Published in final edited form as:

Am J Orthopsychiatry. 2008 January ; 78(1): 1–10. doi:10.1037/0002-9432.78.1.1.

Siblings of Children With Severe Emotional Disturbances:

Risks, Resources, and Adaptation

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Abstract

This study examines risks, resources, and adjustment among siblings of children with severe emotional disturbances (SED) involved in an initiative to develop family centered Systems of Care in North Carolina. These siblings experience many of the same risks as the children who have been diagnosed with SED (i.e., “targets”), but have received relatively little attention from the system or researchers. This first systematic study of these siblings describes an early sample ($n = 56$), compares them to their system-identified brothers and sisters, and explores contextual factors related to sibling resources and adjustment. Findings suggest the siblings, much like the targets: (a) have been exposed to extremely high levels of adversity, and (b) evidence substantial variability in behavioral and emotional strengths and social-emotional adjustment. Although many siblings exhibit significant strengths and positive adjustment, a substantial proportion displays levels of competencies or problem behaviors on par with those targeted to receive services. Factors associated with positive sibling adjustment are consistent with those identified in prior risk and resilience work. Additional systematic study of these children could have implications for service delivery and preventive interventions.

Keywords

siblings; children with severe emotional disturbance; systems of care

This paper describes an effort to explore risks, resources, and adjustment among siblings of children with severe emotional disturbances (SED), identified through federally funded initiatives to develop and implement Systems of Care (SOCs) in North Carolina. The national movement to establish and evaluate SOCs, comprehensive service delivery models for children and families, has garnered considerable attention (Farmer & Farmer, 2001; Hernandez, 2003; Holden & Brannan, 2002; Huang et al., 2005; Pumariega & Winters, 2003). Indeed, significant resources have been devoted to establishing SOCs and studying their efficacy, assessing risks and changes in adjustment for the target children with SED. However, despite the fact that SOCs are based on a philosophy emphasizing services and supports to address the *family's* needs, in practice, siblings have generally received little attention from the system or researchers. For instance, SOC evaluations have not assessed the number, age, and gender of siblings, and how they may differ from those receiving services.

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Siblings of children with SED have been and are exposed to many of the same genetic, family, and individual risk factors as those receiving mental health services. In addition, each has a brother or sister with SED, who often places substantial strain on caregivers and the family system. Nevertheless, little is known about the specific stressors to which the siblings are exposed, their individual and contextual resources, or their adjustment status. To date, virtually no research has assessed how these siblings within SOC are faring or factors that influence their functioning. This study is the first empirical examination of siblings of children served within SOC, as part of a longitudinal project exploring risk and adaptation among the siblings.

Brief Background on Systems of Care

In recent decades, large proportions of children and youth with SED have not received needed services or have received inadequate, inappropriate, uncoordinated, or unnecessarily restrictive services (e.g., Knitzer, 1982; New Freedom Commission on Mental Health, 2003; U.S. Department of Health & Human Services [USDHHS], 1999). These children typically experience difficulties across multiple domains of functioning (e.g., home, peer relationships, school), and successful interventions require the involvement of multiple services and systems to address their needs in such areas as mental health, education, health, child welfare, special education, substance abuse, vocational programming, and juvenile justice (Stroul & Friedman, 1986). To help communities create coordinated care systems addressing the needs of children with SED and their families, the National Institute of Mental Health launched the Child and Adolescent Service System Program in 1984 (Stroul & Friedman, 1986). More recently, the Center for Mental Health Services (CMHS) developed the Comprehensive Community Mental Health Services for Children and Their Families Program, providing funds to states and communities to help develop SOC.

Stroul and Friedman (1986) define a SOC as “a comprehensive spectrum of mental health and other necessary services which are organized into a coordinated network to meet the multiple and changing needs of children and adolescents with severe emotional disturbances and their families” (p. 3). They emphasize that SOC represent “a philosophy about the way in which services should be delivered to children and their families” and that the actual components and configuration may vary across states and communities (1986, p. xxii). According to Stroul and Friedman, SOC must be guided by several core values—they should be (a) *child centered* and *family focused*, with the needs of the child and the family dictating the nature of the services provided; (b) *community based*, such that the locus of services, management, and decision making responsibility rests at the community level, and networks of services are provided in less restrictive environments within, or close to, children’s home communities; and (c) *culturally competent*, or responsive and sensitive to families’ diverse cultural, racial, and ethnic differences, and special needs, ensuring that they are served within their unique contexts.

Why Study These Siblings?

Although SOC are designed to be *family focused*, many almost exclusively address the needs of the identified child. Caregivers may receive some services (e.g., consultation, support), but resources are primarily devoted to targets, with little support or attention for other family members (Cook & Kilmer, 2004). This clearly reflects realities of funding streams for services; however, caregivers have raised concern that other family needs are unaddressed, leading to potential negative consequences for siblings and others in the family (McCammon, Cook, & Kilmer, 2002). With so much attention focused on one child, others may “slip through the cracks” of the system. Parents have also noted variability in their children’s adjustment, questioning why one developed mental health problems while others functioned reasonably well. Clearly these siblings are at elevated risk; they share risks with the child with SED and are also influenced by that child’s impact on the family (e.g., decreased parental attention,

increased family turmoil or distress; Huang et al., 2005; Kilmer & Cook, 2002; McCammon et al., 2002).

Since 1994, a national SOC evaluation (e.g., Holden et al., 2003) has assessed risks and changes (i.e., in clinical and functional outcomes) in the children with SED, but not the siblings. In fact, sibling characteristics (e.g., “sibling institutionalized” and “sibling in foster care”) have been viewed primarily as risks for the enrolled child. Evaluation data illustrate that 16% of the children with SED had a sibling with a prior psychiatric hospitalization, and an ethnographic study conducted as part of that effort indicated that most families had a second child who was experiencing difficulties, suggesting that a notable percentage of these siblings may struggle to cope with their circumstances (CMHS, 1998, 1999). However, little else is known about these other youth in the family because no systematic study has examined sibling needs, resources, or adaptation, despite the emphasis on addressing family needs in SOC (Kilmer & Cook, 2002).

Considerable research has examined the adaptation of siblings of other children with special needs, such as chronic disabilities or medical conditions (e.g., cerebral palsy, mental retardation, cancer; e.g., Sharpe & Rossiter, 2002; Summers, White, & Summers, 1994). This literature suggests siblings of such children may experience a range of negative consequences, including anxiety or depressive symptoms (Sharpe & Rossiter, 2002), embarrassment, fear, neglect, resentment, guilt, conflict with peers (e.g., Lobato, Kao, & Plante, 2005), and, globally, increased emotional problems (Hannah & Midlarsky, 1985; Lobato, 1983; Summers et al., 1994). Some studies have reported that they may also evidence greater competencies and strengths (Grossman, 1972), such as greater compassion, helpfulness, maturity, and empathy (Hannah & Midlarsky, 1985; Labay & Walco, 2004; Sargent et al., 1995).

Summers et al.’s (1994) review concluded that siblings of children with disability or chronic illness have greater tendencies toward anxiety, depressive symptoms, irritability, withdrawal, and aggression *and* increased prosocial behaviors. Given that many siblings are expected to assist with caring for their brother or sister with special needs (Hannah & Midlarsky, 1985), negative sequelae among siblings appear more likely when the special needs child requires intense, daily assistance (Sharpe & Rossiter, 2002); the family lacks financial resources (Grossman, 1972; Hannah & Midlarsky, 1985); the caregiver is distressed (Fisman, Wolf, Ellison, & Freeman, 2000); older sisters assume caretaker roles (Lobato, 1983; Stoneman, Brody, Davis, & Crapps, 1987); or the family is small (Hannah & Midlarsky, 1985). These factors often interact, with low socioeconomic status (SES) creating greater burden for older sisters (Grossman, 1972). The impact of a child’s condition on sibling functioning may be influenced by characteristics of the sibling, the sibling dyad (Lobato et al., 2005), the family, and the social context. More positive family attitudes and increased closeness subsequent to the diagnosis (Sargent et al., 1995), family emphasis on independence and personal growth (Dyson, Edgar, & Crnic, 1989), and access to supportive services, such as respite care (Friesen & Koroloff, 1990), are associated with positive sibling outcomes. A close family environment, adequate financial resources, and services to help families meet the needs of *all* members seem particularly important (Friesen & Koroloff, 1990; Hannah & Midlarsky, 1985; Lobato, 1983).

Siblings of children with SED are likely to vary in their adjustment. Resilience research suggests that a proportion will evidence positive adaptation in spite of their challenging circumstances (Luthar, Cicchetti, & Becker, 2000); however, in light of the risks they face, maladjustment among others would not be surprising. Indeed, SED may have a greater negative impact on families and siblings than other disabilities or medical conditions, since the majority of families involved in SOC live under conditions of poverty (CMHS, 1999, 2003), and low

SES appears to be a risk factor for siblings of children with disabilities (e.g., Grossman, 1972).

A recent Surgeon General's Report (USDHHS, 1999) urged professionals to transcend a traditional "focus on the 'identified client' to embrace the community, cultural, and family context" (p.186). This study is consistent with that charge, examining sibling stress exposure and adjustment and considering the roles of the siblings' family and community contexts. This paper summarizes early results from the first systematic examination of siblings of children with SED involved in SOC. The present study (a) describes a sample of siblings, detailing their exposure to adversity and available resources and strengths; (b) compares siblings and target children on adversity, strengths, and adjustment; and (c) identifies contextual factors related to sibling resources and adjustment. Optimally, study findings can help educate policymakers, service providers, advocates, and caregivers about how to meet the needs of these children and families.

Method

Participant Recruitment and Description

At the time of this study, roughly 700 children and their families were served by SOC at multiple sites in NC; this study's participants were recruited from two rural sites. Eligible families included a "target" child served through the SOC and at least one sibling (defined as a youth living in the household with the "target" for at least 6 of the 12 months prior to contact; nearly all siblings were blood relatives) between 5 and 18 years of age who was not receiving SOC services. Study siblings must never have been classified SED nor enrolled as a SOC target child. In families with more than one SOC-identified child, the youth first identified as SED and enrolled in the SOC was included as the "target."

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. Interested caregivers contacted project staff who explained the study and obtained informed consent. 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. However, *every* caregiver who contacted the team and received complete information about the study chose to take part, and no family dropped out of the project.

Participants had the option of completing study measures over the phone, in person, or by mail. Families were reimbursed, and caregivers from 34 families provided information on 56 siblings. The majority of study families ($n = 30$) were also involved in the SOC national evaluation, and the consent form gave permission for sites to share selected data from that effort.

The sibling sample was 62.5% male; and they fell into the following racial/ethnic categories: 46% African American, 38% Caucasian, 11% Biracial, and 2% Other. Their average age was 10.35 years ($SD = 3.25$; range 5-16), and nearly two thirds (63%) were younger than the target SOC children. In this predominantly poor sample, 48% of the siblings live in a home with an annual household income less than \$15,000, and 66% live in families with an income of less than \$25,000; 73% of the families received public assistance (50% receive food stamps, 34% SSI, 11% AFDC, 7% Social Security, 4% SSDI, and 6% received other forms of assistance, such as Veteran's benefits). Caregivers reported an average of 5.30 people ($SD = 1.77$) lived in their homes, with an average of 3.58 ($SD = 1.61$) children. They also reported an average of 1.65 ($SD = .92$) age-eligible siblings in their families, with the majority ($n = 19$ families; 56%) reporting one sibling (i.e., one identified, target child and one sibling), 29% ($n = 10$)

reporting two, 12% ($n = 4$) reporting three, and 3% ($n = 1$) reporting five siblings. Those reporting more people in their homes also reported more financial problems and strain (few clothes, little food, crowding), $r = .35$, $p < .01$.

The 34 SOC targets were 71% male, with an average age of 11.48 ($SD = 2.36$; range 6-16) years. Their racial/ethnic background was similar to their siblings. Their most common primary Axis I diagnoses (available for 30 of 34 children) were ADHD (53.3%), Oppositional Defiant Disorder (ODD; 23.3%), Conduct/Disruptive Behavior Disorder (10.0%), and Adjustment Disorder with Mixed Disturbance of Emotions and Conduct (10.0%). Approximately 73% of these children carried a secondary diagnosis, most often ADHD (31.8% of those with secondary diagnosis), ODD (22.7%), and Depressive or Mood Disorder Not Otherwise Specified (18.1%). Caregivers reported that about one third of targets had a chronic medical concern, (e.g., asthma, seizure disorders, sickle cell anemia). The current sample roughly approximated those served nationally in demographics and presentation, with the exception of its largely minority make-up, as opposed to the national sample's 60.9% Caucasian composition (CMHS, 2003).

Measures

Indicators of Sibling Resources and Adjustment—Caregivers completed the following measures:

Behavioral and Emotional Rating Scale (BERS; Epstein & Sharma, 1998): On this 52-item, strengths-based measure, caregivers used a 4-point metric (0 = *not at all like* to 3 = *very much like*) to rate the presence of behavioral and emotional strengths across: *Interpersonal Strength, Family Involvement, Intrapersonal Strength, School Functioning, and Affective Strength*. Scores were converted into a standardized overall Strength Quotient. A widely used SOC evaluation measure, its validation and standardization procedures have been detailed (Epstein, Ryser, & Pearson, 2002). Alphas = .84 - .98.

Parent-Child Rating Scale, Version 4.0 (P-CRS): This 39-item measure uses a 5-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*) to assess: *Negative Peer Social Skills, Positive Peer Social Skills, Assertive Social Skills, Task Orientation, Shy-Anxious/Withdrawn, and Frustration Tolerance*. Alphas = .72 - .85. Though norms are not available, this measure has been used frequently as an indicator of adjustment and as a means of comparing groups (e.g., Cowen et al., 1996; Hoyt-Meyers et al., 1995). With item recoding, higher subscale and total scores indicate more positive adjustment.

Selected Contextual Characteristics—This study also obtained data regarding contextual characteristics expected to relate to sibling adjustment. These qualities of their families and their wider social contexts have been found to be predictors of outcomes and may be amenable to intervention (Luthar et al., 2000).

Demographics: Caregivers reported family size, household composition, ethnicity, parents' education level, family income, occupation, and extended caregiver(s)-sibling separations.

Life Events Checklist (LEC): Caregivers check stressful life events experienced by the sibling and family in the child's lifetime, resulting in a total score and five factor scores: *Family Turmoil, Poverty, Family Separation/Social Services, Illness/Death, and Unsafe/Violent Neighborhood* (Kilmer, Cowen, Wyman, Work, & Magnus, 1998).

Caregiver Strain (CSI; Robinson, 1983): This 13-item scale assesses common caregiving stressors (e.g., physical health, emotional symptoms, social activities), and is well suited for

use in families with children with special needs (Luescher, Dede, Gitten, Fennell, & Maria, 1999). Alpha = .86.

Family Relationships: This 27-item Family Environment Scale (FES) dimension (Moos & Moos, 1994) includes *Cohesion*, *Expressiveness*, and *Conflict* subscales. Alphas = .69-.78.

Sibling-Target Child Relationship: Developed by the authors, this 9-item scale (1 = *not at all true* to 5 = *very true*) assesses the relationship between the sibling and target child. It includes subscales comprised of five positive (e.g., “[sibling] and my [target] have a close relationship”) and four negative (“[sibling] often seems troubled by my [target’s] behavior”) items. Alphas = .83 and .84, respectively, and .85 for the total score. Higher scores indicate more positive relationships.

Target Child’s Functioning: Caregiver-completed BERS and P-CRS (see above). BERS data were specifically collected for this study for 20 of the 34 targets. BERS data from the national evaluation were available for an additional 11 youth, and those data (from the data point closest to when his or her sibling’s data were collected) were used for 11 targets to augment the sample, resulting in an $n = 31$ for target BERS. For 16 of the target youth, BERS data were available from both the national evaluation and this study. A correlation of .78 was found between the two BERS Strength Quotients for those youth, supporting the use of the national evaluation data as a reasonable substitute for the BERS data that could not be collected. Chi-squares tested the distribution of Strength Quotients across normative adjustment categories to confirm that inclusion of the national evaluation data did not meaningfully alter the distribution of scores for the target youth.

Extracurricular Activities: Eight items assessing children’s involvements (e.g., athletics, religious groups) in the last year, on a 5-point scale (1 = *never involved*; 5 = *very involved*).

Services Needed/Received: Caregivers report whether they have needed/received seven services (e.g., counseling, respite), and whether the sibling and family have needed/received 14 services (e.g., special education, out of home placement), yielding a count of met versus unmet needs.

Results

Three sets of analyses are described below: (a) descriptive analysis of the sibling sample; (b) sibling versus target comparisons; and (c) an exploration of contextual factors that may be related to resources/adjustment in this sibling sample. Because some study families included more than one sibling, a “primary sibling” was identified for each family and used for tests assuming independent observations in between-subjects comparisons. The primary sibling was identified as the one closest in age to the target child, presumably reflecting the highest degree of shared environment; if multiple siblings were equally close in age to the target ($n = 4$), the younger of the two siblings was selected. Descriptions below specify the use of primary siblings versus the total sibling sample.

Description of Sibling Sample

Risks: Nature and Level of Stress Exposure—On the LEC, caregivers endorsed an average of 10.98 stressors experienced by the total sibling sample ($SD = 6.03$), including items from each of the five LEC factors, suggesting that they were highly stressed. The largest factor, *Family Turmoil*, captured the most endorsed items ($M = 4.59$, $SD = 2.92$), followed by *Poverty* ($M = 1.89$, $SD = 1.56$), *Family Illness/Injury* ($M = 1.64$, $SD = 1.31$), *Unsafe/Violent Neighborhood* ($M = 1.34$, $SD = 1.39$), and *Family Separation/Social Services* ($M = .95$, $SD = .$

96). Several specific stressors were experienced by at least half of the sibling sample: parent lost job/unemployed (61%); family members have serious arguments (58%); child upset by family arguments (57%); serious emotional problems in family (55%); family member away from home a lot (50%); and alcohol/drug problem in family (50%). No significant gender differences were detected among the siblings in LEC total or factor scores.

Resources and Adaptation—The norm-referenced BERS Strength Quotients and standardized subscale scores can be classified into one of seven levels, ranging from very poor to very superior. Based on their Strength Quotients, more than half of the siblings in the total sample (52.7%) have above-average to very superior levels of personal strengths and, in turn, a very low to extremely low probability of having an emotional or behavioral disorder (Epstein & Sharma, 1998). On the other hand, 16.4% of siblings had Strength Quotients in the below average to very poor categories, reflecting borderline or lower levels of personal strengths and a high to extremely high probability of being identified as having an emotional or behavioral disorder (Epstein & Sharma, 1998). In the normative, nondiagnosed sample used by Epstein and Sharma (1998), roughly one-fourth obtained above-average or higher Strength Quotients, and nearly one-fourth fell in the below average and lower categories.

As a group, across the five BERS standardized scale scores, siblings scored highest on *Affective Strength* ($M = 12.96$, $SD = 3.76$; 84th percentile of normative sample), with 69% of siblings exhibiting above average to very superior scores, and only 11% below average to very poor. In contrast, they evidenced the fewest competencies across the *Interpersonal Strength* ($M = 10.45$, $SD = 3.55$; 50th percentile; only 33% rated as above average to very superior, 26% below average to very poor) and *School Functioning* ($M = 10.40$, $SD = 3.02$; 50th percentile; only 33% rated as above average to very superior, 20% below average to very poor) subscales.

Among primary siblings, there were no significant differences in BERS Strength Quotient scores between girls ($M = 106.00$, $SD = 19.31$) and boys ($M = 113.74$, $SD = 16.63$), nor gender differences on the BERS standardized scale scores. On the P-CRS, although the difference was not significant (likely reflecting low power due to the sample size), girls exhibited higher P-CRS total scores ($M = 152.20$, $SD = 28.35$) than boys ($M = 135.57$, $SD = 28.81$), suggesting better adjustment among girls [$t(29) = 1.51$, $p = .14$]. Given this sizable absolute difference in total score and the exploratory nature of the study, univariate ANOVAs assessed potential differences in P-CRS subscales, even though the MANOVA on the subscales was not significant [Pillai's Trace MANOVA $F(6, 24) = 1.66$, $p = .17$]. These ANOVA analyses detected significant differences favoring girls on one of six P-CRS subscales [*Task Orientation*: Girls ($M = 24.60$; $SD = 5.36$) > Boys ($M = 18.81$; $SD = 6.13$), $F(1, 29) = 6.52$, $p = .016$]; higher subscale scores indicate more positive functioning (or fewer symptoms).

In the total sibling sample, age was negatively correlated with BERS Strength Quotient scores ($r = -.34$, $p < .05$), but did not relate to P-CRS total scores ($r = -.06$, ns). Sample size precludes examination of differential adjustment pathways for siblings who are older versus younger than targets; however, exploratory analysis investigated the relationship between the age of primary siblings and targets. The absolute age difference (in years) between these siblings and identified target children did not relate significantly to either the BERS Strength Quotient ($r = -.11$) or P-CRS Total Scores ($r = .11$). Among primary siblings (a subsample skewed younger by the decision rule for identifying primary siblings), there were no differences in P-CRS Total scores between siblings older than the target child with SED ($M = 138.88$; $SD = 35.01$; $n = 8$) and those younger than the targets ($M = 138.05$; $SD = 27.69$; $n = 20$). Primary siblings younger than the target, though, evidenced significantly higher BERS Strength Quotients ($M = 114.95$; $SD = 15.03$; $n = 22$) than those older than the target ($M = 98.44$; $SD = 20.43$; $n = 9$), $t(29) = 2.50$, $p < .05$.

Sibling Versus Target SOC Child Comparisons

Stress Exposure—Caregivers reported a greater total number of LEC stressors for targets ($M = 12.70$, $SD = 7.02$) than primary siblings ($M = 11.50$, $SD = 6.31$), but the difference was not significant. An analysis of covariance, controlling for the higher average age of targets, was also not significant. MANOVA analysis found no difference between siblings and targets on LEC factor scores.

Resources and Adaptation—As noted above, 52.7% of siblings in the total sample have Strength Quotient scores in the above-average to very superior levels. Not surprisingly, fewer (38.7%) target children had scores in that range. Siblings and target youth had approximately the same percentage of Strength Quotients in the below average to very poor categories (16.4% and 16.1%, respectively). Since BERS Strength Quotients and Subscale Standard Scores are based on different norms for children with emotional or behavioral disorders and for those not identified as such, direct comparisons across groups were not made using those scores. Instead, raw scores were used to directly compare primary siblings and SOC target children on the BERS. As shown in Table 1, these siblings evidenced higher scores than targets on the BERS Total Score and all five subscales. Similarly, on the P-CRS (see Table 1), siblings exceeded targets on the P-CRS total score and five of six subscales (coded so that higher scores reflect better adjustment).

To better examine the relative distribution of scores for siblings and targets, the BERS Total Scores and P-CRS Total Scores were each divided into tertiles based on the total pooled sample of all eligible siblings (i.e., the total sibling sample) and target children, and each child was placed into low, middle, and upper tertile groups. These scores were then graphed to illustrate the distribution of scores by siblings and targets (Figures 1 and 2). As shown in the figures, the pattern of scores is consistent, with siblings evidencing more strengths and more positive adjustment ratings than targets (i.e., target children largely fall in the bottom third, siblings in the top third of the distribution). However, the figures also show that the proportion of the sibling sample falling in the bottom tertile on these measures ranged from 14.5% on the BERS to 18% on the P-CRS.

When comparing siblings and targets in the aggregate, it is unclear whether those siblings whose scores are similar to the target children's are low scoring in an absolute sense (perhaps reflecting cross-family differences or variability across caregivers in completing the measures) or if they merely tend to be rated as poorly or worse than their target siblings within the same home. To assess these possibilities, siblings were compared to *their own* target brother or sister on the P-CRS and BERS total and subscale scores. Comparisons within families indicated that 21.5% of siblings received raw BERS totals equal to or lower than their target brother or sister and, for example, 31.3% had scores equal to or less than their target brother or sister on *School Functioning*, 29.4% on *Family Involvement*, and 27.4% on *Affective Strength*. Similarly, 18% of siblings received equal or lower P-CRS total scores, with 38% rated equivalently or worse on *Assertive Social Skills*, and 42% equal or lower on the *Shy-Anxious-Withdrawn* subscale (higher scores suggest more positive functioning). These data suggest that substantial numbers of siblings exhibit difficulties similar to those experienced by the children identified with SED and receiving services.

Contextual Factors Related to Sibling Resources and Adjustment—Correlational analyses explored relationships between contextual factors (e.g., family relationships, adversity exposure, functioning of child with SED) and sibling resources and adjustment in the total sibling sample. Given the present limited sample size, only the relationships between BERS Strength Quotients and P-CRS total scores (the study's adjustment indicators) with contextual factors were examined. Even though the measures correlated at $r = .66$ ($p < .001$)

in this sample, because of conceptual and psychometric differences (e.g., the P-CRS assesses problem behaviors as well as competencies, the BERS is strength-focused; the BERS is well-standardized and has norms, the P-CRS lacks norms but can be used for relative comparisons), they were analyzed separately.

As displayed in Table 2, sibling adjustment, as assessed by both the BERS Strength Quotient and P-CRS total score, related negatively to identified needs for services inside and outside of school, services received outside of school, and stressors reflecting family separation and lack of neighborhood safety. Both adjustment indicators related positively to the sibling-target relationship and family (FES) relationships. In addition, sibling P-CRS total scores (higher scores indicate more positive functioning) also correlated negatively with family conflict, overall stress exposure, and stressors related to family turmoil and poverty, and positively with the target child's adjustment (P-CRS Total and multiple subscales). No other scale or variable (i.e., number of children/people in the home, sibling extracurricular involvements, caregiver strain, family income, parental education levels, sibling race/ethnicity, early extended separation from caregiver) related significantly to sibling adjustment.

To determine which study variable(s) most sensitively relate to sibling Strength Quotient scores, a stepwise regression was run, with Strength Quotient as the dependent variable and only those with significant bivariate correlations at a strict $p \leq .01$ level included as independent variables. The services needed/received variables were excluded from these predictor analyses on conceptual grounds, since they can perhaps more accurately be viewed as outcome indicators, rather than predictors. The stepwise approach was selected due to the exploratory nature of these analyses and because it can be viewed as model-building rather than model testing (Tabachnick & Fidell, 2001). The sibling-target child relationship positive score was the only one to enter into the regression equation as a significant predictor, [(Standardized β Coefficient = .458, $F(1, 50) = 13.26$, $p \leq .001$], accounting for 21% of the variance in Strength Quotient scores. A similar approach was used with the P-CRS. In that regression, the sibling-target child relationship total score entered in step one [(Standardized β Coefficient = .473, $R^2 = .224$, $F(1, 45) = 12.96$, $p \leq .001$], and the FES Relationship Total score entered the model in step two [sibling-target relationship Standardized β Coefficient = .350, FES Relationship Total Standardized β Coefficient = .296, $\Delta R^2 = .072$, $\Delta F(1, 44) = 4.52$, $p \leq .05$]. These variables were the only two to enter the equation as significant predictors, comprising the best combination of sensitive independent variables and accounting for 29.6% of the variance in P-CRS scores.

Discussion

This study, the first systematic examination of the siblings of children with SED served via SOC, provides preliminary evidence that: (a) the siblings have experienced significant adversity—they are an extremely highly stressed sample; (b) although target children are generally showing poorer adjustment than the siblings, as would be expected, there is considerable variability in sibling adjustment; and (c) factors associated with positive adjustment among the siblings accord well with findings from the broader risk and resilience literature (see Luthar, 2003). Although sample size limits the generalizability of findings, these results yield data of relevance to providers, parents, and policymakers.

Stress Exposure

Although national evaluation findings suggest a high level of stress exposure for target children and families (CMHS, 2003), the LEC used here assessed a wider range of risks and stressors. Overall, caregivers report *very* high levels of risk for their identified children, the siblings, and their families as a whole. Several resilience studies (Werner & Smith, 1992; Wyman et al., 1999) have used exposure to four or more stressors as a criterion for “highly stressed” - on

average, the siblings in this study have experienced nearly 11 of the life events on the LEC. As a point of comparison, the highly stressed samples identified in the Rochester Child Resilience Project, a large-scale, longitudinal study of resilience among urban children, had experienced eight to 10 of the items on the same LEC measure (Cowen, Work, & Wyman, 1997).

The stress exposure findings underscore the health and mental health implications of work assessing the needs, strengths, and functioning of the *entire* family, including siblings. Although many of the siblings do not currently evidence problems in adjustment, the significant levels of risk experienced by these children implies that professionals and the mental health system at-large should be attentive to their needs.

Exposure to multiple, chronic stressors or risk conditions is thought to increase the probability of maladjustment substantially as children and youth move along their developmental trajectories (Luthar & Cicchetti, 2000; Rutter, 1979). Yet, children vary considerably in their responses to stress, with some adapting well despite exposure to significant adversity (e.g., Cowen, 1994; Wyman, Sandler, Wolchik, & Nelson, 2000). Whereas the system typically requires evidence of a diagnosable disorder to access services, a broader approach integrating treatment, early intervention, prevention, and wellness promotion is warranted (see Tolan & Dodge, 2005). The finding that the siblings in this sample are largely younger than their system-identified brothers and sisters also has important implications for prevention in SOC, since they may be targeted for early intervention before adjustment difficulties become more established.

Sibling Resources and Adjustment

Not unexpectedly, roughly half of the siblings have above-average levels of personal strengths and a very low probability of SED; however, since one in six siblings had BERS scores associated with a high to extremely high probability of being identified with an emotional or behavioral disorder, providers have clear reason to assess the needs of siblings. Despite the fact that all of these children might be judged to be functioning relatively better than the children with SED (since none of them had been identified by the system), the tertile analyses showed that a sizable number of siblings evidences higher levels of maladjustment/problem behaviors (and fewer competencies) than many targets. Even within families, a significant minority of siblings received scores equal to or worse than their target brothers and sisters on the study's key adjustment measures. While this pattern may be partly attributable to the benefits of treatments received by target SOC children, it reinforces the critical importance of adopting a plan for services that seeks to meet the needs of the *entire* family, including the siblings.

The lack of gender differences among the siblings contrasts with results of prior studies showing that female siblings of children with physical (Hannah & Midlarsky, 1985; Summers et al., 1994) and emotional (Aguilar, O'Brien, August, Aoun, & Hektner, 2001) special needs tended to be more adversely affected than males. Perhaps female siblings are faring relatively more positively in this sample than those studied in prior work, because, unlike the sisters of other children with special needs, they may be less likely to be asked to fill caregiving responsibilities. However, in a study of children evidencing aggressive and antisocial problem behaviors and their siblings, Aguilar et al. (2001) found that the younger sisters of male target children exhibited higher levels of multiple negative behaviors, including academic and behavior problems, associations with "deviant" peers, smoking, drug use, and arrest records. Potential gender differences, including possible age by gender interactions, warrant additional study.

The negative correlation between BERS Strength Quotient scores and age, indicating that the older siblings in the sample tended to evidence fewer personal resources, and the finding that

siblings who were younger than the targets were rated more highly on the BERS than siblings who were older than the targets, have important implications for preventive interventions. It is not clear if these findings reflect the impact of growing up in a highly stressed family environment (including a sibling with SED) without being identified for services, or the influence of older youths' greater cognitive awareness and understanding of the difficulties experienced by their brother or sister with SED, as well as that youth's impact on the family. In light of the present sample size, these results must be viewed with caution, but the relevance of such developmental issues, particularly for preventive intervention strategies, could be the focus of subsequent studies with larger samples. For example, future research could assess the degree to which siblings at different ages and developmental stages respond differently to the challenge of having a brother or sister with SED, as well as the degree to which the nature of the age differential (e.g., whether the child with SED is older or younger than the sibling, the absolute age difference between the youth) meaningfully affects sibling adaptation.

Contextual Factors Related to Sibling Resources and Adjustment

Although results identified a number of aspects of the family milieu (e.g., sibling-target child relationship, exposure to adversity, qualities of the family environment) that appear to be associated with sibling resources and adjustment, because of the small sample size, these early results should be viewed with caution. Nonetheless, the factors identified are consistent with variables found previously to distinguish among children evidencing different adjustment. For example, it is not surprising that familial relationships and cohesion and the quality of the sibling-target child relationship are solid correlates of sibling adjustment, given that family relational variables (e.g., a warm, supportive family environment; a stable, nurturant home; positive support networks) have been consistently found to facilitate positive adaptation under conditions of adversity in resilience research (e.g., Luthar et al., 2000; Masten & Coatsworth, 1998; Werner & Smith, 1992; Wyman et al., 2000). In addition, Pike and colleagues (2005) noted that parental reports of positive sibling relationships were particularly associated with children's adjustment. It is notable that only minimal relationships (i.e., r s in the .2-.3 range involving the P-CRS) were found between measures of target child functioning (i.e., BERS, P-CRS) and sibling adjustment. In larger samples, with greater statistical power, possible links between the target child's difficulties and sibling adjustment will be of continued interest.

Study Limitations, Contributions, and Future Directions

The study's relatively small sample affects power and, perhaps more importantly, necessitates that the findings be interpreted with caution. Furthermore, the sample's voluntary nature limits generalizability—it is possible nonrandom factors may have influenced families' decisions to seek information about the study or participate. Also, because the sample largely reflects rural, multiethnic, highly stressed families, its findings cannot be generalized to other groups without qualification. In addition, all of the measures rely on caregiver report and do not include a number of traditional risk and resilience constructs, including those reflecting individual attributes of the children (e.g., temperament), qualities of their families (e.g., warm, consistent parenting), and characteristics of their extrafamilial context or wider social environment (e.g., informal social supports; Luthar et al., 2000; Masten & Coatsworth, 1998). Future work should include teacher reports and numerous other child, family, and contextual variables, which will augment these results and improve understanding of the children's functioning, as well as factors and conditions that may enhance or erode sibling adaptation over time. Child test or self-report data (e.g., sibling intellectual functioning, perceived competence) would also permit investigation of the degree to which other child characteristics and contextual factors interact to affect siblings in their transactions with their environments.

Notwithstanding these limitations, this work provides the first detailed examination of siblings of children with SED served by SOC. This project was stimulated by community needs,

evolving from parental questions, as well as the concerns of providers, SOC personnel, and state officials. Study findings underscore that (a) these siblings have been exposed to significant risk, and (b) the siblings evidence substantial variability in resources and adaptation, with many exhibiting levels of competencies or problem behaviors on par with the SOC-identified children. In the context of SOC designed to meet the entire family's needs, findings from such work can have implications for education, prevention, training, and practice (Kilmer & Cook, 2002).

This research suggests that more thorough assessment of the strengths and difficulties of other children in the household can help professionals better understand and meet the needs of the families with whom they work, thus improving family centered service delivery (Cook & Tedeschi, 2007; McCammon et al., 2002). Furthermore, these findings can be used by those advocating on behalf of the children and families served by SOC (Kilmer & Cook, 2002) to extend the reach of service delivery systems beyond children with the most fully developed and severe problems, allowing those evidencing signs of risk access to effective preventive interventions (Farmer & Farmer, 2001; Tolan & Dodge, 2005). Clearly, given the extensive national resources (\$1.06 billion allocated as of 2006) used to develop and foster SOC for children with SED and their families, this work has significant policy implications for these national SOC initiatives, suggesting the need to ensure that resources are allocated to support not only the target children, but also the other children in the families (see Luthar & Cicchetti, 2000, for a discussion of policy implications of risk and resilience research).

The present study demonstrates the merit of studying the siblings of children served by SOC and represents early pilot findings from a multisite, short-term longitudinal effort. The project has subsequently been expanded to additional sites and is now assessing additional variables, including the nature and quality of the caregiver-child relationship, siblings' early development, caregiver resources, extrafamilial variables, and other factors that may influence sibling functioning and differentiate those siblings evidencing positive adjustment versus maladaptation. It is expected that this work can provide knowledge to guide and improve preventive interventions for at-risk children, youth, and families (Cowen, 1994, 2000; Masten & Powell, 2003), informing individual, family, and community-level efforts to promote healthy adaptation (Cowen, 2000).

Acknowledgments

This research and preparation of this article were supported by grant funds provided by the University of North Carolina at Charlotte, Oak Ridge Associated Universities, Pathways Mental Health, and the National Institute of Mental Health (Award 1R03MH065596-01A2), for which the authors express their sincere gratitude. Our thanks also to Bethany Cockburn, Lori Thurber, Kim Davis, Andy Smitley, Kerri Eaker, Bonnie Koelle, and Erin Spelman for their significant contributions to the study. Special thanks to the families in Cleveland County and the Sandhills region for their input and participation; without them, the present research would not have been possible.

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Figure 1.

Distribution of Sibling and Target Raw Behavioral and Emotional Rating Scale (BERS) Total Scores: Pooled sample divided into tertiles [†]

[†] Higher scores (i.e., 3rd tertile) indicate higher levels of personal strengths and resources.

Figure 2.
Distribution of Sibling and Target Parent-Child Rating Scale (P-CRS) Total Scores: Pooled sample divided into tertiles [†]
[†] Higher scores (i.e., 3rd tertile) indicate more positive functioning.

Table 1
Factor Score Comparisons of Target SOC Children and Siblings: Behavioral and Emotional Rating Scale (BERS) and Parent-Child Rating Scale (P-CRS) Subscales

BERS subscales		Targets (<i>n</i> = 31)		Siblings (<i>n</i> = 34)	
Factor		M	SD	M	F
Pillai's Trace MANOVA $F(5, 59) = 6.44^b$					
Interpersonal strength		17.48 [†]	8.60	29.65	27.53 ^b S > T
Family involvement		16.87	6.29	22.68	15.11 ^b S > T
Intrapersonal strength		18.13	6.79	25.56	22.17 ^b S > T
School functioning		13.32	6.42	19.35	15.97 ^b S > T
Affective strength		12.84	4.04	17.03	17.00 ^b S > T
BERS total ^{††}		78.65	27.36	114.26	28.76 ^b S > T
P-CRS subscales:					
		Targets (<i>n</i> = 30)		Siblings (<i>n</i> = 31)	
Factor		M	SD	M	F
Pillai's Trace MANOVA $F(6, 54) = 5.09^b$					
Negative peer social skills		17.47 [†]	5.58	24.06	20.77 ^b S > T
Assertive social skills		18.10	5.70	22.00	7.34 ^a S > T
Task orientation		14.20	6.39	20.68	15.59 ^b S > T
Shy-anxious-withdrawn		17.33	6.10	19.10	1.29
Positive peer social skills		19.83	6.15	26.23	24.68 ^b S > T
Frustration tolerance		7.80	4.06	11.45	10.57 ^a S > T
P-CRS total ^{††}		108.83	27.24	140.94	19.63 ^b S > T

[†] Higher scores indicate more positive ratings on a given factor.

^{††} Univariate analysis of variance conducted.

^a $p \leq .01$

$p \leq .001$

Three targets and 6 siblings in this sample were administered a newer version of the P-CRS near the end of the data collection for this study. Given the differences between the two versions, their data are not included here.

Table 2
Contextual Factors Associated With Sibling Behavioral and Emotional Rating Scale (BERS) Strength Quotient and Parent-Child Rating Scale (P-CRS) Total Scores: Significant Zero-Order Correlates[†]

Variable	<i>r</i> with BERS Strength Quotient	<i>r</i> with P-CRS Total Score
Services needed outside of school	-.548 **	-.678 **
Sibling-target relationship (Positive)	.458 **	.399 **
Sibling-target child relationship total	.427 **	.473 **
Family environment scale cohesion scale	.375 **	.400 **
Family environment scale relationship dimension total score	.369 **	.441 **
Services needed in school	-.328 *	-.545 **
Services received outside of school	-.319 *	-.451 **
LEC family separation	-.307 *	-.310 *
LEC unsafe/violent neighborhood	-.285 *	-.405 **
Sibling-target relationship (negative-recoded)	.280 *	.413 **
LEC total score		-.381 **
Family environment scale conflict scale		-.349 *
Target task orientation (P-CRS)		.328 *
LEC family turmoil		-.323 *
Target frustration tolerance (P-CRS)		.315 *
LEC poverty		-.308 *
Target negative peer social skills (P-CRS)		.298 *
Target P-CRS total score		.292 *

[†] Significant zero-order correlates identified via bivariate analysis with Strength Quotient score and P-CRS Total score ($n = 51-55$ for BERS, 47-50 for P-CRS).

* $p \leq .05$

** $p \leq .01$

LEC = Life Events Checklist