

*Prevention  
& Early Intervention*

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*Chapter 5*

## Chapter 5: Prevention & Early Intervention

# *The Measurement of Within-Child Protective Factors in Preschool Children*

## **Introduction**

The 1980s witnessed a burgeoning interest in the delineation and investigation of “protective factors” in children which has persisted in the current decade. Protective factors are individual and environmental characteristics that are thought to moderate or buffer the negative effects of stress and result in more positive behavioral and psychological outcomes in at-risk children than would have been possible in their absence (Masten & Garmezy, 1985). Children whose behavior reflects these protective factors tend to have positive outcomes despite stress and are often characterized as “resilient.” Children lacking, or with underdeveloped protective factors, are more likely to develop emotional and behavioral problems under similar risk conditions and are described as “vulnerable.”

The interest in protective factors and their role in preventing or diminishing emotional and behavioral disorders in children arose, in part, from findings that child and adolescent mental health services were: (1) very costly, (2) of only assumed efficacy, and (3) disproportionately allocated to a small percentage of youth with severe disorders (e.g., Knitzer, 1982).

Interventions premised on strengthening protective factors in young children have shown promise in reducing the subsequent occurrence of severe emotional and behavioral disorders. Typical interventions include providing preschoolers with the opportunity to establish relationships with supportive, caring adults who serve as positive role models or mentors, developing parent training programs that offer family-centered support and strategies to promote resilience, and teaching caregivers to encourage the development of independence, self-esteem and self-efficacy in preschoolers.

**Paul A. LeBuffe, M.A.**  
Assistant Director  
Institute of Clinical Training  
and Research  
The Devereux Foundation  
444 Devereux Drive  
P.O. Box 638  
Villanova, PA 19085  
610/542-3090 Fax: 610/542-3132  
E-mail: [PlleBuffe@Devereux.org](mailto:PlleBuffe@Devereux.org)

The development, refinement and replication of effective interventions for enhancing protective factors, as well as the expansion of the knowledge base related to the interaction of risk and resiliency in developmental psychopathology, has been limited by the lack of well-developed, empirically sound and widely available measures of protective factors in preschoolers. Garmezy (1985) suggested that protective factors could be divided into three categories: (1) dispositional attributes of the child, (2) supportive family environment, and (3) external support systems. Although reliable measures of Garmezy's second and third categories exist, to date no adequate measure of child behaviors related to resiliency (i.e., "within child" protective factors) has been developed. In addition to hindering program development, the lack of such an instrument has also made it difficult to reliably identify individual children who may have "low" protective factors and therefore are at increased risk of developing emotional and behavioral disorders. Identifying these children is particularly important in that they might benefit most from resiliency enhancing interventions.

This summary reviews the development, standardization, validation and use of a new, nationally standardized measure of within-child protective factors, the *Devereux Early Childhood Assessment* (DECA) that has been developed as part of a national initiative, sponsored by the Devereux Foundation, to foster the healthy emotional growth of preschool children.

### ***The Devereux Early Childhood Assessment***

Developed over a two-year period in 1996-98, the DECA is a nationally normed behavior rating scale evaluating within-child protective factors in preschool children aged two to five. Completed by parents and early childhood professionals (preschool teachers and child care providers), the DECA evaluates the frequency of 30 positive behaviors

(i.e., strengths) exhibited by preschoolers. Typical items include "have confidence in his/her abilities," "act good-natured or easygoing," and "ask adults to play with or read to her/him." These items were derived from the childhood resiliency literature and through focus groups conducted with early childhood professionals. The DECA also contains a 10-item problem behavior screener.

The three primary purposes of the DECA are to: (1) identify children who are "low" on the protective factors so that targeted curricular interventions can occur leading to the strengthening of these abilities, (2) to screen for children who may be exhibiting emotional/behavioral problems leading to a referral to a mental health professional, and (3) to generate classroom profiles indicating the relative strengths of all children so that classroom design and instructional strategies can build upon these strengths to facilitate the healthy social and emotional growth of all children.

**Standardization Sample.** The DECA was standardized on a sample of more than 2,000 preschool children who resided in 27 states. Half of the children in the sample were rated by a parent, and half by a preschool teacher or day care center staff. The sample was stratified on the following variables: sex, race, ethnicity (Hispanic or not), region of residence, socioeconomic status, and size of community of residence. The most recent data available from the United States Department of the Census were used to identify appropriate percentages by variable. The standardization sample is still being adjusted to maximally represent the United States population, but even the preliminary obtained demographics were very close to the census estimates.

**Scale Development.** Exploratory factor analysis of the standardization items yielded a comprehensible series of scales that were consistent with published descriptive longitudinal research of protective factors (e.g., Werner and Smith, 1982). A four-factor solution fit the data best. Based on an

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inspection of the item content of the four factors, the scales were labeled, "Efficacy," "Sociability," "Emotional Regulation" and "Attachment."

**Reliability of the DECA.** A total scale reliability (coefficient alpha) of .96 was established with the standardization sample. Internal reliability estimates for each of the four scales are presented in Table 1. Each of these coefficients well exceeds the .80 "desirable standard" established by Bracken (1987) and indicates that the DECA is a highly reliable instrument.

Test-Retest reliabilities over a 24-hour period were calculated for both parents and teachers and are presented in Table 2. At the scale level, the reliabilities for the protective factors ranged from .77 to .82 for parents and .87 to .94 for teachers. All correlations were significant at the .01 level.

Inter-rater reliabilities for the DECA, which are presented in Table 3, varied depending on the similarity of the contexts in which the ratings occurred. Scale level correlations between teachers and teachers aides, who see the children during the same time period and in the same context ranged from .67 to .77. Again, all correlations were significant at the .01 level. Correlations between parents or between parents and teachers who see the children in different contexts were lower ranging from non-significance to .41 ( $p \leq .05$ ). These low correlations indicate that the DECA is sensitive to contextual differences in children's behavior.

**Validity.** Validity studies are ongoing and scheduled for completion by July 1, 1998. However, the criterion validity of a preliminary pilot version was established by examining the DECA's ability to correctly predict whether an individual child was part of a clinical ( $n = 129$ ) or non-referred ( $n = 467$ ) sample. Any child who had been given a psychiatric diagnosis, was being seen by a mental health professional for emotional or behavioral problems, had been asked to leave a child care program due to his/her behavior, or had an individualized behavior management plan in place was considered to be part of the clinical sample. Discriminant analysis using the jackknife procedure and the total raw score on the pilot version of the DECA as the predictor variable was able to correctly classify 75% of the children. This figure compares favorably with the classification accuracy of well-established scales of symptomatic behavior such as the Child Behavior Checklist and the Devereux Scales of Mental Disorders (Naglieri, LeBuffe & Pfeiffer, 1995).

Construct validity was explored by correlating total raw scores on the protective factor items with raw scores on a set of problem behaviors in preschool children. Children with low protective factor scores had significantly higher means scores on the problem items when compared to children with high protective factor scores. This relationship was more pronounced in children receiving public assistance which is consistent with the

**Table 1**  
DECA Internal Reliability Estimates  
(Alpha Coefficients) by Scale

Scale Name	Alpha
Efficacy	.87
Emotional Regulation	.89
Attachment	.86
Sociability	.86

**Table 2**  
DECA Test-Retest Reliability Estimates by Scale

Scale Name	Parent	Teacher
Efficacy	.77** <sup>1</sup>	.93** <sup>2</sup>
Emotional Regulation	.82**	.94**
Attachment	.80**	.87**
Sociability	.79**	.93**

\* Correlation is significant at the 0.05 level (2 tailed)  
\*\* Correlation is significant at the 0.01 level (2 tailed)

<sup>1</sup>  $n=37$

<sup>2</sup>  $n=45$

conceptualization of protective factors mediating the impact of risk factors, in this case poverty.

### Implications and Importance

Since the seminal studies of Emily Werner, professionals have recognized that protective factors in early childhood have a crucial role in determining subsequent adjustment or maladjustment to life stresses. Werner’s recommendation that both assessment and diagnosis in early intervention should focus on protective factors as well as risks (Werner, 1990) has been hampered by the lack of an economical, psychometrically sound, and clinically useful measure of within-child protective factors. The DECA has been developed to fill this gap and thereby provide early childhood professionals with an empirically sound tool for assessing the strength of protective factors in preschoolers.

The DECA could be critically important to primary prevention efforts within the preschool system of care. The DECA could be used to screen populations of preschoolers to find those individuals whose protective factors are comparatively weak indicating their increased vulnerability to stress and increased likelihood of developing emotional and behavioral problems. The DECA could inform efforts to foster resiliency in preschoolers by identifying key dimensions of protective factors such as efficacy, sociability, emotional regulation and attachment

around which interventions could be structured. The DECA will advance the knowledge base in preschool mental health by providing a well-developed assessment instrument to be used in research studies. Finally, the DECA, by focusing attention on child strengths and the importance of protective factors will support the shift in child and adolescent mental health services from a pathology-orientation to a strength or competency-based paradigm.

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**Table 3**  
**DECA Inter-Rater Reliability Estimates**

Scale Name	Parent-Parent	Teacher-Teacher	Parent-Teacher
Efficacy	NS <sup>1</sup>	.77** <sup>2</sup>	NS <sup>3</sup>
Emotional Regulation	.41*	.75**	NS
Attachment	NS	.67**	.37**
Sociability	NS	.72**	NS

\* Correlation is significant at the 0.05 level (2 tailed)  
\*\* Correlation is significant at the 0.01 level (2 tailed)

<sup>1</sup> n=34,  
<sup>2</sup> n=39,  
<sup>3</sup> n=53

# *Estimating Risk for Externalizing Disturbances Among Elementary School Children*

## **Introduction**

Federal mandates, such as Section 504 of the Rehabilitation Act of 1973, dictate identification and interventions within the schools to ensure optimal learning opportunities for children with behavioral problems. Such disruptive behaviors pose a potential barrier to learning for this group. Early identification is especially urgent, given the potential for adverse outcomes (e.g., school dropout, teenage pregnancy, violence and delinquency, and substance abuse) in later childhood and adolescence (Loeber, 1991; Offord, 1989). A feasible classroom instrument that would identify risk for development of externalizing problems among elementary school children would greatly enhance planning for prevention and early intervention.

## **Method**

### **Setting**

A single elementary school of the Charlotte-Mecklenburg School System in Charlotte, NC, with an enrollment of 441 students served as the survey site. Racial composition at the school was 48.0% African-American, 49.1% Caucasian and 2.9% Other (Asian, Hispanic, and Native American). Forty-eight percent of students had two parents living in the household, and 62.8% were receiving free or reduced cost lunch subsidy.

### **Charles D. Casat, M.D.**

*Director of Research  
Behavioral Health Center,  
CMC-Randolph  
501 Billingsley Road  
Charlotte, NC 28211  
704/358-2877 Fax: 704/358-2936  
E-mail: ccasat@carolinas.org*

### **James Norton, Ph.D.**

*Director of Biostatistics  
Department of Biostatistics  
Carolinas Medical Center  
Charlotte, NC 28211  
704/355-5381*

### **Madeline Boyle-Whitesel, M.S.**

*Department of Biostatistics  
Carolinas Medical Center  
Charlotte, NC 28211  
704/355-5381*

### **Julie L. Jacobson, B.S.**

*Behavioral Health Center,  
CMC-Randolph  
501 Billingsley Road  
Charlotte, NC 28211  
704/358-2877 Fax: 704/358-2936*

## Measures

The IOWA Conners Scale consists of 10 behavioral descriptor items, 5 of which load on inattention and overactivity (IO), and 5 items that tap aggression (WA), excerpted from the 39-item Conners Teacher Rating Scale (CTRS); (Conners, 1969; Loney & Milich, 1982). The IO and WA items use the same 0-3 response scoring as the CTRS, with high divergence, and select children with high aggression, overactivity, or both. Internal reliability and test-retest reliability for the IOWA Conners are good (Loney & Milich, 1982). A coefficient- $\alpha$  of .87 and .83 respectively for the IO subscale and the WA subscale in a classroom sample, while test-retest stability was .87 and .85 for the two subscales (Loney & Milich, 1982). The cut-off score for a positive screen with the IOWA Conners was set at 2.0 SD above the mean for this study, and would identify a cumulative 2.28% of a normally distributed population. Additionally, our investigation coupled the IOWA Conners with the Conners Abbreviated Symptom Questionnaire (CASQ)<sup>1</sup>, a 10-item parent-observer rating scale for child behavioral characteristics (Conners, 1973; Barkley, 1990) to determine the level of correspondence (cross-situational disturbance) between the CASQ scores and IOWA Conners scores among elementary school children with high IOWA Conners score (August, Realmuto, Crosby & MacDonald, 1995).

## Procedure

A two-wave survey strategy was employed. In Wave I, the IOWA Conners scale was completed in March of the school year, when teachers were thoroughly familiar with the children in their classrooms. The investigators provided school inservice training on the purposes and item scoring of the IOWA Conners. An explanatory letter and

passive consent form were sent home with each student announcing to the parents the purpose and implementation of the mental health risk survey for externalizing disturbances using the IOWA Conners. Each teacher completed an IOWA Conners instrument on every student in his/her classroom, scoring average behavior over the last one week, as per the standard instructions for use of this scale. The child's school identification number, age, sex and grade were recorded on the form. In Wave II, an envelope containing an explanatory cover letter from the school principal, the CASQ, and an Informed Consent (parent) form was sent home in each student's backpack, with the request that the parent(s) read and sign the consent, complete the enclosed questionnaires, and return the materials in the envelope via the child's backpack. Incentives were offered to classrooms where envelope return was greater than 75% within 10 working days.

## Analysis

All school survey data were collected on scannable, bubble-type scoresheets. Sheets were scanned on an NCS Op Scan-3 optical data scanner, and the data were entered with participant numbers as identifiers. Data were entered into files using a Microsoft Access database software program. Standard statistical methods were used. SAS<sup>®</sup> for Windows (version 6.11) was used to complete all analyses. Means and standard deviations, or percent and frequency counts were given for all variables. Chi-square tests were performed to compare categorical variables. Wilcoxon rank sum or Kruskal-Wallis tests were performed on ordinal variables. Spearman's correlation coefficients were used to measure the amount of association for continuous and ordinal variables. A  $p$ -value of less than 0.05 was considered statistically significant. Data are reported as Means  $\pm$  Standard Deviations (SD).

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<sup>1</sup>The CASQ has been re-published recently as the Conners Global Index (Conners, C. K., 1997, *Conners Rating Scales-Revised. Technical Manual*. North Tonawanda, NY: Multi-Health Systems.

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### Results

Survey data for 441 children (235 boys and 206 girls) were completed in Wave I. Mean age of children from Wave I was 8.3 + 2.2 years. Of the 441 children rated on the IOWA Conners in Wave I, data for the CASQ were returned by 299 parents (67.8%) for Wave II. Teacher scores for Total IO, Total WA and Total IOWA were significantly higher for males than for females (see Table 1), with a 2.5:1 ratio of boys to girls observed at/above the 2.0 SD level. However, this gender difference was not reflected in the CASQ. ( $p = .1449$ , ns). There was no significant difference in IOWA scores between groups of children whose parents either returned the CASQ or did not respond to the CASQ completion request.

Data were then sorted by Grade Groups. Table 2 shows mean IO, WA, Total IOWA, and CASQ scores by sex and grade. There was no significant decrease in the IO, WA or Total IOWA mean scores for either sex or grade.

Scores in whole numbers were computed for the IOWA Conners and CASQ to determine cut-off points in standard deviations for clinical application of the two instruments for the current sample. As seen in Table 3, a raw score of 15 on the IOWA Conners represented a level 1.0 SD above the mean for the entire group of 441 children.

An IOWA Conners score of 18 represented a level of 1.5 SD, and a score of 22 represented 2.0 SD above the mean. For the CASQ, whole scores of 18, 21, and 25, respectively, identified males at 1 SD, 1.5 SD, and 2.0 SD above the mean. The percentages and (actual numbers) captured by the IOWA

**Table 1**  
Teacher and Parent Scores by Gender of Students

Variable	Boys ( $n=235$ ) (Mean $\pm$ SD)	Girls ( $n=206$ ) (Mean $\pm$ SD)	$p$ -value:
Teacher Total IO ( $n=441$ )	5.7 + 4.5	3.7 + 4.1	0.0001*
Teacher Total WA ( $n=441$ )	2.8 + 3.9	1.7 + 3.2	0.0001*
Teacher Total IOWA ( $n=441$ )	8.5 + 7.6	5.4 + 6.7	0.0001*
Parent CASQ Total Score ( $n=229$ )	10.5 + 7.8	9.1 + 7.3	0.1449

\*  $t$ -test.  $p$ -value is statistically significant at the 0.05 level.

**Table 2**  
Results of IOWA Conners and CASQ Scores by Grade and Sex

Grade	$n^{\infty}$	IO Mean/SD	WA Mean/SD	Total IOWA Mean/SD	Total CASQ Mean/SD
<b>Boys</b>					
K to 1	87	5.6 $\pm$ 4.4	2.3 $\pm$ 3.8	7.9 $\pm$ 7.3	11.6 $\pm$ 8.0
2 to 3	50	6.1 $\pm$ 4.6	2.7 $\pm$ 3.4	8.8 $\pm$ 7.2	12.2 $\pm$ 8.6
4 to 5	75	5.3 $\pm$ 4.6	3.4 $\pm$ 4.5	8.7 $\pm$ 8.6	8.4 $\pm$ 7.1
6	23	6.8 $\pm$ 4.2	3.0 $\pm$ 3.1	9.9 $\pm$ 6.2	9.5 $\pm$ 6.5
$p$ -value =		0.39	0.10**	0.34	0.10**
<b>Girls</b>					
K to 11.8	73	4.4 $\pm$ 4.9	2.1 $\pm$ 3.6	6.5 $\pm$ 7.9	11.4 $\pm$ 8.2
2 to 33.3	51	4.1 $\pm$ 4.1	0.9 $\pm$ 1.8	5.0 $\pm$ 5.3	8.6 $\pm$ 7.2
4 to 53.6	57	3.1 $\pm$ 3.6	1.8 $\pm$ 3.3	4.9 $\pm$ 6.5	8.2 $\pm$ 6.4
6	25	2.8 $\pm$ 2.6	1.8 $\pm$ 3.6	4.5 $\pm$ 5.6	5.6 $\pm$ 4.1
$p$ -value =		0.54	0.48	0.76	0.06**

$\infty$  The sample size for each grade is less for the CASQ than for the IOWA Conners because only 299/441 parents returned the survey.

\*\* $p$ -value is showing a trend toward significance between 0.05 and 0.10.

Conners cutoffs are 7.6% ( $n=18$ ) for males and 2.9% ( $n=6$ ) for females, while for the CASQ cutoffs identified 6.5% ( $n=10$ ) of males and 3.4% ( $n=5$ ) females (see Table 3).

Last, a determination was made for the levels of concordance between Total IOWA Conners and CASQ scores, using 2.0 *SD* from the mean as a cut-off. This procedure identified 2 males (11.1%) and 1 female (16.7%) of the total of all children above the cutoff on the IOWA Conners. The Kappa statistic for agreement between scores for males was  $\kappa = .12$ , and for females,  $\kappa = .28$  (slight agreement); (Cohen, 1988).

## Discussion

Similar to earlier reports of Loney and Milich (1982), or of Pelham et al (1989) we found higher scores for males than females on the IOWA Conners, and the same approximate 3:1 ratio of males to females with scores above our selected cutoff point of 2.0 *SD* above the mean. However, in contrast to the findings reported by Pelham et al. (1989), we did not find any significant decrease in scores by age or grade.

Most children in our study who scored  $\geq 2.0$  *SD* on the IOWA Conners were perceived as situationally (rather than pervasively) disruptive (Schachar, Rutter & Smith, 1981), with only 3 males (10%) and 2 females (20%) with high IOWA scores

being identified on the CASQ as having high cross-situational ratings. The degree of relationship found between Total IOWA and CASQ scores for both males ( $r = .39$ ) and for females ( $r = .41$ ) was only moderate.

Whole number scores on the IOWA Conners that identified individual children at risk in our study (IOWA= 22, with IO= 13, WA= 9) were higher than was previously reported by Loney and Milich (1982), where a threshold IOWA=18 (IO of 11 and WA of 7) was considered significant. Application of the IOWA Total Score cutoffs of 15 from Pelham et al for children in grades 4-5 would have resulted in identification of 20% of males and 13.6% of females from our sample, representing only a 1.0 *SD*, and creating the potential for significant false-positive identification.

## Conclusions

The IOWA Conners scale is an easily administered scale, requiring less than 5 minutes of a teacher's time per student for screening in the classroom as a step in identification of children at risk for development of significant behavioral disturbance. The previously suggested scores of 15 (Pelham et al., 1989), and 18 (Loney & Milich, 1982), however, appear too low, leading to the occurrence of a significant number of false-positives. Our findings suggest that higher cut-off

whole-number scores (IO= 13, WA= 9, total IOWA= 22) should be employed when using the IOWA Conners as a classroom screening tool.

**Table 3**  
Cut-off Score Values Expressed in Standard Deviations (*SD*) and Whole Number Scores for IOWA Conners and CASQ, and Resulting Percentages (%) of Children Identified, by Sex

Cut-off Value (in <i>SD</i> )		Nearest Whole Number Score	Number (Percent) Males Above Cut-off	Number(Percent) Females Above Cut-off
1.0 <i>SD</i>	IOWA	15	47(20.0%)	28(13.6%)
	CASQ	18	32 (20.9%)	21(14.4%)
1.5 <i>SD</i>	IOWA	18	38(16.2%)	15(7.3%)
	CASQ	21	22(14.4)	16(11.0%)
2.0 <i>SD</i>	IOWA	22	18(7.6%)	6(2.9%)
	CASQ	25	10(6.5%)	5(3.2%)

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# *Service Utilization by Young Children in Out-of-Home Placement*

## **Introduction**

Children in out-of-home placement constitute a large and rapidly growing segment of the population. In 1993, 657,000 children were in foster care in the United States. This is an increase of about two-thirds from a decade earlier (Children's Defense Fund, 1996).

Research has documented a high level of need for mental health services among children in foster care. Studies have shown that rates of psychological disturbance among foster children range from almost 50% to 80% (Thompson & Fuhr, 1992; Swire & Kavalier, 1977; McIntyre & Keesler, 1986; Hochstadt, Jaudes, Zimo, & Schachter, 1987). These rates are much higher than those found among general community samples (Costello, et al., 1988; Zahner, Pawelkiewicz, DeFrancesco, & Adnopo, 1992). Significant developmental delays have also been documented among young children in out-of-home placement. Studies have shown rates of developmental problems among foster children ranging from 33% to 53% (Hochstadt, et al., 1987; Horowitz, Simms, & Farrington, 1994; Klee, Kronstadt, & Zlotnick, 1997).

Recent studies have found rates of mental health service use among foster children to range from 25% to 56% (Halfon, Berkowitz, & Klee, 1992; Trupin, Tarico, Low, Jemelka, & McClellan, 1993; Takayama, Bergman, & Connell, 1994; Garland, Landsverk, Hough, & Ellis-MacLeod, 1996). Despite these high levels of utilization, there may be substantial unmet need for

### **Robert B. Clyman, M.D.**

*Research Scientist  
Executive Director  
Kempe Children's Center  
The Children's Hospital/UCHSC  
1825 Marion St.  
Denver, CO 80218  
303/864-5255 Fax: 303/864-5179  
E-mail: clyman.rob@tchden.org*

### **Anne W. Riley, Ph.D.**

*Assistant Professor  
Department of Health Policy and  
Management, Johns Hopkins  
School of Public Health  
624 N. Broadway  
Baltimore, MD 21205  
410/955-1058 Fax: 410/614-9046  
e-mail: ariley@jhsph.edu*

### **Amy B. Lewin, Psy.D.**

*Postdoctoral Fellow  
Department of Psychiatry and  
Behavioral Sciences  
Children's National Medical Center  
202/884-3106 Fax: 202/884-5039  
e-mail: alewin@cnmc.org*

### **Stephen C. Messer, Ph.D.**

*Senior Research Associate  
Department of Psychiatry and  
Behavioral Sciences  
Children's National Medical Center  
202/884-6051 Fax: 202/884-5039  
E-mail: smesser@cnmc.org*

**Jennifer Palmer, B.A.**

Research Assistant  
Department of Psychiatry and Behavioral Sciences  
Children's National Medical Center  
202/884-2595 Fax: 202/884-5039

**Melissa Altman, B.S.**

Research Assistant  
Department of Psychiatry and Behavioral Sciences  
Children's National Medical Center  
202/884-2595 Fax: 202/884-5039  
E-mail: maltman@cnmc.org

mental health and developmental services among this population (Halfon, et al., 1992; Trupin, et al., 1993; Takayama, et al., 1994).

Previous studies of service use among foster children have focused primarily on school-age children and adolescents. However, young children account for a large proportion of children in out-of-home placement. In 1994, 27% of maltreated children were 3 years old or younger, and nearly 20% were 4 to 6 years old (U.S. Department of Health and Human Services, 1996).

Studies of mental health service utilization by children in out-of-home-placement have also focused on youth in foster care. Less attention has been paid to children who are being cared for by family members other than their biological parents (kinship care). However, the number of children in kinship care has grown significantly in recent years. For example, the Illinois Department of Children and Family Services estimates that approximately one-third to one-half of children in out-of-home placements are in kinship care (Iglehart, 1994; Dubowitz, Feigelman, Harrington, Starr, Zuravin, & Sawyer, 1994). Few studies have examined the psychosocial functioning of this group, but Dubowitz, Zuravin, Starr, Feigelman, & Harrington (1993) found rates of behavior problems among children in kinship care which were comparable to those found among children in foster care. We do not yet know how rates of service use by children in kinship care compare to those of children in traditional foster care.

This study compared mental health and developmental service use by young children under the age of six in foster and kinship care. The following questions were addressed: Do young children in traditional foster care, compared to young children in kinship care, receive more: (a) services in the specialty mental health sector; (b) services in the specialty developmental sector; and (c) mental health and developmental services in the medical sector?

## **Method**

### **Subjects**

This study was conducted in a large suburban eastern county. All families in the county who had children under the age of six legally placed with them for at least three months were identified. One child in each family was randomly selected for the study. Of the 110 eligible cases, 89 (81%) were interviewed by phone, 10 refused,

## Placement and Services

6 were unreachable, 4 had disconnected phones, and one parent did not speak English.

### Measures

A new instrument, The Young Kids Early Services Assessment 1.0 (TYKES), was used (Clyman, unpublished). Different types of providers and programs were assessed individually: (a) specialty mental health services (outpatient contacts with psychiatrists, psychologists, social workers, and other therapists); (b) specialty developmental services (developmental screening, comprehensive developmental evaluations, early intervention programs, and outpatient contacts with physical therapists, occupational therapists, and speech and language therapists); and (c) outpatient contacts with pediatricians, family doctors, and medical specialists. Services delivered in schools were not included in these analyses. Caregivers were asked about all services that the child had ever received since being legally placed in their care.

### Analysis Plan

Service utilization was examined separately within the mental health, developmental, and medical sectors. Because the distribution of services was truncated within each sector, we examined whether the child had one or more services within each sector (in comparison to not receiving any services while in the parent's care).

Statistical analyses included an initial comparison of the sociodemographic variables by placement group (foster vs. kinship care), using chi square or Fisher's Exact tests for the categorical variables and Wilcoxon Rank Sum tests for the continuous measures (see Table 1). This set of analyses allowed for the identification of covariates and confounding variables that were included as control variables. The next preliminary analyses considered the bivariate relationship between placement status and sector

service use, broken down by age group (see Figures 1-3). The statistical test used to compare the foster and kinship groups on service use rates was the Pearson chi square or Fisher's Exact test statistic.

**Table 1**  
**Socio-Demographics of the Sample**

	Foster Care (n=48)	Kinship Care (n=41)
Gender <sup>ns</sup>		
Female	46%	46%
Age <sup>n</sup>		
Infant (0-1yr)	23%	15%
Toddler (2-3yrs)	48%	39%
Preschool (4-5yrs)	29%	46%
Race (child) <sup>ns</sup>		
African American	65%	73%
Race (parent) <sup>ns</sup>		
African American	56%	68%
Single-parent <sup>ns</sup>		
Yes	19%	27%
<b>Caregiver education***</b>		
HS grad or less	23%	63%
Employment <sup>ns</sup>		
Full-time	56%	58%
Part-time	15%	7%
Not employed	29%	34%
Duration in care <sup>ns</sup> (days) (M, SD)	525(398)	635(362)
<b>Life-time births**</b> (number) (M, SD)	2.1 (1.8)	3.3 (2.0)
<b>Life-time number foster children* (M, SD)</b>	13.1 (43.3)	0.7 (2.2)
# Children <18 <sup>ns</sup> (M, SD)(in household)	3.1 (1.8)	2.9 (1.8)
<b>Income***</b> (M, SD)(household)	4,400 (1,420)	2,400 (1,120)

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ , ns= nonsignificant

NOTE: The 4 significant variables in bold (parental education, # life-time births, # life-time foster children, income) were included as control variables. Age and placement duration (for conceptual reasons) were also controlled in the simultaneous logistic regressions.

Following these initial analyses, the core research questions were examined. The basic modeling strategy was the same for each of the three service sectors. Simultaneous multiple logistic regression procedures were computed to examine the cross-sectional relationship between service use and placement status and the control variables (all significant variables in Table 1 were included as controls). Model significance was based on the Log Likelihood statistic, whereas individual variable tests embedded within the overall model relied on the Wald chi square. Nominal alpha was set at  $p = .05$ , with values less than .10 cautiously interpreted as suggestive trends.

## Results

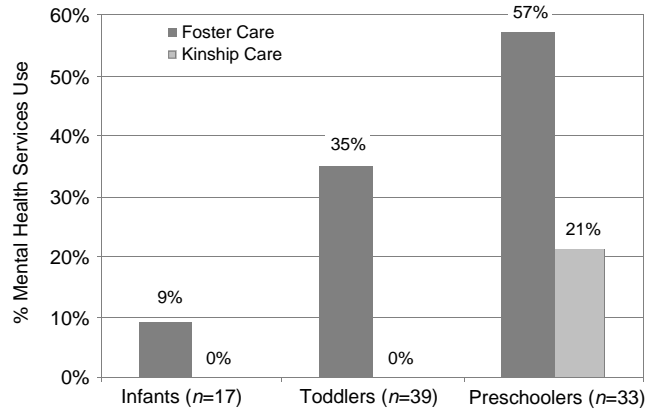
**Sociodemographic differences.** As can be seen in Table 1, the kinship and foster care groups differed significantly on a number of variables. These variables were tagged as covariates or confounders and used as controls in later analyses.

**Service use by sector by age group.** Figures 1 to 3 present the results from analyses of placement group differences in service utilization, broken down by age group. The significant group differences observed in these figures do not reflect the inclusion of control variables.

**Multivariate models.** Three logistic regressions were run, each time regressing the dichotomous service use measure on the key predictor variable, placement status, while controlling for duration in placement and the other control variables. Each overall model was significant. Children in traditional foster care arrangements had significantly higher rates of specialty mental health service use, reflected in an odds ratio of 12.8 ( $p < .001$ ). For the other two service use domains, specialty developmental and medical sector, the placement variable did not attain statistical significance (perhaps in part due to relatively small sample), but demon-

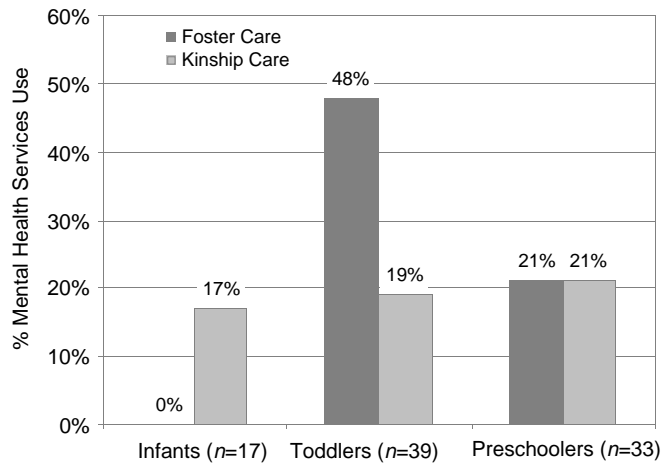
strated strong relationships as indexed by their odds ratios (1.7 and 2.7, respectively). Deleting the nonsignificant control variables from these models resulted in statistically significant placement group effects in the direction of each previous finding.

**Figure 1**  
Mental Health Services Use by Children in Out-of-Home Placement



\* $p < .05$ , \*\* $p < .01$   
NS=Nonsignificant  
Significance levels are from placement group x service use chi-square tests, within age group, (no covariates).  
See Figure 4 for multivariate tests

**Figure 2**  
Developmental Service Use by Children in Out-of-Home Placement



\* $p < .05$ , \*\* $p < .01$   
NS=Nonsignificant  
Significance levels are from placement group x service use chi-square tests, within age group, (no covariates).  
See Figure 4 for multivariate tests

## Discussion

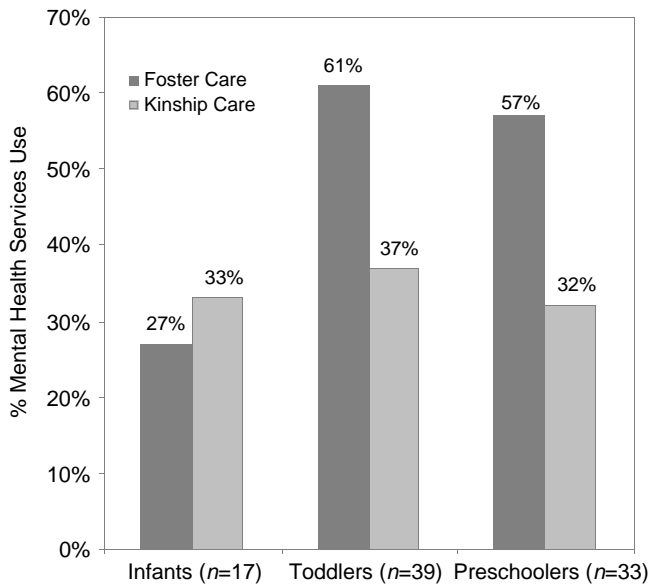
We found that young children in foster care were more likely than young children in kinship care to have received specialty mental health services. Controlling for socio-demographic variables, the odds ratio was 12.8, indicating a substantial relationship between placement status and service use in this sector.

Placement status was not significantly related to the use of specialty developmental services (OR = 1.7) nor use of mental health and developmental services in the medical sector (OR = 2.7) at the nominal alpha level. However, the magnitude of these latter associations with multivariate controls indicates a substantial relationship, highlighting the need for additional studies using larger samples.

Further research is needed to address the factors which differentially influence mental health service use for children in foster versus kinship care. Child factors (e.g., need for services), caregiver variables (e.g., help-seeking attitudes, differences in the stigma caregivers attach to child mental health services), family characteristics (e.g., relative social disadvantage and adversity), and service system factors (e.g., differential amount of contact with child welfare caseworkers, court orders for service use) may have effects on the rates of, and pathways into, mental health care for young children placed in foster and kinship care.

Finally, as child welfare systems increasingly place maltreated children with relatives, the differential impact on service use and behavioral outcomes will warrant close examination. Because early mental health and developmental problems are important predictors of later mental disorders, further research is needed in order to shape the development of rational systems of early intervention services for this growing, high-risk group of young children.

**Figure 3**  
Physician Services for Behavioral/Developmental Concerns by Children in Placement



\* $p < .05$ , \*\* $p < .01$

NS=Nonsignificant

Significance levels are from placement group x service use chi-square tests, within age group, (no covariates).

See Figure 4 for multivariate tests

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# *Economic Implications of Undetected Mental Health Issues in the Pediatric Population*

## **Introduction**

Early detection of children's psychosocial problems in primary care may have the potential to offset displaced health care utilization. Health care utilization studies suggest that adults with psychiatric disorders average twice as many visits to their primary care providers than those without them (Hankin & Oktay, 1979). The findings for children and adolescents are less clear. However, Zuckerman (1996) did document that parent reported behavior problems were the most significant predictor of medical utilization. Parental retrospective report was the primary measure utilized to document children's health care utilization. The study described in this summary adds analyses of data from regional medical databases to parent and physician report to examine children's health care utilization at six sites within a Northern California HMO.

## **Method**

### **Subjects/Sites**

The study was conducted at six pediatric facilities of a large Health Maintenance Organization composed of 28 facilities serving twelve counties with a population of more than 2.5 million in the Northern California Region. Approximately 28% of members across these sites are 18 years of age or under. At each facility, 40-50 pediatricians agreed to participate.

### **Pilar Bernal, MD**

Chair, Chiefs of Child Psychiatry  
Kaiser Permanente  
175 Bernal Road, Suite 140  
San Jose CA 95119  
408/972-6454  
Fax: 408/972-6494  
E-Mail: [Pilar.Bernal@ncal.kaiperm.org](mailto:Pilar.Bernal@ncal.kaiperm.org)

### **Debra Bendell Estroff, Ph.D.**

Coordinator of Research,  
Department of Psychiatry  
Kaiser Permanente  
39400 Paseo Padre Parkway  
Fremont, CA 94538  
510/795-3509  
Fax: 510/795-3551  
E-Mail: [Debra.Bendellestroff@ncal.kaiperm.org](mailto:Debra.Bendellestroff@ncal.kaiperm.org)

### **Michael Murphy, Ed.D.**

Assistant Professor of Psychology  
Harvard Medical School, Massachu-  
setts General Hospital  
15 Parkman Street  
Boston, MA 02114  
617/724-3163

### **Michael S. Jellinek, MD**

Senior Vice President for Administration  
Harvard Medical School  
Massachusetts General Hospital  
Bullfinch 351, 55 Fruit Street  
Boston MA 02114  
617/726-2711

### **Anthony Keller**

Research Associate,  
Department of Child Psychiatry  
Kaiser Permanente, 175 Bernal Road,  
Suite 140  
San Jose, CA 95119  
408/972-3099

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All 2-18 year old children accompanied by a parent seeking medical attention at the six HMO sites were considered eligible for this study. Approximately 300 parent-child dyads from each of the six sites participated in this study. A total of 1840 dyads were enrolled and randomly screened for baseline rates of psychosocial morbidity.

A research assistant approached the parent to request participation in the study, and obtained informed consent. When this procedure was not possible due to high patient volume, a randomized sample of patients was obtained by selecting patients from the doctors' appointment schedules through a circulating time pattern. All appointment types from routine childcare to urgent appointments were represented. Data were collected for 4 hours a day on week-days or evenings over a period of four months.

### **Instruments**

**Pediatric Symptom Checklist** (PSC: Jellinek, Murphy & Burns, 1986). The PSC is a 35-item questionnaire that is normed for children 2-18 years of age. This is a well-validated parent completed questionnaire that consists of 35 items that are rated as *never*, *sometimes* or *often present*. Item scores are summed and the total score is recorded into a dichotomous variable indicating psychosocial impairment. For children 6 through 18 years the cut-off score is 28 or higher, and for children two through five, the cut off is 24 or higher. The PSC has been validated for minority and economically disadvantaged populations (Murphy & Jellinek, 1988). The PSC is completed by parents while in a waiting room during a pediatric office visit and can be completed and scored in less than five minutes. Additionally, principal component factor analysis using pair-wise deletions and Varimax rotations on the items of the PSC revealed three factors: internalizing, externalizing and attention-deficit/hyperactivity (see Table 2).

**Chronic Illness.** Chronic illness was determined in two ways. Parents were asked to report a serious or chronic illness suffered by the child. Approximately 14.4% of the parents reported some chronic or serious condition. Objective chart review utilizing a comprehensive list of chronic illness diagnoses, including asthma, diabetes, and cancer as well as severe acute conditions such as head injuries following standard criteria documented that 18.2% of the total sample had some chronic or serious illness, excluding behavioral or mental health diagnoses.

### **Regional Data Analysis**

The standardized instruments described above were used to measure morbidity in children and parents. In addition, psychiatric/medical utilization and costs for the previous year were retrieved from a regional database; these data included regularly scheduled appointments, urgent appointments, emergency room visits and hospitalizations. Ancillary cost, i.e. laboratory tests, EKG, etc., were included, as well as administrative overhead. Cost information from the general ledger was allocated using the Cost Management Information System. Multiple regression analyses were used to measure the cost of health care for the selected population.

### **Results**

According to PSC scores, 13% of children were experiencing psychosocial dysfunction (see Table 1). Results of several multiple linear regression analyses showed a consistent linear relationship between child PSC positive status and health care utilization. According to the linear regression model, a child classified as an Internalizer averaged 3.3 visits above the sample's mean in the year prior to the index visit ( $p < .05$ ; see Table 3). Children classified as Externalizers visited their pediatrician 2 visits above the mean. Chronic illness also had a significant impact on health services utilization. Chronically ill children averaged an additional 6.2 visits per year.

## Undetected Mental Health Needs in Pediatric Populations

Additional variables entered in the model did not predict additional health care utilization. Overall, PSC positive Internalizing or Externalizing status and chronic illness significantly predicted increased health care visits ( $RR=.24, p<.01$ ).

PSC positive status remained a significant predictor of increased health care utilization after removing chronically ill children from subsequent regression analyses. Additionally, internalizer children averaged 3.8 more health care visits than

others in the sample ( $p <.01$ ), and externalizers averaged 1.9 additional visits ( $p <.01$ ).

The mean pediatric health care costs for each child in the HMO system was \$393 per year. As expected, chronic illness contributed to health care costs. Chronically ill children cost an average of \$1138, \$745 in excess of the mean, during the one year prior to parents' completion of the PSC ( $p<.001$ ). Psychosocial status was also a significant predictor of health care costs for the same time

period. Children classified as Internalizers cost the study HMO a mean 412 extra dollars above the mean for all children, or \$805 per year ( $p<.05$ ). Similarly, children classified as Externalizers cost an additional \$177 per year above the mean, with a total cost of \$570, although these data reflected a trend rather than statistical significance,  $p <.07$  (see Table 3).

Because chronic illness contributes a predictable influence on the variability of health care costs, additional regression analyses were run with chronically ill children excluded. With the effects of chronic illness controlled, PSC Internalizers cost the health care system an additional \$479 above the mean cost, or \$872 total per year ( $p<.01$ ) and Externalizers also contributed significantly to increased health care dollars (\$198 additional, \$591 total cost;  $p<.02$ ). These analyses demonstrate the stability of the finding that scores above the cut off for the PSC were significantly related to increased health costs.

**Table 1**  
**Sociodemographics and Background Characteristics of the Total Sample and of Children with Psychosocial Dysfunction, N=1840**

	Sample % (n)	PSC Positive Children % (n)
<b>Pre-school-age (2-5)</b>	41% (758)	13% (96/739)
<b>School-age (6-18)</b>	59% (1082)	13% (134/995)
<b>Parental Marital Status</b>		
Single parent family	26%(478)	19%(91/473)
Two parent family	74% (1359)	11% (148/1328)
<b>Parent's Education Level</b>		
<High School	5%(95)	19%(17/91)
High school graduate	18%(329)	15%(47/325)
Some College	37%(684)	13%(89/669)
College graduate	25%(446)	12%(54/438)
Post graduate	16% (272)	12%(32/262)
<b>Household Income</b>		
< \$15,000\$	7%(147)	25%(36/145)
15,000-\$30,000	18%(326)	15%(47/318)
\$30,000-50,000	28%(492)	13%(65/484)
\$50,000-100,000	36%(638)	12%(73/629)
>\$100,000	10%(171)	8%(14/169)
<b>Race</b>		
African American	12%(207)	17%(34/205)
Caucasian	45%(815)	12%(95/805)
Hispanic	16%(281)	14%(39/275)
Asian	12%(224)	10%(22/216)
Multi-racial	12%(6)	
Native American	.4%(48)	
Other	3%(48)	

## Discussion

Health care utilization was highest for children with psychosocial morbidity; higher among younger children, decreasing with age as psychiatric costs progressively increased. Results suggest that the costs of timely and appropriate mental health care for young children may be offset by decreased general health care costs, furthering pediatricians' mission of early intervention.

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**Table 2**  
Internalizing and Externalizing Subscales of the Pediatric Symptom Checklist  
Derived from Factor Analysis with Varimax Rotation

Internalizing Items	Externalizing Items
<p><b>For 2-5 year olds:</b></p> <ol style="list-style-type: none"> <li>1. Tires easily, little energy</li> <li>2. Is down on him or herself</li> <li>3. Feels sad, unhappy</li> <li>4. Feels hopeless</li> <li>5. Worries a lot</li> <li>6. Seems to have less fun</li> </ol>	<p><b>For 2-5 year olds</b></p> <ol style="list-style-type: none"> <li>1. Fights with other children</li> <li>2. Hits others</li> <li>3. Gets upset easily</li> <li>4. Hard to control</li> <li>5. teases others</li> <li>6. Blames other for troubles</li> <li>7. Refuses to share</li> </ol>
<p><b>For 6-19 year olds:</b></p> <ol style="list-style-type: none"> <li>1. Is afraid of new situations</li> <li>2. Is down on him or herself</li> <li>3. Feels sad, unhappy</li> <li>4. Feels hopeless</li> <li>5. Worries a lot</li> <li>6. Seems to have less fun</li> </ol>	<p><b>For 6-19 year olds</b></p> <ol style="list-style-type: none"> <li>1. Takes unnecessary risks</li> <li>2. Does not listen to rules</li> <li>3. Does not understand other's feelings</li> <li>4. Fights with other children</li> <li>5. teases others</li> <li>6. Blames other for troubles</li> <li>7. Refuses to share</li> </ol>

**Table 3**  
Comparison of Mean Health and Psychiatric Care Utilization/Costs for Children  
with Psychosocial Dysfunction and/or Chronic Illness  
and the Total Sample for One Year Previous to Screening

	Mean Number of Health Care Visits Utilization	Mean Health Care Costs	Mean Psychiatric Utilization
Total Sample	4.3	\$393	\$10
Internalizer Children	7.6*	\$805*	\$-86
Externalizer Children	6.3*	\$570	\$-57
Chronically Ill Children	10.5**	\$1138**	\$26

\*p<.05

\*\*p<.001

# *Collaborative Screening of Psychiatric and Language Disorders in Pediatric Neurology*

## **Introduction**

The Medical University of South Carolina (MUSC) Pediatric Neurology Clinic has approximately 3000 visits per year with an equal mix of African American and Caucasian populations. Forty four percent of these are Medicaid patients, 1% categorized as indigent and the rest have private insurance. Chief complaints of approximately 70% of the patients are seizure related, approximately 15% are headache related and the rest are parasomnias, developmental disabilities, and somatization of unknown etiology or neuromuscular difficulties. The clinic, housed in MUSC's Children's Hospital, is staffed by three full time Pediatric Neurology attending physicians, residents and medical students of the MUSC. A Child Psychiatrist and a Pediatric Psychologist are regular consultants to the clinic. Between 3 and 5% of the Pediatric Neurology population is referred for mental health evaluation or treatment.

The purpose of this study was to determine in Pediatric Neurology patients (a) the incidence of psychiatric comorbidity; (b) the correlation of language difficulties with psychiatric diagnosis and global functioning; and (c) the utility of a brief screening protocol, the Pediatric Symptom Checklist (PSC), in a busy specialty clinic to identify children needing psychiatric evaluation.

**Eve G. Spratt, MD.**  
Director, Pediatric Consultation  
Liaison Psychiatry  
Assistant Professor  
Depts. of Psychiatry & Pediatrics,  
Medical University of South Carolina  
135 Ashley Avenue  
PO Box 250560  
Charleston, SC 29425  
843/876-0504 Fax: 843/876-0906  
E-mail: Spratte@musc.edu

**Deborah Anderson, Ph.D.**  
Clinical Instructor  
Pediatrics, Medical University of  
South Carolina  
135 Ashley Avenue  
PO Box 250560  
Charleston, SC 29425  
E-mail: andersod@musc.edu

**Maria Pagano Ed. M.**  
Research Coordinator  
Department of Psychology  
Massachusetts General Hospital  
15 Parkman Street -ACC 725  
Boston, MA 02114

**Michelle Macias, M.D.**  
Assistant Professor  
Department of Pediatrics  
Medical University of South Carolina  
171 Ashley Ave  
Charleston, SC 29425  
E-mail: maciasm@musc.edu

**Michael Jellinek, MD.**

Associate Chief,  
Child Psychiatry Service  
Associate Professor, Psychiatry (Pediatrics)  
Massachusetts General Hospital  
55 Fruit St– Bullfinch 351  
Boston, MA 02114

**Michael Murphy, Ed. D.**

Assistant Professor  
Department of Psychology  
Massachusetts General Hospital  
15 Parkman Street - ACC 725  
Boston, MA 02114  
617/724-3163 Fax: 617/726-9219  
E-mail: murphymi@al.mgh.harvard.edu

**David Griesemer, MD.**

Assistant Professor  
Department of Neurology  
Medical University of South Carolina,  
171 Ashley Avenue  
Charleston, SC 29425

**Ken Holden, MD.**

Associate Professor  
Department of Neurology  
Medical University of South Carolina,  
171 Ashley Avenue  
Charleston, SC 29425

**Ernie Barbosa, MD.**

Assistant Professor  
Department of Neurology  
Medical University of South Carolina,  
171 Ashley Avenue  
Charleston, SC 29425

## Method

Researchers conducted a prospective, cross sectional study of 102 Pediatric Neurology patients ages 5 to 13 with IQ scores above 70. Patients were seen consecutively and given five dollars for participation (92% agreed). Instruments included a parent completed Pediatric Symptom Checklist (PSC: Jellinek, Murphy & Burns, 1986), the Child Behavior Checklist (CBCL: Achenbach & Edlebrock, 1983), KIDDIE-SADS, and Language Problems Scale (LPS). Child Global Assessment scores (CGAS: Shaffer, et al.) were determined based on KIDDIE-SADS phone interviews by research assistants with extensive interview training. KIDDIE-SADS interviews were conducted based on the results of the PSC and the CBCL scores. Interrater reliability was established on 20 of the 24 cases evaluated by two examiners (83%;  $p < .01$ ;  $k = .64$ ). Hollingshead Socioeconomic data was obtained. Pediatric Neurologists and parents completed a 5 point Likert-type scale on overall functioning and medication compliance. Patients were subdivided into *seizure only*, *headache only*, *both* and *neither* categories. SPSS statistical software was used for analysis.

## Results

Data collection included 102 patients, 5 to 13 years of age, with a mean age of 8.4. The subjects were 54 males (52%) and 48 females (48%). Forty-six (45%) are minority and 56 (55%) are non-minority.

**Psychiatric comorbidity.** Fifty two percent of the Pediatric Neurology patients had a DSM-IV psychiatric diagnosis of ADHD, depression, or anxiety, 28% had significant PSC scores and 37% received CGAS scores less than 70, indicating the presence of impairment.

**Language difficulties, psychiatric diagnosis and global functioning.** Children with psychiatric diagnoses were more likely to have language problems as indicated by higher LPS scores ( $F=18.429$ ,  $p < .05$ ) LPS scores correlated positively with PSC results ( $r = -.601$ ,  $p < .001$ ) and CBCL scores ( $r = .666$ ,  $p < .001$ ). Elevated LPS scores were not significantly related to socioeconomic status. Having a neurologic difficulty was a risk factor for psychiatric diagnosis, but having a single specific neurologic disorder or multiple neurologic diagnoses was not predictive of psychiatric distress.

## Collaborative Screening in Pediatric Neurology

### ***Utility of the Pediatric Symptom Checklist (PSC).***

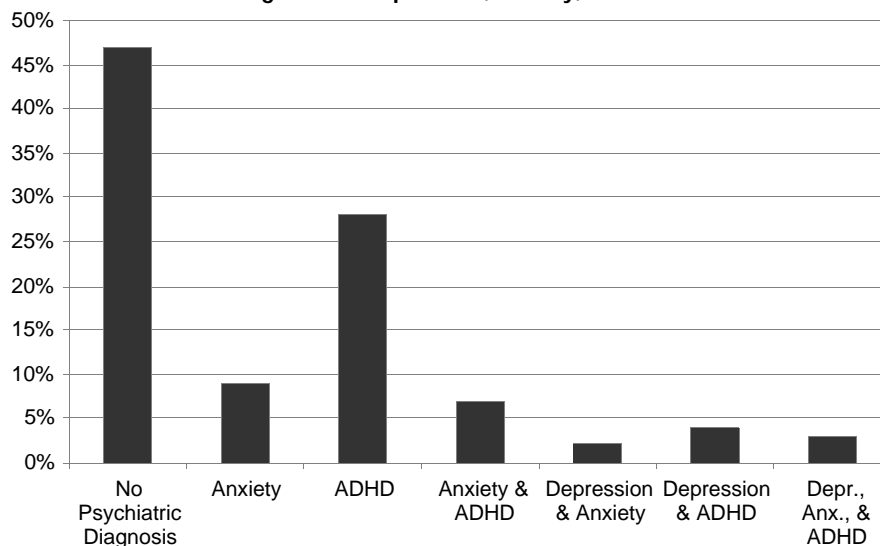
The CBCL identified 39 of 102 children (38%) as positive cases (total T score of 63 or above). Of the 39 CBCL positive cases, the PSC correctly classified 25 of them, yielding a sensitivity of 64.1% in this sample. Of the 63 children scoring less than the cut off for the clinical range of 63 on the CBCL, the PSC correctly classified 60 of them, yielding a specificity of 95.2%. A PSC cut off score of 22 (vs. 28 in previous literature: Jellinek, Murphy & Robinson, 1988; Murphy, Arnett, Bishop, Jellinek & Reede, 1992 ) yielded maximal sensitivity of 89.7%, correctly identifying 35 of the 39 children identified as positive cases by the CBCL. A cut off of 22 allowed correct classification of 49 of the 63 children scoring below 63 on the CBCL, yielding a specificity of 77.8%. CGAS scores correlated negatively with PSC scores ( $r = -.601, p < .05$ ), with specificity of 85.9%, and sensitivity of 52.6%. SES was significantly negatively correlated with PSC score ( $r = -.220, p < .05$ ) which is also consistent with previous PSC literature. There was no significant difference in patients scoring above cut off on the PSC between categories of headache only, seizure

only, both, or neither, although there was a trend of medical severity to predict lower CGAS scores.

## ***Discussion***

As has been shown in previous research, the rate of psychological dysfunction and psychiatric diagnosis is two to ten times higher in Pediatric Neurology clinics than in other pediatric clinics (Creed, Firth, Timol, Metcalfe & Pollock 1990; Berlin, Ronthal, Bixler, & Kales, 1983; Kaufman, Solomon, Pfeffer, 1992). Both PSC and LPS scores correlate significantly with all other behavioral measures. The type of neurologic diagnosis did not influence CGAS scores or psychiatric diagnosis. The PSC is a useful, efficient screen to determine which neurologically vulnerable children need more extensive psychiatric evaluation. The risk of false positives is very low with an acceptable false negative rate with PSC cut off scores of 22. Our institution plans to implement use of the PSC and LPS for all school age patients seen in the pediatric Neurology Clinic to provide more efficient triage and comprehensive service delivery.

**Figure1**  
**Percent of Peds-Neuro Patients with KIDDIE-SADS**  
**Diagnosis of Depression, Anxiety, and/or ADHD**



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### PEDIATRIC SYMPTOM CHECKLIST

CHILD'S NAME: \_\_\_\_\_ AGE: \_\_\_\_\_ DATE: \_\_\_\_\_

Please CHECK BOX under heading that best fits your child:

Never	Sometimes	Often	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. Complains of aches or pains.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Spends more time alone.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Tires easily, little energy.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Fidgety, unable to sit still.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Has trouble with a teacher.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Less interested in school.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. Acts as if driven by a motor.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. Daydreams too much.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9. Distracted easily.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. Is afraid of new situations.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11. Feels sad, unhappy.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Is irritable, angry.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. Feels hopeless.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14. Has trouble concentrating.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. Less interest in friends.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16. Fights with other children.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17. Absent from school.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18. School grades dropping.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19. Is down on him or herself.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20. Visits doctor with doctor finding nothing wrong.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	21. Has trouble sleeping.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22. Worries a lot.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23. Wants to be with you more than before.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24. Feels he or she is bad.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25. Takes unnecessary risks.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26. Gets hurt frequently.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27. Seems to be having less fun.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	28. Acts younger than children his or her age.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	29. Does not listen to rules.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30. Does not show feelings.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31. Does not understand other peoples' feelings.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32. Teases others.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33. Blames others for his or her troubles.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	34. Takes things that do not belong to him or her.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35. Refuses to share.

[Michael Jellinek, M.D., Massachusetts General Hospital]

# *Mental Health and Behavioral Sequelae of Children's Exposure to Violence*

## **Introduction**

Recent studies have begun to document the extent to which violence pervades the lives of this nation's children. Data indicate that alarming numbers of young people have been victimized, have known victims of violence and have engaged in violent acts. Although researchers have documented these statistics and publicized by the media, few attempts have been made to explore the consequences violence imposes on the emotional well being of children and adolescents. The current study is among the largest yet undertaken investigating these consequences. It examines the effects of exposure to violence on symptoms of psychological trauma and on aggressive behavior in a sample of 3rd-8th grade children. Specifically, the study investigates: (1) the incidence of violence exposure among children across three of the settings they encounter in their daily lives - home, school, and neighborhood, (2) the incidence of students' own self-reported violent behaviors, (3) the effect of exposure to violence on students' reports of depression, anger, anxiety, dissociation, and post-traumatic stress, (4) the relationship between exposure to violence and aggressive or predatory behaviors, (5) the degree to which parental monitoring is related to violence exposure and aggressive behaviors, and (6) the relationship between TV viewing and aggressive behaviors.

### **Mark I. Singer, Ph.D.**

*Professor of Social Work  
Mandel School of Applied  
Social Sciences  
Case Western Reserve University  
10900 Euclid Ave.  
Cleveland, OH 44106  
216/368-6176  
Fax: 216/368-8670  
E-mail: mxs12@po.cwru.edu*

### **David Miller, Ph.D.**

*Assistant Professor of Social Work  
Mandel School of Applied Social  
Sciences  
Case Western Reserve University  
10900 Euclid Ave.  
Cleveland, OH 44106  
Phone: 216/368-8755  
Fax: 216/ 368-8670  
E-mail: dbm5@po.cwru.edu*

## **Method**

The study employed a survey design using a 45-minute, anonymous self-report questionnaire administered to students in grades three through eight during the 1995-96 school year. The data collection took place during regular school hours. Students were informed that their participation was completely voluntary.

The sampling pool consisted of students in grades three through eight who were present on the day the survey was administered in eleven public schools in three school districts in Ohio. The schools included three Cleveland City schools (central city), four small city schools in northeast Ohio (small city), and four schools from a rural county in northern Ohio (rural).

## **Variables and Instrumentation**

The Life Experiences Survey used in this study is a 45-minute self-report questionnaire designed to measure children's exposure to violence and the psychological impact of their exposure. This instrument is an adaptation of the questionnaire used in Singer et al.'s previous study (1995) which examined high school students' exposure to violence. It was modified for use with younger children by decreasing the complexity of the response categories and altering the wording to increase comprehension and relevance for younger children.

There are seven areas on the questionnaire: demographics, recent violence exposure, past violence exposure, recent aggressive/predatory behaviors, trauma symptoms, parental monitoring, and television viewing behaviors.

**Demographic Variables.** Demographic information included age, gender, grade level, race/ethnicity, number of people in the home, and parent composition in the home.

**Recent Exposure to Violence.** Recent exposure to violence was measured by directly asking children to report violence they had experienced or personally witnessed over the past year. Students were asked not to include events they may have seen or heard about from other people or from other sources such as television. The 26 items contained in this part of the questionnaire were derived from the 24-item Recent Exposure to Violence Scale (Singer, Anglin, Song & Lunghofer, 1995) which examined six types of violence: threats, slapping/hitting/punching, beatings, knife attacks, gun violence, and sexual abuse. Two questions were added that asked children whether they had experienced or witnessed someone having a gun pointed at them.

**Past Exposure to Violence.** Past exposure to violence was measured through a modified 12-item version of the 10-item Past Violence Exposure Scale which was included in Singer et al.'s study. Children were asked to report specific acts of violence they had experienced or witnessed during their lifetime not including the past year. The same types of violence described above were included.

**Recent Aggressive/Predatory Behaviors.** Aggressive behaviors were measured by asking students to report how often during the past year they had engaged in each of five violent acts: threatening others, slapping/hitting/punching *before* the other person hit them, slapping/hitting/punching *after* the other person hit them, beating-up someone, and attacking someone with a knife. The six-item Violent/Predatory Behavior Scale study achieved a Cronbach's alpha of .79 in a previous study of high school students (Song, Singer & Anglin, In press).

**Trauma Symptoms.** Trauma symptoms were measured using the Trauma Symptom Checklist for Children (TSC-C; Briere, 1996). The TSC-C is a self-report measure of posttraumatic distress and related psychological symptomatology. It was

## Exposure to Violence

written to be understandable to children as young as eight years. The TSC-C consists of 54 items that yield six clinical scales: anxiety, depression, posttraumatic stress, dissociation, anger, and sexual concerns. Items from the sexual concern scale were not included because of objections from school administrators.

**Television Viewing.** Three questions were included to measure children's television viewing habits. The first question asked students to select the amount of television viewed daily from six response categories. The second question asked students to select their favorite type of television program from among seven categories. Finally, students were asked about the kind of television programming available in their home.

**Parental Monitoring.** Parental monitoring was measured using an adaptation of a parental monitoring questionnaire (Flannery, Vazsonyi, Torquati & Fridrich, 1994). Flannery et al. reported their scale achieved a Cronbach's alpha of .77; our 7-item scale achieved an alpha of .76.

## Results

A final sample of 2,245 students was obtained, representing 80% of the students in all schools at the time of the survey. The mean age of participants was 11 years old ( $SD = 1.8$ ); 51% of the sample was male. The sample was 57% white, 33% African American, 5% Hispanic, and 5% other.

Levels of victimization by violence within the past year were high, especially among males. Across the three sites, 41% to 50% of boys reported being slapped, hit, or punched at school; and 7% to 18% reported being beaten up in their own neighborhoods. Additionally, 12% to 17% reported having had a gun pointed at them, and 6% to 11% reported having been attacked or stabbed with a knife. Rates of female victimization by violence within the last year were also high: 38% to 45% reported being

slapped, hit or punched at home, 4% to 10% reported being attacked or stabbed with a knife, and 8% to 15% reported having been sexually abused.

Rates of recent witnessing of violence within the past year were as follows: For boys across sites, from 62% to 78% had seen someone beaten up in school, from 34% to 70% had seen someone beaten up in the neighborhood, and from 13% to 44% had seen someone shot at or shot. For girls across sites, from 8% to 35% had witnessed someone being sexually abused, from 16% to 35% had seen someone being beaten up at home, and from 8% to 38% had seen someone being shot at or shot.

Almost without exception, boys reported higher rates of aggression toward others than girls did. Approximately half of all boys reported having hit someone within the last year *before* being hit. Over 80% of all boys reported having hit someone within the last year *after* being hit. From 43% to 69% of central city, small city, and rural boys reported having beaten up someone within the past year. From 37% to 52% of girls reported having hit someone *before* being hit and from 66% to 76% reported having hit someone *after* being hit within the past year.

Over one in five students reported watching over six hours of television per day. There were clear gender differences in students' favorite type of television program. The largest category selected by boys was "shows that have lots of action and fighting," with 44% of boys selecting this as their favorite type of television show. The second largest category of show for boys was "shows that are funny" (33%). For girls, the largest category of programming was "shows that are funny" (38%), followed by "shows that feature music videos" (29%).

Through use of multiple regression analyses, the relationship between violence exposure and total trauma symptoms (measured by total Trauma Symptom Checklist score) was assessed for students across school sites. The results revealed that,

after controlling for demographic variables, violence exposure variables explained 35% of the variance in the total trauma symptom score.

Hierarchical multiple regression was used to explore the degree to which children's own violent behaviors could be explained by the following: demographic variables, parental monitoring, television viewing habits (number of hrs. viewed per day and favoring violent shows), and recent and past violence exposure. The results indicated that 45% of the variance in students' own violent behaviors was explained by the independent variables.

This study demonstrated that violence exposure was strongly related to symptoms of psychological distress in a large, diverse sample of children in grades 3 - 8. Furthermore, a strong relationship was found between children's own violent behaviors and parental monitoring, television viewing habits and exposure to violence.

## **Discussion**

The results of this study suggest that children who have been exposed to violence should have access to a responsible adult to talk with for support and assistance. Schools, as a common meeting place for children, should provide such access. Once these initial communications have occurred, determinations could be made to refer children for more intensive services as necessary. For the convenience of violence-exposed children and their families and to maximize the success rate of referrals, these services should either be provided at school or within a short distance of the school.

This study also suggests the importance of parental monitoring to the safety and security of children. Information about the significance of parental monitoring should be communicated to parents through written materials, public presentations and training workshops. It also should be recognized that due to financial, employment and

marital circumstances, some parents would find it more difficult to monitor their children. Other important ways of monitoring children should be emphasized such as after school activities, summer recreation and job programs, and programs that support the monitoring of truants.

In concert with other research, this study found that children watch far too much television and that their favorite programs often have violent themes. Parents and others should limit the amount and content of children's television viewing. Television is not an appropriate substitute for more important activities such as reading, doing homework and playing sports.

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