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Factors Associated With Positive Adjustment in Siblings of Children With Severe Emotional Disturbance: The Role of Family Resources and Community Life

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This study builds on the scant research involving siblings of children with severe emotional disturbances (SED) and examines: associations between adversity experiences and adjustment among 5- to 10-year-old siblings, and relations among family resources, community life, and sibling adjustment. Caregivers from 100 families completed standardized indicators of sibling adjustment and scales reflecting multiple contextual variables. Results document negative associations between stress exposure and sibling adjustment. Regression models also indicate positive associations between the caregiver–child relationship and broader family resources on sibling behavioral and emotional strengths, even after accounting for adversity experiences; adversity exposure was the prime correlate in regression models involving sibling oppositional behavior. Analyses also suggest that strain related to parenting a child with SED is associated with sibling adjustment. This work documents the needs of these siblings and their family systems and highlights the relevance of not only core proximal influences (e.g., child–caregiver relationship) but also elements of their broader contexts. Implications and recommendations are described, including the need to support plans of care that involve services, supports, or preventive strategies for these siblings.

This article describes selected family and community factors associated with the adjustment of siblings of children with severe emotional disturbance (SED). The child mental health field has seen increasing emphasis on family-centered, family-focused, or family-driven care (e.g., Dunst, Trivette, & Hamby, 2007; Friedman, 1994; Stroul & Friedman, 1986). Such models emphasize: family empowerment and strengths, not deficits, with caregivers assuming control of decision-making for the family and child; and provision of resources to families (not just identified children), building capacity to address their needs. Yet, despite calls for family-focused care (e.g., U.S. Department of Health and Human Services, 1999), service systems infrequently address the needs of other family members, including siblings of children identified as having mental health needs.

The system of care (SOC) philosophy constitutes a prominent family-focused approach to caring for "children with serious emotional disturbances *and their families*" (Center for Mental Health Services, 2005; italics added). These SOCs seek to provide comprehensive, coordinated networks of services, tailored to the needs of the child and family, while emphasizing the strengthening of natural community supports (Pumariega & Winters, 2003; Stroul & Friedman, 1986). However, in practice, most resources in SOCs continue to be dedicated to direct services for youth with identifiable diagnoses reflecting functional impairment, that is, those demonstrating medical necessity (Cook & Kilmer, 2004, 2010a). The limited focus on broader family needs is notable, given that the SOC philosophy, articulated in the federally funded Child Mental Health Initiative (e.g., Center for Mental Health Services, 2005, 2009), constitutes a core strategy for children's mental health service reform and has become the primary element of U.S. child mental health policy (see Hodges, Ferreira, Israel, & Mazza, 2010; Pumariega & Winters, 2003).

Paralleling the lack of attention to other family members (including siblings) in mental health practice, research examining

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families has rarely examined the adaptation of siblings of children with SED. Those research efforts that have examined siblings (e.g., Kilmer, Cook, Taylor, Kane, & Clark, 2008) underscore the impact of youth with SED on siblings and family systems. Existing findings suggest that these siblings are at risk and that neglecting other family needs can contribute to negative consequences for the entire family (Kilmer, Cook, & Palamaro Munsell, in press; Kilmer et al., 2008).

The work described here grows out of an NIMH-funded study that replicates and extends prior work assessing adjustment and multiple contextual variables. This study builds on the scant systematic research involving this population and emphasizes: associations between adversities and adjustment among siblings of children with SED, and relations among family resources, community life, and sibling adjustment.

Siblings of Children With Special Needs

Because minimal prior research has focused on the adjustment of siblings of children with SED, parallel work involving siblings of other children with special needs, from major, chronic health conditions to developmental disabilities, can be illustrative (e.g., Petalas, Hastings, Nash, Lloyd, & Dowey, 2009; Sharpe & Rossiter, 2002; Summers, White, & Summers, 1994). This significant body of research suggests that siblings of children with special needs may evidence a range of negative sequelae, including emotional problems such as depressive symptoms or anxiety (Hannah & Midlarsky, 1985; Sharpe & Rossiter, 2002; Summers et al., 1994), as well as embarrassment, fear, withdrawal, resentment, guilt, irritability, aggression, and peer conflict (e.g., Summers et al., 1994). That said, within this context, siblings may also adapt successfully and evidence prosocial resources or positive changes associated with having a sibling with special needs, including greater compassion, helpfulness, understanding regarding differences, maturity, and empathy (e.g., Hannah & Midlarsky, 1985; Labay & Walco, 2004; Summers et al., 1994).

Research in this area has also identified a wide range of variables associated with sibling adjustment, including the level of assistance needed and the functioning of the child with special needs (e.g., Petalas et al., 2009; Sharpe & Rossiter, 2002), the degree to which the sibling helps provide caregiving, family functioning (e.g., close family environment, conflictual relationships in the family, the quality of the relationship between the siblings; Bellin, Bentley, & Sawin, 2009; Emerson, Hatton, Blacher, Llewellyn, & Graham, 2006), and financial resources or hardship (Emerson et al., 2006; Hannah & Midlarsky, 1985). Studies have also demonstrated that caregivers of children with special needs experience more stress, strain, and depressive symptoms (e.g., Quintero & McIntyre, 2010) than parents of typically functioning youngsters; the strain or burden experienced by the child's caregiver may also influence his or her functioning, availability, and relationship with the sibling (see, e.g., Dyson, 2010; Quintero & McIntyre, 2010).

Siblings of Children With SED: Prior Findings

Little research has investigated the adaptation of siblings of children with SED. One project (Aguilar, O'Brien, August, Aoun, & Hektner, 2001) examined outcomes of brothers and sisters of children with externalizing concerns (aggressive and antisocial problem behaviors); the researchers found that, in particular, the younger sisters of boys with externalizing problems evidenced higher levels of multiple negative behaviors, including academic and behavior problems, associations with ''deviant'' peers, smoking, drug use, and arrest records. Another study (Brotman, Gouley, O'Neal, & Klein, 2004), focusing on the preschool-aged siblings of adjudicated youth, detailed the risks these youngsters shared with their older brothers and sisters, as well as the associations between these risks and children's conduct problems and social competence. These researchers noted that only a minority of siblings evidenced clinically significant conduct problems.

The work most relevant to the present study (Kilmer et al., 2008) focused on the 5- to 18-year-old siblings of children with SED in two North Carolina sites. Those youngsters, from predominantly impoverished homes, had been exposed to high levels of adversity and evidenced substantial variability in behavioral and emotional strengths and social-emotional adjustment (Kilmer et al., 2008). That is, many siblings exhibited significant strengths and positive adjustment and, as a group, they received more positive scores reflecting strengths, resources, and adjustment than their system-identified brothers or sisters. However, many also displayed levels of competencies or problem behaviors that were suggestive of having an emotional or behavioral disorder. In fact, a meaningful proportion of the siblings evidenced higher levels of some types of maladjustment or problem behaviors (and fewer competencies) than identified children and, even within families, a significant minority received adjustment scores equal to or worse than their brothers and sisters. Kilmer et al. (2008) also identified factors associated with positive sibling adjustment—prominent among them were the quality of the sibling's relationship with the child with SED and the nature of the family's relationships overall. Taken together, this project's results reinforced the importance of plans for care that meet the entire family's needs.

The Context of the Present Study

The project out of which this study grows focused on 5- to 10-year-old siblings of children identified with SED. It extends the work of Kilmer et al. (2008) by expanding the number of sites and the protocol to examine risk and resilience among these siblings using a short-term longitudinal approach. Its most basic aims were to describe sibling adjustment and, informed by ecological theory (e.g., Bronfenbrenner, 2005), identify child, caregiving, family, and contextual variables differentiating siblings adapting successfully from those experiencing problems.

A prior study (Kilmer et al., in press) presented early indicators of adversity exposure and adjustment. On a Life Events Checklist (LEC; see Measures section), caregivers indicated that siblings experienced an average of 9.65 (SD = 5.69) stressors (Kilmer et al., in press), with many reflecting family turmoil or poverty-related stressors. In previous research using this same measure (e.g., Wyman et al., 1999), the endorsement of four or more stressful life events and circumstances was the criterion employed to denote highly stressed status; this finding underscores the high level of risk experienced by these youngsters. In

this work, similar to the results of the earlier study (Kilmer et al., 2008), direct comparisons between siblings and "target" children with SED demonstrated that, as a group, siblings evidenced more strengths and resources, less symptomatology, and, overall, more positive adjustment than their brothers and sisters who have already been identified as having SED. However, as in that earlier study, there was considerable variability in sibling adjustment—many of the siblings were indeed doing quite well, though a notable proportion of siblings appeared to have significant mental health needs, a finding with particular implications for system function and policy (Kilmer et al., in press).

As a specific case in point, Kilmer et al. (in press) reported that, on the revised Behavioral and Emotional Rating Scale–2 (BERS–2; Epstein, 2004), 40.4% of siblings had Strength Quotients indicating above average to very superior levels of personal strengths and very low probabilities of disorder, while 27.2% had Strength Quotients in below average to poor categories, reflecting borderline or lower personal strength levels and high probabilities of disorder. Similarly, on the revised short form of the Conners Parent Rating Scale (CPRS–R:S; Conners, 2001), a notable percentage of siblings evidenced difficulties—roughly 19% of siblings' Oppositional scores fell in the moderately to markedly atypical range, and 16% of their attention deficit hyperactivity disorder (ADHD) index scores were in that range. It bears mention that caregivers reported noteworthy levels of strain, challenge, and difficulty. For instance, on the Brief Symptom Inventory (BSI–18; Derogatis, 2001), 22% of caregivers had BSI–Depression scores, and 32.4% had BSI–General Severity Index scores above clinical cutoffs. Given the association between maternal functioning and child adjustment, including symptom levels and treatment outcomes (e.g., Rishel et al., 2006; Swartz et al., 2008), these results carry particular weight. Taken together, these various findings, using validated, norm-based measures, reinforce the importance of attending to the needs of siblings and other family members.

This study goes beyond that initial work to explore associations between adversity experiences and sibling adjustment, and assess family and community variables associated with sibling adjustment at the baseline data collection. The study's guiding hypotheses are as follows:

- Adversity exposure would relate negatively to sibling adjustment—specifically, that adversity exposure would be associated with lower levels of emotional and behavioral strengths and higher levels of problem behaviors (i.e., oppositionality).
- Positive qualities of family relationships and the caregiving context (e.g., nurturant caregiving, family environment) would be associated with positive sibling adjustment.
- Indicators of siblings' broader contexts—for example, adequate family resources, extracurricular involvements, caregiver social support and connections in the community—would relate positively to sibling adjustment.
- Variables reflecting siblings' positive family relations, adequate family resources, and caregivers' social connections would be associated with positive sibling adjustment (i.e., more strengths, fewer problem behaviors), even when accounting for their adversity experiences.

Method

Participant Recruitment and Study Procedures

Eligible participant families had at least one child (under 18 years of age) who met criteria for SED and at least one 5- to 10-year-old sibling with no history of receiving mental health services. Project personnel employed multiple recruitment methods, providing study information and flyers to organizations serving children with SED and their families (e.g., parent support and family advocacy groups, case management and family support agencies, and community collaboratives) and disseminating flyers at professional SOC conferences. In addition, electronic versions of flyers were distributed to case management and clinical agencies as well as parent support groups via the national listserv of the Federation of Families for Children's Mental Health, a national organization supporting families of children with mental health challenges. Potential participants were directed to send in postage-paid postcards or call (toll free) the project office. They were then screened and, if eligible, were provided with basic study information.

Once informed consent was obtained, a set of baseline study measures (e.g., standardized indicators of adjustment, a measure of life stress, and a detailed caregiver questionnaire) were sent to participants, with a stamped, self-addressed return envelope for returning completed measures. Caregivers then completed a phone interview, which included measures of child development, the caregiver–child relationship, family environment, and family resources. They received gift cards for their participation. The child's current teacher also completed ratings and was reimbursed.

Consistent with confidentiality regulations and Institutional Review Board protocol regarding privacy, case managers, family advocates, or other mental health staff provided initial information about the study to caregivers (i.e., parents or guardians) and invited families to participate, or caregivers received the flyer via e-mail from another party. Interested caregivers then contacted project staff responsible for informed consent procedures. Because initial contact was not made by members of the project team, it is impossible to ascertain the number of families who were provided information about the study or to assess for potential differences between those who chose to participate and those who did not.

Participants

Of 135 siblings (from 100 families), 57% were male and 63% were Caucasian, 16% African American, and 16% biracial-multiracial; no other group constituted more than 3% of the sample. Their average age was 7.56 years (SD = 1.69), and 77% were younger than the identified "target" children. Of the 100 youth with SED, 70% were male and their average age was 10.69 years (SD = 3.24, range = 4–17). Their most common diagnoses were ADHD, bipolar disorder, and oppositional defiant disorder; approximately 65% carried a secondary diagnosis and 31% had a third Axis I diagnosis. Forty-three percent of families received public assistance, and 28% of siblings lived in homes with household incomes

< $20,000, 30% lived in homes with incomes between $20,000 and $40,000, and 42% were from homes with incomes > $40,000. On average, 5.05 people (SD = 1.78) lived in each household, with M = 3.16 (SD = 1.22) children. Reflecting the broad recruitment procedures, 26 states are represented in the sample, with the largest number of families from North Carolina (20) and Iowa (19).

Measures

At baseline, caregivers completed the following measures—a subset of those used in the larger study.

Selected Indicators of Adjustment

These indicators, from norm-based measures, were selected because of the hypothesized possible influence of children's context on the constructs being assessed.

Behavioral and emotional strengths. On the BERS–2 (Epstein, 2004), caregivers use a 4-point metric (0 = *not at all like* to 3 = *very much like*) to rate the extent to which their child evidences specific behavioral and emotional strengths across five subscales: Affective Strength, Interpersonal Strength, Family Involvement, Intrapersonal Strength, and School Functioning. Scores can be converted into a standardized overall Strength Quotient; this overall score was used here (α = .97; Epstein, 2004).

Oppositional behavior. Completed by caregivers, the widely used CPRS–R:S (Conners, 2001) provides an assessment of behavioral problems across four scales: Oppositional, Cognitive Problems, Hyperactivity, and ADHD Index (αs = .86–.94). The Oppositional scale score was used for this study.

Selected Contextual Variables

Adversity exposure. On the 32-item LEC, caregivers check stressful life events experienced by the sibling and family in the child's lifetime. Items reflect five factors: Family Turmoil, Poverty, Family Separation/Social Services, Illness/Injury, and Unsafe/Violent Neighborhood (Kilmer, Cowen, Wyman, Work, & Magnus, 1998). In this study, the endorsed items were summed to compute factor scores as well as a total score.

Caregiver strain. The 13-item yes–no Caregiver Strain Index, used by Luescher, Dede, Gitten, Fennell, and Maria (1999) and Kilmer et al. (2008), reflects common stressors that occur during caregiving and taps multiple dimensions of burden (e.g., physical health, emotional symptoms, social activities). Caregivers indicate whether items apply to them specifically as they care for their child receiving mental health services. A total score was computed (α = .86).

Family relationships. The 27-item relationship dimension of the Family Environment Scale (Moos & Moos, 1994) assesses perceptions of family Cohesion, Expressiveness, and Conflict (αs = .69–.78).

Nurturant caregiving. On this 14-item adaptation of Wyman et al.'s (1999) nurturant involvement scale, incorporating adapted items from Greenberger and Chen's (1996) Parental Warmth and Understanding measure, respondents used a 1 (*not all true*) to 5 (*very true*) scale. A total score was computed (α = .64).

Extracurricular activities. Eight items assess children's involvement in extracurricular activities (e.g., athletics, religious groups) in the last year, on a 5-point scale (1 = *never involved*, 5 = *very involved*). A total score was computed by summing the items.

Religious participation and belonging. Developed for this research, this seven-item scale assesses caregiver participation in religious/spiritual activities (e.g., "I participate in religious or faith-based activities"), as well as connectedness to his or her faith-based community (e.g., "I feel a strong bond with my congregation or faith community"). Caregivers rated how well a statement fit for them on a 4-point scale (1 = *a great deal*, 4 = *not at all*); α = .96.

Sense of community. On the 12-item, true–false Sense of Community Index (Chavis, Hogge, McMillan, & Wandersman, 1986), items reflect: Membership Within the Community, Feelings of Influence Upon the Community, Integration and Fulfillment of Needs, and Shared Emotional Connection With Neighbors. The total score α = .86 (Chavis et al., 1986).

Social support. From Sherbourne and Stewart's (1991) Medical Outcomes Study Social Support Survey, this 19-item scale uses a 5-point metric (1 = *none of the time*, 5 = *all of the time*) to assess caregiver perceptions of four dimensions of available support: tangible, affectionate, emotional/informational, and positive social interaction. A total score was used here (α = .91).

Family resources. The 30-item Family Resource Scale (FRS) assesses the perceived adequacy (1 = *not at all adequate*, 5 = *almost always adequate*) of family resources across: Cash and Recreation, Time and Social Support, Basic Needs (e.g., home or apartment, food, heat), Health Care/Social Services, Secondary Needs (e.g., transportation, phone), and Child Care (Dunst & Leet, 1987). The total score α = .85 (Brannan, Manteuffel, Holden, & Heflinger, 2006).

Plan of Analysis

In addition to descriptive statistics, correlation analyses examined associations between key variables. Then, separate hierarchical regression analyses examined the contribution of family and community contextual variables to siblings' baseline BERS–2 Strength Quotient scores as well as their Oppositional scores on the CPRS–R:S. The models tested were grounded in an ecological approach, with core, proximal influences entered in the initial step and more distal potential influences entered in subsequent steps. Variables of particular interest, because they may be amenable to system change or intervention efforts (e.g., social support, family resources) were entered last. In turn,

family relational variables (e.g., nurturant caregiving) were entered in Step 1, adversity exposure (LEC Total) was entered in Step 2, and broader contextual variables (e.g., family resources, social support, extracurricular activities) in Step 3. Variables not associated with indicators of adjustment at $p < .10$ (on the basis of bivariate correlations) were excluded. As a final, exploratory step, the Caregiver Strain score (i.e., strain experienced in caring for the child with SED) was added to the regression models to indicate the potential influence of the identified child's difficulties on the caregiver, the family system, and the sibling's adjustment. Also, in analyses assuming independent observations, for those families with multiple age-eligible siblings, a primary sibling was identified, reflecting the child closest in age to the target child. If children were equally close in age to the target, the sibling younger than the target was identified as the primary sibling.

Results

Descriptive Findings for Key Study Variables

Table 1 lists descriptive statistics for variables of interest. Caregivers reported that, as a group, the siblings evidence moderate levels of both behavioral and emotional strengths and oppositional behavior. They reported very high levels of stress exposure for the siblings and endorsed high levels of strain for themselves in caring for the child with SED. Caregivers reported that their relationships with the siblings were warm, accepting, and nurturant, although their ratings of family relations were less positive and fell in a moderate range. The mean family resources score approached a rating of *usually adequate*, and caregivers perceived moderate levels of social support. Consistent with those ratings, they endorsed moderate to high levels of sense of community. However, they reported little religious participation and connectedness, and indicated that siblings had relatively low levels of involvement in extracurricular activities.

Table 1. *Descriptive Statistics for Key Variables of Interest*

	M (*SD*)	Scale range
Behavioral and Emotional Rating Scale–2 Strength Quotient[a]	103.89 (16.78)	55–150
Conners Parent Rating Scale–Revised Short Form Oppositional Scale[a]	53.87 (12.39)	39–89
Life Events Checklist (LEC)–Total Score[a]	9.65 (5.69)	0–32
Extracurricular Involvements Total[a]	13.62 (4.75)	8–40
Caregiver Strain Total[b]	10.20 (2.76)	0–13
Family Relationships[b]	15.96 (5.36)	0–27
Nurturant Caregiving[b]	63.21 (4.29)	14–70
Perceived Social Support Total (caregiver)[c]	68.27 (15.87)	19–95
Family Resources (mean score)[c]	3.79 (0.63)	1–5
Sense of Community Total (caregiver)[c]	8.80 (2.57)	0–12
Religious Participation and Connectedness (caregiver)[c,d]	18.42 (7.42)	7–28

[a]Sample size = 118–127. [b]Sample size = 88–96. [c]Sample size = 70–72. [d]Lower scores indicate higher levels of participation and connectedness.

Associations Among Core Variables

Table 2 displays correlations among the study's two indicators of sibling adjustment and siblings' adversity experiences, that is, the LEC total and factor scores. As expected, the total adversity exposure score was associated with lower levels of behavioral and emotional strengths and higher levels of oppositional behavior. That pattern of relationships was significant for three of the five LEC factors: Family Turmoil, Poverty, and Unsafe/Violent Neighborhood.

Table 3 presents correlations among the study's core variables. In accord with the adversity findings, caregiver strain associated with parenting the child with SED was negatively associated with ratings of sibling strengths; however, the positive relationship between strain and sibling oppositional behavior only approached significance. Consistent with expectations, positive ratings on the family relational variables (i.e., nurturant caregiving, family relations) were associated with positive sibling adjustment. The pattern of associations involving indicators of siblings' broader contexts and their adjustment was more mixed. As expected, caregivers' perceived social support related to more positive sibling adjustment. Among other contextual variables, adequate family resources and higher ratings of sibling extracurricular involvements were significantly associated with behavioral and emotional strengths but not oppositionality, providing partial support for the hypothesis. However, contrary to expectations, other contextual indicators of caregivers' connectedness (i.e., sense of community, religious participation and involvement) did not evidence a significant association with the sibling adjustment variables.

Correlates of Sibling Adjustment

Tables 4 and 5 summarize results of hierarchical regression analyses. These tables show the most parsimonious models for identifying key correlates across the two indicators of adjustment. Thus, for example, preliminary analyses found that nurturant caregiving was more active in the regressions than the family relationships variable. Consequently, only analyses including nurturant caregiving are presented here. In addition, although extracurricular involvement related to Strength Quotient scores, that association was no longer significant when

Table 2. *Associations Among Life Events Checklist Scales and Sibling Adjustment*

	BERS–2 Strength Quotient	CPRS–R:S Oppositional
Family Turmoil	−.42***	.47***
Poverty	−.31**	.30**
Family Separation/Social Services	−.12	.10
Family Injury/Illness	.01	.14
Unsafe/Violent Neighborhood	−.31**	.35**
LEC Total	−.36**	.42***

Note. Because of missing data, $N = 84–95$. LEC = Life Events Checklist; BERS–2 = Behavioral and Emotional Rating Scale–2; CPRS–R:S = Conners Parent Rating Scale–Revised: Short Form.
**$p < .01$. ***$p < .001$.

Table 3. *Correlations Among Variables of Interest*

	1	2	3	4	5	6	7	8	9	10	11
1. BERS–2 Strength Quotient	—										
2. CPRS–R:S Oppositional	−.54***	—									
3. LEC Total	−.36**	.42***	—								
4. Extracurricular Involvement	.23*	−.13	−.12	—							
5. Caregiver Strain Total	−.40***	.17†	.14	.03	—						
6. Family Relationships	.28*	−.26*	−.49***	.09	−.32**	—					
7. Nurturant Caregiving	.42**	−.32**	−.35**	−.01	−.22†	.47***	—				
8. Perceived Social Support	.40**	−.26*	−.45***	−.02	−.30*	.35**	.33**	—			
9. Family Resources	.36**	−.07	−.38***	.22†	−.34**	.36**	.23†	.46***	—		
10. Sense of Community	.23†	.04	−.32**	.15	.13	.17	.21†	.20†	.24*	—	
11. Religious Participation and Connectedness	−.10	.07	−.10	−.14	.19	−.10	.04	−.24*	−.10	.03	—

Note. LEC = Life Events Checklist; BERS–2 = Behavioral and Emotional Rating Scale–2; CPRS-R:S = Conners Parent Rating Scale–Revised: Short Form.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Table 4. *Summary of Regression Analyses: Contextual Variables Associated With Strength Quotient Scores From the Behavioral and Emotional Rating Scale–2*

	Step 1			Step 2			Step 3		
	B	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
Nurturant Caregiving	1.52	0.45	.41**	1.21	0.44	.33**	1.14	0.43	.31*
LEC Total	—	—	—	−0.96	0.38	−.31*	−0.70	0.39	−.22†
FRS Total	—	—	—	—	—	—	6.41	3.12	.25*
Adjusted R^2			.15**			.23***			.27***

Note. LEC = Life Events Checklist; FRS = Family Resource Scale.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Table 5. *Summary of Regression Analyses: Contextual Variables Associated With Oppositional Scores From the Conners Parent Rating Scale–Revised: Short Form*

	Step 1			Step 2			Step 3		
	B	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
Nurturant Caregiving	−0.71	0.28	−.31*	−0.41	0.28	−.18	−0.44	0.28	−.19
LEC Total	—	—	—	0.65	0.24	.34**	0.76	0.25	.40**
FRS Total	—	—	—	—	—	—	2.52	2.03	.16
Adjusted R^2			.08*			.17**			.18**

Note. LEC = Life Events Checklist; FRS = Family Resource Scale.
*$p < .05$. **$p < .01$.

other contextual variables (e.g., adversity exposure) were included in the models. In these analyses, consistent with expectations, nurturant caregiving and family resources related positively to Strength Quotient scores in the final model; although the relationship only approached significance, the negative association between sibling adversity exposure (LEC Total) and the Strength Quotient scores was in the hypothesized direction. In contrast to expectations, nurturant caregiving and family resources did not relate to sibling Oppositional scores in the final regression; however, as expected, adversity exposure related significantly to Oppositional scores.

These analyses were run including social support in Step 3 as well, either in place of or in combination with family resources. Overall, doing so did not enhance understanding of the relationships present. For instance, in the model for the BERS–2 Strength Quotient, social support approached significance when entered in lieu of family resources; however, when entered with family resources, both variables were not significant (likely reflecting the .46 correlation between the two scales). In the regression for the CPRS Oppositional score, perceived social support did not contribute to the model except when entered with the family resources variable (in this model, both were significant).

The exploratory analyses involving caregiver strain to assess its association with sibling's adjustment yielded additional findings of interest. When entered in Step 4 of the model for the

BERS–2 Strength Quotient, the caregiver strain total score was the strongest predictor ($\beta = -.33$, $p < .01$), increasing the adjusted R^2 to .35. Among the other variables in this model, only nurturant caregiving ($\beta = .26$, $p < .05$) remained significant. In structurally similar analyses for the CPRS Oppositional score, the adjusted R^2 increased to .21 and caregiver strain approached significance ($\beta = .23$, $p < .10$), as did the family resource variable ($\beta = .23$, $p < .10$); only the LEC total score was significant ($\beta = .39$, $p < .01$).

Discussion

This study examined family and community contextual variables and their association with the adjustment of siblings of children with SED. It sought to extend the work of Kilmer et al. (2008) and, of relevance, used a more geographically and socioeconomically diverse sample than that prior study. Its most basic findings are not "new"—in fact, the negative linkages between stress exposure and child adjustment and the apparent positive influences of the caregiver–child relationship and broader family resources documented here are quite consistent with prior research in such areas as risk and resilience (e.g., Luthar, 1999; Masten & Coatsworth, 1998). However, these siblings represent an understudied population, and this work further documents their needs and conveys the relevance of not only core proximal influences (e.g., nurturant caregiving) but also elements of their broader contexts as well. That is a crucial contribution, and the findings regarding the potential role of family resources and caregiver strain carry particular weight in light of recent calls for child mental health systems and, more specifically, SOCs, to better attend to the ecological contexts in which children and families function (Cook & Kilmer, 2010a).

The present results highlight the importance of creating opportunities for (or removing obstacles to) mutual assistance and support among families with a child with mental health challenges. Although families facing multiple adversities, including the challenges of raising a child with SED, may experience distress, strain, and disruption in their family systems, many of these same families, given adequate resources, cope and adapt effectively. Finding ways for families to learn from one another, share information, and access needed resources can facilitate their successful coping and contribute to more positive family functioning. In turn, these findings lend support to recommendations (Cook & Kilmer, 2010a; Kilmer et al., in press) that funding streams support plans of care that include such elements as peer-to-peer support or assistance in securing living wage employment or quality housing, rather than limiting funds to address needs that fit strict criteria for medical necessity.

Results indicate that siblings of children with SED (and their families as a whole) experience high levels of stress exposure, suggesting that the sibling and family could benefit from family-focused preventive and/or supportive services addressing the adversities they experience (see, e.g., Kilmer et al., in press). Indeed, the present analyses have clear implications for prevention; that is, although cross-sectional, they highlight the strength of the relationship between adversity experiences and child adjustment. These results suggest that when a family member or a family system is faced with turmoil, distress, or disorder, the hardships experienced by the family, especially the sibling(s), are particularly pronounced if there are limited opportunities for social or material support. They also indicate that even when accounting for this adversity exposure, in some cases, family relationships, family resources, or other elements of community life can contribute to sibling adjustment, and proactive efforts to develop or enhance these factors can benefit the well-being of these at-risk siblings. In turn, although many mental health concerns are associated with adversities outside the reach of traditional services (e.g., neighborhood violence), this work points to the importance of addressing families' contexts and designing interventions that help families access a range of resources and supports—and foster child well-being (Cook & Kilmer, 2010a, 2010b; Farmer & Farmer, 2001). Doing so can reduce the likelihood of needing more intensive and costly services down the line, when difficulties may be more entrenched (Farmer & Farmer, 2001; Kilmer et al., in press).

At the same time, it is important to note that many siblings of children with SED demonstrate positive adjustment, with high levels of behavioral and emotional strengths and low levels of problem behaviors. This is notable because they presumably share risks (as well as supports and protective factors) with the child with SED. However, they also experience the strains and turmoil associated with having such a sibling (Kilmer et al., 2008). Identifying the individual, family, and contextual factors that differentiate their experiences and adjustment trajectories from their siblings with SED could provide substantive guidance for interventions that not only prevent maladjustment but also promote well-being and help children thrive and succeed.

Research has well established the critical—and potentially protective—role of caregivers, as well as a positive, supportive family environment, for children with high levels of adversity exposure (e.g., Masten & Coatsworth, 1998; Wyman et al., 1999). These findings align with that body of work. Warm, nurturant caregiving and caregiver strain were both active variables (family relationships also related to sibling adjustment in bivariate analyses, though this variable was not included in final regression models), underscoring the need for those working in child mental health to assess and work to meet the needs of caregivers and the larger family system.

Findings regarding the roles of some other contextual variables were more mixed. For instance, although extracurricular involvements—thought to have positive socializing effects (Masten & Coatsworth, 1998) and provide a structured means of developing or building on one's competencies—were associated with BERS–2 Strength Quotients, they did not contribute to regressions once other factors (e.g., LEC Total, Family Resources) were included. The influences of those latter experiences and resources appear more far-reaching. Similarly, sense of community and religious participation and connection did not add significantly to regression models. In the case of the latter measure, the issue may be attributable, at least in part, to a lack of sensitivity in this new scale; however, it may also reflect the fact that the study sample represented a more geographically diverse area than initially planned. That is, the measure was developed because the original study plan involved four sites in North Carolina, a state relatively high in religiosity; faith-based participation and connection may not have played as large a role in this more diverse sample. It is also possible that this relationship does not exist as hypothesized. As for sense of community,

although associations were significant or approached significance with several other variables at the bivariate level, other possible influences seemingly had a more direct relationship.

It is important to note that this study has several limitations, including the characteristics of the sample. That is, the relatively small sample limits the generalizability of these findings, affects statistical power, and constrains the selection of analyses for investigating the questions of interest. The sample's voluntary nature also limits generalizability; because this is a sample of convenience, nonrandom factors may have influenced families' decisions to participate. For example, there is no way to determine if parents concerned, distressed, or pleased about the sibling's functioning (or some aspect of his or her adjustment) were more likely to take part. Furthermore, it would be difficult to make the case that this relative small, volunteer sample is representative of families of children with SED. In fact, relative to prior work with such families, including the national evaluation of systems of care (Center for Mental Health Services, 2003, 2004), this sample included fewer families experiencing significant economic hardship. Thus, although they reported very high levels of adversity exposure, they might report fewer poverty-related stressors and be more likely to have access to adequate resources than many families with children with serious mental health challenges. More broadly, it is possible that a larger, more representative sample would demonstrate differences in the nature of the children's functioning, qualities of their family milieu or larger environment, and even the interrelationships among the variables examined.

Moreover, the present work relied on caregiver report—including child reports would add a salient perspective to ratings on the family environment and its relationships, and utilizing data from multiple respondents would enhance the findings' utility. Finally, this study drew on cross-sectional data from the project's baseline data collection. Prospective longitudinal designs are needed to elucidate understanding of the diverse contextual factors that influence these siblings' adjustment trajectories. In that vein, this work points to future directions for this line of research. A next step could examine further the interrelationships among contextual influences (including variables not included in this study) and how they relate to child, caregiver, and family functioning. Subsequent research could also evaluate the degree to which changes in family and community variables over a 6- to 8-month time period are associated with changes in sibling adjustment longitudinally.

Nevertheless, notwithstanding its limitations, this study contributes to the underdeveloped literature on siblings of children with SED. It further documents not only their needs but also possible targets for prevention or intervention strategies that could benefit these siblings and their entire families. Critically, such research needs to be applied to policy to help broaden the focus of mental health systems and expand the range of what is reimbursable (Kilmer et al., in press; Tolan & Dodge, 2005). In that vein, because many families in federally funded SOCs (or, more broadly, receiving public mental health services) are Medicaid-eligible, a logical next step toward actualizing "family-focused" values would be shifting Medicaid rules to better meet the needs of families (Kilmer et al., in press). For instance, rather than having medical necessity drive service eligibility for an identified "patient" (and that individual youngster alone), once a "target" child meets criteria for inclusion, the family as a whole could be viewed as the "patient"; and the system could then focus on the diverse service, support, and resource needs of the child and family (see Kilmer et al., in press, for a detailed discussion of policy implications). Moreover, as argued elsewhere (Kilmer et al., in press), federal agencies could require that applicants for SOC funding specify explicit strategies for identifying the needs of the whole family (e.g., screening siblings) and addressing the family in the plan of care, within the contexts of their mental health system and community at large. Such efforts to cultivate more responsive community systems would yield considerable benefits for these at-risk children and families.

Keywords: siblings; severe emotional disturbance; adjustment to disabilities; parent–child relations; family stress; family support; caregiver strain; sense of community; oppositional behavior

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