

Children of Adolescent Mothers: Exposure to Negative Life Events and the Role of Social Supports on Their Socioemotional Adjustment

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Abstract Children born to adolescent mothers have heightened vulnerability for exposure to multiple stressful life events owing to factors associated with teenaged parenthood such as poverty and low levels of maternal education. This study investigated whether early exposure to negative life events such as parental divorce, residential instability, and deaths in the family predicted children's socioemotional and behavioral functioning at age 10. Hierarchical regression

analyses suggested that negative life events—which were reported by 94% of the sample—were associated with less favorable developmental outcomes, with social support serving as a buffer between exposure to these events and children's anxiety, internalization, externalization, and maladaptive behaviors.

Keywords At-risk · Negative events · Social support

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Introduction

In these troubled times, childhood is a period often marked by stressful events and life transitions that tax the coping abilities of even the most resilient child. The stressors experienced by at-risk children play important roles in the development of various types of adjustment problems in later life. Despite this negative scenario, protective factors emerging as early as infancy and during early childhood can mitigate the relationship between multiple environmental risks and developmental outcomes. Utilizing a sample of children born to adolescent mothers (Whitman *et al.*, 2001), this project analyzed the role of protective factors in moderating the effects of exposure to negative life events on children's socioemotional and behavioral adjustment. Its primary aim was to explore whether social support—as defined by attachment status, religiosity and/or spirituality, support networks and/or mentors, and social groups/sports activities—promoted resilience, allowing some children to maintain competences despite their exposure to negative life experiences (Luthar, 1991).

Specific outcomes related to socioemotional adjustment

The loss of one's ability to regulate the intensity of feelings and impulses is possibly the most far-reaching impact

of trauma or neglect on childhood socioemotional development (van der Kolk and Fisler, 1994). For instance, abused children often fail to develop the capacity to express specific and differentiated emotions. Their difficulty in putting emotions into words often interferes with flexible affect regulation strategies and promotes acting out (van der Kolk and Fisler, 1994). Several studies conducted on both children and adolescents have found that when individuals are overwhelmed by an external stressor they resort to denial or disengagement as a way of coping (Low *et al.*, 2000). It is not surprising to find that children exposed to extremely negative life events are more likely to display symptoms of Post Traumatic Stress Disorder (PTSD) than children exposed to everyday hassles (Cooley-Quille *et al.*, 2001). In addition, exposure to negative life events affects other aspects of socioemotional adjustments such as the development of childhood depression and anxiety disorders (Cooley-Quille *et al.*, 2001; Luthar, 1991; Spence and Dadds, 1996), and clinically elevated internalizing-externalizing behaviors among children between the ages of 8 and 15 (Cooley-Quille *et al.*, 2001). Even more alarming, conditions that place children at-risk for exposure to stressful circumstances such as poverty, violence, and family discord, continue to worsen as children reach adolescence (McMahon *et al.*, 2003); thus, psychological adjustment during adolescence is likely a function of both past and present exposure to stressful experiences.

Risks and developmental delays: adolescent parenting and its impact on children

A negative life event is defined as any event, and/or negative life change, directed at oneself or someone else that has caused physical and/or emotional discomfort (Johnson, 1986). This general definition allows the inclusion of day-to-day hassles, such as going to school, as well as events considered violent and/or traumatic, such as the death of a loved one. Children characterized as “at-risk” must cope with the day-to-day hassles of school, in addition to multiple stressors present in their immediate home and neighborhood environments. At elevated risk are children born to adolescent mothers who have greater exposure to multiple stressful circumstances owing to factors associated with teenaged parenthood such as poverty, neighborhood crime, poor schools, and single parenthood (Whitman *et al.*, 2001). Adolescent mothers, as opposed to adult mothers, are often characterized as being depressed, having low IQs, poor social supports, histories of abuse and/or neglect, residential instability, stressful relationships, punitive parenting practices, and a general lack of readiness to parent; each of these factors has negative consequences for children’s development (Borkowski *et al.*, 2004).

Borkowski *et al.* (2004) reported that the rates of developmental delay among children born to adolescent moth-

ers in the domains of attachment, intelligence, language, achievement, and socioemotional adjustment are three to four times higher than for children born to adult mothers. In particular, the Notre Dame Adolescent Parenting Project (Whitman *et al.*, 2001) has shown that by age 3, 37% of children born to adolescent mothers displayed internalizing problems, whereas, 35% showed externalizing problems. By age 5, children had fallen to one standard deviation below the population mean in adaptive behaviors. These developmental delays may account, in part, for the high percentage of children experiencing school failures such as repeated grades, remedial classes, and school suspensions (Whitman *et al.*, 2001). If children must cope with multiple, negative life events in addition to adjusting to the demands of school, they are unlikely to possess the adaptive socioemotional and behavioral skills necessary for academic success.

Components of social support that serve as protection for at-risk children

Despite the deleterious effects of negative life events on development, many children of adolescent mothers become resilient. Studies of resilience conducted on participants from birth through adulthood have consistently shown that affectional ties with family, informal support systems outside the home, and dispositional attributes such as problem solving skills and self-esteem, each provide the protection that differentiates between adaptive and maladaptive functioning among children (i.e., Werner and Smith, 1992).

In addition to children’s own personal attributes such as efficient coping tactics and self-esteem, specific types of social supports such as attachment, religiosity/spirituality, social networks/mentors, and social groups/sports activities have been shown to counteract the effects of exposure to stressful circumstances. In particular, research by van der Kolk and Fisler (1994) and Gunnar (2000) has shown that strong, secure attachments to caregivers can buffer or prevent elevations of stress hormones in situations that usually elicit distress in infants. Furthermore, religiosity provides a stable support network as well as a belief system or cognitive schema that helps individuals cope with stressful circumstances (Fabricatore and Handal, 2000). Also of importance is the support derived from formal social relationships, such as those provided by informal mentors (as in Big Brothers Big Sisters of American), extended kin, extracurricular activities (as in 4-H, Scouts, YMCA, and YWCA), and/or organized sports; these relationships serve important protective functions for children, particularly between the ages of 10 and 15 (Bloom, 2000). Attachments, religiosity/spirituality, social group memberships, and mentors each provide extended networks that can offer support following a negative life event. What is lacking in the current literature; however, is an understanding of the impact that the combination

of these protective processes have on children's socioemotional and behavioral development in the face of exposure to negative life stressors.

Perceptions of the impact of potential stressors depend on the available resources an individual has for dealing with negative events (Johnson, 1986). These perceptions can significantly influence adjustment over time (Johnson, 1986). Negative perceptions generally arise when children feel that they deserve and/or are personally responsible for their own negative circumstances. These children develop a sense of hopelessness that can lead them to doubt their abilities and life potential. On the other hand, children who are able to distance themselves from negative events are more likely to display positive adjustment upon exposure to stressful situations, perhaps because they possess more optimistic views of the future. Protective factors such as social support can influence children's interpretations of events and emotional responses by providing them opportunities to openly discuss stressful events and their meanings with parents, significant family members, and/or mentors from social and sports groups. Studies of resilience have repeatedly found that a significant relationship with at least one caring adult is the most important factor for children's successful adaptation in the face of stress (Larsen and Birmingham, 2003).

Present study

Faced with life stressors, some children develop problems in their socioemotional and behavioral adjustments, whereas others continue to function relatively well. Children in the latter group, labeled "resilient" or "stress resistant" defy expectations by developing into well-adjusted individuals (Luthar, 1991). The primary goal of this study was to identify whether cumulative social support promoted adaptive functioning in children of adolescent mothers, allowing them to display positive adjustment despite exposure to stressful life experiences. This investigation contributed to our understanding of resilience in children born to adolescent mothers in that most studies of risk and resilience have focused on defining risk in terms of maternal factors associated with adolescent parenthood such as poverty, unemployment, poor cognitive readiness to parent, and low educational attainment. This project expanded the scope of these studies by documenting the specific types of stressful circumstances children experienced and how these experiences related to their socioemotional and behavioral adjustment.

The Notre Dame Adolescent Parenting Project (NDAPP) has gathered data on adolescent mothers and their children from pregnancy through age 14. Its primary goal was to explore factors related to teenage pregnancy that may influence children's later development in academic and socioemotional domains (Whitman *et al.*, 2001). Specific to this study, children were administered the Life Events Checklist (LEC)

which asked about exposure to both positive and negative life events prior to age 10, the perceptions (either good or bad) that they formed about each event, and the impact of each event on their lives. In addition, the Protective Factor Scale (PFS) was administered in which children reported in their own words their exposure to negative life events and then picked from a list of possible protective factors one or more factors that helped them to cope with exposure to stressful situations. Children's outcome measures were taken at age 10 with a focus on socioemotional and behavioral adjustment (depression, anxiety, internalizing, externalizing, and maladaptive behavior). Maternal stress and SES was collected over an 8-year time-span and aggregated whenever possible; these measures were then combined with children's age and intelligence and used as covariates in subsequent analyses.

Questions and hypothesis

The questions of major interest were the following: (1) What is the incidence of exposure to negative life events in a sample of children born to adolescent mothers in the late 1980's and early 1990's? (2) Is exposure to negative life events—as defined by the Negative Events subscales of the Life Events Checklist—related to socioemotional and behavioral adjustment at age 10? (3) Does social support—as defined by attachment to the mother, religiosity/spirituality, support networks/mentors, and social groups/sports activities—moderate the impact of stressful life events on children's socioemotional adjustment? We hypothesized that children who perceived their social networks as more beneficial would be expected to display better adjustment than those perceiving their social support networks as less beneficial in the face of the same negative life events, after controlling for children's age, IQ, maternal stress, and SES. In this scenario, social support might serve as a protective buffer between exposure to negative life events and children's adjustment.

Method

Participants

Participants were 96 primiparous adolescent mothers and their children recruited through local hospitals and programs geared toward teen mothers in South Bend, IN and Aiken, SC. They were part of the Notre Dame Adolescent Parenting Project, which is a larger on-going longitudinal study of adolescent mothers and their children (Whitman *et al.*, 2001). The racial makeup of the sample was 60.2% African American, 31.8% European American, and 8% Hispanic American. The mothers ranged in age from 14 to 19 years at childbirth, with a mean age of 17.16 (SD = 1.11); on average, they

completed 10.5 years of education (S.D. = 1.33) at the time of birth with a range from 8 to 12 years. Prenatally, mothers were functioning in the low average IQ range on the WAIS-R (Wechsler, 1981), with a mean score of 88.04 (S.D. = 12.33). The participants were of low socioeconomic status as rated by the Hollingshead Index ($M = 69.51$, S.D. = 2.52; Hollingshead and Redlich, 1958). When children were age 10, 46% of the mothers were single, 38% were married, 19% were living with a significant other, 13% were divorced, and 3% were separated. Maternal religious involvement over the course of the study was characterized as 33.8% low, 33.1% moderate, and 33.1% high religious involvement. Slightly over half of the children in the sample were male (55%), the remaining 45% were female. Hospital records suggested that the infants were typically born in good health in terms of Apgar scores and birth weight (Whitman *et al.*, 2001). At three and five years of age, average IQs for the children were 83.44 (S.D. = 14.17) and 87.85 (S.D. = 13.81), respectively.

Design and procedures

This study incorporated longitudinal, cross-sectional, and retrospective data. There were six phases of data collection. Maternal characteristics represented the longitudinal aspects of the study in that life stress was measured in Phases 1 through 3 and SES was assessed in Phases 1 through 4, which occurred prenatally and when children were 3, 5, and 8 years of age, respectively. At age 10 (Phase 5), children's intelligence was measured along with other measures of socioemotional and behavioral adjustment. Phase 6 took place when children ranged in ages from 11 to 17. At that time, children were given a memory task utilizing a timeline that asked them to remember back to when they were ages 3, 5, and 10 and to answer specific questions related to where they lived, who their teacher and friends were, and whether anything important happened to them at each time point. Children were then asked to report retrospectively on exposure to both positive and negative life events, and the possible factors that helped them cope with stressful situations prior to age 10. Sample retention rates over the course of the study were 52% at 3-years, 49% at 5-years, 39% at 8-years, 43% at 10-years, and 32% at the follow-up assessment. Whitman *et al.* (2001) reported no significant differences in demographics such as age, SES, and education when comparing participants who remained versus those who dropped out of the project.

Maternal measures

Life stress index

To measure maternal life stress, a subtest of the Parenting Stress Index (PSI; Abidin, 1983) was administered at the

prenatal interview and readministered at 3 and 5 years. The measure consists of a list of 18 possible events in an individual's life that cause stress, such as death of a relative, moving, and changing jobs. The events are weighted; some, such as marriage, are considered more stressful than others, such as changing schools. Scores of 17 and above (representing the 90th percentile) are considered high and suggest stressful situational circumstances that are often beyond an individual's control (Abidin, 1983). The reliability was .58 for this measure.

Hollingshead two factor index of social position

The Hollingshead is an index of social position computed from occupational and educational status. Occupation and level of formal schooling are separately classified into one of seven categories, where scores closer to 1 indicate higher occupational status or more years of formal schooling. The scores (ranging from 1 to 7 for each category) are weighted and summed to create an index of social position. Social position scores range from 11 to 77, where lower scores reflect higher social position. The total score for the index was used to indicate the socioeconomic status of the participants (see Hollingshead and Redlich, 1958). Reliability for the current sample was found to be .78.

Measures of children's life events

Life Events Checklist (LEC)

Positive and negative life events were assessed using the life Events Checklist (LEC; Johnson and McCutcheon, 1980). The LEC is a self-report measure consisting of a list of 46 events likely to be experienced by children and adolescents. The LEC focuses primarily on external events such as school failure, fights, arguments with peers, and family problems. For the sake of the present study, the children were asked to answer whether or not they had experienced any of the listed events prior to age 10. The scale allows for the child to rate each event he or she has experienced as "good" or "bad," and then rate the level of impact of the life events on a 4-point Likert scale. Seven of the possible 46-items were omitted because they were not age appropriate for this sample. The LEC can be scored in several different ways. In line with Johnson's (1986) claim that stressful events should be measured as the sum of seemingly divergent experiences, this study computed an unweighted total Negative and Positive score by summing the number of events labeled as negative and positive, respectively. Higher scores indicate more negative stress or positive events. The test retest stability of the LEC over a 2-week interval was shown to be $r = .72$ (Brand and Johnson, 1982). Cronbach's alpha for the current study was $\alpha = .91$.

Protective Factor Scale (PFS)

The Protective Factor Scale (PFS), designed specifically for this study, asks children to report in their own words their exposure to negative or stressful life events, the age/s at which they experienced the event, choose from a list of possible protective factors one or more factors that helped them to cope with their exposure to that particular stressful situation, and rate the importance of the most significant coping factor for that situation on a 7-point Likert scale with 1 being “not important” and 7 being “very important.” There were ten possible protective factors to choose from; these factors were chosen based on a thorough review of literature on social supports utilized by youth and adolescents. Children were then advised to do an overall rating for each listed protective factor in protecting them from exposure to negative or stressful life events utilizing the same 7-point Likert scale (Cronbach alpha = .70). Several items were summed to form a protective category. More specifically, items referring to attachment, religiosity/spirituality, support networks, and social groups/sports activities items were combined and used to form a social support protective category.

Measures of children’s adjustment

Depression Inventory

The Child Depression Inventory (CDI) was used to assess the severity of depression in children. The 27-item paper-pencil inventory, modeled after the Beck Depression Inventory, measures an array of overt symptoms of child depression, such as sadness, suicidal ideation, and sleep and appetite disturbances (Kovaks, 1992). The child is read three choices and asked to select the statement that best reflects his/her feelings or ideas in the past two weeks. Internal consistency has been found to be .86 with a clinical sample and .87 in a large sample of school children. This measure has been found to correlate highly with the Revised Children’s Manifest Anxiety Scale (Whitman *et al.*, 2001).

Revised children’s manifest anxiety scales

The Revised Children’s Manifest Anxiety Scale (RCMAS; Reynolds and Richmond, 1979) was utilized to measure anxiety in the children of adolescent mothers at 10 years of age. The RCMAS is 37-item self-report measure. Nine of the items form a Lie Scale, whereas 28 items are used to compute the measure. The Total Anxiety scale was utilized in this particular study. Reliability estimates for the Total Anxiety score range from .79 to .85 across the 12 age levels (6–19 years). Stability estimates have been reported to be .98 for a three-week interval and .68 for a nine-month interval.

Achenbach Child Behavior Checklist (CBCL)

This measure is a 100-item parent rating of the child’s behaviors (Achenbach, 1991). Items, such as “*cruel to animals*,” “*likes to be alone*,” and “*sulks a lot*,” are rated on a three point scale, with ratings of 0 (*not true*), 1 (*somewhat true*), and 2 (*very often or sometimes true*). The scale is divided into two factors: internalizing and externalizing. Internalizing factors are divided into depressed and anxious subscales, and externalizing factors are divided into aggressive and delinquent subscales. Reliability and validity is well established (Sattler, 1992). Test-retest reliability coefficients ranged from .70 to .95 for the symptoms subscales, from .89 to .93 for the Internalizing and Externalizing subscales, and was .93 for the Total score of this measure.

Vineland adaptive behavior scales

The Vineland Adaptive Behavior Scales (VABS; Sparrow *et al.*, 1994) is a maternal report of the child’s adaptive behavior. The assessment is given in an interview format and consists of 297 items covering a variety of domains: communication, daily living skills, socialization, and motor skills. The items are rated on a three-point scale, which were then summed to create scores on the subscales. Scores on the subscales are then converted into an Adaptive Behavior Composite score. Reported split-half reliabilities for each domain range from .83 to .94. Reported inter-rater reliabilities ranged from .62 to .78.

Wechsler Intelligence Scale for Children (WISC-III)

Children’s intelligence was assessed with a shortened version of the Wechsler Intelligence Scale for Children-Third Addition (WISC-III; Wechsler, 1991). Picture Completion, Information, Block Design, and Vocabulary subtests were administered and used to derive a standardized intelligence score with a mean of 100 and standard deviation of 15. This shortened form of the WISC-III has a reliability of .94 (Sattler, 1992).

Results

Descriptive findings

The means and standard deviations for negative life events, positive life events, covariates (i.e., child age, IQ, maternal stress and SES), social support construct (combining attachment to mother, religiosity/spirituality, support networks/mentors, and social groups/sports activities), and 10-year socioemotional and behavioral outcomes are presented

Table 1 Descriptive characteristics for the entire sample

Variable	Total sample (<i>N</i> = 96)		Range	
	<i>M</i>	S.D.	Minimum	Maximum
Negative life events ^b	5.93	3.58	0.00	19.00
Positive life events ^b	6.50	2.79	0.00	15.00
Child IQ ^b	87.84	13.72	59.00	118.00
Age ^c	14.41	1.77	11.00	17.00
Stress ^a	17.28	11.90	0.00	62.00
SES ^a	61.79	6.18	43.50	71.00
Social support ^b	26.21	4.56	12.00	35.00
Depression ^b	7.69	5.93	0.00	32.19
Anxiety ^b	9.93	5.89	1.00	28.00
CBCL- Internalizing ^a	50.88	9.89	33.00	82.00
CBCL- Externalizing ^a	51.45	10.43	30.00	72.00
Maladaptive behavior ^a	16.40	14.47	0.00	53.00

Note. Child IQ = intelligence as measured by the WISC-III; SES = Socioeconomic Status as measured by the Hollingshead and Redlich (1958) Index. Stress = maternal stress averaged over time.

^a = maternal report.

^b = child report.

^c age of child at time of “Follow-up” assessment.

in Table 1. In the following sections, the most important descriptive results are highlighted.

Life events checklist

The mean number of positive life events experienced prior to age 10 was 6.50 (range = 0 to 15). The most commonly reported positive events were as follows: 74% received special recognition for good grades, 72% experienced a birth in their family, 56% made the honor roll, and 49% made an athletic team. In addition to event frequencies, the Life Events Checklist allowed for an examination of the impact of positive and negative events on children’s lives. Eighteen percent reported that positive events had *no* impact on their lives, 26% reported that events had *some* impact on their lives, 27% reported a *moderate* impact, and 29% reported a *great* impact on their lives. These percentages suggest that life events characterized as positive were distributed equivalently across the impact rating scale.

The mean frequency for negative life events was 6.41 (range = 0 to 19). The most commonly reported negative events were as follows: 74% changed residences, 57% experienced a death in the family, 50% had school-related problems (failing a grade, suspended, or trouble with teachers and/or classmates), 39% experienced parent separation, 30% experienced violence and/or trauma, 29% had a parent imprisoned, 22% reported terminated friendships and increased absences of parent(s) from home, and 16% experienced a personal illness. When children were asked to rate

the impact of these events on their lives, 19% experienced parent divorce, 18% reported negative events had no impact on their lives, 35% reported some impact on their lives, 35% reported moderate impact, and 12% reported a great impact on their lives.

Protective factor scale

As opposed to the checklist format of the Life Events Checklist, the Protective Factor Scale asked children to retrospectively report in their own words their exposure to negative or stressful life events prior to turning age 10 and to choose from a list of possible protective factors those that helped them cope with exposure to stressful situations. Fifty-six percent (*n* = 54) of the sample reported exposure to negative life events using this measure; whereas 100% of the sample reported protective factors that help them cope with exposure to stressful circumstances. The relationship and/or attachment children had with their parents was the most commonly reported protective factor in helping them cope (64%), followed by “self-esteem” (11%), “other person,” most likely the child’s grandparent (8%), and “peers” (6%). These data suggest mothers were important coping resources for their children after exposure to stressful or negative life circumstances.

Socioemotional and behavioral adjustment

Groth-Marnat (1990) suggested that scores on the Child Depression Inventory ranging from 10–18 represent “mild to moderate” depression, and scores in the 19–29 range suggest “moderate to severe depression”. According to these guidelines, 23% of the total sample were mild to moderately depressed, and 5% moderate to severely depressed. Stellard *et al.* (2001) recommend that an overall cutoff point of 19 out of 28 be used to identify children experiencing clinically significant levels of anxiety on the Revised Children’s Manifest Anxiety Scale. In accord with Stellard *et al.* (2001), 30 of children obtained scores in the clinical range for anxiety at age 10. A cutoff point of 63, which corresponds to the 90th percentile, was used to identify clinical levels of maternal report of the CBCL where 19% and 16% had scores in the clinical range for internalizing and externalizing problems, respectively. Utilizing a cut-off of 85 (mean of 100 and a standard deviation of 15) on the Vineland Adaptive Behavior Scale, 61% of the total sample fell into problematic range for maladaptive skills. Intercorrelations between variables used in subsequent analyses are reported in Table 2. Overall, the data in Table 2 show significant associations among the predictor variables themselves and socioemotional/behavioral outcomes. Since gender was not significantly related to any outcome variables, it was not used as a covariate in subsequent analyses.

Table 2 Correlations among independent predictors and children’s socioemotional and behavioral outcomes (*N* = 96)

	1	2	3	4	5	6	7	8	9	10	11	12	13
Predictors													
1. Gender ^a	1												
2. IQ	-.07	1											
3. Age ^b	.05	.12	1										
4. Stress	.13	-.01	.03	1									
5. SES	.10	-.26*	.01	-.04	1								
6. PLEs	-.12	.10	-.19	-.27**	-.31**	1							
7 NLEs	-.04	.05	-.31**	.27*	-.11	.36**	1						
8. SS	-.13	-.03	.05	.16	.22	.17	.04	1					
Outcomes													
9. CDI	.11	-.14	-.34**	.04	.13	.17	.47**	-.04	1				
10. RCMAS	.10	-.14	-.17	.10	.09	-.10	.05	-.06	.26*	1			
11. CBCL Int.	.06	-.23*	.03	.02	.13	-.03	.03	-.23*	.11	.27*	1		
12. CBCL Ext.	.09	-.23*	.02	.10	.26*	.04	.25*	-.23*	.09	.16	.66**	1	
13. MB	.06	-.21*	-.31**	-.09	.18	.10	.32**	-.06	.35**	.24*	.38**	.39**	1

p* < .05; *p* < .01.

Note. ^a1 = male, 2 = female. IQ = intelligence as measured by the WISC-III; ^bage of child at time of Follow-up” assessment; Stress = maternal stress averaged over time; SES = Socioeconomic Status averaged over time; PLEs = Positive Life Events; NLEs = Negative life events; SS = Social Support; CBCL Int. = Child Behavioral Checklist - Internalizing; CBCL Ext. = Child Behavioral Checklist - Externalizing; MB = Maladaptive Behavior measured by the Vineland Adaptive Behavior Scale.

Hierarchical multiple regressions: negative life events and children’s outcomes

Hierarchical multiple regressions were conducted to examine the unique contributions of negative life events and social support on 10-year child outcomes, after controlling for the effects of possible covariates that have been shown to influence children’s adjustment and reporting of negative life events (i.e. maternal stress, SES, children’s age and IQ). The interaction between negative life events and social support was tested for depression, anxiety, CBCL internalization and externalization, and maladaptive behaviors at age 10. Analyses consisted of three steps: In Step 1, the covariates (age, IQ, maternal stress, and SES) and negative life events were simultaneously entered into the model in an effort to gauge whether negative life events predicted children’s outcomes after controlling for possible confounding variables. In Step 2, the moderator variable (social support) was entered. Lastly, the interaction between negative life events and social support was tested (Step 3). Significant interaction effects indicated a variable’s operation as a protective factor (cf. Baron and Kenny, 1986; Luthar, 1991).

Children’s adjustment as a function of negative life events and social support

Children’s outcomes were separately regressed on negative life events and social support. A variable was considered important if its beta weight was statistically significant after controlling for all of the other variables in the regression

equation. The model testing the combined impact of covariates and negative life events explained a significant portion of unique variance in children’s depression, 37% ($\beta = .49, p < .01$), 18% in maternal report of externalization, $\beta = .36, p = .01$, and 16% in maladaptive behavior, $\beta = .33, p < .05$, suggesting that children exposed to higher degrees of negative life events were less likely to display positive development. Though not significant, this model also accounted for 15% and 16% of the variance in children’s anxiety and internalization, respectively. It should be noted that children’s impact ratings for negative life events predicted only depression ($\beta = .37, p < .01$), such that higher impact ratings resulted in higher depression scores at age 10. No socioemotional and behavioral outcomes were predicted from positive life events or the impact ratings for positive life events.

The model testing the impact of social support, after controlling for covariates and negative life events, explained a significant portion of unique variance in maternal reports of children’s internalization, 35% ($\beta = -.44, p < .01$), externalization, 29% ($\beta = -.35, p < .01$), and maladaptive behavior, 24% ($\beta = -.29, p < .05$), suggesting that higher degrees of social support were associated with more positive child outcomes in these domains.

Social support as a protective factor

Social support was tested as a protective factor between exposure to negative life events and children’s adjustment. After controlling for covariates, negative life events, and social

support, the model testing the interaction between negative life events and social support explained a significant portion of unique variance in children's 10-year anxiety, 26% ($\beta = .35, p < .01$), 42% in internalizing behaviors, $\beta = .29, p < .05$, 37% in externalizing behaviors, $\beta = .31, p < .05$, and 31% in maladaptive behavior, $\beta = .28, p < .05$. Thus, the combination of children's attachment to parents, religiosity/spirituality, support networks, and social groups/sports activities served as a buffer between negative life events and children's socioemotional and behavioral outcomes. Each of the four items taken from the Protective Factor Construct contributed to the predictive validity of the social support construct, with religiosity/spirituality and social/sports activities contributing the most. Summing over regression models, negative life events and social support accounted for 40% of the variance found among children's depression, 26% in anxiety, 42% in internalization, 37% in externalization, and 31% in maladaptive behavior.

Figure 1(a) shows the relationship between children's internalization as a function of negative life events and social support. Social support significantly differentiated internalizing scores at lower levels of exposure to negative life events as opposed to higher levels ($\beta = .29, p < .05$). Only children who had higher social support and few negative life events were protected from developing depression and withdrawal problems. As exposure to negative life events increased, social support was no longer protective. This same pattern was found for externalization ($\beta = .31, p < .05$) and maladaptive behaviors ($\beta = .28, p < .05$), such that at lower levels of exposure children with high social support had signifi-

cantly fewer externalizing problems and maladaptive behaviors than children with lower social support. It should be noted that positive life events did not serve as a moderator between exposure to negative life events and children's outcomes.

Figure 1(b) presents the relationship between negative life events and social support on children's anxiety. Social support significantly differentiated scores on anxiety at higher levels of exposure to negative life events as opposed to lower levels ($\beta = .35, p < .01$); children with stressful life events and lower levels of social support were more likely to report excessive degrees of anxiety.

Discussion

Children of adolescent mothers share many of the harmful conditions that other high-risk children experience, such as poverty and neighborhood crime. These conditions place children at heightened vulnerability for exposure to multiple stressful circumstances and subsequent negative life experiences. Exposure to stressful events may account, in part, for the high frequency of children falling into problematic ranges on socioemotional and behavioral outcomes. In line with the findings of Overstreet and Dempsey (1999), the results of the present study provided confirmation for the disturbing trends that have been reported recently regarding children's frequent exposure to stressful life circumstances and their consequences for long-term successful development. For instance, negative life events have a strong influence on socioemotional adjustment, especially depression (Luthar, 1991), anxiety (Spence and Dadds, 1996) and clinically-elevated levels of internalizing and externalizing behaviors (Cooley-Quille *et al.*, 2001). Similarly, exposure to negative life events was associated with less optimal developmental outcomes in the domains of depression, externalization, and maladaptive behavior in the present study.

Children's exposure to negative life events and socioemotional adjustment at age 10

The frequency of exposure to negative life events reported in the current study concurs with other studies examining children living in poverty (e.g., Cooley-Quille *et al.*, 2001; Miller and Wasserman, 1999; Overstreet and Dempsey, 1999). Among their sample of inner-city youth, Cooley-Quille *et al.* (2001) found that 46% were exposed to high levels of community violence. In a similar study, Overstreet and Dempsey (1999) reported that 92% heard guns being fired, 83% knew someone that had been killed, and 55% had witnessed a shooting. Miller and Wasserman (1999) found that 96% of inner-city males had witnessed at least one violent event

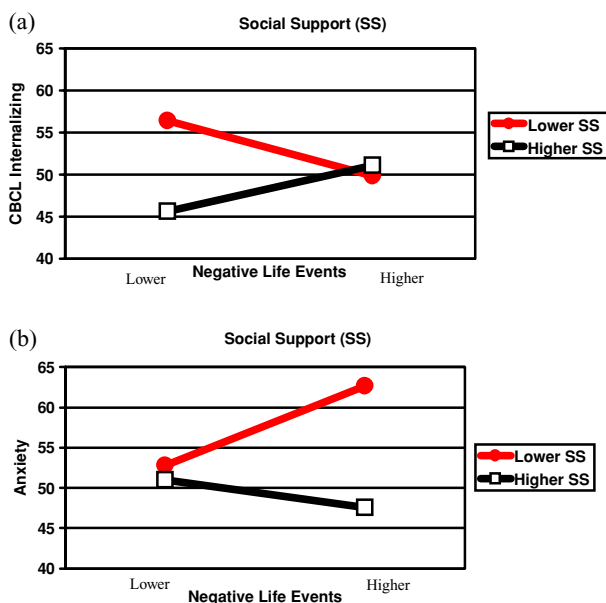


Fig. 1 The effects of negative life events and social support on (a) Internalization and (b) Anxiety

(heard guns being shot, seen someone being arrested, and/or seen someone being killed), and 75% had witnessed four or more violent events. In line with these studies, a significant proportion of children in our study (94%) experienced multiple stressful circumstances. More specifically, 80% experienced divorce and/or separation of their parents, 74% changed residences, 57% experienced a death in the family, 50% had school-related problems, 30% reported violence and/or traumatic events, and 29% experienced parent-imprisonment. On average, children experienced approximately six negative events prior to turning age 10, with some experiencing as many as 19.

Social support as a protective factor

Children with high social support—characterized by religiosity/spirituality and social groups/sports activities—and few negative life events were less likely to develop socioemotional problems. These findings support those of Werner and Smith (1992) who found that caring adults outside of the immediate family (e.g., grandparents, neighbors, youth leaders, extracurricular leaders, and church members) were significant protective factors in the successful transition to adulthood, despite risks such as poverty and poor education. Similarly, Larsen and Birmingham (2003) found that caring relationships, high expectations, and opportunities for participation served as protections against daily hassles among at-risk children. With caring and emotional support provided by adults, children often recover from difficult circumstances, acquire the belief that their lives have meaning, and are in more control of their own fate (Larsen and Birmingham, 2003; Werner and Smith, 1992). These studies, along with our own, demonstrate the buffering effects of social support, particularly religiosity/spirituality and social/sports activities, for children exposed to moderate levels of negative or stressful life events.

In accord with Benson and Deeter (1992), social support decreased anxiety at higher levels of exposure to negative life events. Luthar (1991) introduced the terms “protective-reactive” and “protective enhancing” in an effort to differentiate two possible protective processes. “Protective-reactive” occurs when social support confers advantages but less so when stress levels are high than low. “Protective-enhancing” is used when a moderator such as social support allows children to “engage” with, and tolerate stress, such that their competence is augmented in the face of increasing stress. In the present study, the protective aspects of social support varied in relation to the degree of negative exposure, such that for internalization, externalization, and maladaptive behavior, social support served a “protective-reactive” function. In contrast, social support seemed to serve a “protective-enhancing” function for childhood anxiety.

Strengths and limitations

The design of the current study adds to the extant literature on children of adolescent mothers in several ways. First, in contrast to the majority of studies in this area which analyze negative life events over a narrow time-frame, the longitudinal design of this investigation enabled the examination of perceived exposure to negative life events and their long-term impact on children’s adjustment. Second, this investigation contributed to our understanding of resilience in children born to adolescent mothers in that most studies of risk and resilience have focused on defining risk in terms of maternal factors associated with adolescent parenthood, such as poverty, unemployment, poor readiness to parent and low educational attainment. This project built upon these studies by examining stressful circumstances that children personally experienced and how these events were related to socioemotional and behavioral adjustment.

The present interpretations need to be made in light of two limitations. First, the relatively small sample size makes interpretations of the nature of the moderating effects somewhat problematic. In particular, smaller sample sizes have been shown to reduce statistical power to detect differences (O’Rourke, 2003). Second, the use of retrospective measures of negative life events may have been contaminated by individual confounding factors such as age, memory capacity, and/or intelligence. Myrisk (1990) defined retrospective methods as the attempt to “reconstruct” the past history of a person by asking for recollections of events or ideas. Inherent in “reconstruction” is the implication that high levels of accuracy may be lacking; this is the common criticism posed regarding the retrospective reporting methodology (i.e., Henry *et al.*, 1994). Despite its critics, retrospective reporting has been utilized extensively in studies examining the effects that lifetime exposure to violence and negative life events has on current adjustment (i.e., Cooley-Quille *et al.*, 2001; Miller and Wasserman, 1999). These studies have found that reporting of case histories were reliable predictors of current adjustment, demonstrating that retrospective methods are essential and beneficial when studying certain sensitive topics (Urquiza, 1991). The longitudinal nature of the present design permitted control of the extent to which individual characteristics related to memory lapses (children’s IQ, age, maternal stress, and SES) influenced the reporting of negative life events. These prospectively measured factors were used to control for confounding variables in the analysis of associations between exposure to negative life events and adjustment, thus adding confidence to conclusions drawn from our use of retrospective reports.

Conclusions and Implications

Many children facing multiple negative or stressful life circumstances, such as substandard housing, insufficient education, and single-parenthood homes, often do not see a bright future for themselves (Children's Aid Society, 2002). The findings of this study regarding relationships among negative life events and social support's potential for moderating later adjustment highlighted the importance of teaching adaptive coping strategies to children most at risk for exposure to stressful events. Relatedly, Spence and Dadds (1996) recommended that preventative programs be designed to increase social support and develop coping skills for children who face major life transitions. Simultaneously, parents must become involved in these programs to learn how they can assist in their children's development.

The findings of the present study highlight the long-term need for social policy makers, community leaders, school boards, and parents to address factors placing children at risk for exposure to multiple stressful circumstances by building safer communities, providing better school systems, and promoting more stable home environments. In the interim, it is necessary for youth social workers, teachers, and counselors to help replace maladaptive coping strategies with opportunities for acquiring more positive coping mechanisms. External support systems such as churches, youth groups, school programs, and athletics offer at-risk children supportive and nurturing environments where they can discuss difficult, personal issues while at the same time develop positive goals and long-term life aspirations (Benson and Deeter, 1992). Overstreet and Dempsey (1999) have proposed that support systems should provide children with opportunities to cognitively process and reconcile negative events, thereby allowing them to make sense of, and gain mastery over, these stressful experiences. This study demonstrated that support from external systems—such as family, church, social groups, and sports activities—can buffer the developmental problems often associated with negative life circumstances.

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