Published in final edited form as:

J Atten Disord. 2009 July ; 13(1): 27–35. doi:10.1177/1087054708320403.

Social Functioning in Predominantly Inattentive and Combined Subtypes of Children with ADHD

Mary V. Solanto,
Mount Sinai School of Medicine

Sabrina A. Pope-Boyd,
Fordham University

Warren W. Tryon, and
Fordham University

Brenda Stepak
Mount Sinai School of Medicine

Abstract

Objective—The objective of this study was to compare the social functioning of children with the Combined (CB) and Predominantly Inattentive (PI) subtypes of AD/HD, controlling for comorbidity and medication status, which may have confounded the results of previous research.

Method—Rigorously diagnosed unmedicated children with PI or CB were compared on parent and teacher ratings on the multi-dimensional Social Skills Rating Scale.

Results—Total social impairment was substantial and equivalent in both ADHD groups whether rated by parent or teacher. In addition, when rated by teacher, the nature of the deficits varied by subtype: Children with PI were impaired in assertiveness, whereas children with CB were deficient in self-control. These findings indicate that AD/HD subtypes differ in the nature of their social dysfunction independent of comorbidity and highlight the need for interventions to target their divergent needs.

Social skills mediate a wide range of adaptive behaviors. For example, Agostin and Bain (1997) reported that ratings of social skills at the end of Kindergarten predicted first-grade Stanford Achievement Test scores in 184 children. Ollendick (1992) reported that sociometric status of fourth-grade children was a significant predictor of academic, social and psychological adjustment five years later.

Attention Deficit Hyperactivity Disorder (AD/HD) is the most common psychological disorder of childhood (Barkley, 2005) affecting 4% to 6% of children aged 6 to 12 years (Brown et al., 2001). These children frequently have social skills deficits (Biederman, Faraone, & Chen, 1993; Greene et al., 1996; Landau & Milich, 1988) which may be a by-product of the primary symptoms of inattention and/or hyperactivity-impulsivity, and which contribute to low self-esteem, depression, anxiety, and decreased academic performance. Social skills deficits in children with ADHD are predictive of adolescent and adult problems across multiple domains: social, academic, occupational, marital, psychological, and legal (Greene, Biederman, Faraone, Sienna, & Garcia-Jetton, 1997; Greene et al., 1999; Hoza et al., 2005; Landau & Milich, 1990). Therefore, without intervention, children with social deficits are likely to experience pervasive difficulties throughout their lives.

Children with the Combined (CB) and Predominantly Inattentive (PI) subtypes of ADHD differ with respect to core symptoms and associated features. Although both subtypes have deficits in attention, children with CB have additional symptoms reflecting hyperactivity and/or impulsivity (American Psychiatric Association, 1994). Children with CB are typically described as “always on the go,” intrusive, and impatient, whereas children with PI are more likely to be characterized as drowsy, sluggish and daydreamy - characteristics which have been termed sluggish cognitive tempo (SCT) (Hartman, Willcutt, Rhee, & Pennington, 2004; McBurnett & Pfiffner, 2001). Thus, whereas the behavior of children with CB points to difficulties in inhibitory control (Barkley, 1997), disinhibition does *not* appear to be characteristic of children with PI. Consistent with this distinction, children with PI are less likely than those with CB to have a co-morbid disruptive behavior disorder, such as oppositional defiant disorder (ODD) or conduct disorder (CD) (Eiraldi, Power, & Nezu, 1997; Willcutt, Pennington, Chhabildas, Friedman, & Alexander, 1999). Early research, from studies based on DSM-III criteria, suggested that children with PI are more anxious and/or more depressed than those with CB (Lahey et al., 1988). However, more recent and more comprehensive research has not corroborated differences between subtypes in internalizing disorders (Bauermeister et al., 2005; Faraone, Biederman, Weber, & Russell, 1998; Power, Costigan, Eiraldi, & Leff, 2004; Willcutt et al., 1999).

Given these behavioral differences, we might expect salient differences between subtypes in social style and functioning, with potentially important implications for intervention. Research on this topic is limited, however. Gaub and Carlson (1997) reported results of a survey study in which children had been designated as PI, CB, or “typical” on the basis of a teacher checklist of ADHD symptoms. Teachers estimated the percentage of children in the class who liked, disliked and ignored the index child. Results showed that both AD/HD subtypes were more deviant from typical children on this measure and that a higher percentage of children with CB (82%) were considered to be impaired on this measure than those with PI (59%).

Hodgens, Cole, and Boldizar (2000) collected sociometric ratings directly from the classmates of well-diagnosed boys with CB (n=15), PI (n=15) and typical controls (n=15). Boys with both ADHD subtypes received lower social preference scores (nominations as “liked most” minus “liked least”) than typical boys. In addition, children with PI received more nominations as “is very shy,” whereas CB boys received more nominations as “starts fights or arguments.” Direct observations of play groups of the boys in this sample appeared to corroborate the peer ratings in that PI boys were more socially withdrawn than both other groups. Hinshaw (2002) showed a similar pattern of sociometric peer ratings of girls with CB, PI, and typical girls.

Finally, Maedgen and Carlson (2000) predicted, using Gresham’s model of social deficits, that children with PI would be primarily deficient in social knowledge, whereas children with CB would be deficient in social performance (Wheeler & Carlson, 1994). Parents and teachers rated how children were likely to behave in response to a series of social vignettes. Parents and teachers characterized the responses of children with CB as more aggressive than those with PI or typical children, and those of children with PI as more passive than the other groups. Parents and teachers rated children with CB as less liked and more disliked than TC children. There was a trend for children with PI to perform less well than the TC group on a child-rated measure of social knowledge, providing partial support for the hypothesis of greater social knowledge deficits in the PI group.

These studies seem to be fairly consistent in finding that children with PI are more likely to be socially shy, passive, or withdrawn than their CB-type counterparts, whereas children with CB are perceived as more aggressive. Both groups appear to be at risk for lower social

preference ratings. Although these studies are the first to examine possible differences between subtypes in social functioning, they must be interpreted cautiously in the light of two major methodological concerns: First, the extent to which comorbid conditions such as anxiety and oppositionality may have confounded the results was not considered. The subtypes differed substantially in the frequency of ODD in two of the studies (Hodgens et al., 2000; Hinshaw, 2002) and the frequencies of anxiety and oppositionality in the samples were not ascertained or reported in the others (Gaub & Carlson, 1997; Maedgen & Carlson, 2000). Second, nearly all of the children in the studies by Maedgen and Carlson (2000) and Hodgins et al. (2000), and an unspecified number in the studies by Hinshaw (2002) and Gaub and Carlson (1997) were receiving stimulant medication before and during the time period that social ratings were collected from teachers, parents, and peers. This is problematic in that stimulant medication is itself known to have substantial effects on social behavior (Hinshaw, Henker, Whalen, Erhardt, & Dunington, 1989), including possible increases in withdrawal (Granger, Whalen, & Henker, 1993).

Given the limitations and unresolved issues of the research conducted to date, the aim of the current study was to compare the social functioning of the PI and CB subtypes using a comprehensive, well-normed and widely used rating scale that allows for characterization of social functioning along multiple dimensions, including cooperation, assertion, and self-control. Furthermore, we wished to examine the relationships among oppositionality, anxiety and social skills and, specifically, to examine the extent to which differences between subtypes in comorbid internalizing or externalizing disorders account for any differences in social functioning. To avoid the potentially confounding effects of medication on ratings of ADHD symptoms and social behavior, no child in the current study was receiving stimulant or other psychotropic medication at the time of enrollment and assessment.

Consistent with clinical observations and prior research, we predicted that children of both the PI and CB subtypes would exhibit deficits in social functioning. However, we expected that the nature of those deficits would differ: Specifically, the impulsive and hyperactive symptoms of children with CB would lead to deficits in social self-control, whereas the more passive, lethargic style of children with PI would be associated with deficits in assertiveness. Furthermore, we predicted that comorbid anxiety would be associated with inhibition, leading to reduced assertiveness, whereas comorbid oppositionality would be associated with reduced self-control and reduced cooperation.

Method

Participants and Procedures

All participants in the current study were participants in a larger NIMH-funded comparison of the PI and CB subtypes in children. The study received the approval of the Medical Center's Institutional Review Board. Parents gave informed consent to participant and children gave informed assent.

Children, aged 7 to 12 years, with and without attentional difficulties, were recruited through notices placed on websites of lay self-advocacy groups (eg. CHADD), circulated to pediatricians and schools, placed in local newsletters, and posted on bulletin boards within the medical center. Eligibility was determined in multiple stages (phone screen, questionnaires, in-session child and parent interviews, and psychological testing). Included in the phone screen was a checklist of ADHD DSM-IV symptoms: A minimum of six out of nine symptoms of inattention was required for progression to the questionnaire stage of evaluation. Children were excluded at this stage if they were not between the ages of 7 and 12, if they spoke English as a second language, were currently receiving medication for

ADHD or any other psychotropic medication, or were known to have a neurological, medical, language and/or reading disorder. Families of children passing the phone screen were mailed a packet of questionnaires, including the Social Skills Rating Scale (Parent and Teacher forms) and the SNAP-IV checklist of DSM-IV symptoms of the disruptive behavior disorders, with forms for parent and teacher. Parents were asked to give the teacher forms for the teacher with an accompanying signed consent form. Parents and teachers returned their packets by mail directly to the investigators.

Selection Criteria—Inclusion criteria were rigorous in order to ensure that children could be assigned unambiguously to one of the two AD/HD subtypes or to the TC group. Thus, criteria on the questionnaires required *concordance* by parent and teacher with respect to the presence/absence of inattention and hyperactivity/impulsivity on an age- and gender-normed rating scale, as follows: Eligibility for one of the AD/HD groups required a T-score greater than or equal to 65 on the DSM-IV Inattentive scale on both the Conners' Parent Rating Scale – Revised long form (CPRS-R) (Conners, Sitarenios, Parker, & Epstein, 1998b), and the Conners' Teacher Rating Scale – Revised (CTRS-R) long form (Conners, Sitarenios, Parker, & Epstein, 1998a). In addition, eligibility for the CB group required a T-score greater than or equal to 65 on the DSM-IV Hyperactive-Impulsive subscale; eligibility for the PI group required a T-score less than 65 on this subscale. T-scores less than 60 on both subscales were required for the TC group.

Children who passed the questionnaire stage of screening were evaluated with their parents in person. Final eligibility criteria for participation assessed at this stage were: DSM-IV diagnosis of AD/HD of the appropriate subtype based on open-ended and structured DISC-IV (Shaffer et al., 1996) interviews with the parent; and WISC-III full-scale IQ ≥ 80 .

Comorbid conditions were assessed via the DISC-IV structured interview with the parent. Diagnosis of ODD required, in addition, a T-score rating ≥ 65 on the Oppositionality scale of the CTRS. Anxiety was also assessed using the Multi-Dimensional Anxiety Scale for Children (MASC-C) (March, Parker, Sullivan, Stallings, & Conners, 1997), completed by the child (with assistance from the examiner in reading the items), and also completed by the parent "as you feel your child would respond."

Exclusion criteria for all groups were: Learning disability in reading or language; pervasive developmental disorder, chronic medical condition; other psychiatric disorder (with exceptions for ODD and anxiety disorders). Children in the control group were required to be without emotional, behavioral, learning, or attentional difficulties, on the basis of both teacher and parent report.

Instruments

Social functioning was measured with the Social Skills Rating Scale (SSRS) (Gresham & Elliott, 1990). The SSRS was chosen due to its multi-rater format, excellent reliability and validity, clear and well-researched norms, and applicability to clinical populations as well as typical children. Examples of items assessing Assertion include: "Introduces self to new people without being told; "Invites others to join in activities"; and "Initiates conversations with peers." Examples of items assessing Self-Control include: "Responds appropriately to teasing by peers"; "Receives criticism well"; and "Responds appropriately when pushed or hit by other children." Examples of items assessing "Cooperation" include: "Finishes class assignments within time limits"; "Uses time appropriately while waiting for help"; and "Produces correct schoolwork." Thus, "Cooperation" does not appear to be primarily an interpersonal skill, but rather a measure of compliance with academic expectations and procedures. A recent study of children with ADHD and typical children confirmed the original factor structure of the scales, with the exception of the Parent – Responsibility

factor, and, furthermore, demonstrated strong discriminative utility (90%) when ratings from parent, teacher, and the children themselves were all used to classify children as AD/HD or comparisons (Van der Oord et al., 2005). Given the lack of support for the Responsibility factor, we did not include scores on that subscale in our analyses.

Parents and teachers rated the children on the SNAP-IV checklist of DSM-IV symptoms of AD/HD and ODD (Swanson, 1992). Note that this instrument was not used to select children for study entry but was rather used to confirm that there was good separation of subtypes with respect to number of hyperactive-impulsive symptoms. Endorsement of at least 6 of 9 inattentive symptoms on the SNAP-IV is consistent with DSM-IV criteria for PI type; additional endorsement of at least 6 of 9 hyperactive-impulsive symptoms is consistent with criteria for CB type.

Data Analyses

Separate MANCOVA's and follow-up ANCOVA's were performed for Parent and Teacher ratings on the SSRS total and subscale scores. The following covariates were included: Gender; full-scale WISC-III IQ. Age and grade were also included as covariates since SSRS subscale scores are not adjusted for age/grade. Measures of comorbidity (anxiety and oppositionality) were also considered for inclusion as co-variables as further described below. Post-hoc pair-wise comparisons of significant group differences were conducted using the method of least significant differences (LSD).

Results

Description of Sample

Eighty children met all study entry criteria and completed the larger study: of these, 34 had CB, 26 had PI, and 20 were typical comparisons (TC). Demographic features of the full sample are shown in Table 1. Groups did not differ in age or gender; however, the full-scale IQ of the comparison group was significantly higher than that of each AD/HD group.

Only one of the children with AD/HD had received a prior evaluation and diagnosis of AD/HD; all others were newly presenting for evaluation. The previously diagnosed child was tested at the end of the summer, during which he had not received any medication. All other children were medication-naïve with respect to all psychotropic drugs. It is important to highlight that the lack of stimulant exposure does not render this sample atypical of children with ADHD. It is rather an indication that these children were receiving their first evaluations for ADHD in the context of this study.

As expected, given the use of the CPRS and CTRS to select participants, ratings on the DSM-IV Inattentive scale and Cognitive Problems/Inattention subscales of the CPRS and CTRS for the PI and CB groups were highly and equivalently elevated (T-score means > 75) and both significantly exceeded those of the TC group. As also intended, children in the CB group were highly and significantly elevated compared to both PI and TC groups on the DSM-IV Hyperactivity-Impulsivity subscale. Importantly, scores on the SNAP-IV, which was *not* used to select participants, yielded the same pattern - ie the two AD/HD subtypes were both high (mean symptom count > 7) and equivalent in number of inattention symptoms but well-separated with respect to number of hyperactive-impulsive symptoms (> 6 for the CB group, less than 2 for the PI group), minimizing the likelihood that these cases of PI were simply subthreshold cases of CB (Milich, Balentine, & Lynam, 2001).

Social Skills Ratings

Comorbid Symptoms—Relationships among social skills, oppositionality and anxiety for the sample as a whole are depicted in Table 2. Significance levels are based on an adjusted alpha (.002) obtained by applying the Bonferroni correction to the number of tests (28). As predicted, oppositionality was highly negatively correlated with SSRS ratings of Self-Control and Cooperation. This was true whether correlations were cross-rater or within rater which is undoubtedly related to the high correlation between parent and teacher ratings of oppositionality (.589). Also as predicted, anxiety ratings (by parent but not child) were significantly negatively correlated with ratings of assertion (by teacher, but not parent). Assertiveness was not related to oppositionality. Total social skills were correlated with all three components – assertiveness, self-control, and cooperation – as rated by both parents and teachers.

One-way ANOVA's revealed significant differences between groups with respect to oppositionality, such that the CB group exceeded both other groups in ratings by parents and teachers (Table 3). Parents, but not teachers, also rated the PI group as more oppositional than the TC group. Notably, however, parent ratings of oppositionality for the PI group were not within the clinical range. The groups did not differ in levels of dimensionally rated anxiety on the MASC (Table 3). Anxiety disorders were more frequent in the PI group than in either of the other groups (Table 1); however, this difference did not reach statistical significance, which may have been due to the relatively small sample sizes.

Given these group differences, dimensional ratings of oppositionality (by the corresponding informant), as well as diagnosis of an anxiety disorder, were entered as covariates, along with IQ, gender, and age, as described, in the subsequent analyses.

Comparisons Between Groups in Social Functioning—Complete SSRS-Parent and covariate data were available for 27 CB, 24 PI, and 15 Comparison children, and complete SSRS-Teacher data were available for 24 CB, 24 PI, and 16 TC children. The following covariates were significant in the MANCOVA for parent ratings: Gender [$F(6,52) = 14.545, p < .001$] and parent oppositional rating [$F(6,52) = 4.179, p = .002$]. The effects of grade, age, IQ, and anxiety diagnosis were non-significant. The following covariates were significant in the analyses of teacher ratings: Gender [$F(6,52) = 13.705, p < .001$]; and teacher oppositional rating [$F(6,52) = 5.300, p < .001$]. The covariate effects of age, anxiety, and IQ were non-significant.

MANCOVA's of SSRS scores yielded significant F 's for both parent [$F(12,104) = 5.033, p < .001$] and teacher [$F(12, 100) = 9.771, p < .001$] ratings. Non-adjusted means and statistical results for the MANCOVA's are shown in Table 3 and reveal that parents and teachers rated children with PI and CB as having substantially worse Total Social Skills than typical children, with no differences in severity between the subtypes on this index. Standard scores for the AD/HD groups were each approximately 1.5 standard deviation units below the normative mean standard score. On SSRS subscales, parents and teachers rated children with ADHD, regardless of subtype, as deficient in Cooperation. Parents rated both subtypes as having more problems in Self-Control and more Behavior Problems overall than comparison children but identified no differences across AD/HD and control groups in Assertion.

Teacher ratings reflected sensitivity to differences between the subtypes. Teachers identified PI as having more problems in Assertion than those with CB (effect size, $d = 0.46$, medium), who were different from TC children on this dimension. Teachers identified only the CB subtype as exhibiting problems in Self-Control ($d = 1.18$, large). Children with CB were rated as having more overall Behavioral Problems than were children with PI ($d = 1.25$,

large), who in turn had more problems than TC children; only scores for the CB group were elevated more than 1 SD above the mean on this scale, however. Both AD/HD subtypes were clinically and statistically deficient in Academic Competence relative to typical children, with no difference between the subtypes.

Discussion

Examination of social skills ratings for the sample as a whole revealed that anxiety was inversely related to assertiveness, and oppositionality was inversely related to self-control and cooperation. Ratings for these co-morbid conditions were entered as co-variables in the subsequent group comparisons. Ratings on the SSRS by both parents and teachers confirmed that both the CB and PI subtypes are substantially impaired with respect to social skills. Teachers', but not parents', ratings on the SSRS revealed differences between the subtypes along specific dimensions of social behavior: Teachers rated only PI as lacking in assertion, and rated only CB as lacking in self-control. Parents and teachers rated both the PI and CB groups as equally lacking in cooperation relative to comparisons. It is noteworthy that these differences persisted after correction for differences between groups in oppositionality.

These results indicate that both subtypes are deficient in social skills but that the characteristics of their deficits differ. Children with PI are less likely to be appropriately assertive, which is consistent with previous reports that they are more drowsy, sluggish and daydreamy as well as more socially passive and withdrawn than children with CB. Children with CB, by contrast, are aggressive, lacking in self-control, and have greater total behavior problems. Both groups are deficient in cooperation, which may have been expected since the items on this SSRS subscale reflect attention-related impairment in academic compliance and productivity.

This study contributes uniquely to the literature in the following respects: Subtype differences were shown using a comprehensive, age-normed, and widely available social skills questionnaire. Participants of each subtype were diagnosed by rigorous criteria to ensure unambiguous, non-overlapping classification. None of the participants was concurrently receiving psychotropic medication. This study was the first to demonstrate that differences in social functioning between the PI and CB subtypes of AD/HD cannot be attributed to differences in comorbidity.

The finding that teachers were more sensitive than parents to the relationship between anxiety and lack of assertion, as well as to differences between subtypes in social behaviors may be attributable to the fact that teachers have many more opportunities to observe children in social situations, particularly in groups and in situations that require social initiative, such as making friends with new classmates. However, it may also be the case that the behavior of PI children differs at home and at school such that they exhibit more assertiveness and less self-control in the environment with which they are more familiar. Future research might profitably test these hypotheses.

Study Limitations

The results of the study are limited by the reliance on questionnaire reports and the lack of a direct observational measure of social behavior. The measures used do not allow us to distinguish between social dysfunction related to lack of social knowledge and that which is due to social performance deficits. Given the equivocal results reported by Maedgen and Carlson (2000), it would be important for future research to comprehensively compare the subtypes with respect to social knowledge.

Clinical Implications

Differences between subtypes in essential features of social functioning indicate that interventions must differ accordingly. Whereas the social dysfunction of children with CB appears to be closely related to disinhibition, the difficulties of children with PI reflect passivity and unassertiveness. Among a total of six intervention studies recently reviewed by de Boo (2007), three studies demonstrated positive effects of socially focused interventions compared to a wait list control (Antshel & Remer, 2003; Frankel, Myatt, Cantwell, & Feinberg, 1997; Pfiffner & McBurnett, 1997). The other studies primarily looked at incremental effects of social interventions when added to standard treatments, with variable results. No study to date has demonstrated a significant effect of social functioning interventions compared to an active control condition on ratings by blind informants.

The intervention studies to date have largely enrolled children with the CB type of ADHD. Two studies compared the response of PI and CB subtypes, with a finding of greater improvement by the PI group in assertiveness skills in one study (Antshel & Remer, 2003) but no differences in response of subtypes in the other (Tutty, Gephart, & Wurzbacher, 2003). However, this is a largely unexplored area. It may be the case that it is easier to remediate problems of passivity/unassertiveness than problems of disinhibition. If a social knowledge deficit in PI is confirmed and delineated, then enhancing social knowledge, possibly through vignettes and role-plays, may be helpful in treating the problems of PI, whereas there is no evidence to date that children with CB are deficient in such knowledge.

The potential benefits of an intervention tailored to the needs of children with PI received support in a recent report by Pfiffner and colleagues (2007) of a multi-modal psychosocial intervention that involved parents and teachers and included a social and organizational skills group for the children, all of whom were of the PI type. Results showed improvement in attention and cognitive tempo, as well as social and organizational skills in the treated group, compared to an untreated control. The results of the current study provide support for the continued development of subtype-specific approaches to treatment for AD/HD.

Acknowledgments

This work was supported by the following grants to the first author from the National Institute of Child Health and Human Development: HD36688 and HD37803.

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Table 1

Demographic and Symptom Characteristics by Group

	Combined <i>n</i> = 34	Inattentive <i>n</i> = 26	Comparison <i>n</i> = 20	χ^2	Contrasts
Sample Size					
Male	21 (62%)	14 (54%)	8 (40%)	2.40	
Minority	17 (50%)	9 (35%)	9 (45%)	1.43	
Non-Excluded Comorbidity					
ODD	9 (27%)	5 (19%)	0 (0%)	5.63	
Anxiety	2 (6%)	5 (19%)	1 (5%)	3.67	
Math LD	1 (3%)	2 (7%)	0 (0%)	5.37	
Spelling LD	1 (3%)	0 (0%)	0 (0%)	1.37	
	Combined	Inattentive	Comparison	<i>F</i>	
Age in yr	9.0 (1.6)	9.2 (1.4)	9.2 (1.5)	.39	
Full-Scale IQ	104.61 (14.06)	110.76 (12.91)	120.55 (15.37)	6.90**	1,2<3
SNAP-IV Ratings ¹					
P-SNAP-Inattentive	7.48 (2.2)	7.6 (2.2)	00 (0)	71.63***	1,2>3
T-SNAP-Inattentive	7.63 (1.5)	7.9 (1.6)	00 (0)	187.23***	1,2>3
P-SNAP-Hyperact-Impuls	6.1 (2.7)	1.3 (1.2)	00 (0)	70.65***	1>2,3
T-SNAP-Hyperact-Impuls	6.7 (2.1)	1.0 (1.1)	.13 (.49)	128.02***	1>2,3
Conners' Parent Scale ²					
DSM-IV Inattentive	76.56 (8.50)	75.52 (9.61)	44.65 (3.08)	117.64***	1,2>3
DSM-IV Hyperact-Impuls	77.74 (9.79)	55.56 (5.07)	47.75 (6.52)	111.11***	1>2>3
DSM-IV Total	78.54 (7.20)	67.20 (5.76)	45.11 (3.55)	173.33***	1>2>3
Conners' Teacher Scale ²					
DSM-IV Inattentive	72.31 (10.38)	73.44 (7.67)	45.05 (3.28)	85.33***	1,2>3
DSM-IV Hyperact-Impuls	79.03 (9.02)	54.00 (7.05)	46.85 (5.47)	133.45***	1>2>3
DSM-IV Total	77.85 (8.46)	66.16 (8.01)	45.22 (3.67)	106.34***	1>2>3

Note. Standard deviations (SD) for continuous variables are in parentheses.

1 SNAP scores are the mean and SD for the number of endorsed symptoms. P and T refer to SNAP ratings by Parents and Teachers, respectively.

2 T-scores on the Conners' DSM-IV scales were used to select participants for each group; SNAP-IV scores were *not* used to assess eligibility.

**

p<.01;

p<.001.

Table 2

Correlations between Social skills ratings and ratings of Oppositionality and Anxiety

SSRS	Oppositionality-Parent	Oppositionality Teacher	SSRS: Total Social Skills - Parent	SSRS: Total Social Skills - Teacher	MASC- Parent	MASC- Child
Parent						
Assertion	-.315	-.201	.645*		-.313	-.122
Self-Control	-.697*	-.564*	.686*			
Cooperation	-.586*	-.341*	.814*			
Teacher						
Assertion	-.244	-.162		.508*	-.469*	-.265
Self-Control	-.575*	-.658*		.607*		
Cooperation	-.436*	-.439*		.559*		
Oppositionality Parent		.589*	-.664*	-.451*		
Oppositionality Teacher			-.509*	-.511*		
MASC-Parent						.246

Alpha-level was adjusted for the number of tests, using the Bonferroni correction. Significance levels shown are based on the revised alpha of .002.

* p<.05

Table 3

Parent and Teacher ratings by Group on the Social Skills Rating Scale (SSRS), Conners Oppositional Scale, and ratings of Oppositionality and Anxiety.

	Combined (1) <i>n</i> = 27	Inattentive (2) <i>n</i> = 24	Comparison (3) <i>n</i> = 15	<i>F</i>	Contrasts ^{<i>I</i>}
SSRS Parent Ratings				<i>I</i> _{5,144} ***	
Total Social Skills	87.48 (11.92)	92.33 (12.00)	117.93 (13.48)	10.48***	1,2<3
Cooperation	7.70 (2.58)	8.75 (2.77)	14.80 (2.18)	18.64***	1,2<3
Assertion	14.63 (2.17)	15.04 (3.51)	17.27 (2.12)	.99	NS
Self-Control	9.70 (3.43)	12.54 (3.02)	17.00 (2.70)	5.31**	1,2<3
Total Behavior Problems	112.37 (14.15)	106.50 (11.19)	87.67 (5.12)	9.09***	1,2>3
SSRS Teacher Ratings	<i>n</i> = 24	<i>n</i> = 24	<i>n</i> = 16	<i>I</i> _{9,771} ***	
Total Social Skills	84.17 (8.83)	88.38 (10.65)	112.31 (9.68)	24.55***	1,2<3
Cooperation	7.58 (3.01)	8.33 (3.88)	18.63 (1.82)	47.02***	1,2<3
Assertion	11.25 (3.35)	9.46 (4.37)	14.75 (2.38)	7.54**	2<1,3
Self-Control	10.00 (3.75)	14.29 (3.50)	16.87 (2.96)	5.35**	1<2,3
Total Behavior Problems	117.13 (8.07)	104.54 (10.53)	88.50 (7.11)	23.44***	1>2>3
Total Academic Competence	87.87 (7.77)	85.29 (8.63)	104.94 (10.50)	20.80***	1,2<3
Conners Parent – Oppositional	62.56 (12.61)	53.28 (7.48)	43.00 (4.35)	23.06***	1>2>3
Conners Teacher - Oppositional	64.00 (14.43)	51.40 (10.83)	47.39 (4.84)	13.23***	1>2,3
MASC Total - Child rating	55.09 (11.16)	54.09 (9.70)	52.71 (9.12)	0.30	NS
MASC Total - Parent rating	51.46 (6.91)	52.27 (8.56)	47.00 (7.68)	2.29	NS

Note: Standard deviations are in parentheses. Mean scores presented here are *not* adjusted for covariates. However, the *F*-values reported were obtained using MANCOVA with covariates of age, grade, gender, IQ, DISC diagnosis of anxiety, and teacher/parent ratings of oppositionality. Scores are *T*-scores, with the exception of the subscale scores (Cooperation, Assertion, Self-Control, and Responsibility) for Parent and Teacher, which are raw scores.

^{*I*} Multi-variate *F* (Wilks' Lambda).

**
p<.01;

p<.001.