

Peer Functioning in Children With ADHD

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This article describes what is currently known about the peer relationships of children with attention-deficit/hyperactivity disorder (ADHD). This topic is addressed both from the perspective of how ADHD initially contributes to problematic relationships with peers, and also from the perspective of how peers' reactions to these problems may serve to maintain them. Given the limited improvement typically obtained in treatment studies that use peer report measures as outcomes with ADHD samples and the well-documented predictive validity of peer reports for later adjustment, the need for more intensive interventions and novel approaches to address the peer problems of children with ADHD is emphasized.

Key words ADHD; peer problems; prediction.

Why are Peer Relationships Important to Development?

Peer relationships are unique in that both parties involved in the relationship are of equal status. Hence, peer relationships are the primary context in which children learn cooperation, negotiation, and conflict resolution¹—skills that are critical for effective social functioning throughout life. Viewed from this perspective, it is not surprising that childhood peer problems predict a wide variety of later negative outcomes including delinquency, dropping out of school, substance abuse, academic difficulties, truancy, and psychological maladjustment.^{1,2} In fact, evidence indicates that views of one's peers are more predictive of later psychological functioning than other variables typically used in mental health research, such as teacher ratings, grades, achievement scores, IQ, or absenteeism.³

Why Study Peer Relationships in Children with ADHD?

Most research on peer relationship problems has used school samples, with relatively little work available on clinical samples of children with ADHD (or any other childhood disorder). There are reasons, however, why peer relationships of children with ADHD deserve research attention. First, ADHD is a common childhood

disorder, affecting 3% to 7% of school age children.⁴ Hence, ADHD is present in nearly every classroom. Second, the core symptoms of ADHD—inattention and hyperactivity/impulsivity—by their very nature, would be expected to make effective functioning with peers difficult. Whereas problems with inattention likely limit opportunities to acquire social skills through observational learning⁵ and to attend to social cues necessary to effective social interaction,⁶ hyperactive and impulsive behaviors contribute to generally unrestrained and overbearing social behavior that makes children with ADHD highly aversive to peers.⁷

As a result, social difficulties are extremely common in children with ADHD. A recent study⁸ examining peer status in clinically-diagnosed 7–9 year old children with ADHD from the Multimodal Treatment Study of Children With ADHD (MTA)^{9,10} found that 52% fell in the rejected category (when the classification system of Coie et al¹¹ is used) and less than 1% were of popular status.⁸ When children who did not fit into any category were excluded in calculating these percentages, the situation was even more bleak, with 80% of children with ADHD falling in the rejected group.⁸ These figures are consistent with previous work indicating that 82% of children with ADHD have peer rejection scores one standard deviation or more above the mean and 60% are two standard deviations or more above the mean.¹²

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The peer problems of children with ADHD, however, are not limited to rejection. For example, compared to their classmates, MTA children were lower on social preference, higher on social impact, less well-liked, and had fewer dyadic friendships; they also were disliked by children of higher status within the peer group, suggesting a process of exclusion by more popular peers.⁸ These results held regardless of grade or gender, indicating that impaired peer relationships are well established by age 7 (the age of the youngest children in the sample). Importantly, post hoc analyses indicated that these peer deficits were in fact due to ADHD and not attributable to comorbid oppositional defiant disorder/conduct disorder or anxiety.⁸

Additionally, the peer difficulties of children with ADHD are almost immediately apparent in new social groups, as demonstrated by studies that place children with ADHD in laboratory or naturalistic settings with unfamiliar peers. For example, by the end of the first day of a summer program, children with ADHD were more rejected by peers than non-ADHD participants.¹³ Similarly, in a play group study that involved placing children with ADHD in groups with unfamiliar non-ADHD peers, the non-ADHD participants began complaining about the behavior of their ADHD peers within minutes.¹² These studies provide compelling evidence that the peer problems of children with ADHD follow them wherever they go.

Yet the mechanisms underlying these difficulties remain poorly understood. Whereas most discussions of ADHD children's peer difficulties focus on excesses of negative behavior and deficits in social skills,¹⁴ recent research suggests other possible contributors. For example, we found children with ADHD to be extremely poor monitors of their own social behavior as reflected in self-evaluations that were discrepant from actual performance.¹⁵ Specifically, during a laboratory interaction task, boys with ADHD, as compared to control boys, reported themselves as having done better in an interaction with an unfamiliar boy even though objective coders rated their performance as significantly worse. Other investigators have reported an inability on the part of children with ADHD to respond appropriately during lab tasks requiring the shifting of social roles—e.g., from TV talk show “host” to “guest”⁶ or from “astronaut” to “mission control” in a space game.¹⁶ These results suggest the need for a greater emphasis on accurate self-evaluation, self-monitoring, and appropriate response to social cues—skills necessary to effective functioning in ongoing and constantly changing interactions.

As suggested by these results, it may be the case that children with ADHD exhibit patterns of social-information processing that differ from nondeviant peers. Unfortunately, prominent social-information processing models, such as those described by Dodge,^{17,18} most frequently have examined children's responses to *hypothetical* situations; hence, the generalizability of these models to real-life situations may be limited. Furthermore, as noted by Crick and Dodge,¹⁸ most of the studies examining aspects of these models have employed normative samples or nondiagnosed samples of aggressive children; only rarely have diagnosed samples been used. One recent study did employ a diagnosed sample,¹⁹ but collapsed across diagnostic categories such that the degree of specificity of these deficits to ADHD remains unclear. Nonetheless, models such as these may provide useful starting points for research regarding the potential processes at work in real-life interactions.

Methodological Issues

Type of Sample

As already noted, there are relatively few studies of peer difficulties in clinical samples of children with ADHD. Hence, much of what we know about peer problems of externalizing children has been gleaned from studies of school children. Consistently, these studies reveal that peer rejection is associated with the spectrum of behaviors thought to characterize ADHD and other disruptive behavior disorders—inattention, immaturity, hyperactivity, impulsivity, poor emotion regulation, and aggression.²⁰ These studies are important because they consistently show a relation even when levels of behavior problems may be below threshold for a clinical diagnosis. This indicates the robustness of the link between peer problems and behavioral characteristics associated with ADHD.

Type of Measure

Peer functioning has been assessed across studies by a variety of different informants and methods. Reports from parents and teachers about peer functioning, as well as self reports, are often collected in the form of rating scales, for example, the Social Skills Rating System (SSRS)²¹ or the Self-Perception Profile for Children.²² Recent studies examining self-reports of competence in children with ADHD, however, indicate overly inflated reports that are at odds with both others' perspectives^{23,24} and inconsistent with actual performance.¹⁵ These studies question the utility of self-report measures for children with ADHD when the

goal of assessment is to obtain accurate competence information. Observational methods²⁵ also can be used, although the information obtained in this manner typically represents a limited sampling of behavior.

Peer-informant methods, which involve asking all children in a classroom or other peer group to respond to questions about one another, are another option. These methods can be of several types: nominations for positive and negative criteria (e.g., “Who are your best friends?” or “Who do you not want to be friends with?”); ratings of degree of liking; or nominations or ratings in response to behavioral descriptors (e.g., someone who starts fights).^{2,8} Reports from the child’s actual peer group are then used to develop face valid indices such as how well liked or disliked the child may be relative to classmates, or whether the child has named friends who reciprocate the nomination. Importantly, it is these peer-reported variables, not the perspectives of adults, that predict most strongly to later adjustment.³

This is an important point because although it is well established that reports from different informants are not highly correlated in the assessment of childhood behavior problems,²⁶ this lack of agreement may be especially pronounced in the peer domain. For example, in the MTA sample, correlations between measures reflecting the actual reports of peers about one another were correlated only 0.01 to 0.27 in magnitude with ratings of peer functioning obtained from parents and teachers, suggesting that reports by adults are not useful proxies for the perspectives of one’s peers.²⁷ Given that views of one’s peers provide better prediction to later psychiatric problems,³ the use of adult report to index intervention outcomes in studies targeting the peer relationship problems of children is likely to prove a limited measurement approach. How to best work with school personnel and others in charge of peer settings (e.g., camps, peer activities) to obtain peer-report measures in a feasible and nonintrusive manner is an important challenge for future research.

Do Available Treatments Remediate Peer Problems of Children with ADHD?

Recent reviews²⁸ indicate that the most effective treatments for peer problems of children with ADHD are stimulant medications and social skills training integrated with behavioral contingency management. Medication is effective at reducing negative behaviors that peers find aversive, whereas social skills and behavioral interventions teach and reinforce prosocial skills;

however, the best results are typically seen when these interventions are used together. Even so, the peer relationships of children with ADHD typically are not normalized, especially when the perspectives of one’s own peers are used as outcome measures.²⁷ Admittedly, this focus on peer-assessed outcomes excludes several excellent studies^{29,30} and effective treatment programs described elsewhere^{31,32} employing outcome measures derived from other sources (e.g., parent or teacher report). Conclusions from these other studies are generally (although not entirely) consistent with those presented here and for this reason, the reader is referred to these other sources.

We recently presented data on peer-assessed outcomes in the MTA study.²⁷ Positive and negative peer sociometric nominations and a liking rating scale were collected on approximately half the MTA sample ($n=285$; 226 boys and 59 girls) at the end of 14 months of treatment. These 285 children were rated by their 2,232 classmates, which represented a mean same-sex classmate participation rate of 71%. We compared the four MTA treatment groups by using the orthogonal contrasts that yielded the largest effects on a combined measure of ADHD and oppositional defiant disorder symptoms in prior MTA analyses.³³ When applied to the peer-assessed outcomes, these comparisons did not yield strong and consistent evidence of relative superiority of any of the treatments for the peer outcome variables studied, and none of the four treatment groups yielded normalized peer relationships relative to randomly-selected classmates. In other words, children with ADHD from *all* MTA treatment groups remained significantly impaired in their peer relationships,²⁷ despite evidence of improvement in other areas (e.g., ADHD symptoms).⁹

These results initially may seem surprising, especially since both the intensity and duration of treatments administered in the MTA exceeded what is typically available in clinical practice.³⁴ However, the MTA study was not primarily geared toward remediating peer problems. Its intensive treatments included some of the components typically used to address peer difficulties: medication, an intensive summer treatment program in which social skills, cooperative tasks, and friendship-building skills were taught, but these interventions were administered only in the short-term (8 weeks), not throughout the 14 months of treatment. Peer interventions administered in the short-term are not enough to eradicate the peer problems of externalizing children, whose difficulties typically require longer-term treatments.²⁰

Perhaps the most important conclusion from the MTA for the domain of peer relations is that peer problems need to be targeted directly and over the long-term; treatments geared primarily at ADHD symptoms or other functional deficits associated with ADHD are not likely to eradicate peer problems. And, given the robust predictive relation between peer rejection and later outcomes,^{1,2} as well as the psychological distress peer rejection causes children in daily life,²⁰ intensive efforts geared toward understanding how to best accomplish this goal are needed.

Role of Peers

In the discussion so far, the focus has been on the individual child. However, such a view ignores a critical feature of peer rejection, that it “is a group process, not an individual characteristic”²⁰ (p.xiii). Hence, in addition to targeting negative behavior underlying peer disliking and teaching new social skills, interventions need to facilitate a positive response from the peer group.³⁵ One obvious implication is that interventions should be implemented in the settings where peers interact with the target child, such as schools,³⁶ neighborhoods, and camps.

One factor limiting a positive peer response is that negative reputations develop quickly within peer groups and, once established, are hard to dispel.³⁷ Such reputations are used to defend ongoing exclusion or victimization of rejected children, even if the behaviors that initially led to rejection are no longer present.²⁰ In addition, negative reputations often become self-fulfilling prophecies as rejected children with both social skill deficits and behavioral problems get caught in “a downward [spiral]”³⁸ (p385). Viewed within this framework, it is easy to see how children, even after intensive intervention, may be no better off than they were when they began the intervention. Just as intervening with a single family member is unlikely to adequately address a family problem, providing intervention to an individual rejected child cannot be expected to halt the group process of peer rejection toward that child. The group process must be targeted directly.

Negative reputation aside, however, research indicates that children react differently during an interaction task to an unfamiliar peer when they expect the peer to exhibit behavior characteristic of ADHD.³⁹ Specifically, when actual ADHD status of an interaction partner was crossed with expectancy for a partner with ADHD behaviors, children who expected a partner with behaviors characteristic of ADHD, as compared to those not

given this expectancy, were significantly less friendly and talked marginally less. Importantly, normal children, when described as exhibiting ADHD behaviors, had a more negative experience than normal children not described in this manner.³⁹ These results point to the disturbing conclusion that an ADHD label, whether appropriate or not, elicits a negative response from peers.

Gender Differences

Little research exists on peer functioning of girls with ADHD, especially research that uses peer informants. The limited available evidence based on peers’ perspectives, however, suggests that both boys and girls with ADHD are impaired in their peer relationships relative to non-ADHD children. This result is consistent regardless of whether the studied samples are school children high in ADHD symptomatology¹² or clinically-diagnosed children with ADHD.⁸ Adult ratings of peer functioning also suggest that both boys and girls with ADHD are significantly impaired in their peer functioning relative to non-ADHD peers.^{40,41} What is not yet clear is whether the degree of peer-perceived impairment is greater in boys than girls with ADHD, with some studies reporting this difference¹² and others not.⁸

Summary

The research reviewed thus far indicates that: 1) having positive peer relationships is developmentally important for *all* children, whether ADHD or not; 2) low acceptance or rejection by peers places children at risk for a host of serious negative outcomes; 3) peer impairment is present in both boys and girls with ADHD; 4) once rejected, overcoming a negative reputation with peers is extremely difficult; 5) once labeled “ADHD” by peers, a negative process is set in motion whereby children suffer more negative treatment by peers; and 6) treatment of peer problems in children with ADHD is extremely difficult—we have yet to identify a treatment method that normalizes the peer functioning of children with ADHD. Effective treatments geared at other aspects of dysfunction associated with ADHD do not eradicate ADHD children’s peer problems; peer problems need to be targeted directly. The implications of these conclusions for future research are far reaching.

Implications for Research

First, because of the recalcitrance of peer rejection once established, specifically needed are more intensive and

longer-term peer interventions directly targeting peer problems as a major focus of treatment. In addition, peer interventions need to move beyond a skills deficit model to examine personality, affective and physiological correlates of peer problems.⁴² For example, most children with ADHD can provide the correct responses in the controlled environment of a social skills training group; however, they are unable to appropriately regulate emotion in actual peer situations, particularly when provoked. Indeed, as others have noted, the tendency to provide interventions under conditions of “cold cognitions” when in fact many peer difficulties occur under the influence of “hot cognitions” is a serious drawback p60.²⁰ Hence, studies intervening in naturalistic peer settings and conditions are needed.

Second, more attention to the multi-level nature of social relationships is needed. As our work has demonstrated,⁸ peer relationships exist at multiple levels and in multiple contexts, and each of these is worthy of investigation. Aside from group variables, for example, equally important may be: 1) the extent to which children with ADHD are able to form individual friendships, regardless of their level of popularity or rejection; 2) the quality of these friendships; and 3) how these friendships relate to more positive or negative outcomes over time. Furman and Robbins⁴³ posited that high quality dyadic relations may help protect children from the negative effects of ostracism by the peer group and might serve as a viable means of meeting social needs for children having difficulty in peer group relationships. Importantly, among externalizing children, having a high quality friendship is associated with less bullying of others,⁴⁴ suggesting positive effects of friendship on children already at risk for aggression. In addition, initial evidence from a long-term (18-year) follow-up study of a nonclinical sample suggests that friendship status, like peer acceptance and rejection, may robustly predict later adjustment,⁴⁵ although additional replications of this finding are needed.

Other research, however, suggests that the effects of friendship may not be uniformly positive. For example, Berndt^{46,47} has proposed that individuals become more like the friends with whom they associate, and the nature of this influence may be either positive or negative, depending on the characteristics of the friends. For example, one study demonstrated that 7th and 8th graders became more similar to their friends in terms of classroom disruption and academic performance (grades) over a 5- or 6-month period, even after controlling for children’s own initial levels of grades

and disruptiveness.⁴⁸ In our own work, we found complex moderating effects of friendship such that having a mutual best friend was beneficial for some subgroups of children, but not beneficial (or perhaps even detrimental), for other subgroups.⁴⁹

Despite these mixed results, the implications of the possibility that friendships might serve as an alternative viable pathway to positive functioning for children with poor group relationships are enormous. Specifically, if dyadic peer friendships are important predictors of later adjustment, then intervening at the dyadic level by assisting a child in developing one close, lasting, high quality friendship may have a lasting impact on adjustment over time, although, this remains to be demonstrated with an ADHD sample. Nonetheless, this approach has conceptual appeal, as it circumvents the daunting task of altering the entire peer group’s negative response to the target child—a task of greater difficulty than altering the response of one influential peer.

Our initial attempt at devising such an intervention approach met with limited success. Specifically, we implemented a dyadic friendship intervention in the context of a summer treatment program (STP).⁵⁰ In addition to the standard STP interventions,³² children were paired with a “buddy” with whom they were afforded special privileges, were coached in friendship-making and conflict resolution skills by “buddy coaches,” and parents were asked to get the children together outside the STP each week. Outcomes were predicted from characteristics of the children involved in the friendship dyads and their parents’ compliance with the intervention. Results indicated higher quality friendships and more teacher-perceived improvement for children whose buddies were lower on antisocial behavior and whose parents were higher on compliance; however, corresponding improvements as perceived by counselors and parents were not obtained.⁵⁰ These preliminary results suggest the need for more research examining the potential of friendship interventions and the extent to which their success may relate to the characteristics of the children involved in the friendship.

One reservation about any dyadic or group peer intervention, however, as suggested earlier, is the possibility that peers may have a negative influence on one another, as well as a positive influence. Research by investigators studying “deviancy training” in high risk samples^{51–53} and patterns of peer liking and disliking in school samples⁵⁴ suggests that children and adolescents with disruptive and deviant behaviors may prefer one another as associates. A concern has been that

aggregating such youth for treatment may provide opportunities for peer reinforcement of negative behavior.⁵⁵ Importantly, very recent research questions this conclusion and instead documents positive effects of group training on conduct problem youth especially under conditions with adequate supervision and employing an effective behavior management system.⁵⁶ Indeed, recent evidence suggests that implementation of effective behavior modification nearly eliminates the opportunity for this deviancy training even in clinical samples of externalizing children.⁵⁷

Consistent with these conclusions, our own examination using the MTA sample of the types of peers children with ADHD named as liked and disliked classmates at age 7–9 did not yield support for the hypothesis that deviant children prefer one another; instead, we found that children with ADHD like and dislike the same kinds of peers as other children.⁸ Our study also indicated, however, that children with ADHD were disliked by more popular peers, suggesting that a process of ostracism by high-status peers was already in motion.⁸ If this is the case, gravitation toward deviant peers may occur over time, as children with ADHD find it harder and harder to gain acceptance by more preferred peers. In other words, such effects may be more apparent in older children and adolescents with ADHD, as they accumulate an extensive history of rejection by more popular peers. Unfortunately, relatively few studies have considered peer functioning of adolescents with ADHD and those that have typically have not followed changes from childhood to adolescence in the degree of deviant peer association. Clearly more research is needed on peer functioning of adolescents with ADHD and on the settings and circumstances that promote or deter deviant peer association over time. Equally important is the identification of child characteristics that predict positive dyadic and group relationships in children with ADHD as they grow older.

Finally, research investigating the nature of the relation between peer relationships and later outcomes for children with ADHD is needed. Indeed, children with both ADHD and peer problems have multiple factors placing them at risk for poor outcomes, and the relations among these factors are likely to be complex. For example, it is possible that outcomes for some children with ADHD depend on (i.e., are moderated by) their level of peer rejection. Given the chronic, lifelong nature of ADHD, this is an important possibility as it suggests that addressing an ADHD child's peer rejection may facilitate improved outcomes over time.

Further, it is possible that certain peer processes (e.g., association with deviant peers, especially in inadequately supervised settings) are mechanisms explaining negative outcomes—i.e., serve as mediators. These complex models remain to be investigated.

In closing, I'd like to ask the important question of whose responsibility is it to take on the daunting task of tackling the peer problems of children with ADHD: mental health clinicians? schools? primary care doctors? researchers? If, as research suggests, treatment for peer problems must occur in the settings in which the problems exist, then issues like insurance coverage for care outside the clinic setting need to be addressed. My fear, however, is that treatment of this very serious and impairing area of functional deficit for children with ADHD will slip through the cracks because peer functioning fails to fit neatly into the domain of any provider. Yet one could easily argue that it should be everybody's concern. Peer rejection, if left unchecked, leads to a variety of problems—substance abuse, dropping out of school, criminality, mental health disorders—that ultimately place the child on a perhaps irreversible negative trajectory. Just as one would not identify physical disease in a child and let it go untreated, we should not identify peer rejection and then let it go unchecked. It's time to work together to find an effective solution.

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