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## Teacher-student interactions and attachment states of mind as predictors of early romantic involvement and risky sexual behaviors

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### Abstract

Adolescents' capacities to negotiate sexual behavior in romantic relationships have important implications for their reproductive and health outcomes. This study examined adolescents' interactions with teachers and attachment states of mind as predictors of their romantic involvement and risky sexual behavior in an economically disadvantaged sample. Negative interactions with teachers predicted increased sexual risk-taking behaviors and females' early romantic involvement. Preoccupied states of mind increased risk for early romantic involvement and the likelihood that females would engage in risky sexual behavior. The findings demonstrate how adolescents' school experiences contribute to adaptation in romantic relationships in mid to late adolescence above and beyond representations of parent-child attachment.

### Keywords

Student-Teacher Relationships; States of Mind; Early Romantic Involvement; Sexual Risk Behavior; Gender Differences

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Adolescents' growing engagement with peers creates a relationship context that supports dating behavior and the eventual formation of romantic attachment bonds. Yet, the timing of romantic involvement may signal problems in adaptation (Roisman, Booth-LaForce, Cauffman, Spieker, & NICHD, 2009). Early involvement with a romantic partner may co-occur with risky sexual behavior that increases the adolescents' vulnerability to unintended pregnancies or sexually transmitted diseases. Both attachment states of mind and school difficulties have been implicated in the development and maintenance of adolescents' problem behaviors (Allen, 2008; Balfanz, Herzog, & MacIver, 2007; Scaramella, Conger, Simons, & Whitbeck, 1998). However, little is known about their relative contributions to the formation of romantic relationships and risky sexual behavior. The major objective of this paper was to examine attachment states of mind and the quality of adolescents' interactions with teachers as factors that influence their trajectories of romantic involvement and sexual risk-taking behaviors between ages 15 and 17. More specifically, we anticipated that insecure states of mind and negative interactions with teachers would predict early involvement in romantic relationships and risky sexual behaviors.

## Early reliance on romantic partners as attachment figures and sexual risk-taking behaviors

Establishing and maintaining an enduring attachment bond with a romantic partner who has demonstrated commitment and availability represents an important aspect of successful adult adaptation (Crowell & Waters, 1994; Duemmler & Kobak, 2001; Fraley & Shaver, 2000; Weiss, 1991). Yet while most developmental models view the formation of a romantic bond as normative in early adulthood, some studies suggest that early or precocious romantic involvement may be a marker of maladaptation and associated risk for problem behaviors that include delinquency and alcohol use. In their sample of 10<sup>th</sup> and 11<sup>th</sup> graders, Davies and Windle (2000) reported that adolescents who had more extensive dating and steady romantic involvement were at greater risk for problem behaviors than adolescents who reported only casual dating. Antecedents of early romantic involvement were reported in the NICHD longitudinal sample. Adolescents who reported having been “deeply in love” at age 15 had developmental histories of less maternal sensitivity in early childhood and lower ratings of peer competence in middle childhood (Roisman et al., 2009).

Bowlby’s concept of a hierarchy of attachment figures offers a way of conceptualizing early romantic involvement as a possible risk factor (Kobak, Rosenthal, Zajac, & Madsen, 2007). Bowlby (1979) viewed attachment bonds as highly selective relationships in which preferences for attachment figures are hierarchically ordered. During adolescence, new bonds formed with peers may be gradually tested as attachments and a romantic partner may enter an adolescents’ hierarchy of attachment figures. Rosenthal and Kobak (2010) developed and tested a measure of adolescents’ attachment hierarchies in a sample of adolescents from middle-income families. They found that compared to students in 9<sup>th</sup> and 10<sup>th</sup> grades, students in late high school and the first year in college were more likely to identify a close friend or romantic partner as an attachment figure. Yet most adolescents retained their parents as primary or secondary figures while peers occupied tertiary or quaternary positions in adolescents’ attachment hierarchies. In less typical cases, those adolescents who identified a peer as a primary or secondary attachment figure were at increased risk for behavior problems.

Several mechanisms may account for the link between early reliance on a peer as an attachment figure and risky problem behaviors. Adolescents’ vulnerability to engaging in risky and potentially dangerous behaviors is increased in peer contexts (Steinberg, 2007). However, susceptibility to peer influence is likely to be further increased when adolescents depend on a peer for protection and guidance. Although adolescents may intend to serve a caregiving role and protect the safety and wellbeing of their partners, they often lack the judgment and maturity of an adult caregiver. Further, adolescents who identify a romantic partner as an attachment figure may mistake being deeply in love for having formed an enduring attachment bond. These early “romantic attachments” tend to be relatively short lived; they are less likely to provide the protection and guidance offered by more enduring attachment bonds. As a result, early identification of a romantic partner as an attachment figure is likely to (1) reduce an adolescent’s reliance on adult guidance; (2) increase the adolescent’s susceptibility to the immediate demands of the romantic relationship; and (3) result in sexual decisions that are guided by unrealistic expectations about the long-term viability of the relationship. Together, these factors should increase the likelihood of risky sexual behavior.

## Attachment states of mind and teacher-student interactions as predictors of early romantic involvement and risky sexual behavior

Both family and school factors have been implicated in how adolescents form romantic relationships and engage in risky behavior (Allen, 2008; Balfanz, et al., 2007; Scaramella, et al., 1998). A core tenet of attachment theory is that expectancies formed in parent-child relationships are carried forward into subsequent relationships. By adolescence and adulthood these expectancies are thought to guide attentional and emotional strategies for regulating the attachment system that can be assessed as states of mind in the Adult Attachment Interview (AAI). States of mind are coded from close analysis of adolescents' discourse in response to questions about their relationships with parents. Adolescents who maintain discourse coherence are viewed as Secure/Autonomous while those who divert attention or become absorbed in interview topics are characterized as Dismissing or Preoccupied, respectively. Both Dismissing and Preoccupied states of mind have been implicated in adolescent psychopathology and problem behavior (Allen, 2008). These expectancies and strategies are thought to influence adolescents' expectancies for romantic partners and their capacity to negotiate goal conflicts that occur over the course of forming a relationship (Kobak & Duemmler, 1994; Furman, Simon, Shaffer & Bouchev, 2002). More specifically, insecure strategies are likely to increase adolescents' reliance on peers as sources of safety and protection and increase their vulnerability to sexual risk-taking behaviors.

Adaptation in romantic and sexual relationships is shaped by school and peer contexts that extend well beyond the immediate family (Sroufe, 1997). Positive relationships with teachers may provide adolescents with an important source of adult guidance that has a unique effect on how they form romantic relationships and engage in sexual behavior. During adolescence, teachers monitor school behavior, enforce rules for conduct, and support adolescents in their learning. Emotionally supportive teacher-student relationships have been associated with students' motivation for learning (Wentzel, 2009) and increased reports of school engagement (Roeser, Midgley, & Urdan, 1996). Conversely, negative interactions with teachers both signal and reinforce disengagement and lack of connectedness to school (Juvonen, 2007). Lack of a sense of belonging and engagement has been proposed as a key factor contributing to the likelihood of adolescent school dropout (Balfanz et al., 2007; Finn, 1993). Adolescents who become alienated and disengaged from school may become more vulnerable to engage in problem behaviors and associate with other deviant peers. The lack of long-term educational goals and plans may increase adolescents' investment in romantic relationships and increase their sexual risk-taking behaviors (Kotchick, Shaffer, Forehand, & Miller, 2001). Yet, in spite of the role that adolescents' relationships with teachers may play in shaping their romantic and sexual behavior, these relationships have received very little attention from attachment researchers (see Bergin & Bergin, 2009 for review).

The relative contributions of attachment and teacher-student relations to romantic involvement and sexual risk-taking may differ between male and female adolescents. The consequences of sexual risk-taking behaviors and unintended pregnancy fall disproportionately on adolescent females from economically disadvantaged families (Kotchick et al., 2001). Because pregnancy is a time of increased vulnerability and risk for females and their offspring, they may be more predisposed to view their sexual partners as potential attachment figures on whom they could rely for support during the transition to parenthood. Similarly, male and female adolescents may view the consequences of school disengagement and dropping out from different standpoints. Female adolescents who have left school are more likely to view early childbearing as an alternative life-course strategy

compared to their male counterparts (Burton, 1990; Oberlander, Agnostini, Houston, & Black, 2010).

Summarizing, we hypothesize that both adolescents' attachment state of mind, rooted in parent-child attachment history, and the quality of their interactions with teachers make unique contributions to romantic involvement and sexual behavior. In addition, we hypothesize that both risk factors are interrelated: adolescents with insecure regulatory strategies are assumed to show more problems with the negotiation of interpersonal interactions with teachers. Although there is some evidence that parent-child relationships influence the quality of teacher-student relationships, this work has been limited to either early childhood (e.g., Buyse, Verschueren, & Doumen, 2011) or to assessments in middle childhood (Little & Kobak, 2003). In this study, we extend the existing literature by testing the interconnection of adolescents' insecure attachment states of mind with their daily reports of negative interactions with teachers.

## The Current Study

We examined teacher-student interactions and attachment states of mind as predictors of early romantic involvement and risky sexual behaviors between ages 15 and 17. Our first hypothesis was that adolescents who identify romantic partners as attachment figures will be at increased risk for sexual risk-taking behaviors. Our second hypothesis was that insecure attachment will increase adolescents' risk for negative interactions with teachers, early romantic attachments and associated risky sexual behaviors. Our major hypothesis was that negative interactions with teachers would add to insecure attachment in accounting for adolescents' early involvement with romantic partners and sexual risk-taking behaviors at age 17. Gender was tested as a moderator of predictors and risky sexual behaviors with the expectation that effects will be most pronounced among female adolescents.

These hypotheses were tested in a sample of adolescents from economically disadvantaged families. Social class and socio-cultural norms for the timing of reproduction may also influence early romantic involvement and risky sexual behavior. In the United States, students from economically disadvantaged families are less likely to graduate high school or attain post-secondary education and more likely to have children at younger ages (Eccles & Roeser, 2003). They are also at increased risk for anti-social behavior (Bradley & Corwyn, 2002; Dodge & Pettit, 2003; Kupersmidt, Griesler, DeRosier, & Patterson, 1995). Disadvantaged minority status further increases risk for teenage pregnancy, substance abuse, and contact with the criminal justice system among African American adolescents (Bradley & Corwyn, 2002). Thus, it is important to examine variation in attachment and school related risk within low-income populations.

## Methods

### Participants and Procedure

The 128 participants are a sub-sample of a larger longitudinal study of economically disadvantaged adolescents. Selection was based on order of entry into the study. The data were collected in 3 waves close to the adolescents' 14<sup>th</sup>, 15<sup>th</sup> and 17<sup>th</sup> birthdays. There were similar numbers of female (51%) and male (49%) participants with 74.5% African-American, 21.5% Caucasian, and 4.0% other ethnicities. Diary measures at age 14 were obtained with phone interviews on school days Monday through Thursday on two consecutive weeks during the school year. When the adolescents were 15, they were interviewed with the Adult Attachment Interview (AAI) during a laboratory visit, the Important People Interview (IPI), and a measure of sexual risk-taking. At age 17, the

adolescents were interviewed by telephone for 45 minutes on measures that included the IPI and the sexual risk-taking measure. Subjects were compensated for their time.

Some data were lost due to attrition. Participants lost to attrition at age 17 were compared with those who completed the study on a series of age 15 demographic, predictor and outcome measures. None of the *t*-tests produced a significant difference between the two groups.

## Measures

**Adult Attachment Interview**—The Adult Attachment Interview (AAI; George, Kaplan, & Main, 1996) is a semi-structured 60- to 90-minute interview that focuses on memories of childhood experiences with attachment figures. Reliability and validity of the AAI are well established (Bakermans-Kranenburg & van IJzendoorn, 1993). All AAIs were recorded and transcribed and transcripts were coded using the AAI Q-sort (Kobak, Cole, Fleming, Ferenz-Gillies, & Gamble, 1993) based on the Main and Goldwyn (1998) experience and state of mind scales. Two blind raters sorted 100 Q-sort items to describe each transcript. At least one of the two raters coding each transcript had attended a 2-week training workshop and passed reliability testing on the Main and Goldwyn (1998) coding method. If inter-rater reliability fell below .60 (Spearman-Brown formula), a third rater sorted the transcript and the highest two-rater correlation was used to form a composite description. A third rater was required on 45 (23%) transcripts. The average reliability for the composite Q-sorts across all transcripts was .82 (Spearman-Brown formula). Composited Q-sorts were correlated with prototype sorts for Secure, Dismissing, and Preoccupied derived from the Main and Goldwyn (1998) system, resulting in continuous scores for each adolescent on all three dimensions. Because Secure and Dismissing prototypes are inversely correlated ( $r = -.92$ ), only Dismissing and Preoccupied dimensions are used in subsequent analyses. These dimensions closely parallel the two dimensions derived from a principal components analysis (PCA) of Main and Goldwyn's state of mind scale (Roisman, Fraley, & Belsky, 2007) and a PCA of AAI Q-sort items (Kobak & Zajac, 2011).

**Scale of Sexual Risk-Taking (SSRT)**—The SSRT (Metzler, Noell, & Biglan, 1992) is a 13-item measure of the extent to which an adolescent is engaging in various types of sexual behavior, particularly in risky sexual behavior. Participants indicated the frequency with which they engaged in each of nine different sexual behaviors. Summing weighted item-level scores created a risky sex total score. Internal consistency for standardized items on this scale at ages 15 and 17 was .73 and .67 respectively (Cronbach's alpha). Most of the variability in our sample came from the four items identified by Metzler and colleagues (1992) as "moderate-risk" (i.e., non-virgin status, frequency of sexual intercourse in past year, nonuse of birth control, and use of alcohol and drugs associated with sex). There was relatively little reporting of more high-risk behaviors (i. e., sex with promiscuous partners, number of sex partners in past year, history of STD infection or anal sex). Metzler et al. (1992) found acceptable internal consistency and good convergent validity for the SSRT.

**Negative Teacher-Student Interactions**—Diary assessments were completed close to the adolescents' 14<sup>th</sup> birthdays. An aggregate measure of negative interactions with teachers was derived from the 8 daily reports of 5 negative types of interactions with teachers (i.e., "talked back to a teacher", "got in trouble with a teacher", "received a detention", "a teacher got mad at me", and "got a warning from a teacher"). The occurrence of daily events was endorsed on a 4-point scale that ranged from 1 = "Not at All" to 4 = "A Lot". These items were internally consistent (alpha = .83) and correlations between days averaged .52. The mean of the five daily items was averaged across 8 days to create a composite of negative teacher-student interactions.

**The Important People Interview (IPI)**—The IPI asks adolescents to nominate 4 important people and then 4 additional peers. Following their nomination of 8 individuals, participants were asked to rank their preferences for nominees in a series of 9 vignettes designed to elicit attachment, support-seeking, and affiliative behavior (Rosenthal & Kobak, 2010). Preferences for attachment figures were assessed in 3 situations that assessed emotional proximity (feelings of closeness), separation distress (whom they would miss the most), and safe haven behavior (whom they would contact in an emergency situation). A principal component analysis indicated that participants' preferences for nominees in the 3 attachment situations were distinct from their preferences for individuals in affiliative and support-seeking situations (Rosenthal & Kobak, 2010). Each nominee's ranking (4 = primary placement, 3 = secondary placement, 2 = tertiary placement, 1 = quaternary placement, 0 = no placement) was averaged across the 3 attachment vignettes. The individual with the highest average was designated as primary attachment figure, followed by secondary, tertiary, and quaternary attachment figures. A romantic partner's placement in an adolescent's attachment hierarchy could range from primary= 4 to not placed = 0.

### Data Analytic Strategy

Preliminary analyses examined the zero-order correlations for predictor, outcome, and demographic variables. Next, path models examined our second and third hypotheses regarding AAI-states of mind and teacher-student interactions as predictors of age 15 and 17 romantic placements and sexual risk-taking behaviors. Analyses were conducted with the statistical software package Mplus Version 5.21 (Muthén & Muthén, 1998–2007), which allowed for tests of gender invariance in the path models as well as for missing data estimation using Full Information Maximum Likelihood (FIML). This approach treated missing data as missing at random, resulting in unbiased parameter estimates and appropriate standard errors (Little & Rubin, 2002). Model fit was assessed using the Comparative Fit Index (CFI; Bentler, 1990), the Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993), and the Standardized Root Mean Square Residual (SRMR; Bentler, 1990). For the CFI, adequate fit is indicated by a value of .95 or above, and adequate fit for both the RMSEA and the SRMR is indicated by values of .08 or below (Hu & Bentler, 1999).

## Results

### Preliminary Analyses

Table 1 shows the means and standard deviations of study variables for both the full sample as well as for females and males separately. The means for the Dismissing and Preoccupied dimensions are the correlations between each participant's Q-sort and the two prototypes scores for Dismissing and Preoccupied states of mind. Examination of means for sexual risk-taking behavior shows an increase between the age 15 and 17 assessments with substantially higher levels reported at age 17 ( $F(1, 111) = 30.11, p < .001$ ). There was also a trend toward increased placement of romantic partners in adolescents' attachment hierarchies between the two time periods ( $F(1, 109) = 2.85, p < .10$ ). Additionally, one-way Analyses of Variance (ANOVAs) indicate that males reported higher levels of sexual risk-taking behaviors at both age 15 and age 17.

Table 2 shows zero-order correlations for females above the diagonal and correlations for males below the diagonal. Negative teacher-student interactions correlated with the age 15 and age 17 outcome variables for females only. Negative teacher-student interactions also correlated with preoccupied states of mind for females. Family income and parent marital status revealed almost no relations between these variables and the study variables, and thus we did not include these demographic controls in subsequent analyses.



## Effects of AAI States of Mind and Negative Teacher-Student Interactions

The path model in Figure 1 shows negative teacher-student interactions and attachment states of mind as predictors of adolescents' romantic placements in the attachment hierarchy and sexual risk-taking at ages 15 and 17. Overall fit statistics for this model indicate adequate fit:  $\chi^2(1, N = 132) = 0.16, p > .05$ ; CFI = 1.00; RMSEA = 0.00; SRMR = 0.01. The standardized path coefficients in the model show that negative teacher-student interactions predicted increased risky sexual behavior at age 15 and indirectly predicted risky sexual behavior at age 17 through age 15 sexual risk-taking behavior ( $t = 2.19, p < .05$ ). Romantic placements at age 15 also accounted for increased sexual risk-taking behaviors between ages 15 and 17. Together, early romantic involvement and age 15 sexual risk taking behavior accounted for 22% of the variance in sexual risk taking at age 17. Preoccupied attachment predicted age 15 romantic placements and negative teacher-student interactions predicted romantic placements at age 17.

Gender moderation was tested using a multiple group analysis in which we observed whether there were significant decreases in model fit after applying cross-group equality constraints. Comparison of fit statistics for a model with no equality constraints on any parameter estimates (i.e., the baseline model;  $\chi^2(2) = 0.82, p > .05$ ; CFI = 1.00; RMSEA = 0.00; SRMR = 0.02) and for a model with all paths constrained to be equal across males and females ( $\chi^2(22) = 43.33, p < .01$ ; CFI = 0.82; RMSEA = 0.12; SRMR = 0.13) indicated gender non-invariance ( $\Delta\chi^2(20) = 42.51, p < .01$ ). In order to identify specific gender differences within the model, we applied equality constraints on each model parameter and compared fit statistics for the restrictive models to those for the baseline model. Two parameters showed significant gender moderation and two parameters showed trends ( $p < .10$ ) toward moderation by gender. Adolescent gender moderated the relation between negative teacher-student interactions and age 15 romantic placements ( $\Delta\chi^2(1) = 6.75, p < .05$ ), as well as the correlation between age 17 romantic placements and age 17 sexual risk-taking behaviors ( $\Delta\chi^2(1) = 10.30, p < .01$ ). Trends toward gender moderation were also evident in the association between Preoccupied states of mind and negative teacher-student interactions ( $\Delta\chi^2(1) = 3.12, p < .10$ ) and in the path between preoccupation and age 15 risky sexual behavior ( $\Delta\chi^2(1) = 3.55, p < .10$ ).

Figure 2 shows the four parameters that were moderated by gender along with the paths that were invariant across gender in Figure 1. Negative teacher-student interactions were associated with greater risk for females than for their male counterparts with females' negative interactions increasing their placement of romantic partners as attachment figures at age 15. In addition, females' romantic placements in the attachment hierarchy at age 17 were associated with increased sexual risk-taking at age 17. Preoccupied attachment was also a more prominent risk factor for females than for males. Preoccupied females reported more negative interactions with teachers and more risky sexual behavior at age 15 and indirectly contributed to risky sexual behavior at age 17 ( $t = 2.52, p < .05$ ).

## Discussion

Attachment states of mind have been extensively implicated in adolescent psychosocial adjustment (Allen, 2008). However, very little is known about whether adolescents' attachment strategies influence their interactions with teachers or the extent to which the quality of relationships with parents and teachers affects emerging romantic relationships and sexual behavior. The current findings show the value of adding the quality of adolescent-teacher relationships to models that assess attachment related risk. Negative interactions with teachers at age 14 predicted increased risky sexual behavior at age 15 and indirectly accounted for increased risky behavior at age 17. These findings extend previous studies regarding the role of adolescents' relationships with teachers from proximal

outcomes such as academic motivation (Wentzel, 2009) or school engagement (Juvonen, 2007) to more distal outcomes that occur in context of romantic relationships.

Negative teacher-student interactions at age 14 increased the likelihood of females' identifying romantic partners as attachment figures at both ages 15 and 17. This suggests that particularly for females in economically disadvantaged samples, aversive interactions with teachers at age 14 may be an early marker of school disengagement and subsequent school failure. The alienation from school and from the opportunities that school affords for post-secondary education and occupational attainment decreases investment in school. In the absence of school engagement, female adolescents are more likely to see early transition to motherhood as an alternative strategy for achieving adult status (Burton, 1990). This "alternative life course strategy" may be evident in increased investment in romantic and sexual behavior and expectations for earlier timing of pregnancy and transition to parenthood

A novel aspect of the study was the use of the Important People Interview to assess early romantic involvement as a prospective predictor of sexual risk-taking behavior. Although dating is a normative part of adolescent development, the findings supported our hypothesis that early identification of a romantic partner as a primary or secondary attachment figure would increase adolescents' vulnerability to risky behavior. Not only did placements of romantic partners co-vary with increased sexual risk taking at age 15, but they also accounted for increases in risky sexual behavior between ages 15 and 17. The failure of age 15 romantic placements to account for age 17 placements indicates that very few of these romantic partners remained "attachment figures" over the following two-year period. This suggests that while these romantic partners were emotionally salient to adolescents at age 15, few if any of these relationships met criteria for becoming enduring attachment bonds. The link between romantic partner placements and risky sexual behaviors was also evident at age 17 but only for females and not their male counterparts. This gender difference may reflect differing views of how sexual behavior and attachment are linked. The longer-term consequences of pregnancy for female adolescents may lead them to associate sexual behavior with the need to rely on the male as an attachment figure.

Attachment related risk for early romantic involvement and risky sexual behavior was limited to Preoccupied as opposed to Dismissing states of mind. Preoccupied adolescents were more likely to identify a romantic partner as an attachment figure at age 15. This is generally supportive of the notion that preoccupation is a strategy that increases vigilance toward attachment figures and in the case of romantic relationships may result in less caution in assuming a romantic partner can be trusted to serve as a protective figure. Preoccupied girls were more vulnerable than Preoccupied boys. They reported more negative interactions with teachers at age 14 and more risky sexual behavior at age 15. This gender difference may be a product of girls' greater sensitivity to interpersonal challenges or tendency to display problematic behaviors in a relational context (Kobak, Zajac, & Smith, 2009; Zahn-Waxler, Crick, Shirtcliff, & Woods, 2006). Whereas Preoccupied boys may withdraw from interpersonal contexts, Preoccupied girls are more likely to maintain engagement and express preoccupation in their relationships with teachers or romantic partners. With teachers, Preoccupied states of mind may increase girls' risk for angry involvement while in romantic relationships Preoccupation may reduce girls' capacity to negotiate protected sexual activity.

### Limitations and Summary

The findings are subject to several notable limitations. The restriction of our sample to adolescents from economically disadvantaged families limits the generalizability of our findings. Socio-cultural factors associated with poverty create a unique context for how



adolescents engage in sexual behavior and view romantic relationships. Attitudes and expectancies for school, romantic relationships and family formation are likely to differ in more advantaged samples and buffer the effects of negative teacher-student interactions. Conversely, students from low-income families may be especially susceptible to the quality of their school experience. Attachment and education research can be enhanced by more specification of socio-cultural factors as moderators of established risk factors. Socio-cultural moderators should also be considered in examining gender differences. Economic disadvantage may amplify gender differences that would be less likely to be observed in middle class samples. For instance, high rates of single parenthood in low-income communities contribute to “gender mistrust” among economically disadvantaged adolescents and young adults (Furstenberg, 2007) and are likely to shape attitudes males and females have toward romantic attachment.

Our measures of adolescents’ relationships with their teachers were limited to only assessing negative encounters. As a result, more positive relationships were not assessed. This omission may be a particular problem for low-income adolescents whom may be especially responsive to supportive involvement with teachers. Studies of students in early elementary school have shown that positive teacher-student relationships have contributed to improved achievement among academically at risk students (Hughes, Luo, Kwok, & Loyd, 2008). Finally, the results may be influenced by unmeasured variables. There are several measures that should be included in future studies. First, it would be helpful to view sexual risk-taking within the broader context of adolescent peer groups and the extent to which adolescents peer groups establish support for deviant problem or risk-taking behaviors. It would also be useful to measure aspects of family adversity that may contribute to adolescents’ difficulties in engaging in school. In broadening assessment of family, peer and school contexts it will also be important to consider measures that use multiple informants.

In spite of these limitations, the results indicate that adolescents’ interactions with teachers add to parental attachment variables in understanding emerging romantic relationships and sexual behavior. Negative interactions with their teachers in middle school increased adolescents’ risk for subsequent early romantic involvement and risky sexual behavior. This points to the need to view attachment-related risk within a broader ecological framework that incorporates school experience as well as socio-cultural and gender moderators of emerging sexual and reproductive behavior. The findings also point to the utility of viewing adolescence as a period in which there is a gradual transformation of attachment hierarchies as close friends and romantic partners are tested as possible attachment figures. This relationship/lifespan perspective provides a useful complement to the more established personality/early experience models that view the Adult Attachment Interview as assessing an aspect of personality that can be traced to attachment patterns in infancy (Kobak & Zajac, 2011).

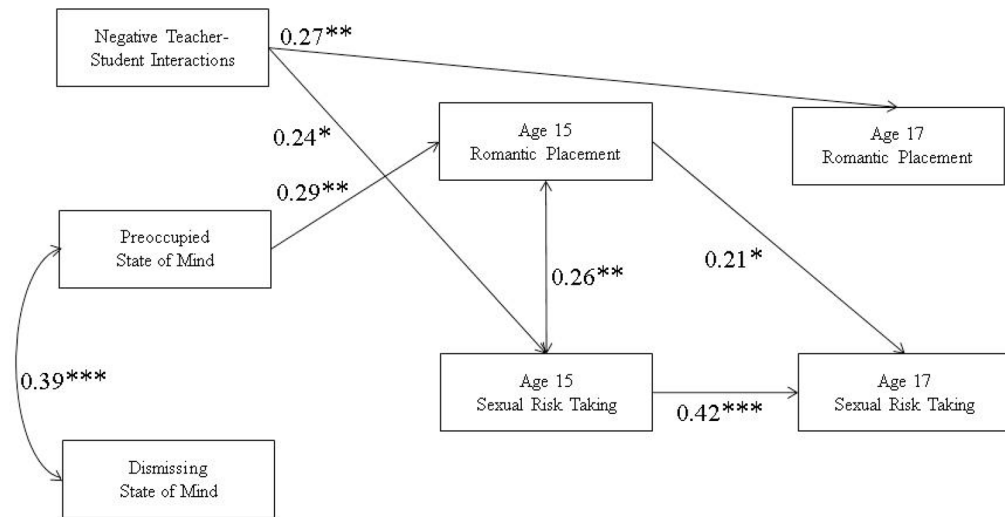
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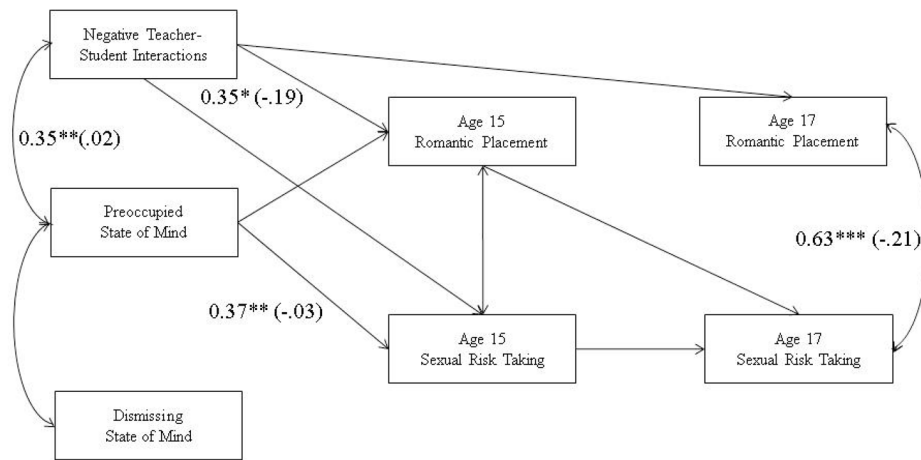
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**Figure 1.** Model of predictive effects (standardized coefficients) of negative teacher-student interactions and attachment states of mind on romantic placements in attachment hierarchy and sexual risk-taking behavior using the full sample.



**Figure 2.** Model of gender moderated pathways. Standardized coefficients are reported only for paths with significant gender differences (male coefficients in parentheses); the other paths are gender invariant.



**Table 1**

Means and Standard Deviations (in Parentheses) of Study Variables and Results of One Way ANOVAs Assessing Mean Differences by Gender

	<b>Overall</b>	<b>Male</b>	<b>Female</b>	
	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>F</b>
Negative Teacher-Student Interaction	1.35 (.44)	1.37 (.40)	1.33 (.47)	0.30
Age 15 Sexual Risk-Taking	4.85 (6.69)	6.37 (7.40)	3.45 (5.70)	6.51*
Age 17 Sexual Risk-Taking	7.06 (6.72)	8.90 (7.58)	5.55 (5.55)	7.07**
Age 15 Romantic Placement	.64 (1.20)	.53 (1.05)	.74 (1.32)	0.99
Age 17 Romantic Placement	.85 (1.47)	.94 (1.55)	.78 (1.42)	0.30
Dismissing Attachment	.34 (.54)	.40 (.52)	.28 (.56)	1.31
Preoccupied Attachment	.02 (.28)	.06 (.28)	-.01 (.28)	1.52
Family Income	25.73 (26.31)	27.79 (30.95)	23.90 (21.45)	0.72
Parent Marital Status	.22 (.42)	.21 (.41)	.23 (.42)	0.07

\*  $p < .05$ .

\*\*  $p < .01$ .

Note. Family Income was in thousands of dollars; Marital Status was coded 1 = married/remarried, 0 = single.

**Table 2**

Correlations between Study Variables and Demographic Variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Age 14 Negative T-S Int.	---	.31*	.41**	.34**	.42**	-.12	.30*	.01	-.13
2. Age 15 Sexual Risk-Taking	.17	---	.61**	.33**	.20	.03	.39**	-.11	-.18
3. Age 17 Sexual Risk-Taking	-.10	.38**	---	.36**	.65**	.14	.43**	.07	-.05
4. Age 15 Romantic Placement	-.17	.39**	.41**	---	.39**	.05	.33**	.13	.11
5. Age 17 Romantic Placement	.18	.11	-.19	.03	---	.06	.28*	.10	-.03
6. Dismissing Attachment	-.14	.16	.22	.03	-.16	---	.38**	-.21	-.24
7. Preoccupied Attachment	.03	.10	.07	.21	.17	.40**	---	-.10	-.06
8. Family Income	.03	-.14	-.15	-.02	-.01	-.26*	.10	---	.43**
9. Parental Marital Status	-.02	-.16	-.22	-.12	.09	-.22	.00	.48**	---

\*  $p < .05$ .

\*\*  $p < .01$ .

Note. Female estimates appear above the diagonal, male estimates appear below the diagonal; Female  $r$ s ranged from 55 to 70, male  $r$ s ranged from 48 to 62. T-S Int. = Teacher-Student Interaction.