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Predicting Kindergarten Peer Social Status From Toddler and Preschool Problem Behavior

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Abstract:

The aim of this study was to investigate the toddler and preschool predictors of early peer social preference. Behavioral and social functioning were examined in a sample of children across the toddler and preschool years from parent and teacher observations. Kindergarten social behavior and peer social preference were assessed in the children's kindergarten classrooms using standard sociometric techniques. Results indicated that parent report of toddler externalizing behavior and teacher report of preschool problem behavior, as indexed by aggressive behavior, social skills, and emotional regulation, were predictive of peer liking in kindergarten. However, this relation was mediated by specific behaviors evidenced in the kindergarten classroom. For boys, overt aggression mediated these relations. For girls, sharing and engaging in sneaky behavior in kindergarten mediated the relation between preschool problem behaviors and peer status. These results indicate that specific behaviors displayed in the peer group account for the relation between early problem behavior and peer status. Moreover, these data point to the importance of considering gender when examining developmental trajectories and outcomes.
KEY WORDS: behavior problems; sociometric status; early peer relations.

Article:

INTRODUCTION

Disruptive behavior problems in early childhood, characterized by aggression, noncompliance, and negative affectivity, have been the focus of considerable developmental and clinical research. This focus is due largely to the observation that these problems are highly stable across childhood (Campbell, Pierce, Moore, Marakovitz, & Newby, 1996; Cohen & Bromet, 1992; Egeland, Kalkoske, Gottesman, & Erickson, 1990; Heller, Baker, Henker, & Hinshaw, 1996), predictive of other more serious kinds of behavior and conduct problems (Campbell, 1991; Loeber, 1982; Moffitt, 1993; Shaw, Gilliom, Ingoldsby, & Nagin, 2003), and implicated in disruptions in other domains like social competence and academic functioning (Campbell, 2002; Moffitt, 1993). Moreover, different rates of these problems have been observed in girls versus boys (Keenan & Shaw, 1997). However, less is known about the consequences and correlates of behavior problems that are observed in toddlerhood, a period when increases in negativity, noncompliance, and aggression often are viewed as normative, but also may be important predictors of future adjustment (Belsky, Woodworth, & Crnic, 1996; Campbell, Shaw, & Gilliom, 2000; Rubin, Burgess, Dwyer, & Hastings, 2003; Shaw, Keenan, & Vondra, 1994).

Summarizing the results of this literature, Campbell et al. (2000) note that although many children who exhibit problem behaviors at age 2 seem to outgrow these difficulties, a significant number of them continue to have problems throughout their school years. Understanding the processes that either promote, or are symptomatic of, continued difficulties versus adequate adjustment is therefore of primary importance.

Difficulties in Peer Relationships

One area of research that may address these processes is the study of early childhood peer problems. There is reason to believe that children who experience difficulties managing their emotions and behavior at home during the toddler and preschool periods, and are thus characterized as challenging or as having behavior problems by parents, may have difficulty transitioning to the peer environment (Campbell, 1994; Hughes, White, Sharpen, & Dunn, 2000; Stormshak & Webster-Stratton, 1999). In addition, some investigators have reported that conduct problems and peer rejection tend to co-occur in preschool children (Milich, Landau, Kilby, & Whitten, 1982; Olson & Lifgren, 1988), although the direction of effects in this work is unclear. The question remains as to whether early problem behaviors, which may be identified before the child has had extensive experience in the peer domain, are precursors of early difficulties in the social arena. If this is the case, understanding the relation between early problem behaviors and children's peer relationships as they transition to kindergarten, and the processes responsible for this relationship, is a fruitful area of study.

The topic of difficulties in peer relations has received much interest in the developmental literature because of the numerous deleterious outcomes linked with peer rejection, including academic and learning difficulties (Coie & Krehbiel, 1984; Frentz, Gresham, & Elliott, 1991), delinquency and conduct problems (Miller-Johnson, Coie, Maumary-Gremaud, Lochman, & Terry, 1999; Vitaro, Tremblay, & Bukowski, 2001), and criminality (Moffitt, 1993). Although much of this work has focused on elementary-school-age children, there is abody ofrelevant research that examines early peer relations, particularly during the transition from preschool to kindergarten. For example, Ladd, Kochenderfer, and Coleman (1996) found that children who transitioned to kindergarten with a familiar peer had better academic and social adjustment than children who did not. Ladd, Price, and Hart (1988) further demonstrated that cooperative play on the playground predicted increases in peer acceptance across the preschool year. Conversely, noncompliant behavior and arguing with peers were related to increases in peer rejection at both midyear and end of year assessments. Moreover, there are clear consequences, even as early as kindergarten, for being disliked by peers. For example, disliked children are more likely to be treated in negative and punitive ways by peers, they are more likely to be actively avoided by peers, and they are less likely to have access to peer activities (Ladd & Kochenderfer, 1996; Ladd, Price, & Hart, 1990). Furthermore, studies with older children suggest serious academic and social consequences of peer rejection (Kupersmidt, Coie, & Dodge, 1990) and support the notion that peer rejection may be a risk factor for later social and conduct problems (Coie, Lochman, Terry, & Hyman, 1992). For these reasons, understanding the early predictors of peer social relations is clearly significant.

Processes Linking Disruptive Behavior to Peer Relationships

The predictive relations between early disruptive behavior problems and peer relations in kindergarten may be a function of several different behavioral processes. First, young children may simply engage in the same behaviors in the classroom as they do at home (aggression and

negativity, for example) and become disliked by peers for engaging in these behaviors toward classmates. Young children may engage in other sorts of behaviors that elicit negative attention from the teacher (noncompliant or uncontrolled behavior) and the negative attention causes their peers to like them less. Children may also fail to engage in positive peer-directed behavior (sharing) that then leads to peer dislike. Moreover, it is possible that the behaviors engaged in by boys that lead to peer problems are different than those engaged in by girls.

A small number of studies have examined the relations between specific behaviors exhibited by young children and success with peers. These data indicate that preschool children who engaged in prosocial behaviors and were adept at understanding emotional situations were well liked by their peers (Denham, McKinley, Couchoud, & Holt, 1990), "hard-to-manage" preschoolers had significantly more difficulty in peer play and exhibited more antisocial behaviors and negative emotion than did control children matched on gender, age, and ethnic background (Hughes et al., 2000) and preschool and kindergarten children who exhibited acting-out problems at home and behavioral difficulties at school also engaged in negative interactions with peers (Stormshak & Webster-Stratton, 1999). Other research has shown a more direct relation between peer behavior and sociometric status. Coie, Dodge, and Kupersmidt (1990), for example, reviewed a large number of studies and concluded that aggression and disruptive behavior are major causes of peer rejection in childhood and adolescence. Ironsmith and Poteat (1990) also demonstrated that peer interaction is related to positive social status in preschoolers whereas aggressive play was related to teacher report of behavior problems. This research suggests that notions of likeability are fairly differentiated in young children and that both prosocial and aggressive behaviors contribute to peer outcomes. However, questions such as what other correlates may be important at this age, as well as what specific behaviors young children view as salient and lead to liking and disliking remain.

Recent work has begun to identify some of these additional behaviors that may prove problematic in terms of peer acceptance or rejection. In addition to asking peers to provide information on likeability and overt aggression, we now know that peers can also provide valuable information about other relevant social behaviors. For example, Crick and her colleagues (Crick, Casas, & Mosher, 1997; Crick & Grotpeter, 1995) have suggested that relational aggression is an important concept that has particular relevance for understanding aggressive behavior in girls. As Crick and Grotpeter (1995) note, relational aggression is an indirect form of aggression that focuses on harming others through social means such as group exclusion and withdrawing friendships. Although relational aggression was initially studied in middle childhood, recent work indicates that indirect aggression can be reliably identified by preschoolers (Crick et al., 1997).

Laboratory investigations of preschool play behavior (e.g., Coplan, Rubin, Fox, Calkins, & Stewart, 1994; Stormshak & Webster-Stratton, 1999), classroom observations of social behavior and informal discussions with parents and teachers have identified other potentially relevant behaviors that may be apparent to peers and may shed light on the development of peer status during this developmental period. Keane and Dennis (2001), for example, found that kindergarten children could reliably report on behavior exhibited by peers that was "bossy," "wild," "sneaky," as well as name those children who cry easily and are the targets of teasing within the peer group. These studies provide evidence that children are reliable reporters of peer

behavior from a very young age. By including additional behavioral categories in sociometric assessments, we can obtain a more differentiated picture of a child's social functioning in the school setting. In addition, this approach will also allow us to begin to examine whether engaging in specific behaviors that are recognized by and aversive to peers, rather than overall evaluations of liking and disliking, provides insight into the processes that link early disruptive behavior and problematic social relationships.

Gender Differences in Disruptive Behavior and Peer Relationships

A focus on gender and peer relations is important because of research suggesting differences in rates of behavior problems for boys and girls (Sanson, Oberklaid, Pedlow, & Prior, 1991; Shaw, Keenan, & Vondra, 1994) and also because of the suggestion that boys and girls may take differential paths to peer liking or disliking (Crick & Rose, 2000). The finding that a higher proportion of boys show behavior problems has prompted many researchers interested in examining the developmental trajectories of behavior problems to limit their samples to include boys only (Belsky, Hsieh, & Crnic,1998; Campbell et al., 1996; Greenberg, Speltz, DeKlyen, & Endriga, 1991). Keenan and Shaw (1997), however, have reported that "sex differences in problem behavior emerge during the preschool period" (p. 99). They suggest that these gender differences are primarily due to the fact that girls have a more discontinuous pattern of problem behavior than boys across the course of development. A recent analysis of data from six studies examining the trajectories of conduct problems for boys and girls confirms this discontinuity (Broidy et al., 2003). Boys who engaged in aggression early in development continued to display such problems, whereas girls did not. Clearly, further research is needed to help understand the gender difference in the unfolding of conduct problems, with an emphasis on the different kinds of behaviors that are predicted by early behavior problems for boys and girls.

Thus, the broad goal of this study was to examine whether and how early disruptive behavior problems influence success or failure with peers in kindergarten. To address this issue, we provide follow-up data on a cohort of children that were assessed on a variety of measures at age 2 through both laboratory visits and maternal reports. In this report, multiple informants were included to chart more accurately the relations between early disruptive behavior both at home and at school and later peer relations. To examine the association between early disruptive behavior and kindergarten peer relations and the processes that might be responsible for this relation, three specific questions were addressed. First, is there a relation between early disruptive behavior problems and kindergarten peer relations for boys and girls? To answer this question, we examined whether measures of disruptive behavior, as reported by parents at age 2 and by teacher assessment at age 4, were negatively related to peer liking and overall ratings of social preference at kindergarten. We hypothesized that there would be modest relations across this 1- to 3-year period, on the basis of prior research demonstrating that about half the toddlers experiencing behavioral difficulties at age 2 would continue to display such problems. Next, we addressed the concurrent predictors of social preference indexed by peer report of several salient behaviors exhibited in the kindergarten classroom setting. Fighting was hypothesized to be a strong negative predictor of social preference for boys, whereas measures of more indirect aggression (i.e., sneaky and bossy behavior) were hypothesized to negatively predict social preference for girls. In contrast, sharing was expected to positively predict social preference for both genders. Finally, using procedures specified by Baron and Kenny (1986), we addressed the issue of whether these specific classroom behaviors served as the mediational process by which

children who exhibited early disruptive behaviors come to be disliked by peers. In addition, and in order to understand the path through which early behavior problems affect peer status, we examined whether early problem behaviors were carried forward in peer interactions and whether these peer behaviors led to differential social outcomes.

METHOD

Participants

Participants for this study were recruited as part of an ongoing longitudinal study that began when children were 2 years old. The larger study focused on the relation between early behavior problems and emotion regulation (Calkins & Dedmon, 2000; Calkins, Gill, & Williford, 1999). This report focuses on the 2- to 5-year assessment. One hundred and fifty-four 2-year-old children and their mothers were initially recruited through child day care centers, the County Health Department, and the local Women, Infants, and Children program. To obtain a broad, community-based sample of children with a wide range of disruptive behavior, we screened 474 potential participants on the Child Behavior Checklist (CBCL; Achenbach, 1992). Sixty-five percent of the families who returned recruitment CBCLs were European American, 30% were African American, and 5% were Asian or Hispanic. Hollingshead's (1975) scores classified 61% of the families as middle class, 25% as lower class, and 14% as upper class.

To ensure that we recruited a heterogeneous sample of children, demonstrating abroad range of behavior problems, children were initially selected for participation on the basis of their scores on this measure. Three groups of children were specifically recruited for this purpose: (a) children with externalizing scores on CBCL in the clinical or borderline clinical range, with t scores of 60 or above (n = 46); (b) children with externalizing and internalizing scores on CBCL in the clinical or borderline clinical range (n = 24); and (c) children with CBCL t scores below 60 on both internalizing and externalizing scales (n = 84). The final sample of children selected for participation was racially and economically diverse (65% European American; mean Hollingshead score = 39.2), primarily from intact families (77%), and consisted of 78 male and 76 female children. The three groups did not differ from one another on any sociodemographic measures, despite the fact that we selected more toddlers with externalizing problems than are generally found in the population.

Two years after the original assessment, the families were contacted by mail and telephone and asked to participate in a follow-up study of the children at preschool and kindergarten. Of the original 154 mother–child dyads, 12 families moved from the county of recruitment, 8 families refused to continue in the study, and 9 families could not be located. One hundred and twenty-five families agreed to participate in the follow-up phase of the study. More families with boys as the target child discontinued participation in the study; however, there were no differences in race, socioeconomic status (SES), and CBCL externalizing, internalizing, or total scores between the respondents who continued participating in the study and those who did not, or between the boys who discontinued participation and those who did not. The proportion of children in each of the three groups (high on externalizing, high on both externalizing and internalizing, and low on both externalizing and internalizing) at this follow-up was similar to that reported for the initial 2-year assessment. Three children were dropped from the study at the preschool assessment because they had already entered kindergarten. Children retained in the sample were 4.5 years old (mean age = 56 months; SD = 2.9 months) at the time of the preschool assessment; 47% of

the children were male and 53% were female. Thirty-seven percent of the participants were African American, and 63% were European American. Socioeconomic status of the participants again ranged from lower to upper-middle class. At the preschool assessment 24% of the families reported annual family income of less than $20,000, 46% reported family income between $20,000 and $35,000, 24% reported income between $35,000 and $50,000, and 7% reported income more than $50,000.

One hundred and five families participated in the kindergarten follow-up. Attrition was due to several factors at this assessment period: 7 families moved, 3 families could not be located, 3 families were dropped from the study as their child had entered first grade, and 7 families refused to participate. Again, there were no significant differences between those families that continued participating in the study and those that moved or dropped out.

Procedures

The focus of this report involves assessment at three different time periods and includes parent report of behavior problems at age 2, teacher assessment of social and behavioral functioning during the preschool period, and a kindergarten assessment of peer-reported behavior and sociometric status.

Two-Year Assessment

Child behavior problems. Families were recruited into the study on the basis of the Child Behavior Checklist (CBCL 2-3; Achenbach, 1992) that they received in the mail or were given in a health care provider's office. CBCL is a widely used, well-validated quantitative report of children's psychological problems for preschool children. It consists of age-appropriate checklists of problem behavior that mothers indicate are true of their child in the past 2 months (CBCL 2-3). CBCL provides a total score as well as an Internalizing Behavior Problems subscale (anxious, fearful, depressed, and withdrawn behavior) and an Externalizing Behavior Problems subscale (aggressive, defiant, disobedient, and destructive behavior). These scales have adequate psychometric properties, including internal consistency, test–retest reliability, and longitudinal stability, and discriminate between clinically referred and nonreferred children (Achenbach, Edelbrock, & Howell, 1987). Mothers completed and returned the questionnaire in a postage-paid envelope. During the laboratory assessment, mothers were given a second CBCL to take home, complete, and mail back in a return envelope provided. Three mothers failed to return the second CBCL, which was used in all study analyses. For these three children, the CBCL collected at recruitment was substituted. Of interest for this study was the broadband Externalizing scale.

Preschool Assessment

Mothers were asked to consent to have their children's childcare providers or teachers complete a booklet of questionnaires about the child's behavior at preschool/ day-care. Upon receiving parents' consent, the children's teachers/day-care workers were contacted by telephone and asked to complete measures on the child's social and emotional functioning. Measures were chosen to provide information about disruptive behaviors, social skill, aggression, and emotionality, because we hoped to capture a comprehensive picture of children's social and behavioral adjustment. Teachers who agreed to complete questionnaires were reimbursed $30.00. Teachers completed questionnaires that measured (a) child behavior problems, (b) child emotionality and regulation, (c) child classroom social behavior, and (d) child social skills. A

research assistant delivered packets of questionnaires to teachers at the schools and answered questions regarding the measures. The research assistant returned within a week to collect all completed packets. Ninety-eight teachers provided information about 108 children. Because of the fact that several children attended the same preschool, 10 teachers served as the reporter for more than 1 child.

Child behavior problems. One questionnaire completed by teachers was the Behavior Assessment System for Children: Preschool Version (BASC; Reynolds & Kamphaus, 1992). BASC is a widely used behavior checklist that taps emotional and behavioral domains of children's functioning. The teacher preschool version used for children aged 2–5 contains 109 items. Each item is rated on a 4-point scale with respect to the frequency of occurrence (never, sometimes, often, almost always). The measure yields age- and gender-normed standardized t scores on broad internalizing, externalizing, and behavior symptom domains as well as nine specific content scales. BASC has well-established internal consistency, reliability, and validity (Doyle, Ostrander, Skare, Crosby, & August, 1997; Reynolds & Kamphaus, 1992), and is widely used for the purpose of diagnostic assessment. For the purpose of the present study, the *Externalizing Scale Score* was examined. Reynolds and Kamphaus (1992) report alpha reliability forthe Externalizing Scale is .94 with a test–retest reliability coefficient of .91.

Child emotion regulation. The Emotion Regulation Checklist (Shields & Cicchetti, 1998) is a 24-item questionnaire that was administered to teachers to assess children's emotion regulation. Items are scored on a 1 (*never*) to 4 (*always*) scale. This measure yields two subscales, Negativity/Lability and Emotion Regulation. The Negativity/Lability scale contained 10 items (Cronbach's alpha = .77) that referred to the child's tendency to become distressed. The Regulation scale contained 14 items (Cronbach's alpha =.68) that referred to the child's ability to modulate emotional reactivity under a variety of conditions. The subscale scores for Negativity/Lability ranged from 1.10 to 3.10 with a mean of 1.59. The subscale scores for Regulation ranged from 1.82 to 3.93 with a mean of 3.10. The two scores were correlated − −.68, $p < .0001$.

Child classroom social behavior. Children's classroom social behavior was assessed using the Preschool Play Behavior Scale (PPBS; Coplan &Rubin,1998). PPBS is a 26-item questionnaire that assesses five types of children's social play: solitary active, solitary passive, reticent, social, and rough and tumble play. Items are scored on a 1 (*never*) to 5 (*always*) scale. Items conforming to each scale were combined to yield scales with alpha reliability of greater than .65. Of particular interest to the current investigation was the scale for Rough and Tumble Play. This scale contained four items and yielded a Cronbach alpha reliability of .86.

Child social skills. To assess the child's social skills, teachers completed the preschool version of the Social Skills Rating System (SSRS; Gresham & Elliot, 1990). SSRS is a behavior rating scale designed to assess social behavior in children. The form lists a variety of social behaviors and raters indicate the frequency with which the child engages in each behavior (0 = never, 1 = sometimes, 2 = very often). Raters are also instructed to indicate how important each of these behaviors is for the child's development (0 = not important, 1 = important, 2 = critical). The teacher form contains 30 items assessing social skills. A Social Skill Standard Score (X = 100; SD = 15) is

derived from these items. SSRS has well-established internal consistency (alphas range from .78 to .95), reliability (test–retest reliability correlations range from .75 to .93), and criterion-related validity with CBCL (—.64) and Harter Teacher Rating Scale of Social Skill (.70; Gresham & Elliot, 1990).

Kindergarten Assessment

Parents of the 105 participating children were asked to consent to have their child participate in a sociometric assessment in his or her classroom. Five parents did not consent to the procedures. In addition, although the county school system consented to the research, each principal at each of the schools had the authority to disallow this procedure within his or her respective school. Five principals did not agree to participate, two children did not attend kindergarten that year as expected, and one child was home-schooled. One school returned fewer than 50% of the consent forms, calling into question the validity of the sociometric assessment. Therefore, peer data for the one child attending this school were not collected. Hence, data were collected for 91 children (50 girls and 41 boys) in 58 schools.

Sociometric nominations. The parents of all children in each target child's classroom were asked to provide consent to have their children participate in this phase of data collection. Across all classrooms, the mean rate of participation averaged 84% with a range from 68% (number of reporters = 8) to 94% (number of reporters = 22). This degree of participation is well within the acceptable range when using an unlimited nomination approach (Terry, 2000). Sociometric interviews were conducted from January to April during the kindergarten year so as to allow time for classmates to become familiar with each other. A modified version of Coie, Dodge, and Coppotelli's (1982) original procedure was used. Trained graduate students individually interviewed each child for whom parental consent was granted. Pictures were used as prompts during the interview to aid in gathering reliable peer report data with kindergarten children. To increase the stability of measurement for the sociometric nominations, cross- gender nominations were permitted (Terry & Coie, 1991).

Modifications to the Coie et al. (1982) procedure were as follows: Children were asked to provide unlimited nominations of children they "liked most" and "liked least" (Terry, 2000). This procedure has been shown to reduce measurement error and allows for reliable assessments of sociometric status with fewer classmates (judges) than is required by the standard limited-choice sociometric procedure. In addition, children were asked to nominate classmates for eight additional behavioral categories in cluding the following: starts fights, shares, cries, is sneaky, acts wild, gets picked on, is shy, and bosses others following Keane and Dennis (2001). Because we were interested in an assessment of peer behaviors, all questions were directed toward behaviors that occur during peer interactions. For the purpose of this study, nominations for "like most" and "like least" were used to determine peer status. Given the young age of the participants, pictures were used as prompts, children were trained on sample items until they understood the task, and sociometric interviewers were rigorously trained to ensure quality data collection. Scripts detailing several specific exemplars of the behaviors of interest were provided to explain these constructs to children who were confused or were having difficulty. Although this level of attention to the sociometric assessment was warranted, in our experience, typically children readily grasped the construct under consideration after one or two examples were

provided, often remarking, “Oh, that’s easy. ‘Johnny’ acts like that,” when given these behavioral examples.

The total number of nominations each child received from his or her peers was calculated and standardized within each classroom to derive *z* scores representing the number of “like least” and “like most” nominations. The total number of “like least” nominations was subtracted from “like most” scores to generate a *Social Preference Index* (**z** (liked most) —**z**(like least) = social preference; Coie et al., 1982). This procedure is the accepted form of establishing a child’s overall likeability within the classroom. As social preference scores decrease, a child’s likeability or overall peer status also decreases. The standardized social preference score was used as the dependent variable in this study. *z* Preference scores ranged from —2.15 to 1.92, indicating a broad range of scores on this measure. Although the scores were standardized within classrooms, the range of scores for participants was slightly truncated, because the target children comprised less than 10% of the children who were screened on this sociometric assessment. In addition, *z* scores for the eight additional behavioral categories were computed to provide a peer- reported index of social behavior for all target children. The range of these *z* scores was adequate, suggesting that there was sufficient variability in the behavior of participants in this sample.

RESULTS

Preliminary Analyses

Given the different ages of assessments, the different reporters, and the varying procedures for data collection, the number of participants vary from assessment to assessment. Sample sizes for each measure are reported in Table II. Each separate analysis utilized all available data. In addition, although the children were initially selected on the basis of scores on CBCL and placed into particular groups, in this study the child’s score on CBCL was treated as a continuous variable. Examination of CBCL scores indicated that they were normally distributed.

Preliminary analyses examined gender, SES, and race differences on all study measures. These analyses indicated that there were a number of gender differences on various study measures. Means for boys and girls across all study measures are presented in Table I. Because the sociometric categories “is shy” and “cries easily” did not differ by gender in the age group, these two categories were dropped from further analyses.

As the table indicates, differences between girls and boys did not emerge until age 4. This pattern held even when only the age 2 scores of the children in the follow- up sample were examined. Preschool teachers rated boys as more aggressive in their play, exhibiting more externalizing-type behavior problems and displaying less emotional regulation than girls. At kindergarten, peers report that boys are more aggressive, share less, are more wild, bossy, and sneaky, and are liked less than girls. Because we were interested in determining whether the developmental processes were different for boys and girls, separate models for boys and girls were tested in all analyses.

Additional preliminary analyses revealed no relations between the measures of SES, Hollingshead index, and the study outcome measures, nor were there any racial differences on study outcome measures. Therefore, these two factors were not considered in subsequent analyses.

Table I. Descriptive Statistics for Study Measures Collected for Boys and Girls

	Boys			Girls		
	M	*SD*	*N*	*M*	*SD*	*N*
2-year (parent)						
Externalizing	53.53	9.4	78	52.68	9.0	76
4-year (teacher)						
Rough and tumble play*	2.98	0.93	49	1.81	0.61	59
Externalizing*	54.55	13.7	49	47.63	9.2	59
Negativity	1.90	0.46	49	1.58	0.35	59
Regulation*	2.86	0.51	49	3.17	0.42	59
Social skills	102	14.9	49	102	14.0	59
Kindergarten (peer)						
Fight*	0.44	1.06	41	−0.49	0.65	50
Shy	−0.11	0.69	41	0.39	0.99	50
Share*	−0.40	0.87	41	0.36	0.96	50
Wild*	0.51	1.02	41	−0.36	0.67	50
Picked on	0.10	1.05	41	−0.11	0.91	50
Cry	0.15	1.05	41	−0.08	0.93	50
Boss*	0.16	0.94	41	−0.28	0.81	50
Sneaky*	0.59	1.06	41	−0.36	0.75	50
Social preference*	−0.28	0.94	41	0.20	0.89	50

*$p < .05$ (significant gender difference).

Table II. Correlations Between Kindergarten Sociometric Nominations and 2-Year Parent Report of Externalizing and 4-Year Teacher Report of Behavior Problems ($n = 91$)

Sociometric nominations (peer)	2-year externalizing (parent)		4-year behavior problems (teacher)	
	Boys	Girls	Boys	Girls
Fight	.47**	.32*	.48**	.51**
Sneaky	.32*	.30*	.57***	.38*
Share	−.22	−.22	−.27	−.43**
Wild	.28†	.34*	.52**	.45**
Bossy	.33*	.05	.39*	.30*
Social preference	−.39*	−.13	−.35*	−.32*

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Data Reduction and Transformations

Data reduction. Given the large number of predictors, preliminary analyses were used to reduce the number of variables to be used in subsequent mediational tests. At age 4, the five teacher measures of child functioning were significantly intercorrelated. Negative *r* values ranged from -.36 to -.71 and positive *r* values ranged from .47 to .67. All correlations were significantly related, $p < .01$. In an effort to create a single score that would represent teacher ratings of children's problem behavior, a factor analysis was performed on the five preschool teacher measures. A single factor emerged, explaining 69% of the variance, with an eigenvalue of 3.44. This factor, labeled "problem behaviors," loaded highly and positively on negativity/lability, rough and tumble play, and externalizing problems (factor loadings were .825, .776, and .872, respectively). The factor loaded highly and negatively on emotion regulation and social skills (factor loadings of -.916 and -.747, respectively). Thus, children receiving high-positive factor scores exhibited more problematic behaviors. The factor scores ranged from -1.62 to 2.79 with a mean of 0.00. This factor score is used in the following analyses as the measure of preschool teacher ratings of children's problematic behaviors.

Because our primary question involved understanding if specific peer behaviors mediate the relation between early disruptive behavior and peer status in kindergarten, similar data reduction techniques were not employed for these individual items. We were further interested in examining the distinct behaviors that may help explain the processes responsible for the development of peer relationship difficulties following early child behavior difficulties for boys and girls.

Transformations. All study measures were examined for skewness, separately by gender. For girls, several ofthe z scores for the sociometric nomination categories were not normally distributed. Girls' fighting, wild, bossy, and sneaky nominations had skewness values that were greater than 1 and thus were transformed using log10 transformations. Because gender was an important issue for many of our hypotheses and analyses, this approach allowed us to derive peer nomination scores that preserved the relative ranking of girls on each of the nomination categories relative to their own gender. These transformed variables were used in all the following analyses involving girls. All other variables were normally distributed.

Relations Between Toddler Externalizing and Preschool Problem Behavior

To examine stability and predictability between early measures of social and behavioral functioning, measures were correlated across the toddler and preschool period. For the entire sample, 2-year parent report of externalizing was related to 4-year teacher report of problem behavior, $r = .3\ 1$, $p < .01$. For boys, 2-year parent report of externalizing was not significantly related to 4-year teacher report of problem behavior, $r = .22$, ns. For girls, however, 2-year parent report of externalizing was related to 4-year teacher report of problem behavior, $r = .38$, $p = .01$. The two correlations were not significantly different from each other (Fisher's *r* to *z*, $p = .44$), and both correlations suggest a modest relation between 2- and 4-year data. Because of this modest relation across the 2-year period, the 2- and 4-year data were examined as separate predictors.

Longitudinal Predictors of Peer Behavioral Descriptors and Social Preference

The first goal of this study was to examine the predictability between early measures of social and emotional functioning and later kindergarten peer-reported behavior and social status. To address this goal, correlations were computed between the toddler and preschool period and the kindergarten period, separately by gender. These correlations are presented in Table II.

As the table indicates, a number of significant relations emerged across the 3-year period. Fighting, sneaky, bossy, and social preference nominations were moderately predicted by the 4-year problem behavior factor score and by externalizing behavior at age 2 for boys. In addition, there was a statistically significant relation between 4- year problem behavior and "acts wild" nominations, and a marginally significant relation between 2-year externalizing and wild behavior for boys. For girls, fighting, sneaky, and acting wild were moderately predicted by 2-year externalizing. In addition, there was a statistically significant relation between 4-year problem behavior and fighting, sharing, wild, sneaky, and bossy behavior, as well as social preference.

Concurrent Predictors of Social Preference

The second goal of this study was to understand the contribution of different behaviors exhibited in the kindergarten classroom and peer liking. To examine the relations among peer reports of various sociometric nominations, Pearson product–moment correlations were computed separately for boys and girls, using *z* scores for all sociometric items. This analysis is reported in Table III.

Table III. Correlations Among Kindergarten Sociometric Nomination Categories for Boys and Girls ($n = 91$)

	Fight	Sneaky	Share	Wild	Boss	Soc Pref
Fight		.70***	−.42**	.49**	.39*	−.63***
Sneaky	.50***		−.49**	.56***	.59***	−.48**
Share	−.66***	−.48***		−.51**	−.41**	.58***
Wild	.62***	.72***	−.67***		.64***	−.44**
Bossy	.53***	.41**	−.44**	.62***		−.36*
Soc Pref	−.57***	−.60***	.79***	−.56***	−.32*	

Note. Correlations for boys are above the diagonal; correlations for girls are below the diagonal.
*$p < .05$. **$p < .01$. ***$p < .001$.

As the table indicates, a number of significant correlations were found. The pattern of these relations was more similar for boys and girls than initially predicted, however. Fighting was significantly positively correlated with bossy, sneaky, and wild behavior, and negatively correlated with sharing behavior, whereas sharing was negatively correlated with fighting as well as bossy, sneaky, and wild behavior. Fighting, sneaky behavior, sharing, acting wild, and bossy behavior were all correlated with social preference in the expected direction for *both* boys and girls.

To examine which peer-reported behavioral items best predicted children's social preference scores in kindergarten, regression analyses were computed. For these analyses, the five sociometric categories that were significantly related to social preference were entered simultaneously. Although these behaviors were moderately correlated, the variance inflation statistic (VIF ranges from 1.9 to 3.8) indicated that multicollinearity was not a problem (Neter, Kutner, & Wasserman, 1990). These regression analyses are presented in Table IV.

Table IV. Predictors of Boys' and Girls' Social Preference *z* Scores From Kindergarten Peer-Rated Sociometric Items

	Boys ($n = 41$)				Girls ($n = 50$)			
Predictor	R^2	F	β	T	R^2	F	β	t
Equation	.53	7.93**			.85	22.15***		
Fight			−.53	−3.18**			−.05	−0.40
Share			.40	2.80*			.74	6.16***
Wild			.00	−0.07			.22	1.47
Bossy			−.06	−0.37			.06	0.54
Sneaky			.13	0.68			−.41	−3.50**

*$p < .05$. **$p < .01$. ***$p < .001$.

As the table indicates, fighting was a strong predictor of lower peer liking scores for boys, with sharing also predicting variance in peer liking. Both sharing and sneaky behavior were strong predictors of peer liking for girls. In subsequent analyses, these concurrent predictors were used in conjunction with longitudinal predictors.

Fighting, Sharing, and Sneaky Behavior as Mediators

The third goal of this study was to examine whether the peer-reported behavioral items from the sociometric assessment mediated the effects of prior social and emotional behavior on social preference scores. To test mediation, procedures recommended by Baron and Kenny (1986) were followed. First, the independent variable must predict the mediator. Second, the independent variable must predict the dependent variable. Third, the mediator must predict the dependent variable. Perfect mediation holds if the independent variable has no effect on the dependent variable when the mediator is controlled.

Both fighting and sharing predicted boys' social preference scores; however, sharing was not significantly related to 2-year externalizing and 4-year problem behavior and therefore could not be tested as a mediator. To examine whether boys' fighting mediated the relation between 4-year problem behavior and kindergarten social preference, four regression equations were computed. These results are presented in Tables V and VI. In the first regression, 4-year problem behavior predicted fighting in kindergarten. In the second step, 4-year problem behavior also predicted kindergarten social preference. Finally, when fighting was controlled, 4-year problem behavior no longer predicted the outcome variable (social preference). The same procedures were followed with 2-year externalizing as the independent variable with similar results. Once again, fighting explained the relation between 2-year externalizing and kindergarten social preference. These results are also presented in Tables V and VI.

Table V. Regression Analyses Testing Boys' Fighting as a Mediator of the Relation Between 4-Year Behavior Problems and Kindergarten Social Preference

Predictor	R	R^2	β	T	df
1. 4-year behavior problems as a predictor of fighting					
4-year behavior problems	.49	.24	.49	3.25**	39
2. 4-year behavior problems as a predictor of social preference					
4-year behavior problems	.35	.12	−.35	−2.18	39
3. Fighting as a predictor of social preference					
Fighting	.63	.40	−.63	−5.11***	39
4. Fighting as a mediator					
Fighting	.57	.33	−.53	−3.26*	34
Behavior problems (4)	.58	.34	−.10	−0.57	

*$p < .05$. **$p < .01$. ***$p < .001$.

Table VI. Regression Analyses Testing Boys' Fighting as a Mediator of the Relation Between 2-Year Externalizing and Kindergarten Social Preference

Predictor	R	R^2	β	t	df
1. 2-year externalizing as a predictor of fighting					
2-year externalizing	.47	.23	.47	3.36**	34
2. 2-year externalizing as a predictor of social preference					
2-year externalizing	.39	.10	−.39	2.65*	34
3. Fighting as a predictor of social preference					
Fighting	.63	.40	−.63	−5.11***	39
4. Fighting as a mediator					
Fighting	.63	.40	−.57	−3.98***	34
Externalizing (2)	.64	.40	−.12	−0.85	

*$p < .05$. **$p < .01$. ***$p < .001$.

Finally, we examined whether 2-year externalizing behavior predicted peer reports of aggression above and beyond 4-year behavior problems as reported by the teacher. Results are presented in Table VII. As the table indicates, 4-year problem behaviors partially mediated the relation between 2-year externalizing behavior and nominations of aggressive behavior. However, 2-year behavior continued to exert a residual effect on peer reports of fighting, even after 4-year problem behavior was considered.

Table VII. Predicting boys' Aggression From 4-Year Problem Behavior and 2-Year Externalizing Behavior ($n = 35$)

Predictor	R	R^2	β	T	Sig.	df
4-year problem behavior	.49	.24	.41			
2-year externalizing	.59	.35*	.35	2.44	.02	34

*$p < .001$.

Both sharing and sneaky behavior predicted social preference scores for girls. These behaviors therefore were tested as mediators. Again, procedures suggested by Baron and Kenny (1986) were utilized to examine whether sharing and sneaky behavior may have mediated the effect of 4-year problem behavior in the prediction of kindergarten social preference. In the first regression, 4-year problem behavior predicted sharing. In the second step, 4-year problem behavior also predicted kindergarten social preference. When sharing was controlled in the analysis, 4-year problem behavior no longer predicted social preference. These results are presented in Tables VIII and IX.

Similar to findings with sharing, the relation between 4-year problem behavior and kindergarten social preference was mediated by kindergarten girls' sneaky behavior. These results are also presented in Tables VIII and IX. Two-year externalizing did not predict social preference and therefore did not meet the criteria for testing mediation.

Table VIII. Regression Analyses Testing Girls' Sharing as a Mediator of the Relation Between 4-Year Behavior Problems and Kindergarten Social Preference

Predictor	R	R^2	β	T	df
1. 4-year behavior problems as a predictor of sharing					
4-year behavior problems	.43	.18	−.43	−3.09**	43
2. 4-year behavior problems as a predictor of social preference					
4-year behavior problems	.32	.10	−.32	−2.20*	43
3. Sharing as a predictor of social preference					
Sharing	.79	.63	.79	9.00***	48
4. Sharing as a mediator					
Sharing	.79	.63	.79	7.53***	48
Behavior problems (4)	.79	.63	.02	0.19	

*$p < .05$. **$p < .01$. ***$p < .001$.

Table IX. Regression Analyses Testing Girls' Sneaky Behavior as a Mediator of the Relation Between 4-Year Behavior Problems and Kindergarten Social Preference

Predictor	R	R^2	β	t	df
1. 4-year behavior problems as a predictor of sneaky					
4-year behavior problems	.38	.15	.38	2.70*	43
2. 4-year behavior problems as a predictor of social preference					
4-year behavior problems	.32	.10	−.32	−2.20*	43
3. Sneaky as a predictor of social preference					
Sneaky	.60	.36	−.60	−5.24***	48
4. Sneaky as a mediator					
Sneaky	.60	.35	−.55	−4.16***	48
Behavior problems (4)	.60	.36	−.11	−.80	

*$p < .05$. **$p < .01$. ***$p < .001$.

DISCUSSION

The present investigation was a 3-year longitudinal analysis designed to examine the developmental outcomes related to peer social status of children with early, parent- reported behavior problems. Specifically, we sought to examine whether early externalizing behaviors displayed by 2-year-olds were related to later problem behaviors as observed by both preschool teachers and peers in the kindergarten classroom and, moreover, whether exhibiting these behaviors would decrease the probability of peer liking. A mediational analysis was used to address this question.

First, the longitudinal predictors of social and behavioral functioning were examined. Teacher report of problem behavior in the classroom, as measured by ratings of social skill, rough and tumble play, emotional regulation, negativity and externalizing behavior was modestly predicted from parent report of early behavior problems, a finding that was largely consistent with our hypotheses and with the work of other investigators (Campbell, 1991, 2002). Parent report of early externalizing behavior also predicted social behavior within the classroom for boys and girls, and peer liking for boys only.

We interpret these findings as support for the notion that early disruptive behaviors carry potential costs and that these costs are not context specific. That is, some toddlers who display aggression, noncompliance, and other externalizing behavior with a parent tend to continue to display these behaviors in the preschool and kindergarten setting, with both authority figures and peers. Moreover, behavior was relatively stable over this developmental period, supporting the ideas posited by Campbell et al. (2000) that, at least for some children, early behavior problems are not always transient. In addition, these data point to the possibility that different developmental processes may be operating for toddlers versus young children. For preschool children, there may be influential peer and social competence processes that influence kindergarten social behavior and status, whereas for younger children, parent–child processes may be more influential.

Another important aim of this investigation was to examine the longitudinal predictors of both peer-reported behavior and peer liking in the classroom. Significant relations emerged across the 3-year period, although the pattern of these relations differed for boys and girls. As expected, for boys, peer reports of aggressive, wild, sneaky, and bossy behaviors were moderately predicted by teacher report of externalizing behavior and social skills at age 4. A moderate relation was also found between teacher report of problem behavior and peer social preference. Thus, there appears to be a fair amount of consistency between externalizing behavior as reported by the teacher in preschool and the continuation of problem behaviors that are recognized by peers in the kindergarten year and negatively impact peer outcomes. In addition, parent report of externalizing behavior at age 2 predicted peer reports of fighting, sneaky, and bossy behavior, as well as social status in the kindergarten classroom.

These findings are largely consistent with our hypotheses and suggest that individual differences in early problem behavior assessed at age 2 are related to the continuation of problematic behaviors in preschool and kindergarten, at least for some children. Moreover, boys who exhibit early behavior problems also are likely to attain lower peer status in the kindergarten classroom 3 years later. Apparently, boys who were viewed as high on oppositional and aggressive behavior

by parents at age 2 also tended to be rated by peers as sneaky, bossy, wild, uncooperative, and aggressive at later points. And, engaging in such behaviors predicts peer status.

For girls, the story is more complicated. Although parent report of externalizing behavior did predict peer- reported behavior in the classroom, 2-year externalizing behavior was not related to social preference. One explanation for this result may be that early parent report did not tap into aspects of relational aggression as much as overt aggression. An examination of the items on CBCL supports this hypothesis because the majority of items on this scale focus on aggression and noncompliance rather than on relational or manipulative behaviors. Additional support for this interpretation comes from an examination of the longitudinal relations between early problem behavior and peer judgments of classroom behavior and likeability. Parent report of externalizing behavior at age 2 was moderately predictive of peer reports of physical aggression, sneaky behavior, and acting wild at age 5. The fact that early parent report of externalizing behavior was related to sneaky behavior bolsters the interpretation that sneakiness is a form of covert aggression that warrants further study. From a developmental perspective, it is likely that sneaky behaviors are not evidenced in toddlers because of the sophisticated cognitive appraisals required by these behaviors. However, it appears from our work and the work of Crick et al. (1997) that these more covert forms of aggressive behavior emerge during the preschool years and are relevant to the prediction of peer outcomes. Understanding whether and how early disruptive behavior in toddlers leads some children to engage in sneaky behavior and others to engage in more physical forms of aggression is an important question for future research.

Kindergarten behavior and social status were, however, moderately predicted by preschool teacher assessments of problem behaviors at age 4. The pattern of these relations was similar to that reported for boys. However, in addition to the positive relations between 4-year problem behaviors and fighting, sneaky behavior, bossing, and acting wild, there was a negative relation between preschool problems and sharing. Thus, children who displayed problems with aggression, noncompliance, and behavioral dysregulation at age 4 were likely to be viewed as being uncooperative with peers 1 year later. On the basis of these correlations, it appears that many of the relations held across both the type of measure and reporter. For example, parent report of disruptive behavior in toddler- hood was related to teacher report of problem behaviors in preschool and peer report of classroom behaviors. Thus, the relations obtained do not appear to be due primarily to shared method variance.

The relation among peer reports of children's behavior as evidenced in the kindergarten classroom was also examined. Our findings suggest that kindergarten children are capable of distinguishing among key behaviors exhibited by peers in the classroom and that they can provide reliable reports of these peer behaviors. Support for this conclusion comes from evidence indicating that on sociometric interview questions intended to tap differing social behaviors, children's responses were both differentiated and convergent. That is, children were able to adequately discriminate among behaviors that were theoretically unrelated (i.e., correlations were lower) but showed less differentiation among behaviors that were theoretically similar (i.e., higher correlations). These findings are consistent with the hypothesis that kindergarten children can recognize the behaviors of their classmates and that the individual differences in social behaviors that do exist at this age level are important indicators of peer success.

Consistent with research on older children (e.g., Coie, Dodge, & Kupersmidt, 1990), we found that fighting was negatively associated with peer liking and sharing was positively associated with social preference for both boys and girls. In addition, sneaky behavior, acting wild, and being bossy were negatively associated with liking in the kindergarten classroom, and once again the pattern of relations was similar for both gender groups. These results suggest that children can identify particular behaviors that are salient in peer interactions and, moreover, that these behaviors are related to kindergarten children's judgments of liking within their classrooms.

But which of these behaviors were the most potent predictors of likeability? Consistent with other research on older children (Coie et al., 1982), boys who engaged in fights were less liked by peers, whereas boys who shared were viewed more positively by their classmates. Similarly, girls who shared were also viewed more positively by their classmates. Thus, for both boys and girls, cooperative behavior and sharing are important social skills that relate to peer preference. For boys, physical aggression was negatively related to positive peer outcomes. Not surprisingly, fighting was not predictive of likeability in girls. However, being sneaky was negatively related to social preference. This result is consistent with other data indicating that preschool girls were more relationally aggressive than overtly aggressive and that covert aggression was predictive of negative peer status (Crick et al., 1997). Our findings extend this notion. Engaging in sneaky behavior (i.e., behavior that gets a peer in trouble) may be another form of covert aggression that is recognized by this age group and contributes to the assessment of peer liking, at least for girls.

Our final question addressed the processes by which early reports of behavior problems lead to problems in the peer domain. In exploring the linkage between early behavior problems and later social adjustment, it was of particular importance to determine whether specific classroom behaviors made differential contributions to social preference for boys and girls above and beyond the contribution of early behavior problems. Using Baron and Kenny's (1986) mediational approach, we tested a model in which the specific behaviors that were evidenced in the kindergarten classroom explained the relation between early disruptive behaviors and kindergarten peer status.

Our hypothesis was confirmed. For boys, fighting mediated the relation between 2-year parent report of behavior problems and peer status, as well as the relation between preschool problem behavior and peer status. However, 4-year problem behavior did not fully mediate 2- year behavior as a predictor of fighting. This suggests that 2-year externalizing behavior has a residual effect on peer- rated aggressive behavior and that for some children, the behavior patterns exhibited at age 2 are important in setting their developmental trajectory. For girls, mediation could not be tested for a model predicting peer success from 2-year behavior. However, sharing and sneaky behavior both mediated the relation between preschool behaviors problems and kindergarten likeability. These results begin to point to specific developmental processes that unfold for those children who are viewed as disruptive at age 2 and then continue to have problems in the social arena. Problem behavior at age 2 typically refers to behavior and interactions in the home, whereas problem behavior at age 4, at least in this study, reflects social skills and behavior with peers. Clearly, difficulties in both areas influence subsequent success with peers. Although not explicitly tested in the paper, it is plausible that the relevant processes for 2-year-olds involve parent child interactions whereas the relevant processes for 4-year-olds involve regulating behavior with peers.

These data suggest that the processes by which boys and girls earn negative peer reputations in the early school setting is quite different. An important question that should be addressed in future work is whether these processes explain other social outcomes for children, including peer rejection and the development of close friendships. The question of whether peer relationship problems simply mirror the continuation of early behavior difficulties or, in fact, reflect a different developmental trajectory is an important issue.

This study has several important strengths. First, the stability of early problem behavior identified by parents was assessed using a community sample of toddlers selected as initially high or low on externalizing behaviors. Little longitudinal work has been done with this young age group, and our data suggest not only the importance of looking at current correlates of early problem behaviors, but also in linking these early behaviors to later negative developmental trajectories. Second, we examined the developmental progression of behavior problems in both boys and girls. Boys are overrepresented in many current longitudinal investigations, despite emerging evidence that gender is an important individual characteristic to consider in longitudinal investigations. The significant differences we found between the developmental trajectories of boys compared to girls bolsters the argument that researchers should continue to consider the child's gender as one factor associated with differential or continued negative outcomes. Third, the design employed in this study allowed for the examination of longitudinal outcomes across the contexts that are important during this developmental period. This was done not only to allow for cross-informant perspectives to be taken into account, but also to examine the cross-context specificity of early negative behaviors. Finally, peers were included as a source of information, not only in terms of assessing sociometric standing within the classroom, but to begin to understand what behaviors are recognized as problematic early on in peer–group interactions, and whether those behaviors predict actual likeability in the classroom. Despite the strengths of this study, it is clear that although many of the relations tested were significant, they were modest in magnitude. Thus, other factors also play a role in explaining the developmental trajectories of disruptive toddlers and should be considered in future research.

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