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## ***Early Child Risk Factors for Externalizing and Internalizing Behaviors: A 5-Year Follow-Forward Assessment***

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*The purpose of this follow-forward study was to determine if behavioral groupings, created when children were preschoolers, were associated with different outcomes 5 years later. Participating in this follow-forward study were parents of three groups of children who participated in a larger study 5 years earlier. Children had been identified as preschoolers with hyperactivity, hyperactivity and aggression, or comparisons. Response rate for the follow-forward study was 66% and attrition rates were similar across the groups. Parents completed the Child Behavior Checklist (CBCL) at the outcome assessment. Analyses were conducted to determine if the original groups could be differentiated on the CBCL factors 5 years later. Results from this study clearly illuminated the importance of early assessments of hyperactivity and aggression, as they were associated with later behavior problems.*

Given the importance of early identification of emotional and behavioral problems, more research is needed to help identify preschoolers who are at risk for future behavior problems when they enter school (Feil, Severson, & Walker, 1998). Because there is so much variation in young children's activity levels, and many early behavior problems do not persist beyond a few months, early childhood professionals often have difficulty determining when a behavior is severe enough to warrant early intervention (Barkley, 1998). It has been consistently documented that approximately half of the preschoolers who evidence behavior problems continue to manifest problems several years later (Campbell, 1997). Thus, it is a difficult task for researchers to identify early risk factors that are more associated with the continuation of behavior problems and less reflective of transient behaviors that may be related to a developmental challenge (Campbell, 1997).

The identification of children who are at risk for stable behavior problems needs more specific attention in every realm. Although

more extensive research in early risk factors is needed, past research has illuminated certain child characteristics that are strong predictors of future problems. That is, research has clearly documented the importance of early assessments of hyperactivity and aggression in determining outcomes in children (Campbell & Ewing, 1990; Moffitt, 1990). The combination of hyperactivity and aggression in preschoolers is highly predictive of future behavior problems. Therefore, the main purpose of this follow-forward study was to determine if specific early behaviors (e.g., hyperactive-aggressive) were associated with different outcomes five years later. The following review of the literature presents research on correlates of hyperactivity and aggression.

### ***Children with Hyperactivity and Aggression***

Aggression is reported to be the primary reason children with hyperactivity are placed in special education classes for children with emotional and behavioral disorders (Loney, 1987). Follow-up studies reported that 42% of

adults who were identified in childhood as having Attention Deficit Hyperactivity Disorder (ADHD) had been incarcerated (Weiss & Hechtman, 1986). The combination of rated aggressiveness and rated hyperactivity has been documented to be a stronger predictor of adult criminality than either characteristic alone (Magnusson, 1988).

Clearly, the importance of early identification of children most at-risk for hyperactive and aggressive symptomatology is underscored by outcome data from past research on adults with co-existing disorders. From a recent review of the literature, it was concluded that preschoolers with hyperactivity are at great risk for having negative behavioral outcomes when their hyperactivity is accompanied by aggression (Stormont, 1998). This conclusion was supported by research documenting that aggression carries the greatest risk for predicting continued problems for preschool boys with hyperactivity (Campbell & Ewing, 1990). More specifically, this research documented that 67% of children who evidenced both hyperactivity and aggression in their preschool years continued to have severe behavior problems at age 9 (Campbell & Ewing, 1990).

Children with hyperactivity and aggression have behavioral differences that can be traced back to infancy. One longitudinal study (Sanson, Smart, Prior, & Oberklaid, 1993) assessed and identified behavioral and temperamental characteristics of infants who were identified later as children with co-existing hyperactive and aggressive behavior problems. These infants were rated by their mothers as having more behavior problems (i.e., colicky) and a more difficult temperament (i.e., irritable and difficult to manage) at 4 months of age than infants later identified as purely hyperactive. Thus, difficult behavior in infancy may be a precursor of aggression. Furthermore, in the same study, mothers of preschool age children who later were identified as hyperactive-aggressive reported that their children were more irritable and reactive at 3 years of age, more inflexible at 4 years of age, and more inflexible and less persistent at 5 years than mother

reports of preschooler later identified as only hyperactive (Sanson et al., 1993).

### ***Purpose***

The importance of early differentiation of groups is clear only when the groups can be differentiated at a later date on behavioral outcomes. Therefore, the purpose of this study was to determine if three groups of preschoolers differed on 5-year follow-forward ratings. Children in the first group had been identified as preschoolers with hyperactivity, children in the second group had been identified as preschoolers with hyperactivity and aggression, and children in the third group were preschoolers who did not evidence behavior problems and served as comparisons. If differences in the groups were found, it would suggest strong support for the need to conduct behavioral screening for preschoolers. More specifically, a finding that preschoolers with hyperactivity and aggression have different 5-year outcomes than preschoolers with only hyperactivity would support past research suggesting the importance of differentiating hyperactivity from aggression in determining risk (Stormont, 1998; Stormont-Spurgin & Zentall, 1995).

### ***METHOD***

#### ***Participants from Intake Study***

Participants in the follow-forward study also were participants in a larger, intake study, thus a description of the intake study participants is provided first. Because boys are roughly four times more likely than girls to be identified as hyperactive (Barkley, 1990), only male preschoolers were recruited for the intake study (Stormont-Spurgin & Zentall, 1995). None of the preschoolers had a diagnosis of ADHD.

Forty percent of the participants who met the initial criteria attended four affiliated child care facilities that primarily served families of lower-middle to middle SES: The remaining 60% of the participants were recruited from birth records in nearby cities. From these recruitment sources, families of male preschoolers between the ages of 3 and 5 were sent a

letter of invitation and a brief rating scale (the Werry Weiss Peters Activity Scale; WWP; Werry, 1968) to complete. Preschoolers rated either 1 SD above the mean or rated at or below the mean, met the criteria for further participation.

Ratings by the mother and, where available, by the teacher were used for group classification. Forty-three of the participants (63%) were attending preschool during the initial assessment and had teacher ratings of their behavior. Because not all children were attending school, preschoolers were classified into at-risk groups according to reports from either their teacher or their main caretaker. Past research used a similar method to classify behavioral groups of preschoolers and documented a high correspondence (75%) between mother and teacher reports of preschoolers' aggressive or hyperactive behavior (Campbell, March, Pierce, Ewing, & Szumowski, 1991).

The Werry Weiss Peters Activity scale and the Preschool Behavior Questionnaire (PBQ; Behar, 1977) were used for group classification. Both measures have been used extensively to differentiate groups of preschoolers with hyperactivity from comparison preschoolers (Campbell, Breaux, Ewing, Szumowski, & Pierce, 1986; Mash & Johnston, 1982). In addition, at the time of initial data collection, these were among the few instruments with standardized means for preschool populations.

In the initial study, children were placed into four groups. Forty-one boys were rated by their mothers or their teachers at or above the 90<sup>th</sup> percentile on the hyperactive-distractible factor of the PBQ. Twenty-nine of those children also were rated as aggressive on the PBQ (90<sup>th</sup> percentile). Thus 29 boys were placed into the preschoolers identified as hyperactive-aggressive group and the remaining 12 constituted the preschoolers identified as hyperactive group. Seven boys were rated by their mother or their teacher as evidencing aggression (without hyperactivity), and they were placed in the preschoolers identified as aggressive group. Fifteen preschoolers did not fit into any of the three previous groups, and they formed the preschool comparison group.

### ***Follow-Forward Participants***

Forty-one participants in the intake study responded to a request to participate in the follow-forward study. Because one participant was lost during data collection for the intake study, the response rate (66%) for the 5-year follow-forward assessment study was based on the 62 remaining participants. A 66% response rate is similar to past research in this area (e.g., Campbell & Ewing, 1990). Forty-seven fathers participated in the intake study and 28 participated in the follow-forward study, giving an attrition rate similar to mothers (60%). All 28 fathers who participated in the follow-forward study had participated in the intake study. Overall, attrition rates were similar across the groups (66–67%). Children were placed in the follow-forward groups according to their identification for the intake study. Nineteen children were in the hyperactive-aggressive group, 8 in the hyperactive group, and 10 in the comparison group. Children initially identified as aggressive were not included in the follow-forward study because of their small number ( $n = 4$ ), thus the final sample size for the follow-forward study was 37.

Participants in the follow-forward study were Caucasian children between 8 and 11 years of age, and in grades 3 to 6. Demographic data collected for the intake study was analyzed for the follow-forward study to determine if remaining participant groups differed on any early family or child variables. Analyses of variance did not yield group differences for any previously assessed family or child characteristic including marital status, family salary, occupation of the mother, educational level of the mother, child age, Woodcock-Johnson overall ability cluster, Woodcock-Johnson knowledge cluster, and Woodcock-Johnson preschool skills cluster.

### ***Procedures and Measures from Intake Study (Stormont-Spurgin & Zentall, 1995)***

After permission was obtained for participation in the intake study, the first author and a graduate research assistant made a home visit to collect data. The first author administered

the Preschool Behavior Questionnaire (Behar, 1977) to parents while the graduate assistant administered the Woodcock-Johnson (used to assess group equivalence) to the children.

*The Preschool Behavior Questionnaire (PBQ).* The PBQ is a preschool adaptation of the Children's Behaviour Questionnaire (Rutter, 1967). A factor analysis yielded three factors: Anxious-Fearful, Hyperactive-Distractible, and Hostile-Aggressive. As in previous research, only the latter two factors were included for the identification and assessment of behavioral differences and outcomes (Campbell et al., 1991). Teacher and parent ratings on these two PBQ factors have documented excellent correspondence with DSM III-R scale ratings ( $r_s' .62-.85$ ; Strayhorn & Weidman, 1991).

*Werry Weiss Peters Activity Scale (WPA; Werry, 1968).* The WPA is a parent rating scale used with the Routh, Schroeder, and O'Tauma (1974) scoring criteria and considered a good measure of attention as well as activity. That is, significant correlations have been documented between parents' ratings of overactivity and computerized vigilance measures of attention in preschoolers ( $r = .40$  to  $.48$ ; Harper & Ottinger, 1992), as well as between teachers' ratings of overactivity and inattention ( $r = .48$ ; Edelbrock, Greenbaum, & Conover, 1985).

*The Woodcock-Johnson Psycho-Educational Battery (Woodcock, 1978).* The Woodcock-Johnson is a comprehensive test of cognitive ability. The Woodcock-Johnson has a total of 22 subtests available for scoring. The preschool battery contains a representative 12 of the 22 subtests that are combined to derive the following three clusters: broad cognitive ability (e.g., memory for sentences, picture vocabulary), knowledge (e.g., science), and skills (e.g., letter-word identification). The Woodcock-Johnson is a good measure of early achievement and aptitude and has established concurrent validity with many measures including the Peabody Picture Vocabulary Test-Revised and the McCarthy General Cognitive Index (Woodcock, 1978).

### ***Follow-forward Measure and Procedures***

*Behavioral outcome measure.* The measure used in the 5-year, follow-forward study was The Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983). According to Barkley (1990) and other professionals in the field of ADHD (Lerner, Lowenthal, & Lerner, 1995), the CBCL is the behavior rating scale that most thoroughly assesses child behavior problems. It is a 138-item measure of child behavior problems and social competence. The Behavior Problems scale includes 118 items and encompasses the two broad band factors of internalizing and externalizing behavior problems. The remaining 20 items comprise the Social Competence scale of the CBCL, which generates scores on three social dimensions (a) involvement in activities, (b) general social, and (c) school competence. Psychometric properties of the scale are very strong including high test-retest reliability coefficients, significant correlations with other measures of behavior problems in children, and robust discriminate validity.

*Follow-forward procedures.* Attrition rates were minimized by (a) contacting parents by phone prior to mailing permission letters, (b) checking with the child care facilities used for participant recruitment at intake for addresses of parents who had moved, and (c) paying parents for their participation. Additionally, the "people finder" program on Netsearch (within Netscape) was used. After parents were located, they were mailed an informational letter and a permission slip. Once located, no parent refused to participate in the follow-forward study. After permission was obtained, mothers and fathers (where available) were mailed the CBCL. In a cover letter parents were solicited to take 15 to 20 minutes of their time to complete and return the CBCL. Written instructions for the questionnaire are very clearly written, thus no additional instructions were provided. The instructions for the 118 items that comprise the Behavior Problems scale indicate that parents should rate each behavior as 2 (*very much true of their child*), 1 (*sometimes or somewhat true of their child*), or 0 (*not true of their child*).



Upon return of the rating scales, parents were paid \$10 for their participation. Teachers also were recruited for participation, however, only five responded. The low rate of teacher participation was probably due to the fact that once teacher's names were received and parent permission to contact them was secured, data collection was occurring in the months of April and May, which are two very busy months for teachers.

## **RESULTS**

Data were analyzed to examine whether groups of children previously identified as preschoolers with hyperactivity, preschoolers with hyperactivity and aggression, or comparison preschoolers differed on a 5-year follow-forward rating. One way Analyses of Variance (ANOVAs) were employed on the Child Behavior Checklist (CBCL) data with the three groups as the independent variable. Both mothers and fathers were asked to complete the outcome measure. Previous research used two informants to obtain a composite rating of behavior problems and fathers' ratings have been used when teacher ratings were not available. In this study, composite scores were not calculated because both mother and father ratings were available for only 68% of the participants.

The main analyses were on the Behavior Problems scale and the externalizing and internalizing broad band factors within the Behavior Problems scale. To control for number of tests run and protect from Type 1 errors, mother and father-ratings on the CBCL were examined first in terms of their child's score on the Behavior Problems scale. If statistically significant or marginally significant ( $p < .10$ ) differences were found on the Behavior Problems scale then the externalizing and internalizing broad band factors were examined. If a statistically significant difference was documented in one of the broad band factors, then individual scales (i.e., aggression, delinquent) within that factor were examined. Many of the participants had been rated hyperactive-distractible as preschoolers, however, attention was not included in the externalizing or inter-

nalizing factors. Thus, if statistically significant differences were yielded on the Behavior Problems scale, then analyses also were conducted on children's attention scores. Parent-rated Social Competence scores from the CBCL (i.e., activities, social, and school) also were analyzed as an exploratory investigation in this area. Where statistically significant or marginally significant group differences ( $p < .10$ ) were documented in the ANOVAs, planned comparisons were conducted to investigate group differences between: (a) hyperactive-aggressive + hyperactive vs. comparison, and (b) hyperactive-aggressive vs. hyperactive.

### ***Mothers' Follow-Forward Ratings***

Marginally significant group differences were found on the mothers' ratings for the total Behavior Problems scale. Planned comparisons indicated that both groups of children identified as preschoolers with hyperactivity had higher total problem scores than comparison children and no differences were found between the two groups of children identified as preschoolers with hyperactivity and preschoolers with hyperactivity-aggression (see Table 1). Analyses of Variance conducted on the two broad band factors yielded statistically significant group differences on the externalizing scale but not on the internalizing scale. Planned comparisons on the externalizing scale indicated that the two groups of children identified as preschoolers with hyperactivity and preschoolers with hyperactivity-aggression had higher externalizing scores than the comparison group, but no differences were yielded between the two groups.

For the individual subscales within the externalizing factor on the CBCL, differences were not documented for mothers' ratings of aggressive or delinquent behavior, although both subscales were approaching marginal significance. A trend was found for maternal ratings of attention with planned comparisons indicating that groups of children identified as preschoolers with hyperactivity and preschoolers with hyperactivity-aggression, who did not differ, had higher ratings of attentional problems than the comparison group.

**Table 1.**  
Group Mean *T* Scores, Analysis of Variance, and Planned Comparisons for CBCL Variables

	T Scores by Group			ANOVA		Planned Comparisons			
	H-A	<i>M</i> ( <i>SD</i> ) H	C	<i>F</i> ( <i>df</i> )	<i>p</i>	H-A + H vs. C		H-A vs. H	
Mother Rated						<i>T</i>	<i>p</i>	<i>T</i>	<i>P</i>
Behavior Problems	54.3 (11.9)	54.1 (10.7)	44.8 (07.1)	2.89 (2,33)	.070	2.89	.008	0.03	.980
Internalizing	52.6 (11.6)	55.5 (10.3)	48.6 (09.6)	0.94 (2,33)	.402	—		—	—
Externalizing	54.9 (10.0)	53.1 (10.7)	41.3 (09.0)	6.41 (2,33)	.005	3.52	.002	0.40	.700
Delinquent	57.1 (07.6)	55.0 (08.0)	51.3 (03.0)	2.39 (2,33)	.108	—		—	
Aggressive	56.9 (07.0)	55.8 (08.7)	51.4 (03.0)	2.26 (2,33)	.120	—		—	
Attention	57.6 (09.2)	55.4 (06.3)	50.9 (02.2)	2.65 (2,33)	.086	3.26	.003	0.70	.490
Social Competence									
Activities	45.3 (07.8)	49.0 (06.4)	51.7 (04.0)	3.10 (2,33)	.059	-2.36	.027	-1.26	.230
Social	40.7 (11.4)	48.4 (08.9)	50.8 (04.7)	3.92 (2,32)	.030	-2.40	.024	-1.86	.080
School	46.1 (09.0)	44.8 (07.8)	52.7 (04.3)	2.77 (2,32)	.078	-3.22	.004	0.38	.710
Father Rated	H-A	H	C			H-A + H vs. C		H-A vs. H	
Behavior Problems	59.3 (09.2)	51.5 (12.0)	43.0 (04.5)	8.77 (2,23)	.002	3.90	.002	1.77	.090
Internalizing	58.3 (07.5)	52.2 (14.9)	45.7 (08.2)	4.10 (2,23)	.030	2.26	.041	0.94	.380
Anxious	58.8 (06.7)	56.3 (11.0)	51.6 (04.0)	2.55 (2,23)	.100	2.05	.050	-0.34	.740
Somatic	54.3 (07.8)	54.7 (07.5)	53.6 (04.9)	0.53 (2,23)	.949	—		—	
Withdrawn	57.3 (07.0)	56.5 (10.7)	51.3 (02.8)	1.96 (2,23)	.163	—		—	
Externalizing	57.7 (09.3)	49.2 (05.2)	41.6 (05.7)	11.91 (2,23)	.000	4.59	.000	2.28	.032
Delinquent	58.8 (07.6)	51.3 (02.1)	50.4 (01.3)	7.76 (2,23)	.002	3.57	.003	2.87	.009
Aggressive	58.4 (08.0)	52.0 (03.2)	50.1 (00.3)	6.09 (2,23)	.008	3.68	.002	2.29	.032
Attention	63.0 (10.3)	54.5 (10.1)	51.7 (03.0)	4.80 (2,22)	.018	2.56	.023	1.98	.060
Social Competence									
Activities	47.1 (08.3)	48.5 (07.9)	49.1 (08.7)	0.15 (2,23)	.859	—		—	
Social	42.1 (10.6)	50.3 (07.3)	50.2 (06.6)	2.83 (2,23)	.079	-1.11	.280	-1.88	.073
School	41.9 (09.0)	46.5 (10.0)	53.2 (03.0)	5.28 (2,23)	.013	-3.41	.005	0.94	.370

Note. H-A = Hyperactive-Aggressive, H = Hyperactive, C = Comparison.

Analyses conducted on the activities, social, and school scores on the Social Competence scale yielded group differences for all three scores. Statistically significant differences were found for social behavior and marginally significant group differences were documented for mothers' ratings of school success and child involvement in activities. Planned comparisons indicated that mothers of children initially identified as preschoolers with hyperactivity and preschoolers with hyperactivity-aggression had lower scores on activities, social competence, and school success than comparisons. Groups of children initially identified as preschoolers with hyperactivity-aggression also were rated as marginally less socially competent than children initially identified preschoolers with hyperactivity.

### ***Fathers' Follow-Forward Ratings***

Statistically significant group differences were found for fathers' ratings on the Behavior Problems scale. Planned comparisons indicated that the groups of children initially identified as preschoolers with hyperactivity and preschoolers with hyperactivity-aggression had higher total problem scores than the comparison group and marginal differences were yielded between the two groups. Children initially identified as preschoolers with hyperactivity and aggression had marginally higher total behavior problems than children initially identified as preschoolers with hyperactivity. Unlike mothers' data, ANOVAs conducted on the two broad band factors yielded statistically significant group differences on both the internalizing scale and the externalizing scale.

Planned comparisons on the internalizing factor indicated that groups of preschoolers with hyperactivity and preschoolers with hyperactivity-aggression did not differ from each other but when the groups were combined, children had more internalizing problems than children in the comparison group. For the individual subscales within the internalizing factor on the CBCL, marginally significant group differences were found for fathers' ratings of anxiety with planned comparisons documenting that both groups with hyperactivity, who did not differ, had marginally higher anxiety

scores than comparisons. No statistically significant or marginally significant differences were yielded for the other two internalizing subscales (i.e., somatic and withdrawn).

Planned comparisons on the externalizing scale indicated that combined, children in the preschoolers with hyperactivity group and the preschoolers with hyperactivity-aggression group had higher externalizing scores than children in the comparison group, and children in the group initially identified as preschoolers with hyperactivity-aggression had higher scores than children in the preschoolers initially identified as hyperactive group. For the individual subscales within the externalizing factor on the CBCL, statistically significant group differences were found for both fathers' ratings of aggression and delinquent behavior. Planned comparisons on the aggressive and delinquent behavior scales indicated that children in the group initially identified as preschoolers with hyperactivity-aggression had statistically significantly higher scores than did children in the group initially identified as preschoolers with hyperactivity. When combined, group of children initially identified as preschoolers with hyperactivity and preschoolers with hyperactivity-aggression had higher scores than the comparison group. Statistically significant differences also were found for fathers' ratings of attention. Planned comparisons on the attention scale indicated that the two groups of preschoolers with hyperactivity had higher ratings of attentional problems than children in the comparison group, and children in the group initially identified as preschoolers with hyperactivity and aggression had marginally higher scores than those initially identified as preschoolers with hyperactivity.

Analyses conducted on the activities, social, and school scores yielded statistically significant differences for fathers' ratings of school success. Planned comparisons indicated that fathers' school success ratings for children in the groups initially identified as preschoolers with hyperactivity and preschoolers with hyperactivity-aggression, which did not differ from each other were lower than comparison children. Marginally significant differences



were documented for fathers' ratings of social behavior with planned comparisons indicating that children initially identified as preschoolers with hyperactivity-aggression were rated as marginally less socially competent than children initially identified as preschoolers with hyperactivity. Interestingly, the combined groups of children identified as preschoolers with hyperactivity and hyperactivity-aggression did not differ from the comparison group on social competence. No group differences were documented for involvement in activities.

*Supplementary analysis of school services.* The CBCL has an item that asks parents to indicate if their children are receiving special services. Based on parental response to this question, of the 37 children who participated in this study, 8 (22%) were receiving supplementary educational services such as special education for gifted and talented, speech, reading, spelling, math, and services for general learning problems. Specifically, one child in the hyperactive group was receiving services for gifted and talented, and seven children (three in the hyperactive group and four in the hyperactive-aggressive groups), were receiving a remedial service. One child from the hyperactive-aggressive group was receiving services for giftedness in addition to speech services. No children in the comparison group were receiving supplementary educational services.

## **DISCUSSION**

Research that can contribute to the identification of children with the beginning signs of relatively stable and serious behavior problems is greatly needed. The purpose of this study was to determine if children who were placed in behavioral groups when they were preschoolers could be differentiated on a behavioral measure 5 years later. Mother and father data were analyzed to determine if children in different behavioral groupings had more behavior problems at outcome. Typically, teacher ratings are analyzed for cross-informant purposes, however, few teacher ratings were available so fathers' ratings were

used. Previous research also has used fathers' ratings to support mothers' ratings when no teacher ratings were available (Campbell, Pierce, Moore, Marakovitz, & Newby, 1996). In this study, it was particularly important to determine if children from the original groups were viewed as having persistent behavior problems according to at least one informant (mothers or fathers).

At the follow-forward assessment, fathers' ratings for the three groups of children yielded groups differences on more variables than mothers' ratings. Statistically significant group differences were found for fathers' ratings of total problems, internalizing problems, externalizing problems, and on the specific factors of delinquency, aggression, attention, and school problems. For all of the above factors, children who were rated hyperactive as preschoolers, with or without combined aggression, had higher ratings than comparison children.

Of particular interest for this study are the outcome factors that differentiated groups of children initially identified as preschoolers with hyperactivity from those initially identified as preschoolers with hyperactivity-aggression. Children initially identified as preschoolers with hyperactivity and aggression had statistically significantly higher scores on the externalizing scale 5 years later than children initially identified as preschoolers with hyperactivity. More specifically, children initially identified as preschoolers with hyperactivity-aggression had higher scores on aggression and delinquent behavior than those children initially identified as preschoolers with hyperactivity.

Although fewer differences in the three groups were documented for mothers' follow-forward ratings, a few statistically significant differences among the groups did emerge. On the CBCL factors, both groups of children identified as preschoolers with hyperactivity (with and without aggression) had higher maternal ratings of externalizing problems and social problems than children in the comparison groups, although no differences were noted between the two groups. Social competence was the only outcome factor differenti-

ating the group of children identified as preschoolers with hyperactivity from the group of children identified as preschoolers with hyperactivity-aggression. Children initially identified as preschoolers with hyperactivity-aggression were rated as marginally less socially competent at the follow-forward assessment than children initially identified as only hyperactive. This marginal finding is addressed in the following implications because it was documented in both mothers' and fathers' ratings.

### **Implications**

Four main implications can be drawn from the group difference findings. First, preschoolers with hyperactivity, both with and without aggression, have more problems than their peers when they enter school and their problems reside specifically in externalizing behavior (delinquency, aggression), internalizing problems, attentional problems, general school success (e.g., repeated a grade, school problems), and social competence. Second, children who are identified as preschoolers with hyperactive-aggressive behaviors have greater problems 5 years later than preschoolers identified as only hyperactive. Thus, what is clear, especially based on the fathers' data, is that early identification of children with both hyperactivity and aggression has merit, as indicated in previous research (Sanson et al., 1993; Stormont-Spurgin & Zentall, 1995). Preschool children identified with hyperactive-aggressive behaviors are at greater risk for overall externalizing behavior, aggression, delinquency, and problems in social competence, than are preschoolers identified with only hyperactive behaviors. Therefore early childhood professionals should conduct behavioral screenings that include measures that separate hyperactive from aggressive symptomatology.

The third main implication from this research is the importance of assessing early behavior patterns, which are related to later social competence. Past research supports the notion that the development of aggression is the most pervasive social problem for children with hyperactivity. Research indicates that ag-

gression toward peers is strongly associated with peer rejection (e.g., Strassberg, Dodge, Bates, & Pettit, 1992). High ratings of hyperactivity and aggression have been found to be positively correlated with negative peer ratings (Rubin & Clark, 1983) and negative peer nominations for students in first through sixth grades (Pope, Bierman, & Mumma, 1989).

Furthermore, longitudinal research has found that kindergarten children with high hyperactivity and aggression ratings are more likely to have third and fourth grade outcomes of peer-rated aggression, and self-reported delinquency, than kindergarten children with hyperactivity and aggression ratings of average to low (Vitaro, Tremblay, Gagnon, & Pelletier, 1994). These researchers also found that, in kindergarten, 46% of the rejected children were in the group rated high on hyperactivity and aggression. Therefore, if preschoolers continue to manifest both hyperactivity and aggression over time, then early attention should be given to assist them in using non-aggressive means to solve conflicts, and their environments should be tailored to meet their developmental needs. When working with preschoolers with challenging behavior, it is important to support teachers by providing information on appropriate interventions and to support families, who possibly have multiple stressors in addition to having a challenging child (Stormont, 1998).

The fourth implication of this research is that both fathers and mothers should be included as much as possible in behavioral screenings and early intervention efforts. The importance of mothers' early ratings was illuminated as mothers' ratings (and teachers') were used to construct initial behavioral groups when children were preschoolers. This study further found that fathers' ratings at the 5-year follow-forward assessment were more associated with the early behavioral groups than mothers' ratings. Perhaps mothers of preschoolers with externalizing disorders saw great improvement in their children's behavior over the 5 year period and thus, at the follow-forward assessment these mothers did not rate their children as having as many problems as their fathers did. Research has found that

younger children with hyperactivity are in more conflict with their mothers than older children with hyperactivity (Barkley, 1995). Findings from this study indicate that fathers of school-aged children may be very sensitive to aggression and delinquent behavior. Future research, however, is needed to corroborate these findings.

This study also has several limitations that should be addressed. First, because only males were included in the intake and follow-forward studies, generalizability of findings is limited to males. Second, only a small number of teachers participated in this study. Although attempts were made to solicit teacher participation, few teacher ratings were available to corroborate parent ratings. Third, only one measure was used for the follow-forward assessment. The reason only one dependent variable was used is also the final limitation; the small number of participants warrants that findings, especially marginal findings, be interpreted with caution.

In summary, determining early child characteristics that are associated with continued or future behavior problems can help identify children who may be in greatest need of early intervention. It is critical to begin early identification efforts with preschoolers with behavior problems because, according to research conducted by Ewing and Campbell (as cited in Campbell, 1997), when problems persist into school they are more likely to be stable into adolescence. Overall, this study documented that early ratings of hyperactivity and aggression were most associated with a negative outcome 5 years later. Early ratings of hyperactivity, with or without aggression, also were associated with greater behavioral and school problems 5 years later. Findings from this study validate the need for early behavioral screenings for preschoolers. It is also important, however, that early interventionists do not overemphasize the influence of such risk factors in isolation. Once an initial screening process is completed, it is clear that the best way to work with preschoolers who are at risk is to thoroughly examine family and social contexts (Campbell, 1997) to help

further identify children who are at greatest risk and initiate services.

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