Social Competence and Conduct Problems in Young Children: Issues in Assessment

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Examined the differences in various facets of social competence in 2 groups of young children (ages 4–7 years)—a clinic-referred group of aggressive children (N = 60) diagnosed with oppositional defiant disorder or conduct problems and a matched comparison group of typically developing children (N = 60). Four aspects of social competence were assessed: social information processing, actual observations of conflict management skills and social play interactions during peer interactions, positive social interactions with mothers and fathers at home, and teacher reports of social competence. The social information processing assessed included problem-solving skills (hypothetical skills as demonstrated on a social problem-solving test), self-perceptions (child's awareness of his or her own social self and feelings of loneliness), perceptions of others (attributions), and perceptions of others' attitudes toward oneself. To determine the construct validity of various means of assessing child social competence, we correlated children's social information processing measures with parent and teacher reports of social adjustment and with actual observations of interactions during peer play and at home with parents. Results comparing the 2 groups suggest that young children with conduct problems have deficits in their social information processing awareness or interpretation of social cues—they overestimate their own social competence and misattribute hostile intent to others. Tests of cognitive problem solving and observations of peer play interactions indicated that the children with conduct problems had significantly fewer positive problem-solving strategies and positive social skills, more negative conflict management strategies, and delayed play skills with peers than the comparison children. Correlation analyses indicated significant correlations between children's negative attributions and the ratio of positive to negative problem-solving strategies with observations of peer play interactions.

Difficulty in social relationships—both with parents and peers—is a central issue for children with conduct problems (for review, see Asher & Coie, 1990). In particular, aggressive children have difficulty forming and maintaining friendships; they are at increased risk for rejection by peers (Coie, 1990), and these difficulties are likely to continue into their adolescence (Campbell, 1990, 1995; Pope, Bierman, & Mumma, 1989). Research has found that such children lack posi-

tive problem-solving or appropriate conflict management skills (Asarnow & Callan, 1985; Mize & Cox, 1990). They react to interpersonal conflict situations—be it with parents, teachers, or peers—in aggressive or coercive ways without considering nonaggressive or prosocial solutions, and they anticipate fewer consequences for their aggressive solutions (Asher & Hymel, 1981; Dodge, Pettit, McClaskey, & Brown, 1986; Quiggle, Garber, Panak, & Dodge, 1992; Richard & Dodge, 1982; Rubin & Krasnor, 1986; Slaby & Guerra, 1988).

In addition, aggressive children have deficits in social skills with their peers. They lack positive communication skills such as knowing how to approach others and join in groups of children (Putallaz & Wasserman, 1990), how to get a conversation going, or how to give positive rather than negative feedback (Coie, Dodge, & Kupersmidt, 1990; Coie & Kupersmidt, 1983; Dodge, 1983). They also lack other friendship skills such as the ability to offer help and to play collaboratively and imaginatively with

their friends (e.g., Ladd, 1990; Ladd, Price, & Hart, 1990). In short, they lack social skills often referred to as social competence.

In contrast, the propensity to behave prosocially with peers has been regarded by many researchers as an important indicator of children's social competence, if not its defining feature (Ladd & Susan, 1996). Prosocial styles of interacting and responding to peers have been shown to be an important antecedent of peer acceptance and an important precursor of children's social adjustment (Ladd et al., 1990; Ladd & Price, 1987).

However, there is more to social competence than social and problem-solving behaviors. Social informational processing models (e.g., Dodge, 1985; Dodge & Crick, 1990; Dodge & Price, 1994; Dodge et al., 1986; Ladd & Crick, 1989; Rubin & Krasnor, 1986; Slaby & Guerra, 1988) have suggested the central importance of social cognitions as a component of *social competence*—that is the child's ability to "read" social situations and to interpret them accurately. Crick and Dodge (1994) hypothesized in their reformulated model that children are constantly engaging in a series of mental steps before enacting competent social behaviors. The steps include the following:

1. Encoding of external and internal cues.
2. Accurate interpretation of those cues.
3. Clarification or selection of a goal.
4. Response access or construction.
5. Response decision.
6. Behavioral enactment.

We utilized their model here to help organize our review of the literature regarding children with *conduct problems* (defined as high rates of aggression, noncompliance, and oppositional behaviors; for a more complete review of the informational processing model see Crick & Dodge, 1994).

In regard to the first two steps, encoding and interpreting cues, studies have indicated that aggressive children distort or underutilize social cues and selectively attend to aggressive social cues more than to nonaggressive cues in comparison to their peers (Gouze, 1987; Milich & Dodge, 1984). Crick and Dodge (1994) also suggested that children's interpretation of cues are influenced by their attributions about the cause of the stimulus or the intent of the peer. Indeed, studies have shown a strong relation between hostile attribution bias toward peers and aggressive behavior in both clinic and nonclinic samples (Dodge & Newman, 1981; Goutz, 1981). This tendency to perceive hostile intent in others has been seen as one source of aggressive behavior. Dodge, Bates, and Pettit (1990) found that hostile attributional bias in a sample of 309 preschool children predicted the emergence of aggressive behavior

problems (assessed by teacher ratings, peer nominations, and direct observations) 6 months later in kindergarten.

In Steps 1 and 2 of this social informational processing model, it is also hypothesized that children engage in other interpretative processes such as self-perceptions and perceptions of others' attitudes toward oneself. For example, a child's prior experiences with peer rejection and parental disapproval may contribute to a child's self-perception as socially incompetent; this self-image reinforces negative interpretations of social cues, which in turn contribute to negative behavioral responses. However, although research has generally shown a positive relation between social adjustment and self-perceptions of social competence for children ages 8 through 14 years (according to the Harter self-report inventory; Harter & Pike, 1984; Ladd & Price, 1986), these findings have not held true for younger children (Harter & Pike, 1984). There is some research to suggest that young children who are aggressive do not differ from nonaggressive children in their perceptions of the degree to which their peers accept them and in their perceived social competence (Boivin, Thomassin, & Alain, 1989; Rubin, Chen, & Hymel, in press). In other words, they do not rate themselves more negatively than average children. In fact, some studies have even found that aggressive children rate their social competence with peers higher than do nonaggressive children (Hughes, Cavell, & Grossman, 1997). These data suggest that aggressive children may have social information processing deficits that compromise their ability to estimate their own social competence.

After encoding and interpreting cues and formulating goals for the situation, it is hypothesized that step four will involve children's ideas about how they could solve a problem or manage a conflict situation with a peer. Children's cognitive problem-solving responses have been evaluated by researchers in terms of the number of solutions generated in response to a proposed hypothetical conflict situation and by the content of the responses, that is, whether the responses are prosocial or aggressive. Studies indicate that aggressive children access a fewer number of responses to social situations and see fewer alternative ways of reacting to interpersonal conflict than do their peers (Asarnow & Callan, 1985; Dodge et al., 1986) and that their responses are more aggressive and less prosocial than those accessed by peers (Dodge et al., 1986; Quiggle et al., 1992). Thus, it appears that the responses available to aggressive children at the response decision step of processing (i.e., response repertoires) are limited to a few aggressive acts. On the other hand, socially competent children offer a greater number of friendly or relevant responses to social situations (Dodge et al., 1986).

Although empirical support for this model is compelling particularly in regard to its potential to help us explain children's aggressive behavior, it has several limitations. First, it is unclear how factors such as emotions (e.g., feelings of loneliness, expression of affect), perceptions of others' attitudes toward oneself (e.g., peers and parents), and social interactions with parents are integrated or interact in this social information processing model. Second, many studies have used hypothetical situation methods to assess children's social problem-solving skills, but there is a need for more research that utilizes actual observations of peer social interactions in situations in which children are required to solve real-life conflict situations. Third, the majority of the studies have sampled older children (ages 9–12 years) and focused on normative samples. Comparatively less is understood about the precise social skills deficits and social information processing difficulties of young clinic children with conduct problems (Crick & Dodge, 1994). Whether this model applies to young preschool or early school-age children (ages 4–7 years) is an open question. Are negative attributions typical of very young children with conduct problems? Do these children have the same inflated self-esteem and distorted sense of themselves—that is, of their social competence—that research has found with older children with conduct problems? If we find that at an early age young children already tend to make negative attributions and to overestimate their social competence—that is, that they fail to process negative feedback from either peers or parents—these cognitive difficulties might help explain their continuing lack of social problem-solving skills and, in part, their conduct problems.

Assessment of Preschool and Early School-Age Children

These questions are not merely of theoretical interest; they have major implications for how we assess social competence and how we identify young children at risk for social problems and for offering intervention. Understanding the precise difficulties children with conduct problems have in their social information processing, as well as in their social interactions, allows us to design treatment programs targeted more precisely at their particular social and cognitive deficits. In this pursuit, assessment of social competence in young children is of central importance but not a simple matter. Moreover, most of the tools that have been developed for these purposes have been designed for school-age children and preadolescents. By comparison, measures capable of producing reliable data on young children's (i.e., preschool through Grade 1) behavior patterns are rare (Ladd & Susan, 1996).

Parent and Teacher Reports

In assessing aspects of children's social competence, the research has relied largely on external sources (parents, teachers) for information about the child, as is true for assessment of conduct problems (Hymel & Rubin, 1985). It has been argued that the best informants for assessing young children's social and behavioral difficulties are their mothers (La Greca & Lemanek, 1996; Loeber, Green, & Lahey, 1990). However, mother reports have been noted to be biased—sometimes influenced by personal and interpersonal factors such as maternal depression, marital distress, and negative life stress (Webster-Stratton, 1988b). Teachers would seem to offer a more reliable and unbiased assessment of children's social competence, particularly because they have the opportunity to observe and compare large numbers of children of the same age interacting together, an opportunity not usually available to the parent. Nonetheless, teachers are also susceptible to some of the same biases as mothers; furthermore, their assessment of their students could be influenced by factors such as race, sex, the student's academic performance, prior reputation of the child in the school, or their attitudes towards the child's parents (Coie, 1990). The existence of possible biases does not mean we should not value teacher and parent reports of children's social adjustment; for indeed, previous research has documented the predictive validity of teacher ratings of social competence for preschool children (Connolly, 1983; Connolly & Doyle, 1981) as well as shown modest correlations between parent and teacher reports (Rubin & Mills, 1990; Vitaro, Gagnon, & Tremblay, 1991). However, the existence of possible biases as well as the instability of young children's behaviors across settings, different expectations in the raters' perceptions, and differences in the types of behaviors measured in each setting suggest that reliable assessment of children's social competence must involve multiple informants and methods.

Child Self-Reports

Less attention has been given to what young children themselves feel and think about themselves and their social relationships. Clearly, children's internal states and emotions, such as self-perceptions, feelings of loneliness, and their perceptions of how others feel about them, cannot be reliably assessed via external sources. For this information, we must turn to them. Yet, some have argued that young children's self-reports are unreliable because children at this age are still engaged in fantasy and wishful thinking with a limited ability to distinguish their "real self" from "ideal self" (Harter, 1982; Harter & Pike, 1984) and

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limited ability to take the perspective of an outside observer when judging their own behavior. On the other hand, others have argued that even children as young as age 5 or 6 have a high level of social awareness and well-developed conceptions of loneliness. It has been found that those children who are having the greatest difficulties in peer relationships report the greatest degree of loneliness and social dissatisfaction (Asher, Parkhurst, Hymel, & Williams, 1990). However, loneliness in young children (ages 4–7) with conduct problems has rarely been assessed. It has even been reported on occasion that young children are not particularly vulnerable to feelings of loneliness (Weiss, 1973).

Another method of assessing children's social information processing competence is testing their knowledge of problem-solving strategies. These tests usually involve asking children how they might act in hypothetical situations such as being excluded by other children, obtaining a desired object from another child, or being teased by a peer (e.g., Rubin & Krasnor's, 1986, Preschool Problem Solving Test). The obvious limitation of this mode of assessment is that we do not know whether, in real-life conflict situations with their peers, children act in ways consistent with their cognitive responses on the test. Moreover, these hypothetical methods have been used far less often with very young children because of the added costs of individual interviews (vs. group assessments) and the use of pictures rather than written questionnaires necessary due to young children's limited reading abilities.

Behavioral Observations

Certainly, a more objective method of assessing children's social competence is direct observation of their social interactions with peers by an independent observer. Such real-life observations would seem to have validity beyond that of parent and teacher reports and social problem-solving testing with hypothetical situations. However, many observation methods currently in use lack precision and do not specifically measure the particular social difficulties that young children with conduct problems have with conflict management skills, social skills, and peer play interactions. Coding systems typically rely on naturalistic observations of large groups of peers interacting at school. However, this approach is problematic for observing young children with conduct problems because such children engage in a high degree of solitary play, making assessment of their social interactions difficult (Asher & Coie, 1990). For such children, dyadic peer play situations in which children are required to interact and resolve a naturally occurring conflict situation would seem to provide a better op-

portunity to observe actual friendship and conflict management skills as well as affect regulation.

Finally, although observing peer interactions is generally seen as the standard for evaluating social competence, in this study, we are defining social competence more broadly to include observations of children's social interactions with their parents as well as their peers. As Dodge and Feldman (1990) posited, adult-oriented interactions may be more relevant to assessing children's overall competence at young ages (because young children's culture is so adult–dominated), whereas peer interactions become more relevant with advancing age. Thus, we believe it is important to examine children's social functioning with both parents and peers.

This study had two purposes. The first purpose was to determine whether the research findings regarding the relations between social information processing skills, social competence, and aggression hold true for young children (ages 4–7 years) with early onset conduct problems. This aim was accomplished by comparing young clinic children diagnosed with conduct problems with a comparison group of children without diagnosed problems in terms of four components of social competence:

1. Social information processing skills, measured via *self-perceptions* (child's awareness of his or her own social self and feelings of loneliness), *perceptions of others* (attributions), *perceptions of other's attitudes toward oneself*, and *tests of social and conflict management skills* (hypothetical skills as demonstrated on a social problem-solving test).

2. Children's positive social skills and play interactions as observed during a structured dyadic peer play situation.

3. Positive social interactions with mothers and fathers as observed at home.

4. Social competence as reported by teachers.

In addition, we assessed the children's conduct problems by means of the following:

5. Observations of negative conflict management skills and aggressive interactions during dyadic peer play.

6. Observations of noncompliance, deviance, and negative affect with parents at home.

7. Parent and teacher reports.

The second purpose of the study was to determine the most reliable and valid means of assessing social adjustment in young children. In pursuit of this question, children's social information processing skills were correlated with teacher reports of social competence and conduct problems and with actual observations of dyadic peer play interactions and with children's interactions with parents at home. We developed a dyadic peer observation system specifically

for young children (ages 4–7 years) to code specific behaviors relevant to aggressive behavior (i.e., conflict management strategies indicating coercive strategies) as well as positive social skills, play skills (e.g., reciprocality, imaginary and cooperative play), and positive and negative affect.

Along with their theoretical interest to theorists of development and researchers in the area of conduct problems, these issues have implications for intervention, as mentioned previously, and for prevention as well. Accurate assessment is instrumental in identifying young children at risk for developing peer difficulties and conduct problems. This early identification is important given the power of negative peer relationships, aggression, and low social competence in early childhood as a strong predictor of subsequent social maladjustment, including drug abuse, delinquency, and antisocial behavior in adolescence (Loeber, 1990, 1991; Parker & Asher, 1987).

Method

Participants

The 120 children, ages 4 to 7 years, who were participants of this study were divided into a clinic sample and a comparison sample. The clinic sample consisted of 60 consecutive referrals to a University Parenting Clinic recognized in the community as a facility specializing in the evaluation and treatment of young children with conduct problems. Criteria for study entry were that (a) the child was between 4 and 7 years old; (b) the child had no debilitating physical impairment, intellectual deficit, or history of psychosis and was not receiving treatment at the time of referral; (c) the primary referral problem was child misconduct (e.g., noncompliance, aggression, oppositional behaviors) that had been occurring for more than 6 months; (d) parents' reports of their child's behavior on the Eyberg Child Behavior Inventory (ECBI; Robinson, Eyberg, & Ross, 1980) showed a clinically significant number of behavior problems (greater than two standard deviations above the norm for the age); and (e) the child met *Diagnostic and Statistical Manual of Mental Disorders (DSM–IV;* 4th ed.; American Psychiatric Association, 1994) criteria for oppositional defiant disorder (ODD), conduct disorder (CD), or both based on a structured diagnostic interview of parents and laboratory observation by highly experienced, reliably trained psychologists and social workers. Only one of the consecutive referrals did not meet the criteria for participating in the study.

The comparison sample of 60 children without diagnosed conduct problems were recruited through general advertisements placed in day care centers, grocery stores, schools, and newspapers. Scores in the clinical range on parent and teacher questionnaires served as exclusionary criteria. To avoid the gathering of a "supernormal" group, we accepted children who spanned the range from problem-free to the clinical cut-offs on parent-rating scales. Our comparison sample was derived after matching with the clinic sample according to child's sex, age, ethnicity, and socioeconomic status. Finally, for both the clinic and comparison samples, we required that there be a mother and a partner in the home to be eligible for the study. There were several reasons for this. First, we wanted to avoid any potential systematic bias resulting from differences in family structure between groups, and funding did not permit us to include a large enough sample of single parents to be able to make any conclusions about this population. (We decided this would be the next stage of research.) Second, we were very interested in father or partner assessments of social competence as well as mother. Table 1 presents key demographic information for the two groups. There were no significant differences on any of the variables. Informed consent was obtained from all mothers and fathers for both themselves and their children.

Study children included 32 (26.7%) girls and 88 (73.3%) boys, with a mean age of 67.97 months (*SD* = 13.9). Study parents included 120 mothers and 120 fathers or partners who had been living together an average of 10.2 years (*SD* = 3.80). There were 6 ethnic minority and 54 Caucasian children in each group. There were no significant differences between the clinic and nonclinic samples in terms of parents' age, education, social class, income, number of children in the family, or number of years living together.

Table 1. *Demographic Characteristics of Clinic and Comparison Groups*

Characteristic	Comparison		Clinic	
	M	SD	M	SD
Social Position Score[a]	23.60	10.66	25.18	11.39
Family Income Score[b]	6.87	1.42	6.63	1.51
Mother's Age (Years)	37.60	4.97	36.00	5.67
Father's Age (Years)	40.08	5.96	38.68	6.55
Child's Age (Months)	67.58	12.91	68.17	14.26

Characteristic	Comparison		Clinic	
	N	%	N	%
Child's Sex (Male)	44	73.3	44	73.3
Ethnicity (Minority)	6	10.0	6	10.0

Note: There were no significant differences between clinic and comparison groups on chi-square analysis or *t* test.

[a]Based on Hollingshead and Redlich's (1958) Two Factor Index of Social Position (education and occupation). [b]1 < $5,000; 2 = $5,000–8,999; 3 = $9,000–14,999; 4 = $15,000–20,999; 5 = $21,000–28,999; 6 = $29,000–39,999; 7 = $40,000–69,999; 8 = ≥ $70,000.

Measures

Measures of Conduct Problems

Children's conduct problems were assessed by means of parent and teacher reports, dyadic observations of children playing with a friend in our play laboratory setting, and observations of children interacting with their parents at home. Observational measures of conduct problems included antisocial or coercive and aggressive behaviors or negative social influence tactics with peers and noncompliance, deviance, and negative affect with parents at home. All assessments were conducted at one time point within a 2-week period.

Conduct Problems: Parent and Teacher Reports

Child Behavior Checklist (CBCL). The parent form of the CBCL (Achenbach & Edelbrock, 1991) consists of 118 items dealing with behavior problems. It has been shown to discriminate clinic-referred from nonclinic children. The items constitute multiple behavior-problem scales derived separately for boys and girls in different age groups. The scales form two broad-band groupings in all sex and age groups: Externalizing Behavior (aggressive, antisocial, and undercontrolled) and Internalizing Behavior (fearful, inhibited, and overcontrolled). The Externalizing Scale was utilized in this study to assess conduct problems. The CBCL has established norms; intraclass correlations were .98 for interparent agreement and .84 for test–retest reliability.

ECBI. The ECBI (Robinson, et al., 1980) is a 36-item behavioral inventory of child conduct-problem behavior for 2- to 16-year-old children. The response format yields two scores: a Total Problem score, which indicates the total number of behavior problems, and an Intensity score, which indicates the frequency with which conduct problems occur. The Total Problem score was used as a screening criterion for admission of clinic families into the study. Reliability coefficients for the ECBI scales range from .86 (test–retest) to .98 (internal consistency).

Behar Preschool Behavior Questionnaire (PBQ). Completed by teachers, the PBQ (Behar, 1977) includes 30 items, each rated on 3-point scale, ranging form 0 (*doesn't apply*) to 2 (*certainly applies*). Factor analysis yields three subscales in addition to a Total Behavior Problem Scale: Hostile–Aggressive, Anxious, and Hyperactive. The Hostile–Aggressive scale was selected for this study because it reflects a range of con-

duct problems and omits items related to attention deficit hyperactivity disorder. Test–retest reliability ranged from .60 to .99.

Teacher Assessment of Social Behavior (TASB). This measure (Cassidy & Asher, 1992) asks teachers to compare the target child with all of his or her classmates on four behavioral dimensions: prosocial, aggressive, shy/withdrawn, and aggressive/disruptive. Each dimension is assessed by means of three items, for a total of 12 items. To minimize potential dependency in the ratings of the different items, each item is presented on a different page. On each page, a roster of all students' names appears underneath the item, with a 5-point scale ranging from 1 (*very uncharacteristic*) to 5 (*very characteristic*) next to each name. We conducted factor analysis providing evidence for the four factors and reported adequate internal reliability. Cronbach's alphas ranged from .62 to .91. Significant correlations have been found between the teacher assessments and peer sociometric measures. Particularly good agreement occurred between teachers and peers with regard to the aggressive and prosocial dimensions. For this study, we were interested in the aggressive behavior dimension in regard to conduct problems.

Conduct Problems: Peer Observational Measures

Peer Problem-Solving–Interaction Communication–Affect Rating System (PPS–I CARE). Each child was asked to come to visit our playroom with his or her best friend. The friend needed to be within 2 years of the target child's age and of the same sex. After an initial 15-min warm-up play period, the children were asked to "Make the best thing you can together," with the emphasis placed on the cooperative aspect of their play activity. They were given one Etch-a-Sketch™ and a box of Lincoln Logs™ and were told that a picture would be taken of their "joint project" after they had completed it. They were given 10 min to complete the project.

The PPS–I CARE coding system (Webster-Stratton, Hollinsworth, & Rogers, 1991), a derivative of Gottman's MACRO and MICRO friendship observation (Gottman, 1983, 1986), was developed to specifically evaluate children's social skills and conflict management strategies. The variables used from the coding system to encompass conduct problems included three scores: (a) Total Negative Conflict Management (e.g., grab, hit, threaten, destroy, break rule, swear, noncomply, and frustrate); (b) aggressive play; and (c) hyperactive play. The last two items are rated by coders on a 5-point scale from *nonaggressive or fo-*

cused play to *highly aggressive or hyperactive play.* We theorized that high negative conflict management or coercive skills and aggressive play would reflect the behavior of children with conduct problems.

It took approximately 6 months of weekly training and practice for observers to become reliable. To assess reliability, a second coder analyzed 30% of all videotapes, randomly selected. The percentage agreement reliability was calculated for each 5-min segment and was based on occurrences (not nonoccurrences) of behavior. Mean overall interrater agreement was 79% (range = 69–92%), and the intraclass correlations calculated between observers for the summary variables were .93 for negative conflict management, .91 for aggressive play, and .89 for hyperactive play. Intraclass correlations for the individual items within the summary scores ranged from .80 for threaten to .99 for hit and destroy.

Conduct Problems: Home Observational Measures

Dyadic Parent–Child Interactive Coding System–Revised (DPICS–R). The DPICS–R, a widely researched observational measure developed by Robinson and Eyberg (1981) and revised by Webster-Stratton (1988a) consists of 29 behavior categories designed for recording interactions of conduct-problem children and their parents. We used this measure to code the child's social interactions at home. For this study, we were interested in three summary scores reflecting the target child's conduct problems: total child deviance (sum of frequency of whine + yell + cry + physical negative + smart talk + aggression), total child noncompliance, and negative affect.

Home observations of parent–child interactions were made by eight trained observers who were blind to whether the families were in the clinic or comparison group and were assigned equally to observe families representing both conditions. The observers underwent extensive initial training (30–45 hr of practice with videotapes) and were required to maintain 80% reliability with precoded videotapes before conducting home observations. To become "reliable," the observer must achieve an interobserver agreement rate of at least 75% with a reliable observer on two consecutive observations. To count as agreement, events must be coded correctly by subject matter and coding categories and in the proper sequence. To maintain accuracy, observers had weekly training sessions at which they practiced on videotaped interactions and discussed their coding. To periodically assess reliability, a second observer was present for at least 20% of all the home observations. Intraclass correlations assessing interrater reliability were .85 for total deviance, .61 for noncompliance, and .84 for negative affect valence.

Measures of Social Competence Children's social competence was assessed by means of teacher reports, dyadic observations of children playing with a friend in our play laboratory setting, and observations of children interacting with their parents at home. Observational measures of social competence include prosocial behaviors or positive influence and social problem-solving tactics with peers and positive behaviors (verbal and nonverbal) at home with parents.

TASB. For this teacher report measure (Cassidy & Asher, 1992), which we described earlier, we utilized one behavioral dimension to assess social competence: prosocial behavior.

Teacher Rating Scales of the Perceived Competence Scale for Young Children (Teacher PCSC). The Teacher PCSC (Harter, 1982; Harter & Pike, 1984) is the teacher's independent assessment of the children's competence and acceptance in four domains: Scholastic Ability, Social Acceptance, Athletic Ability, and Behavioral Conduct. Three items per subscale are presented. Domain scores are calculated as the mean of the three items. Reliability ranged from .70 to .90 for subscales. For this study, we utilized the behavioral conduct and social acceptance subscales as measures of teachers' ratings of children's social competence. A high score on both behavioral conduct and social acceptance indicates social competence.

Social Competence: Observational Measures

PPS–I CARE. The PPS–I CARE coding system (Webster-Stratton et al., 1991) is described previously and includes one summary score related to social competence and six items related to the level and quality of play interactions and affect: (a) Total Positive Social Skills (e.g., open question, praise, share, agree, apologize, wait turn, ask permission, make suggestion, ask for feedback, explain, offer, show caring, express positive feeling, sing) and (b) Quality of Play was rated according to a 5-point scale, ranging from 1 (*interactive, symmetrical, high*) to 5 (*parallel, asymmetrical, low*), on the following dimensions: reciprocality, imaginary play, positive affect, cooperativeness, and degree of interaction or engagement with peer. We hypothesized that these behaviors were indicators of social competence. The intraclass correlation was .92 for the Total Positive Social Skills score, and the individual items within the summary score ranged from .65 for feeling statements to .95 for statements and explanations. Intraclass correlations for the play skills ranged from .63 for cooperativeness to .83 for imaginary play.

DPICS–R. The DPICS–R (Robinson & Eyberg, 1981; Webster-Stratton, 1988a), which is described previously, was also used to assess children's social competence with parents at home. For this study, we were interested in one summary score reflecting the target child's social interactions: Total Child Positive Affect and Warmth (3 variables consisting of verbal and nonverbal positive affect plus physical warmth). The intraclass correlation for this item was .79.

Social Information Processing Skills

We measured children's social information processing skills by means of (a) self-perceptions of social competence, (b) perceptions or attributions regarding others, (c) perceptions of others' attitudes toward oneself, and (d) a test of hypothetical social problem-solving skills (Wally Child Social Problem-Solving Detective Game [WALLY]).

Child Loneliness and Social Dissatisfaction Questionnaire (LSDQ). The LSDQ (Asher, Hymel, & Renshaw, 1984; Asher & Wheeler, 1985) is a 24-item verbal questionnaire that asks children to respond to questions by answering on a 3-point scale, including 2 (*yes*), 0 (*no*), or 1 (*sometimes*). The 16 primary items fall into four categories assessing children's (a) feelings of loneliness, (b) appraisal of their current peer relationships, (c) perceptions of the degree to which their important relationship needs are being met, and (d) perceptions of their own social competence. The questionnaire has been shown in recent research (Cassidy & Asher, 1992) to be understood by and reliably assessed in children ages 4 to 7 years old; they also reported that poorly accepted children were more lonely than other children and that children with the highest loneliness score were more aggressive and disruptive than other children. Reliability coefficient for the scale was 0.79 for internal consistency. The LSDQ answers give a single score for each child.

PCSC for young children. The pictorial scale of the PCSC for young children is a downward extension of the PCSC for older children (Harter, 1982; Harter & Pike, 1984). The pictorial scale is administered by showing the child a picture, reading a brief statement, and asking the child to point to the child in the picture who is most like him or her. The PCSC was chosen because it is the best self-concept pictorial measure available for young children who cannot read with good validity and reliability ranging from .60 to .85 for subscales. Factor analysis for both age groups yields two subscales: General Competence (cognitive and physical) and Social Acceptance (peer and maternal). We were interested in the Peer and Maternal Social Acceptance subscale.

Child's Attributions (AGG). The attribution measure is an adaptation of Dodge and Newman's (1981) interview measure. The measure consists of four different scenarios in which the situation is familiar to young children, but the agent's intention is ambiguous. The child is presented with two alternative explanations about what happened, one attributing aggressive intent to the agent, and the other characterizing the situation as an accident. The child is asked to choose between the two alternatives. The result is one total score ranging from 0 to 4, with 4 indicating the highest level of aggressive attribution.

WALLY. We derived our WALLY game (Webster-Stratton, 1990; Webster-Stratton & Hammond, 1997) from Spivak and Shure's (1985) Preschool Problem-Solving Test and Rubin and Krasnor's (1986) Child Social Problem Solving Test. The game was designed to be particularly attractive to young children by utilizing a game-fantasy approach and bright colorful pictures of young children. We assessed both the qualitative and quantitative dimensions of a child's social problem solving. In this game, the child is presented with 12 brightly colored illustrations of hypothetical problem situations related to object acquisition (i.e., how to obtain a desired object) and to friendship (i.e., how to make friends with an unfamiliar person). The child is told he or she is a "problem-solving detective" (each child is given a Sherlock Holmes hat to wear while he or she thinks of responses) and is asked to solve the problems in the pictures. As each picture is presented, the child is asked what the character in the situation could do or say to solve the problem. The child is encouraged to formulate as many responses as he or she can think of for each situation. The answers are scored on the basis of type of solutions offered (positive or negative). Two summary scores are derived: (a) the number of different positive strategies proposed and (b) the ratio of the total number of positive to negative strategies (regardless of whether they were different or not). Thus, the first score represents the child's repertoire of different positive strategies, whereas the second score represents the frequency of total positive to total negative strategies proposed. There are 16 prosocial or positive solution categories (e.g., admit to accident, apologize, comply, devise another appropriate strategy, exert self-control, explain, give all to other, negotiate, share equally, wait) with satisfactory internal consistency, $\alpha = .65$. There are 17 negative so-

lution categories (e.g., take all for self, deny authority of adult, deny, lie, destructive retaliation to object, grab or take object, hide evidence, physical negative to person, steal, tease or call names, threaten or coerce, yell, scream, stomp) with satisfactory internal consistency, $\alpha = .54$. The WALLY has been shown to be sensitive to social skills and problem-solving treatment effects for children with conduct problems (Webster-Stratton & Hammond, 1997). Construct validity of the WALLY was established by showing satisfactory correlations between the WALLY total prosocial score and Rubin total positive strategies ($r = .60$) and between the WALLY negative score and Rubin negative strategies ($r = .50$).

Three coders were extensively trained to test the children on the WALLY. All testing on the children was videotaped in order for coders to be able to return to the videotape in case they were not able to record the complete response to a situation in a timely fashion. These tapes were also used for regular coder reliability meetings to assure that coders were using the same testing processes to elicit children's answers. Random selection of 30% of the children had their responses recoded by a second coder to determine interrater reliabilities. Random selection of 10% of the videotapes was conducted by the trainer to be sure coders were adhering to testing protocol. Intraclass correlations representing interrater reliability were .97 for the different positive score and .97 for the ratio score.

Results

First we conducted multivariate analyses of variance (MANOVAs) comparing our clinic and comparison children in terms of the seven sets of variables related to the children's social competence and conduct problems:

1. Social information processing skills (six variables: LSDQ, AGG, PCSC–peer, PCSC–maternal, WALLY–ratio, WALLY–positive).
2. Observations of positive social relationships during peer interactions (six variables).
3. Observations of positive social relationships during parental interactions (one variable).
4. Teacher reports of social competence (three variables).
5. Observations of negative social interactions during peer interactions (three variables).
6. Observations of negative social relationships during parent interactions (three variables).
7. Parent and teacher reports of conduct problems (three variables).

MANOVAs were followed by paired t tests when the overall MANOVA was significant. Next, we examined the validity of child social information processing skills, parent and teacher reports, as measures of social competence and conduct problems by means of Pearson's correlations with our observations of social competence and conduct problems as manifested in the child's interactions with peers in our laboratory and with parents at home.

Differences Between Clinic and Comparison Children's Social Competence According to Tests of Social Information Processing

MANOVA revealed a significant effect for the set of social information processing variables, $F(6, 116) = 2.21, p < .05$. Clinic children generated significantly ($p < .01$) fewer different positive solutions to hypothetical conflict situations than the comparison group. They also had a significantly lower ratio of positive to negative strategies. Clinic children perceived others with significantly more negative attributions than did the comparison children, $t(118) = -1.89, p < .05$. On the other hand, there were no significant differences between the clinic and comparison sample in their self-reported loneliness and social dissatisfaction, and there were none in their perceptions of peer and maternal acceptance. In fact, clinic children's perceptions of peer and maternal acceptance were somewhat higher than for the comparison children's perceptions (see Table 2).

Differences Between Clinic and Comparison Children's Social Competence and Conduct Problems According to Teacher and Parent Reports

MANOVA revealed a significant effect for the set of teacher reports of social competence, $F(3, 107) = 11.20, p < .001$. Teachers reported that clinic children had significantly less peer social acceptance and less positive behavioral conduct (PCSC) than teacher reports of the comparison children. According to the TASB measure, teachers reported that clinic children had significantly fewer prosocial behaviors with their peers in the classroom than for the comparison sample (see Table 2).

MANOVA revealed a significant effect for the set of parent and teacher reports of conduct problems, $F(4, 106) = 52.04, p < .001$. Teachers and parents alike reported significantly more externalizing and aggressive

Table 2. *Differences Between Clinic and Comparison Groups: Social Competence and Conduct Problems According to Tests of Social Information Processing and Parent and Teacher Reports*

Measure	Comparison		Clinic		
	M	SD	M	SD	t
Conduct Problems					
Externalizing (CBCL–Mother)	47.47	8.82	69.25	8.31	−13.93***
Externalizing (CBCL–Father)	47.12	8.58	65.78	8.66	−11.86***
Hostile–Aggressive (PBQ)ᵃ	1.49	2.93	8.28	6.86	−6.66***
Aggressive (TASB)ᵃ	1.42	0.72	2.82	1.43	−6.32***
Social Competence					
Prosocial (TASB)ᵃ	4.05	0.70	3.26	1.07	4.50***
Social Acceptance (PCSC)ᵃ	9.51	2.09	7.16	2.68	5.11***
Behavioral Conduct (PCSC)ᵃ	10.62	1.81	7.54	3.38	5.21***
Tests of Social Information Processing					
Proportion of Positive to Negative Strategies (WALLY)ᵇ	0.83	0.16	0.73	0.28	2.30*
Number of Different Positive Strategies (WALLY)ᵇ	7.72	2.12	6.50	2.50	2.87**
Negative Attributions (AGG)ᵇ	1.07	1.06	1.47	1.29	−1.89*
Loneliness and Social Dissatisfaction (LSDQ)ᵇ	23.88	6.80	23.48	6.61	0.32
Peer Acceptance (PCSC)ᵇ	17.92	3.50	18.53	3.19	−1.01
Maternal Acceptance (PCSC)ᵇ	16.92	3.77	18.10	4.06	−1.65

Note: N = 60 clinic and 60 comparison children. CBCL = Child Behavior Checklist; PBQ = Behar Preschool Behavior Questionnaire; TASB = Teacher Assessment of Social Behavior; PCSC = Perceived Competence Scale for Young Children; WALLY = Wally Child Social Problem-Solving Detective Game; AGG = Child's Attributions; LSDQ = Child Loneliness and Social Dissatisfaction Questionnaire. ᵃTeacher reports. ᵇChild reports.
*p < .05. **p < .01. ***p < .001.

problems for the clinic sample than the comparison sample.

Differences Between Clinic and Comparison Children's Social Competence According to Observations of Interactions During Peer Play and at Home With Parents

MANOVA revealed a significant effect for the set of observed social competence behaviors when interacting with peers in a dyadic situation, $F(6, 113) = 5.46$, $p < .001$. During observed social interactions with peers (PPS–I CARE), clinic children demonstrated significantly fewer total positive social skills than did the comparison children when interacting with their friends, $t(118) = 2.19$, $p < .05$. Specifically, clinic children made significantly fewer descriptive statements, gave fewer compliments, and made fewer statements about their feelings. On the other hand, they also asked for more feedback and made more offers and caring overtures with peers than the comparison children. In regard to level of social competence during play, clinic children were rated as significantly less reciprocal, less imaginative, and as showing less positive affect with their friends than did their nonclinic counterparts with their friends. Cooperativeness and amount of interactive play were not significantly different between the two groups (see Table 3).

MANOVA revealed a significant effect for the two positive social behaviors when interacting with parents

at home $F(2, 117) = 4.66$, $p < .05$. During observed interactions with parents (DPICS–R), clinic children showed significantly ($p < .01$) less positive affect and warmth when interacting with their mothers and fathers than did their nonclinic counterparts with their parents (see Table 4).

Differences Between Clinic and Comparison Children's Conduct Problems According to Observations of Interactions During Peer Play and at Home With Parents

MANOVA revealed a significant effect for the set of observed conduct-problem behaviors during dyadic peer play interactions, $F(3, 116) = 8.49$, $p < .001$. During observed social interactions with peers (PPS–I CARE), clinic children demonstrated significantly greater total negative conflict management skills during play interactions than did the comparison children when interacting with their friends, $t(118) = -3.32$, $p < .001$. Clinic children showed a significantly greater number of destructive acts, hitting, smart talks, rule violations, and disagreements and more frustration with their friends than did the comparison children. In addition, clinic children's play was rated as significantly more aggressive and hyperactive (see Table 3).

MANOVA revealed a significant effect for the set of observed conduct-problem behaviors at home with parents, $F(6, 113) = 4.97$, $p < .001$. In observed interac-

Table 3. *Differences Between Clinic and Comparison Groups: Observations of Peer Play Interactions (PPS–I CARE)*

Measure	Comparison		Clinic		
	M	SD	M	SD	t
Conduct Problems					
Total Negative Conflict Management Skills	2.95	4.18	7.40	9.51	−3.32***
Destructive	0.17	0.49	0.80	1.96	−2.42**
Rule Violation	0.22	0.80	1.37	2.91	−2.96**
Threaten or Escalate	0.07	0.31	0.23	0.77	−1.56
Frustration	0.07	0.31	0.27	0.78	−1.85*
Smart Talk	1.03	2.06	2.80	4.85	−2.60**
Disagree	2.22	2.47	3.13	3.21	−1.75*
Hit Child	0.13	0.54	0.53	1.62	−1.82*
Aggressive Play	1.97	0.90	2.47	1.29	2.45**
Hyperactive Play	2.17	0.89	3.05	1.12	4.78***
Social Competence					
Total Positive Social Skills	53.67	20.45	45.97	18.08	2.19*
Ask Permission	1.28	2.31	0.78	1.46	1.41
Ask Feedback	0.28	0.64	0.68	1.42	−1.99*
Offer	0.08	0.28	0.33	0.71	−2.55**
Caring	0.10	0.35	0.27	0.66	−1.72*
Statement or Explain	24.43	10.03	18.77	9.15	3.23**
Sharing	0.62	2.20	1.60	4.60	−1.49
Suggestion	5.18	4.96	3.98	3.89	1.48
Praise	0.83	1.36	0.38	0.72	2.27**
Feeling Statement	1.30	1.66	0.73	1.12	2.19*
Question	6.38	4.72	6.90	4.99	−0.58
Sing	5.22	5.29	4.23	4.27	1.12
Level of Play					
Reciprocality	3.72	0.98	2.70	1.14	5.25***
Cooperativeness	3.18	0.79	3.00	1.07	1.06
Imaginary Play	2.62	1.17	2.14	1.20	2.22*
Positive Affect	3.22	0.72	2.95	0.93	1.76*
Interactive Play	3.05	1.00	2.92	1.12	0.69

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

Table 4. *Differences Between Clinic and Comparison Groups: Observations of Children's Interactions With Parents at Home (DPICS–R)*

Measure	Comparison		Clinic		
	M	SD	M	SD	t
Conduct Problems With Mother					
Negative Affect	2.69	0.29	2.93	0.40	−3.80***
Total Deviance	6.90	8.14	16.42	21.75	−3.17**
Noncompliance	1.86	1.61	2.98	2.59	−2.83**
Conduct Problems With Father					
Negative Affect	2.67	0.29	2.92	0.34	−4.37***
Total Deviance	6.10	7.76	15.34	18.43	−3.58***
Noncompliance	1.20	1.16	3.28	7.12	−2.24*
Social Competence					
Positive Affect and Warmth With Mother	14.18	10.54	9.55	9.52	2.53**
Positive Affect and Warmth With Father	16.33	10.91	10.85	12.10	2.60

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

tions with parents, clinic children showed significantly more negative affect, total deviant behaviors, and noncompliance when interacting with both mothers and fathers than did the comparison children with their parents (see Table 4).

Correlations Between Social Information Processing Variables With Observations and Reports of Social Competence

There was a significant ($p < .01$) negative correlation between children's negative attributions towards peers (AGG) with observed positive social skills during peer play interactions. In addition, negative attribution was negatively correlated with all three teacher reports of social competence. There was a significant negative correlation between children's perceptions of loneliness and social satisfaction (LSDQ) with positive social skills and cooperative and interactive peer play as well as with positive affect and warmth when interacting with fathers. On the test of hypothetical social problem solving, a high ratio of positive to negative strategies on the WALLY test was positively correlated with reciprocal play with peers and with positive affect in interactions with mothers. In regard to the children's perceptions of how their mothers and peers perceived them, there was a significant correlation between perceptions of maternal acceptance with imaginary play with peers and with positive affect and warmth when interacting with fathers. There was a significant correlation between perceptions of peer acceptance with child positive affect with fathers. A striking and rather puzzling correlation emerged between child perceptions of maternal acceptance with teacher reports of social competence. Maternal acceptance was negatively correlated with teacher reports of social acceptance, behavioral conduct, and prosocial behavior.

Correlations Between Social Information Processing Variables With Observations and Reports of Conduct Problems

There were significant correlations between children's negative attributions towards peers with negative conflict management, aggressive and hyperactive play with peers, as well as with total deviance at home with mothers and fathers, with noncompliance with mothers and with negative affect with fathers. Moreover, there were significant correlations between children's negative attributions and all the parent and

teacher reports of conduct problems. Children's reports of loneliness did not correlate with any peer behavior interactions, but it did correlate with negative affect with fathers and with teacher reports of aggression on the PBQ measure. According to the hypothetical test of problem solving a high positive–negative ratio of strategies was negatively correlated with negative conflict management skills and hyperactivity in observed peer interactions. A high ratio was also negatively correlated with total child deviance during observed interactions with fathers and with noncompliance with mothers, and the same was true for the number of different positive strategies. In regard to children's perceptions of peer acceptance, there were no correlations with any observation variables either with peers or parents or with any parent or teacher reports. On the other hand, child perceptions of maternal acceptance again showed surprising positive correlations with aggressive and hyperactive peer play, deviance with parents, and teacher reports of aggression (see Tables 5 and 6).

Correlations Between Teacher Reports With Observations of Social Competence

Teacher reports of prosocial behaviors (TASB) were positively correlated with positive affect and cooperative peer play. Teacher reports of children's peer social acceptance were positively correlated with reciprocal play, positive affect, and cooperative play. Teacher reports of positive conduct were correlated with cooperative play. There were no correlations between teacher reports and child social behavior with parents at home (see Table 7).

Correlations Between Teacher and Parent Reports With Observations of Conduct Problems

Teacher reports of aggressive behaviors on the PBQ and TASB were correlated with the three negative peer interaction variables (negative conflict management, aggression, and hyperactivity) during peer play interactions as well as with total deviance when interacting with mothers and fathers and with noncompliance when interacting with mothers at home. Both mother and father reports of externalizing problems were positively correlated with all three of the observed negative peer play variables and all but one of six behavior variables with parents. Mother and father reports on the CBCL correlated highly with teacher reports on PBQ ($r = .52$) and on the TASB ($r = .51$; see Table 8).

Table 5. *Correlations of Observations and Reports of Social Competence With Tests of Social Information Processing*

| | Social Information Processing Variables | | | | | |
| | WALLY | | | | PCSC | |
Meaures	Ratio Positive Strategies	Different Positive Strategies	Negative Attributions (AGG)	Lonliness (LSDQ)	Peer Acceptance	Maternal Acceptance
Positive Peer Interactions[a]						
Positive Social Skills	.11	.14	−.23**	−.26**	−.09	−.11
Reciprocal Play	.18*	.17*	.01	−.06	.06	−.07
Imaginary Play	−.06	−.03	.08	−.08	.06	.22**
Positive Affect	−.01	−.05	.13	−.11	.06	.06
Cooperative Play	−.03	.03	.01	−.19*	.12	.01
Interactive Play	.04	.09	−.04	−.16*	−.03	−.11
Positive Interactions With Parents[b]						
Positive Affect and Warmth With Mother (DPICS–R)	.16*	.09	−.14	−.04	.03	.07
Positive Affect and Warmth With Father (DPICS–R)	.14	.03	−.09	−.17*	.22**	.16*
Reports of Social Competence						
Prosocial (TASB)[c]	.16	.10	−.22*	−.04	−.01	−.19*
Social Acceptance (PCSC)[c]	.15	.09	−.25**	−.16	−.03	−.25**
Behavioral Conduct (PCSC)[c]	.13	.13	−.32***	−.13	−.08	−.29***

Note: N = 120 for parent and child measures; N = 111 for teacher measures. WALLY = Wally Child Social Problem-Solving Detective Game; AGG = Child's Attributions; LSDQ = Child Loneliness and Social Dissatisfaction Questionnaire; PCSC = Perceived Competence Scale for Young Children; DPICS–R = Dyadic Parent–Child Interactive Coding System-Revised; TASB = Teacher Assessment of Social Behavior; PPS–I CARE = Peer Problem-Solving–Interaction Communication–Affect Rating Coding System.
[a]PPS–I CARE dyadic peer observation method. [b]DPICS–R home observations. [c]Teacher reports.
*p < .05. **p < .01. ***p < .001.

Table 6. *Correlations of Observations and Reports of Conduct Problems With Tests of Social Information Processing*

| | Social Information Processing Variables | | | | | |
| | WALLY | | | | PCSC | |
Measure	Ratio Positive Strategies	Different Positive Strategies	Negative Attributions (AGG)	Loneliness (LSDQ)	Peer Acceptance	Maternal Acceptance
Negative Peer Interactions[a]						
Negative Conflict Management	−.18*	−.12	.19*	.11	.05	.15
Aggressive Play	−.13	−.08	.25**	.15	.10	.28***
Hyperactive Play	−.27**	−.21*	.19*	.11	.16*	.31***
Negative Interactions With Parents[b]						
Total Deviance With Mother	−.10	−.09	.32***	−.05	.09	.28***
Total Deviance With Father	−.17*	−.28***	.27**	.12	.08	.20*
Noncompliance With Mother	−.30***	−.25**	.25**	.09	−.04	.22**
Noncompliance With Father	−.01	.01	−.05	−.04	.08	.04
Negative Affect With Mother	−.10	−.07	.15	.04	.04	.08
Negative Affect With Father	−.13	−.16*	.23**	.17*	−.13	−.02
Reports of Conduct Problems						
Externalizing (CBCL–Mother)	−.22**	−.26**	.16*	.02	.05	.14
Externalizing (CBCL–Father)	−.23**	−.30***	.21**	.06	.03	.13
Hostile–Aggressive (PBQ)[c]	−.18*	−.18*	.35***	.19*	−.01	.28**
Aggressive (TASB)[c]	−.24**	−.20*	.29**	.12	−.04	.27**

Note: N = 120 for parent and child measures; N = 111 for teacher measures. WALLY = Wally Child Social Problem-Solving Detective Game; AGG = Child's Attributions; LSDQ = Child Loneliness and Social Dissatisfaction Questionnaire; PCSC = Perceived Competence Scale for Young Children; CBCL = Child Behavior Checklist; PBQ = Behar Preschool Behavior Questionnaire; TASB = Teacher Assessment of Social Behavior; PPS–I CARE = Peer Problem-Solving–Interaction Communication–Affect Rating Coding System; DPICS–R = Dyadic Parent–Child Interactive Coding System–Revised.
[a]PPS–I CARE dyadic peer observation method. [b]DPICS–R home observations. [c]Teacher reports.
*p < .05. **p < .01. ***p < .001.

Table 7. *Correlations of Observations of Peer Play and Interactions With Parents With Reports of Social Competence*

	Teacher Reports of Social Competence		
Measure	Prosocial (TASB)	Social Acceptance (PCSC)	Behavioral Conduct (PCSC)
Positive Peer Interactions[a]			
Positive Social Skills	.08	.14	.12
Reciprocal Play	.03	.16*	.07
Imaginary Play	.13	-.02	.09
Positive Affect	.20*	.16*	.15
Cooperative Play	.17*	.19*	.17*
Interactive Play	-.03	.02	.08
Positive Interactions With Parents[b]			
Positive Affect and Warmth With Mother	-.04	-.01	-.04
Positive Affect and Warmth With Father	.08	.10	.07

Note: N = 111 for teacher measures. TASB = Teacher Assessment of Social Behavior; PCSC = Perceived Competence Scale for Young Children; PPS–I CARE = Peer Problem-Solving–Interaction Communication–Affect Rating Coding System; DPICS–R = Dyadic Parent–Child Interactive Coding System–Revised.
[a]PPS–I CARE dyadic peer observation method. [b]DPICS–R home observations.
*p < .05. **p < .01. ***p < .001.

Table 8. *Correlations of Observations of Peer Play and Interactions With Parents With Reports of Conduct Problems*

	Reports of Conduct Problems			
Measure	Externalizing (CBCL–Mother)	Externalizing (CBCL–Father)	Hostile– Aggressive[c] (PBQ)	Aggression[c] (TASB)
Negative Peer Interactions[a]				
Negative Conflict Management	.20***	.35***	.37***	.29**
Aggressive Play	.30***	.29***	.47***	.40***
Hyperactive Play	.41***	.33***	.30***	.23**
Negative Interactions With Parents[b]				
Total Deviance With Mother	.27**	.26**	.34***	.29**
Total Deviance With Father	.25**	.27**	.28**	.22*
Noncompliance With Mother	.21*	.23**	.40***	.38***
Noncompliance With Father	.15	.05	.15	.14
Negative Affect With Mother	.19*	.20*	.10	.13
Negative Affect With Father	.25**	.28***	.17*	.15

Note: N = 120 for parent and child measures; N = 111 for teacher measures. CBCL = Child Behavior Checklist; PBQ = Behar Preschool Behavior Questionnaire; TASB = Teacher Assessment of Social Behavior; PPS–I CARE = Peer Problem-Solving–Interaction Communication–Affect Rating Coding System; DPICS–R = Dyadic Parent–Child Interactive Coding System–Revised.
[a]Teacher reports. [b]PPS–I CARE dyadic peer observation method. [c]DPICS–R home observations.
*p < .05. **p < .01. ***p < .001.

Discussion

This study had two purposes: (a) to determine whether young children with conduct problems differed from a matched comparison group of typically developing children in terms of several aspects of their social competence, as has been shown for older aged aggressive children (Crick & Dodge, 1994); and (b) to determine the most reliable and valid method of assessing young children's social competence, particularly when direct observation of their social interactions is not a possibility.

In terms of our first question, we will begin by addressing the findings regarding social information pro-

cessing abilities, in particular children's self-ratings of how they think others (peers and mothers) perceive their social competence and how lonely they feel in regard to their peer group. Results showed no significant differences between the clinic group of children diagnosed with conduct problems and the comparison group in terms of self-perceptions and how they saw themselves in relation to others (i.e., social acceptance) or in their reports of loneliness. In fact, clinic children's reports of peer and maternal acceptance were slightly more positive than were their counterparts'—even though teachers, mothers, and fathers all clearly identified them as having significantly poorer social acceptance and more externalizing problems

than the comparison children. These data regarding clinic children's self-perceptions are consistent with other research that has found that aggressive children tend to report less extreme feelings of loneliness, to overestimate their own social skills, and to show inflated and inaccurate self-perceptions relative to others' evaluations of their social competence (Gagnon, Dumont, Tremblay, Charlebois, & Larivee, 1988; Lochman & Dunn, 1993). In view of the fact that these clinic children have significant peer difficulties and conduct problems as reported by parents and teachers, their positive self-evaluations suggest several possible interpretations for their difficulties in encoding and interpretation of cues. They may be denying their problems in a defensive reaction, they may be engaging in the wishful thinking so characteristic of this developmental age, or they may be overestimating their social acceptance and downplaying their social difficulties in order to buffer against experiencing feelings of loneliness. On the other hand, another possible explanation for the fact that aggressive children do not perceive others' (peers' and mothers') attitudes toward them as negative is that they may not be able to distinguish between their self-perceptions and others' perceptions of them—that is, they are limited in perspective-taking skills (Harter & Pike, 1984; McKeough, Yates, & Marini, 1994)—and more generally in their comprehension of social relationships because of their difficulties in reading social cues. Moreover, the fact that these young aggressive children do not seem to recognize their own social incompetence and lack of peer acceptance helps explain why they do not report more loneliness.

Another aspect of social information processing that we examined was children's attributions towards others. Here, a significant difference was found suggesting further difficulties encoding cues. Clinic children's attributions in the hypothetical problem situations test involving peer relationships (AGG) were significantly more negative than those of the comparison children. These data confirm the findings of other researchers regarding older children with CDs, who consistently make hostile attributions regarding ambiguous interpersonal stimuli (Dodge et al., 1986; Dodge, Price, Bachorowski, & Newman, 1990; Kendall, 1993). Taken together, these social information processing findings regarding self-perceptions and attributions provide confirmation of Crick and Dodge's (1994) reformulated model indicating that young children with conduct problems have deficits in one aspect of social competence, namely their awareness of and interpretation of social reality—they overestimate their own social competence and misattribute hostile intent to others.

Next, we examined two other steps in their model of social information processing, namely, Step 4 response access or construction of ideas about how to solve a problem and Step 6 behavioral enactment. According to the WALLY hypothetical social situations testing, clinic children responded with a significantly lower ratio of positive to negative problem-solving strategies. Clinic children reported a significantly smaller range of positive problem-solving strategies (e.g., apologize, comply, share, wait) than the comparison children. These data confirm the research data regarding older children that found that children with CDs perceive less positive solutions to problems (Dodge, 1993). Moreover, in our study, these cognitive deficits in hypothetical problem social situations were corroborated by our observations of actual social interactions with peers. In their play interactions with friends, the clinic children were observed to have significantly fewer positive social skills (e.g., statements, praises, feeling statements) than did the comparison children and significantly more aggressive conflict management skills (both verbal and nonverbal; e.g., rule violation, smart talk, destructive acts, disagreements, hits). In fact, their rate of negative conflict management behavior during peer play was at least three times higher than that of the comparison children, indicating their poor impulse control.

On the other hand, it is also interesting to note that, in these social situations, clinic children were observed to exhibit some positive social skills significantly more often than their counterparts, such as asking for feedback, making offers, and showing more caring with their friends. We hypothesize that these prosocial behaviors arise out of greater insecurity in their peer relationships and represent social overtures (which may be rebuffed) or repair statements that often follow aggressive acts in an effort to repair the relationship or forestall rejection. Nonetheless, these are decidedly social skills.

Another noteworthy finding was that clinic children were significantly less socially competent during dyadic play interactions in comparison to the nonclinic children. Clinic children's play with their friends tended toward parallel play (noninteractive), involving less reciprocality; they were less likely to engage in imaginative or fantasy play. These findings are striking, for typically by the age of 4 to 7 years children have largely abandoned parallel play for high levels of engagement with peers, often involving fantasy play and role play (Gottman & Katz, 1989). Perhaps this low level of engagement on the part of the clinic children is an adaptive response, a strategy for avoiding conflict and the resultant peer rejection, or for protecting themselves against emotional arousal. Gottman (1983) has suggested that the management of fantasy play in friendships is related to children's regulation of emotions, as fantasy play requires regulation of emotions and negotiation. For these children, the high level of emotional arousal brought about by fantasy play could be dysregulating and, therefore, problematic.

Furthermore, clinic children were less positive and more aggressive in their play with their friends. These low levels of positive play and engagement coupled with the high levels of aggressive and hyperactive play suggest that these children would be seen by their same-age peers as not much fun to play with. Accordingly, their lack of engagement may not be an adaptive response at all but the unfortunate result of rejection by peers, which in turn is the result of their conduct problems. These tendencies signal that these young children may be embarking on a pathway towards even more disrupted social development, as their deficits in social competence and play skills lead them to prefer more solitary activities and peer play that is less intimate and interpersonally disconnected.

In terms of the second purpose of our study, we assumed that the most objective means of assessing social competence in young children would be to observe them in dyadic peer play. However, because this is not always a possibility, we were interested in knowing which of the other available means for assessing social competence in young children are the most reliable and valid. To this end, we sought to determine which measures—child self-reports (social information processing tests) and parent and teacher reports of the child's adjustment are best correlated with observational data.

Our results suggest that, for young children, attribution tests and particularly social problem-solving tests (with hypothetical problem situations) are more valid means of assessing their risk for social competence difficulties than children's self-reports of social acceptance or loneliness. Children's negative attributions correlated with one of the social competence peer variables (low positive social skills) and with all three of our observed negative peer interaction behavior variables (aggression, hyperactivity, and negative conflict management behaviors with peers). Children's reports of loneliness correlated with three of the observed peer play social competence variables (low positive social skills, low cooperation, and low peer interaction) and none of the observed negative peer variables, suggesting a low to modest connection between loneliness and poor social skills. Children's perceptions of their acceptance by peers correlated only slightly with one of the observed peer behavior variables, suggesting it is not a valid measure of assessing children's peer difficulties at this age, and their perceptions of maternal acceptance were negatively correlated with three of the observed peer behavior variables—aggression, hyperactivity, and imaginative play as well as with high deviance with parents. Again, this suggests that aggressive children have inflated perceptions of their social acceptance by mothers.

The test of hypothetical social problem-solving skills correlated with one observed social competence peer variable and two of the observed negative peer variables—that is, a high ratio of negative to positive

strategies on the WALLY test correlated with negative conflict management behaviors with peers, low reciprocality, and hyperactivity in play as well as with deviance with fathers and noncompliance with mothers during home observations. These data confirm the validity of attribution and social problem-solving tests, particularly as they relate to negative behaviors. This is good news, in view of the fact that these tests are relatively inexpensive and efficient measures in comparison to direct observations of peer interactions, which require extensive observer training.

Although we desired principally to assess the reliability and validity of the social information processing tests with young children, we were also interested in the reliability and validity of teacher and parent reports as measures of social competence. In general, the correlations between teacher reports of social competence and observed positive social interactions during peer play were much weaker than correlations between teacher reports of conduct problems with observed negative peer interactions. Surprisingly, the correlations between teacher reports of low social competence and children's reports of negative attributions were higher than for the observed peer social variables. Both parent and teacher reports of externalizing and aggressive behaviors correlated significantly with observed negative interactions during peer play (specifically, negative conflict management behaviors and aggressive and hyperactive play with their peers), correlations that are hardly surprising because these reports are measures of conduct problems. However, it is perhaps surprising to note that teacher reports of aggressive behavior at school correlated significantly with observed child deviance with mothers and fathers at home as well as with child noncompliance with mothers. Finally, the teacher and parent reports of aggressive behavior correlated significantly with children's negative attributions and a low ratio of positive to negative problem-solving strategies. In conclusion, teacher reports appeared to be better at detecting aggressive behaviors and poor problem solving than prosocial behaviors and were highly correlated with mother and father reports of conduct problems.

There are several limitations of this study that deserve comment. The first concerns the role of sex differences in our findings. For example, do the clinic girls with conduct problems experience more loneliness and greater anxiety about their social relationships than the boys because it may be more "cool" to be aggressive within a boy peer group than for girls to be aggressive? Because our sample of girls was only 16 girls per group, we did not feel confident in making generalizations based on such a small sample size. Preliminary analyses based on two-way ANOVA by group (nonclinic, clinic) and sex (male, female) showed no significant sex main effects or Group × Sex interactions for tests of problem solving, child percep-

tions of self and others, teacher reports, or parent reports. Analysis of observed behavior during peer interaction showed a significant Group × Sex interaction for cooperativeness, $F(1, 116) = 6.14, p < .05$. Follow-up tests for each group separately showed that, for the nonclinic group, girls were significantly more cooperative than boys, $t(58) = 3.20, p < .01$; yet, for the clinic group, there was no significant difference between girls and boys. Future research with larger samples is necessary to determine whether there are indeed differences between clinic and nonclinic girls in terms of their divergence from their male counterparts. In addition to sex differences, it is important to understand how age influences children's self-perceptions. For example, do the 4- and 5-year-olds have more unrealistic self-perceptions or less awareness of peer response than 6- and 7-year-olds? Again, sample size limited our ability to analyze separately on the basis of age groupings but should be attended to in larger samples. A final limitation with this study is that our sample was ethnically and demographically homogenous in that it consisted primarily of Caucasian children in two-parent homes. It would be important to validate these findings with different ethnic groups and for families in which there is only one parent in the home. Indeed, research has indicated that there is a high rate of children with conduct problems coming from single-parent, low-socioeconomic families (Webster-Stratton, 1998). Because this study required two-parent families to participate, it is unclear whether these findings will generalize to single-parent families.

Nonetheless, these findings have implications for assessment strategies as well as treatment and prevention programs for preschool and early school-age children. The child negative attribution (AGG) and social problem-solving test (WALLY) offer some promise as reliable measures using the child as the informant. Teacher and parent reports are reliable indicators of conduct problems at home and with peers as indicated by the significant correlations. Teacher reports of social competence are less reliable than for conduct problems. Thus, we should have some degree of confidence in these measures as screening methods to identify children at risk. It also appears that father, teacher, and mother ratings (in that order) outperform the child report measures.

Certainly these data also confirm that early onset conduct problems are accompanied by a lack of social competence—both of which need to be included in intervention programs. To date, most social skills and anger management programs have been geared to children in the middle to late elementary school years. These data regarding younger children with conduct problems indicate that children as young as age 4 to 7 years already have a tendency toward hostile attributions towards peers and misperceptions or a distortion of their own social competence. They ex-

hibit a high level of aggression and delayed play skills when interacting with their friends. They show a lack of knowledge of problem-solving strategies in hypothetical problem situations. The findings suggest that children with early onset conduct problems need training in positive social skills (such as giving compliments and sharing feelings and ideas with friends), positive problem-solving skills, anger management, and play interaction skills that utilize fantasy, role play, and reciprocality. The results also have implications for empathy training for these children to replace their negative attributions towards others and to help them understand others' perspectives and reactions to their misbehaviors. Because the years 4 to 7 represent a period of rapid growth in social information processing skills, intervention during these years may have a strong positive impact on children's social development.

This information can help us design child training programs geared toward the essential distortions of these children. Knowledge that they have inflated or distorted perception of their own social competence indicates a need for training that will help them realize the effects of their behavior on others. Clearly, teachers and parents need training not only in discipline strategies to decrease conduct problems but also in strategies for fostering play skills and social competence (Eyberg & Matarazzo, 1980; Hanf, 1970; Webster-Stratton, 1982).

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