Early Exposure to Parents' Relationship Instability: Implications for Sexual Behavior and Depression in Adolescence

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Abstract

Purpose—Examine the effects of the timing of parents' relationship instability on adolescent sexual and mental health.

Methods—We assessed whether the timing of parents' relationship instability predicted adolescents' history of sexual partnerships and major depressive episodes. Multivariate logistic regression analyses controlled for potential mediators related to parenting and the family, including parent knowledge of activities, parent-child relationship quality, number of parents' post-separation relationship transitions, and number of available caregivers. Participants were assessed annually from age 5 through young adulthood as part of a multi-site community sample (*N*=585).

Results—Participants who experienced parents' relationship instability before age 5 were more likely to report sexual partnerships at age 16 (odds ratio [OR]$_{adj}$=1.58) or an episode of major depression during adolescence (OR$_{adj}$=2.61). Greater parent knowledge at age 12 decreased the odds of sexual partnerships at age 16, but none of the hypothesized parenting and family variables statistically mediated the association between early instability and sexual partnerships or major depressive episode.

Conclusions—These results suggest that experiencing parents' relationship instability in early childhood is associated with sexual behavior and major depression in adolescence, but these associations are not explained by the parenting and family variables included in our analyses. Limitations of the current study and implications for future research are discussed.

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Keywords

Adolescents; Sexual partners; Depression; Reproductive health; Mental health; Marital status; Parent-child relations

Approximately half of U.S. children will experience their parents' divorce [1], and parents' separation or divorce is associated with a range of negative outcomes for offspring, including increased sexual risk behavior and poor psychological adjustment [2]. Consequently, a better understanding of the mechanisms through which parents' relationship instability affects offspring sexual and mental health is necessary.

While it is statistically normative for individuals to engage in sexual activity by the end of adolescence [3], sexually active adolescents are likely to inconsistently use birth control, have multiple sexual partners, and use alcohol or drugs at the time of intercourse [3,4]. These behaviors increase the chance of consequences such as unplanned pregnancy or sexually transmitted infection and may be associated with later psychological adjustment. Younger sexually active adolescents are most likely to engage in these risk behaviors and, consequently, experience negative outcomes [4].

Alongside the health risks posed by sexual risk behavior, major depression is also a public health concern affecting many adolescents. Approximately 14% of adolescents have experienced at least one episode of major depression, resulting in severe impairment at home, school, or work or in their close relationships or social life [5].

Depressive symptoms tend to correlate with sexual behavior in adolescents [6,7], although measurement variability and inconsistent findings have made it difficult to determine the magnitude of this association [7]. Certain adolescents, such as those exposed to parents' early relationship instability, may be at greater risk for reporting both depressive symptoms and sexual risk behaviors.

Adolescents whose biological parents have separated or do not live together tend to begin having intercourse at younger ages than adolescents with never-separated parents [7,8]. Early parental separation (before age 5) is associated with having more sexual partners in adolescence [9], and early father absence predicts higher rates of sexual activity among 16-year-old females [10]. Timing of parents' relationship instability may also predict increased psychological distress among children and adolescents [2,11,12]. When parents separate early in childhood, individuals tend to have lower well-being as pre-adolescents than individuals whose parents separated later in childhood [13]. Depressive symptoms associated with experiencing parents' separation in childhood may also worsen over time as individuals reach adolescence and young adulthood [14].

Experiencing parents' relationship instability may negatively affect adolescents' own relationships with their parents [15]. Adolescents who experience lower-quality parent-child relationships [16] and whose parents are less knowledgeable about their activities and companions are likely to start having intercourse earlier than their peers [17]. Poor parent-child relationship quality has also shown consistent associations with adolescent depression [18]. Therefore, characteristics of the parent-child relationship could explain the association between parents' early relationship instability and both sexual behavior and depression during adolescence.

As most divorced adults will remarry or cohabit with a new partner following a separation [19], exposure to parents' relationship transitions after the original separation could mediate the association between early instability and adolescents' sexual behavior and depression.

New relationships beginning when children are young that remain stable across time could be protective, as opposed to to multiple new relationships that are short-lived [20]—boys exposed to more post-separation transitions show poorer psychological adjustment when compared to boys who experience fewer transitions [21]. Parents' post-separation relationships may also be associated with their adolescents' sexual behavior, as observing parents is often the primary way children learn about romantic relationships [22].

While sexual behavior and depressive symptoms often correlate with one another during adolescence [6,7], different processes could explain the association between early instability and either outcome. This question has not been addressed previously. Additionally, studies examining the effects of parents' relationship instability have primarily measured normative variations in internalizing behavior and not diagnosable episodes of major depression, as included in the present study. Studies utilizing the same dataset [10,17,23,24] have found associations between parental relationship instability and sexual behaviors and normative variations in internalizing behavior as well as externalizing behaviors in childhood and adolescence. However, these studies have neither simultaneously examined the effects of timing of instability on sexual behavior and clinical levels of depression in adolescence, nor have they tested whether similar parenting variables explain the association between instability and these two outcomes. As such, the present study represents novel use of these data.

The purpose of this study is to use prospective reports from a longitudinal community sample to assess whether timing of parents' relationship instability affects the likelihood that adolescents will report sexual partnerships and major depression. We hypothesized that parents' relationship instability before age 5 would be associated with greater odds of reporting sexual partnerships at age 16 and greater odds of experiencing a major depressive episode between ages 13 and 18 than exposure to later instability or no instability. We examined potential mediators of these associations, hypothesizing that they could be explained by a) less parent knowledge of activities, b) lower-quality parent-child relationships, c) exposure to numerous parental relationship transitions across development, or d) fewer available caregivers, after controlling for measured individual– and family-level covariates in our analyses.

Methods

Sample

The sample was drawn from the Child Development Project (CDP) [25], an ongoing, multisite study examining children's adjustment across time. Children from two cohorts were recruited from Nashville, Tenn., Knoxville, Tenn., and Bloomington, Ind., when children were preregistering for kindergarten during the summers of 1987 and 1988. A total of 585 children participated (52% male; 81% Caucasian) at initial assessment, and their families were economically representative of the communities from which they were recruited [26]. Assessments are conducted annually, and individuals relocating after initial assessment have been followed via mail or telephone. By age 24, 83% of the original sample (*N*=484) continued to participate in assessments.

Initial and ongoing approvals were obtained from the institutional review boards at all universities involved. Parents signed statements of informed consent and children provided assent before participating.

Measures

Parent relationship instability—At each assessment from ages 5 to 16, primary caregivers (mostly mothers, in over 90% of assessments) provided their current marital status and whether they had separated/divorced from a partner in the past year. Age 5 assessments included separate reports of changes in marital status over the past year and during the first four years of the child's life. Separation/divorce of biological parents by age 5 was coded as "early relationship instability." Adolescents whose biological parents had never married were included in this group.[1] Separation/divorce between ages 5 and 16 was coded as "late relationship instability." No separation/divorce by the age of 16 was coded as "no relationship instability."

Sexual partnerships—At age 16, adolescents were asked, "(In the past 12 months) … with how many different people have you had sexual relations?" Report of sexual partnerships (SP) was coded as "yes"/"no." To minimize missing data, report of SP at age 16 was checked against retrospective pregnancy histories at age 24, when offspring reported their age at first pregnancy or at what age they had first gotten someone else pregnant. Individuals who reported that they had become pregnant or gotten someone else pregnant while they were 15 were coded as "yes" for SP by age 16 despite not reporting SP at that assessment (N=9). By utilizing the longitudinal nature of the CDP to address such inconsistencies, we were able to catch high-risk individuals who may have been unable or unwilling to report on SP as 16-year-olds.

Major depression—At age 18, adolescents completed the Computerized Diagnostic Interview Schedule (C-DIS-IV) [27]. The C-DIS-IV is a structured interview designed to diagnosis the presence or absence of major psychiatric disorders, as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) [28]. Experience of a first or worst major depressive episode (MDE) occurring between the ages of 13 and 18 was coded as "yes"/"no."

Parent knowledge of activities [29]—At age 12, adolescents rated how much their parents knew about their friends, money-spending, after-school and nighttime whereabouts, and free time, using a 3-point scale (α=.42). At age 13, interviewers asked primary caregivers (94% mothers, 3% fathers, 3% other) a series of 35 questions about their adolescent's homework, experiences at school, entertainment choices, and peer relations. Interviewers rated how knowledgeable the parent was in each of the four domains, using a 5-point scale (α=.67) The z–score of the average of all items at each time point was used for analysis.

Parent-child relationship quality—At age 13, primary caregivers responded to two items: "How well do you and _____ get along?" and "How enjoyable is it for you to spend time with _____?" using a 5-point scale (α_{age13}=.74). The z-score of the average of the two responses at each time point was used for analysis.

Number of relationship transitions—This variable was determined by the total number of times that the primary caregiver reported a separation/divorce by age 16.

Number of caregivers—This variable was determined by the total number of individuals chosen in response to the question "Who did you consider to be the main people who took care of you while you were growing up?" asked at age 24.

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[1]Never-married families had lower SES and were more likely to be non-Caucasian than early-separated families (ps< .05). Both of these "early instability" subgroups differed from the "late instability" and "no instability" groups on these characteristics (ps< .05).

Covariates—We also controlled for several individual and family characteristics in our analyses. At initial assessment, primary caregivers reported the child's gender, race, and family socioeconomic status (SES). At age 12, adolescents reported their pubertal development regarding growth in height, body hair growth, and skin changes; facial hair growth and voice deepening (males); and breast growth and menstruation (girls) (α_{males}=.68, $\alpha_{females}$=.67).

Statistical Analysis

Using Mplus version 5 software [30], separate logistic regression models were run to predict SP and MDE, with either "no SP" or "no MDE" as the reference category. Univariate logistic regression models were first used to estimate the effect of (1) early instability alone and (2) late instability alone on each outcome. An interaction term (early × late instability) was also tested for significance. Multivariate logistic regression models were then used to estimate the simultaneous effects of (3) both early and late instability; (4) early and late instability and measured covariates; and (5) early and late instability, measured covariates, and parenting variables identified as potential mediators.

Mediators to be included in the logistic regression models were identified using the method suggested by MacKinnon [31]. An effect for each hypothesized mediator was obtained by estimating regression equations in which early instability separately predicted each mediator. Only hypothesized mediators significantly predicted by early instability were included in the multivariate logistic regression models. Estimates of mediation effects were later obtained using Sobel's test of mediation in Mplus [30].

Missing data were accounted for using the full-estimation maximum likelihood (FIML) method [32]. Group differences suggested that data were not missing completely at random, indicating that listwise deletion would not be appropriate for handling missing data. Participants missing SP (*N*=107; 18.3%) and MDE (*N*=165; 28.2%) were compared to participants using variables from the initial assessment. Participants missing data were from families with lower SES than participants with available data (*p*< .05), and participants missing MDE data were more likely to be non-Caucasian than participants with available data (*p*< .05).

Results

Descriptive statistics are presented in Table 1. At age 16, over one third of participants reported SP during the past year. The prevalence of sexual activity at this age in our sample is in keeping with rates found in larger population-based samples [33,34]. Between ages 13 and 18, 16% of participants had experienced at least one MDE, consistent with estimates from recent epidemiological studies [5].

Bivariate correlations are presented in Table 2. Early instability was significantly associated with SP and MDE. Late instability was significantly associated with SP but not MDE. SP and MDE were also correlated with one another. Correlations between the instability measures, parenting variables, and outcome variables were in the expected directions.

Beta estimates for each hypothesized mediator were obtained by estimating regression equations in which early instability separately predicted each mediator (Table 3). Hypothesized mediators significantly predicted by early instability included parent knowledge at 12, parent knowledge at 13, relationship quality at 13, and number of transitions. These variables were later included in the multivariate regression models as possible mediators.

Parents' Relationship Instability and SP (Table 4)

In the univariate logistic regression model, early instability increased the odds of reported SP (OR=3.05). Late instability was associated with a smaller yet significant effect on the odds of SP (OR=1.77). In the first multivariate model, both early and late instability simultaneously predicted SP, although early instability showed a larger association (OR=2.92; see Table 4 footnote regarding interaction). The addition of covariates attenuated the association between early instability and SP (OR=1.92), although it remained significant, whereas late instability was no longer a statistically significant predictor. In the final adjusted multivariate model, greater parent knowledge at age 12 lowered the odds of SP (OR=.70). The addition of the potential mediators attenuated the magnitude of the association between early instability and SP, and the parameter was no longer significant (OR=1.58). Although parent knowledge significantly predicted the odds of SP, parent knowledge did not statistically mediate the association between early instability and SP (z=1.30, p=.19). The sum of the indirect effects across all four potential mediators was also not significant (z= 1.90, p=.06). Higher SES also decreased the odds of SP (OR=.76) in this model.

Parents' Relationship Instability and MDE (Table 5)

In the univariate logistic regression model, early instability increased the odds of adolescent MDE (OR=1.85). Late instability was not associated with MDE. In the first multivariate model, only early instability predicted MDE (OR=1.84; See Table 5 footnote regarding interaction). Early instability predicted greater odds of experiencing MDE after the addition of covariates (OR=2.54) and after the addition of potential mediators (OR=2.61). In the final model, female gender was associated with greater odds of MDE (OR=5.41). None of the potential mediators were significant predictors of MDE, and the sum of the indirect effects across all four potential mediators was not significant (z= 1.53, p=.13).

Discussion

Previous research has not simultaneously examined effects of the timing of parents' instability on clinical levels of depression and early sexual behavior in adolescence or tested whether parenting and family variables explain the association between early instability and both outcomes. The present study is the first to use prospective reports from a longitudinal community sample to address these questions.

Our results suggest that experiencing biological parents' separation or divorce before age 5 (versus later in childhood or never at all) may increase the odds of having sexual partnerships at age 16 and of experiencing a major depressive episode during adolescence. The association between early instability and sexual partnerships or major depressive episodes was not explained by adolescents' or interviewers' ratings' of parents' knowledge of activities in early adolescence, parents' ratings of parent-child relationship quality in early adolescence, or the number of relationship transitions to which adolescents were exposed throughout development. Adolescents who reported greater parent knowledge at age 12 were less likely to report sexual partnerships at age 16. While early instability was associated with later sexual partnerships and major depressive episodes, our results suggest that these associations were not explained by any of the parenting variables included in the present study.

Future research aimed at identifying mediating mechanisms will be crucial for interventions aimed at attenuating the effects of parents' relationship instability on sexual and mental health outcomes among adolescents. Identifying individuals most at risk for negative outcomes, such as those experiencing early parental separation or divorce, could assist

intervention providers in targeting individuals most in need of selective prevention or intervention. Better understanding of the processes underlying these associations would also aid in identifying targets for change in such programs, resulting in more efficient and effective reduction of sexual risk behavior or mental health concerns.

Other risk factors, such as an underlying genetic liability to engage in early sexual behavior or experience emotional difficulties, could be passed on to offspring by biological parents who later experience relationship instability, especially within the first several years following the child's birth [35]. Additional genetically informed analyses would contribute to our understanding of the mechanisms underlying the association between early relationship instability and offspring sexual and mental health. Previous research has found that parents' divorce is associated with age at first intercourse and emotional difficulties even after controlling for genetic and environmental confounds [8], while another study found that genetic influence accounts for earlier intercourse onset among offspring exposed to father absence [36]. Genetically informed analyses focusing on early childhood as a specific risk period are a possible next step and could incorporate measures such as parent knowledge of activities, as selection factors could account for both parent knowledge and adolescent outcomes.

A closer examination of the interplay between sexual and mental health is needed, particularly among at-risk adolescents. In our sample, report of any sexual partnerships at age 16 and report of a major depressive episode during adolescence were correlated, and previous work also suggests an association between sexual risk behavior and depressive symptoms in adolescence [6,7]. In additional analyses (not shown), we tested whether sexual partnerships at age 16 might mediate the relationship between early instability and a major depressive episode by age 18. A significant indirect effect ($z=2.05$, $p=.04$) was found, suggesting that the association between early instability and adolescent depression may in part be explained by adolescent's sexual behavior in mid-adolescence.[2] Researchers have theorized that sexual risk behavior could lead to depressive symptoms or vice versa, although studies looking for evidence of a reciprocal relationship between sexual behavior and depression have often failed to find such a relation [37]. It is also possible that this relationship is explained by common genetic influences predisposing certain adolescents to experience both depressive symptoms and early sexual behavior [38].

Limitations

Because we used data from a longitudinal community sample not focused on sexual behavior, measurement of sexual behavior was limited and might not be generalizable to all adolescents. Sexual behavior data were not available until age 16, and adolescents did not report their age at first intercourse or cumulative number of partners, which may be more informative measures of sexual risk. Adolescents were not specifically asked about intercourse partners, although our sample's rate of sexual activity was similar to rates found in other studies explicitly measuring intercourse, suggesting that adolescents were primarily responding to this item based on intercourse experience. The consideration of non-intercourse behaviors could be important, as adolescents are more likely to report having oral sex than intercourse, and some believe oral sex carries no risk of sexually transmitted infection [39]. In contrast to many studies, the present study did not exclude same-sex partnerships, which may also be informative. Research focused solely on heterosexual intercourse ignores adolescents still at risk for negative health consequences associated with other early, risky sexual activity.

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[2]Early instability did not predict major depression before age 16, so it could not be tested as a potential mediator of the association between early instability and sexual partners by age 16.

It is possible that the effects of each parenting variable may depend on the informant providing data. Adolescent report of parent knowledge, but not interview rating, predicted greater odds of sexual partnerships. Parent report of parent-child relationship quality did not predict either outcome; adolescent report of relationship quality may be a better indicator but was not measured in early adolescence and could not be tested as a mediator in our analyses. Additionally, parent-child relationship quality was only reported by primary caregivers, usually mothers, and non–primary-caregiver reports could be important predictors of either outcome.

Some child characteristics thought to result from parents' separation, such as depressive symptoms, may exist prior to the separation [40]. In the present study, it was not possible to rule out pre-existing factors. Prospective reports of child characteristics were not available until age 5, at which point, by definition, early instability would have already occurred.

Conclusion

Exposure to parents' relationship instability before the age of five may predict greater likelihood of sexual activity and major depression among adolescents. Parents' knowledge of activities may also predict decreased sexual activity. Our findings do not support the hypothesis that early instability may be linked to sexual and mental health outcomes via parent knowledge, parent-child relationship quality, exposure to numerous relationship transitions, or fewer available caregivers, as measured in our study.

The current study adds to the existing literature by utilizing longitudinal data from a community sample to examine the effects of timing of parents' relationship instability on sexual partnerships and clinical depression among adolescents. Future research aimed at identifying potential mediators and moderators of the association between early parental relationship instability and sexual and mental health outcomes should examine both genetic influences and other risk factors, such as children's psychological well being prior to the separation. Such research will further our understanding of the effects of family structure on offspring adjustment across different but related domains.

Acknowledgments

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Table 1

Characteristics of the full sample and early parental relationship instability subsample

	Full sample		Early relationship instability
	N = 585		N = 194
	M (SD) or %	% missing	M (SD) or %
Outcome variables			
Sexual partnerships at age 16	36.40%	18%	53.21%
Major depressive episode ages 13–18	15.50%	28%	20.80%
Relationship instability measures		6%	
Early instability	35.27%	-	-
Late instability	35.91%	-	-
Both early and late instability	14.73%	-	-
No instability	43.09%	-	-
Hypothesized mediating variables			
Parent knowledge at age 12[a]	2.70 (0.25)	26%	2.68 (0.28)
Parent knowledge at age 13[b]	4.02 (0.68)	25%	3.79 (0.81)
Parent-child relationship quality at age 13[c]	4.41 (0.65)	25%	4.33 (0.65)
Number of transitions	1.15 (1.60)	0%	1.65 (1.69)
Number of caregivers	2.19 (0.86)	21%	2.09 (1.01)
Covariates			
Gender (male)	51.97%	0%	48.45%
Pubertal development at age 12[d]	2.65 (0.65)	27%	2.69 (0.70)
Family socioeconomic status at age 5[e]	39.53 (14.01)	3%	31.85 (13.52)
Race (Caucasian)	81.54%	0%	65.46%

[a] Raw score; child report; average of 5 items rated on a 3-point scale: 1 = "they don't know," 2 = "they know a little," 3 = "they know a lot."

[b] Raw score; interviewer report; average of 4 items rated on a 5-point scale: 1 = "very little or not at all—mostly guessing," 2 = "somewhat but not very," 3 = "to a moderate extent, some gaps" 4 = "fairly aware," 5 = "very aware."

[c] Raw score; parent report; average of 2 items rated on a 5-point scale: 1 = "not well at all," 2 = "not too well," 3 = "okay," 4 = "quite," 5 = "extremely."

[d] Average of 5 items rated on a 4-point scale: 1 = "not begun," 2 = "barely started," 3 = "underway," 4 = "complete."

[e] Based on Hollingshead 4-factor score. To decrease the range of variable standard deviations and avoid problems with parameter estimation, SES was rescaled by a factor of 0.10 in all models.

Table 2

Bivariate correlations between measured characteristics

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Sexual partnerships (16)[a]	1												
2 Major depressive episode (13-18)[a]	**0.19**	1											
3 Early instability[a]	**0.26**	**0.11**	1										
4 Late instability[a]	**0.14**	0.06	0.08	1									
5 Parent knowledge (12)	**-0.18**	-0.07	-0.09	-0.06	1								
6 Parent knowledge (13)	**-0.17**	-0.03	**-0.24**	**-0.15**	**0.17**	1							
7 Relationship quality (13)	**-0.15**	**-0.00**	**-0.12**	-0.05	**0.18**	**0.22**	1						
8 Number of transitions	**0.17**	**0.10**	**0.22**	**0.68**	-0.07	**-0.13**	**-0.10**	1					
9 Number of caregivers	0.03	-0.05	-0.08	**0.11**	-0.06	-0.04	-0.05	0.05	1				
10 Gender[b]	**0.10**	**0.17**	0.04	0.07	0.06	-0.03	-0.08	0.07	0.02	1			
11 Pubertal development (12)	**0.14**	0.09	0.05	-0.01	-0.10	-0.10	-0.02	0.07	0.05	**0.44**	1		
12 Family SES (5)	**-0.27**	-0.04	**-0.41**	**-0.18**	0.01	**0.32**	**0.12**	**-0.12**	-0.05	-0.05	-0.02	1	
13 Race[c]	**0.23**	-0.04	**0.30**	**0.10**	-0.05	**-0.20**	0.01	0.02	-0.06	0.02	0.01	**-0.39**	1

*
Significant (*p2-tail* < .05) correlations are in bold.

[a]
0 = no, 1 = yes.

[b]
0 = male, 1 = female.

[c]
0 = Caucasian, 1 = African American/other.

Table 3
Estimated effects of parents' early relationship instability on putative mediators

Measure	B	SE
Parent knowledge (12)	**-0.24**	*0.11*
Parent knowledge (13)	**-0.53**	*0.11*
Parent-child relationship quality (13)	**-0.29**	*0.12*
Number of transitions	**0.76**	*0.14*
Number of caregivers	-0.13	*0.10*

B = unstandardized estimate; SE = standard error

[*] Significant ($p2\text{-}tail < .05$) beta estimates are in bold. These variables were later included in multivariate logistic regression models as potential mediators.

Table 4

Multivariate associations between parents' relationship instability and sexual partnerships (SP) at age 16

		Model								
	1		**2**		**3**		**4**		**5**	
Measure	**OR**	*95% CI*	**OR**	*95% CI*	**OR**	*95% CI*	**OR**	*95% CI*	**OR**	*95% CI*
Relationship instability										
Early[a]	**3.05**	*2.03-4.57*	**2.92**	*1.94-4.39*	**1.92**	*1.15-3.22*	1.58	*0.90-2.75*
Late[a]			**1.77**	*1.20-2.63*	**1.61**	*1.07-2.43*	1.34	*0.84-2.15*	1.00	*0.51-1.95*
Potential mediators										
Parent knowledge (12)									**0.70**	*0.53-0.92*
Parent knowledge (13)									1.06	*0.80-1.41*
Relationship quality (13)									0.84	*0.65-1.09*
Number of transitions									1.14	*0.95-1.38*
Covariates										
Gender[b]							1.15	*0.68-1.94*	1.21	*0.70-2.08*
Pubertal development (12)							**1.50**	*1.01-2.25*	1.41	*0.93-2.13*
Socioeconomic status (5)							**0.76**	*0.63-0.92*	**0.76**	*0.61-0.94*
Race[c]							1.72	*0.87-3.41*	1.80	*0.82-3.93*

CI = confidence interval; OR = odds ratio.

* Significant (*p2-tail* < .05) odds ratios are in bold.

[a] Reference category = no.

[b] Reference category = male.

[c] Reference category = Caucasian.

Note: An interaction effect (early instability × late instability) was also tested following Model 3, but this parameter was not significant (OR =0.70, p=0.32).

Table 5

Multivariate associations between parents' relationship instability and major depressive episode (MDE) at ages 13-18

					Model					
	1		**2**		**3**		**4**		**5**	
Measure	**OR**	*95% CI*	**OR**	*95% CI*	**OR**	*95% CI*	**OR**	*95% CI*	**OR**	*95% CI*
Relationship instability										
Early[a]	**1.85**	*1.06-3.24*	**1.84**	*1.03-3.30*	**2.54**	*1.20-5.38*	**2.61**	*1.17-5.81*		
Late[a]	1.40	*0.80-2.45*	1.31	*0.73-2.34*	1.25	*0.65-2.38*	1.12	*0.47-2.65*		
Potential mediators										
Parent knowledge (12)							0.94	*0.67-1.33*		
Parent knowledge (13)							1.00	*0.67-1.48*		
Relationship quality (13)							1.17	*0.80-1.71*		
Number of transitions							1.08	*0.87-1.34*		
Covariates										
Gender[b]					**4.90**	*1.89-12.70*	**5.41**	*1.97-14.84*		
Pubertal development (12)					0.84	*0.47-1.49*	0.81	*0.44-1.47*		
Socioeconomic status (5)					0.99	*0.97-1.02*	0.99	*0.97-1.02*		
Race[c]					0.35	*0.10-1.25*	0.31	*0.07-1.31*		

CI = confidence interval; OR = odds ratio.

*Significant (*p2-tail* < .05) odds ratios are in bold.

[a] Reference category = no.

[b] Reference category = male.

[c] Reference category = Caucasian.

Note: An interaction effect (early instability × late instability) was also tested following Model 3. This parameter was significant; however, the interaction was no longer significant after the introduction of covariates (results not shown), so the interaction was dropped from the remaining models.