The Alliance in a Friendship Coaching Intervention for Parents of Children With ADHD

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Abstract

The alliance between parent and therapist was observed in a group-based parent-training intervention to improve social competency among children with attention-deficit/hyperactivity disorder (ADHD). The intervention, called Parental Friendship Coaching (PFC), was delivered to 32 parents in small groups as part of a randomized clinical trial. PFC was delivered in eight, 90-minute sessions to parents; there was no child treatment component. Observed parent–therapist alliance recorded among 27 of the parents was measured using the Therapy Process Observational Coding System—Alliance scale (TPOCS-A; McLeod, 2005). Early alliance and change in alliance over time predicted improvements in several parenting behaviors and child outcomes, including peer sociometrics in a lab-based playgroup. These preliminary findings lend support to the importance of examining the parent–therapist alliance in parent-training groups for youth social and behavioral problems.

The alliance—defined as the affective and collaborative aspects of the client–therapist relationship (see Elvins & Green, 2008)—is often considered an important ingredient of successful psychotherapy (Bordin, 1979; Kazdin, 2008; Wampold, 2007). A strong alliance is associated with positive therapeutic outcomes for adult and child clients across theoretical approaches (Horvath, Bedi, & Norcross, 2002; Karver, Handelsman, Fields, & Bickman, 2006; Shirk & Karver, 2003). Recently, alliance has garnered attention as a potential treatment process that may help to optimize the effects of existing cognitive behavioral treatments (CBT).

A strong client–therapist alliance is believed to facilitate optimal outcomes in CBT for youth with emotional and behavioral problems (Kendall & Ollendick, 2004; Shirk, Gudmundsen, Kaplinski, & McMakin, 2008). It is hypothesized that clients (child and/or parent) who feel an emotional connection to the therapist and agree to engage in treatment activities are more likely to participate in skill-building activities central to CBT, which may thus help promote optimal outcomes (Chu et al., 2004; Kendall & Ollendick, 2004). Determining whether

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alliance is linked to outcomes may therefore help researchers identify ways to optimize outcomes in CBT.

The parent–therapist alliance (herein called the parent alliance) may play a facilitative role in parent-training programs for children's emotional and behavioral problems (Kendall & Ollendick, 2004; Ollendick & Russ, 1999). A strong parent alliance may help enhance the acquisition of new parenting skills that play a role in the amelioration of child symptoms by increasing parent satisfaction and involvement in CBT (Hawley & Garland, 2008). If the parent alliance does help enhance the acquisition of parenting skills then both parent outcomes (parenting skills) and child outcomes (child symptomatology) may be optimized.

Though the parent alliance is posited to play a facilitative role in parent training, few studies have examined this hypothesis. One notable exception to this has occurred in studies of parent management therapy (PMT; Kazdin, 2005), a CBT parent-training program designed to remediate youth behavioral disorders (Kazdin, Marciano, & Whitley, 2005). In PMT, parent alliance (rated by parent and therapist) has predicted improved global child clinical outcomes and parent practices independently of the effects of child alliance on clinical outcomes (rated by parent, therapists, and children; Kazdin, Whitley, & Marciano, 2006; Kazdin & Whitley, 2006). These well-powered studies ($N = 77$ and $N = 218$, respectively) suggest that a strong parent alliance may help promote positive outcomes in parent-training programs for youth with disruptive behavioral problems. However, it remains an open question whether similar effects will be observed in parent-training programs for other emotional and behavioral problems among youth.

In this preliminary study, we investigate the parent alliance as a predictor of outcomes in a parent-training program for youth with attention-deficit/hyperactivity disorder (ADHD). Parent-training interventions have strong empirical support for reducing the core symptoms of ADHD (Pelham & Fabiano, 2008). The program presently investigated, called parental friendship coaching (PFC; Mikami, Lerner, Griggs, McGrath, & Calhoun, 2010), is a parent-training intervention to specifically target the peer relationship problems of children with ADHD. Social problems in ADHD populations are persistent and pervasive (Mannuzza & Klein, 2000), and are among the most intractable domains of impairment to child-focused psychosocial and psychopharmacological treatment (Antshel & Barkley, 2008; Hoza et al., 2005). Children with ADHD may demonstrate learned social skills in session, but have trouble generalizing skills to in vivo peer situations for a variety of reasons (see Abikoff, 2009). Recent literature, however, suggests that parents may be uniquely able to provide reminders to children during peer situations that encourage them to display socially skilled behaviors (Mikami, Jack, Emeh, & Stephens, 2010). This is consistent with other findings that actively involving parents of children with ADHD in their children's psychosocial treatment (for academic as well as social difficulties) may help encourage generalization (Frankel, Myatt, Cantwell, & Feinberg, 1997; Pfiffner & McBurnett, 1997). PFC, which trains parents to encourage their child's display of socially skilled behavior during in vivo peer interactions, is the first to test whether intervening with parents alone, without any child treatment component, may be sufficient to improve children's peer relationships (Mikami, Lerner, et al., 2010).

PFC has demonstrated promising findings in a randomized controlled trial (RCT). Parental participation in PFC produced significant improvements in several parent friendship coaching behaviors (increased facilitation, corrective feedback, and warmth, reduced criticism) and child peer relationships (parent-reported social skills and playdate problems; teacher-reported peer liking and acceptance). Consistent with the theory of change underlying PFC, change in parent behaviors mediated several child social outcomes (Mikami, Lerner, et al., 2010). These results indicate that PFC produces meaningful

improvements in parent and child outcomes. Thus, further elaboration of variables, such as parent alliance that may contribute to parent and child outcomes in PFC is warranted (Shirk & Karver, 2003).

In this report, we address the question of whether the parent alliance predicts parent and child outcomes in PFC for youth with ADHD. We took the following steps to increase the interpretability of our findings. First, we assessed parent alliance early in treatment since later alliance measurement is potentially confounded with general symptom improvement (Kazdin, 2007; Shirk & Karver, 2003). Second, we assessed alliance at multiple time points (Chiu, McLeod, Har, & Wood, 2009; Stiles & Goldsmith, 2010) because (a) positive shifts in alliance are linked with clinical outcomes (Chiu et al., 2009; Piper, Boroto, Joyce, McCallum, & Azim, 1995), and (b) doing so allows investigators to test the direction of effects linking alliance and outcome (Kazdin, 2007). Third, we used an observational measure of alliance because self-report measures may be subject to common rater measurement confounds (Shirk & Karver, 2003). Finally, multimethod measurement (i.e., parent, teacher, and observer report) of outcomes was used to reduce the chance that they were associated with biases of any single rater.

This preliminary study investigated the role of the parent alliance in PFC for parents of children with ADHD. Our first aim was to assess the role of parent alliance variables in predicting parent behaviors. We hypothesized that those parent behaviors targeted by PFC would be predicted by a strong early alliance and relative increase in alliance. Our second aim was to examine the effect of parent alliance variables on child outcomes in PFC. We hypothesized that child outcomes targeted by PFC would be predicted by a strong early parent alliance and relative increase in parent alliance. We examined those variables found to evince significant change as part of the RCT (Mikami, Lerner, et al., 2010), as well as additional parent and child behaviors targeted by PFC. Such relations would replicate previous studies that found a link between parent alliance, parent behaviors, and child outcomes in parent training (Kazdin et al., 2006) and child therapy (Hawley & Garland, 2008; Kazdin et al., 2005).

Method

Participants

Participants were 27 parents, 24 (88.89%) female; 23 (85.19%) from dual-parent homes; ages 29–48, $M = 37.42$, $SD = 5.35$, each with a child, 18 (66.67%) male; ages 6–10, $M = 8.15$, $SD = 1.32$, meeting criteria for a diagnosis of ADHD. These parents are the subset of parents who completed PFC, and represent the majority of those families ($N = 32$) who had been randomly assigned to the intervention. The parents who did not complete PFC stated that the time commitment required to attend the sessions was too great ($n = 3$), thought it was not relevant for their child's problems ($n = 1$), or had a personal emergency unrelated to PFC ($n = 1$). When compared to noncompleters, there were no significant differences on baseline or demographic characteristics (all $p > .14$). All procedures were approved by the university Institutional Review Board. Parents provided informed consent and children provided assent. Children's racial composition was 85% white, 11% African American, and 4% other/mixed. Of the 27 parents, all of whom had child custody, 20 were biological mothers, 2 were biological fathers, 3 were adoptive mothers, 1 was an adoptive father, and 1 was a grandmother. Income ranged from less than $10,000/year to over $150,000/year ($M = $75,000, $SD = $27,313$), and parent education ranged from general equivalency diplomas (GED) to graduate degrees; 66.6% graduated college. Participants were recruited from local clinics, schools, pediatricians, and a database of families who had previously participated in research at the university.

Children with ADHD exceeded clinical cutoffs using parent and teacher ratings on the Child Symptom Inventory (CSI; Gadow & Sprafkin, 1994)(CSI; Gadow & Sprafkin, 1994) and diagnosis was verified in a structured clinical interview with the parent (K-SADS; Kaufman, Birmaher, Brent, & Rao, 1997). The majority of the children met criteria for ADHD–combined type (ADHD-C; $n = 18$), and the remainder for ADHD–inattentive type (ADHD-I; $n = 9$). Exclusion criteria for children were pervasive developmental disorder, full-scale IQ below 70 ($M = 108.44$, $SD = 14.30$), or verbal IQ below 75. Mood, anxiety, and oppositional/conduct disorders were not exclusion criteria because of the high overlap of these conditions with ADHD.

Fifteen children were taking psychotropic medications to address ADHD and/or other conditions. Because many children with ADHD remain impaired in peer relationships when taking medication (Hoza et al., 2005), these children were not excluded. Except when instructed by their child's physician, parents were asked not to alter their child's medication regimen during the intervention. Children receiving psychosocial interventions for peer relationship problems were excluded. See Mikami, Lerner, et al. (2010) for further procedural details.

Treatment

Each PFC group was co-led by two clinicians. The group leader was either a licensed clinical psychologist or a clinical psychology doctoral student. The co-leaders were either clinical psychology doctoral students or postbaccalaureate lab coordinators. Six clinicians were female and two were male, ranging in age from 24 to 32 years ($M = 26.13$, $SD = 2.59$). Therapists received training in PFC that involved reading the treatment manual, observing videotapes of previous cohorts, and attending a preintervention training workshop. Throughout the treatment therapists attended weekly group supervision meetings.

Parents received eight weekly 90-minute group sessions held in a university psychology laboratory. PFC was delivered to six sequential cohorts of parent groups ranging in size from four to six parents, which is typical of group-based parent-training groups for ADHD (e.g., Weinberg, 1999). Therapists employed the treatment manual described by Mikami, Lerner, et al. (2010). The structure of the treatment involved first setting the foundation for parents becoming effective friendship coaches through improved attention to child behavior and parent–child relationships (Sessions 1–2); second, parents learned to instruct their children in specific skills thought to improve peer relationships (Sessions 3–5); finally, parents worked on setting up social contexts that would encourage friendships (Sessions 6–7) and on skill maintenance (Session 8). Each session consisted of didactic instruction of target skills, review of videotape of group members' parent–child interactions, and role play. Homework was assigned and reviewed each week. Occasionally participants missed groups, in which case they were provided with individual make-up review sessions. Of the 27 total participants who completed PFC, 12 participants missed at least one group; 8 of these 12 missed exactly one group. All the participants who missed groups attended make-up sessions. During the make-up sessions, participants met with one of the clinicians and reviewed missed content.

Treatment fidelity was assessed by an independent rater who reviewed all session videotapes and compared topics to the content in the manual using a checklist (present/absent). Fidelity using this method was determined to be 100%, indicating that all intended topics were covered (for details, see Mikami, Lerner, et al., 2010).

Alliance Measure

The Therapy Process Observational Coding System–Alliance Scale (TPOCS-A; McLeod, 2005) consists of six items that assess affective elements of the client–therapist relationship (e.g., "To what extent does the client demonstrate positive affect toward the therapist?"), and three items that assess client participation in therapeutic activities (e.g., "To what extent does the client not comply with tasks?"). Coders observed entire therapy sessions and rated each item on a 6-point scale ranging from 0 (*not at all*) to 5 (*a great deal*). The TPOCS-A has demonstrated adequate interrater reliability, internal consistency, and convergent validity when used to assess child and/or parent alliance in child-focused psychotherapy (Chiu et al., 2009; McLeod & Weisz, 2005) and in group-based CBT for children with anxiety disorders (Liber et al., 2010).

At present, there is no agreed-upon method for assessing alliance in group therapy when multiple therapists are involved in delivering treatment. The current standard among studies that utilize self-report alliance measures in group therapy is to have clients report on alliance with both therapists (Bourgeois, Sabourin, & Wright, 1990; Crowe & Grenyer, 2008; Woody & Adessky, 2002). Coders were therefore instructed to focus specifically on the behavior of the target parent and the quality of his or her interactions with the therapist *and* co-therapist. The coders were also instructed to note situations in which a client appeared to be substantially more aligned with one therapist than the other therapist for discussion during coding meetings. However, the coders never noted such an event.

The coding team consisted of seven undergraduate psychology students naïve to treatment outcomes and specific study hypotheses. Over a 2-month period, the team was trained by reading the TPOCS-A coding manual, attending meetings, reviewing session segments, and practice coding. Following Cicchetti (1994), ICCs (intraclass correlations) below .40 reflect "poor" agreement, ICCs from .40 to .59 reflect "fair" agreement, ICCs from .60 to .74 reflect "good" agreement, and ICCs .75 and higher reflect "excellent" agreement. Coders were "certified" for coding via a two-step process. Coders were first "certified" for coding once their ratings achieved "gold standard" minimum interrater reliability at the item level, $ICC (2, 7) > .59$, on 15 practice tapes of child-focused treatment; final $ICC (2, 7)$ on these tapes was $> .89$. Coders were then trained and met adequate prestudy reliability on a subset of nonstudy PFC tapes. Regular reliability assessments were performed and results were discussed weekly to help minimize coder drift throughout coding (Margolin et al., 1998).

Individual clients within each session were randomly assigned to each coder (each unit of coding was a client session) counterbalanced by coder pair. The only exception was a coder who was not assigned to any tapes containing a client with whom the coder acknowledged previous personal contact. All clients who attended PFC Sessions 3–8 were coded, which yielded 144 ratings (27 participants times 6 sessions minus 18 missed client sessions), and all ratings were double coded. Alliance was not coded during individual make-up sessions.

Outcome Measures—Parent Behaviors

As parents were instructed in PFC to change their parenting behaviors, we considered the relation between parent alliance and these outcomes. All outcome measures were those variables with significant effects in the original RCT (Mikami, Lerner, et al., 2010) as well as three measures of parent and child behaviors targeted by PFC. Observational measures were administered during 1-hour lab-based videotaped structured playgroups taking place at the beginning, midpoint, and endpoint of the study period.

During the playgroups, children participated with three age- and gender-matched peers (one peer with ADHD and two without); similar size playgroups in past research involving ADHD samples have been suggested to provide valid assessments of children's behavior

(Hodgens, Cole, & Boldizar, 2000). Playgroup peer composition was consistent across time points (beginning, midpoint, and endpoint). Playgroups involved structured and unstructured peer play, as well as a brief dyadic interaction between child and parent at the end of the playgroup in which parents were instructed to talk to their child about what had occurred (for details, see Mikami, Jack, et al., 2010). Parent and child behaviors were videotaped and coded by trained observers unaware of the diagnostic status of participants. Observations were rated on a 0 to 3 Likert scale, ranging from 0 (*not observed*) to 3 (*multiple minor incidents or one major incident*) unless otherwise specified. To assess interrater reliability, 25% of the videos were randomly selected to be double coded, and ICCs (1, 2) were calculated between the two raters.

Three parent behaviors were analyzed: *facilitation* (parent assists the child in skillfully engaging in activities with the other children during the playgroup), *corrective feedback* (parent tells the child to change something about his or her behavior during the playgroup), and *onlooking* (parent is watching and observing his or her own child during this activity, inclusive of when parent is directly interacting with the child). *Onlooking*, rated on a 0 (*not at all*) to 10 (*all the time*) scale was not examined in the original RCT. We included *onlooking* because this behavior is viewed as necessary for subsequent parent behavior change.

Parents were also observed in 4-minute dyadic interactions with their respective children immediately after each playgroup (see Mikami, Jack, et al., 2010). Coding and scoring of these interactions was identical to that of observed behavior in playgroups. Two parent behaviors were analyzed: *parent warmth* (parent projects love and seems to be genuinely happy to be in the child's presence) and *parent criticism* (parent makes a negative statement about the child's actions or character using a tone of exasperation, irritation, hostility, or contempt).

Outcome Measures—Child Clinical Outcomes

Observational and Sociometric Measures—
Sociometric nominations and data regarding one child behavior were collected during the three aforementioned lab-based structured playgroups. The child behavior was *child disobedience* in the parent–child interaction (child refuses to listen to the parent, seems unwilling to answer the parent's questions, and does not want to engage with the parent). This variable was not examined in the original RCT but was included here because we believed it would represent how the child was responding to parent behaviors.

At the end of each playgroup, children were administered a sociometric procedure in which each child nominated the playgroup peers he or she considered to be a friend (Coie, Dodge, & Coppotelli, 1982). Only reciprocated friendships in which children mutually nominated each other were counted. Scores at each playgroup were calculated by dividing the total number of reciprocated nominations received by the number of peers providing nominations. Significant effects were not found for this variable in the original RCT. However, change on this variable would be the strongest evidence of change in child social functioning (Hoza et al., 2005), and so was considered a crucial indicator to test hypothesized effects of alliance on child outcomes.

Questionnaire Measures

Questionnaire measures were given to parents and teachers at pre- and posttreatment.

Social Skills Rating System (SSRS-P)—
Parents completed the 55-item form of the SSRS-P (Gresham & Elliott, 1990) in which respondents rate children's social behavior on a

3-point scale (*never*, *sometimes*, or *very often*), and responses are converted to *T* scores based on age and sex norms. The parent version of the SSRS has been found to be psychometrically valid for children with ADHD (Van der Oord et al., 2005).

Quality of Play Questionnaire (QPQ)—Parents answered 18 questions regarding their children's recent playdate on a scale from 0 to 3 (*not at all* to *very much*) as to how the children spent their time during the visit. Frankel (2003) demonstrated that the QPQ captures the constructs of conflict and disengagement during playdates.

Dishion Social Acceptance Scale (DSAS)—Teachers reported the percentage of classmates who they considered to "like and accept" and "dislike and reject" the target child, using a 5-point scale ranging from *almost none* (< 25%), to *nearly all* (> 75%). Dishion and Kavanagh (2003) report moderate correlations between these variables and those obtained from peer sociometric nominations.

Client Satisfaction—At the end of PFC, parents completed a questionnaire to provide feedback about the usefulness of the treatment (Mikami, Lerner, et al., 2010). Three items were considered to capture the construct of client satisfaction with the group: "I feel this approach to treating children's friendship problems is…." "How much did you (yourself) enjoy the group?" and "Would you recommend the program to a friend or relative who had a child with ADHD?" These items were rated on a 5-point scale (very inappropriate to very appropriate, did not enjoy at all to enjoyed very much, and strongly not recommend to strongly recommend). These three items were combined to create a composite client satisfaction measure.

Data Analytic Plan

Alliance observations from Session 3 were used to represent "early" alliance, as this session has been considered to provide an accurate indicator of early alliance (Baldwin, Wampold, & Imel, 2007; Bourgeois et al., 1990; Shirk et al., 2008). To represent change in alliance over treatment, we fit an OLS regression line for each individual through his or her observed time points (up to six) and generated an unstandardized regression coefficient (B). In each analysis, we used a single alliance score per case—either early alliance or alliance change.

We first tested Hypothesis 1, that early parent alliance and parent alliance change would predict positive changes in parent behaviors. For these observational measures, which were collected at baseline, midtreatment, and follow-up, we used hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002) of growth curves to examine the effects of early alliance and alliance change on the trajectory of change on these variables (see Appendix for models). If the coefficient for alliance variables in each model was significant and in the direction suggesting positive changes in parent behavior, our first hypothesis would be supported.

Next, we tested Hypothesis 2, that early parent alliance and alliance change would predict positive changes in child clinical outcomes. For observational and sociometric measures, we replicated the HLM models specified above using these alternate outcomes. For parent and teacher report measures, which were collected at baseline and follow-up, we used hierarchical multiple regression predicting follow-up scores while controlling for baseline scores at Step 1, and entering early alliance or alliance change at Step 2. If the coefficients for alliance in these models were significant and in the direction suggesting positive changes in child functioning, our second hypothesis would be supported. Effect sizes (ESs) were estimated for all significant effects, with Cohen's *d* used for hierarchical multiple regression analyses, and $d_{\text{growth modeling analysis(GMA)–raw}}$, the appropriate metric to assess treatment

effects in an HLM-GMA framework (Feingold, 2009), used for all HLM analyses. For both of these metrics, ESs of .2 are small, .5 are medium, and .8 are large (Cohen, 1988).

Overall, four families of analyses were conducted: early alliance on parent behaviors, change in alliance on parent behaviors, early alliance on child outcomes, and change in alliance on child outcomes. There were five analyses in each parent behavior "family" (onlooking, facilitations, corrective feedback, warmth, and criticism) and five in each child outcome "family" (child disobedience, reciprocated friendship nominations, SSRS, DSAS, and QPQ). However, as is typical of a preliminary pilot analysis of unique alliance effects where the likelihood of Type II error is greater than that of Type I error (e.g., Crits-Christoph et al., 2006), it was important to be able to detect all possible effects without reduction in statistical power (Nakagawa, 2004); as such, no correction (e.g., Bonferroni in Nakagawa) for multiple comparisons was used.

A series of OLS regression models were used to examine the direction of effects between parent alliance and outcomes. In these models, late parent alliance (at the final session) was regressed on residualized change scores for each outcome measures (see Chiu et al., 2009).

Results

Reliability and Consistency

Interrater reliability, ICC (1, 7) for TPOCS-A items, based on the full sample of client-session tapes ($N = 144$), ranged from .66 to .89 ($M = .81$, $SD = .07$). Internal consistency of the TPOCS-A was acceptable overall ($\alpha = .77$), and at early (Session 3; $\alpha = .79$) and late (Session 8; $\alpha = .80$) sessions. Early and late alliance were moderately correlated ($r = .43$, $p = .054$). Among observed variables, interrater reliability was good for corrective feedback (ICC = .74) and parent warmth, and excellent for facilitation (ICC = .83), onlooking (ICC = .92), parent criticism (ICC = .83), and child disobedience (ICC = .78). Among questionnaire measures, internal consistency was acceptable ($\alpha = .84$ for SSRS, .73 for QPQ, and .81 for client satisfaction).

Descriptive Statistics

Parent alliance ($M = 3.46$, $SD = .39$) was moderately high across the sample and evinced considerable between-individual variability (two-level HLM model: $\tau = .075$, $\chi^2 = 113.97$, $p < .001$; three-level HLM model: $\tau_\pi = .296$, $\chi^2 = 48.78$, $p < .001$) and normality of distribution (two-sided Kolmogorov–Smirnov $Z = 1.06$, $p = .216$). Alliance exhibited no evidence of range restriction ($min = 2.08$, $max = 4.21$), and was very similar in distribution to previous studies using the TPOCS-A (Chiu et al., 2009; Liber et al., 2010; McLeod & Weisz, 2005). We examined the effects of nesting in unconditional and time-only (including residuals) models (see Table 1). Significant variance (ICC > 10%) existed at both the between- and within-subject levels, indicating the need to model these effects in subsequent analyses (Guo, 2005). These results also indicate that linear time had little effect ($' < 1\%$) on parent alliance in the time-only models, indicating little systematic linear change in alliance over treatment. This lack of a linear trend over time was confirmed in analyses of two-level time-only models of alliance ($\beta_{10} = -.023$, $p = .19$). However, compared to the unconditional models, the time-only models accounted for 34% of alliance variance, indicating substantial individual difference in trajectories over treatment.

Table 2 displays the means of child peer relationship measures at baseline and posttest. Additional correlational analyses revealed that early alliance was unrelated to demographic variables except for a positive correlation with child age ($r = .47$, $p < .05$). Change in alliance was unrelated to demographic variables except for a negative correlation with parent education ($r = -.39$, $p < .05$). Early alliance and alliance change were uncorrelated

with number of missed sessions ($p = .21$ and $p = .15$, respectively) and client satisfaction ($p = .84$ and $p = .31$, respectively). Mean early alliance and alliance change scores did not differ ($p = .92$ and $p = .86$, respectively) between those who missed sessions and those who did not. These findings suggest that missing sessions and satisfaction did not affect alliance.

Effects of Parent Alliance on Parent Behaviors

Early parent alliance did not predict the linear slope of any observed parent behavior. Change in parent alliance, however, significantly predicted the linear slope of change in parent facilitation and onlooking observed in playgroups, such that parents who increased more in alliance also displayed increased facilitation and onlooking over time (see Table 3). The ESs for parent facilitation ($d_{GMA-raw} = 1.64$) and onlooking ($d_{GMA-raw} = 1.39$) indicate that parents who increased considerably in alliance also increased by 1.71 units (on a 0–3 scale from *not observed* to *multiple minor incidents or one major incident*) and 4.48 units (on a 0–10 scale indicating percent of time spent onlooking), respectively, over the course of PFC relative to parents whose alliance did not change. Change in parent alliance did not predict changes in observed parent warmth or criticism in the parent–child interaction, or in observed parent corrective feedback in the playgroups.

Effects of Parent Alliance on Child Outcomes

Early parent alliance predicted a significant linear increase in child disobedience such that children whose parents displayed high alliance at Session 3 increased significantly in their disobedience during the parent–child interactions over the course of the three playgroups. This ES ($d_{GMA-raw} = .17$) indicates that parents who demonstrated high early alliance had children who increased by .15 units (on a 0–3 scale from *not observed* to *multiple minor incidents or one major incident*) relative to low early alliance parents. Change in parent alliance significantly predicted change in child disobedience in parent–child interactions, such that children whose parents increased more in observed alliance displayed decreases in disobedience. This ES ($d_{GMA-raw} = -.65$) indicates that parents who increased considerably in alliance over time had children who decreased by .56 units relative to parents whose alliance did not change.

Early parent alliance predicted a significant linear increase in the proportion of children's reciprocated friendship nominations over the course of the three playgroups. This ES ($d_{GMA-raw} = .38$) suggests that parents who demonstrated high early alliance had children who made .11 more reciprocated friendships during PFC relative to parents with low early alliance. Alliance change did not predict change in friendship nominations.

Early parent alliance did not predict change in SSRS-P, QPQ, or DSAS. Alliance change also did not predict change in QPQ or DSAS. However, alliance change did predict a significant increase in SSRS-P ($\beta = .36$, $p < .008$) such that parents who increased more in observed alliance reported increases in their children's social skills. This ES ($d = .38$) suggests that parents who increased considerably in alliance reported, on average, a 6.05 standard unit increase in their children's social skills relative to those whose alliance did not change.

Direction of Effects

To evaluate the direction of effects linking alliance and outcomes, we generated residualized change scores for each significant outcome (parent facilitation and onlooking, child disobedience, reciprocated friendship nominations, and parent-reported social skills). No significant effects emerged when late alliance (from Session 8) was regressed on each of these change scores, suggesting that greater reduction in clinical outcomes was not related to parent alliance later in treatment.

Post Hoc—Child Disobedience Outcome

We sought to explore the unanticipated relation between early alliance and increased child disobedience over the study period by considering whether it might be explained by observed changes in parent behaviors over the same period. We again specified the HLM model in which early alliance predicted child disobedience. Then, we added as Level 1 time-varying covariates, all observed parent variables (facilitation, corrective feedback, warmth, criticism, and onlooking). If any parent behaviors significantly predicted child disobedience while early alliance no longer did so, then this would suggest that the relation between alliance and child disobedience may be better accounted for by co-occurring patterns of change in parent behaviors. Results suggested that all parenting predictors were nonsignificant except for parent criticism ($\beta_{20} = .25$, $p < .01$), and the inclusion of these parenting variables reduced the previous association between alliance and child disobedience to nonsignificance. This suggests that increases in parent criticism over the study period may account for the relation between early parent alliance and child disobedience over the same period.

Discussion

This preliminary study was the first to evaluate whether the parent alliance predicts outcomes in a CBT parent-training intervention for children with ADHD. We hypothesized that early observed parent alliance and change in parent alliance over the course of treatment would predict parent and child outcomes. Results suggested that both the early alliance and alliance change over time predicted improvements in parenting behaviors (onlooking, facilitation) and child outcomes (disobedience, social skills, reciprocated friendships). However, early parent alliance predicted increased child disobedience in parent–child interactions. Findings provided partial support for our hypotheses. These findings have both research and clinical implications.

An important finding that emerged from our study was that the parent alliance was associated with positive parent outcomes. Specifically, increases in the parent alliance over the course of treatment predicted improvements in key observed parent behaviors (onlooking, facilitation). PFC is designed to alter specific parenting behaviors believed to promote socialization in youth with ADHD (Mikami, Jack, et al., 2010). Our findings suggest that a positive shift in alliance was associated with change in the parent behaviors expressly targeted by PFC. In parent-mediated treatments such as PFC, positive youth outcomes are produced by altering particular parent behaviors hypothesized to ameliorate youth emotional and behavioral problems. Our findings therefore suggest that the parent alliance is linked with the specific parent behaviors targeted by parent-training interventions for youth with ADHD.

Parent alliance also predicted child outcomes. An increase in the parent alliance over the course of treatment predicted (a) improvements in parent-reported social skills, and (b) decreases in observed child disobedience. A strong parent alliance measured early in treatment also predicted increased reciprocated friendship nominations in playgroups. Notably, this is one of the most important—and thus far most intractable (Hoza et al., 2005) —domains of social challenge among children with ADHD. That alliance predicted this outcome suggests that the quality of the early alliance may be linked to important child outcomes in parent-training interventions. Early parent alliance also predicted *increased* child disobedience in parent–child interactions.

However, post hoc analyses suggest that this surprising effect may be accounted for by parental criticism, which has previously been suggested to increase child disobedience (Schulte & Nobach, 1979). We speculate that parents who begin PFC with a high alliance

have bought in strongly to treatment, and may expect their children to show rapid behavioral changes. Because child behavioral change can be slow, it is possible that these parents may become critical of their children, leading to children's increased disobedience. These post hoc speculations, however, require empirical validation with a larger sample. In sum, these findings indicate that the parent alliance was associated with child outcomes and provide mixed support for our hypotheses.

Several of our predictions were not supported by the data. A number of parent behaviors (warmth, criticism, and corrective feedback) and child outcomes (playdate quality and acceptance in classrooms) were not found to be related to alliance. It may that these are "higher-order" outcomes, which may be more resistant to direct change via alliance. It may also be that observed (as opposed to self-report) alliance is an insufficiently sensitive measure to capture variance in change in these outcomes over time. Conversely, it may be that the effect of PFC on these outcomes was relatively consistent across participants, leaving little individual difference in change to explain. Most importantly, it may be that the sample size was insufficient to detect change on these measures. Future research should examine the effects of PFC on these outcomes in larger samples to account for these possible explanations.

The current preliminary findings must be considered with appropriate caveats. We conducted 20 tests of association between alliance and outcomes. The number of tests combined with the small sample size increases the likelihood of Type I error, affecting interpretation of these findings. Although results suggest that alliance may play an important role in group-based parent-training interventions, a number of factors limit interpretability. As such, these analyses do not provide a conclusive picture of alliance-outcome association in group-based treatment. Instead, results should be viewed with caution, regarded as hypothesis generating, and tested for replicability with larger samples (Crits-Christoph et al., 2006).

Our results provide preliminary evidence that high levels of and increases in parent alliance may be linked to changes in parent behavior and child outcomes (Chu et al., 2004). This supports the hypothesis that the parent alliance may facilitate parental skill acquisition, behavior change, and child clinical outcomes in parent-training interventions (Kazdin & Whitley, 2006). Because the child is not involved in any aspect of PFC, the linkage between parent alliance and child outcomes is likely due to the impact that the parent alliance has on parental behaviors. This interpretation is, however, speculative since we did not evaluate the possible pathways (e.g., level of parent involvement) through which the parent alliance influenced parent behaviors or child outcomes. Subsequent research is needed to investigate the mechanisms through which alliance influences parent and child outcomes (Kendall & Ollendick, 2004). Such research could inform efforts to optimize the delivery of CBT parent-training interventions.

The current study builds upon past alliance research. Parent alliance has predicted improved parent practices and global child clinical outcomes in PMT for youth-disruptive behavior problems (rated by parent, therapists, and children; Kazdin & Whitley, 2006; Kazdin et al., 2006). Our study found similar linkages for youth with ADHD. Additionally, our findings demonstrate that parent alliance–outcome linkages can be found for self-report and observer-rated alliance measures. This is important because it suggests that findings are not due to common rater effects (Shirk & Karver, 2003). Finally, we were able to test the direction of effects and rule out the possibility that alliance improved as a result of symptom change in our sample. This is a critical step in ensuring that a proper account is given of the role of alliance in CBT interventions for children (Chiu et al., 2009; Kazdin et al., 2006).

Differences between the studies bear mentioning. Notably, previous studies of alliance in parent training (Kazdin & Whitely, 2006; Kazdin et al., 2005, 2006) employed self-report alliance measures (parent, therapist, child), as opposed to observational measures, and did not assess change in alliance over time. Further, previous studies employed larger samples, facilitating greater confidence in derived effects. Finally, PFC is a group-based treatment whereas PMT is delivered to a single family. Though these differences make comparing findings across studies difficult, accumulated evidence suggests that the parent alliance is associated with outcomes in parent training for youth behavioral problems across different alliance measures, outcome domains, child populations, and modes of delivery. That said, more research is needed to further clarify the role of parent alliance in parent training for youth behavioral problems.

While our findings suggest that parent alliance may be linked with outcomes in PFC, our measurement approach warrants attention. At present, there is no clear consensus regarding assessment of alliance in group-based therapy. We observationally assessed alliance between the client and the *average* of the therapist and co-therapist. Though this method has been used in previous self-report alliance studies (Crowe & Grenyer, 2008; Woody & Adessky, 2002), there are potential problems with the approach. Namely, this method assumes that the strength of alliance is equal across both therapists. If alliance differs across therapists, it becomes difficult to interpret the meaning of alliance scores. In this study, coders reported no instances in which alliance differed across therapists. This suggests that alliance may be less likely to diverge in highly structured treatments, such as PFC. However, until research directly investigates this issue, the question of whether alliance diverges in group-based therapy remains open.

More research is needed to clarify how therapeutic relationships may impact processes and outcomes of group-based treatment. Coding alliance with *each* therapist and client *individually* represents an important direction for the field. This approach would allow examination of whether the extent of alliance divergence predicts outcomes. A similar approach has been used to predict outcomes in family-based treatments (e.g., Robbins et al., 2008). Additionally, relationships *between* clients, or group cohesion, may be a valuable unexplored predictor of outcomes (Crowe & Grenyer, 2008). Overall, as a more nuanced understanding of the role of therapeutic relationship variables emerges, it will be important to explore the full array of relational dynamics present in settings with multiple therapists and clients to determine the most essential relationships for predicting improved outcomes.

There are several limitations to this study. First, as mentioned above, the small sample size limited statistical power for potential results and the number of statistical tests conducted relative to the sample size may have inflated the possibility of Type I error. Second, as this study was almost entirely mothers, it is unlikely that effects can be considered to generalize to fathers of children with ADHD. Future research should include a more even distribution of parent gender to consider these differences. Third, the field currently lacks measures of competence in the delivery of parent-training interventions for youth with ADHD. The existence of such measures would allow for the examination of therapist competence, which may be a predictor of alliance. Future work developing measures to assess therapist competence could benefit the field (Perepletchikova & Kazdin, 2005). Finally, because a reliable linear slope was not found for alliance over time, it may be that a more complex model (e.g., a U-shaped alliance; Stiles & Goldsmith, 2010) or variability in alliance (Baldwin et al., 2007) might better predict outcomes.

Our findings have clinical implications. The findings demonstrate that even in a highly manualized CBT intervention the relationship between the therapist and the client is important. This study suggests that it is valuable for therapists to consider the strength of

alliance they cultivate in parent training for social and behavioral problems (e.g., behavioral parent training for ADHD; Pelham & Fabiano, 2008). Parent alliance may play an important role in delivering parent-training interventions effectively. Future research can further explicate how and why the parent alliance may help to optimize the delivery and outcomes of parent-training interventions.

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Appendix

We used three-level unconditional and time-only HLM to account for nested data structure: observations (Level 1) were nested within individuals (Level 2), who were nested within treatment groups (Level 3). We estimated ICCs for TPOCS-A, and followed Guo (2005) to determine the levels at which we needed to account for significant variance; as total Level 3 variance was < 0.1% in all models, we did not include Level 3 in subsequent models (see Table 1). Next, we specified two-level HLM models as follows:

Level 1:

$$Y_{ti} = \pi_{0i} + \pi_{1i}(Time) + e_{ti}$$

Level 2:

$$\pi_{0i} = \beta_{00} + \beta_{01}(X) + r_0$$
$$\pi_{1i} = \beta_{10} + \beta_{11}(X) + r_1$$

Y_{ti} is the outcome variable at a given time point for a given individual, $Time$ represents PFC Sessions 3–8 in descriptive analyses, or playgroups 1–3 for primary outcomes, π_{0i} is the intercept and π_{1i} is the slope of the line, β_{00} and β_{10} are the estimated intercept and slope coefficients, respectively, β_{01} and β_{11} are the estimated coefficients of the predictor variable on intercept and slope, respectively, whereas r_0, r_1, and e_{ti} represent the intercept, slope, and individual error terms, respectively. X is the given centered predictor variable. ESs were calculated for these models by estimating the $d_{GMA-raw}$ using the method suggested by Feingold (2009). ESs were represented qualitatively by multiplying $d_{GMA-raw}$ by the baseline SD of the dependent variable to demonstrate the raw difference in the dependent variable between participants estimated to be high (1 SD above M) and low (1 SD below M) in either early alliance or alliance change.

Table 1

Multilevel Variance in Observed Alliance

	Unconditional Model		Time Only (With Residuals)		
	Random Effect	Variance Component (ICC)	Random Effect	Variance Component (ICC)	Total ICC
Level 1	σ^2	.098 (.25)	σ^2	.09 (.35)	.35
Level 2	τ_π	.30 (.75)	$\tau_{\pi 0}$	.17 (.65)	.65
			$\tau_{\pi 1}$	.00055 (.002)	
Level 3	τ_β	.00004 (<.001)	$\tau_{\beta 0}$	.00003 (<.001)	.00015
			$\tau_{\beta 1}$	.00001 (<.001)	

Note. σ^2 = Level 1 (within-subject) variance; τ_π = Level 2 (between-subject) variance; τ_β = Level 3 (between-cohort) variance; $\tau_{\pi 0}$ = Level 2 intercept variance (between-subject individual difference in intercept); $\tau_{\pi 1}$ = Level 2 slope variance (between-subject individual difference in slope); $\tau_{\beta 0}$ = Level 3 intercept variance (between-cohort individual difference in intercept); $\tau_{\beta 1}$ = Level 3 cohort variance (between-cohort individual difference in slope); ICC = intraclass correlation (percent of total variance in the model accounted for by the given variance component).

Table 2

Group Means of Parental Behavior and Child Social Functioning Outcome Measures

Measure	Mean (Standard Deviation)	
	Baseline[a]	Endpoint[b]
1. Parental facilitation	1.40 (1.11)	1.13 (1.11)
2. Parental corrective feedback	.45 (.81)	.37 (.67)
3. Parental onlooking	5.88 (3.28)	4.93 (3.50)
4. Parental warmth	2.00 (.87)	2.30 (.54)
5. Parental criticism	.76 (1.01)	.41 (.84)
6. Child disobedience	.64 (.86)	.41 (.88)
7. SSRS-P	85.08 (16.32)	90.96 (14.23)
8. QPQ	.63 (.43)	.59 (.41)
9. DSAS like/accept	3.08 (1.44)	3.50 (1.38)
10. DSAS dislike/reject	1.83 (1.24)	1.58 (.78)
11. Reciprocated friendships	.30 (.29)	.45 (.34)
12. Client satisfaction		4.42 (.49)

Note. Numbers in table are raw group means with standard deviations in parentheses. SSRS-P = Social Skills Rating System; QPQ = Quality of Play Questionnaire; DSAS = Dishion Social Acceptance Scale.

[a]Baseline measures of observational measures and sociometrics are obtained from playgroup 1, whereas questionnaire measures are obtained at pretest.

[b]Endpoint measures of observational measures and sociometrics are obtained from playgroup 3, whereas questionnaire measures are obtained at posttest.

Table 3

Parent Behaviors and Child Outcomes Predicted by Alliance

Measure	Parameter	Fixed Effects				σ^2	τ
		Coefficient	SE	T ratio	p value		
Playgroup–Facilitation							
Intercept	β_{00}	1.24	.25	5.019	.00***		
TPOCS-A change (int.)	β_{01}	−7.76	3.68	−2.11	.045*		.93
Playgroup	β_{10}	.062	.10	.616	.54	.29	
TPOCS-A change (slope)	β_{11}	3.41	1.45	2.36	.027*		.11
Playgroup–Onlooking							
Intercept	β_{00}	7.28	.71	10.22	.00***		
TPOCS-A change (int.)	β_{01}	−23.01	9.58	−2.40	.025*		4.94
Playgroup	β_{10}	−.62	.27	−2.31	.03*	3.70	
TPOCS-A change (slope)	β_{11}	8.96	3.00	−2.99	.007**		.081
PCI–Child Disobedience							
Intercept	β_{00}	.67	.16	4.30	.00***		
Early TPOCS-A (int.)	β_{01}	−.77	.51	−1.51	.15		.41
Playgroup	β_{10}	−.09	.046	−1.88	.072	.17	
Early TPOCS-A (slope)	β_{11}	.30	.14	2.16	.041*		.0065
PCI–Child Disobedience							
Intercept	β_{00}	.62	.15	4.15	.00***		
TPOCS-A change (int.)	β_{01}	3.82	1.80	2.12	.044*		.42
Playgroup	β_{10}	−.067	.041	−1.65	.112	.17	
TPOCS-A change (slope)	β_{11}	−1.13	.53	2.13	.044*		.0060
Reciprocated Friend Noms.							
Intercept	β_{00}	.26	.083	3.12	.005**		
Early TPOCS-A (int.)	β_{01}	−.70	.22	−3.12	.005**		.11
Playgroup	β_{10}	.056	.036	1.55	.14	.024	

Measure	Parameter	Fixed Effects				σ^2	τ
		Coefficient	SE	T ratio	p value		
Early TPOCS-A (slope)	β_{11}	.21	.10	2.046	.05 *		.021

Note. All *df* = 24; PCI = parent–child interaction; int. = intercept effect; slope = slope effect.

α = .05;

*
p < .05;

**
p < .01;

***
p < .001.