father sample being male was associated with greater risky sexual behavior ($r = -.21, p = .030$). These sociodemographic factors were therefore added as controls in all analyses.

Lastly, preliminary analyses revealed that those who were interviewed as both participants and close peers were no more or less likely to engage in risky sexual behavior than those who were not interviewed as a close peer.

Table 1. Descriptives and Correlations for Study Variables.

	Youth with mothers present in the household \bar{X} (SD) / %	Youth with fathers present in the household \bar{X} (SD) / %	1.	2.	3.
1. Parental psychological control ^a	15.54 (3.57)	14.46 (3.60)	—	.19*	.43***
2. Peer acceptance of early sex	2.67 (2.11)	2.54 (1.98)	.26**	—	.47***
3. Risky sex before age 16	-0.45 (0.47)	-0.54 (0.42)	.38***	.28**	—

Note. $N = 173$ youth with mothers present in the household, and the correlations below the diagonal were conducted with this sample. $N = 123$ youth with fathers present in the household, and the correlations above the diagonal were conducted with this sample. ^aRepresents maternal control among those with mothers present and paternal control among those with fathers present.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Involvement as a participant and peer (vs. only a participant) was also not a significant moderator of the statistical effects of parental control, peer attitudes, and parental control \times peer attitudes on risky sexual behavior, meaning the effects of interest were statistically similar regardless of whether participants were also identified as a close peer or not.

Do Associations Between Peer Attitudes and Youths' Sexual Behaviors Depend on Whether Parents Are Psychologically Controlling?

Our hypotheses were tested using a series of hierarchical regression analyses. All predictor variables were centered before creating interaction terms. Descriptive statistics and intercorrelations for study variables are summarized in Table 1. Table 1 illustrates significant associations between risky sexual behavior and peer acceptance of early sex, maternal control, and paternal control in the expected directions. In addition, Table 1 reveals significant correlations between peer acceptance of early sex and paternal/maternal psychological control, such that adolescents whose mothers and fathers were more psychologically controlling were significantly more likely to have close friends who were accepting of sexual behavior at earlier ages.

Adolescents' Perceptions of Maternal Psychological Control. Table 2 summarizes regression analyses examining peer acceptance of early sex, adolescents' perceptions of maternal hostile control, and the interaction of the two at age 13 as predictors of adolescents' risky sexual behavior before age 16. In Step 1,

Table 2. Interaction Between Peer Acceptance of Early Sex and Youth-Reported Maternal Psychological Control on Risky Sexual Behavior Before Age 16.

	Risky sexual behavior before age 16			
	Step 1	Step 2	Step 3	Step 4
Gender	-0.12	-0.07	-0.08	-0.08
Family income	-0.04	-0.01	0.01	0.02
Married biological parents	-0.22*	-0.20*	-0.20*	-0.20*
Racial/ethnic minority	0.31**	0.30**	0.25**	0.27**
Peer acceptance of early sex		0.18*	0.13	0.07
Maternal psychological control			0.17*	0.16*
Peer acceptance of early sex × Maternal control				0.16*
ΔR^2		.03*	.01*	.01*
R^2	.24***	.27***	.28***	.29***

Note. Male = 1, Female = 2. $N = 173$. * $p \leq .05$. ** $p < .01$. *** $p < .001$.

gender, family income, whether adolescents' biological parents were married, and race/ethnicity were entered as controls. In Step 2, peer acceptance of early sex was added to the model. Maternal psychological control was added in Step 3. Lastly, the interaction between peer acceptance of early sex and maternal psychological control was added in Step 4.

In the final model, Step 4, youth with nonmarried biological parents, who identified as a racial/ethnic minority, and who reported experiencing higher levels of maternal psychological control reported higher levels of risky sexual behavior. In addition, as hypothesized, Step 4 revealed a significant interaction between maternal psychological control and peer acceptance of early sex, suggesting that the association between peer acceptance of early sex and risky sexual behavior was dependent upon maternal psychological control. Figure 1 illustrates the direction of the interaction. Simple slope analyses (Aiken & West, 1991) revealed that, as expected, the association between peer acceptance of early sex and risky sexual behavior was only significant when mothers were high in psychological control, $t = 2.27$, $p = .02$, and not when mothers were low in psychological control, $t = -0.51$, $p = .61$. Further analyses examining all possible interactions with gender revealed that gender did not significantly moderate any of these links.

Adolescents' Perceptions of Paternal Psychological Control. Next, the same analyses as described above for maternal control were conducted for paternal psychological control, this time among all adolescents who reported on an

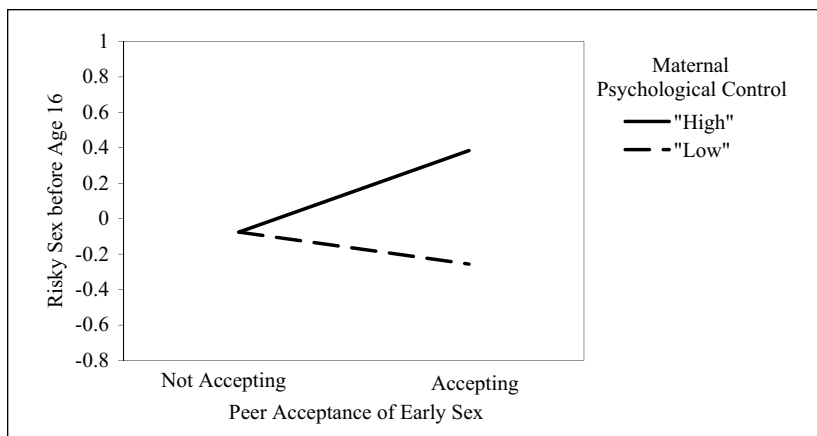


Figure 1. Interaction between peer acceptance of early sex and youth-reported maternal psychological control on risky sexual behavior before age 16.

Note. Variables are presented in standardized form; *Not Accepting/Accepting* and *High/Low* refer to values -1 SD and 1 SD from the mean.

in-home father. Before adding gender as a moderator in the model, results revealed a similar pattern of findings as emerged for maternal psychological control. As illustrated in the first column of results in Table 3, being male, having peers who are accepting of early sex, and higher levels of paternal psychological control related to greater risky sexual behavior, and the association between peer attitudes and risky sexual behavior depended on paternal psychological control. However, as shown in the second model in Table 3, there was a significant interaction between gender and paternal psychological control suggesting the need to further examine the model separately for boys and girls.

Indeed, the pattern of findings for paternal psychological control differed by gender. Results for girls are presented in Table 4. Controls were added in Step 1, peer acceptance of early sex was added in Step 2, paternal psychological control was added in Step 3, and the interaction of parental psychological control and peer acceptance of early sex was added in Step 4. The final model (Step 4) illustrates that, after accounting for the significant association between income and risky sexual behavior, girls whose peers reported more acceptance of early sex engaged in greater risky sexual behavior before age 16. Paternal psychological control did not account for a significant additional amount of variance in risky sexual behavior, however there was a significant interaction between peer acceptance of early sex and paternal psychological

Table 3. Examining Gender as a Moderator of Paternal Psychological Control.

	Risky sexual behavior before age 16	
	Without gender moderators	With gender moderators
Gender	-0.16*	-0.21*
Family income	-0.19	-0.22*
Married biological parents	-0.08	-0.05
Racial/ethnic minority	0.09	0.11
Peer acceptance of early sex	0.28**	0.30***
Paternal psychological control	0.25**	0.26**
Peer acceptance of early sex \times Paternal control	0.16*	0.16
Paternal control \times Gender		-0.24**
Peer acceptance of early sex \times Gender		0.10
Peer acceptance of early sex \times Paternal control \times Gender		0.12
ΔR^2		.06**
R^2	.41***	.47***

Note. Male = 1. Female = 2. $N = 123$.

* $p \leq .05$. ** $p < .01$. *** $p < .001$.

Table 4. Interaction Between Peer Acceptance of Early Sex and Youth-Reported Paternal Psychological Control on Risky Sexual Behavior Before Age 16 Among Girls.

	Risky sexual behavior before age 16			
	Step 1	Step 2	Step 3	Step 4
Family income	-0.26	-0.26	-0.26	-0.27*
Married biological parents	-0.11	-0.06	-0.05	-0.01
Racial/ethnic minority	0.07	0.03	0.02	0.04
Peer acceptance of early sex		0.41***	0.41***	0.37***
Paternal psychological control			0.06	0.11
Peer acceptance of early sex \times Paternal control				0.23*
ΔR^2		.15***	.00	.05*
R^2	.13	.28**	.28**	.33**

Note. $N = 66$ girls.

* $p < .05$. ** $p < .01$. *** $p < .001$.

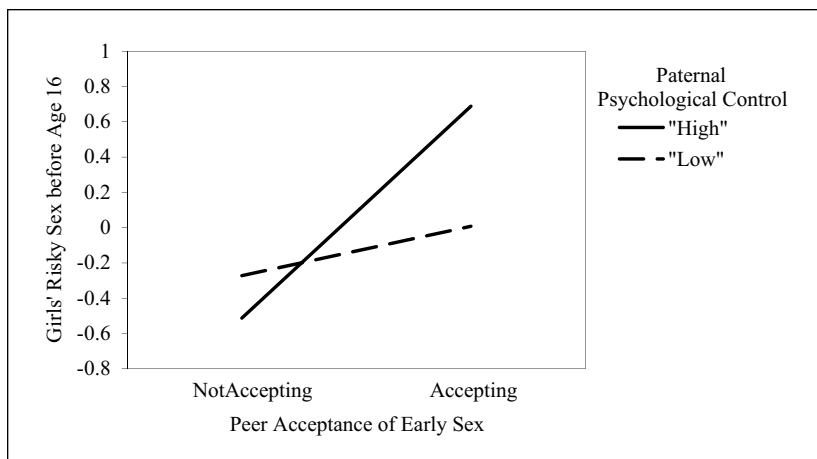


Figure 2. Interaction between peer acceptance of early sex and youth-reported paternal hostile control on risky sexual behavior before age 16 among girls
Note. Variables are presented in standardized form; Not Accepting/Accepting and High/Low refer to values -1 SD and 1 SD from the mean.

control. Figure 2 illustrates this interaction. As with maternal control, simple slope analyses (Aiken & West, 1991) revealed that when paternal psychological control was high, peer acceptance of early sex significantly predicted girls' risky sexual behavior before age 16, $t = 3.89$, $p < .001$. However, when paternal psychological control was low, the association between peer acceptance of early sex and risky sexual behavior among girls was nonsignificant, $t = 0.32$, $p = .75$.

Parallel results for boys are presented in Table 5. Controls were added in Step 1, peer acceptance of early sex in Step 2, paternal psychological control in Step 3, and the interaction between peer acceptance of early sex and paternal psychological control in Step 4. The final model (Step 4) revealed a strong and significant association between paternal psychological control and risky sexual behavior, such that the more psychological control boys perceived their fathers to engage in, the more likely they were to engage in risky sexual behavior before age 16. In fact, peer acceptance of early sex was significantly associated with boys' risky sexual behaviors when first entered into the model (i.e., Step 2), but this association became nonsignificant after accounting for paternal psychological control. In contrast to findings among girls, the interaction between peer acceptance of early sex and paternal control was

Table 5. Interaction Between Peer Acceptance of Early Sex and Youth-Reported Paternal Psychological Control on Risky Sexual Behavior Before Age 16 Among Boys.

	Risky sexual behavior before age 16			
	Step 1	Step 2	Step 3	Step 4
Family income	−0.09	−0.03	−0.18	−0.18
Married biological parents	−0.14	−0.13	−0.06	−0.07
Racial/ethnic minority	0.38*	0.36*	0.20	0.20
Peer acceptance of early sex		0.35**	0.19	0.18
Paternal psychological control			0.45***	0.44***
Peer acceptance of early sex × Paternal control				0.03
ΔR^2		.14**	.12***	.00
R^2	.29*	.43**	.55***	.55***

Note. $N = 57$ boys.

* $p < .05$. ** $p < .01$. *** $p < .001$.

nonsignificant among boys. For boys, only paternal psychological control was significantly associated with risky sexual behavior before age 16.

Discussion

Conceptualizing adolescent sexual behavior within an ecological framework, this study extended past research examining cumulative associations of parent and peer characteristics on risky sexual behavior by testing whether links between peer attitudes and adolescents' risky sexual behaviors might be *moderated by* experiences with parents. We examined parental psychological control and peer acceptance of early sex at age 13 as predictors of sexual behavior before age 16, focusing on early adolescence as a critical developmental and transitional period during which adolescents are becoming more peer-oriented and striving for more independence from their parents (Fulgini & Eccles, 1993; Steinberg & Silverberg, 1986).

Results provide evidence in support of developmental and ecological theories positing that relationships with parents set the stage for relationships with peers, or more specifically, that poor interactions with parents increase the likelihood that adolescents will be susceptible to the pressures and norms of the peer group (Allen et al., 2002; Bronfenbrenner, 1979; Cooper & Cooper, 1992). The greater mothers' and fathers' levels of psychological control, the more likely adolescents were to associate with peers who were more

accepting of sex at earlier ages. Moreover, the degree to which adolescents aligned their sexual behaviors with the attitudes of their peers significantly depended upon whether mothers used psychological control. In line with past findings (Dilorio et al., 2001; Santelli et al., 2004), greater peer acceptance of early sex at age 13 was significantly associated with greater risky sexual behavior before age 16, but only when mothers were high in psychological control. Peer acceptance of early sex was not significantly associated to risky sexual behavior if mothers were low in psychological control. The same findings emerged for paternal psychological control, although only among girls. One possibility is that teens with overly controlling parents might tend to move away from those parents to the extent possible, and take greater refuge (and be more attentive to conforming) in ongoing peer relationships. Results are in line with past research documenting that low-quality parent-adolescent relationships, as measured by lack of parental social support and communication with adolescents, increase the influence of peers on teens' risky health behaviors (Allen et al., 2012; Mason, Cauce, Gonzales, & Hiraga, 1994; Whitaker & Miller, 2000). Parental use of psychological control might not only deter adolescents from communicating with parents or turning to parents for support, but is also theorized to undermine adolescents' emotional autonomy (Barber, 1996; Rodgers, 1999), thereby increasing adolescents' susceptibility to peer influences because they do not know how to argue effectively or stand up for themselves.

Importantly, adolescents whose close friends were accepting of early sex were not doomed to engage in risky sexual behavior. Rather, when maternal and paternal control (among girls) was low, adolescents engaged in relatively few risky sexual behaviors even when peers held accepting attitudes toward early sex. In addition, if boys and girls with highly psychologically controlling mothers and girls with highly psychologically controlling fathers formed friendships with peers who were less accepting of early sex, they engaged in low levels of risky sexual behaviors. In fact, although we focus on parental control as the moderator in interpreting our results, one could alternatively view these results as indicating the ways in which peer attitudes could serve as a buffer against risks created by parental psychological control. Friendships with peers who were less accepting of early sex appeared to buffer against the negative consequences of high parental control on risky sexual behavior, in line with research showing that positive peer relationships buffer against the negative behavioral consequences associated with parental discord (Wasserstein & La Greca, 1996).

Further, results suggest that psychological control might be a substantial additional route by which paternal behavior may be linked to *boys'* sexual activity. As hypothesized, both maternal and paternal psychological control

were associated with risky sexual behavior among the full sample of adolescents, but for paternal control, an interaction with teen gender was found. For boys, after accounting for sociodemographic variables and peer acceptance of early sex, paternal psychological control at age 13 emerged as the strongest predictor of risky sexual behavior before age 16, accounting for an additional 12% of the variance in risky sexual behavior. In total, the relatively simplistic model explained over half of the variance in boys' risky sexual behavior, pointing to the considerable influence of paternal psychological control. The magnitude of this link is particularly striking given that psychological control was measured in a way that made no reference to sexual behavior. Moreover, for boys, paternal control did not interact with peer acceptance of early sex. Rather, after accounting for paternal control, peer acceptance of early sex was unrelated to risky sex, regardless of whether paternal control was high or low. In general, little is known about father-son relationships and how they might promote or deter sexual behavior among boys. Some evidence suggests that boys feel more comfortable than girls talking to their fathers about sex, and less comfortable than girls about talking to their mothers (DiIorio et al., 1999). Psychological control likely undermines the father-son relationship. Boys might perceive their fathers' psychologically controlling behaviors as emasculating and demeaning, and maybe participating in sexual intercourse is one attempt boys make to prove their masculinity (Pleck et al., 1994). Overall, our results and past research (e.g., DiIorio et al., 1999; Rodgers, 1999) call attention to the importance of considering gender as a moderating factor and provide preliminary evidence in support of examining paternal and maternal psychological control as separate constructs when examining adolescent sexual health outcomes.

Several limitations to these findings also warrant mention. Perhaps most noteworthy, even the results of longitudinal studies such as this can only potentially disconfirm, but cannot directly confirm the presence of hypothesized causal pathways. In addition, more research is now needed to determine whether other peer and parent factors might be stronger predictors of risky sexual behavior than parental psychological control and peer attitudes (Buhi & Goodson, 2007). More research is also needed examining whether parental psychological control drives adolescents toward more risky peer groups, as hypothesized, or whether parents resort to using more psychological control out of desperation or frustration *after* adolescents begin to associate with risky peer groups.

An additional limitation of the study is that a single-item measure of peer attitudes was employed. Although this measure, obtained independently from a teen's closest peer, yielded significant longitudinal predictions, a more comprehensive and sensitive measure of variation in peer attitudes might

have yielded more robust associations. Next, although results are based on data drawn from a community sample of youth and their peers, the sample size for models examining paternal control among residential fathers was fairly small, particularly when examining separate models for boys and girls. In addition, all youth were recruited from the same public middle school, and likely interacted with one another in classes, school activities, and peer groups. Thus, although the overlap between participants and close peer reporters was small and did not appear to affect the results, as in all studies of youth recruited from the same school, there was a degree of nonindependence in the data that could not be examined. Future research is needed to see if findings replicate among larger, nationally representative samples.

Despite limitations, this study builds upon past literature in several important ways. While much of past research has been based on convenience samples and univariate analyses (Buhi & Goodson, 2007), we conducted multivariate analyses with multireporter, longitudinal data collected from a community sample. Recognizing the need for more comprehensive measures of adolescent sexual activity (Miller et al., 2000), risky sexual behavior was measured as a composite score including the number of sexual partners, the number of times engaging in sex, and the frequency of protection before age 16. Moreover, both maternal and paternal psychological control were examined, contributing to the literature on father influences on sexual behavior. If replicated in future research, these results suggest that prevention programming might benefit from focusing on *both* parental and peer precursors to risky sexual behavior. This study indicates that while peers have a role in explaining adolescents' sexual behavior, this role does not replace the parental role. On the contrary, rather than being a domain outside of the control of parents, links between peer attitudes and sexual behavior appear to be determined to some extent by parental behavior in theoretically expectable ways.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study and its write-up were supported by grants from the National Institute of Child Health and Human Development and the National Institute of Mental Health (9R01 HD058305-11A1 & R01-MH58066).

References

- Aiken, L. S., & West, S. G. (1991). Multiple regression: Testing and interpreting interactions. Thousand Oaks, CA: Sage.
- Allen, J. P., Chango, J., Szewedo, D., Schad, M., & Marston, E. (2012). Predictors of susceptibility to peer influence regarding substance use in adolescence. *Child Development, 83*, 337-350.
- Allen, J. P., Hauser, S. T., Bell, K. L., & O'Connor, T. G. (1994). Longitudinal assessment of autonomy and relatedness in adolescent-family interactions as predictors of adolescent ego development and self-esteem. *Child Development, 65*, 179-194.
- Allen, J. P., Hauser, S. T., O'Connor, T. G., & Bell, K. L. (2002). Prediction of peer-rated adult hostility from autonomy struggles in adolescent-family interactions. *Development and Psychopathology, 14*, 123-137.
- Barber, B. K. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development, 67*, 3296-3319.
- Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.
- Buhi, E. R., & Goodson, P. (2007). Predictors of adolescent sexual behavior and intention: A theory-guided systematic review. *Journal of Adolescent Health, 40*, 4-21.
- Capaldi, D. M. (1996). The reliability of retrospective report for timing first sexual intercourse for adolescent males. *Journal of Adolescent Research, 11*, 375-387.
- Carvajal, S. C., Parcel, G. S., Basen-Engquist, K., Banspach, S. W., Coyle, K. K., Kirby, D., & Chan, W. (1999). Psychosocial predictors of delay of first sexual intercourse by adolescents. *Health Psychology, 18*, 443-452.
- Chen, A. C., Thompson, E. A., & Morrison-Beedy, D. (2010). Multi-system influences on adolescent risky sexual behavior. *Research in Nursing & Health, 33*, 512-527.
- Chesson, H. W., Blandford, J. M., Gift, T. L., Tao, G., & Irwin, K. L. (2004). The estimated direct medical cost of sexually transmitted diseases among American youth. *Perspectives on Sexual and Reproductive Health, 36*, 11-19.
- Conger, K. J., Conger, R. D., & Scaramella, L. V. (1997). Parents, siblings, psychological control, and adolescent adjustment. *Journal of Adolescent Research, 12*, 113-138.
- Cooper, C. R., & Cooper, R. G. (1992). Links between adolescents' relationships with their parents and peers: Models, evidence, and mechanisms. In R. D. Parke & G. W. Ladd (Eds.) *Family-peer relationships: Modes of linkage* (pp. 135-158). Hillsdale, NJ: Lawrence Erlbaum.
- Dilorio, C., Dudley, W. N., Kelly, M., Soet, J. E., Mbwar, J., & Potter, J. S. (2001). Social cognitive correlates of sexual experience and condom use among 13-through 15-year old adolescents. *Journal of Adolescent Health, 29*, 208-216.
- Dilorio, C., Kelley, M., & Hockenberry-Eaton, M. (1999). Communication about sexual issues: Mothers, fathers, and friends. *Journal of Adolescent Health, 24*, 181-189.

- Donenberg, G. R., Bryant, F. B., Emerson, E., Wilson, H. W., & Pasch, K. E. (2003). Tracing the roots of early sexual debut among adolescents in psychiatric care. *Journal of the American Academy of Child and Adolescent Psychiatry*, 42, 594-608.
- Ellis, B. J., Bates, J. E., Dodge, K. A., Fergusson, D. M., Horwood, L. J., Pettit, G. S., & Woodward, L. (2003). Does father absence place daughters at special risk for early sexual activity and teenage pregnancy? *Child Development*, 74, 801-821.
- Fenton, K. A., Johnson, A. M., McManus, S., & Erens, B. (2001). Measuring sexual behavior: Methodological challenges in survey research. *Sexually Transmitted Infections*, 77, 84-92.
- Fox, J. (1991). *Regression diagnostics*. Newbury Park, CA: Sage.
- Fuligni, A. J., & Eccles, J. S. (1993). Perceived parent-child relationships and early adolescents' orientation toward peers. *Developmental Psychology*, 29, 622-632.
- Glosser, A., Gardiner, K., & Fishman, M. (2004). *Statutory rape: A guide to state laws and reporting requirements* (Document No. 340453, prepared for Office of the Assistant Secretary for Planning and Evaluation, United States Department of Health and Human Services). Falls Church, VA: The Lewin Group.
- Gray, M. R., & Steinberg, L. (1999). Unpacking authoritative parenting: Reassessing a multidimensional construct. *Journal of Marriage and Family*, 61, 574-587.
- Grolnick, W. S., & Farkas, M. (2002). Parenting and the development of children's self-regulation. In M. H. Bornstein (Ed.), *Handbook of parenting: Vol 5. Practical issues in parenting* (pp. 89-110). Mahwah, NJ: Lawrence Erlbaum.
- Helsen, M., Vollebergh, W., & Meeus, W. (2000). Social support from parents and friends and emotional problems in adolescence. *Journal of Youth and Adolescence*, 29, 319-335.
- Hoffman, S. (2006). *By the numbers: The public costs of teen childbearing*. Washington, DC: National Campaign to Prevent Teen Pregnancy.
- Kaestle, C. E., Halpern, C. T., Miller, W. C., & Ford, C. A. (2005). Young age at first sexual intercourse and sexually transmitted infections in adolescents and young adults. *American Journal of Epidemiology*, 161, 774-780.
- Kotchick, B. A., Shaffer, A., & Forehand, R. (2001). Adolescent sexual risk behavior: A multi-system perspective. *Clinical Psychology Review*, 21, 493-519.
- Ladd, G. W., & Pettit, G. S. (2002). Parenting and the development of children's peer relationships. In M. H. Bornstein (Ed.), *Handbook of parenting: Vol 5. Practical issues in parenting* (pp. 269-309). Mahwah, NJ: Lawrence Erlbaum.
- Laursen, B., & Collins, W. A. (2009). Parent-child relationships during adolescence. In R. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology: Vol. 2. Contextual influences on adolescent development* (pp. 3-42). New York, NY: Wiley.
- Little, R. J. A., & Rubin, D. B. (1987). *Statistical analysis with missing data*. New York, NY: John Wiley.
- Maccoby, E. E. (1990). Gender and relationships: A developmental account. *American Psychologist*, 45, 513-520.
- Mason, C., Cauce, A. M., Gonzales, N., & Hiraga, Y. (1994). Adolescent problem behavior: The effect of peers and the moderating role of father absence and the mother child relationship. *American Journal of Community Psychology*, 22, 723-843.

- Mendle, J., Harden, K. P., Turkheimer, E., Van Hulle, C. A., D'Onofrio, B. M., Brooks-Gunn, J., & Lahey, B. B. (2009). Associations between father absence and age of first sexual intercourse. *Child Development, 80*, 1463-1480.
- Miller, K. S., Forehand, R., & Kotchick, B. A. (2000). Adolescent sexual behavior in two ethnic minority groups: A multisystemic perspective. *Adolescence, 35*, 313-333.
- Muthén, B. O., & Muthén, L. K. (2010). *Mplus (Version 6.00) [Computer Software]*. Los Angeles, CA: Muthén & Muthén.
- O'Donnell, L., Myintu-U, A., O'Donnell, C. R., & Stueve, A. (2003). Long-term influence of sexual norms and attitudes on timing of sexual initiation among urban minority youth. *Journal of School Health, 73*, 68-75.
- Pleck, J. H., Sonenstein, F. L., & Ku, L. C. (1994). Problem behaviors and masculinity ideology in adolescent males. In R. D. Ketterlinus & M. E. Lamb (Eds.), *Adolescent problem behaviors: Issues and research* (pp. 165-186). Hillsdale, NJ: Lawrence Erlbaum.
- Raykov, T. (2005). Analysis of longitudinal studies with missing data using covariance structure modeling with full-information maximum likelihood. *Structural Equation Modeling: A Multidisciplinary Journal, 12*, 493-505.
- Rodgers, K. N., Buchanan, C. M., & Winchell, M. E. (2003). Psychological control during early adolescence: Links to adjustment in differing parent/adolescent dyads. *Journal of Early Adolescence, 23*, 349-383.
- Rogers, K. B. (1999). Parenting processes related to sexual risk-taking behaviors of adolescent males and females. *Journal of Marriage and Family, 61*, 99-109.
- Russell, A., & Saebel, J. (1997). Mother-son, mother-daughter, father-son, and father-daughter: Are they distinct relationships? *Developmental Review, 17*, 111-147.
- Santelli, J. S., Kaiser, J., Hirsch, L., Radosh, A., Simkin, L., & Middlestadt, S. (2004). Initiation of sexual intercourse among middle school adolescents: The influence of psychosocial factors. *Journal of Adolescent Health, 34*, 200-208.
- Schaefer, E. S. (1965). Children's report of parental behavior: An inventory. *Child Development, 36*, 413-424.
- Schludermann, E., & Schludermann, S. (1970). Replicability of factors in children's reports of parent behavior (CRPBI). *Journal of Psychology, 76*, 239-249.
- Schludermann, S., & Schludermann, E. (1988). *Notes of the CRPBI-30*. Unpublished manuscript, Department of Psychology, University of Manitoba, Winnipeg, Manitoba, Canada.
- Small, S. A., & Luster, T. (1994). Adolescent sexual activity: An ecological, risk-factor approach. *Journal of Marriage and Family, 56*(1), 181-192.
- Steinberg, L., & Silverberg, S. B. (1986). The vicissitudes of autonomy in early adolescence. *Child Development, 57*, 841-851.
- Upchurch, D. M., Aneshensel, C. S., Sucoff, C. A., & Levy-Storms, L. (1999). Neighborhood and family contexts of adolescent sexual activity. *Journal of Marriage and Family, 61*, 920-933.
- Wasserstein, S., & La Greca, A. (1996). Can peer support buffer against behavioral consequences of parental discord? *Journal of Clinical Child Psychology, 25*, 177-182.

- Whitaker, D. J., & Miller, K. S. (2000). Parent-adolescent discussions about sex and condoms: Impact on peer influences of sexual risk behavior. *Journal of Adolescent Research, 15*, 251-273.
- Wolff, J. M., & Crockett, L. J. (2011). The role of deliberative decision making, parenting, and friends in adolescent risk behaviors. *Journal of Youth and Adolescence, 40*, 1607-1622.
- Zimmer-Gembeck, M. J., & Helfand, M. (2008). Ten years of longitudinal research on U.S. adolescent sexual behavior: Developmental correlates of sexual intercourse, and the importance of age, gender, and ethnic background. *Developmental Review, 28*, 153-224.

Author Biographies

Barbara A. Oudekerk is a postdoctoral research associate at the University of Virginia. Her research interests include risky health behaviors among adolescents, romantic relationships, and development and functioning among youth involved in the juvenile justice system.

Joseph P. Allen is a professor at the University of Virginia. His research interests include adolescent social development, family relations, peer relations, and problematic behaviors.

Christopher A. Hafen is a research scientist at the University of Virginia. His research interests include understanding the function and development of close relationships in adolescence.

Elenda T. Hessel is a graduate student at the University of Virginia. Her research interests include the interplay between adolescent peer and romantic relationships, emotion regulation, and the development of psychopathology.

David E. Szwed is a graduate student at the University of Virginia. His research interests include the development of emotion regulation skills during adolescence, romantic relationships, and peer relationships in the online domain.

Ann Spilker is a project coordinator at the University of Virginia. Her research interests include the adolescent social development and romantic relationships.