

Parent Relationship Quality Buffers Against the Effect of Peer Stressors on Depressive Symptoms From Middle Childhood to Adolescence

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During the transition to adolescence, several developmental trends converge to increase the importance of peer relationships, the likelihood of peer-related stressors, and the experience of depressive symptoms. Simultaneously, there are significant changes in parent–child relationships. The current study sought to evaluate whether positive relationship quality with parents continued to serve a protective effect by buffering the relationship between stressful life events, especially peer stress, and increases in depressive symptoms throughout the transition to adolescence. Participants in a large ($N = 692$) 2-site accelerated longitudinal study were recruited in 3rd, 6th, and 9th grade and followed every 3 months for 1 year. At baseline, parents and youth reported on parent–child relationship quality, and every 3 months thereafter reported on their levels of stressors and depressive symptoms. Parent relationship quality moderated the relationship of person-level fluctuations in peer stressors, such that there was a stronger association between peer stressors and increases in depressive symptoms in youth with lower levels of positive parental relationship quality. This effect was specific to peer stressors. These results suggest that low levels of parent relationship quality leave youth particularly vulnerable to the depressogenic effects of peer stressors from childhood through adolescence.

Keywords: parental social support, peer stress, depressive symptoms, longitudinal

Positive parent–child relationships are associated with better adjustment and fewer problem behaviors among children (Bradley & Corwyn, 2007; Papp, Cummings, & Goetz-Morey, 2005). One way in which parents may help to protect against maladjustment is by supporting children in coping with stress (Bowlby, 1988). This idea is consistent with the stress-buffering model, which proposes that social support, or positive relationships with others, protects against the potentially pathogenic influence of stressful events (Cohen & Wills, 1985). As children age, however, two important developmental trends converge that may challenge the ability of parents to act as buffers against their children’s stress. First, parent–child relationships change as

youth strive for autonomy and negotiate a more equal balance of power. Second, youth experience an increase in stressors, including peer-related stressors, which occurs alongside an increase in the importance of peer relationships. Peer stressors in turn are a particularly strong predictor of depression.

Given changes in parent–child relationships during adolescence, there are two competing possibilities about the role of parents in protecting against stressors as youth transition into adolescence. One possibility is that the impact of relationships with parents declines during adolescence, leading parents to be less effective at buffering against rising peer stressors (e.g., McGue, Elkins, Walden, & Iacono, 2005). Alternatively, relationships with parents continue to be important for adolescents despite normative shifts that occur within the parent–child dyad (Furman & Buhrmester, 1985). Thus, positive, supportive relationships with parents may continue to be useful in protecting against the impact of stressors for adolescents. The primary aim of the current study was to evaluate whether positive relationships with parents can buffer the effects of youth stressors on depressive symptoms despite the considerable changes transpiring within parent–child relationships from middle childhood to adolescence.

Relationships With Parents Evolve From Childhood to Adolescence

Numerous studies of infants and younger children support the theoretical assertion that positive qualities in parent–child relationships promote positive adjustment by protecting against the

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deleterious effects of stressors (Propper & Moore, 2006). However, significant changes in parent–child relationships may have a considerable impact on the ability of parents to buffer against stressful events as youth age. As children begin to transition into adolescence, relationships with parents undergo a period of adjustment in response to youth maturational changes. Specifically, parents and children experience more intense conflict (Laursen, Coy, & Collins, 1998; McGue et al., 2005), express less physical affection, spend less time with each other, and have less intimacy in their relationships with one another during adolescence (Buhmester & Furman, 1987; Hartup & Laursen, 1991; Larson, Richards, Moneta, Holmbeck, & Duckett, 1996). Additionally, positive parenting, parental warmth, and overall relationship quality with parents decrease across the transition into adolescence (Furman & Buhmester, 1992; Loeber et al., 2000; McGue et al., 2005). These changes suggest the possibility that parents may be less influential as children age (Collins, Laursen, Mortensen, Luebker, & Ferreira, 1997).

At the same time, others have highlighted that even as parent–child relationships change, they may remain an important source of influence (Steinberg, 2001). Importantly, research shows that adolescents who have more supportive, positive relationships with parents experience lower levels of later depressive symptoms (Sheeber, Hops, Alpert, Davis, & Andrews, 1997) and are at a decreased risk for developing clinical levels of depression (Seeley, Stice, & Rohde, 2009; Stice, Ragan, & Randall, 2004), whereas youth exposed to low levels of support and have poor relationships with parents are at greater risk for depression (Alloy, Abramson, Smith, Gibb, & Neeren, 2006).

Peer Stressors Are a Critical Issue for Adolescent Development and Parental Influence

Changes in parent–child relationships occur at a point in development when youth may be in the greatest need of effective buffers for increasing peer stressors. During the transition to adolescence, youth encounter more peer stressors as the peer group becomes a more salient context for socialization, identity development, and emotional experiences (Ladd & Troop-Gordon, 2003; Larson & Ham, 1993). Problems with peer relationships in turn are linked to internalizing symptoms in childhood and adolescence, including depressive symptoms (e.g., Conley & Rudolph, 2009; Deater-Deckard, 2001).

Given both the continuity and change in parent–child relationships during adolescence, it is unclear whether parents are able to effectively buffer against rising stressors among youth, especially within peer contexts. Normative developmental changes may minimize the ability of parents to protect against the effects of stressors on depressive symptoms. However, it is possible that positive relationships with parents may continue to effectively buffer against stressors, despite documented changes in the parent–child relationship.

Previous Research on Stress Buffering in Youth

In contrast to the literature on adults and young children, there have been fewer studies of the role of social support in buffering against the effect of stressors on youth adjustment from late childhood to adolescence, and the available studies have yielded

mixed findings (Burton, Stice, & Seeley, 2004). Several potential trends in the literature may account for these inconsistent findings.

First, many stress-buffering studies have used stress measures that are overly broad. Most prior studies of stress buffering have considered the gross impact of a total sum of various life events and have not considered potential differential effects of particular stressors (Ge, Natsuaki, & Conger, 2006). Aggregate measures of life stress (e.g., summed gross impact scores for death of loved ones, illnesses or injuries, academic difficulties, interpersonal problems, changes such as moving, etc.) may obscure which domains of stressors are especially detrimental to healthy emotional functioning among youth (Ge, Natsuaki, Neiderhiser, & Reiss, 2009), and also which types of stressors are most amenable through social support. Relatedly, distal measurement of stress is another widespread limitation in the stress-buffering literature. A few studies in the literature use measures that assess stressors within the past 6 months (e.g., Windle, 1992; Zimmerman, Ramirez-Valles, Zapert, & Maton, 2000), but most assess previously occurring stressors within the past year (e.g., Burton et al., 2004; D'Imperio, Dubow, & Ippolito, 2000; DuBois et al., 1992; Wertlieb, Weigel, & Feldstein, 1989). However, stressful events that predict depressive episodes are typically acute stressors that precipitate depression quickly, typically within 1–3 months (Monroe & Reid, 2008). This suggests that stress measures that assess distal stress (greater than 3 months) are likely to be less relevant to the etiology of depressive symptoms.

Second, conflicting results among studies may be due to many studies' emphasis on broad support from family members, peers, and adults in the community, rather than a focus on the likely most salient supports in children's lives. Indeed, studies that have investigated the stress-buffering hypothesis among youth and the benefits of broad social support have yielded particularly mixed findings (Dubois, Felner, Brand, Adan, & Evans, 1992; Windle, 1992; see also Compas, 1987, for a review). By contrast, there is more consistent support for the stress-buffering model among the few youth studies that have specifically examined parents as a protective factor against stress. Most of these published studies have revealed that relationships with parents significantly protect against the effects of stress on health problems and problematic developmental outcomes, including depressive symptoms (Evans, Kim, Ting, Teshler, & Shannis, 2007; Ge, Conger, Lorenz, & Simons, 1994; Ge et al., 2009; Gore & Aseltine, 1995; Hotaling, Atwell, & Linsky, 1978; Natsuaki et al., 2007; Wills & Cleary, 1996), although one study has shown mixed support for the role of parents in protecting against the effect of stress on depressive symptoms (Zimmerman, Ramirez-Valles, Zapert, & Maton, 2000), and another no support (Burton et al., 2004). It is possible that other limitations (e.g., overly broad and distal measurement of stressors) prevented these last two studies from revealing full support for the stress-buffering effect of parent–child relationships.

Last, many studies of stress buffering on depressive symptoms in older children and adolescence have also suffered from additional design limitations. With few exceptions (e.g., Gore & Aseltine, 1995; Ge et al., 2009; Burton et al., 2004; Zimmerman, Ramirez-Valles, Zapert, & Maton, 2000), most have used cross-sectional designs, leaving it unclear whether the stress-buffering effect has etiological significance for depressive symptoms among youth. The majority of studies have also relied on youth report

questionnaires for measuring stressors, social support, and child outcomes, which raises the possibility of inflated associations among constructs (Millikan, Wamboldt, & Bihun, 2002).

In sum, fewer studies have investigated whether social support protects against the effects of stressors on depressive symptoms among older children and adolescents. Additionally, existing studies have yielded mixed findings, likely because of overly broad measurement of social support and stress and other methodological limitations. Moreover, no study to date has examined whether the magnitude of parental stress-buffering changes from middle childhood into adolescence, a developmentally critical period for changes in parent and peer influences.

The Current Study

We sought to determine whether positive parent–child relationships continue to buffer against the depressogenic effects of stressors from middle childhood into adolescence, and particularly whether the buffering protects against increasingly important peer stressors. In doing so, we used developmentally sensitive and rigorous approaches that address many of the limitations of prior studies. Our study included a longitudinal multiwave design in which stressors and depressive symptoms were assessed every 3 months over the course of 1 year. Both peer and nonpeer stressors were assessed, and multiple informants reported on parent–child relationship quality. *Peer stressors* were defined as negative events relating to peer relationships (e.g., feeling pressure from friends, fighting with friends), and *nonpeer stressors* were other types of negative events not involving peers, such as academic (e.g., getting bad grades) or financial stressors (e.g., money problems).

We hypothesized that parent–child relationships characterized by high levels of positive qualities would buffer against the association between youths' stressors, especially peer events, and prospective increases in depressive symptoms. Given changes in parent–child relationships, we further explored whether any stress buffering was evident before, during, and after the transition into adolescence. Finally, we expected that this buffering effect would exist for youths' peer stressors, as opposed to nonpeer events, given the developmental salience and particular etiological significance of peer stressors for the development of depressive symptoms among youth.

Method

Participants

Participants were 692 youth ($n = 375$ females) recruited from metropolitan school districts in New Jersey and Colorado (CO, $n = 369$; NJ, $n = 323$) during the third (7- to 9-years-old), sixth (10- to 12-years-old), and ninth (13- to 16-years-old) grades. Letters describing the study were mailed to all parents of children in those grades within participating school districts. Of the families to whom letters were sent, 1,108 parents responded to the letter and called the laboratory for more information. Parents who responded to the letters were screened, and potential participants were excluded from the study if they did not speak English or were otherwise unable to complete an extensive laboratory protocol due to severe developmental, learning, or psychiatric disorder (e.g., severe autism, schizophrenia). Of the families who initially con-

tacted the laboratory, 692 (61% participation rate) qualified as study participants, as they met criteria and arrived at the laboratory for the assessment. The remaining 433 (39%) are considered nonparticipants for the following reasons: four (1%) were excluded because the parents reported that their child had an autism spectrum disorder or low IQ; 13 (3%) were non-English-speaking families; 330 (76%) declined after learning about the study's requirements; and 113 (26%) were scheduled but did not arrive for assessment. Comparisons on available screening variables between those who chose to participate and those who did not revealed no significant difference on any variable.

Baseline interviews were conducted within research offices in each state. In addition to the youth, one primary caregiver (93% female) also provided data at baseline, including basic demographic information, including parent and youth age, gender, parent marital status, parent education, and family income; 76.6% of caregivers reported that they were married or otherwise living with a partner. Of the 88.4% of caregivers who provided descriptions of their relationship to the child, 1.1% stated not being a parent or step-parent (e.g., grandparent, aunt).

Families were generally upper-middle class (total annual income, CO: $Mdn = \$75,000$, $SD = \$84,043$; NJ: $Mdn = \$100,000$, $SD = \$65,897$). Parental education was assessed on a 9-point scale. Parents in New Jersey had slightly higher levels of education, with 38.3% of families having parents with college degrees (35.6% in Colorado) and only 32.8% of families in which neither parent had a college degree (41.6% in Colorado). Youth reported that 12% were Latino for ethnicity; they reported their race as Caucasian (70%), Black (12%), Asian/Pacific Islander (9%), or other/multiracial (9%). Descriptive statistics for race and ethnicity, as well as average income, for those who participated were consistent with the demographic information from the communities from which the participants were recruited. Other descriptive information on study variables is displayed in Table 1.

Measures

Depressive symptoms. Youths' reports of depressive symptoms were assessed using the Children's Depression Inventory (CDI; Kovacs, 2003), a well-established measure of broad depressive symptoms in youth. The CDI asks about depressive symptoms within the past 2 weeks. Each of the 27 items was scored on a scale of 0–2, resulting in scores ranging from 0 to 54. Missing items for all study scales were prorated if at least 80% of scale items were present; 89.1% of CDIs had complete data, and 92.6% were scorable. The CDI is one of the most commonly used, reliable, and valid measures of depressive symptoms among youth (Klein, Dougherty, & Olin, 2005). It has been demonstrated to be a valid indicator of depressive symptoms and shows measurement invariance across adolescents both with and without major depressive disorder (Gomez, Vance, & Gomez, 2012). The CDI was administered to youth at all five assessments, and alphas ranged from .80 to .87 across sites and time points. The vast majority of youth provided data at each follow-up: 91% at 3 months, and then 88% at 6, 9, and 12 months.

Parental relationship quality. Positive relationship quality as a form of social support conveyed by primary caregivers was reported on a seven-item short form of the Network of Relationships Inventory (NRI; Furman & Buhrmester, 2009). Youth sep-

Table 1
Bivariate Correlations and Descriptive Statistics of Variables by Study Site

Variable	1	2	3	4	5	6	7	8	9	10
1. CDI, person mean	—									
2. Peer stress, person mean	0.57	—								
3. Nonpeer stress, person mean	0.66	0.75	—							
4. Maternal SS, child report	-0.22	-0.13	-0.21	—						
5. Maternal SS, parent report	-0.07 [†]	-0.08	-0.14	0.35	—					
6. Paternal SS, child report	-0.26	-0.21	-0.26	0.62	0.14	—				
7. Paternal SS, parent report	-0.13	-0.12	-0.17	0.06 [†]	0.33	0.42	—			
8. Parental ^a SS, child report	-0.26	-0.18	-0.25	0.89	0.26	0.91	0.25	—		
9. Parental ^a SS, parent report	-0.12	-0.12	-0.19	0.24	0.76	0.34	0.87	0.31	—	
10. Age at baseline	0.16	0.21	0.36	-0.18	-0.19	-0.24	-0.18	-0.22	-0.22	—
Colorado <i>M</i>	5.24	5.71	16.36	27.03	26.82	25.58	23.60	26.40	25.37	12.10
<i>SD</i>	4.23	3.78	9.42	5.39	4.90	5.68	6.31	4.95	4.54	2.28
New Jersey <i>M</i>	5.23	5.33	17.22	26.67	28.26	24.93	24.45	25.90	26.40	11.51
<i>SD</i>	4.45	3.76	10.99	5.64	4.48	6.53	6.15	5.51	4.41	2.45

Note. Unless otherwise noted, all correlations are statistically significant at $p < .05$. CDI = Children's Depression Inventory; SS = positive social support on the Network of Relationships Inventory.

^a Parental SS indicates the mean value of maternal and paternal SS scores.

[†] $p > .05$.

arately reported on the extent to which their relationship with each parent was characterized by positive qualities as measured by items on the positive relationship quality factor of the short form of the NRI (e.g., "How much does this person treat you like you're admired and respected?"; "How much do you share your secrets and private feelings with this person?"). These items were summed to form a scale of positive relationship quality for each parent, and then averaged to form a total index of youth-reported parent relationship quality. Likewise, the parent who accompanied the youth to the baseline session completed a parallel version of the NRI, separately describing relationship quality between the youth and each parent (i.e., typically the youths' mother would complete one form for her relationship with the youth, and another for the father's relationship with the youth). These scores were then summed and averaged in the same manner as the youth's reports in order to create an index of parent-reported relationship quality. In instances in which only one parent relationship was evaluated, only that score was used, instead of a mean of two parents ($n = 40$ for youth report; $n = 37$ for parent report). The NRI was administered at baseline only. Coefficient alphas ranged from .80 to .85 across reporters, relationships, and study sites. Prior studies have shown the NRI to be a valid measure of relationship quality among school-age children as young as 7 all the way up to adolescents as old as 19 (Buhrmester & Furman, 1987; Furman & Buhrmester, 1992).

Stressors. Eight items from the Adolescent Life Events Questionnaire (ALEQ; Hankin & Abramson, 2002) identified a priori as having to do with peer relationships (e.g., "Feeling pressure by friends"; "Fighting with or problems with a friend"; "Friend is criticizing you behind your back") were summed to form a scale of peer stressor exposure. Each item was rated on a scale ranging from 0 (*never*) to 4 (*always*) reflecting how often that experience had happened to the participant in the last 3 months. Scores hence ranged from 0 to 32; descriptive statistics can be found in Table 1. The remaining 29 items from the ALEQ were summed to form a scale of nonpeer stress (e.g., "Getting bad grades on progress reports"; "Death of a relative"; "Financial troubles or money

problems"; "Arguments or fights between parents"). Overall, 91.5% of ALEQ reports had complete or only one missing item. The broader ALEQ has been widely used in previous multiwave, longitudinal studies on multiple continents (e.g., Abela et al., 2011; Calvete, Orue, & Hankin, 2013), and these data show the ALEQ to be a reliable and valid predictor of prospective elevations in depressive symptoms in children and adolescents as young as those in third grade (Hankin, Jenness, Abela, & Smolen, 2011). The ALEQ was administered at all five assessments.

Each stress scale was person-centered for idiographic analyses by calculating the participants' individual mean score across all times and then subtracting this mean score from each time point's score, yielding a measure of individual fluctuations in stress relative to that person's mean level. Prior research has shown that idiographically assessed stressors may be more strongly and consistently associated with depressive symptoms (see Abela & Hankin, 2008, for a review).

Data Analytic Strategy

We ran three mixed-effects models to test our main research question of whether parent relationship quality buffers the association between idiographic stressors and prospective increases in depressive symptoms. The three models vary in the reporter of parent relationship quality. In the first model, parent relationship quality was calculated by averaging youth-reported NRI scores of relationship quality with mothers and fathers. Next, in order to investigate whether findings replicated when parents reported on relationship quality, we averaged NRI scores for both mothers and fathers of youth, as reported by the parent who attended the baseline assessment. Finally, given that the reporting parent may be less accurate when describing the relationship quality of the other, absent parent, and given that the large majority of reporting parents were mothers, we ran a final model that only included mother-reported relationship quality (or other female caregivers) among caregivers who attended the baseline assessment.

At Level 1, CDI scores were modeled as a function of an intercept, the month of follow-up (0, 3, 6, 9, or 12), the lagged CDI score from the previous time point, and person-centered peer and nonpeer stressors reflecting idiographic fluctuations in stress exposure (Abela & Hankin, 2008; Hankin et al., 2011). Control variables at Level 2 were gender (female = 1, male = 0), highest level of parental education, grade at baseline (coded -1, 0, 1 for third, sixth, and ninth grades, respectively), the person means of stressors (reflecting the participants' average exposure to stress over the course of the study), and parent relationship quality. Effects of stressors were also predicted by grade, relationship quality, and their interaction. Parent relationship quality and person-mean stress were grand centered to ease interpretation. Both the covariance matrix of random effects and residuals were treated as unstructured, and restricted maximum likelihood estimation was used.

Results

Descriptive Statistics Across Sites

Correlations and descriptive statistics for study variables can be found in Table 1. There were no site differences in depressive symptoms ($b = -.002, p = .99$), peer stress ($b = -.39, p = .17$), or nonpeer stress ($b = .87, p = .26$). Youth reported similar levels of relationship quality with mothers and fathers (both $ps > .09$), but parents in New Jersey reported higher levels of maternal and paternal relationship quality than their Colorado peers. Youth in Colorado were also slightly older on average than those in New Jersey at baseline, $t(606) = 3.09, p < .01$.

Developmental Trajectories of Stress and Social Support

Analyses were conducted to evaluate whether descriptive age trends for stressors and social support were consistent with prior literature (e.g., Furman & Buhrmester, 1992; Larson & Ham, 1993). Hierarchical linear mixed models controlling for youth gender revealed that peer stressors were, on average, higher among ninth graders than third ($b = 2.05, p < .01$) or sixth graders ($b = 2.37, p < .01$). For nonpeer stressors, ninth graders showed higher mean levels of nonpeer stress than third ($b = 10.68, p < .01$) or sixth graders ($b = 8.43, p < .01$).

Relationship quality was regressed onto youth gender and dummy-coded grade at baseline. Youth who began the study in ninth grade reported lower relationship quality with parents at baseline than either third ($b = -2.99, p < .01$) or sixth graders ($b = -2.55, p < .01$). Moreover, a robust test of equality of variances (Brown & Forsythe, 1974) demonstrated that the variance in parent-child relationship quality was greater for ninth graders ($SD = 5.54$) than for third ($SD = 4.81$) or sixth graders ($SD = 4.87$), $W_{10}(2, 643) = 3.65, p = .03$. That is, the lower mean relationship quality scores for ninth graders were in part a result of a greater frequency of youth reporting low relationship quality with parents at ninth grade, rather than an overall downward shift of the distribution compared with third and sixth graders.

Parental Stress-Buffering Model

Table 2 describes the results of three mixed-effects models testing the main research question of whether parent relationship quality protects against the effect of peer stressors on prospective increases in depressive symptoms. Results of the model using youth-reported relationship quality with parents are described in the leftmost columns of Table 2 and are illustrated in Figure 1. As hypothesized, higher levels of relationship quality was associated with lower mean levels of depressive symptoms (γ_{02}), whereas higher average levels of both peer (γ_{05}) and nonpeer stress (γ_{06}) were associated with higher levels of depressive symptoms. Interestingly, after controlling for the other variables in the model, grade at baseline was inversely associated with depressive symptoms (γ_{01}), suggesting that greater levels of stressors may largely account for the higher symptoms among older children. Both peer (γ_{20}) and nonpeer (γ_{30}) stressors were predictive of prospective increases in depressive symptoms.

Consistent with our primary hypothesis, parent relationship quality only buffered the effects of peer stressors (γ_{22}), but not nonpeer stressors (γ_{32}). The magnitude of the effect was such that youth reporting relationship quality one standard deviation above the mean had a 57% reduction in the impact of peer stressors, whereas youth reporting parent relationship quality one standard deviation below the mean had correspondingly greater effects of peer stressors on average. The effect of parent relationship quality as a buffer of stress was not further moderated by grade for either peer (γ_{23}) or nonpeer stressors (γ_{33}).

The middle model in Table 2 reports the results when including average parent-reported relationship quality of both parents. The pattern of significant findings is almost identical to those for the previous model, with the exception that parent-reported relationship quality did not predict lower average depressive symptoms (γ_{02}). Otherwise, parent-reported relationship quality buffered peer (γ_{22}), but not nonpeer stressors (γ_{32}), as in the youth-reported relationship quality model. Likewise, this effect was not further moderated by the youth's grade (γ_{23}).

The rightmost model reported in Table 2 reports on the stress-buffering model using only mother-reported relationship quality (or other female caregivers). The pattern of significant predictors was similar to those in the previous model, notably in that mother-reported relationship quality did not predict lower depressive symptoms (γ_{02}). The magnitude of the stress-buffering effect on peer stress (γ_{22}) was comparable to that in the parent-averaged model but missed conventional statistical significance ($p = .11$). The nonpeer stress-buffering effect (γ_{32}) was also of comparable magnitude to that in the previous model and remained nonsignificant.

Discussion

Although social support has been repeatedly shown to buffer against the deleterious effects of stress in adults and young children, findings among adolescents have been mixed (Burton et al., 2004). The current study attempted to evaluate whether relationship quality with parents, as one important aspect of social support, was able to buffer the effects of peer stressors on depressive symptoms from middle childhood to adolescence, a time when parent-child relationships change and peer stress rises markedly. The results demonstrated clear, robust support for the stress-

Table 2
Stress-Buffering Models of Parental Social Support Predicting Children's Depression Inventory Scores

Predictor	Coefficient	Mean of youth-reported parental support			Mean of parent-reported parental support			Mother-reported maternal support		
		Est.	SE	<i>p</i>	Est.	SE	<i>p</i>	Est.	SE	<i>p</i>
Fixed effects										
Intercept										
Intercept	γ_{00}	4.825	0.272	<.01	4.815	0.274	<.01	5.799	0.809	<.01
Grade	γ_{01}	-0.392	0.151	.01	-0.308	0.152	.04	-0.299	0.153	.05
Parental support	γ_{02}	-0.074	0.024	<.01	-0.012	0.027	.67	-0.009	0.027	.75
Grade \times Parental Support	γ_{03}	0.007	0.028	.79	0.018	0.034	.59	<.001	0.035	.99
Youth sex	γ_{04}	-0.154	0.202	.45	-0.169	0.203	.41	-0.156	0.203	.44
Peer stressors, person mean	γ_{05}	0.214	0.060	<.01	0.213	0.061	<.01	0.203	0.061	<.01
Nonpeer stressors, person mean	γ_{06}	0.185	0.022	<.01	0.190	0.022	<.01	0.187	0.022	<.01
Highest parental education	γ_{07}	-0.099	0.104	.35	-0.104	0.105	.32	-0.158	0.107	.14
Month of follow-up	γ_{10}	-0.076	0.018	<.01	-0.074	0.018	<.01	-0.070	0.019	<.01
Peer stressors										
Intercept	γ_{20}	0.147	0.035	<.01	0.151	0.035	<.01	0.136	0.036	<.01
Grade	γ_{21}	-0.018	0.043	.67	0.005	0.044	.90	0.020	0.046	.67
Parental support	γ_{22}	-0.016	0.007	.02	-0.015	0.008	.04	-0.013	0.008	.11
Grade \times Parental Support	γ_{23}	-0.011	0.009	.23	-0.008	0.009	.39	-0.008	0.010	.45
Nonpeer stressors										
Intercept	γ_{30}	0.123	0.015	<.01	0.123	0.015	<.01	0.119	0.015	<.01
Grade	γ_{31}	0.019	0.019	.32	0.018	0.018	.33	0.019	0.019	.32
Parental support	γ_{32}	-0.001	0.004	.78	-0.005	0.003	.12	-0.005	0.004	.18
Grade \times Parental Support	γ_{33}	0.001	0.004	.84	0.004	0.004	.31	0.003	0.004	.51
Lagged CDI	γ_{40}	0.116	0.023	<.01	0.118	0.023	<.01	0.143	0.024	<.01
Variance components										
Intercept	v_0	4.959		<.01	5.05		<.01	4.405		<.01
Peer stressors	v_2	0.113		<.01	0.116		<.01	0.124		<.01
Nonpeer stressors	v_3	0.018		.23	0.018		.28	0.013		>.50
Residual	ϵ	6.921			6.907			7.036		

Note. Random effects are reported as standard deviations. Parental social support was calculated as the mean of maternal and paternal social support on the Network of Relationships Inventory (NRI) and grand centered prior to analyses. Youth sex was coded 1 = female, 0 = male. Est. = unstandardized estimates of fixed effects; CDI = Children's Depression Inventory.

buffering hypothesis, which was consistent across parent and youth reports of average relationship quality with mothers and fathers, and this effect was not different across grades of youth in the study. Across each model, whereas peer stress was positively correlated with prospective increases in depressive symptoms, the association was stronger among youth who experienced lower levels of relationship quality with parents. The sample for the current study ranged from third to ninth grade at baseline, and follow-up analysis demonstrated that the main findings were obtained among youth before and throughout the adolescent transition.

The consistency of parental stress buffering from middle childhood to adolescence is particularly notable in the context of the many developmental changes that occur during that time period. Our findings showed that peer stressors increased on average for youth throughout adolescence, consistent with prior studies (Hankin et al., 2007; Rudolph & Hammen, 1999). Additionally, our study showed grade-related increases in the variance of parent relationship quality. Other developmental researchers have posited that the stability of variances is a particularly important component in understanding stability and change in parent-child relationships, and there is some evidence that variances of both positive and negative aspects of parent-child relationships increase during adolescence (McGue et al., 2005). Taken together with our main

findings, results from our study suggest that although positive relationship quality with parents continues to be an effective protective factor across adolescence, a larger number of older adolescent youth experience deficient levels of positive relationship quality with parents as compared with younger preadolescent youth. Therefore, it appears that there is likely a particular group of youth who become increasingly at risk for developing depressive symptoms as they advance through adolescence because they are experiencing decreases in positive parent-child relationship quality while simultaneously encountering greater peer stressors.

There are several potential mechanisms through which positive relationships with parents may protect against peer stressors. It is possible that parents who have close, positive relationships with their children are more likely to assist youth in adaptive coping and problem-solving strategies, or may contribute to more positive and adaptive appraisals of stress (e.g., Alloy et al., 2006; Brooke et al., 2002). Additionally, parents who have positive relationships with youth are more likely to model effective interpersonal skills that youth learn and use to resolve problems that arise within peer relationships. It will be important for future research to further investigate these specific mechanisms.

Given the growing significance of peer stressors across the transition into adolescence, we focused on how parent relationship quality may buffer the effect of peer stressors on depressive

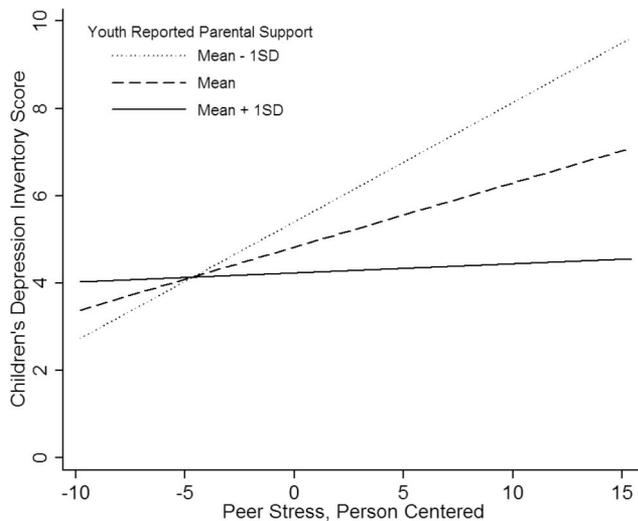


Figure 1. Relationship of peer stress to youth depressive symptoms as moderated by parental social support. Lines represent the functions predicting the fitted Children's Depression Inventory scores for the model displayed in the leftmost columns of Table 2. All control variables have been fixed at zero.

symptoms. However, it is still not exactly clear from our analyses why parent relationship quality moderated the longitudinal association between peer stressors, but not nonpeer stressors, and depressive symptoms. One possibility is that variability in positive relationship quality with parents matters more for buffering the effects for peer stressors as compared with other types of stressors. In other words, perhaps relationships characterized by even minimal positive qualities may still protect against effects of many nonpeer stressors, such as school failures or health problems. However, peer stressors (e.g., conflict or rejection) may produce especially complex problems with more ambiguous causes and challenging solutions. Thus, youth-adaptive responses to this type of stressor may require higher levels of parent involvement and guidance found in close, positive relationships with parents. Finally, the strong moderating effect on peer stressors may be more consistent with a “dual-hit” interpretation, in which problems in both parent and peer relationships contributes to especially high risk for depressive symptoms, compared with problems in only one of these domains.

Despite a generally consistent pattern of findings, it should be noted that the effect for parental stress buffering missed statistical significance when only maternal reports of mother–child relationship quality were considered. At least two factors may explain this finding. First, 47 dyads in which fathers were the reporting parent were excluded from those analyses. This reduced the power of the analysis and may account for the lack of conventional statistical significance. This is especially likely given that the magnitude of the buffering term was roughly comparable to that found in the other analyses. At the same time, limiting the analysis to only one parent sharply changes the meaning of the relationship quality variable for youth with two parents. Youth may benefit from positive relationship with either parent, and there is little reason to believe that the reporting parent is the key stress-buffering resource in all or even most circumstances. Resolution of these

issues will depend on future studies with more careful measurement of parent–youth relationships.

The current study exhibits many strengths. The central findings of the study were robust across multiple informants for parent–child relationship quality and controlling for prior symptoms (resulting in a strictly longitudinal test; cf. Burton et al., 2004). Stress was measured over the previous 3 months, a window more consistent with etiological theories of depression (Monroe & Reid, 2008), and further partitioned stressors into those that were and were not peer related. Youth were drawn from community samples in geographically distinct sites, represented a wide range of ages, and were followed longitudinally for five waves of data, broadening the findings' likely applicability.

Despite these strengths, the study also has some limitations. Notably, parent relationship quality was measured only at baseline and then only by report and not observation. Moreover, only one parent gave reports of relationship quality for both parents, whereas ideally, each parent would report on their own relationship with the target youth. Likewise, the youth and parent reports of relationship quality could potentially be biased by other factors, and give little suggestion to what concrete mechanisms account for the observed buffering. In addition, although we differentiated peer stressors from other types of stressors, it is unclear whether effects are the same for achievement stressors versus health stressors or other kinds of nonpeer stressors. Future research may benefit from making further distinctions among categories of stressors. Finally, although depressive symptoms are relevant for many developmental outcomes and are associated with the likelihood of major depression, it is unclear what implications the current study may have for the ability of parent relationship quality to buffer against risk for other forms of maladjustment.

Taken together, support for the stress-buffering hypothesis among youth can be demonstrated in a developmentally sensitive, theoretically grounded, and adequately powered investigation, and such buffering seems to persist from late childhood to adolescence. However, future work is needed to pinpoint what specific parent behaviors create such buffering among older children and adolescents. Additionally, we focused on positive relationship qualities in this study because we believed this was consistent with theory and research suggesting that social support protects against the deleterious effects of stressors. However, it is also possible that negative relationship qualities moderate the effects of stressors on depressive symptoms, and this should be considered in future research examining how parent–child relationships, in combination with exposure to peer stressors, may influence the etiology of depressive symptoms among youth during the transition into adolescence.

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