



What I like about you: The association between adolescent attachment security and emotional behavior in a relationship promoting context

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A B S T R A C T

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Because the ability to flexibly experience and appropriately express emotions across a range of developmentally relevant contexts is crucial to adaptive functioning, we examined how adolescent attachment security may be related to more functional emotional behavior during a relationship promoting interaction task. Data were collected from 74 early adolescent girls (Mean age 13.45 years; SD = 0.68; 89% Caucasian) and their primary caregiver. Results indicated that, regardless of the parent's interaction behavior and the level of stress in the parent–adolescent relationship, greater adolescent security was associated with more positive and less negative behavioral displays, including greater positivity, greater coherence of verbal content and affect, less embarrassment, and less emotional dysregulation in response to a situational demand for establishing intimacy with the parent. Implications for encouraging and fostering adolescents' capacity to respond to interpersonal contexts in ways that promote the relationship are discussed.

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The adaptive experience, expression, and regulation of emotion are increasingly being recognized as core features of healthy intra- and interpersonal functioning across the lifespan. A critical aspect of child and adolescent development involves the ability to experience and express both positive and negative emotions (Larson, Moneta, Richards, & Wilson, 2002). Indeed, the constricted range of emotional reactions to different contexts is associated with impaired psychological functioning, including depression (emotion context insensitivity; Rottenberg, Gross, & Gotlib, 2005). Additionally, the ability to flexibly regulate emotions in response to situational demands is critical for adaptive functioning (Bradley, 2000), and an inability to regulate effectively in childhood and adolescence is associated with socioemotional difficulties, including internalizing and externalizing pathology and impaired family and peer relations (Adrian et al., 2009; Eisenberg et al., 2001; Sheffield Morris, Silk, Steinberg, Myers, & Robinson, 2007; Silk, Steinberg, & Sheffield Morris, 2003). Because maladaptive emotional behavior is associated with impaired functioning that may persist into adulthood (Steinberg & Avenevoli, 2000), it is crucial to examine correlates and predictors of the ability to flexibly experience and appropriately express emotions across a range of developmentally relevant contexts, what we subsequently refer to as *functional emotional behavior*.¹

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¹ We recognize that maladaptive patterns of emotional behavior also may be “functional” in that they serve functions for the individual (e.g., to get needs met, to influence others). We use the term functional in its positive or adaptive sense.

Adolescent attachment security as a correlate and predictor of functional emotional behavior

Given the salience of the parent–child relationship to development, a substantial amount of adolescent research has examined how security in the parent–adolescent relationship may be associated with functional emotional behavior. Security in the parent–adolescent relationship refers to adolescents' view of self as worthy of parents' love and the expectation/trust that parents will be available, responsive, and accepting. Security in the parent–adolescent relationship also is characterized by the ability for autonomy development (supported by the parents), while at the same time valuing the attachment relationship (Bartholomew & Horowitz, 1991; Main, Kaplan, & Cassidy, 1985). As such, the development of the capacity for both autonomy and closeness/intimacy are key, a point to which we return later.

In the context of emotional development, according to secure base theory, parents who function as available and responsive caregivers (i.e., are able to flexibly provide comfort in times of need and encouragement in times of autonomous exploration) promote the adaptive management of negative emotions and the experience of positive emotions such as relief, joy, and love (Bowlby, 1988a). Consistently, research supports the relation between security in the parent–adolescent relationship and more adaptive emotional experience, including a greater tendency to experience positive emotions on a daily basis and less extreme negative emotions when alone (Torquati & Raffaelli, 2004), more positive perceptions of interactions with close others (Ducharme, Doyle, & Markiewicz, 2002; Feeny & Cassidy, 2003), and greater coherence between nonverbal expressions and self-reports of positive and negative emotions (Spangler & Zimmermann, 1999). Conversely, attachment insecurity is associated with greater difficulty persistently experiencing and regulating negative emotions, as indicated by greater ratings of depression, anxiety, delinquency, and substance abuse (Allen, Moore, Kuperminc, & Bell, 1998; Cole-Detke & Kobak, 1996; Cooper, Shaver, & Collins, 1998; Vivona, 2000; Wallis & Steele, 2001). Longitudinal data demonstrate that the quality of adolescent attachment and emotion functioning are bi-directionally related such that greater attachment quality predicts less internalizing pathology one year later, and greater internalizing problems and greater levels of drinking predict lower quality of attachment one year later (Buist, Dekovic, Meeus, & van Aken, 2004; van der Vorst, Engels, Meeus, Dekovic, & Vermulst, 2006), providing further support for the association between security in the parent–adolescent relationship and more functional emotional behavior.

Because attachment theory proposes that secure-base experiences with parents become internalized and form representations that guide emotional experience (Bowlby, 1988b), researchers have also examined if attachment security provides meaningful information about how adolescents behave in relationships. A particularly powerful tool to examine the relationship between attachment security and social-emotional behavior is a laboratory induced interaction because it allows for the simultaneous and objective coding of both members of the dyad as well as the manipulation of the social demand itself (i.e., type of interaction). For example, to observe how security is related to functional emotional behavior during a key developmental adolescent task, autonomy negotiations, observational studies of adolescents and mothers have frequently utilized the revealed differences task, during which mothers and adolescents identify a primary area of disagreement (e.g., money, dating, friends, alcohol/drugs, household rules, siblings), are interviewed separately about their own point of view about the problem (recorded), and then reunite, listen to the other's recorded point of view, and engage in discussion to try to resolve the problem. Consistent with theory, during the revealed differences task, adolescent security is associated with less dysfunctional anger and less avoidance of problem-solving (Kobak, Cole, Ferenz-Gillies, & Fleming, 1993), fewer facial expressions of communication inhibiting behavior (sadness, anger, turning away, and signs of disagreement; Becker-Stoll, Delius, & Scheitenberger, 2001), and more validating statements and displays of engagement and empathy with the other party and their statements (Allen et al., 2003). Not only do these findings extend to father–adolescent dyads (Allen, Porter, McFarland, & McElhaney, 2007) as well as to more appropriate displays of autonomy during a distinct yet thematically similar challenging task with mothers (talk show task; Zimmermann, Mohr, & Spangler, 2009), but observational studies of adolescents and their close friends during challenging tasks consistently demonstrate that greater security is associated with more effective interactions, including less disruptive behavior (particularly when strong negative emotions are stirred), less withdrawal and task avoidance, greater support-validation, and calmly and confidently asserting opinions (Allen et al., 2007; Shomaker & Furman, 2009; Zimmermann, Maier, Winter, & Grossmann, 2001).

Overall, these studies suggest that adolescent attachment security is both a correlate and predictor of functional emotional behavior. Of note, however, is the restricted range of developmentally relevant social contexts in which the relationship between attachment security and emotional behavior has been explored. Indeed, a major advantage of observational studies is that the task demand can be manipulated, and yet research to date has focused nearly exclusively on the ability to appropriately assert oneself while simultaneously maintaining a sense of relatedness to parents and peers during problem-oriented social interactions (i.e., task demands for autonomy). In addition to problem-solving and conflict management, another major developmental task that has not been explored is the ability to successfully respond to social demands that primarily call for the expression of positive feelings and the management of negative emotions, an ability essential for effective social functioning and for establishing intimacy in relationships (Gross & Munoz, 1995; Riggio, 1986; Rimé, 2009). Therefore, utilization of a relationship promoting interaction task can help to identify if security is also associated with functional emotional behavior during another critical social demand: establishing intimacy. Indeed, as alluded to earlier, *comfort with intimacy*, the extent to which one feels comfortable being close to and depending upon others in times of need, is a key feature of attachment security (Crowell, Fraley, & Shaver, 1999). Accordingly, our research question focuses specifically on the association between adolescent security and emotional behavior in a relationship promoting context.

The present study

To examine empirically if attachment security is an indicator of more functional emotional behavior in a relationship promoting rather than problem-oriented context, we designed an interaction task between parent–adolescent dyads in which they were asked to spend 2 min telling each other what they like best about one another. The task is meant to elicit positive emotional expressions from both members of the dyad (i.e., a demand for establishing intimacy), and we expected that security would be associated with more positive and less negative emotional behavior during the interaction. A priori we selected six relevant indicators of emotion functioning and specifically hypothesized that, to the extent that adolescents are more securely attached to their parents, they should be able to: (1) speak more positively about their relationship, (2) display more warmth, and display less (3) embarrassment, (4) hostility, and (5) emotional dysregulation. Additionally, because affect gets expressed in multiple ways (i.e., verbal and non-verbal pathways), we also hypothesized that greater attachment security would be associated with (6) the ability to demonstrate coherence of verbal content and affect.

Importantly, because our research question examines *adolescent* security and *adolescent* emotional behavior during the interaction, it is important to take into account corresponding parental behavior due to synchrony between members of the dyad during an interaction (Sheeber, Allen, Davis, & Sorensen, 2000). Previous observational studies have responded to the high degree of correspondence between parent and adolescent behavior by combining the dyad's behaviors (e.g., Allen et al., 2003; Kobak et al., 1993). To extend previous work, and to examine the extent to which adolescent attachment predicts adolescent behavior, regardless of the parent's behavior, we statistically controlled for parental behavior.

Finally, because responding more positively and less negatively to a demand for intimacy may be more challenging for dyads in which there is greater tension, we also included a measure of objectively coded parent–adolescent chronic stress. Doing so enabled us to examine the extent to which security, regardless of level of current relational stressors, is associated with adolescent emotional behavior during the interaction.

Method

Participants

Participants were 74 parent–adolescent dyads participating in a larger study of relationships and psychological functioning among early adolescent females ($N = 83$). Families were recruited from a questionnaire study of 7th and 8th graders from three socio-economically diverse school districts in Suffolk County, New York. To recruit for the current study, we telephoned the parents of 173 female questionnaire participants; 80 families were scheduled and 65 participated. To increase sample size, we also included a recruitment flyer in the monthly newsletter of one of the three school districts. Twenty-four additional families contacted us and 18 were scheduled. In total, 80 mothers, 3 fathers, and their adolescent daughters participated in the study. Nine parent–adolescent dyads opted not to participate in the videotaped interaction task; they did not differ significantly from the dyads who did participate on attachment security ($t(81) = 0.56, p = 0.58$) or parent–adolescent chronic stress ($t(81) = -1.56, p = 0.12$). The Stony Brook Committee on Research Involving Human Subjects approved the research.

Adolescent participants had a mean age of 13.45 ($SD = 0.68$), with 55% in 7th grade and 45% in 8th grade. Of those indicating ethnicity, 89% reported Caucasian, which varied by school district (100%, 95%, and 61%) and matched district ethnicity data (96%, 91%, and 64% respectively; 2006 reports). Parent-reported median family income was consistent with median household incomes in the districts (Public School Review [n.d.]), ranging from \$53,000 to \$127,000. Although the income data may suggest moderate to high socioeconomic status, this should be taken in the context of a wide range of parental education, with many (42%) reporting only high school education.

Procedure

Parents and adolescents came to Stony Brook university for two three hour laboratory sessions. During the first session, parents and adolescents first provided consent and assent, respectively, and were then interviewed separately. Pertinent to this study, adolescents were interviewed about attachment security, and parents were interviewed about stress in the parent–adolescent relationship. During the second session, parents and adolescents were videotaped engaging in a 2-min interaction task (described below) and then privately completed questionnaires not relevant to the current study. Parents and adolescents each received \$35 for participation in the first session and \$40 for participation in the second session.

Measures

Parent–adolescent positive interaction task

Parent–adolescent dyads engaged in an unstructured 2-min interaction task, which they were aware would be videotaped. They were instructed to “spend 2 min telling each other what you like most about each other.” Following that instruction, the research staff person left the room. Families were made aware that research staff would not be listening to their interaction as it occurred but would be monitoring it visually to make sure that they were on camera.

Interactions were coded using a global coding system developed for this study. Trained coders viewed the entire interaction and made ratings along 5-point scales on (1) how positively the adolescent spoke about their relationship (1 = *very negative*, 3 = *mixed*, 5 = *very positive*); (2) how much warmth was displayed (smiling, returning compliments, etc.; 1 = *not at all*, 5 = *very much*); (3) how much embarrassment was displayed (looking down, complaining, embarrassed laughter, blushing, rebutting statements, etc.; 1 = *not at all*, 5 = *very much*); (4) how much hostility was displayed (derisive/critical statements, eye rolling, etc.; 1 = *not at all*, 5 = *very much*); and (5) how much emotional dysregulation was displayed (tearfulness, dramatic statements or affect; 1 = *not at all*, 5 = *very much*). Finally, coherence of verbal content and affect was rated on a dichotomous scale (consistency of affect, behavior, and comments; 1 = *coherent*, 0 = *not coherent*). Coders reviewed the videotape and made the same ratings for parent behavior. Sixteen interactions (21%) were coded by an additional coder. The intraclass correlation between the two coders' ratings for each rating was: (1) positivity about the relationship (daughter = 0.95, mother = 0.80); (2) warmth (daughter = 0.73, mother = 0.82); (3) embarrassment (daughter = 0.67, mother = 0.70); (4) hostility (daughter = 0.96, mother = 1.0); and (5) emotional dysregulation (daughter = 0.92, mother = 1.0). For (6) coherence of verbal content and affect, Kappa for daughters was 0.65. For mothers, one coder showed no variance (all mothers were coded as 1), whereas the other coder coded 15 mothers as 1 and one mother as 0. As such, percent agreement was calculated at 15/16 = 94%.

Attachment security

Attachment security was assessed with the Family Attachment Interview (FAI; Bartholomew, 1998; Bartholomew & Horowitz, 1991). The FAI is a semi-structured interview designed to assess adolescent attachment security based on information about the parent–adolescent relationship. The procedures and scoring of the FAI are similar to that of the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985), in that they are based on content of reports as well as reporting style (e.g., coherence of the report), but the FAI scores interviewees on four attachment patterns (secure, fearful, preoccupied, and dismissing), rather than the three categories used in the AAI (secure, preoccupied, and dismissing). Audiotaped interviews were coded for each attachment pattern on a nine-point scale ranging from (1) *no evidence of characteristics of the prototype* to (9) *near perfect fit with the prototype*. Twenty-three (28% of the full sample of 83) of the interviews were coded by a second coder. The intraclass correlation between the two coders' ratings and Cronbach's alpha for each for the four attachment patterns were: secure ($ICC = 0.60$, $alpha = 0.75$), fearful ($ICC = 0.33$, $alpha = 0.49$), preoccupied ($ICC = 0.78$, $alpha = 0.87$), and dismissing ($ICC = 0.69$, $alpha = 0.81$). Due to the low reliability for fearful, this code was dropped, and an overall security score was computed by subtracting ratings of the two insecure patterns from the rating of the secure pattern (see Cobb, Davila, & Bradbury, 2001). This score was highly correlated with a score using all four ratings ($r = 0.94$) and with ratings on the secure pattern alone ($r = 0.91$), suggesting that the score we used was a reasonable indicator of overall security.

Parent–adolescent chronic stress

Stress in the parent–adolescent relationship was measured with Hammen and colleagues' (Hammen, Adrian, Burge, Jaenicke, & Hiroto, 1987) semi-structured Chronic Stress Interview. Interviewers assessed the level of trust, communication, closeness, and conflict (amount and resolution) in the parent–adolescent relationship over the past six months and made a global 9-point rating of stressfulness of the circumstances ranging from (1) *no stress (superior relationship)* to (5) *severe stress*. Twenty percent (16) of the interviews were coded by a second coder, yielding an intraclass correlation of 0.74 ($alpha = 0.88$).

Results

Zero-order associations

Correlations, means, and standard deviations for daughter attachment security, parent–adolescent chronic stress, and continuous measures of parent and daughter interaction behavior are reported in Tables 1 and 2. As shown in Table 2, several parent and daughter interaction behaviors were significantly and positively correlated with one another, including their overall positivity, warmth, and hostility. Additionally, as shown in Table 1, daughter attachment security was significantly correlated with daughter but not parent behaviors; specifically, daughter attachment security was positively correlated with overall positivity and negatively correlated with emotional dysregulation. Finally, as shown in Table 1, parent–adolescent chronic stress was significantly and positively associated with both parent and daughter hostility and negatively correlated with parent warmth and daughter overall positivity. Parent–adolescent chronic stress and daughter attachment security were not significantly related. For the dichotomous coherence variable, 68 parents and 66 adolescents were rated as coherent and 6 parents and 8 adolescents were rated as not coherent. To examine the association between parent and daughter coherence, we used Pearson's chi-square test and found that mother and daughter coherence were not significantly associated ($\chi^2(1, 74) = 3.44$, $p = 0.06$). Next, to examine if mean level of security was significantly greater among adolescents rated as coherent ($M = 0.85$) versus not coherent ($M = -1.75$), we conducted an independent-sample *t*-test and found that, as predicted, level of security was significantly greater among those rated as coherent ($t(72) = -2.40$, $p = 0.02$).

Table 1

Correlations between the continuous variables, means, and standard deviations.

	Daughter attachment security	Parent–adolescent chronic stress	M	SD
Parent overall positivity	0.20	−0.29*	4.51	0.79
Parent warmth	0.10	−0.33**	3.39	1.27
Parent embarrassment	0.05	0.05	1.37	0.54
Parent hostility	−0.04	0.29*	1.27	0.67
Parent emotional dysregulation	0.20	−0.01	1.04	0.26
Daughter overall positivity	0.27*	−0.31**	4.01	0.92
Daughter warmth	0.14	−0.20	3.35	1.21
Daughter embarrassment	−0.22	0.11	1.85	0.93
Daughter hostility	−0.07	0.29*	1.19	0.52
Daughter emotional dysregulation	−0.26*	0.07	1.41	0.89
Parent–adolescent chronic stress	−0.12	–		
M	0.76	2.66		
SD	3.00	0.89		

Notes. $N = 74$ dyads. * $p < 0.05$, ** $p < 0.01$ (two-tailed). Daughter attachment security = Family attachment interview (Bartholomew, 1998; Bartholomew & Horowitz, 1991); Parent–adolescent chronic stress = Chronic Stress Interview (Hammen et al., 1987); Daughter and parent positivity, warmth, embarrassment, hostility, and emotional dysregulation = Parent–adolescent positive interaction task.

Associations between daughter attachment security and daughter behavior, controlling for corresponding parent behavior

To examine the unique relationship between daughter security and daughter behavior, and because several parent and daughter behaviors were correlated, continuous data were analyzed with a series of partial correlations examining the association between daughter attachment security and daughter behavior, controlling for the corresponding parent behavior. As shown in Table 3, as predicted, daughter attachment security was positively correlated with daughter overall positivity and negatively correlated with embarrassment (which had only approached significance at the zero-order level) and emotional dysregulation. Contrary to hypotheses, daughter attachment security was not significantly associated with daughter level of warmth or hostility. To examine if level of security differs among adolescents rated as coherent or not coherent when controlling for parent behavior, we conducted an Analysis of Covariance and found that, as predicted, level of security is significantly greater among those rated as coherent ($F(1) = 4.76$, $p = 0.03$).

Associations between daughter attachment security and daughter behavior, controlling for corresponding parent behavior and parent–adolescent chronic stress

As a more stringent test of the relationship between daughter attachment security and daughter interaction behavior, we also controlled for parent–adolescent chronic stress. Doing so enabled us to rule out the alternative interpretation that daughter behaviors are merely a reflection of current tension (or lack thereof) in the parent–adolescent relationship. As shown in Table 3, daughter attachment security remained positively and significantly associated with overall positivity and negatively associated with emotional dysregulation. The negative correlation with embarrassment became just nonsignificant; however, the difference between these correlations was negligible (from $r = -0.233$, $p = 0.05$ to $r = -0.225$, $p = 0.059$). Finally, to examine if level of security differs among adolescents rated as coherent or not coherent, we again conducted an Analysis of Covariance to control for parent behavior and parent–adolescent chronic stress and found that, as predicted, level of security remains significantly greater among those rated as coherent ($F(1) = 4.12$, $p = 0.05$).

Supplemental analyses: Associations between daughter attachment security and parent behavior, controlling for corresponding daughter behavior

We did not predict a priori that daughter attachment security would be significantly related to parent behaviors. However, we tested these associations using Partial Correlation and Analysis of Covariance to assess the degree of specificity of daughter

Table 2

Correlations between parent and daughter behavior.

Overall positivity	0.35**
Warmth	0.47**
Embarrassment	0.13
Hostility	0.37**
Emotional dysregulation	−0.01

Notes. $N = 74$ dyads. ** $p < 0.01$ (two-tailed). Positivity, warmth, embarrassment, hostility, emotional dysregulation = Parent–Adolescent positive interaction task.

Table 3

Partial correlations between daughter attachment security and daughter behavior, controlling for corresponding parent behavior and parent-adolescent chronic stress.

Daughter behavior	Attachment security, controlling for parent behavior	Attachment security, controlling for parent behavior and parent-adolescent chronic stress
Overall positivity	0.26*	0.25*
Warmth	0.10	0.10
Embarrassment	–0.23*	–0.23
Hostility	–0.06	–0.04
Emotional dysregulation	–0.26*	–0.25*

Notes. $N = 74$ dyads. * $p < 0.05$, (two-tailed). Daughter attachment security = Family Attachment Interview (Bartholomew, 1998; Bartholomew & Horowitz, 1991); Parent-adolescent chronic stress = Chronic Stress Interview (Hammen et al., 1987); Daughter and parent positivity, warmth, embarrassment, hostility, and emotional dysregulation = Parent-adolescent positive interaction task.

security. Daughter attachment security was not significantly associated with any parent behaviors, supporting the specificity of the relation between daughter attachment security and daughter emotional behavior.

Discussion

This study examined the association between adolescent attachment security and emotional behavior in a relationship promoting context. More specifically, we explored the hypothesis that, to the extent that an adolescent is more securely attached, she should be more likely to appropriately respond to a demand for establishing intimacy with her parent with more positive and less negative behavioral displays.

Overall, we found support for our hypothesis. Indeed, when controlling for corresponding parental behavior, greater attachment security was associated with the following daughter emotional behaviors: greater overall positivity, greater coherence of verbal content and affect, less embarrassment, and less emotional dysregulation. Importantly, we replicated these findings while controlling for chronic stress in the parent-adolescent relationship, further suggesting that an adolescent's ability to functionally respond to a task demand for intimacy is driven by her level of security in the parent-adolescent relationship, regardless of her parent's ability to do so in the moment and the level of stress (or lack thereof) in the relationship. We also examined the relationship between daughter attachment security and parent emotional behaviors, and the two were not significantly associated, demonstrating the degree of specificity in the relation between adolescent security and emotional behavior. Taken together, our findings suggest that an adolescent who views herself as worthy of her parent's love and expects and trusts that her parent will be available in times of need will be able to display relationship promoting behaviors toward that parent when prompted, irrespective of situational factors that may make doing so more challenging.

Contrary to hypotheses, daughter attachment security was not significantly associated with her displays of warmth or hostility. Although speculative, it is possible that warmth and hostility may be more reflective of the tendency for parents and adolescents to reciprocate displays of negative affect during interaction (see, e.g., Sheeber et al., 2000), perhaps due to current relational stressors. Indeed, at the zero-order correlation, daughter warmth and hostility were not significantly related to attachment security. However, parent and adolescent warmth and hostility were significantly related to one another, and parental warmth and daughter hostility were significantly related to chronic stress. Accordingly, it may be that these emotional behaviors are better indicators of situational factors, whereas overall positivity, coherence of verbal content and affect, embarrassment, and emotional dysregulation may be more reflective of broader patterns of emotion functioning driven by attachment security.

Implications

Our findings add to the growing body of literature suggesting that security in the parent-adolescent relationship is a reliable correlate of an adolescent's ability to engage in functional social-emotional behavior (e.g., Allen et al., 2003; Kobak et al., 1993; Shomaker & Furman, 2009; Zimmermann et al., 2001), an ability that has major implications for healthy intra- and interpersonal functioning (Bradley, 2000; Rottenberg et al., 2005). Importantly, whereas previous studies have predominantly focused on behavior during problem-oriented situations (i.e., the ability to maintain a sense of relatedness during autonomy negotiations), our study enhances the conceptualization of security as an indicator of social-emotional capacities by focusing on another critical developmental task: the ability to respond to a demand for intimacy with the expression of positive feelings and the management of negative emotions, an ability essential for the establishment and maintenance of close relationships. Taken together, the literature now suggests that security is meaningfully associated with the ability to directly and coherently respond to calls for both autonomy and intimacy with more positive (e.g., validation, engagement, positivity) and less negative (e.g., anger, emotional dysregulation, embarrassment) emotional behaviors that serve to maintain the relationship, even when doing so may be particularly challenging in the moment.

Not only did we explore a novel, critical developmental context, but we also accounted for parental and situational influences on the interaction pattern. Prior evidence suggests that maternal attachment security is associated with both her own and her daughter's ability to engage in functional social-emotional behavior (i.e., that "functional" parents produce

more “functional” offspring; e.g., Crowell & Feldman, 1991; Kobak, Ferenz-Gillies, Everhart, & Seabrook, 1994). Though we did not assess and therefore could not control for parental attachment, the present findings do suggest that adolescent attachment security makes a unique contribution to the interaction pattern by influencing her ability to engage in functional emotional behavior, regardless of how functional her parent behaves during the interaction and how much tension the two experience in their relationship.

Our findings suggest that an adolescent’s level of attachment security predicts the capacity to respond to calls for intimacy with relationship promoting behavior toward her parent, and there is strong theoretical reason to believe that may be the case. Of course, our data are cross-sectional. As such, we cannot rule out the possibility that the ability to engage in relationship promoting behavior with parents that establish and maintain intimacy in the relationship may likely predict greater attachment security in the parent–adolescent relationship. Indeed it may, and we would hypothesize that bi-directional associations exist (e.g., Buist et al., 2004; van der Vorst et al., 2006). Findings from Allen, McElhane, Kuperminc, and Jodl (2004) lend tentative support for this direction of effect, as greater levels of dyadic relatedness during autonomy negotiations in mother–adolescent interaction at age sixteen, including the use of validating statements and displays of engagement and empathy, marginally predict increases in level of attachment security over the course of two years, even after accounting for baseline levels of security. Accordingly, if we interpret our findings as indicating that engaging in relationship promoting behaviors with parents predict greater security, this has important implications. Attachment to the same sex parent generally declines in adolescence as stress and life change increase (Buist, Dekovic, Meeus, & van Aken, 2002), and this may confer risk for negative emotional experiences, including psychosocial maladjustment. Therefore, it may be the case that encouraging the ability to interact with parents in ways that promote the relationship, during both autonomous and intimate interactional contexts, may bolster the security of the parent–adolescent attachment relationship, which may also have implications for functioning in future (non-parental) relationships.

Strengths, limitations, and future directions

Our confidence in the present findings is bolstered by the methodological strengths of the study, including the use of observational data to assess adolescent and parent emotional behavior and objectively and reliably coded interview data to assess adolescent attachment security and parent–adolescent chronic stress. However, when interpreting the present findings, it is important to keep in mind limitations, including the sample size, the self-selected nature of the sample (most appropriately considered a convenience sample), and the inclusion of only girls, which restrict generalizability and strongly suggest replication with a larger, more diverse random sample. In addition, whereas other observational studies have assessed security using the Adult Attachment Interview (e.g., Allen et al., 2003; Kobak et al., 1993; Shomaker & Furman, 2009; Zimmermann et al., 2001), our study used the Family Attachment Interview. As previously noted, although security is similarly conceptualized between the two rating systems, it is unclear to what extent the present findings would replicate using the AAI, which future research might examine.

Future studies might also refine the association between attachment and functional emotional behavior by examining the attachment relationship specific to each parent (e.g., Buist et al., 2002; Paterson, Field, & Pryor, 1994), the extent to which the insecure patterns of attachment may be differentially associated with emotional behavior, and the role of attachment in other relationship promoting contexts (e.g., calls for intimacy with peers and romantic partners). Additionally, because the interaction task was designed specifically for this study, it underscores the importance of replicating findings using other methods.

The need for replication is particularly true given that the task was brief and involved less back-and-forth interaction between dyad members compared to tasks that are typically used in observational research. Indeed, that less opportunity for engaging in reciprocity of behavior existed may in part explain why some parent and daughter behaviors were not correlated and why partial correlations remained strong when parent behavior was controlled. As such, behavior in longer interactions that pull for relationship promoting behavior should be examined.

Finally, future research should be conducted longitudinally (see, e.g., Buist et al., 2004) to better examine reciprocal relations between attachment security and the ability to respond to interpersonal contexts in ways that serve to promote the relationship so that we can better understand how the capacity for one may be used to increase the other. Particularly during adolescence when stress and life change may increase, a more nuanced understanding of the relation between attachment security and the ability to engage in functional emotional behavior in the family context, and elsewhere, may shed light on factors that may help to reduce risk and increase resilience.

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References

- Adrian, M., Zeman, J., Erdley, C., Lisa, L., Homan, K., & Sim, L. (2009). Social contextual links to emotion regulation in an adolescent psychiatric inpatient population: do gender and symptomatology matter? *Journal of Child Psychology and Psychiatry*, 50, 1428–1436.

- Allen, J. P., McElhaney, K. B., Kuperminc, G., & Jodl, K. M. (2004). Stability and change in attachment security across adolescence. *Child Development, 75*, 1792–1805.
- Allen, J. P., McElhaney, K. B., Land, D. J., Kuperminc, G., Moore, C., O'Beirne-Kelly, H., et al. (2003). A secure base in adolescence: markers of attachment security in the mother-adolescent relationship. *Child Development, 75*, 292–307.
- Allen, J. P., Moore, C., Kuperminc, G., & Bell, K. (1998). Attachment and adolescent psychosocial functioning. *Child Development, 69*, 1406–1419.
- Allen, J. P., Porter, M., McFarland, C., & McElhaney, K. B. (2007). The relation of attachment security to adolescents' paternal and peer relationships, depression, and externalizing behavior. *Child Development, 78*, 1222–1239.
- Bartholomew, K. (1998). *The family and peer attachment interview*. Unpublished manuscript, Simon Fraser University.
- Bartholomew, K., & Horowitz, L. (1991). Attachment styles among young adults: a test of a four-category model. *Journal of Personality and Social Psychology, 61*, 226–244.
- Becker-Stoll, F., Delius, A., & Scheitenberger, S. (2001). Adolescents' nonverbal emotional expressions during negotiation of a disagreement with their mothers: an attachment approach. *International Journal of Behavioral Development, 25*, 344–353.
- Bowlby, J. (1988a). *A secure base: Clinical applications of attachment theory*. London: Routledge.
- Bowlby, J. (1988b). *A secure base: Parent-child attachment and healthy human development*. New York: Basic Books Inc.
- Bradley, S. (2000). *Affect regulation and the development of psychopathology*. New York: Guilford Press.
- Buist, K. L., Dekovic, M., Meeus, W., & van Aken, M. A. G. (2002). Developmental patterns in adolescent attachment to mother, father and sibling. *Journal of Youth and Adolescence, 31*, 167–176.
- Buist, K. L., Dekovic, M., Meeus, W., & van Aken, M. A. G. (2004). The reciprocal relationship between early adolescent attachment and internalizing and externalizing problem behaviour. *Journal of Adolescence, 27*, 251–266.
- Cobb, R., Davila, J., & Bradbury, T. (2001). Attachment security and marital satisfaction: the role of positive perceptions and social support. *Personality and Social Psychology Bulletin, 27*, 1131–1144.
- Cole-Detke, H., & Kobak, R. (1996). Attachment processes in eating disorder and depression. *Journal of Consulting and Clinical Psychology, 64*, 282–290.
- Cooper, M. L., Shaver, P. R., & Collins, N. L. (1998). Attachment styles, emotion regulation, and adjustment in adolescence. *Journal of Personality and Social Psychology, 74*, 1380–1397.
- Crowell, J. A., & Feldman, S. S. (1991). Mothers' working models of attachment relationship and mother and child behavior during separation and reunion. *Developmental Psychology, 27*, 597–605.
- Crowell, J. A., Fraley, R. C., & Shaver, P. R. (1999). Measurement of individual differences in adolescent and adult attachment. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 434–468). New York: Guilford Press.
- Ducharme, J., Doyle, A. B., & Markiewicz, D. (2002). Attachment security with mother and father: associations with adolescents' reports of interpersonal behavior with parents and peers. *Journal of Social and Personal Relationships, 19*, 203–231.
- Eisenberg, N., Cumberland, A., Spinrad, T. L., Fabes, R. A., Shepard, S. A., Reiser, M., et al. (2001). The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. *Child Development, 72*, 1112–1134.
- Feeney, B. C., & Cassidy, J. (2003). Reconstructive memory related to adolescent-parent conflict interactions: the influence of attachment-related representations on immediate perceptions and changes in perceptions over time. *Journal of Personality and Social Psychology, 85*, 945–955.
- George, C., Kaplan, N., & Main, M. (1985). *The Adult Attachment Interview*. Unpublished manuscript, University of California at Berkeley.
- Gross, J. J., & Munoz, R. F. (1995). Emotion regulation and mental health. *Clinical Psychology: Science and Practice, 2*, 151–164.
- Hammen, C., Adrian, C., Gordon, D., Burge, D., Jaenicke, C., & Hiroto, D. (1987). Children of depressed mothers: maternal strain and symptom predictors of dysfunction. *Journal of Abnormal Psychology, 96*, 190–198.
- Kobak, R. R., Cole, H. E., Ferenz-Gillies, R., & Fleming, W. S. (1993). Attachment and emotion regulation during mother-teen problem solving: a control theory analysis. *Child Development, 64*, 231–245.
- Kobak, R. R., Ferenz-Gillies, R., Everhart, E., & Seabrook, L. (1994). Maternal attachment strategies and emotion regulation with adolescent offspring. *Journal of Research on Adolescence, 4*, 553–566.
- Larson, R. W., Moneta, G., Richards, M., & Wilson, S. (2002). Continuity, stability, and change in daily emotional experience across adolescence. *Child Development, 73*, 1151–1165.
- Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: a move to the level of representation. In I. Bretherton, & E. Waters (Eds.), *Growing points in attachment theory and research. Monographs of the Society for Research in Child Development, Vol. 50* (pp. 66–106).
- Paterson, J. E., Field, J., & Pryor, J. (1994). Adolescents' perceptions of their attachment relationships with their mothers, fathers and friends. *Journal of Youth and Adolescence, 23*, 579–600.
- Riggio, R. E. (1986). Assessment of basic social skills. *Journal of Personality and Social Psychology, 51*, 649–660.
- Rimé, B. (2009). Emotion elicits the social sharing of emotion: theory and empirical review. *Emotion Review, 1*, 60–85.
- Rottenberg, J., Gross, J. J., & Gotlib, I. H. (2005). Emotion context insensitivity in major depressive disorder. *Journal of Abnormal Psychology, 114*, 627–639.
- Sheeber, L., Allen, N., Davis, B., & Sorensen, E. (2000). Regulation of negative affect during mother-child problem-solving interactions: adolescent depressive status and family processes. *Journal of Abnormal Child Psychology, 28*, 467–479.
- Sheffield Morris, A., Silk, J. S., Steinberg, L., Myers, S. S., & Robinson, L. R. (2007). The role of the family context in the development of emotion regulation. *Social Development, 16*, 361–388.
- Shomaker, L. B., & Furman, W. (2009). Parent-adolescent relationship qualities, internal working models, and attachment styles as predictors of adolescents' interactions with friends. *Journal of Social and Personal Relationships, 26*, 579–603.
- Silk, J. S., Steinberg, L., & Sheffield Morris, A. (2003). Adolescents' emotion regulation in daily life: links to depressive symptoms and problem behavior. *Child Development, 74*, 1869–1880.
- Spangler, G., & Zimmermann, P. (1999). Attachment representation and emotion regulation in adolescents: a psychobiological perspective on internal working models. *Attachment & Human Development, 1*, 270–290. doi:10.1080/14616739900134151.
- Steinberg, L., & Avenevoli, S. (2000). The role of context in the development of psychopathology: a conceptual framework and some speculative propositions. *Child Development, 71*, 66–74.
- Torquati, J., & Raffaelli, M. (2004). Daily experiences of emotions and social contexts of securely and insecurely attached young adults. *Journal of Adolescent Research, 19*, 740–758.
- van der Vorst, H., Engels, R. C. M. E., Meeus, W., Dekovic, M., & Vermulst, A. (2006). Parental attachment, parental control, and early development of alcohol use: a longitudinal study. *Psychology of Addictive Behaviors, 20*, 107–116.
- Vivona, J. M. (2000). Parental attachment styles of late adolescents: qualities of attachment relationships and consequences for adjustment. *Journal of Counseling Psychology, 47*, 316–329.
- Wallis, P., & Steele, H. (2001). Attachment representations in adolescence: further evidence from psychiatric residential settings. *Attachment & Human Development, 3*, 259–268.
- Zimmermann, P., Maier, M. A., Winter, M., & Grossmann, K. E. (2001). Attachment and adolescents' emotion regulation during a joint problem-solving task with a friend. *International Journal of Behavioral Development, 25*, 331–343.
- Zimmermann, P., Mohr, C., & Spangler, G. (2009). Genetic and attachment influences on adolescents' regulation of autonomy and aggressiveness. *Journal of Child Psychology and Psychiatry, 50*, 1339–1347.