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Relational Stressors and Depressive Symptoms in Late Adolescence: Rejection Sensitivity as a Vulnerability

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Abstract The role of rejection sensitivity as a critical diathesis moderating the link between adolescent relational stressors and depressive symptoms was examined using multi-method, multi-reporter data from a diverse community sample of 173 adolescents, followed from age 16 to 18. Relational stressors examined included emotional abuse, maternal behavior undermining adolescents' autonomy and relatedness, and lack of support from close peers. As hypothesized, multiple relational stressors were found to predict the future development of depressive symptoms, but as hypothesized predictions existed primarily for adolescents who were highly rejection sensitive. Results are discussed in terms of a diathesis-stress model of depression and suggest that though relational stressors have previously shown consistent modest links to depressive symptoms, understanding pre-existing intrapsychic vulnerabilities of the adolescent may be critical to identifying the processes by which such stressors lead to depressive symptoms.

Keywords Depressive symptoms · Adolescence · Rejection sensitivity · Autonomy · Peers

Late adolescence is a challenging developmental period marked by an increase in both the incidence and prevalence of internalizing disorders (Birmaher et al. 1996; Kessler et al. 2001; La Greca and Lopez 1998). Problematic relational patterns both within and outside of the family have repeatedly been identified as precursors to depression (e.g., Allen et al. 2006; Bender et al. 2007). In addition, intraindividual characteristics, such as rejection sensitivity, may predispose individuals to experiencing depressive symptoms at other points in the lifespan (Ayduk et al. 2001; London et al. 2007; Sandstrom et al. 2003). This study examines the overarching hypothesis that rejection sensitivity serves as a broad diathesis that moderates the established links between psychosocial stressors and depressive symptoms in late adolescence.

Diathesis-stress models in general propose that the development of psychopathology results when an individual with a certain vulnerability is exposed to a given set of environmental conditions. Neither alone may trigger psychopathology, but the combination of a diathesis and a life stressor increases an individual's risk for developing psychological difficulties (e.g., Caspi et al. 2003; Kendler et al. 1995; Zuckerman 1999). Existing diathesis-stress models of depression emphasize the role of both negative cognitive styles and relational factors in creating vulnerabilities to depression (e.g., Alloy et al. 2006). Such models propose that individuals at risk for depression have attributional biases and negative self and/or interpersonal schemas that make them vulnerable to interpreting life events negatively (Lewinsohn et al. 2001; Metalsky and Joiner 1992; Safran 1990).

Rejection sensitivity is a construct derived from cognitive, interpersonal, and attachment theories and is seen as a component of personality that consists of highly contextualized but stable profiles of if-then, situation dependent behaviors (Ayduk et al. 2000; Mischel and Shoda 1995). Consistent with attachment theory, rejection sensitivity represents a way of viewing interpersonal interactions that may derive from past insecure attachment relationships, in which caregivers failed to adequately respond to emotional needs. As such, rejection sensitivity is thought to be a mechanism through which insecure internal working models of relationships, derived from past attachment experiences,

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influence future expectations, perceptions, and reactions in interpersonal situations (Ayduk et al. 2003; Bretherton and Munholland 2008). In rejection relevant situations, these expectations are automatically activated, leading rejection sensitive individuals to anxiously expect and more readily perceive the occurrence of rejection and to react defensively (Downey and Feldman 1996).

Rejection sensitivity has been proposed as a stable, individual disposition that can help explain the development of internalizing disorders on its own. However, with the exception of one study of adolescents (Marston et al. 2010), much of this research has been cross-sectional or short-term in nature and has relied on self-report measures with adult samples (Ayduk et al. 2001; London et al. 2007; Sandstrom et al. 2003). Several lines of research also provide suggestive evidence that rejection sensitivity may be better conceptualized as an individual vulnerability that increases one's risk for developing depression in the context of specific stressors—it may take a significant relational event for rejection sensitivity to have its maximal impact. For example, in a self-report-based study of college-aged women, those high in rejection sensitivity became increasingly depressed over a 6-month period following a partner-initiated breakup, but not following a self-initiated breakup (Ayduk et al. 2001). Similarly, in a cross-sectional, self-report-based study, rejection sensitivity was found to concurrently relate to adolescent depressive symptoms, but only for adolescents who reported low support from parents and friends (McDonald et al. 2010). These two studies provide evidence that rejection sensitivity may help explain why relationship adversity predicts depression in some individuals but not others. Thus, while rejection sensitivity may be moderately correlated with depressive symptoms, an individual can be high in rejection sensitivity, but not depressed, particularly if that individual has not faced any substantial social stressors

Similarly, not everyone who experiences relational stressors will inevitably become depressed. Although a range of social stressors has been identified as having a role in predicting adolescent depressive symptoms, most studies find only modest links between such stressors and the development of depression. For example, difficulties establishing both autonomy and relatedness with parents during adolescence are moderately predictive of future depressed affect (Allen et al. 1994b, 2006; Barber 1996; Rogers et al. 2003). Adolescence shifts the nature of attachment (i.e., parent-adolescent) relationships to more "goal-corrected partnerships" and requires both parent and teen to maintain the relationship at the same time that the adolescent is beginning to assert his/her autonomy (Allen and Land 1999; Bowlby 1973). Thus, the combination of difficulties establishing autonomy while also maintaining connection in parent-teen relationships has been most predictive of depressive symptoms, though established associations remain modest. Adolescent depression has also been associated with emotionally abusive family-level dynamics, including harsh treatment, dysfunctional parenting styles, and a general lack of family support (Asarnow et al. 2001; Bender et al. 2007; Nelson et al. 2003; Sheeber et al. 1997). Similarly, previous research has documented links between difficulties in peer relationships and adolescent depression, but again, these links have been moderate in nature. The range of adolescent peer difficulties previously associated with depression include an inability to establish quality connections with friends and lack of interpersonal support, as well as broad markers of peer problems including peer rejection and lack of popularity (e.g., Allen et al. 2006; Galambos et al. 2004; Henrich et al. 2001; Nolan et al. 2003; Prinstein and Aikins 2004). In general, however, the extant literature has not explored the critical question of exactly which individuals with which vulnerabilities might be most susceptible to experiencing depressive symptoms in the face of these types of familial and peer relational stressors.

The current study proposes that links between adolescent stressors and depressive symptoms will be moderated by rejection sensitivity, such that those individuals who have the pre-existing diathesis—the vulnerability created by rejection sensitivity—will be most likely to become depressed in the face of these stressors. For example, parental undermining of adolescents' sense of autonomy and relatedness in the parent-teen relationship may be particularly problematic for teens who are prone to feel fearful of being rejected in the face of pressuring and manipulative behaviors. In similar fashion, verbally abusive remarks may serve to exacerbate feelings of worthlessness and inadequacy, but especially for teens who have difficulty accurately perceiving and coping with verbal rejection in relationships. Furthermore, because peer relationships generally play such a central role in adolescents' day-to-day lives (e.g., Buhrmester 1998), rejection sensitive teens who expect to be rebuffed by peers and who react to perceived slights with intense negativity may be particularly adversely affected by even mildly difficult peer experiences. Thus, peer interactions that lack support and connection may be especially likely to predict the development of depressive symptoms for rejection sensitive teens.

To begin to disentangle these factors so as to more fully explicate the potential role of rejection sensitivity as a critical diatheses in processes leading to depressive symptoms, research is now needed that is longitudinal, that assesses change in levels of depressive symptoms over time, and that considers multiple domains of stressors. The current longitudinal, multi-method, and multi-reporter study sought to address precisely these issues. The role of rejection sensitivity as a critical diathesis that leads to depressive symptoms in the context of relationship difficulties was investigated in a diverse community sample of adolescents followed from 16

to 18 years of age. Maternal undermining of autonomy and relatedness, emotional abuse within the family, and a lack of observed interpersonal support from close friends were all conceptualized as key relational stressors at age 16. Although modest direct associations between these factors and depressive symptoms were expected, the primary hypothesis of this study was of an interaction between relational stressors and rejection sensitivity. Specifically, relational stressors would be primarily linked with increased depressive symptoms among rejection sensitive individuals. Conversely, these relational stressors were expected to be less problematic for adolescents who were less rejection sensitive.

Method

Participants and Procedure

The current sample was drawn from a larger longitudinal study of adolescent psychosocial development in familial and peer contexts. Participants included 173 adolescents (81 male and 92 female), their mothers, and closest friends. Participants were initially interviewed when the target adolescent was 16 years old (M=16.35 years, SD=0.87), then re-interviewed two years later at age 18 (M=18.30 years, SD=0.99). The sample was racially/ethnically and socioeconomically diverse: 103 (60%) adolescents identified themselves as Caucasian, 50 (29%) as African American, 2 (1%) as Hispanic/Latino, 1 (.5%) as Asian American, 1 (.5%) as American Indian, 13 (7.5%) as mixed ethnicity, and 3 (1.5%) as "other" racial/ethnic group. Parents of target adolescents reported a median family income at the first assessment in the $40,000-$59,999 range (M=$43,500, SD=$22,580).

At each wave of data collection, adolescents nominated their closest friend to be included in the study. Of the 173 adolescents who participated in the current study, 143 of their closest friends assented and participated at the age 16 assessment. Close friends were defined as "people you know well, spend time with, and whom you talk to about things that happen in your life." For adolescents who had difficulty naming close friends, it was explained that naming their "closest" friends did not mean that they were necessarily close to these friends in an absolute sense, but that they were close to these friends relative to other acquaintances they might have. Close friends reported that they had known the adolescents for an average of 5.72 years (SD=3.80) at the first wave of data collection. The close friends selected at the second wave, who were different friends than those selected at the first for 68% of adolescents, reported that they had known the adolescents for an average of 6.79 years (SD=4.46).

At the beginning of the larger longitudinal study, adolescents were initially recruited from the seventh and eighth grades of a public middle school drawing from suburban and urban populations in the Southeastern United States. Measurement for the current study, however, began approximately 3 years later when target adolescents were 16 years old. Students were recruited via an initial mailing to all parents of students in the school along with follow-up contact efforts at school lunches. Families of 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. This sample appeared generally comparable to the overall population of the school in terms of racial/ethnic composition and socio-economic status.

During the first wave of data collection, adolescents came in for two visits. The initial visit was with their parents, and the second visit was with the person who they named as their closest friend during the interview at the first visit. Approximately 2 years later, they again came in for two visits. The first visit was an individual interview, and the second was with the person who they named as their closest friend in the individual interview. All interviews took place in private offices within a university academic building. Participating adolescents provided informed assent, and their parents provided informed consent until adolescents were 18 years of age, at which point they provided informed consent. The same assent/consent procedures were used for peers and their parents. Adolescents and close friends were paid for their participation.

Attrition Analyses

The 173 adolescents who assented and participated in the current study comprised a subset with complete data at age 16 on measures of depressive symptoms of the 184 adolescents who initially participated in the larger longitudinal study. Attrition analyses revealed no significant differences between the current study subsample of 173 adolescents versus the 11 adolescents who participated only in the larger study on any of the demographic or substantive measures in the study. Of this subset of 173 adolescents, 154 (89%) adolescents provided follow-up data on depressive symptoms at age 18. Attrition analyses indicated that individuals in the current study who provided follow-up data on depressive symptoms were more likely to come from higher income households (t=−3.82, p<0.001), and to report lower levels of emotional abuse from family (t= 2.01, $p\leq$0.05) than those individuals who did not. There were no other significant differences on any study variables between these groups.

To best address any potential biases due to attrition and missing data in longitudinal analyses, Full Information Maximum Likelihood (FIML) techniques were applied to

the entire subsample of 173 teens. FIML procedures have been found to be superior in terms of showing less bias in parameter estimates and less sampling variability when all available data are used for longitudinal analyses, as compared to other statistical techniques meant to handle missing data (Enders 2001). FIML techniques also allowed us to explicitly account for factors, such as income and prior emotional abuse that might differentially account for the existence of missing data. This analytic technique simply takes into account distributional characteristics of data in the full sample so as to provide the least biased estimates of parameters obtained when some data are missing (Arbuckle 1996).

Measures

Demographic Information Adolescents reported their gender, and parents reported their annual household income, as well as their level of education when adolescents were 13. The mean of mother and father education level was used in the current study, with higher levels indicating more education.

Depressive Symptoms At age 16, adolescents reported the degree of their depressive symptoms using the Childhood Depression Inventory (CDI; Kovacs and Beck 1977). Based on the Beck Depression Inventory, this measure contains 27 items each rated on a 0 to 2 scale. Item scores are then summed to yield a total score for depressive symptoms. The CDI has been well-validated as a measure of depressive symptomatology and has previously been linked with poor self-esteem, hopelessness, and negative cognitive attributions (Kazdin 1990) with excellent internal consistency in this sample (Cronbach's α=0.86). At age 18, adolescents completed the Beck Depression Inventory, a 21-item inventory designed to assess the degree of depressive symptoms in adolescents and adults (BDI; Beck and Steer 1987). Items are rated on a 0 to 3 scale and are summed to yield a total depression score, with higher scores indicating more severe depressive symptoms. The BDI is a well-validated and widely accepted self-report measure of depressive symptomatology (Kazdin 1990) with excellent internal consistency in this sample (Cronbach's α=0.87). Both the CDI and BDI use a continuum/severity vs. a threshold approach, recognizing that higher levels of depressive symptoms that do not necessarily meet diagnostic thresholds may still be important in predicting future dysfunction (Lewinsohn et al. 2000).

Rejection Sensitivity Adolescents' level of self-reported rejection sensitivity was assessed at age 16 using the Rejection Sensitivity Questionnaire (RSQ: Downey and Feldman 1996). The measure consists of 18 hypothetical situations in which rejection by a significant other is possible (e.g. "You ask a friend to do you a big favor"). Significant others included parents, friends, romantic partners/romantic interests, and bosses/co-workers. For each situation, teens were first asked to indicate their degree of concern or anxiety about the possibility of rejection in the situation on a 6-point scale ranging from 1 (*very unconcerned*) to 6 (*very concerned*). Teens were then asked to indicate the likelihood that the other person would respond in an accepting manner on a 6-point scale ranging from 1 (*very unlikely*) to 6 (*very likely*). Following Downey and Feldman's (1996) scoring guidelines, an overall rejection sensitivity score for each situation was obtained by multiplying the expected likelihood of rejection (reverse scoring the expectations of acceptance) by the score for the degree of anxiety or concern. The total rejection sensitivity scale was then computed by summing the rejection sensitivity scores for each situation and dividing by 18, the total number of situations. The RSQ has been repeatedly found to have strong psychometric properties (Downey et al. 2000; Downey and Feldman 1996). Internal consistency for the total rejection sensitivity scale at age 16 was excellent (Cronbach's α=0.87). Rejection sensitivity also showed good stability over the course of the study from age 16 to age 18 (β=0.65, p<0.001).

Observed Maternal Behaviors Undermining Adolescents' Autonomy and Relatedness Adolescents and their mothers participated in an 8-min revealed-differences task when teens were 16, in which they discussed an issue that they had each separately identified as an area of disagreement. Adolescents and their mothers were brought together and the discussion began with the adolescent playing an audiotape that summarized the problem that he or she had previously recorded. Interactions were videotaped and then transcribed, and the Autonomy and Relatedness Coding System was used to code the interactions (Allen et al. 2000; Allen et al. 1994a). This coding system yields ratings for mothers' overall behavior toward teens during the entire interaction. Ratings are molar in nature; however, these molar scores are derived from an anchored coding system that considers both the frequency and intensity of each speech relevant to that behavior during the interaction in assigning the overall molar score.

The overall scale for maternal behavior undermining autonomy and relatedness with teens was selected on the basis of prior research and theory, to tap struggles with autonomy processes that were most likely to predict psychological dysfunction over time, including depression (Allen et al. 1994b, 2002, 2006). Previous research suggests that it is the *combination* of the capacity to establish autonomy while maintaining relatedness during disagreements that has the strongest relation to psychosocial

functioning (Allen et al. 1994a, b, 2006; Samuolis et al. 2005; Steinberg and Silverberg 1986). Scores on the individual autonomy and relatedness scales were rated on a 0 to 4 continuum and then summed together, with higher scores indicating behavior such as overpersonalizing the disagreement, recanting a position, pressuring the other person to agree, rudely interrupting or ignoring the other person, and/or overtly expressing hostility towards the other. Each interaction was observed and coded by two trained coders blind to other data from the study. Reliability was calculated using intraclass correlation coefficients (ICC's) based on an absolute agreement definition regarding averaged measures. The model used to calculate ICC's was a two-way mixed effects model where person effects are random and measures effects are fixed, which corresponds to the ICC (2,1) model outlined in Shrout and Fleiss (1979). Interrater reliability was in the excellent range for this coefficient (r=.83; Cicchetti and Sparrow 1981).

Emotional Abuse The emotional abuse scale from the Childhood Trauma Questionnaire (CTQ: Bernstein et al. 1994) was used at age 16 to assess adolescents' self-reported level of emotional abuse within their family in the past year. The CTQ consists of 28 items rated on a 5-point scale ranging from 1 (*never true*) to 5 (*very often true*). Five items were summed to create the emotional abuse scale. A sample item includes "People in my family called me things like stupid, lazy, or ugly." All items ask teens to rate emotional abuse experienced from "people in [their] family," with the exception of one item that specifically asks about emotional abuse in relation to parents (e.g., "I thought my parents wished I had never been born"). Procedures were in place for handling any reported abuse situations that would require the current researchers to break confidentiality in any way. The CTQ has shown good psychometric properties (Bernstein et al. 1994, 1997). In the current study, internal consistency for the emotional abuse scale at age 16 was good (Cronbach's α=0.73).

Observed Interpersonal Support from Close Peer Adolescents and their close peers participated in a 6-min interaction task when adolescents were 16-years old, during which they were told to ask their close peer for help with a "problem they were having that they could use some support or advice about." These interactions were coded using the Supportive Behavior Coding System (Allen et al. 2001), which was based on several related coding systems designed for adults (Crowell et al. 1998; Haynes and Fainsilber Katz 1998; Julien et al. 1997). Specific behaviors displayed by close peers were coded and then summed to create a combined, continuous scale indicating how supportive close peers were during the interaction, including peers' level of active engagement and explicit understanding. Scores on these individual scales were rated on a 0 to 4 continuum, with higher scores reflecting behaviors such as finishing the target teen's sentences, asking open ended questions and making explicit efforts to understand the problem further. Each interaction was coded and analyzed in the same manner as the maternal autonomy and relatedness scale described above. Interrater reliability was in the good range (Intraclass correlation coefficient=0.64 for engagement; r=0.61 for understanding; Cicchetti and Sparrow 1981).

Results

Preliminary Analyses

Means and standard deviations for all primary variables are presented in Table 1. Preliminary analyses revealed that 29% of participants scored above suggested cutoffs for at least mild depression at one or both time points (Beck et al. 1988; Worchel et al. 1990). For descriptive purposes, simple correlations were examined between all key variables of interest and are presented in Table 1. These revealed moderate correlations of emotional abuse at age 16 with depressive symptoms at ages 16 and 18, and with maternal undermining autonomy and relatedness at age 16. Rejection sensitivity at age 16 was also moderately correlated with depressive symptoms at ages 16 and 18. Initial analyses also examined links between the demographic variables (gender, total family income, and parental education level) and depressive symptoms at both time points, but no significant associations were found. All three variables, however, were retained as covariates in analyses to account for any possible effects that may not have reached conventional levels of statistical significance and to provide maximal information to FIML analyses. Additionally, moderating effects of demographic variables and primary predictor variables were also examined as a final step in each respective model and no such effects were found.

Primary Analyses

In all models, a series of hierarchical linear regressions was performed to examine interactions between adolescent relationship stressors at age 16 and rejection sensitivity and relative changes in depressive symptoms from age 16 to age 18. All analyses examined the prediction of future levels of depressive symptoms after controlling for baseline levels. This approach of predicting the future level of a variable while accounting for predictions from initial levels yields one marker of relative change in that variable: increases or decreases in future depressive symptoms

Table 1 Means, standard deviations, and correlations among primary variables

Variable	1	2	3	4	5	6	7	8	9
M	–	$43,618	5.89	7.17	5.03	8.45	0.78	7.39	3.00
SD	–	$22,420	2.08	6.10	6.08	3.51	0.53	2.78	0.61
Range	–	$2500–70,000	1–9	0–29	0–32	1.11–20.83	0–1.93	5–17	.75–4.0
1. Adolescent Gender (1 = Male; 2 = Female)	–								
2. Family Income (MR)	−0.11	–							
3. Parental education level (MR & FR)	−0.15	0.65***	–						
4. Depression, Age 16 (SR)	0.01	0.00	0.11	–					
5. Depression, Age 18 (SR)	0.10	0.08	0.13	0.26***	–				
6. Rejection Sensitivity, Age 16 (SR)	−0.16*	0.06	0.14	0.35***	0.21**	–			
7. Maternal Undermining of Autonomy and Relatedness, Age 16 (O)	0.01	−0.27**	−0.25**	0.06	0.12	0.04	–		
8. Emotional Abuse, Age 16 (SR)	−0.13	0.01	0.02	0.32***	0.23**	0.15	0.34***	–	
9. Close Peer Interpersonal Support, Age 16 (O)	0.20*	0.19*	0.26**	0.09	−0.09	−0.11	0.00	−0.02	–

SR self report; *MR* mother report; *FR* father report; *O* observed

* $p<0.05$, ** $p\leq0.01$, *** $p<0.001$

relative to initial levels (Cohen and Cohen 1983). In addition, covarying baseline levels of future behavior eliminates the spurious effect whereby observed predictions are simply a result of cross-sectional associations among variables that are stable over time. Most importantly, analyses focused on whether rejection sensitivity at 16 would moderate the predictive strength of teen relational stressors at 16 on future changes in depressive symptoms. All significant interactions were probed using simple slope analyses outlined by Aiken and West (1991). In order to conduct these analyses, values for rejection sensitivity corresponded to one *SD* above the mean and one *SD* below the mean.

Hypothesis 1. *Maternal undermining of autonomy and relatedness during disagreements will predict future relative increases in depressive symptoms primarily for adolescents who are high in rejection sensitivity.*

Analyses first examined moderating effects of rejection sensitivity in the context of maternal behaviors undermining autonomy and relatedness. Hierarchical regression analyses predicted depressive symptoms at age 18 from adolescent gender, family income, and parental education level followed by depressive symptoms at age 16, maternal behaviors undermining teens' autonomy and relatedness at age 16, rejection sensitivity at age 16, and the interaction of rejection sensitivity and maternal behaviors undermining autonomy and relatedness. All interaction terms were created by standardizing the predictor variables and multiplying them together. Results are presented in Table 2. A significant main effect for rejection sensitivity was found, such that higher levels of rejection sensitivity at age 16 predicted relative increases in depressive symptoms from age 16 to age 18. However, as hypothesized, there was also a significant interaction found: having mothers who undermined autonomy and relatedness during conflict at age 16 was a strong predictor of future relative increases in depressive symptoms for adolescents who were highly rejection sensitive (see Fig. 1); the simple slope for this group was significantly different from zero ($\beta=0.34$, $p\leq0.001$). This relation was not seen for adolescents who were low in rejection sensitivity; the simple slope for this group was not significantly different from zero ($\beta=-0.10$, $p=0.45$).

Hypothesis 2. *Emotional abuse within the family will predict future relative increases in depressive symptoms primarily for adolescents who are high in rejection sensitivity.*

Analyses next considered the extent to which adolescent rejection sensitivity would moderate the relation between experiences of emotional abuse from family members and later depressive symptoms, using the same approach previously described. Results are presented in Table 2. As hypothesized, family emotional abuse predicted relative increases in depressive symptoms from age 16 to age 18 only for teens who were also high in rejection sensitivity ($\beta=0.29$, $p\leq0.01$), but not for adolescents who reported low levels of rejection sensitivity ($\beta=-0.10$, $p=.42$), as depicted in Fig. 1.

Hypothesis 3. *A lack of interpersonal support from close friends will predict future relative increases in depressive symptoms primarily for adolescents who are high in rejection sensitivity.*

Following the same approach described above, regression analyses were utilized to examine rejection sensitivity as a moderator of the link between interpersonal support

Table 2 Interactions between rejection sensitivity and interpersonal stressors predicting relative change in adolescent depressive symptoms

	Depressive symptoms (teen age: 18)								
	Maternal undermining autonomy and relatedness			Emotional abuse			Close peer interpersonal support		
	β	ΔR^2	Total R^2	β	ΔR^2	Total R^2	β	ΔR^2	Total R^2
Step I.									
Gender (1-M; 2=F)	0.11			0.12			0.17*		
Total Family Income (13)	0.03			0.01			−0.03		
Parent Education Level (13)	0.11			0.08			0.15		
		0.024	0.024		0.024	0.024		0.024	0.024
Step II.									
Depressive Symptoms (16)	0.21**	0.06**	0.084*	0.17*	0.06***	0.084*	0.24**	0.06***	0.084*
Step III.									
Rejection Sensitivity (16)	0.15*	0.021	0.105*	0.12	0.021	0.105*	0.16	0.021	0.105*
Step IV.									
Interpersonal Stressor (16)	0.12	0.039*	0.144**	0.09	0.009	0.114*	−0.22**	0.028**	0.133**
Step V.									
Interpersonal Stressor X Rejection Sensitivity	0.29***	0.081***	0.225***	0.19*	0.036*	0.150**	−0.24**	0.028*	0.180**

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

from close peers and depressive symptoms. Results are presented in Table 2. There was a significant main effect found for close peer interpersonal support at age 16, such that lower levels of support from friends during the interaction task predicted relative increases in depressive symptoms from age 16 to age 18. However, as hypothesized, there was a significant interaction, such that relative increases in depressive symptoms from age 16 to 18 were much more likely to occur for teens who both lacked interpersonal support from their close peers and who were high in rejection sensitivity (β=−0.44, $p \leq 0.001$), as opposed to teens who were low in rejection sensitivity (β=−0.01, p=0.95). This interaction is depicted in Fig. 2.

Discussion

This study explored the moderating effect of rejection sensitivity on several relationship stressors in predicting relative changes in depressive symptoms over a two-year

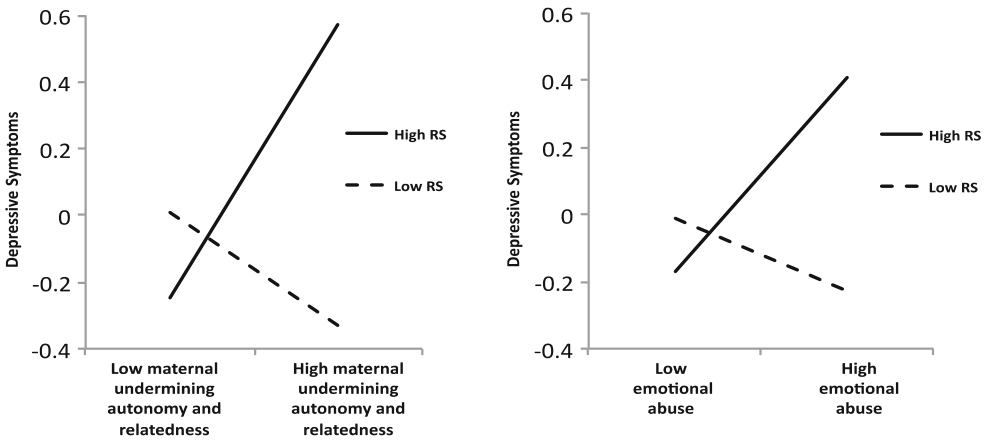

Fig. 1 Interactions between rejection sensitivity at age 16 and both maternal undermining autonomy and relatedness at age 16 and emotional abuse at age 16 predicting relative changes in adolescent depressive symptoms from age 16 to age 18

Note. RS = rejection sensitivity

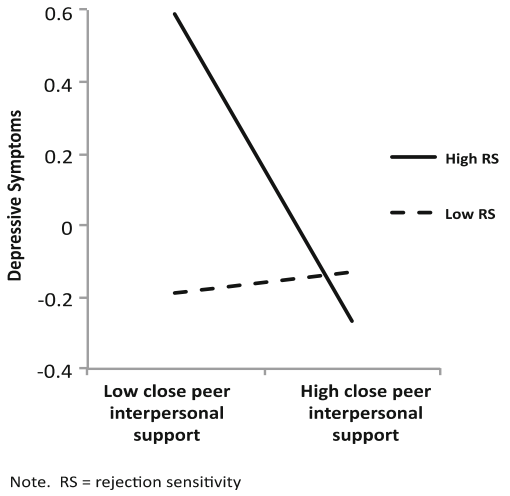

Fig. 2 Interaction between rejection sensitivity at age 16 and close peer interpersonal support predicting relative changes in adolescent depressive symptoms from age 16 to age 18

period, from mid to late adolescence. As hypothesized, results indicated that certain social and/or relational stressors, which in past research have only moderately predicted adolescent depression, were particularly problematic for teens who were highly rejection sensitive. When the tasks of developing autonomy and relatedness in both the family and peer contexts were disrupted, rejection sensitive teens were particularly vulnerable to experiencing relative increases in depressive symptoms. In contrast, family and peer relational stressors did not predict depressive symptoms for adolescents who were low in rejection sensitivity. Consistent with diathesis-stress models of depression (e.g., Caspi et al. 2003; Metalsky and Joiner 1992), neither relational stressors nor rejection sensitivity may trigger depression in all individuals; however, the combination of the two substantially increased risk for developing depressive symptoms. This pattern of findings suggests that rejection sensitivity is an important intra-individual trait that can help explain the transmission of relational experiences into the development of psychopathology.

The experience of disruptions in autonomy and relatedness within the mother-teen relationship was found to predict relative increases in depressive symptoms from middle to late adolescence for rejection sensitive teens. Findings suggest that maternal interaction styles that restrict adolescent autonomy development and undermine the parent-teen relationship during conflict by discouraging expression of opinions, pressuring teens, invalidating their ideas, and being highly critical, are potent stressors for rejection sensitive teens. Additionally, rejection sensitivity and the establishment of autonomy and relatedness in close relationships have been associated with early negative attachment experiences and adolescent attachment security, respectively (Allen et al. 2003; Feldman and Downey 1994), suggesting that attachment processes may underlie both types of difficulties (e.g., the diathesis and the stressors) during adolescence. These findings are consistent with the developmental psychopathology perspective that the greatest risk for psychosocial problems occurs when critical developmental tasks—such as establishing autonomy while also maintaining connection within parent-adolescent relationships—are challenged or unmet (Cicchetti and Toth 1998; Kobak and Ferenz-Gillies 1995; Kobak et al. 1991).

The current study adds an important component to previous research by suggesting that individuals with a specific cognitive-affective vulnerability— rejection sensitivity—are particularly at-risk in the face of certain types of mother-adolescent interactions. Consistent with other known cognitive diathesis stress models of depression, it may be that rejection sensitive adolescents interpret their mothers' criticism and over-bearing behaviors more personally, subsequently assume they are flawed or unworthy, and/or anticipate a catastrophic outcome of their mother's negativity (e.g., Abramson et al. 1989; Beck 1987). In this case, depressive symptoms may develop because these adolescents are left feeling particularly overwhelmed, demoralized and/or hopeless in this type of controlling parent-teen relationship. Consistent with research that highlights the role of dysfunctional interpersonal and attachment relationships in depression, it also may be that rejection sensitive adolescents more readily internalize models of relationships characterized by hostility, a lack of warmth, and an inhibition of individual opinions (Allen et al. 1994a, b, Coyne 1976; Joiner 2002). This internalization, in turn, may lead these teens to be even more likely to expect negative social interactions and thus to experience social slights from others as personally devastating – making them increasingly vulnerable to developing depressive symptoms.

Emotional abuse within the family context represents another relational stressor that appears to exacerbate risk for depressive symptoms for rejection sensitive individuals. Of note, emotional abuse shows only modest correlations with the other relational contexts examined in this study, indicating that it represents a relational stressor that is distinct from undermining autonomy and relatedness, even though the two phenomena may co-occur in some families. Given that experiences of emotional abuse do typically entail actual rejection, perhaps it is not particularly surprising that adolescents who are sensitive to rejection are especially vulnerable to developing later internalizing difficulties in this type of family climate. When adolescents who are sensitive to rejection are exposed to the types of negative messages inherent in emotional abuse, they may be especially likely to internalize negative beliefs about themselves and/or make stable and global attributions for the abuse, which may in turn leave them more vulnerable to

developing depressive symptoms (e.g., Abramson et al. 1989). Consistent with previous work demonstrating that emotion dysregulation mediates the link between physical child maltreatment and psychopathology (Maughan and Cicchetti 2002; Alink et al. 2009), rejection sensitive teens may also have greater difficulty regulating the negative emotions that result from exposure to emotionally abusive comments from their family members. These teens may be more likely to be overwhelmed with feelings of anger, sadness and/or helplessness and be ill equipped to handle the intensity of these emotions, which may in turn leave them more susceptible to developing depressive symptoms.

The moderating effect of rejection sensitivity was also found in the context of stressors in another distinct relational domain: adolescent peer relationships. Rejection sensitive adolescents whose close peers showed low levels of support and connection during conversations in which the teens were specifically soliciting their help demonstrated relative increases in depressive symptoms from mid- to late-adolescence. Even though close peers' lack of support did not necessarily entail explicit criticism, it did involve implicit rejection of their friend's request for support. Rejection sensitive adolescents may be especially likely to interpret their peers' lack of support as critical and/or personally rejecting. This idea is consistent with the notion that rejection sensitive individuals tend to interpret ambiguous social information negatively, and further, that interpreting ambiguous information in a negative manner may create a self-fulfilling prophecy leading to social difficulties (e.g., Downey and Feldman 1996; Downey et al. 1998a, b). These negative interpretations of close peers' unsupportive behavior may lead rejection sensitive teens to avoid seeking social support, isolate themselves socially, and/or actually experience social rejection in the future, and thus potentially experience increasing depressive symptoms over time.

Overall, findings build on previous diathesis stress models of depression (Abramson et al. 1989; Metalsky and Joiner 1992), by suggesting that rejection sensitivity represents a specific cognitive-affective diathesis that, when combined with relational stressors that inhibit the development of autonomy and relatedness within close relationships, creates a high level of risk for late adolescent depressive symptoms. Notably, the same pattern of vulnerability for rejection sensitive teens played out in relation to three distinct qualities of adolescents' relationships with mothers, with their families on a broader level, and with friends to predict increases in depressive symptoms. The presence of relationship stressors alone did not invariably predict increases in depressive symptoms, but rather the presence of close relationship stressors *in combination* with rejection sensitivity did. If these results are replicated, they suggest the potential value in working to prevent or reduce the onset of depressive symptoms by considering rejection sensitivity as a risk factor that might be addressed separately from actual experiences of rejection or from actual experience of depressive symptoms, as some interpersonal psychotherapies currently suggest (Mufson et al. 1993). One possibility to be explored is whether reducing individuals' rejection sensitivity might also increase their resilience or decrease their vulnerability to relational stressors with parents and friends.

The current study utilized multiple methods, including both self-reports and observations of social interactions between adolescents and their mothers and close friends, which serve to reduce potential confounds from the negative perceptual biases of depressed adolescents (Gotlib 1983). In addition, each of the demonstrated findings in the current study involved relative changes in depressive symptoms over time, after accounting for baseline levels of depressive symptoms. While this statistical approach utilizes only one possible measure of change over time and does not establish causal pathways, it does eliminate the possibility that initially high and stable levels of depressive symptoms are accounting for later psychological difficulties (e.g., Lewinsohn and Essau 2002). An additional limitation to consider when interpreting study findings is that the current sample of adolescents is a community-based, normative sample that was not selected to be particularly at-risk for high levels of depression or psychopathology. The patterns found in this study cannot be generalized to adolescents who struggle with clinically elevated levels of depression. Future research should consider employing other methods (e.g. growth curve modeling) and utilizing other types of samples, in order to examine patterns of change in depressive symptoms and/or the development of more severe psychopathology over longer time periods. Finally, several minor measurement limitations should be considered, including the use of different assessments of depressive symptoms (e.g., CDI and BDI), the fact that income was measured once (and could potentially change over the course of the study), and the moderate strength of reliability for observations of close peer interpersonal support.

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