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Adolescent adjustment in the context of life change: The supportive role of parental structure provision



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A B S T R A C T

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This study examined the associations among disruptive life events, supportive parenting practices, adolescent self-perceptions, and emotional outcomes. One-hundred and three 7th graders (68% minority, 32% European American) and their parents completed recent negative life events checklists. Parents also reported the total number of major transitions (changes in residences, schools, parent's romantic partners) that adolescents experienced since birth. Life events were related to lower adolescent-reported perceptions of competence and control, higher adolescent-reported depression and behavior problems, and higher parent-reported conduct problems. Regression analyses supported a mediational model in which competence and control perceptions explained relations between adolescent life events and symptomatology. Parental structure—the provision of clear, consistent and predictable rules and expectations—was associated with more adaptive adolescent functioning, especially among girls. Regressions indicated that structure related to higher perceptions of competence and control and fewer behavioral problems, even after accounting for the risk associated with negative life events and transitions.

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Early adolescence is a period of unique vulnerability to stressful life events, and research now demonstrates a clear link between stressors and adolescent internalizing and externalizing symptomatology (Grant et al., 2003; Mash & Barkley, 2003). Questions remain, however, about how life events impact adolescent adjustment, and what forms of contextual support may counteract their negative effects. From the perspective of Self-Determination Theory (SDT, Deci & Ryan, 1985; Ryan & Deci, 2000), adolescents' psychological resources—their perceptions of competence and control within their environments—are central to understanding these processes. Using adolescent and parent reported measures of life events, this study examined 1) whether adolescents' perceptions of competence and control mediate relations between stressors and symptomatology, and 2) whether parenting practices that theoretically promote experiences of competence and control support adolescent adjustment in the context of stressful life events.

Life events and early adolescent adjustment

Adolescence is a period of individuation and change in almost every life domain (Graber & Brooks-Gunn, 1996). Within a brief span of time, early adolescents advance to new schools, make different friends, renegotiate relationships with parents, and undergo marked physical maturation (Collins & Steinberg, 2006; Ge, Conger, & Elder, 2001; Smetana, Campione-Barr, &

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Daddis, 2004). In middle school, they face a more demanding academic environment with multiple classes and teachers (Eccles, 2004), less direct adult supervision, and greater exposure to peer influences (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996; Mayseless, Wiseman, & Hai, 1998). Navigating this increasingly complex terrain, early adolescents are vulnerable to an array of stressful changes (Ge et al., 2001; Siegel & Brown, 1988). While these events can be opportunities for growth (Wheaton, 1990), a confluence of stressors at a time when adolescents are still developing the resources to manage stress poses a significant risk to adjustment (e.g., Brooks-Gunn, Auth, Petersen, & Compas, 2001; Mash & Barkley, 2003; Nolen-Hoeksema, Girgus, & Seligman, 1992).

Research links stressful life events with two types of symptomatology: internalizing and externalizing (Kim, Conger, Elder, & Lorenz, 2003; McMahon, Grant, Compas, Thurm, & Ey, 2003; Timmermans, van Lier, & Koot, 2010). Stressful life events have been associated with hopelessness, helplessness and the depressed-anxious affect characteristic of internalizing disorders (e.g., Fresco, Alloy, & Reilly-Harrington, 2006; Leadbeater, Kuperminc, Blatt, & Hertzog, 1999). In particular, several studies indicate that stressful life events predict increases in depressive symptoms in adolescence (e.g., Ge, Lorenz, Conger, Elder, & Simons, 1994; Larson & Ham, 1993). Life events also relate to frustration, anger, and acting out behaviors along the externalizing spectrum, including oppositional and conduct problems (e.g., Aseltine, Gore, & Gordon, 2000; Hoffmann & Su, 1997; Jackson & Warren, 2000; Leadbeater et al., 1999).

There is some evidence that girls, especially those who undergo early pubertal transitions, are more vulnerable than boys to negative life events in early adolescence (Ge et al., 2001; Gore, Aseltine, & Colton, 1992). Girls tend to report more negative life events and higher levels of depression (Ge, Conger, Lorenz, & Simons, 1994; Ge, Lorenz, et al., 1994). However, boys also experience significant emotional distress in response to stressors (Gore et al., 1992; Leadbeater, Blatt, & Quinlan, 1995). Research suggests that, over time, stressful life events are reciprocally related to emotional maladjustment among both boys and girls (Kim et al., 2003).

Previous studies have utilized a variety of life event measures (McMahon et al., 2003), which differ according to the timeframe in focus (e.g. recent vs. lifespan) and the reporter/informant (e.g., adolescent report vs. parent report). The current study included three life event measures: adolescent-reported recent life events, parent-reported recent life events, and cumulative transitions over the adolescents' lifespans. While these constructs certainly overlap, they may also represent unique sources of stress relevant to adolescent adjustment.

Adolescent life events

Adolescent-reported life event measures capture salient stressors from the adolescent's perspective. They typically include recent, negatively-appraised changes in the home, school, and community (e.g., parental separation or divorce, breakup with a boyfriend or girlfriend, exposure to violence and crime) that have occurred within the past six months to one year. Studies show that these recent stressors play an important role in the onset and maintenance of internalizing and externalizing psychopathology (e.g., Ge et al., 2001; McMahon et al., 2003; Nolen-Hoeksema et al., 1992). In their comprehensive review, Grant, Compas, Thurm, McMahon, and Gipson (2004) identified 53 recent studies (conducted since 1986) that found a longitudinal effect of life stressors on adolescent psychological symptoms, with modest effect sizes ranging from .01 to .20.

Parent life events

While some life events impact adolescents personally, others involve events and changes in their parents' lives. These events may affect adolescents indirectly, by disrupting their parents' capacity to foster their healthy development (Belsky, 1984; Bronfenbrenner, 1986; Conger, Patterson, & Ge, 1995; Grant et al., 2003) or directly, when they overlap with events that adolescents experience themselves. Research by Conger, Ge, and colleagues links parent-reported recent stressors to adolescent internalizing and externalizing symptomatology via harsh, inconsistent parenting (Conger et al., 1995; Ge, Conger, et al., 1994). Putnick et al. (2008) have similarly shown that parenting stress (i.e., stress related to tasks of parenting) disrupts positive parenting skills, which in turn predict adolescents' lower self esteem.

Cumulative transitions

Cumulative transitions are major family-contextual changes such as residential moves, school transitions, parent-child separations, parent employment changes, births/entries of new children into the home, and deaths or serious illnesses of family members (e.g., Ackerman, Brown, & Izard, 2003; Forman & Davies, 2003; Marcynyszyn, Evans, & Eckenrode, 2008; Milan, Pinderhughes, & the Conduct Problems Prevention Research Group, 2006; Simmons, Burgeson, Carlton-Ford, & Blyth, 1987). In combination, these occurrences can destabilize key home, school, and neighborhood developmental contexts, and threaten the regular, supportive exchanges with adults and peers critical to optimal adjustment (e.g., Bronfenbrenner & Evans, 2000). Research indicates that adolescents who experience more major transitions over their lifetime have lower self-esteem (Simmons et al., 1987) and more internalizing and externalizing symptomatology (Forman & Davies 2003; Marcynyszyn et al., 2008).

Despite the substantial literature on life events, limited research has included multiple types of life event measures together within the same study. Marcynyszyn et al. (2008) demonstrated with confirmatory factor analyses that cumulative transitions are distinct from certain negative life events (e.g., family member hospitalization, close other's death, natural

disaster). Some research shows that adolescents' reports of life events relate more strongly to adolescent symptoms than do parents' reports (Compas, Howell, Phares, Williams, & Ledoux, 1989; Dubow, Tisak, Causey, Hryshko, & Reid, 1991). This study included measures of adolescent-reported recent life events, parent-reported recent life events, and cumulative major transitions. While we anticipated that adolescent-reported life events would have the strongest associations with adolescent adjustment, we expected all three variables to make unique contributions to variance in adolescent adjustment.

A Self-Determination Theory perspective

Our central research questions focused on why stressful life events relate to emotional maladjustment and what forms of contextual support counteract these associations. We approached these questions from the perspective of SDT (Deci & Ryan, 1985; Grolnick, Deci, & Ryan, 1997; Ryan & Deci, 2000), which posits that individuals have a basic psychological need for competence—a need to feel efficacious, in control, and capable of having an impact on the environment. A sense of competence manifests in two psychological resources: perceived control and perceived competence. Perceived control is an understanding of what actions and events connect to desired versus undesired outcomes (Skinner, Wellborn, & Connell, 1990); perceived competence is a belief in one's capability to affect those outcomes (Harter, 1982). Both constructs evidence consistent associations with emotional adjustment (Compas, Phares, Banez, & Howell, 1991; Harter & Whitesell, 1996; Muris, Meesters, Schouten, & Hoge, 2004; Scott & Weems, 2010; Seligman et al., 1984; Uhrlas, Schofield, Casey, Coles, & Gibb, 2009). For example, Uhrlas et al. (2009) showed that youth with lower perceived control show more depression, and Compas et al. (1991) reported associations between adolescent perceived competence and internalizing and externalizing symptomatology.

Within an SDT framework, environmental contexts will harm versus support healthy development to the extent that they undermine versus facilitate the satisfaction of basic psychological needs. Multiple disruptive life events could contribute to a disorganized, chaotic environment in which it is difficult for adolescents to perceive contingencies between actions and outcomes and experience their behaviors as related to the events taking place around them (Bronfenbrenner & Evans, 2000). Such circumstances would likely disrupt adolescents' sense of competence and control (Evans, Gonnella, Marcynyszyn, Gentile, & Salpekar, 2005; Skinner, Johnson, & Snyder, 2005). Connell and Wellborn (1991) suggested that psychological resources such as perceptions of competence and control are pathways by which social-environmental contexts impact adjustment. And, previous research supports a model whereby perceived control and perceived competence mediate relations between contexts and emotional outcomes (Grolnick, Ryan, & Deci, 1991; Skinner et al., 1990). Accordingly, we hypothesized that perceptions of competence and control would mediate relations between life events and symptomatology.

Parental structure provision

In contrast to the inconsistency and flux of multiple life events, according to SDT, organized, consistent environments that allow adolescents to anticipate outcomes and plan accordingly should facilitate a sense of competence (Skinner et al., 2005). Within SDT, a framework of guidelines and consequences that supports competence is called *structure*. Even amidst broader instability, parents may be able to provide structure in the way they set up homes and interact day-to-day with their children. Specifically, parental structure provision involves: (1) Clear and consistent rules and expectations; (2) Predictable consequences for compliance versus noncompliance; (3) Long-term, competence-oriented rationales for why rules and expectations are important; and (4) Parents' acting as authority figures within the home (Farkas & Grolnick, 2010). Previous research suggests that these particular parenting practices relate to adolescents' perceptions of competence and control (Farkas & Grolnick, 2010; Grolnick & Ryan, 1987; Grolnick & Wellborn, 1988; Skinner et al., 2005) as well as to internalizing and externalizing symptomatology (Farkas & Grolnick, 2010; Skinner et al., 2005).

Parenting in context

Research demonstrates that, even in the context of socio-demographic, peer, and neighborhood risk, supportive, skillful parenting promotes positive adolescent emotional outcomes (Dubow, Edwards, & Ippolito, 1997; Galambos, Barker, & Almeida, 2003; Gest, Neemann, Hubbard, Masten, & Tellegen, 1993; Klein, Forehand, & the Family Health Project Research Group, 2000; Luster & McAdoo, 1994; Natsuaki et al., 2007; Stouthamer-Loeber et al., 1993; Windle, 1992). As Klein et al. (2000) delineate, parenting can function as a resource factor that counteracts risk (evidenced by a significant association with positive outcomes, controlling for the risk factor) or a protective factor that moderates risk (evidenced by a significant interaction, such that the risk factor has a lesser association with outcomes at higher levels of the protective factor).

Research to date examining stressful events suggests that parenting serves a resource function (Klein et al., 2000; Prevatt, 2003), with some support that it also plays a protective role in the context of stressful life events. Klein et al. (2000) showed that, beyond the impact of stressors, parental monitoring and supportive mother-child relationships were associated with fewer child depressive and externalizing problems, and children whose parents provided the least monitoring were particularly vulnerable to depression. In Dubow et al.'s (1997) study, social support from family members predicted more positive adolescent behavior in the context of neighborhood disadvantage and buffered the association between stressful life events and externalizing. Natsuaki et al. (2007) found that authoritative parenting did not affect adolescent depression above and beyond negative life events; however it buffered against depression associated with neighborhood disorder. Finally,

Windle (1992) showed that family social support predicted lower levels of depression and delinquency but did not buffer against these negative outcomes in the context of stressful life events.

In this study, we expected that parental structure provision would relate to better adolescent emotional adjustment (i.e. play a resource role), even after accounting for adolescents' exposure to stressful life events. Given the limited and inconsistent findings regarding parenting-by-life events interactions, we tested, as an exploratory question, whether structure would buffer (i.e. protect) against the risk associated with negative life events.

Summary and hypotheses

This study examined associations between stressful life events, parental structure provision, adolescent psychological resources (perceived competence, perceived control) and adolescent emotional adjustment (depressive symptoms, behavior problems). We expected three life event measures (adolescent-reported recent negative life events, parent-reported recent negative life events, and a cumulative transitions index) to relate uniquely to adjustment outcomes, with adolescent self-reported life events yielding the strongest associations. Moreover, we expected that adolescent perceptions of control and competence would mediate relations between stressful life events and symptomatology.

We hypothesized that, even after accounting for adolescents' exposure to negative life events, parental structure provision would relate to more positive adjustment outcomes. As an exploratory question, we examined whether structure provision would moderate the effects of stressful life events, buffering their negative associations with adolescent adjustment. We expected that life events and structure would relate to adjustment outcomes across gender; however we anticipated a stronger association between life events and depression for girls than for boys.

Method

Participants

Participants were 103 7th graders and their caregivers, recruited from a public school district in a mid-sized northeastern city. Adolescents included 54 girls and 49 boys with a mean age of 11.51 ($SD = .62$). Forty-eight percent were Latino, 32% were European American, 5% were African American, 1% were Asian American, and 14% were another minority ethnicity or multi-racial. Parents included 100 mothers and 3 fathers. Mothers and fathers were not from the same families. Fifty-four percent of parents were married, 20% were single, 20% were separated/divorced, and 6% identified other relationship statuses. Twenty percent of parents completed some high school, 22% earned a high school diploma or GED, 38% completed some additional college or technical training, 14% earned a college diploma, and 6% had an advanced degree. Median household income was \$25,000–49,999. This was a diverse, relatively socioeconomically stressed sample, with a greater proportion of single mothers (compared to state Census data). The sample somewhat over-represents Latino students relative to the district (38%) and somewhat under-represents other ethnicities (according to enrollment data from the district webpage).

Procedure

We recruited families from an urban school district in the Northeast. During classroom visits, we described the study and dispersed English and Spanish letters for students to bring home to their parents. Sixty-one percent of parents returned the letters. Of these, 66% indicated interest in the project. We contacted interested families and scheduled visits at a university laboratory or the family's home. During visits, adolescents and caregivers completed a battery of questionnaires. Nineteen percent of caregivers elected to complete the measures in Spanish; the remaining caregivers and all children completed the questionnaires in English. Families received \$60 for their participation.

Measures

Adolescent negative life events

Adolescents completed the Junior High Life Experiences Survey (Swearingen & Cohen, 1985a), a 38-item inventory of life events (e.g., "You began to date;" "Your brother or sister moved out of your house"). Adolescents identify which events occurred for them in the past year and rated whether they were positive or negative changes. We totaled the negatively appraised events to create a negative life events score. Because each event may occur independently from others, a traditional internal consistency estimate is not appropriate (Hoffmann & Su, 1997). However, the measure has demonstrated concurrent and predictive validity in previous research (Kim et al., 2003; Swearingen & Cohen, 1985b).

Parent negative life events

Parents completed the Adult Life Experiences Survey (Sarason, Johnson, & Siegel, 1978), a 44-item life event inventory. Sample items include: "Starting a new job;" "Having a serious illness or injury." Parents indicate which events they experienced in the past year and rate them on a 5-point scale ranging from extremely negative to extremely positive. We weighted the negative life events (neutral X1, somewhat negative X2, extremely negative X3) and totaled them to create a negative change score. The authors report adequate test-retest reliability for negatively-rated events ($r = .88$; $p < .001$) and relations to

adult anxiety and depression (Sarason et al., 1978). In subsequent research, the measure has concurrently predicted parenting quality (Grolnick, Benjet, Kurowski, & Apostoleris, 1997; Grolnick, Weiss, McKenzie, & Wrightman, 1996).

Cumulative transitions

From a brief parent interview (adapted from Marcynyszyn et al., 2008) we derived the total number of: (1) Residences (inhabited for three months or longer) that children lived in since birth; (2) Schools children attended since kindergarten; and (3) Participating caregivers' romantic partners (who slept in the home 4 or more nights a week) since the child's birth. Marcynyszyn et al. (2008) reported that these variables load on one factor, separate from Hollingshead's (1976) SES and income-to-needs ratio. As Forman and Davies (2003) suggest, the transitions indicators have conceptual coherence, but are not necessarily expected to covary strongly. In the present study, they were all at least moderately related ($r = .25$ to $r = .51$) so we aggregated them to create a cumulative transitions index.

Parental structure provision

Fifteen items from the Parenting Context Questionnaire (Grolnick & Wellborn, 1988) and the Parents as Social Context Questionnaire (Skinner et al., 2005) measured adolescents' perceptions of their parents' structure provision. Items tapped four components of structure: 1) Clear and consistent rules/expectations (e.g., "My parents make it clear what they expect of me"); 2) Predictable consequences (e.g., "When I don't follow the rules, my parents do something and it is the same each time"); 3) Provision of rationales (e.g., "My parents tell me why we have the rules we do"); and 4) Authority (e.g., "When it comes down to it, my parents are in charge in my house"). Adolescents rate items on a 4-point scale ranging from "Not true at all" to "Very true." Previous studies report adequate reliability ($\alpha = .73$ – $.70$ in Grolnick & Wellborn, 1988 and Skinner et al., 2005). Cronbach's alpha in this study was .74.

Perceived control

The Student Perceptions of Control Questionnaire (Skinner et al., 1990; Wellborn, Connell, & Skinner, 1989) assesses children's perceptions of control over successes and failures. It includes fifteen items measuring adaptive (e.g. "If I decide to do something hard, I can do it") and maladaptive (e.g. "To do well at something, I have to be lucky") control perceptions, which adolescents rate on 4-point scales (not true at all to very true). We subtracted the maladaptive from the adaptive control subscale to create a composite perceived control score. Alphas for the adaptive and maladaptive scales ranged from .75 to .73 among 7th graders in previous research (Skinner, Zimmer-Gembeck, & Connell, 1998). Cronbach's alpha in this study was .82.

Perceived competence

Adolescents completed the Self-Perception Profile for Children—General Self-Worth Subscale (Harter, 1982), a 4-item measure of general feelings of worth. Each item describes two types of children (e.g., "Some kids are disappointed with themselves but other kids are pretty pleased with themselves"). Respondents choose which statement better describes them and then indicate whether that statement is sort of true or really true. Harter (1982) reported adequate reliability ($\alpha = .73$). Cronbach's alpha in this study was .85.

Depression

Adolescents completed the Child Depression Inventory—Short Form (Kovacs, 1981; Kovacs & Beck, 1977). For each of 10 items, children select one of three statements characterizing increasing levels of depression (e.g., "I am sad once in a while, "I am sad many times," "I am sad all the time"). Kovacs (1981) reported satisfactory internal consistency ($\alpha = .71$ – $.81$). Cronbach's alpha in this study was .85.

Behavior problems (child-report)

The Child Hostility Scale (Cook, 1986) is a 22-item measure of behavior problems. Adolescents rate how frequently they engage in externalizing behaviors (e.g., "You argue a lot") on a 3-point scale ranging from "Not true" to "Often true." Cook (1986) established convergent and discriminant validity and adequate internal consistency ($\alpha = .85$). In this study, Cronbach's alpha was .88.

Conduct problems (parent-report)

Parents rated children's conduct problems on the Behavior Assessment System for Children, 2nd ed. (BASC-2)—Conduct Problems subscale (Reynolds & Kamphaus, 2004). Parents indicate how frequently their child engages in nine externalizing behaviors (e.g., "Breaks the rules") on 4-point scales ranging from "Never" to "Almost always." The authors report good construct validity and adequate internal ($r = .67$ – $.90$) and test-retest ($r = .65$ – $.99$) reliability. Cronbach's alpha in this study was .86.

Results

Preliminary analyses

Table 1 presents descriptive statistics and Table 2 presents zero-order correlations among study variables. In preliminary analyses, we examined the extent to which study variables correlated with demographic indicators of SES. Mother's

Table 1
Means and standard deviations for study variables.^a

Variable	<i>M</i>	<i>SD</i>	Range ^a
Life events			
Cumulative transitions	7.66	3.14	3–18
Residences	3.58	2.17	1–12
Schools	2.72	.96	2–7
Mother's romantic partners	1.36	.81	0–5
Child negative life events	3.07	2.78	0–14
Parent negative life events (weighted)	6.16	6.84	0–36
Parenting			
Structure provision	3.28	.36	1–4
Outcomes			
Perceived control	1.50	.84	–4 to 4
Perceived competence	3.49	.64	1–4
Depression	1.17	.29	1–3
Hostility	1.34	.29	1–3
Conduct problems (parent-report)	1.42	.36	1–4

^a Actual range provided for life change variables, possible range provided for outcome measures.

education level was significantly negatively correlated with cumulative transitions and positively correlated with perceived control and perceived competence; it was marginally significantly correlated with parent-reported negative life events and adolescent-reported behavior problems. Yearly household income was associated with fewer study variables, and partial correlations revealed that, with the exception of cumulative transitions ($r = .25, p < .02$), income was not significantly associated with study variables after controlling for mother's education. Given that mother's education is considered a more meaningful socioeconomic covariate in parenting studies (Hoff-Ginsberg & Tardif, 1995) we elected to control for this variable in primary analyses. Notably, parental structure provision was not associated with socioeconomic variables.

Multivariate analyses of covariance controlling for mother's education revealed significant effects for child minority status [Wilks' $\lambda = .73, F(9, 76) = 3.17, p < .01$] and mother's relationship status [Wilks' $\lambda = .65, F(9, 76) = 4.51, p < .01$] on study variables. Univariate tests indicated that minority adolescents reported lower perceptions of competence than their European American counterparts [$F = 5.30, p < .02, M_{\text{minority}} = 3.21 (SE = .12), M_{\text{European American}} = 3.53 (SE = .08)$]. Adolescents from single parent households reported more negative life events than did those with married parents [$F = 5.48, p < .02, M_{\text{single}} = 3.66 (SE = .48), M_{\text{married}} = 2.18 (SE = .41)$]. Single parents also reported more negative life events [$F = 7.85, p < .01, M_{\text{single}} = 4.49 (SE = .65), M_{\text{married}} = 2.09 (SE = .55)$] and cumulative transitions [$F = 4.03, p < .05, M_{\text{single}} = 8.34 (SE = .54), M_{\text{married}} = 6.93 (SE = .45)$]. Adolescents with single parents reported lower perceived competence [$F = 13.85, p < .01, M_{\text{single}} = 3.11 (SE = .11), M_{\text{married}} = 3.64 (SE = .09)$] and their parents reported greater conduct problems [$F = 9.85, p < .01, M_{\text{single}} = 1.57 (SE = .06), M_{\text{married}} = 1.32 (SE = .05)$]. Given that marital status was associated with both predictors and outcomes, we elected to control for this variable, as well as mother's education level, in primary analyses.

There was a marginally significant multivariate effect for gender [Wilks' $\lambda = .83, F(9, 83) = 1.86, p < .07$]. Univariate tests indicated that girls reported marginally significantly higher depressive symptoms than boys [$F = 2.84, p < .10, M_{\text{girls}} = 1.20 (SE = .04), M_{\text{boys}} = 1.11 (SE = .04)$]. Given this result, as well as previous research suggesting that life events are more strongly associated with depression among girls than boys in early adolescence (e.g., Ge et al., 2001), we elected to include gender as a covariate, and we planned to test for interactions between gender and other predictor variables in primary analyses.

Table 2
Correlations among variables.

	1	2	3	4	5	6	7	8	9	10	11
Demographics											
1. Income											
2. Mother education	.49**										
Life changes											
3. Cumulative transitions	-.32**	-.20 ⁺									
4. Adolescent negative life events	-.16	-.16	.19 ⁺								
5. Parent negative life events	.13	.18 ⁺	.07	.23*							
Parenting											
6. Structure provision	.13	.09	-.11	-.40**	-.12						
Outcomes											
7. Perceived control	.34**	.33**	-.25*	-.33**	.02	.46**					
8. Perceived competence	.06	.22*	-.11	-.35**	-.22*	.38**	.34**				
9. Depression	-.04	-.15	.12	.45**	.07	-.26**	-.47**	-.73**			
10. Behavior problems	.11	-.19 ⁺	.12	.49**	.19 ⁺	-.36**	-.47**	-.61**	.55**		
11. Conduct (parent report)	-.17 ⁺	-.09	.26**	.23*	.25*	-.29**	-.28**	-.18 ⁺	.23*	.37**	

⁺ $p < .10$, * $p < .05$, ** $p < .01$.

Correlations among study variables

Correlations revealed marginally to weakly significant relations among life events variables: Adolescent- and parent-reported negative life events were significantly positively correlated and cumulative transitions and adolescent-reported negative life events were marginally significantly positively correlated. More adolescent-reported negative life events were associated with lower reports of structure provision.

Adolescents' negative life events related to all outcomes, evidencing negative correlations with perceptions of competence and control and positive correlations with child- and parent-reported symptomatology. Parents' reports of negative life events were negatively correlated with perceived competence, and cumulative transitions were negatively correlated with perceived control; both were positively correlated with parents' reports of adolescent conduct problems. Structure provision also related to adolescent outcomes as expected, evidencing positive correlations with competence and control perceptions, and negative correlations with adolescent- and parent-reported symptomatology.

Finally, there were several significant relations across outcome variables. Perceived control and perceived competence were positively correlated with each other, and negatively correlated with adolescent-reported depression and conduct problems; perceived control was also negatively correlated with parent-reported conduct problems. All symptomatology measures shared moderate to strong correlations.

Regressions examining the relative contributions of life event variables

We conducted hierarchical multiple regressions to examine whether the three life event variables accounted for unique variance in outcomes above and beyond SES, and above and beyond each other. At step 1 we entered mother's education level and marital status as control variables, followed at step 2 by adolescent-reported life events, since this measure was most consistently and robustly correlated with outcomes. Last, at step 3, we entered parent-reported recent life events and cumulative transitions. Outcome variables were: perceived control, perceived competence, depression, adolescent-reported behavior problems, and parent-reported conduct problems.

The results in Table 3 show that beyond mother's education level, marital status, and adolescent gender, adolescent-reported negative life events significantly predicted lower perceptions of control and competence, and greater depression, and behavior problems. The other two life event variables, parent-reported negative life events and cumulative transitions, did not account for unique variance in outcomes, although cumulative transitions marginally significantly predicted lower perceived control, and all three life event measures marginally significantly predicted greater parent-reported conduct problems.

Mediation tests

We conducted path analyses to examine whether perceived control and competence mediated relations between life events and adolescent outcomes. To test for mediation, Baron and Kenny (1986) require that the independent variable has a significant association with the potential mediator as well as with the dependent variable, and that the mediator has a significant association with the dependent variable. Partial correlations controlling for mother's education level and marital status indicated it would be possible to test two models that satisfy these preconditions. The two models tested whether adolescent-reported negative life events related to adolescent-reported depression (Fig. 1) and behavior problems (Fig. 2) through perceptions of competence and control.

Standard multiple regressions controlling for mother's education level and marital status indicated full mediation in the first case, and partial mediation in the second. Specifically, as illustrated in Fig. 1, the significant effect of adolescent-reported life events on depressive symptoms became marginally significant after accounting for adolescents' psychological resources. Sobel tests indicated significant mediation for both perceived control and perceived competence ($z = 1.98$, $SE = .003$, $p < .05$;

Table 3

Hierarchical multiple regressions examining relative contributions of three life event measures to adjustment outcomes.

	Perceived control			Perceived competence			Depression			Behavior problems			Conduct problems (parent report)		
	β	SE	R^2	β	SE	R^2	β	SE	R^2	β	SE	R^2	β	SE	R^2
Block 1			.11			.14			.06 ^b			.06 ^c			.09 ^a
Mother's education	.29**	.05		.17+	.04		-.12	.02		-.17+	.02		-.01	.02	
Marital status	.14	.16		.26**	.13		-.10	.06		-.12	.06		-.30**	.07	
Gender	-.14	.16		-.16	.13		.18+	.06		.09	.06		.01	.07	
Block 2			.20			.21			.25			.27			.12 ^a
Adolescent life events	-.32**	.03		-.29**	.02		.46**	.01		.48**	.01		.17+	.01	
Block 3			.21			.23			.26			.28			.13
Parent Life events	.06	.01		-.15	-.15		-.02	.00		.12	.00		.18+	.01	
Cumulative transitions	-.16+	.03		-.02	-.02		.05	.01		.02	.01		.18+	.01	

^a $p < .10$, ^b $p < .05$, ^c $p < .01$. Note. Multiple Rs are significant at $p < .01$ unless otherwise noted: ^a $p < .05$, ^b $p < .10$, ^cnon-significant.

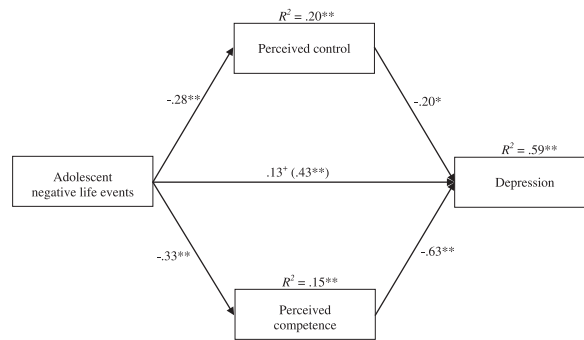


Fig. 1. Partial mediational model of the relations among adolescent-reported negative life events, psychological resources, and depression. *Note:* All analyses controlled for mother's education level and marital status. Path coefficients are beta weights from standard multiple regression equations. Coefficients in parentheses represent the effects of the independent variable on the dependent variable before controlling for the mediator. $^+p < .10$, $^*p < .05$, $^{**}p < .01$.

$z = 3.07$, $SE = .006$, $p < .01$, respectively). Fig. 2 shows that the significant effect of adolescent-reported negative life events on behavior problems lessened (but remained significant) after controlling for psychological resources. Sobel tests indicated significant mediation for perceived competence ($z = 2.80$, $SE = .005$, $p < .01$), and marginally significant mediation for perceived control ($z = 1.83$, $SE = .003$, $p < .07$).

Taken together, results indicate that more adolescent-reported negative life events were associated with lower perceptions of competence and control; both of these resources in turn explained adolescents' higher depressive symptoms. Perceived competence partially explained the association between life events and adolescents' greater behavior problems.

Regression analyses using life events and structure provision to predict outcomes

Following Klein et al.s' (2000) procedure for identifying resource and protective factors, we conducted hierarchical multiple regression analyses controlling for SES, marital status, and gender to examine associations of life events and parental structure with adolescent adjustment outcomes. We tested three models, each of which included a different life event measure (adolescent-reported negative life events, parent-reported negative life events, or cumulative transitions). We entered variables into the regression equations in the following blocks: (1) mother's education level, marital status, adolescent gender; (2) life event variable; (3) parental structure provision; (4) gender \times life event interaction term, gender \times structure interaction term; (5) life event \times structure interaction term. Outcome variables were perceived control, perceived competence, adolescent-reported depression, adolescent-reported behavior problems, and parent-reported conduct problems. Tables 4–6 present results for models including adolescent-reported life events, parent-reported life events, and cumulative transitions respectively.

Adolescent-reported negative life events

Results in Table 4 show that, above and beyond sociodemographic indicators, and significant main effects of adolescent life events, parental structure provision was associated with higher perceptions of competence and control, and lower adolescent- and parent-reported behavior problems. There were also significant gender \times adolescent life events interactions predicting depression and behavior problems. To understand the nature of the interactions, we re-ran regressions (excluding the gender interaction terms) separately for boys and girls. Results revealed a stronger positive association between life

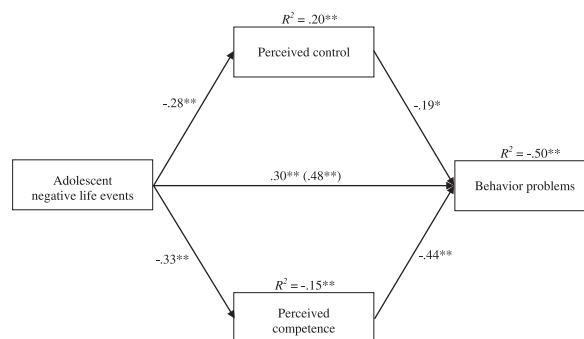


Fig. 2. Partial mediational model of the relations among adolescent-reported negative life events, psychological resources, and behavior problems. *Note:* All analyses controlled for mother's education level and marital status. Path coefficients are beta weights from standard multiple regression equations. Coefficients in parentheses represent the effects of the independent variable on the dependent variable before controlling for the mediator. $^+p < .10$, $^*p < .05$, $^{**}p < .01$.

Table 4

Hierarchical multiple regressions testing main and interactive associations of structure with adjustment outcomes in the context of adolescent life events.

	Perceived control			Perceived competence			Depression			Behavior problems			Conduct problems (parent report)		
	β	SE	R ²	β	SE	R ²	β	SE	R ²	β	SE	R ²	β	SE	R ²
Block 1			.15			.12			.06 ^c			.05 ^c			.09 ^a
Mother's education	.29**	.05		.17 ⁺	.04		-.12	.02		-.17	.02		-.03	.02	
Marital status	.15	.16		.24*	.13		-.09	.06		-.10	.06		-.30**	.07	
Gender	.15	.16		.13	.13		-.17 ⁺	.06		-.17	.06		-.00	.07	
Block 2			.23			.20			.25			.27			.12 ^a
Adolescent life events	-.29**	.03		-.31**	.02		.47**	.01		.50**	.01		.16	.01	
Block 3			.36			.28			.27			.31			.15
Structure	.41**	.21		.29**	.18		-.14	.08		-.23*	.08		-.21*	.10	
Block 4			.37			.34			.37			.36			.16 ^a
Gender × adolescent life events	-.09	.06		-.18 ⁺	.05		.27**	.02		.18*	.02		.03	.03	
Gender × structure	.03	.42		.13	.35		-.11	.15		-.06	.15		.06	.21	
Block 5			.37			.34			.38			.36			.16 ^a
Adolescent life events × structure	-.01	.08		.09	.07		-.11	.03		.06	.03		.02	.04	

⁺ $p < .10$, * $p < .05$, ** $p < .01$. Note. Multiple Rs are significant at $p < .01$ unless otherwise noted: ^a $p < .05$, ^b $p < .10$, ^cnon-significant. For marital status, unmarried = 1, married = 2. For gender, girls = -.50, boys = .50.

events and depression for girls [$\beta = .61, SE = .02, p < .01; R^2 = .40, p < .01$] than boys [$\beta = .38, SE = .01, p < .02; R^2 = .12, p < .12$]. Likewise, there was a stronger positive association between life events and conduct problems for girls [$\beta = .61, SE = .01, p < .01; R^2 = .39, p < .01$] than boys [$\beta = .35, SE = .01, p < .03; R^2 = .18, p < .03$].

Parent-reported negative life events

As Table 5 indicates, parent life events were associated with lower adolescent perceived competence, and higher adolescent- and parent-reported behavior problems. Structure provision was associated with higher perceptions of control and competence, and lower depression and behavior problems, above and beyond SES and the significant effects of parent life events. There was also a significant gender × structure interaction, such that structure was associated with lower depressive symptoms for girls [$\beta = -.39, SE = .13, p < .01; R^2 = .19, p < .03$] but not for boys [$\beta = -.06, SE = .08, p = .68; R^2 = .04, p < .79$].

Cumulative transitions

Results in Table 6 show that cumulative transitions were associated with perceived control and parent-reported conduct problems. As in the previous analyses, structure was associated with all outcome variables, even above and beyond the significant effects of cumulative transitions. Again, there were significant gender × structure interactions, such that structure was associated with higher perceptions of competence for girls [$\beta = .46, SE = .25, p < .01; R^2 = .32, p < .01$] but not for boys [$\beta = .12, SE = .23, p = .45; R^2 = .17, p < .13$] and fewer depressive symptoms for girls [$\beta = -.39, SE = .13, p < .01; R^2 = .19, p < .03$] but not for boys [$\beta = -.07, SE = .08, p = .65; R^2 = .10, p = .32$].

There was also a significant cumulative transitions × structure interaction predicting perceived control. We examined the nature of the interaction according to Aiken and West's (1991) recommendations. Specifically, we centered the predictor variables and computed values of perceived control at high and low levels (± 1 standard deviation from the mean) of

Table 5

Hierarchical multiple regressions testing main and interactive associations of structure with adjustment outcomes in the context of parent life events.

	Perceived control			Perceived competence			Depression			Behavior problems			Conduct problems (parent report)		
	β	SE	R ²	β	SE	R ²	β	SE	R ²	β	SE	R ²	β	SE	R ²
Block 1			.15			.12			.06 ^c			.05 ^c			.09 ^a
Mother's education	.29**	.05		.17 ⁺	.04		-.12	.02		-.17	.02		-.03	.02	
Marital status	.15	.16		.24**	.13		-.09	.06		-.10	.06		-.30**	.07	
Gender	.15	.16		.13	.13		-.17 ⁺	.06		-.07	.06		-.00	.07	
Block 2			.15			.16			.06 ^c			.10 ^a			.14
Parent life events	-.02	.01		-.20*	.01		.09	.00		.22*	.00		.22*	.01	
Block 3			.35			.27			.13 ^a			.21			.18
Structure	.46**	.20		.35**	.17		-.27**	.08		-.35**	.08		-.22*	.09	
Block 4			.35			.30			.18			.22			.19
Gender × parent life events	.04	.02		-.03	.02		-.06	.01		-.03	.01		.05	.01	
Gender × structure	.07	.40		.18 ⁺	.34		-.22*	.16		-.13	.15		.05	.19	
Block 5			.36			.30			.18			.22			.19
Parent life events × structure	-.07	.03		.04	.02		-.00	.01		.02	.01		.05	.01	

⁺ $p < .10$, * $p < .05$, ** $p < .01$. Note. Multiple Rs are significant at $p < .01$ unless otherwise noted: ^a $p < .05$, ^b $p < .10$, ^cnon-significant. For marital status, unmarried = 1, married = 2. For gender, girls = -.50, boys = .50.

Table 6

Hierarchical multiple regressions testing main and interactive associations of structure with adjustment outcomes in the context of cumulative transitions.

	Perceived control			Perceived competence			Depression			Behavior problems			Conduct problems (parent report)		
	β	SE	R ²	β	SE	R ²	β	SE	R ²	β	SE	R ²	β	SE	R ²
Block 1			.14			.14			.06 ^b			.06 ^c			.09 ^a
Mother's education	.29**	.05		.17	.04		-.12	.02		-.17 ⁺	.02		-.01	.02	
Marital status	.14	.16		.26**	.13		-.10	.06		-.12	.06		-.30**	.07	
Gender	-.14	.16		.16	.13		-.18 ⁺	.06		-.09	.06		.01	.07	
Block 2			.17			.14			.07 ^c			.07 ^c			.14
Cumulative transitions	-.19*	.03		-.07	.02		.10	.01		.08	.01		.21*	.01	
Block 3			.38			.25			.14			.19			.18
Structure	.47**	.19		.34**	.17		-.27**	.08		-.36**	.08		-.23*	.10	
Block 4			.39			.30			.19			.20			.19
Gender × cumulative transitions	-.08	.05		.09	.04		-.07	.02		-.05	.02		-.06	.02	
Gender × structure	.04	.39		.21*	.34		-.22*	.16		-.13	.16		.04	.19	
Block 5			.44			.30			.19			.20			.19
Cumulative transitions × structure	-.24**	.06		.00	.06		.04	.03		-.01	.02		.02	.03	

⁺ $p < .10$, * $p < .05$, ** $p < .01$. Note. Multiple Rs are significant at $p < .01$ unless otherwise noted: ^a $p < .05$, ^b $p < .10$, ^cnon-significant. For marital status, unmarried = 1, married = 2. For gender, girls = -.50, boys = .50.

cumulative transitions and structure. We then split the data at the mean of cumulative transitions and re-ran regressions to test for the significance of the slopes of each line. At a low level of transitions, there was a significant positive association between structure and perceived control [$B = 1.32$ ($SE = .23$) $\beta = .59$, $t = 5.57$, $p < .001$]. At a high level of transitions, the relation between structure and perceived control was nonsignificant [$B = .67$ ($SE = .36$) $\beta = .28$, $t = 1.87$, $p < .07$].

Discussion

This study focused on stressful life events, parental structure provision, and adolescent adjustment. Three overlapping yet conceptually unique measures of life events were associated with lower psychological resources (perceived control and perceived competence) and greater symptomatology (depression, child-reported-behavior problems, and parent-reported conduct problems). Adolescent-reported negative life events were most consistently associated with adjustment outcomes, while the other two life event variables (parent-reported negative life events and cumulative transitions) did not predict unique variance in outcomes above and beyond adolescent life events. Mediation analyses suggested that lower competence and control perceptions partially explained the relation between stressful life events and symptomatology. Parental structure provision, on the other hand, had unique positive associations with adjustment, even after accounting for recent stressful life events. We discuss each of these results and their implications in more detail below.

Life events and adolescent adjustment

Research on stressful life events has spanned a variety of approaches, both conceptually and from a measurement standpoint. Families often undergo changes together, and the negative events individuals endure can have tangible and psychological consequences for the others who rely on and care for them. It is not surprising then, that in this study there was a fair amount of empirical overlap across the three different life event measures. Many of the transitions and life event items are likely to affect lower SES populations. Yet, as other researchers have argued (e.g., Bronfenbrenner & Evans, 2000), our results suggest these variables are not proxies for SES, but rather, unique challenges to adolescents and their families.

Stressful life events were associated with several adjustment outcomes, even after controlling for multiple sociodemographic indicators. Adolescents who experienced more recent negative life events had lower perceptions of control and competence, and greater self-reported internalizing and externalizing symptoms. Consistent with previous research (Ge, Conger, et al., 1994; Ge, Lorenz, et al., 1994; Ge et al., 2001; Gore et al., 1992) the association between life events and depression was significant across genders, but stronger among girls. There was also a stronger association between life events and behavior problems for girls. Many girls are undergoing major changes associated with puberty in 7th grade and it is likely that puberty compounds additional stressful life events that girls experience at this age.

Neither parent life events nor cumulative transitions were associated with unique variance in outcomes above and beyond adolescent life events. We had expected to find significant, but relatively weaker associations between these life event variables and adjustment outcomes. Nonetheless, consistent with previous studies (that did not include multiple life event measures; e.g., Grant et al., 2004), our results suggest that adolescents' well-being appears particularly sensitive to events that are recent, negative, and directly relevant to their lives.

Analyses that did not control for adolescent life events showed that recent parent-reported negative life events related to adolescents' lower perceptions of competence and greater adolescent- and parent-reported conduct problems. Adolescents who endured more major transitions, and presumably less stability over their lifetimes, had lower perceptions of control and greater parent-reported conduct problems. Given previous research, we were surprised that cumulative transitions did not

relate to more adjustment outcomes. Perhaps this was because our index included only three types of transitions (moves, changes in schools, changes in parents romantic partners), compared to other studies, which included more (e.g., Marcynyszyn et al., 2008; Milan et al., 2006). Future research could investigate additional sources of instability, such as parents' dating habits. It would also be interesting to include measures of positively appraised life events in future research. These might counterbalance the impact of negative life experiences, as Cohen and Hoberman (1983) proposed, or, they may exacerbate stress, as they still bring about change and require adjustment (Overbeek et al., 2010; Shahar & Priel, 2002).

Psychological resources as mediators between life events and symptomatology

In line with our SDT theoretical perspective, we found support for a model in which competence-related psychological resources mediate between life events and emotional outcomes. Specifically, our path analyses indicated that adolescent-reported life events were associated with lower perceptions of control and competence. In turn, lower perceived control and competence explained adolescents' depressive symptoms, and lower perceived competence partially explained adolescents' externalizing symptoms.

Thus, when adolescents experience recent negative life events—events which likely disorganize their environments and disrupt the normal contingencies between their actions and what's happening around them—their associated emotional problems are to some extent attributable to a poorer understanding and a lesser sense of efficacy for achieving goals and impacting their surroundings. Recent life events also related to adolescent externalizing directly. Perhaps adolescents responded with anger to the frustrating events themselves, or perhaps factors not measured in this study would explain the relation. Further research on possible mediators is necessary.

Parental structure provision as a resource for adolescent functioning

This study also examined parental structure provision, which, compared to other parenting dimensions (e.g., involvement, control), has received somewhat less attention in the SDT literature. With moderate to strong positive relations to perceived control and perceived competence, and negative relations to adolescent- and parent-reported symptomatology, our results support the major SDT tenet that structure is important to adolescents' sense of competence and emotional well-being. Structure is beneficial, we propose, because it allows adolescents to plan and carry out adaptive behavior, achieve anticipated outcomes, and experience a sense of efficacy, competence, and success.

We were interested in whether parental structure provision may benefit adolescents who have experienced competence-threatening stressful life experiences, which are significant risk factors for maladjustment. Results revealed that structure served a resource function: it was associated with better adjustment outcomes, even after accounting for significant risk associated with negative life events. Specifically, in the context of significant adolescent, parent or cumulative major life events, structure related to higher perceptions of competence and control, and lower adolescent- and parent-reported behavior problems. Although structure was associated with lower depressive symptoms (even after accounting for socio-demographic controls) it did not predict significant variance in depression beyond the robust effect of adolescent life events. This finding underscores the importance of evaluating parenting and adolescent adjustment in a broader social–environmental context.

Consistent with previous parenting work (e.g., Klein et al., 2000) which generally identifies more main than interactive effects for parenting in high risk adolescents, structure did not appear to serve a protective function in this study. It was significantly positively related to outcomes for all adolescents, rather than especially protective to those at a high level of risk.

Our analyses did yield one significant interactive effect for cumulative transitions \times structure in predicting adolescents' perceived control; however it did not break down as we hypothesized. Higher structure was associated with greater perceived control, but the relation was only significant among adolescents who experienced relatively few transitions over their lifetime. Structure thus did not appear to interrupt the negative and perhaps deeply entrenched psychological correlates of multiple major transitions in critical developmental contexts across the lifetime. The relation appears to be rather “sticky,” and children seem to need stability both in household rules and expectations and in their larger home/family/school environment in order to develop optimal perceptions of control over reaching desired outcomes and goals.

Generally, structure was associated with positive outcomes for both boys and girls. However, results revealed two gender \times structure interactions, such that structure was associated with greater perceived competence and lower depressive symptoms for girls but not for boys. Previous findings regarding the role of parenting in the development/alleviation of boys' versus girls' emotional problems have been mixed; but a number of past studies suggest that parenting relationships may be a more salient source of support for girls than for boys (Geuzaine, Debry, & Liesens, 2000), especially in predicting depression (Gutman & Sameroff, 2004) and self-esteem (McKinney, Milone, & Renk, 2011). Given that predominantly mothers participated in this study, it was not possible to examine differential outcomes according to parent–child gender dyads; but emerging research suggests that this in an important direction for future study (McKinney & Renk, 2008).

Implications, limitations, and future directions

The present findings suggest that stressful life events, especially those adolescents report from the recent past, may impinge on competence needs, relating to greater psychological distress; while parental structure provision supports

adolescents' competence, relating to better emotional adjustment, even in the context of stressful life circumstances. Teaching parents to provide structure—e.g., to develop clear rules and expectations that connect to children's competencies, adhere to these rules regularly, and enforce consequences consistently, while acting as authorities within the home—may thus be a promising avenue to supporting at-risk adolescents. While our findings suggest that parents can effectively implement structure in the context of socioeconomic challenges and stressful life circumstances, it may be more difficult to do so. Clinicians and healthcare professionals who are sensitive to this potential roadblock may be especially successful at helping parents help children.

There are a number of limitations to these interpretations worth noting, however. Foremost, our data were collected at one time-point and are correlational in nature, precluding any causal inferences. The associations we report may very well represent bidirectional or even cyclical effects, where adolescents with compromised control/competence perceptions and lower emotional/behavioral functioning experience more negative life events and less parental structure provision, which reciprocally adversely impact their adjustment. Second, we included predominantly adolescent-reported outcome measures, so the many significant relations between adolescent life events and outcomes are to some extent likely due to shared-reporter variance. That said, we did identify a number of cross-reporter relations, suggesting that measures from other informants can capture the problematic outcomes associated with adolescent life events. Finally, our sample was relatively small, limiting the power of our analyses. The sample represented a relatively socioeconomically stressed population and included a large proportion of minority (Latino) participants. Findings should be replicated among more representative samples before generalizing conclusions.

In the future, research using larger samples and/or longitudinal designs can shed new light on the mechanisms by which life events exert their effects and the protective factors that moderate their impact. Such work can inform prevention and intervention initiatives for families coping with disruptive life events, such that they better target and more effectively support youth at risk for maladjustment.

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