



Published in final edited form as:

*J Clin Child Adolesc Psychol.* 2002 September ; 31(3): 299–311.

## Predictors and Consequences of Aggressive–Withdrawn Problem Profiles in Early Grade School

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### Abstract

Identified first-grade children who exhibited 4 different behavior problem profiles from an initial sample of 754: aggressive–withdrawn ( $n = 63$ , 8%) aggressive only ( $n = 165$ , 22%), withdrawn only ( $n = 94$ , 12%), and nonproblem ( $n = 432$ , 57%). Group comparisons revealed that children who became aggressive–withdrawn in first grade exhibited deficits in attention and social skills in kindergarten. Furthermore, these kindergarten deficits contributed to the emergence of their aggressive–withdrawn behavior problems in first grade, after accounting for kindergarten levels of aggressive and withdrawn behaviors. In later grades, aggressive–withdrawn first-grade children were more likely than children in any other group to demonstrate poor peer relations and poor academic performance. In addition, kindergarten skill deficits added to first-grade aggressive and withdrawn behavior problems to predict third-grade social and academic adjustment difficulties. The results document the key role of early inattention and social skill deficits in the prediction of aggressive–withdrawn problem profiles, validate the significance of this problem profile at school entry, and identify potential developmental mechanisms that have implications for preventive interventions.

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Clinical models of child psychopathology (according to the *Diagnostic and Statistical Manual of Mental Disorders* [4th ed. {*DSM-IV*}, American Psychiatric Association, 1994]) and a host of factor analytic studies distinguish between two broadband dimensions of child psychopathology—externalizing problems, such as aggression, and internalizing problems, such as social withdrawal (Achenbach, 1991a; Ollendick & King, 1994). Despite the robust nature of the internalizing/externalizing distinction, there are some behavior problems, including attention problems and peer relation difficulties, that are correlated significantly with both aggressive and withdrawn behaviors. In addition, a surprising number of children show high rates of comorbid aggressive and withdrawn problems (Cole & Carpentieri, 1990; McConaughy & Achenbach, 1994)—a profile associated with heightened risk for the development of learning problems, depression, delinquency, and psychopathology (Cole & Carpentieri, 1990; Kellam et al., 1991; Ledingham, 1981).

The developmental mechanisms that might account for the emergence of aggressive–withdrawn problem profiles in grade school are not well understood. Previous studies have not

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examined the precursor characteristics of aggressive–withdrawn children prior to school entry. In addition, although longitudinal follow-up studies have documented considerable stability in the behavior problems of aggressive–withdrawn children (Ledingham & Schwartzman, 1984; Werthamer-Larsson, Kellam, & Wheeler, 1991), questions remain regarding the extent to which problem outcomes are a direct consequence of the early aggressive and withdrawn behavior problems or a reflection of skills deficits associated with these problem behaviors. This study had two goals: (a) to examine the precursors of first-grade aggressive–withdrawn problem profiles and (b) to examine potential mechanisms accounting for links between early aggressive–withdrawn behaviors and later peer and academic difficulties.

## Characteristics of Aggressive–Withdrawn Children

When compared to aggressive-only or withdrawn-only grade-school children, aggressive–withdrawn children are differentiated by two key characteristics—social skill deficits and inattention. For example, in one of the first and most comprehensive studies on this issue, Ledingham (1981) found that, relative to aggressive-only or withdrawn-only peers, aggressive–withdrawn children received elevated teacher and parent ratings for social skill deficits (social dependency and immaturity) and for attention problems.

Consistent with parent and teacher reports of social skill deficits, other investigators have found that aggressive–withdrawn grade-school children are more often rejected by peers than are aggressive-only or withdrawn-only children (Boivin, Poulin, & Vitaro, 1994; Milich & Landau, 1984) and perceive themselves to be less socially competent than their classmates (Moskowitz, Schwartzman, & Ledingham, 1985).

In addition, the attention problems Ledingham (1981) documented for aggressive–withdrawn children have been confirmed by other investigators using teacher ratings (Kellam et al., 1991; Ledingham, 1981; Milich & Landau, 1984) and observations (Milich & Landau, 1984). A follow-up study suggested that aggressive–withdrawn elementary-school children continue to show deficits in these two areas of attention and social development through adolescence (Serbin, Schwartzman, Moskowitz, & Ledingham, 1991).

One unexplored question involves the developmental relation between attention and social skills deficits and aggressive–withdrawn problem profiles. It is possible that these skill deficits may not simply co-occur with aggressive and withdrawn problem behaviors but may instead serve as etiological risk factors, contributing to the emergence or escalation of both aggressive and withdrawn behavior problems at school entry (e.g., the aggressive–withdrawn problem profile). Previous investigations have not examined the precursor characteristics of children identified as aggressive–withdrawn in first grade, but in separate research literatures, social skill deficits and inattention have been implicated as precursors of both aggressive and withdrawn behaviors.

## Social Skill Deficits and Aggressive and Withdrawn Behavior Problems

Social skill deficits, including deficits in emotional understanding, poor social problem-solving skills, and low levels of prosocial behavior, have been linked with the development of aggressive behaviors. In a cross-sectional study, Fabes and Eisenberg (1992) found that preschool children with social skill deficits (poor emotional understanding and regulation) were prone to react aggressively in peer conflict situations. Following young children longitudinally as they entered school, Dodge, Bates, and Pettit (1990) found that social problem solving skill deficits assessed prior to school entry predicted teacher- and peer-rated aggression after school entry. In another longitudinal study, Ladd and Profilet (1996) found that children rated low in prosocial behaviors in the fall of the kindergarten year were likely to show elevated levels of aggression later in the spring of that year (correlations of  $r = -.57$  and  $-.53$  for the two cohorts).

followed). These studies all suggest that deficits in social skills (emotional understanding, social problem solving, and prosocial skills) may reduce children's ability to respond adaptively to the social demands of the school context and thereby contribute to the emergence or escalation of aggressive responding at school entry.

Social skill deficits have also been linked with the development of withdrawn behaviors. For example, observing kindergarten children, Stewart and Rubin (1995) documented that poor social problem solving skills characterized children who were socially withdrawn. In the Ladd and Profilet (1996) study, low levels of prosocial behavior in the fall predicted peer exclusion in the spring of the year, suggesting that prosocial skill deficits contributed to social withdrawal by promoting peer exclusion. In another predictive study examining kindergarten children, Vitaro, Gagnon, and Tremblay (1990) found that children with deficits in prosocial behaviors (as rated by teachers) also exhibited high levels of anxious-withdrawn behavior problems, which contributed to stable peer difficulties from kindergarten to first grade (Vitaro, Gagnon, & Tremblay, 1990).

The results of these studies suggest that deficits in social skills may decrease children's abilities to cope with the social demands that accompany school entry, leading to the emergence or escalation of aggressive or withdrawn social behavior (or, potentially, to aggressive-withdrawn problem profiles).

## **Inattention and Aggressive and Withdrawn Behavior Problems**

Attention problems have also been linked empirically with both aggressive and withdrawn behavior problems. Cross-sectional studies of grade-school children show that inattention is correlated with hostile attributions and aggressive behavior problems (Dodge & Newman, 1981; Lahey et al., 1984; Landau & Moore, 1991; Kellam et al., 1991; Whalen & Henker, 1985). In addition, a longitudinal study by Moffitt (1990) showed that high levels of preschool inattentiveness and low IQ both predicted increases in aggressive behavior after school entry (after accounting for initial aggression), suggesting that inattention and low IQ may promote the escalation of aggressive responding at school entry.

In addition to their developmental association with aggressive behavior problems, attention problems and low IQ have also been linked with the development of withdrawn behavior problems. For example, preschool children with cognitive delays show elevated rates of solitary play and difficulties sustaining peer interactions, contributing to social isolation and social withdrawal (Guralnick & Groom, 1985, 1987; Kopp, Baker, & Brown, 1992). Similarly, in a cross-sectional study of grade-school children, Lahey, Schaughency, Strauss, and Frame (1984) found that inattentive students (those with attention deficit hyperactivity disorder) received higher teacher ratings in areas of shyness and social withdrawal than comparison students (those without attention deficit hyperactivity disorder). Inattention may also predict the emergence or increase in social withdrawal in the school setting. For example, Hart et al. (1995) found that the attention deficits among grade-school boys in their sample were predictive of stable social withdrawal later in adolescence.

Thus, given their association with the development of both aggressive and withdrawn problem behaviors, it is possible that attention problems (and possibly low IQ) may serve as precursors to the development of comorbid aggressive-withdrawn problem problems by making it difficult for children to adjust to the academic and social demands of the first-grade context, increasing frustration and negative reactivity (promoting aggressive behavior problems) and increasing social isolation and peer rebuff (promoting socially withdrawn behavior problems).

## Aggressive–Withdrawn Behavior Problems, Skills Deficits, and Adaptational Failures

Longitudinal studies have documented considerable stability in the adjustment problems of aggressive–withdrawn children and shown that these children are at elevated risk for the development of poor peer relations and academic difficulties during the grade-school years (Ledingham & Schwartzman, 1984; Werthamer-Larsson et al., 1991). However, questions remain regarding the developmental mechanisms accounting for these adaptational failures. It is possible that adaptational difficulties emerge as a direct consequence of aggressive and withdrawn behavior problems, which disrupt peer relations and impede school performance. Certainly, aggressive behavior predicts learning problems and low academic attainment (Hinshaw, 1992; Huesmann, Eron, & Yarmel, 1987; Wentzel, 1991) and also predicts peer rejection (Coie, Lochman, Terry, & Hyman, 1992; Newcomb, Bukowski, & Pattee, 1993). Similarly, social withdrawal in kindergarten predicts poor reading and math achievement in third grade (Perry, Guidubaldi, & Kehle, 1979) and can impair peer relations (Rubin & Stewart, 1996; Vitaro et al., 1990).

However, in addition to the direct negative effects of behavior problems, it is possible that the inattention and social skills deficits that are associated with the emergence of aggressive–withdrawn problem profiles also contribute to adaptational failures. For example, low levels of prosocial skills and inattention-hyperactivity add unique variance (beyond that predicted by aggressive or withdrawn behavior alone) to the prediction of peer problems (Lahey, Green, & Forehand, 1980) and academic problems (Coie et al., 1992; Wentzel, 1991). Thus, the social and attentional skills deficits that characterize aggressive–withdrawn children may also impede their adaptation in the domains of peer relations and academic achievement, adding to the negative impact of the aggressive and withdrawn behaviors.

### This Study

In this study, children who exhibited one of four problem profiles at the end of the first grade were identified as (a) aggressive and withdrawn, (b) aggressive only, (c) withdrawn only, or (d) non-problem comparison. The first hypothesis was that social skill deficits, inattention, and low IQ, assessed prior to school entry, would be associated with aggressive–withdrawn problem profiles exhibited in first grade and that this prediction model would hold even after controlling for prior levels of aggressive and withdrawn behavior. The second hypothesis was that aggressive–withdrawn children would experience elevated levels of academic and social problems in later years, showing poor peer relations, high levels of peer rejection, poor grades, and elevated levels of special education. In addition, precursor social skills deficits and inattention were expected to add to aggressive and withdrawn behavior problems in predicting these problematic social and academic outcomes.

### Methods

#### Participants

Participants were 754 children selected from 135 classrooms located in four geographically diverse areas of the United States (rural central Pennsylvania; Durham, North Carolina; Nashville, Tennessee; and Seattle, Washington). Participants were drawn from the high-risk control and normative samples of the Fast Track project, a longitudinal study of the development and prevention of conduct problems; none of these youth participated in the preventive intervention components of the Fast Track project. The sample was racially diverse: 43% African American, 54% European American, and 3% other. Fifty-eight percent of the high-risk children and 42% of the normative sample came from single-parent families. The

modal Hollingshead (1979) socioeconomic status indicator (ranging from 1 to 5, with 5 as lowest) was 5.

Following a precedent set by Kellam and colleagues (Kellam et al., 1991; Werthamer-Larsson et al., 1991), participants were identified as aggressive–withdrawn, aggressive, withdrawn, or non-problem comparison at school entry based on first-grade teacher ratings (Teacher Observation of Child Adjustment–Revised). A .75 standard deviation cutoff was used to indicate elevated problem levels, with the Authority Acceptance scale assessing aggressive behavior problems and the Social Contact scale assessing shy withdrawn behavior (scales described in the next section). Aggressive–withdrawn children had elevated scores on both scales ( $n = 63$ , 8% of the sample, 45 boys and 18 girls, 42 African American and 19 European American); aggressive-only children had elevated scores on the Authority Acceptance scale but not on the Social Contact scale ( $n = 165$ , 21% of the sample, 123 boys and 42 girls, 102 African American and 61 European American); withdrawn-only children had elevated scores on the Social Contact scale but not on the Authority Acceptance scale ( $n = 94$ ; 12% of the sample, 45 boys and 49 girls, 39 African American and 49 European American); non-problem comparison children did not have elevated scores on either scale ( $n = 432$ , 59% of the sample, 222 boys and 210 girls, 166 African American and 247 European American).<sup>1</sup>

## Measures

**Aggressive and withdrawn behavior at school entry**—In the spring of the first-grade year, teachers rated each of the children in their classroom on the Teacher Observation of Child Adjustment–Revised (Werthamer-Larsson et al., 1991). Ten items on this scale comprised the Authority Acceptance scale, reflecting aggressive and acting-out behavior problems, such as “fights” and “breaks things.” Four items comprised the Social Contact scale, with low levels of contact reflecting social withdrawal (e.g., initiates interactions, plays with others). All items were rated on a 6-point Likert scale ranging from 0 (*almost never*) to 5 (*almost always*). Item responses were summed within each scale and scored so that high scores in each case represented higher levels of behavior problems. High levels of internal reliability characterized each scale (alphas of .95 and .87, respectively).

**Precursor behavior problems**—To assess aggressive and withdrawn behavior problems prior to the entry into first grade, parents and teachers completed the Child Behavior Checklist (Parent Report Form and Teacher Report Form; Achenbach, 1991b), a 113-item questionnaire describing behavior problems, with each item rated on a 3-point scale ranging from 0 (*not true*) to 3 (*very true or often true*). Based on a prior confirmatory analysis, 9 items from the Externalizing scale were identified as assessing aggressive behavior (Stormshak, Bierman, & Conduct Problems Prevention Research Group, 1998) and were summed to index aggressive behavior at home prior to entry into first grade (e.g., fighting, bullying, destroying things, teasing, threatening, swearing, physically attacking). The Social Withdrawn subscale was used to assess withdrawn behaviors at home prior to first-grade entry.

**Precursor social skills**—Five measures were used to assess social skills, including a measure of social problem solving skills, two measures of emotional understanding, and teacher and parent ratings of prosocial behaviors. For the Social Problem Solving Measure (Dodge et al., 1990), children were shown pictures depicting social entry or social conflict situations and asked what the story character could do to solve the problem. Responses were coded into six categories (i.e., aggression, competent, authority-punish, authority-intervene,

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<sup>1</sup>Note that the Fast Track sample contained an overrepresentation of high-risk children, accounting for the relatively high proportion of children in the three problem groups. Children for whom ethnicity is not reported were in the “other ethnicity” group (neither African American nor European American).

passive-inept, and irrelevant-other). Across stories, the Social Problem Solving Measure had an internal consistency coefficient (alpha) of .71, suggesting satisfactory reliability. Interrater agreement, assessed for 15% of the data, was also satisfactory ( $\kappa = .94$ ). The percentage of responses that were aggressive and the percentage competent (summed across stories) were used in analyses. The ability to identify emotions was assessed using the Emotion Recognition Questionnaire (Ribordy, Camras, Stafani, & Spaccarelli, 1988). Children were presented with 16 vignettes illustrating characters in a variety of everyday contexts (such as at a birthday party) and asked to identify the feeling states of each character by pointing to a happy, sad, mad, or scared face. Summed scores (percentage of emotions identified correctly) were computed for analysis ( $\alpha = .66$ ). On the Interview for Emotional Experience (Greenberg & Kusche, 1990), children were asked to describe something that made them feel a particular emotion (happy, sad, angry, or worried) and what they did when they felt that way or saw others feeling that way. Responses to the various feeling states (their own and others) were coded as competent/prosocial or inept/aggressive. Responses were summed across emotional states to create a score representing the percentage of prosocial/competent responses given. Interrater agreement for these codes, assessed for 15% of the data, was satisfactory ( $\kappa = .91$ ).

Parent and teacher ratings of child prosocial behavior in kindergarten were obtained using the Social Competence Scale for Parents and the Social Competence Scale for Teachers (Conduct Problems Prevention Research Group, 1998). The Social Competence Scale for Parents consisted of 12 items assessing prosocial behaviors/communication skills (e.g., helpful, shares, and listens) and emotion-regulations skills (e.g., copes well with failure, can calm down, controls temper). The Social Competence Scale for Teachers was an 18-item measure, including the same 12 items as the parent scale and an additional 6 items reflecting prosocial/communication and emotion-regulation skills observed specifically in the school setting. Items for these scales were drawn originally from the Health Resources Inventory (Gesten, 1976), the Teacher Rating of Social Skills–Teacher (Clark, Gresham, & Elliot, 1985) and the Self-Control Rating Scale (Kendall & Wilcox, 1979). Parents and teachers rated items on a 5-point Likert scale according to how well the items represented the behavior of the child. The scale ranged from 0 (*not at all*) to 4 (*very well*). Internal reliability was high ( $\alpha = .91$  for teachers and .87 for parents).

**Attention problems**—Kindergarten teachers and parents both completed the Attention Problems scale of the Child Behavior Checklist (Achenbach, 1991b). This scale included 11 items assessing children's attentional problems (i.e., can't concentrate or pay attention for too long, impulsive, and acts without thinking).

To make sure that attention problems were differentiated from general cognitive ability, we also included an assessment of general cognitive ability, using the Vocabulary and Block Design subscales of the Wechsler Intelligence Scale for Children–Revised (WISC–R). These two subtests of the WISC–R are significantly correlated with the full scale IQ ( $r_s = .74$  and .68, respectively; Sattler, 1992). A summed scaled score was used for analyses.

**Social adaptation: Peer relations**—Peer nominations were collected at the end of Grade 3. Children were asked to nominate classmates that they “liked most” and “liked least.” Unlimited nominations were accepted. Social preference scores were calculated (“like most” minus “like least”) and standardized within class. The methods established by Coie and Dodge (1983) were used to identify rejected children. Social preference scores were used as a continuous measure reflecting degree of positive peer relations, and rejected status was used as a categorical variable reflecting social maladaptation.

**Academic adaptation: Grades and special education**—Grades were collected from school records at the end of Grade 3. Grades were rated on a 13-point scale with the following

anchors: 1 (*F*), 4 (*D*), 7 (*C*), 10 (*B*), 13 (*A*). A score reflecting academic adaptation was created by summing each participant's language arts and mathematics grades for each year. In addition, children who were receiving special education services (e.g., had an Individual Education Plan) were identified from school records.

### Assessment Procedures

**Precursor problem behaviors and skills**—During a home visit made the summer before the child entered first grade, the primary caregiver (usually the mother) and the child were interviewed. During this interview, the Child Behavior List–Parent Report Form and the Social Competence Scale were read aloud to caregivers. In a separate room, children were administered the WISC–R subscales, the measures of emotion understanding and social problem solving. Caregivers received \$75 for participating in the interview, and children received a prize. Teacher ratings of precursor behavior problems, inattention, and social competence were collected at the end of the kindergarten year, prior to children's entry into first grade.

**First-grade aggressive and withdrawn behaviors**—In the spring (April–May) of the first-grade year, and again in the spring of the third-grade year, teachers were visited and, during face-to-face interviews, completed the Teacher Observation of Child Adjustment–Revised (Werthamer-Larsson et al., 1991). Teachers were reimbursed for their participation.

**Social and academic adaptation**—Peer ratings were collected at the end of the third grade. Children receiving parental permission (75% to 80% in most classrooms) were interviewed individually. First, the interviewer read a roster listing the names of all children in the classroom, checking for familiarity. Then, children were asked to nominate (unlimited) classmates whom they “most liked” and “least liked.”

## Results

### Precursor Characteristics of Aggressive–Withdrawn First-Grade Children

It was postulated that deficits in social skills (social problem solving, emotional understanding, and prosocial behavior) and cognitive functioning (inattention and low IQ) would serve as etiological factors, increasing child risk for aggressive–withdrawn problem profiles in first grade, beyond the risk associated with precursor (kindergarten) behavior problems.

Before testing this hypothesis, a preliminary set of analyses of variance was conducted comparing the precursor (kindergarten) behavior problems of children who, at the end of first grade, displayed aggressive–withdrawn, aggressive, withdrawn, or non-problem profiles. As shown in Table 1, when compared to the non-problem children, only the withdrawn-only children demonstrated elevated levels of parent- and teacher-rated withdrawal in kindergarten. Interestingly, children who became aggressive–withdrawn in first grade were not viewed as withdrawn by their kindergarten teachers, although parent ratings of withdrawal were intermediate in level (not significantly different from either the non-problem comparison children or the withdrawn-only children).

Both aggressive–withdrawn and aggressive-only children received elevated parent and teacher ratings of aggression when compared to the withdrawn-only and non-problem children. In addition, children who became aggressive–withdrawn in first grade were rated significantly more aggressive by their parents in kindergarten than children who became aggressive-only (*F* values, means, and standard deviations presented in Table 1).

Next, to test the hypothesis that precursor skill deficits would predict first-grade problem profiles, after accounting for preexisting behavior problems, a series of 4 (group)  $\times$  2 (sex) multivariate analyses of covariance (MANCOVA) was conducted. Precursor (kindergarten) levels of aggressive and withdrawn behavior problems served as covariates in these analyses. Measures were grouped into three sets for these MANCOVAs based on their conceptual and empirical associations: (a) emotional understanding, emotion recognition, and social problem solving skills; (b) teacher and peer ratings of prosocial behavior; and (c) measures of inattention and IQ.

The MANCOVA on measures of emotional understanding, emotion recognition, and social problem solving revealed a significant group effect, Wilks's lambda  $F(12, 1641) = 2.70, p < .01$ , and nonsignificant effects for sex and sex by group interaction ( $ps > .10$ ). To examine the nature of the significant group effect, separate one-way analyses of covariance (ANCOVAs) and Duncan post hoc comparisons were conducted. Precursor (kindergarten) levels of aggressive and withdrawn behavior problems served as covariates in these analyses. As shown in Table 2, aggressive–withdrawn children scored lower than aggressive-only and non-problem children on emotional recognition and emotional expressiveness (withdrawn children had intermediate scores). No group differences emerged on aggressive or competent problem solving. (Table 2 presents the least squares group means adjusted for the covariates, standard deviations, and  $F$  values.)

A second MANCOVA, conducted on parent and teacher ratings of prosocial behaviors in kindergarten, also revealed significant group differences, Wilks's lambda  $F(6, 1651) = 3.12, p < .05$ , and no significant effect for sex or sex by group interaction ( $ps > .10$ ). Separate ANCOVAs and post hoc comparisons (controlling for precursor levels of aggressive and withdrawn behavior) showed that aggressive–withdrawn children scored lower than non-problem comparison children on teacher ratings of prosocial behavior, with the scores of aggressive-only and withdrawn-only children falling between these two groups. A nonsignificant trend showed a similar pattern for parent ratings of prosocial behavior, which were lowest for aggressive–withdrawn children, but this finding did not reach statistical significance (see Table 2).

Finally, cognitive skill scores (parent and teacher ratings of attention problems and WISC subscale scores) were submitted to a third MANCOVA, revealing significant group differences, Wilks's lambda  $F(9, 1529) = 2.38, p < .05$ , and nonsignificant effects for sex and sex by group interaction ( $ps > .10$ ). ANCOVAs and post hoc comparisons revealed that all three problem groups were rated by teachers as more inattentive than the non-problem comparison group and that aggressive–withdrawn children were rated more inattentive than withdrawn-only children (with aggressive-only children intermediate between these two groups). Parent ratings of inattention did not show significant group differences. Both aggressive–withdrawn and withdrawn-only children had lower WISC–R subscale scores than non-problem children (with the scores of aggressive-only children falling in between; see Table 2). These results support the hypothesis that, after controlling for initial levels of aggression and withdrawal, children who became aggressive–withdrawn in first grade showed precursor deficits in areas of social–cognitive skills (emotion recognition, emotional expressiveness), prosocial behavior (teacher ratings), and cognitive competencies (teacher-rated inattention and IQ). Apparently, these skill deficits increased their risk for the emergence of aggressive–withdrawn problem profiles in first grade, beyond the risk associated with the aggressive and withdrawn behaviors they showed in kindergarten.

### **Grade School Difficulties of Aggressive–Withdrawn First-Grade Children**

The next hypothesis was that children who displayed aggressive–withdrawn problem profiles in first grade would experience elevated levels of academic and social problems in the later



grade school years, showing poor peer relations, high levels of peer rejection, poor grades, and elevated levels of special education.

To test this hypothesis, 4 (group)  $\times$  2 (sex) ANCOVAs were conducted to compare the third-grade social preference and academic grades of children who, in first grade, showed aggressive-withdrawn, aggressive-only, withdrawn-only, or non-problem profiles. First-grade levels of social preference and academic grades served as covariates to control for initial group differences. Significant group differences emerged on third-grade measures of peer social preference and academic grades, with no significant effects for sex or sex by group interactions. Post hoc comparisons revealed that children who, in first grade, showed aggressive-withdrawn problem profiles scored significantly lower than the non-problem groups on both peer ratings of social preference and academic grades 2 years later, in third grade. Aggressive-only and withdrawn-only children received social preference ratings that were intermediate between the scores received by aggressive-withdrawn and non-problem students (and not significantly different from either of these groups). Like the aggressive-withdrawn children, both aggressive-only and withdrawn-only children received lower grades than non-problem students (see Table 3 for means, standard deviations, and *F* values).

Although it is important to know that aggressive-withdrawn children were at risk for lower grades and lower peer preference, it is also useful to determine their risk for significant levels of maladaptation. Two categorical measures were used to identify students who were experiencing significant levels of adjustment problems in third grade—peer rejection to index significant social adjustment problems and special education to index significant academic adjustment problems. Chi-square analyses were used to compare first-grade groups on the incidence of these third-grade problems. Problem profiles at first grade predicted third-grade peer rejection,  $\chi^2(6) = 48.93, p < .001$ . Pairwise comparisons revealed that rates of third-grade peer rejection were significantly higher for children who, in first grade, had been aggressive-withdrawn (60% rejected) than for those who had been aggressive-only (34%), withdrawn-only (21%), or non-problem (14%). First-grade problem profiles also predicted the emerging need for special education,  $\chi^2(6) = 35.90, p < .001$ . Pairwise comparisons revealed that children who were aggressive-withdrawn in first grade were significantly more likely to require special education by third grade (45%) than were children who had been aggressive-only (24%) or non-problem (12%), with intermediate rates for children who had been withdrawn-only in first grade (34%). Consistent with previous research, the aggressive-withdrawn children in this study were thus more likely than aggressive-only, non-problem, or withdrawn-only children to experience significant adjustment problems in the domain of peer relations and significantly more likely than non-problem or aggressive-only children to require special education support.

### Predictive Models for Social and Academic Difficulties

Next, we addressed the critical question regarding the relative contributions that early behavior problems and early skill deficits made to the prediction of the later peer and academic problems. Simple correlations between kindergarten and first-grade predictors and third-grade outcomes are shown in Table 4. Kindergarten aggression (parent and teacher ratings), emotion recognition skills, prosocial behavior (teacher rating), inattention (parent and teacher ratings), IQ, and first-grade aggression and withdrawal all showed significant correlations with third-grade social preference. All of these variables were also correlated significantly with third-grade academic grades, along with kindergarten withdrawal (teacher ratings) and social problem solving skills. Although interesting, these simple correlations do not provide evidence of the unique predictive power of skills or problem behaviors or describe the combined predictive value of multiple predictors.

To examine the combined and unique predictive value of the kindergarten behavior problems, kindergarten skills, and first-grade problem profiles, hierarchical multiple regressions were

conducted predicting third-grade social preference and academic grades. Kindergarten behavior problems were entered first as a block, kindergarten skill deficits were entered second as a block, and first-grade group status (entered as “dummy variables” representing aggressive–withdrawn, aggressive-only, and withdrawn-only group status) were entered in a third step.

The first regression predicted third-grade social preference. Kindergarten behavior problems predicted 10% of the variance ( $p < .001$ ), kindergarten skills predicted an additional 10% of the variance ( $p < .001$ ), and first-grade problem profiles predicted an additional 3% of the variance ( $p < .01$ ). Combined, these predictors explained 23% of the variance in third-grade social preference, a multiple  $R$  of .48. Significant unique predictive power was evident for parent and teacher ratings of aggressive behavior in kindergarten, teacher ratings of prosocial behavior in kindergarten, and first-grade aggressive-only and aggressive–withdrawn profiles. These findings reflect an additive model, in which early home and school aggressive behaviors, kindergarten deficits in prosocial skills, and first-grade aggressive or aggressive–withdrawn problem profiles combined to increase child risk for peer problems in third grade (beta weights,  $t$  values,  $R^2$  values,  $R^2$  change values, and  $F$  values are presented in Table 5).

The second regression predicted third-grade academic grades. Kindergarten behavior problems predicted 7% of the variance ( $p < .001$ ), kindergarten skills predicted 14% of the variance ( $p < .001$ ), and first-grade problem profiles predicted an additional 1% of the variance ( $p > .05$ ). Combined, these predictors explained 22% of the variance in third-grade academic grades, a multiple  $R$  of .47. Significant unique predictive power was evident for parent and teacher ratings of aggressive behavior and teacher ratings of withdrawn behavior in kindergarten, teacher ratings of prosocial behavior and emotion recognition skills and IQ in kindergarten, and first-grade aggressive–withdrawn profiles. These findings also reflect an additive model, in which early home and school aggressive behaviors, early school withdrawn behaviors, kindergarten deficits in prosocial skills, emotional understanding and IQ, and a first-grade aggressive–withdrawn problem profile combined to increase child risk for poor academic performance in third grade.

## Discussion

The results of this study provide important information about the developmental precursors of aggressive–withdrawn problem profiles and the developmental mechanisms linking these comorbid problem profiles with later adjustment difficulties. Children who became aggressive–withdrawn in first grade displayed very high levels of aggressive behavior in home and school settings during the kindergarten year but did not show elevated levels of withdrawal in kindergarten. However, they did display a number of precursor skills deficits in kindergarten, including problems identifying and expressing emotions, low rates of prosocial skills, attention deficits, and lower IQ. These precursor skill deficits predicted the emergence of aggressive–withdrawn problem profiles in first grade, even after accounting for the predictive effects of kindergarten aggressive and withdrawn behaviors in home and school settings. Children who displayed other problem profiles in first grade (aggressive-only or withdrawn-only) also demonstrated precursor behavior problems and skill deficits but of lesser severity or complexity. For example, children who became aggressive-only showed elevated rates of aggression in school and home settings in kindergarten (though not as high as those shown by children who became aggressive–withdrawn) and showed elevated levels of teacher-rated inattention in kindergarten (but did not differ from their non-problem classmates on any other kindergarten skills assessed). Children who became withdrawn-only in first grade showed elevated teacher and parent ratings of withdrawal in kindergarten, demonstrated deficits in IQ that were similar to those of children who became aggressive–withdrawn, and were rated by kindergarten teachers as inattentive relative to their non-problem classmates (but less problematic than children who became aggressive–withdrawn). Children who became

withdrawn-only showed normative levels of prosocial skills, social problem-solving skills, and emotion expression skills in kindergarten. Although boys were more likely than girls to be identified as aggressive-withdrawn or aggressive-only, sex did not emerge as a significant interaction effect in any group comparisons, suggesting that similar skill deficits characterized boys and girls who developed the aggressive-withdrawn profile. These findings suggest that the aggressive-withdrawn profile does not emerge as a function of some unique developmental influences but rather as the cumulation of those shared developmental influences that contribute to the emergence of both aggressive and withdrawn behavior problems.

These results are consistent with previous studies that have documented social skill deficits and attention problems among aggressive-withdrawn children in grade school (Boivin et al., 1994; Kellam et al., 1991; Ledingham, 1981; Milich & Landau, 1984). However, for the first time, this study demonstrates that deficits in social and cognitive functioning contribute to the emergence of the aggressive-withdrawn behavior problem profile at school entry, beyond the predictive power of kindergarten aggressive and withdrawn behaviors alone. Interestingly, in fact, children who developed aggressive-withdrawn problem profiles in first grade were not viewed as withdrawn by either parents or teachers in kindergarten. Rather, parents and teachers of children who became aggressive-withdrawn in first grade reported particularly high levels of aggression in kindergarten (with rates at home higher than any other group). The finding that aggressive behaviors and social skill deficits (rather than early withdrawal) characterized children who became aggressive-withdrawn in first grade is consistent with developmental models of comorbid problem profiles proposed by Capaldi (1991) and Coie (1990). These investigators both suggested that high levels of aggressive behavior coupled with deficits in social skills contribute to ineffective interpersonal interactions and hostile responding from peers and teachers. They suggested that aggressive children with skill deficits develop internalizing problems (social withdrawal, depression, social anxiety) as a reaction to peer rebuff and failure experiences in school settings. Problems interacting with peers and subsequent social avoidance and withdrawal may increase for aggressive children with skill deficits when they enter formal schooling in first grade, because in this setting they are faced with a host of new social and academic demands that seriously challenge their regulatory capabilities, and they are subjected to increased expectations, reprimands, and rebuff from teachers and peers.

First grade may be a particularly important developmental juncture for the identification of children at risk for significant behavioral, social-emotional, and academic difficulties, because of its demand characteristics. In first grade, children face heightened expectations for behavioral compliance and sustained attention (Kellam et al., 1991), for academic performance, including emergent literacy skills (Barkley, 1996; Moffitt, 1990), and for social interaction, including navigating large peer networks in unstructured or semistructured contexts (e.g., playground and lunch-room; Ladd & Price, 1987). Regulatory skills, including the capacity to focus and sustain attention, to manage one's emotions and respond appropriately to the emotional displays of others, and to inhibit impulsive reactivity and engage in planful behavior, may be critical to successful adaptation at school entry (Fabes & Eisenberg, 1992; Pope & Bierman, 1999). Conversely, Fabes and Eisenberg (1992) found that difficulties shifting attention away from disturbing stimuli, suppressing impulsive reactions, and engaging in organized and problem-focused coping were all related to delays in the capacity to regulate negative arousal, which, in turn, fostered reactive aggression, peer rejection, and social avoidance. The skill deficits associated with the aggressive-withdrawn profile, including attention deficits, low levels of prosocial behavior, lower IQ, and deficits in emotional understanding, may all reduce the capacity of these children to respond adaptively to the demands of first grade, fueling frustration, aggressive responding, and social avoidance-withdrawal.

Interestingly, the skill deficits associated with the aggressive–withdrawn problem profile at school entry are similar to those described for high-risk subgroups of aggressive youth identified in later grade school years. That is, recent research has documented that not all children who behave aggressively in grade school are at high risk for the development of chronic peer problems and antisocial behavior (Bierman & Wargo, 1995; Coie, Terry, Lenox, Lochman, & Hyman, 1995). The aggressive children at the highest level of developmental risk appear to be those who, in addition to physically aggressive behavior, show negative reactivity and poor modulation of negative arousal, including temper tantrums and reactive outbursts (Coie et al., 1995). High-risk aggressive children also often show high rates of hyperactive, inattentive, and immature behaviors and deficits in prosocial skills (Dubow, 1988; Pope & Bierman, 1999). The skill deficits that impede adjustment to school and contribute to the emergence of aggressive–withdrawn problem profiles in first grade (e.g., inattentiveness, social–cognitive skill deficits, prosocial skill deficits) thus appear similar to the skill deficits that other research has linked with chronic aggression and adolescent maladjustment.

Replicating and extending previous research, this study found that an aggressive–with drawn problem profile in first grade signaled elevated risk for adjustment problems in later grade school years (Kellam et al., 1991; Ledingham & Schwartzman, 1984). Specifically, in this study, children exhibiting aggressive–withdrawn behavior problems in first grade were rejected by peers at a higher rate, had lower academic performance, and were referred for special education more frequently in third grade than children in the aggressive-only, withdrawn-only, and non-problem groups.

Examining mechanisms that may account for links between the aggressive–withdrawn problem profile in first grade and these later adjustment difficulties, the results of this study provided support for an additive model, suggesting that initial skill deficits and subsequent behavior problems both impair adaptation. In particular, early prosocial skill deficits along with aggressive behaviors made unique contributions to the prediction of third-grade peer preference. Similarly, early prosocial skill deficits, early aggressive and withdrawn behaviors, emotion recognition skills, and IQ made unique contributions to the prediction of academic grades in third grade. In both cases, it would appear that reducing risk for poor social and academic adaptation would require attention to promoting social competencies as well as reducing behavior problems at school entry.

These results have important implications for prevention and early intervention. Identifying children who are aggressive–withdrawn on the basis of teacher ratings in first grade appears to be a useful predictive screen, indicating high risk for later adjustment problems. Recognizing that this problem profile is linked with kindergarten skills deficits suggests that early identification and preventive intervention may be feasible but should focus broadly on the building of social cognitive, prosocial, and academic competencies, as well as the reduction of aggressive behaviors. That is, although the “flag” for high risk involves behavior problems, this developmental study suggests that the skill deficits that contribute to the emergence of the aggressive and withdrawn behavior problems continue to influence the developmental trajectories of children during the initial school years. Preventive interventions should therefore include components to address the skill deficits along with behavior-management strategies designed to inhibit aggressive behaviors. Comprehensive social emotional curricula, such as the Promoting Alternative Thinking Strategies program (Greenberg & Kusche, 1993) and social skill training (coaching) programs (Bierman, 1989) are designed to promote emotional understanding, social problem solving skills, and prosocial behavior. Particularly when combined with behavioral-management programs that inhibit aggression and promote positive classroom atmospheres (Bierman, Greenberg, & Conduct Problems Prevention Research Group, 1996; Bierman, Miller, & Stabb, 1987), these approaches may be useful in addressing the skill deficits and behavior problems associated the aggressive–withdrawn problem profile,

thereby reducing the risks these children face for escalating aggressive difficulties and for future social and academic failure.

## Acknowledgments

Support for this project came from National Institute of Mental Health Grants R18MH48083, R18MH50951, R18MH50952, and R18MH50953. Additional support was provided by the Center for Substance Abuse Prevention (through a memorandum of support with the National Institute of Mental Health) and by the Department of Education Grant S184430002 and National Institute of Health Grants K05MH00797 and K05MH01027. Appreciation is expressed to the parents, teachers, students, and school district personnel who supported this project in Durham, Nashville, central Pennsylvania, and Seattle.

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**Precursor Levels of Aggression and Withdrawal for Children With Different First-Grade Problem Profiles**

**Table 1**

Kindergarten Behaviors	First-Grade Problem Profiles								F
	Aggressive-Withdrawn <sup>d</sup>		Aggressive <sup>b</sup>		Withdrawn <sup>c</sup>		Non-problem <sup>d</sup>		
	M	SD	M	SD	M	SD	M	SD	
Withdrawal Parent ratings	1.75 <sup>ef</sup>	1.74	1.47 <sup>f</sup>	1.48	1.90 <sup>e</sup>	1.56	1.48 <sup>f</sup>	1.45	2.55 <sup>*</sup>
Teacher ratings	1.36 <sup>f</sup>	1.59	1.23 <sup>f</sup>	1.77	2.67 <sup>e</sup>	2.85	1.25 <sup>f</sup>	1.76	13.07 <sup>***</sup>
Aggression Parent ratings	5.02 <sup>e</sup>	3.82	4.24 <sup>f</sup>	3.07	2.55 <sup>e</sup>	2.58	2.77 <sup>e</sup>	2.84	19.07 <sup>***</sup>
Teacher ratings	6.78 <sup>e</sup>	4.72	6.44 <sup>e</sup>	4.65	2.24 <sup>f</sup>	3.14	2.90 <sup>f</sup>	3.84	40.63 <sup>***</sup>

Note: Values in table are raw scores. Means with different superscripts in the same row are significantly different ( $p < .05$ ).

<sup>a</sup>  $n = 63$ .

<sup>b</sup>  $n = 163$ .

<sup>c</sup>  $n = 92$ .

<sup>d</sup>  $n = 430$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .



**Precursor Skill Deficits for Children With Different First-Grade Problem Profiles**

**Table 2**

Kindergarten Skills	First-Grade Problem Profiles										F	
	Aggressive-Withdrawn		Aggressive		Withdrawn		Non-problem Comparisons		M	SD		
	M	SD	M	SD	M	SD	M	SD				
Social skills												
Emotion recognition	9.66 <sup>b</sup>	0.37	11.06 <sup>a</sup>	0.24	10.56 <sup>ab</sup>	0.32	11.29 <sup>a</sup>	0.15	11.29 <sup>a</sup>	0.15	6.52 <sup>***</sup>	
Emotion expression	3.19 <sup>b</sup>	0.11	3.60 <sup>a</sup>	0.07	3.54 <sup>ab</sup>	0.09	3.55 <sup>a</sup>	0.04	3.55 <sup>a</sup>	0.04	3.99 <sup>**</sup>	
Competent SPS	0.66	0.03	0.64	0.02	0.63	0.03	0.64	0.01	0.64	0.01	0.45	
Aggressive SPS	0.12	0.02	0.15	0.01	0.20	0.02	0.16	0.01	0.16	0.01	0.17	
Prosocial (teacher)	1.57 <sup>b</sup>	0.10	1.70 <sup>ab</sup>	0.07	1.76 <sup>ab</sup>	0.09	1.89 <sup>a</sup>	0.04	1.89 <sup>a</sup>	0.04	3.81 <sup>**</sup>	
Prosocial (parent)	2.10	0.09	2.19	0.06	2.22	0.08	2.20	0.03	2.20	0.03	2.10 <sup>+</sup>	
Cognitive skills												
Inattention (teacher)	15.27 <sup>a</sup>	1.12	14.89 <sup>ab</sup>	0.73	14.35 <sup>b</sup>	0.95	12.85 <sup>c</sup>	0.44	12.85 <sup>c</sup>	0.44	2.76 <sup>*</sup>	
Inattention (parent)	4.39	0.36	4.76	0.24	4.87	0.32	4.85	0.14	4.85	0.14	0.51	
WISC subscales	17.51 <sup>b</sup>	1.11	19.84 <sup>ab</sup>	0.74	17.18 <sup>b</sup>	0.96	20.53 <sup>a</sup>	0.44	20.53 <sup>a</sup>	0.44	4.87 <sup>***</sup>	

Note: Kindergarten aggression and withdrawal were covariates. SPS = Social Problem Solving measure; WISC = Wechsler Intelligence Scale for Children. Different superscripts designate significantly different adjusted least square means within row ( $p < .05$ ).

- +  $p < .10$ .
- \*  $p < .05$ .
- \*\*  $p < .01$ .
- \*\*\*  $p < .001$ .

Table 3  
Adaptational Difficulties of Children With Different First-Grade Problem Profiles

Third Grade Adaptation	First-Grade Problem Profiles												<i>F</i>
	Aggressive-Withdrawn <sup>d</sup>			Aggressive <sup>b</sup>			Withdrawn <sup>c</sup>			Nonproblem Comparisons <sup>d</sup>			
	<i>M</i>	<i>LSM</i>	<i>SD</i>	<i>M</i>	<i>LSM</i>	<i>SD</i>	<i>M</i>	<i>LSM</i>	<i>SD</i>	<i>M</i>	<i>LSM</i>	<i>SD</i>	
Social preference	-1.01	-0.68 <sup>f</sup>	0.85	-0.56	-0.34 <sup>ef</sup>	0.98	-0.26	-0.25 <sup>ef</sup>	0.97	-0.02	-0.14 <sup>e</sup>	0.96	16.09 <sup>**</sup>
Academic grades	13.23	14.07 <sup>f</sup>	6.57	15.28	15.76 <sup>f</sup>	6.01	15.26	15.71 <sup>f</sup>	6.04	17.55	17.55 <sup>e</sup>	6.06	14.45 <sup>**</sup>

Note: *LSM* = least square means (controlling for pretreatment scores and sex). Least square means with different superscripts in the same row are significantly different ( $p < .05$ ).

<sup>a</sup>  $n = 60$ .

<sup>b</sup>  $n = 151$ .

<sup>c</sup>  $n = 84$ .

<sup>d</sup>  $n = 403$ .

+ $p < .10$ .

\* $p < .05$ .

\*\* $p < .01$ .

**Table 4**  
**Correlations Between Skill Deficits, Behavior Problems, and Third-Grade Adaptation**

Behavior Problems and Skill Deficits	Third-Grade Adaptation	
	Social Preference <sup>a</sup>	Academic Grades <sup>b</sup>
Kindergarten behaviors		
CBC withdrawn	-0.004	-0.03
TRF withdrawn	-0.0	-0.12*
CBC aggressive	-0.25**	-0.17**
TRF aggressive	-0.25**	-0.23**
Kindergarten skills		
Emotion recognition	0.17**	0.30**
Emotion expression	0.04	0.07
Competent SPS	0.12	0.14**
Aggressive SPS	-0.04	-0.13**
Prosocial (parent)	-0.01	0.04
Prosocial (teacher)	0.38**	0.33**
Inattention (parent)	-0.28**	-0.26**
Inattention (teacher)	-0.31**	-0.35**
WISC subscales	0.18**	0.34**
First-grade behaviors		
Aggression	-0.36**	-0.27**
Withdrawal	-0.24**	-0.24**

*Note:* CBC = Child Behavior Checklist; TRF = Teacher Report Form; SPS = Social Problem Solving measure; WISC = Wechsler Intelligence Scale for Children.

<sup>a</sup>*N* = 480.

<sup>b</sup>*N* = 697.

**Predicting Third-Grade Adaptation From Kindergarten Behavior Problems, Kindergarten Skills, and First-Grade Problem Profiles**

Table 5

Predictors	Third-Grade Social Preference					Third-Grade Academic Grades				
	Beta	T	R <sup>2</sup>	R <sup>2</sup> Change	F	Beta	T	R <sup>2</sup>	R <sup>2</sup> Change	F
Kindergarten problems			.10		11.50***			.07		11.73***
CBC withdrawal	0.04	1.18				0.13	0.71**			
TRF withdrawal	-0.03	-1.25				-0.35	-2.65**			
CBC aggression	-0.08	-4.43***				-0.27	-3.03***			
TRF aggression	-0.04	-3.40***				-0.25	-4.04***			
Kindergarten skills			.20	.10	5.03***			.21	.14	10.63***
Emotion recognition	0.01	0.42				0.39	3.98***			
Emotion expression	-0.02	-0.28				-0.10	0.03			
Competent SPS	0.50	1.79				0.05	-1.68			
Aggressive SPS	0.41	1.14				-3.21	0.88			
Prosocial (parent)	-0.05	-0.75				0.32	2.29*			
Prosocial (teacher)	0.25	3.19**				0.94	-1.63			
Inattention (parent)	-0.03	-1.37				-0.16	-1.82**			
Inattention (teacher)	-0.01	-1.00				-0.07	3.08**			
WISC subscale	0.003	0.51				0.10		.22	.01	2.29
First-grade profiles			.23	.03	4.66**					
Aggressive only	-0.29	-2.33*				-1.26	-1.92			
Withdrawn only	-0.15	-0.95**				-1.21	-1.50*			
Aggressive-withdrawn	-0.57	-3.01**				-1.86	-2.03*			

Note: CBC = Child Behavior Checklist; TRF = Teacher Report Form; SPS = Social Problem Solving measure; WISC = Wechsler Intelligence Scale for Children.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .