

Long-Term Predictions From Early Adolescent Attachment State of Mind to Romantic Relationship Behaviors

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Attachment state of mind was investigated as a long-term predictor of romantic relationship competence. A secure early adolescent attachment state of mind was hypothesized to predict more constructive dyadic behaviors during conflict discussions and support-seeking interactions in late adolescence and early adulthood. Utilizing multimethod data from a community sample of 184 individuals, followed from ages 14 to 21, adolescents with a secure attachment state of mind at age 14 were found to be in relationships that displayed more constructive dyadic conflict discussion behaviors and dyadic supportive behaviors at both ages 18 and 21. Results suggest substantial links between early adolescent attachment state of mind and the adult romantic relationship atmosphere an individual creates and experiences.

By the end of adolescence, romantic relationships take on an increasingly central role in social development, with many adolescents reporting that they interact with their romantic partners more frequently than with their mothers or friends (Collins, Welsh, & Furman, 2009). Success or failure in navigating the vicissitudes of romantic relationships carries significant consequences. Romantic relationship dissolutions have been identified as the most common trigger of an adolescent's first major depressive disorder (Garber, 2006) and as a major risk factor for suicide attempts (Donald, Dower, Correa-Velez, & Jones, 2006). By adulthood, being able to handle conflict in relationships has been linked to mental health, physical health, and even to offspring adjustment (Fincham & Beach, 1999; Robles, Slatcher, Trombello, & McGinn, 2014; Uchino, 2006).

Managing newly central romantic relationships in adolescence requires navigating a range of emotionally charged interactions, from conflicts with partners to the provision and receipt of emotional

support, tasks which may be difficult for a variety of reasons. Adolescents' early experience in such interactions is likely to have occurred largely with parents and friends, but these relationships can only begin to prepare teens for the unique challenges of emotionally charged interactions in romantic relationships. Romantic partners are likely less skilled at communication and less sensitive than parents to teens' affect in the course of a disagreement (Furman & Shomaker, 2008), whereas relationships with peers have less conflict than romantic relationships (Creasey, Kershaw, & Boston, 1999). Thus, the give and take occurring during romantic relationships is likely more challenging, uneven, and potentially problematic than that which the adolescent has previously experienced with parents or in nonromantic friendships. Early identification of adolescents who are at risk for future difficulties in navigating romantic relationships is crucial to ultimately identifying ways to intervene to reduce such risks, potentially even before the adolescent begins to enter into romantic relationships and experience difficulties. The current study aims to utilize attachment theory to guide early identification by examining the longitudinal association between early adolescent attachment security and romantic relationship conflict discussion and supportive behaviors in late adolescence and early adulthood.

Attachment theory provides a potentially valuable framework for identifying individuals who

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will vs. will not develop the ability to successfully manage emotionally charged interactions in romantic relationships. Attachment theory postulates that an individual's early experience drawing support and comfort from caregivers in times of distress shapes the individual's internal working model of self-in-relationships, thereby setting expectations for support-seeking in future close relationships (Bowlby, 1973; Hazan & Shaver, 1994). These processes appear likely to be particularly relevant to romantic relationships, as romantic relationships ultimately take on attachment functions as development progresses (Kobak, Rosenthal, Zajac, & Madsen, 2007).

An individual with a secure attachment state of mind expects the attachment figure to be reassuring and responsive in times of distress and is likely to be freed up to more coherently process emotional responses to challenging and stressful situations (Dozier & Kobak, 1992; Hazan & Shaver, 1994; Kobak & Sceery, 1988; Main, Goldwyn, & Hesse, 2003; Main, Kaplan, & Cassidy, 1985). In contrast, an individual with an insecure attachment state of mind is likely to have difficulties processing the heightened emotionality that occurs in close relationships. In addition, an attachment state of mind reflects affect regulation abilities (Allen & Miga, 2010), suggesting that insecure individuals might struggle more with emotionally charged romantic interactions as a result of difficulties with coherently processing emotions in stressful situations (Allen & Manning, 2007; Allen & Miga, 2010).

Adolescents who are entering romantic relationships must develop the ability to navigate challenging, emotionally charged conflict situations in order to manage these nascent relationships successfully. During this process, adolescents branch out from familiar close relationships with parents and peers to new partners and form capacities to handle conflict in new situations. Early adolescents with a secure attachment state of mind would seem poised to have future relationships characterized by constructive behaviors in the context of conflict discussions, such as arguments being supported with reasons and maintenance of warmth despite the disagreement. Adolescents' models of romantic relationships have been cross-sectionally linked to constructive behaviors in the context of conflict discussions in those relationships (Furman & Simon, 2006). What is not known, however, is whether broader attachment states of mind, assessed outside of a romantic relationship context, are linked to relationship behavior in adolescence. Even more

important is the question of whether insecure attachment states of mind may function as *prior* markers of risk (as opposed to concurrent correlates or simple effects of relationship qualities). If we can identify internalized developmental factors that predict the qualities of future romantic relationships *even well before those relationships begin to emerge*, we gain both a powerful lens for understanding the development of relationship competence and the potential to intervene early to prevent severe relationship dysfunction.

In adult romantic relationships, attachment security has been associated with the affective character and effectiveness of conflict discussions (Bouthillier, Julien, Dubé, Bélanger, & Hamelin, 2002; Creasey & Ladd, 2005; Holland & Roisman, 2010; Mehta, Cowan, & Cowan, 2009; Roisman, Madsen, Hennighausen, Sroufe, & Collins, 2001; Wampler, Shi, Nelson, & Kimball, 2003), and supportive behaviors (Cobb, Davila, & Bradbury, 2001; Collins & Feeney, 2000; Feeney, Collins, Van Vleet, & Tomlinson, 2013; Simpson, Rholes, Orina, & Grich, 2002). Research has investigated attachment as a predictor of qualities of romantic relationships as romantic relationships emerge during adolescence (Mayseless & Scharf, 2007; Roisman, Collins, Sroufe, & Egeland, 2005; Salvatore, Kuo, Steele, Simpson, & Collins, 2011; Simpson, Collins, Tran, & Haydon, 2007), but little research has assessed attachment as a predictor of the development of specific, observable constructive conflict discussion, and supportive behaviors.

Attachment theory also appears highly relevant to understanding the development of capacity to manage, not just conflict situations, but also support-seeking processes in future romantic relationships. Supportive behaviors fulfill the key attachment relationship function of the provision of a safe haven to which an individual can turn in times of distress, wherein the attachment figure will provide comfort and reassurance (Hazan & Shaver, 1994). An individual with a secure attachment state of mind would expect support in a close relationship to be readily available and would thus feel confident in engaging in behaviors to draw support from the romantic partner. Whether the association between attachment security and supportive behaviors in adulthood generalizes to the powerful, newly forming romantic relationships of adolescence has not yet been established. Understanding the interplay between attachment security and supportive behaviors in adolescence would help shed light on *how* the association found in adulthood might come to be.

A central facet of attachment theory is its specificity: it is not intended as an explanation of all social relationship qualities, but instead focuses specifically on qualities of intense, emotionally charged relationships. Other early markers of developing social competence in adolescence, such as close friendship competence, are also likely to be linked to future romantic relationship qualities (Collins & Laursen, 2004). Romantic relationships fulfill emotionally laden attachment functions to a far greater degree than adolescent nonromantic friendships, especially in late adolescence going into adulthood (Markiewicz, Lawford, Doyle, & Haggart, 2006; Trinke & Bartholomew, 1997). Given this, we might expect attachment security to have unique predictive value, over and above basic friendship competence, in predicting romantic relationship qualities. This central premise of attachment theory with regard to this developmental period has received scant attention to date, especially by studies that might be able to investigate long-term development in multiple types of relationships from adolescence into adulthood.

In looking at how attachment security might be manifesting itself in conflict discussion and supportive behaviors in an adolescent's later romantic relationships, it is important to account for the intrinsically dyadic nature of those behaviors. Although we can measure behaviors separately for an individual and their romantic partner, much of an individual's behavior is influenced by his or her partner's behavior and vice versa, suggesting that these behaviors should not be treated as independent (Kashy & Snyder, 1995). Thus, we would expect attachment states of mind to predict not simply the individual adolescent's behavior, but the quality of the dyadic "dance" between the adolescent and his or her partner (Neyer, 2002).

Overview of the Current Study

The current study assesses several hypotheses about the association between secure attachment state of mind in early adolescence and subsequent conflict discussion and supportive behaviors during interactions with romantic partners in late adolescence and early adulthood. The study focuses on the secure dimension of attachment state of mind due to the theoretical linkages between expectations of responsiveness that come with secure attachment and the specific conflict discussion behaviors and supportive behaviors examined as outcomes by the study. The current study also seeks to account for the interdependent nature of

romantic relationship behaviors and capture the quality of the dyadic dance by treating the outcomes as dyadic behaviors. First, early adolescent secure attachment state of mind was hypothesized to predict more constructive *dyadic conflict discussion behaviors* during observed interactions with a romantic partner in late adolescence and adulthood, even after accounting for similar behaviors in prior close friendship interactions. Second, early adolescent secure attachment state of mind was hypothesized to predict more *dyadic supportive behaviors* in later interactions with romantic partners even after accounting for similar behaviors in prior close friendship interactions. Third, the associations in the first two hypotheses were expected to be *truly dyadic* in nature and reflect the quality of the dyadic dance, so it was hypothesized that those associations were not being primarily driven by the target individual's behavior, but instead reflected in the partner's behaviors as well. The current study also seeks to assess the extent to which the association between secure attachment state of mind and adult romantic relationship behaviors is due to associations with romantic relationship behaviors in late adolescence, which prior research has found for similar behaviors (Madsen & Collins, 2011). Accordingly, it was hypothesized that the pathways between early adolescent secure attachment state of mind and early adult dyadic conflict discussion and supportive behaviors would be mediated by dyadic behavior patterns established in late adolescence.

METHOD

Participants

This report was drawn from a larger longitudinal investigation of adolescent social development in familial and peer contexts. The full sample included 184 seventh and eighth graders (86 male and 98 female; age: $M = 13.35$, $SD = 0.64$) assessed at ages 13, 18, and 21. The sample was racially, ethnically, and socioeconomically diverse: 107 adolescents (58%) identified themselves as Caucasian, 53 (29%) as African American, 15 (8%) as of mixed race or ethnicity, and 9 (5%) as being from other minority groups. Adolescents' parents reported a median family income in the \$40,000–\$59,999 range ($M = \$43,260$, $SD = \$22,420$).

Adolescents were originally recruited from the seventh and eighth grades at a public middle school drawing from suburban and urban populations in the Southeastern United States. Students

were recruited via an initial mailing to all parents of students in the school along with follow-up contact efforts at school lunches. Adolescents who indicated they were interested in the study were contacted by telephone. Of all students eligible for participation, 63% agreed to participate either as target participants or as peers providing collateral information. All participants provided informed assent before each interview session, and parents provided informed consent. Interviews took place in private offices within a university academic building.

For this study, 112 adolescents with both a valid attachment interview at age 14 and a romantic relationship lasting 3 months or longer at age 18 or age 21 comprised a subset of the full sample. Of the original sample of 184 adolescents, 174 had valid attachment interviews. The 10 missing adolescents either did not have codable interviews due to equipment difficulties or were unavailable to come in during the wave of the study during which attachment interview data were collected. Of the 174 adolescents with attachment data, 112 were in a romantic relationship lasting 3 months or longer at age 18 or age 21 (58 in a relationship at both ages, 14 only at age 18, 40 only at age 21).

Attrition analyses examined various combinations of missing data in the study, testing differences between those with romantic partners and those without for all substantive variables (see Table 1), as well as income and gender. Analyses revealed significant differences in attachment security between the 112 participants who had romantic partners at either age 18 or age 21 and the 63 participants with valid attachment interviews and no romantic partners at either age 18 or age 21. The participants in romantic relationships at age 18 or age 21 had significantly more secure attachment states of mind than the participants not in romantic relationships ($p = .026$). There were no other signif-

icant differences between participants in romantic relationships at either age 18 or age 21 and those not in romantic relationships at either age. The analyses further indicated that there were no significant differences between participants only in a romantic relationship at age 18, only in a relationship at age 21, and in a relationship at both ages.

Procedure

In the initial introduction and throughout all sessions, confidentiality was assured and participants were told that their answers would not be shared with friends and romantic partners. Participants' data were protected by a Confidentiality Certificate issued by the U.S. Department of Health and Human Services. Transportation and childcare were provided if necessary. Adolescent and adult participants, their peers, and their romantic partners were all paid between \$20 and \$100 for participation, depending on the type of survey or task. For the observed behaviors, interaction sequences were administered in the same order for each dyad.

Measures

Adult attachment interview (AAI) and Q-set (George, Kaplan, & Main, 1996; Kobak, Cole, Ferenz-Gillies, Fleming, & Gamble, 1993). This structured interview, administered at age 14, probes individuals' descriptions of their childhood relationships with parents in both abstract terms and with requests for specific supporting memories. For example, subjects were asked to list five words describing their early childhood relationships with each parent and then to describe specific episodes that reflected those words. Other questions focused on specific instances of upset, separation, loss, trauma, and rejection. Finally, the interviewer

TABLE 1
Means and Standard Deviations of Substantive Variables

Variable	Mean	SD	Range (actual)
1. Secure attachment state of mind (Age 14)	0.25	0.42	-0.62 to 0.80
2. Dyadic supportive behaviors with peers (Age 14)	2.49	0.61	1.08 to 3.92
3. Dyadic supportive behaviors with romantic partners (Age 18)	2.81	0.66	1.00 to 4.00
4. Dyadic supportive behaviors with romantic partners (Age 21)	2.68	0.69	0.50 to 3.38
5. Dyadic constructive conflict discussion behaviors with peers (Age 14)	2.34	0.45	1.12 to 3.31
6. Dyadic constructive conflict discussion behaviors with romantic partners (Age 18)	2.38	0.49	1.00 to 3.19
7. Dyadic constructive conflict discussion behaviors with romantic partners (Age 21)	2.23	0.41	1.16 to 3.10

Note. Full sample $N = 184$.

asked participants to provide more integrative descriptions of changes in relationships with parents and the current state of those relationships. The interview consisted of 18 questions and lasted one hour on average. Slight adaptations to the adult version were made to make the questions more natural and easily understood for an adolescent population (Ward & Carlson, 1995). Interviews were audiotaped and transcribed for coding.

The AAI Q-set (Kobak et al., 1993) was designed to closely parallel the Adult Attachment Interview Classification System (Main et al., 2003) but to yield continuous measures of qualities of attachment organization. Each rater read a transcript and provided a Q-sort description by assigning 100 items into nine categories ranging from most to least characteristic of the interview, using a forced distribution. All interviews were blindly rated by at least two raters with extensive training in both the Q-sort and the Adult Attachment Interview Classification System.

These Q-sorts were then compared with a dimensional prototype sort for *secure versus anxious interview strategies*, reflecting the overall degree of coherence of discourse, the integration of episodic and semantic attachment memories, and a clear objective valuing of attachment. The individual correlation of the 100 items of an individual's Q-sort with a prototype sort for a maximally secure transcript was then used as that participant's scale security score (ranging from -1.00 to 1.00). The Spearman-Brown interrater reliability for the final security scale score was .82. This system was designed to yield continuous measures of qualities of attachment organization rather than to replicate classifications from the Main et al (2003) system. Prior work has compared the scores obtained within this laboratory to a subsample ($N = 76$) of adolescent AAIs that were classified by an independent coder with well-established reliability in classifying AAIs (U. Wartner). Allen, Moore, Kuperminc, and Bell (1998) did this by converting the Q-sort scales described above into classifications using an algorithm described by Kobak et al. (1993). Using this approach, they obtained an 84% match for security versus insecurity between the Q-sort method and the classification method ($K = .68$). Prior research in adolescent samples has also indicated that security is highly stable over a two-year period (i.e., $r = .61$) (Allen, McElhaney, Kuperminc, & Jodl, 2004).

Observed constructive conflict discussion behaviors with peer. Each adolescent close friend dyad participated in an 8-minute videotaped task at age 14 in which they were presented with a hypotheti-

cal situation based on the sinking-ship dilemma (i.e., which patients should receive a cure for a fatal disease?; Pfeffer & Jones, 1974). After making their decisions about the dilemma separately, adolescents and their close friends were brought together in a revealed differences paradigm in which they could compare their decisions (Strodtbeck, 1951). They were then asked to try to come up with a consensus decision for the dilemma. The Autonomy-Relatedness Coding System for Peer Interactions was used to code these interactions (Allen, Porter, & McFarland, 2001b). This coding system captures behaviors *promoting autonomy, undermining autonomy, promoting relatedness, and undermining relatedness with peers*. Constructive conflict discussion behaviors with peers were defined as a combination of behaviors that promoted autonomy with behaviors that promoted relatedness in the context of disagreement. Behaviors that promoted autonomy included supporting one's side of an argument with reasons and maintaining a confident tone. An example of a behavior that promoted relatedness was showing warmth to the other person. Each interaction was coded as an average of the scores (0-4 scale) obtained by two trained raters blind to other data from the study with good reliability (intraclass $r = .71$; Cicchetti & Sparrow, 1981). Dyadic scores for the interaction with the close friend were obtained by combining the individual scores for the target teen and his or her close friend.

Observed romantic relationship constructive conflict discussion behaviors. Individuals and their romantic partners participated in a revealed differences task at the age 18 and 21 assessments. At age 18, participants and romantic partners participated in a revealed differences task in which they independently chose which character was right in hypothetical dating scenarios (e.g., "Jessica and David were at a party one night with their best friends who are also a couple. Later in the night they saw the guy making out with another girl. David wants to tell the guy's girlfriend what they saw. Jessica doesn't want to tell, she says it's not any of their business, and they don't know the whole story"). Partners then came together to reach a consensus on who was right in each scenario. At age 21, participants and their partners separately identified an area of disagreement and were brought together to discuss it. The discussion began with the participant playing an audiotape recorded with an interviewer in which he or she stated the problem, his or her perspective on it, and what the individual thought his or her part-

ner's perspective was. Typical topics of discussion included money, jealousy, moving, friends, and career issues. These interactions lasted 8 minutes and were videotaped and then transcribed.

As with the peers, dyadic romantic partner constructive conflict discussion behaviors were defined as the combination of behaviors that promoted autonomy and relatedness. The same types of conflict discussion behaviors coded in the peer interactions were coded in the romantic partner interactions with the addition of displaying physical affection to the other person. Each interaction was coded as the average of scores (0–4 scale) obtained by two trained raters blind to other data from the study. Dyadic scores for the interaction were obtained by combining the individual scores for the target teen and his or her romantic partner. Interrater reliability was in the good to excellent range (intraclass r 's .64–.80).

Observed supportive behaviors in peer and romantic relationships. Adolescents also participated in a 6-minute support-seeking task with their peers at age 14 and with their romantic partners at ages 18 and 21. During the task, the adolescents asked for help with a "problem they were having that they could use some advice or support about." Typical topics for the interactions with peers included problems with peers or siblings, raising money, or deciding about joining sports teams. Typical topics for the interactions with romantic partners included career choices, problems with parents, problems with friends, and moving. These interactions were coded using the Supportive Behavior Coding System (Allen et al., 2001a), which was based on several related systems (Crowell et al., 1998; Julien et al., 1997). Both the target adolescents and their partners (peers and romantic partners) were assessed for the degree to which they stayed engaged, both verbally and nonverbally, with each other. Each interaction was coded (on a 0–4 scale) using an average of the scores obtained by two trained raters blind to other data from the study. Dyadic scores for the interactions were obtained by combining the individual scores for the target teen and their interaction partner. Interrater reliability was good for the peer interactions (intraclass $r = .61$) and fair to good for the romantic partner interactions (intraclass r 's .54–.65).

Analytic Plan

To address potential biases due to attrition in longitudinal analyses, full information maximum-like-

lihood methods were used with all primary analyses (excluding correlations), including all variables that were linked to future missing data (i.e., where data were not missing completely at random). Because these procedures have been found to yield the least biased estimates when all available data are used for longitudinal analyses (vs. listwise deletion of missing data), the entire original sample of 184 was utilized for these analyses. This full sample thus provides the best possible estimates of outcomes and was least likely to be biased by missing data.

All primary analyses were conducted with Mplus 7 (Muthén & Muthén, 2013), with gender and family income included as covariates. Hypotheses about associations between early adolescent secure attachment state of mind and both late adolescent and early adult dyadic conflict discussion and supportive behaviors with romantic partners were tested using hierarchical regression analyses, with demographic covariates and early adolescent conflict discussion and supportive behaviors with close friends entered at the first step, and early adolescent secure attachment state of mind entered at the second step. Hierarchical regression analyses treating participant behaviors and romantic partner behaviors separately instead of as dyadic variables were conducted to explore the possibility that the observed associations between adolescent secure attachment state of mind and later dyadic conflict discussion and supportive behaviors were occurring due solely to links to the participant behaviors and not the romantic partner. The hypotheses about developmental pathways were tested via path analyses in Mplus 7. Models included all possible concurrent correlations between constructs within each developmental time period and accounted for income and gender pathways in analyses. Mediation was tested with bootstrapped confidence intervals around the indirect effect (MacKinnon, Fairchild, & Fritz, 2007).

RESULTS

Preliminary Analyses

Table 1 displays means, standard deviations, and ranges. Table 2 displays correlations for the variables used in the study. Initial analyses examined the role of gender and family income in early adolescence on the primary substantive measures used in the study. Several substantive variables were related to income in the adolescent's family of

TABLE 2
Intercorrelations of Substantive Variables

Variable	2	3	4	5	6	7	8	9
1. Secure attachment state of mind (Age 14)	.36***	.40**	.27*	.31***	.37***	.42***	.11	.28***
2. Teen supportive behaviors with peers (Age 14)	–	.36**	.19	.34***	.28*	.25*	.18*	.17*
3. Dyadic supportive behaviors with romantic partners (Age 18)		–	.43**	.16	.50***	.30*	.01	.11
4. Dyadic supportive behaviors with romantic partners (Age 21)			–	.16	.72***	.55***	.24*	.25*
5. Teen constructive conflict discussion behaviors with peers (Age 14)				–	.28*	.27*	–.02	.19*
6. Dyadic constructive conflict discussion behaviors with romantic partners (Age 18)					–	.48***	–.09	.10
7. Dyadic constructive conflict discussion behaviors with romantic partners (Age 21)						–	–.09	.27**
8. Adolescent gender (1 = male, 2 = female)							–	–.11
9. Family income								–

Note. Full sample $N = 184$. * $p < .05$; ** $p \leq .01$. *** $p < .001$.

origin and to adolescent gender; hence, these factors are considered and described as covariates in analyses below. We also examined possible moderating effects of these demographic factors on the associations between secure attachment state of mind and the outcomes of interest described in the primary analyses below. Moderation was assessed by creating interaction terms between each demographic factor and secure attachment state of mind. Each interaction term was included along with the predictors of interest in a separate regression analysis predicting the outcome of interest. No moderating effects of adolescent gender or family income were found for any of the observed associations described below.

Primary Analyses

Hypothesis 1: Early adolescent secure attachment state of mind will predict more constructive dyadic conflict discussion behaviors in observed romantic relationship interactions in late adolescence and adulthood, even after accounting for continuity from conflict discussion behaviors in early adolescent peer relationships and demographic characteristics.

Hierarchical regression analyses examined predictions from the participant’s secure attachment state of mind at age 14 to dyadic constructive conflict discussion behaviors at age 18 and at age 21, controlling for participant family income, participant gender, and the participant’s conflict discussion behaviors in similar interactions with peers at age 14. Results are presented in Table 3. A

significant effect was found in which a more secure attachment state of mind at age 14 predicted more dyadic constructive conflict discussion behaviors at age 18 ($\beta = .41, p < .001$) and age 21 ($\beta = .38, p < .001$). Adolescents with more secure attachment states of mind had relationships with higher levels of observed autonomy and relatedness during conflict interactions in late adolescence and early adulthood.

TABLE 3
Predicting Observed Dyadic Positive Conflict Resolution With Romantic Partners

	Dyadic Constructive Conflict Discussion Behaviors (Age 18)			Dyadic Constructive Conflict Discussion Behaviors (Age 21)		
	β	ΔR^2	Total R^2	β	ΔR^2	Total R^2
Step I.						
Gender (1 = M; 2 = F)	–.14			.11		
Total family income (Age 13)	–.04		.14			
Observed dyadic constructive conflict discussion behaviors with close friend (Age 14)	.20	.09	.12	.12		.12*
Step II.						
Secure attachment state of mind (Age 14)	.41***	.13**	.22**	.38***	.13***	.25***

Note. β s are from final model. Full sample $N = 184$. * $p < .05$; ** $p \leq .01$. *** $p < .001$.

Hypothesis 2: Early adolescent secure attachment state of mind will predict more dyadic supportive behaviors in observed romantic relationship interactions in late adolescence and adulthood even after accounting for continuity from early adolescent supportive behaviors in peer relationships and demographic factors.

Hierarchical regression analyses examined predictions from the participant's secure attachment state of mind at age 14 to dyadic supportive behaviors at age 18 and at age 21, controlling for participant family income, participant gender, and the participant's supportive behaviors in similar interactions with peers at age 14. Results are presented in Table 4. A more secure attachment state of mind at age 14 predicted greater dyadic supportive behaviors at age 18 ($\beta = .37, p = .005$) and age 21 ($\beta = .29, p = .014$). Adolescents with more secure attachment states of mind had relationships with higher levels of observed supportive behaviors in late adolescence and early adulthood.

Hypothesis 3: Associations in the first two hypotheses are expected to be truly dyadic in nature (i.e., reflected not just in the teen's behavior but in the partner's behaviors as well.)

TABLE 4
Predicting Observed Dyadic Supportive Behaviors With Romantic Partners

	Dyadic Supportive Behaviors (Age 18)			Dyadic Supportive Behaviors (Age 21)		
	β	ΔR^2	Total R^2	β	ΔR^2	Total R^2
Step I.						
Gender (1 = M; 2 = F)	-.11			-.29*		
Total family income (Age 13)	-.03		.13			
Observed dyadic supportive behavior with close friend (Age 14)	.22		.13	.08		.12
Step II.						
Secure attachment state of mind (Age 14)	.37**	.07*	.20*	.29*	.10**	.22**

Note. β s are from final model. Full sample $N = 184$. * $p < .05$; ** $p \leq .01$.

Hierarchical regression analyses examined predictions from the participant secure attachment state of mind to just the participant conflict discussion and supportive behaviors as well as separately to just the romantic partner behaviors. Participant secure attachment state of mind significantly predicted participant conflict discussion behaviors and supportive behaviors as well as romantic partner behaviors, with predictions holding whether the behaviors were measured at age 18 or at age 21. Results suggested that the links between secure attachment state of mind and dyadic conflict discussion and supportive behaviors were not solely due to shared method variance, because secure attachment state of mind also predicted the romantic partner behaviors when these were examined separately.

Hypothesis 4: The pathways between early adolescent secure attachment state of mind and early adult dyadic conflict discussion and supportive behaviors will be mediated by dyadic behavior patterns established in late adolescence.

Conflict discussion behaviors. First, a fully recursive path analysis model was used to examine romantic partners' conflict resolution behaviors (see Figure 1). The model examined five associations over time: links between dyadic conflict discussion behaviors with romantic partners in early adulthood and both early adolescent secure attachment state of mind and early adolescent dyadic conflict discussion behaviors with a close friend; links between dyadic conflict discussion behaviors with romantic partners in late adolescence and the same two predictors in early adolescence; and links between dyadic conflict discussion behaviors with romantic partners in early adulthood and in late adolescence. Standardized beta coefficients are presented in Figure 1.

Figure 1 demonstrates that secure attachment state of mind in early adolescence predicted dyadic conflict discussion behavior with romantic partners in late adolescence, after accounting for the dyadic conflict discussion behaviors with a close friend in early adolescence. Dyadic conflict discussion behavior with romantic partners in late adolescence then predicted dyadic conflict discussion behaviors with romantic partners in early adulthood. To test whether the late adolescent behaviors mediated the association between secure attachment state of mind and the early adulthood behaviors, a mediation model was used, with bootstrapped confidence intervals around the indirect effect. The 95% confi-

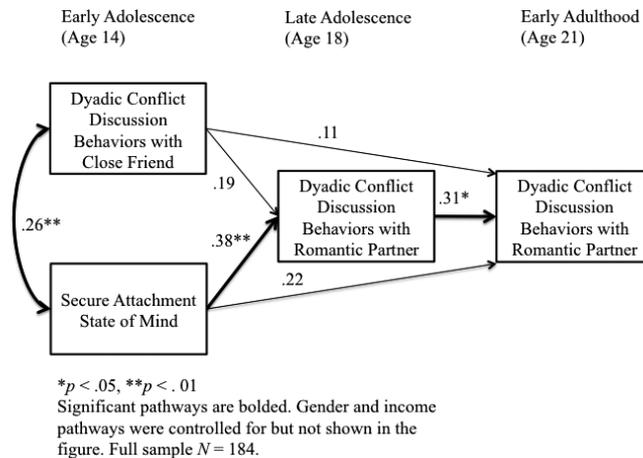


FIGURE 1 Mediation model for conflict discussion behaviors.

Note. Significant pathways are bolded. Gender and income pathways were controlled for but not shown in the figure. Full sample $N = 184$. * $p < .05$, ** $p < .01$.

dence interval around the indirect effect contained zero, indicating that mediation was not found ($\beta = .12$; 95% confidence interval (CI): lower = .00, upper = .24; model is fully saturated).

Supportive behaviors. Next, the above analysis was repeated for romantic partners' supportive behaviors. Early adolescent secure attachment state of mind significantly predicted dyadic supportive behaviors with romantic partners in late adolescence, after accounting for early adolescent dyadic supportive behaviors with close friends. However, dyadic supportive behaviors with romantic partners in late adolescence did not significantly predict dyadic supportive behaviors with romantic partners in early adulthood. To test whether the late adolescent behaviors mediated the association between secure attachment state of mind and the early adulthood behaviors, a mediation model was used, again with bootstrapped confidence intervals around the main effect. It was found that the 95% confidence interval of around the indirect effect contained zero indicating that mediation was not found ($\beta = .09$; 95% CI: lower = $-.04$, upper = .23).

DISCUSSION

This study examined longitudinal associations between early adolescent attachment security and romantic relationship behaviors in late adolescence and early adulthood. Findings indicate that security in internal working models of attachment relationships assessed early in adolescence predicted observed romantic relationship qualities both later

in adolescence and in the transition to adulthood. Even after accounting for baseline levels of behavior in similar interactions with a close friend at age 14 (which did not significantly predict outcomes), an adolescent's secure attachment state of mind at age 14 predicted more constructive dyadic conflict discussion behaviors and dyadic supportive behaviors with romantic partners at ages 18 and 21.

Individuals who were assessed as more secure in early adolescence had conflict interactions at ages 18 and 21 with their romantic partner in which both parties handled arguments with more reasoning and confidence, while also showing more warmth and physical affection. These kinds of behaviors create an environment of negotiation in which real differences in opinion can be discussed openly and thoroughly between partners while minimizing hurt feelings, all of which tend to promote relationship stability (Shulman, Tuval-Mashiach, Levran, & Anbar, 2006). One explanation for this predictive link is that securely attached individuals may carry expectations of responsiveness of caregivers into new relationships, and thus select for or co-create relationships whose contours match those expectations (Hazan & Shaver, 1994). This explanation assumes that a secure attachment state of mind as assessed by the Adult Attachment Interview reflects the existence of secure models and expectations of self-in-relationship behaviors. Attachment state of mind as assessed by the AAI may be also tapping into an individual's affect regulation abilities (Allen & Manning, 2007; Allen & Miga, 2010). Individuals with strong affect regulation abilities may better restrain the emotionality

of a potentially heated discussion from spiraling into a heated argument. Regardless of the explanation, there is an association between attachment security and competence in romantic relationships, further evidenced by the finding that individuals in romantic relationships had, on average, more secure attachment states of mind than those not in relationships at ages 18 and 21.

Early adolescent secure attachment also predicted later dyadic supportive behaviors. Engagement, the supportive behavior assessed in the study, is important in a support-seeking situation, because it suggests a responsive interaction style that positions the support giver to provide adequate support and is likely to lead to a satisfying relationship (Collins & Feeney, 2000). Attachment theory readily accounts for attachment state of mind predicting supportive behaviors within a dyad, because a fundamental tenet of the theory is that the attachment system activates to draw support from a caregiver (Hazan & Shaver, 1994). To the extent that security also captures affect regulation abilities, these would also likely help prevent distress in support-seeking situations from interfering with the communication of needs to the partner.

Associations between early adolescent secure attachment and later conflict discussion and supportive behaviors persisted after accounting for the degree to which the individual used those same behaviors in early adolescent interactions with a close friend. Furthermore, when included in the same model as secure attachment state of mind, behaviors with close friends in early adolescence did not significantly predict later romantic relationship behaviors. This implies that early adolescent attachment state of mind is not simply related to ongoing behavioral styles in close relationships, but predicts continued development of relationship behaviors across adolescence and into early adulthood. It also hints at potential qualitative differences between close friendships and romantic relationships, as well as developmental differences from adolescence to early adulthood. While romantic relationship interactions are likely influenced by qualities of close friendships (Simpson et al., 2007), romantic relationships are distinct from close friendships and do not merely reflect those friendships (Collins, 2003). Successfully navigating emotionally charged interactions in romantic relationships requires a different skill set than what was utilized in early adolescence with close friends. Conflict and support-seeking discussions in late adolescence and early adulthood often feature topics with more emotional weight and seri-

ousness than the topics of those discussions in early adolescence, and close friendships tend to have less conflict in general (Creasey et al., 1999; Goldstein, 2011). If an individual's attachment state of mind reflects his or her affect regulation abilities, it is possible that, as affect regulation becomes more critical in increasingly intense interactions with age, the secure early adolescent will have a natural advantage in handling such interactions in competent ways.

The results of the mediation models, which indicated that the age 18 romantic partner conflict discussion and supportive behaviors did not mediate the association between secure attachment state of mind in early adolescence and romantic partner behaviors at age 21, also suggest potential developmental differences. Furthering this point, the supportive behaviors mediation model showed no significant association between the age 18 and age 21 behaviors. Perhaps there is something different about these interactions in early adulthood compared to late adolescence, such as developmental shifts in the tone and tenor of dyadic interactions with romantic partners, which may explain why the link between attachment and the observed behaviors in adulthood is not solely attributable to continuity from the late adolescent interactions. Power also may have limited our ability to detect effects in these models.

The predictions to partner behaviors suggest that the associations between attachment state of mind and later qualities of romantic relationships do not simply reflect shared method variance in assessing the same individual over time. Several mechanisms may account for the association to partner behaviors in the conflict and supportive interactions. An individual's own behavior in romantic relationships might *evoke* responsive behaviors from romantic partners. Perhaps secure individuals with expectations of responsiveness behave in ways that draw out adaptive conflict discussion and supportive behaviors from their partners as part of a self-fulfilling prophecy (Loeb, Hessel, & Allen 2014; Loeb, Tan, Hessel, & Allen 2014), or secure individuals might be utilizing their better developed affect regulation abilities to prevent emotional distress from inhibiting their partner's contributions to the interactions. Alternatively, these expectations of responsiveness and affect regulation abilities may guide an individual's *selection* of a romantic partner toward matching them, resulting in a relationship with a partner predisposed to responsive behaviors in conflict situations and supportive situations.

While a mechanism of *selection* and a mechanism of *evocation* may both link an individual's internal working model to the same behaviors being expressed within the relationship, the differences in those two processes carry significance for intervention purposes. A mechanism of selection would potentially entail an intervention focused on updating the internal working model by focusing on spotting signs of responsive behavior in potential romantic partners. In contrast, a mechanism of evocation would suggest an intervention whose primary goal is to change the internal working model by teaching individuals to engage in more responsive behaviors with romantic partners. To separate these two processes from each other, future research should utilize methods for nonindependent data to identify the direction of influence for behaviors within the relationship to account for evocation effects and measure partner characteristics to account for selection effects.

The study conducted focused on *adaptive* conflict discussion and supportive behaviors, which were expected to come from expectations of responsiveness carried by those with a secure attachment state of mind. Thus, the present analyses focused only on secure attachment state of mind. It should be noted that the preoccupied dimension of attachment state of mind has been identified by other research as a risk factor for romantic relationships (Tarabulsky et al., 2012). The preoccupied attachment state of mind is theorized to reflect specific expectations of close relationships that require hypervigilance and over-emphasizing the importance of the relationship (Feeney, Cassidy, & Ramos-Marcuse, 2008; Haydon, Roisman, Marks, & Fraley, 2011; Tarabulsky et al., 2012). Individuals with a preoccupied attachment state of mind would be expected to engage in different observable conflict discussion and supportive behaviors that reflect these expectations, not just lower levels of the adaptive behaviors that were captured in our study. Future research could identify the observable romantic relationship behaviors that might be specifically linked to preoccupied attachment state of mind.

Some important study limitations deserve mention. Although path analyses were employed as an exploratory method of testing potential developmental pathways, the study was nonexperimental and causal inferences are not possible. There may, for example, be unmeasured variables that account for the observed associations between attachment state of mind and romantic partner interactions, such as personality characteristics or early child-

hood experiences (Schneewind & Gerhard, 2002; Suess, Grossmann, & Sroufe, 1992). In addition, only a subset of participants completed the observed tasks with their romantic partners, restricting the study's power to detect effects. We used full information maximum-likelihood methods to mitigate this, but future work with larger samples is needed. This would also allow for stronger tests of mediation hypotheses, as well as more power for examination of potential moderators of long-term relations of attachment security to relationship behaviors. Finally, interrater reliabilities for some of the coded interactions were lower than standards for good reliability. The interrater reliabilities for the conflict discussion behaviors were similar to those reported by other researchers using the coding system (intraclass *rs* ranging from .72 to .85; Samuolis, Hogue, Dauber, & Liddle, 2006). Reliabilities for the supportive behaviors were lower than those reported by other researchers using similar coding systems (intraclass *rs* ranging from .64 to .80; Crowell, Treboux, & Brockmeyer, 2009; Furman & Simon, 2006; Treboux, Crowell, & Waters, 2004). These somewhat lower reliabilities could limit the generalizability of our results.

Overall, the study provides evidence that constructive conflict discussion behaviors and supportive behaviors in late adolescent and early adult romantic relationships can be predicted from attachment state of mind assessed 4–7 years previously. Early adolescent attachment state of mind predicted both conflict discussion and supportive behaviors, even after accounting for similar behaviors in early adolescent close friendships. This study highlights an important predictor of romantic relationship qualities observable years before the romantic relationships occur and also provides evidence for the importance of attachment state of mind as an organizer of behavior in emotionally laden circumstances.

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