

Early Therapeutic Alliance and Treatment Outcome in Individual and Family Therapy for Adolescent Behavior Problems

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The impact of early therapeutic alliance was examined in 100 clients receiving either individual cognitive-behavioral therapy (CBT) or family therapy for adolescent substance abuse. Observational ratings of adolescent alliance in CBT and adolescent and parent alliance in family therapy were used to predict treatment retention (in CBT only) and outcome (drug use, externalizing, and internalizing symptoms in both conditions) at post and 6-month follow-up. There were no alliance effects in CBT. In family therapy, stronger parent alliance predicted declines in drug use and externalizing. Adolescents with weak early alliances that subsequently improved by midtreatment showed significantly greater reductions in externalizing than adolescents whose alliances declined. Results underscore the need for ongoing developmental calibration of intervention theory and practice for adolescent clinical populations.

Keywords: therapeutic alliance, adolescents, family therapy, cognitive-behavioral therapy, process-outcome research

Therapeutic alliance has proven to be a transtheoretical process component that is associated with treatment outcome across a diverse range of treatment models and clinical populations. Meta-analyses have revealed that alliance accounts for an average effect size of approximately .22 for adult clients (Martin, Garske, & Davis, 2000) and demonstrates a small to moderate correlation with treatment outcome that is remarkably consistent across various types of treatment, outcomes, sources (client, therapist, observer), measurement points (early, middle, late, or averaged across treatment), and alliance measures (Martin et al., 2000). Comprehensive reviews of psychotherapy process research have concluded that alliance and similar therapist-client relationship factors predict treatment gains more strongly and consistently than

any other widely investigated aspect of treatment implementation (e.g., Orlinsky, Ronnestad, & Willutzki, 2004).

In contrast to the considerable research base on therapeutic alliance with adult psychotherapy clients, research on child and adolescent populations is essentially a new area of investigation. Shirk and Karver (2003) recently conducted a meta-analysis that identified only 23 published studies and dissertations focusing on working alliance or therapeutic engagement with youth (12 of these involving a primarily adolescent sample). Similar to adult studies, they found an average effect size of .22 for alliance-engagement that was not moderated by client age, treatment type, or mode of therapy (individual, family, or parent treatment). However, the authors emphasized that these findings derive from a small compendium of studies with notable methodological deficits, including examination of treatments with limited efficacy evidence, concurrent measurement of alliance and outcome, and a paucity of observational alliance measures.

This study addresses the need for research on therapeutic alliance with youth populations and is among the first to examine alliance-outcome relations with adolescents participating in a randomized trial. We examined two empirically based and conceptually distinct approaches to treating adolescent drug use, individual cognitive-behavioral therapy (CBT) and multidimensional family therapy (MDFT). Controlled studies of CBT with adult samples have demonstrated on balance that therapeutic alliance is positively correlated with outcome in cognitive therapy and CBT for depression (e.g., Klein et al., 2003; Krupnick et al., 1996), although there is conflicting evidence on whether strong alliance produces subsequent treatment gains (Klein et al., 2003) or is itself the product of client improvement during the early stages of

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Preparation of this article was supported by National Institute on Drug Abuse Grants R01 DA14571 and P50 DA07697. We thank Leslie Alkalay, Priscilla Chinchilla, and Crystall Matthews for their diligent work as observational raters. We also thank Roger Vaughan for consulting on statistical analyses and Gayle Dakof for providing feedback on earlier versions of this article.

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treatment (Feeley, DeRubeis, & Gelfand, 1999). To date, only a handful of studies have examined therapeutic alliance in CBT for adult substance users. Connors, Carroll, DiClemente, Longabaugh, and Donovan (1997) found in the multisite Project MATCH study that alliance was related to treatment participation and outcomes for clients with alcoholism after controlling for a host of client and therapist baseline characteristics. In contrast, two large studies with cocaine-dependent clients failed to find alliance–outcome relations in the CBT condition (Barber et al., 2001; Carroll, Nich, & Rounsaville, 1997). Thus, the limited evidence base on therapeutic alliance in CBT for substance-abusing adults has not yielded consistent findings.

A few studies have investigated alliance effects for behavioral problems in youth, and most of these have focused on family-based treatment models. Family prevention studies with high-risk youth suggest that parent alliance (Tolan, Hanish, McKay, & Dickey, 2002) but not child or adolescent alliance (Faw, Hogue, Johnson, Diamond, & Liddle, 2005; Tolan et al., 2002) may be related to youth outcomes. Robbins, Turner, Alexander, and Perez (2003) found that discrepancies in the strength of the working alliance with adolescents versus parents predicted dropout from family therapy for delinquents. Tetzlaff et al. (2005) found that adolescent alliance predicted reduced drug use across five treatment conditions, including group-based CBT and MDFT, in the Cannabis Youth Treatment study. Hawley and Weisz (2005) examined youth and parent posttreatment retrospective reports of alliance across presumably multiple therapeutic modalities in four community clinics. They found that parent alliance was related to retention in therapy, whereas youth alliance was related to symptom improvement up to 2 years follow-up.

Three previous studies have examined therapeutic alliance in the MDFT model specifically. Diamond, Liddle, Hogue, and Dakof (1999) found that improvements in therapist–adolescent alliance over the first three sessions were linked to specific alliance-building therapy techniques. Robbins et al. (in press) found that both adolescent alliance and parent alliance declined significantly between Sessions 1 and 2 for dropouts (attended fewer than 8 sessions) but not completers. Finally, Shelef, Diamond, Diamond, and Liddle (2005) reported that whereas alliance with the parent predicted treatment retention in the Cannabis Youth Treatment study, alliance with the teen predicted immediate but not long-term improvement in substance use overall and in psychological symptoms for clients with high parent alliance.

These studies suggest that, as with adults, alliance research on adolescent clinical populations holds great promise for identifying transtheoretical treatment processes that promote successful outcome. The main hypothesis of the current study was that early therapeutic alliance would be positively correlated with key behavioral outcomes in CBT and MDFT for adolescent substance abuse. Two previous studies (Diamond et al., 1999; Robbins et al., in press) have used MDFT clients from this same clinical trial to examine early alliance processes; the current study is the first to examine alliance impacts on treatment outcomes. An observer-rated measure of alliance was used, in keeping with prior findings that observational measures predict outcome for adolescents who use drugs when self-report measures fail to do so (Shelef et al., 2005) and that adults who use drugs produce a restricted range of scores on self-reports (Barber et al., 2001; Fenton, Cecero, Nich, Frankforter, & Carroll, 2001). Both therapist–adolescent and

therapist–parent alliance were measured in the family therapy condition. Early treatment sessions were sampled to minimize a potential confound between alliance scores and symptom improvement over the course of therapy (Feeley et al., 1999) and because recent studies with adolescents have shown that alliance ratings during the first 2 sessions of therapy are associated with retention and outcome (Robbins et al., 2003, in press; Shelef et al., 2005).

Method

Participants

Participants were 100 substance-abusing adolescents and their families drawn from a larger clinical trial ($N = 224$) that compared the efficacy of MDFT and individual CBT for adolescent drug abuse (described later; Liddle, 2002a). The clients selected for the current study (56 CBT, 44 MDFT) included all those that met the following criteria: completed a baseline assessment, completed at least one posttreatment assessment (post or 6-month follow-up), and had at least one videotaped session from the first 5 sessions of treatment. Selected clients attended an average of 13.5 sessions ($SD = 8.6$). The sample was 81% male with an average age of 15.47 years ($SD = 1.31$). The ethnic composition was 68% African American, 20% European American, and 12% Hispanic American. About half of the adolescents were living in one-parent households, 14% with both biological parents, and 37% with various other compositions. Yearly household income was less than \$10,000 for 29% of the sample. Most adolescents were enrolled in school at intake (76%), 63% were on probation, 32% had been court ordered to receive treatment, and 11% had received treatment for substance use. On the basis of parent and adolescent reports on the Diagnostic Interview Schedule for Children (2nd ed.; Fisher, Wicks, Shaffer, Piacentini, & Lapkin, 1992), 80% met criteria for a substance abuse disorder, 79% for an externalizing disorder, and 49% for an internalizing disorder. Active consent from caregivers and active assent from adolescents were collected in writing from all participants. The study was conducted under active approval by the governing internal review board.

Summary of Findings From the Original Clinical Trial

The original randomized clinical trial from which study participants were drawn (Liddle, 2002a) included 112 MDFT and 112 CBT clients. Overall findings indicated that both CBT and MDFT significantly reduced substance use and externalizing and internalizing symptoms at posttreatment and follow-up. However, compared with CBT, youth in MDFT evidenced sustained treatment effects up to 1 year after termination from treatment, showing significantly greater reduction in psychological involvement with drugs and frequency of drug use other than cannabis. Also, compared with CBT, youth receiving MDFT were significantly more likely to be abstinent at 1-year follow-up.

Therapist Characteristics, Treatment Fidelity, and Alliance Training

The nine therapists who delivered the treatments, four in CBT and five in MDFT, ranged in age from 29 to 54 years ($M = 40$). The CBT therapists (two female) included two African Americans and two European Americans. One therapist had a masters degree, and three had doctorates, with an average of 3.5 years' ($SD = 1.7$) postgraduate experience in CBT. MDFT therapists (three female) included three African Americans and two European Americans. Four had master's degrees, and one had a doctorate, with an average of 7.7 years' ($SD = 4.5$) postgraduate experience in family therapy. Therapists were given study clients after 4 months of training and upon achieving satisfactory levels of adherence and competence in pilot clients as judged by model developers. During the study, therapists were

supervised weekly by model experts via live supervision, videotape feedback, and group review. Both treatments prescribed office-based, weekly sessions conducted over 16 to 24 weeks. Treatment fidelity for CBT and MDFT in the clinical trial was documented in a previous study (Hogue et al., 1998). Therapists in both conditions were trained to devote considerable energy early in therapy to developing an open, nonjudgmental, and collaborative relationship with the adolescent to be monitored and refreshed throughout treatment, which can be particularly challenging with teens who engage in drug use and delinquent behaviors. MDFT also emphasizes formation of an independent therapeutic alliance with the parent(s).

Treatments

Individual CBT. The CBT model for multiproblem adolescents who engage in substance abuse (Turner, 1992) is based on a broadly defined cognitive-behavioral framework that emphasizes a harm-reduction approach to substance use. CBT has demonstrated efficacy for adults who use drugs in individual format (Crits-Christoph et al., 1999) and adolescent substance users in group format (e.g., Dennis et al., 2004) and individual format (Waldron, Slesnick, Brody, Turner, & Peterson, 2001). Treatment is divided into three stages. The first stage, *treatment planning*, focuses on prioritizing adolescent problems, formulating a treatment contract in conjunction with adolescent and caregiver, and engaging the teen in treatment. The second stage of treatment, *intensive CBT program*, aims to increase coping competence and reduce problematic behavior. Intervention selection is based on clinical need from among multiple therapeutic modules: drug education, coping with drug cravings, communication and problem-solving, cognitive self-monitoring, and increasing prosocial activities. The final stage, *termination*, focuses on relapse prevention.

MDFT. MDFT (Liddle, 2002b) is a multicomponent, developmental-ecological treatment for adolescent drug abuse and related problems that seeks to reduce symptoms and enhance developmental functioning by facilitating change in several behavioral domains. The model has proven to be efficacious with adolescent substance abusers in outpatient treatment (Dennis et al., 2004; Liddle, 2002b; Liddle et al., 2001) and early stage adolescent users of drugs (Liddle, Rowe, Dakof, Ungaro, & Henderson, 2004). MDFT has four interdependent modules that target multiple aspects of adolescent and family functioning. The *adolescent module* aims to build a therapeutic alliance with the adolescent, improve problem-solving skills and social competence, and develop alternative behaviors to drug use. The *parent module* aims to build a therapeutic alliance with the parent, increase parents' level of involvement with the adolescent, and improve parenting skills. The *interactional module* works with parents and adolescents conjointly to strengthen emotional attachments and patterns of communication. The *extrafamilial module* seeks to foster family competency and establish collaborative relationships among all social systems in which the adolescent participates (i.e., family, school, peer, recreational, juvenile justice).

Outcome Measures

Timeline Follow-Back (TLFB) interview for substance use. The TLFB (Sobell & Sobell, 1996) measures quantity and frequency of daily consumption of drugs using a calendar and other memory aids to gather retrospective estimates. It is reliable and valid for the measurement of alcohol consumption and cigarette and cannabis use (Breslin, Sobell, & Sobell, 1996). Criterion validity has been established by comparing self- and collateral reports, as well as self-reports and records of verifiable events such as hospitalizations and jail stays (Fals-Stewart, O'Farrell, Freitas, McFarlin, & Rutigliano, 2000). This study used a variable indicating the number of days out of the previous 30 during which the adolescent smoked marijuana, given that THC was the primary drug of abuse in this sample. Note that the rate of missing data for the measure of

psychological involvement with drugs featured in analyses of the original clinical trial was above threshold for reliable imputation in the study sample.

Child Behavior Checklist (CBCL) and Youth Self-Report (YSR) Externalizing and Internalizing dimensions. The Revised CBCL (Achenbach, 1991a) is a parent self-report measure that assesses children's behavioral problems and social competencies. The CBCL contains groupings of Externalizing (delinquent and aggressive) and Internalizing (withdrawn, anxious-depressed, somatic complaints) symptoms. One-week test-retest reliability of .93 and interparent reliability of .66 for Internalizing and .80 for Externalizing have been shown (Achenbach, 1991a). Content and criterion validity are supported by the ability of CBCL items to discriminate between matched referred and nonreferred youth (Achenbach, 1991a). The YSR (Achenbach, 1991b) is a youth-report version of the CBCL with equivalent items, dimensions, and psychometric properties.

Therapist logs. Clinical logs were reviewed to measure treatment retention by summing the number of treatment sessions attended by adolescents and/or parents.

Process Measure: Vanderbilt Therapeutic Alliance Scale (VTAS)—Revised

The original VTAS (Hartley & Strupp, 1983) is a 44-item, observer-rated instrument designed to measure the strength of the therapeutic alliance in individual therapy. The VTAS defines the therapeutic alliance as a collaborative and task-oriented relationship determined by therapist behaviors, client behaviors, and therapist-client relationship characteristics. It has demonstrated solid interrater reliability, internal consistency, and convergent validity in several studies (e.g., Krupnick et al., 1996). The revised VTAS includes 24 items taken from the client and therapist-client interaction scales—the therapist contribution scale was eliminated because of its overlap with therapist techniques—and has some items slightly reworded for better fit with treatment involving adolescents and families. The revised VTAS has demonstrated strong interrater agreement (intraclass correlation coefficient [ICC] range = .80–.93) and internal consistency (Cronbach's alpha = .93–.96) in three previous studies of alliance in family-based treatments for adolescent drug use (Diamond et al., 1999; Robbins et al., 2003; Shelef et al., 2005). Each item on the revised VTAS is rated on a Likert-type scale (0 = *not at all*, 5 = *a great deal*).

To examine the dimensionality of the VTAS for this sample, principal-axis factor analysis using maximum-likelihood extraction and direct oblimin rotation ($\delta = 0$; see Fabrigar, Wegener, MacCallum, & Strahan, 1999) was conducted on the average scores of 23 out of the 24 items (1 item was deleted because of poor interrater reliability). Two separate factor analyses were done. In the first, adolescent alliance protocols only were included from both conditions ($n = 113$). In the second, MDFT parent protocols ($n = 57$) were also included to determine whether adding parent data changed the overall factor structure. Results were essentially identical. For the adolescent-only data, a single-factor solution (Kaiser-Meyer-Olkin = .93, eigenvalue = 13.14) explained 57% of the total scale variance, and the scree plot indicated a substantial drop in the magnitude of eigenvalues between the first and second factors. Following Grice (2001), factor-based subscales were created by interpreting the pattern matrix, setting a minimal factor loading threshold of .30, and using a unit weighting method. One item had a factor loading below .30; thus, the final scale used in this study consisted of 22 items. The 6 items with the highest loadings (.93–.90) measured client and therapist efforts to work honestly and jointly, client honesty and diligence, and client positive identification with the therapist and therapy. Interrater reliability and internal consistency were sufficient in both conditions: ICC = .90 and $\alpha = .98$ for therapist-adolescent alliance in CBT, ICC = .83 and $\alpha = .97$ for therapist-adolescent alliance in MDFT, and ICC = .62 and $\alpha = .98$ for therapist-parent alliance in MDFT.

Rating Procedures

Revised VTAS raters were five female graduate students in psychology who trained on nonstudy videotapes for 2 months and achieved acceptable mean interrater reliability ($ICC = .70$) before coding study tapes. To sample alliance as early as possible and thus minimize confounds with treatment progress, we coded Session 2 for 78% of clients; Session 3 (8%), then Session 1 (10%), and then Session 4 or 5 (2 clients each) were coded as needed based on tape availability. Raters coded entire sessions in which the target participant was present for at least 15 min. For CBT clients, only therapist–adolescent alliance was coded. For MDFT clients, coders completed separate protocols while viewing the tape, one for adolescent alliance and one (or two) for parent alliance. Whenever 2 parents attended a session, separate protocols were rated for each parent, and the final parent alliance score was calculated from their average. In 20% of clients, an average parent score was used; there was no significant difference between the alliance scores of the 2 caretakers in these sessions. Resource limitations precluded having different sets of coders rate adolescent and parent alliance independently; the absence of a significant correlation between adolescent and parent alliance (see the Results section) suggests that common rater variance and associated rater bias were minimal.

Sampling Bias

Sample selection bias. Sample bias analyses were conducted to determine whether the 100 participants selected for this study differed from the overall clinical trial sample of 224 on demographic and outcome variables. The significance criterion was set at a liberal $p < .20$ to cast a wider net for potential bias. For demographic variables, only one significant difference was found: Adolescents in the study sample were more likely to have attended treatment previously for alcohol or drug abuse, $\chi^2(1, N = 224) = 4.02, p < .05$. For the five outcome variables (drug use, adolescent and parent reports of externalizing and internalizing symptoms) across three time points (intake, post, 6-month follow-up), only one difference was found: The study sample had lower drug use scores at follow-up, $t(118) = -1.66, p = .10$. A significant difference was found for treatment retention, with the study sample having attended more treatment sessions than the large trial, $t(194.4) = 8.11, p < .001$. Note that 20% of clients in the clinical trial never attended a treatment session.

Assessment dropout and data imputation. Many clients in the study sample did not complete assessments at every follow-up time point, and some completed only adolescent-report measures or parent-report measures. At post, data were missing on each outcome variable for 26% of the sample. At 6-month follow-up, 32% were missing the drug use variable and 25% were missing the internalizing and externalizing variables. To maximize the sample size for the current study, we used data imputation procedures to estimate missing data on the outcome variables at both time points. Data were imputed following the procedures of multiple imputation (MI; Rubin, 1987) using the computer software NORM (Schafer, 1999). MI carries out the imputation in a separate step from the data analysis, allowing variables that will not be included in the analyses (e.g., demographics that may be predictive of missingness) to be part of the imputation model, thereby strengthening its precision (Schafer & Graham, 2002). MI assumes that data are missing at random, and it corrects biases inherent in analyses with missing data. Because this sample had rates of missing data below 30% for every variable except 6-month drug use, five imputations were sufficient to maximize efficiency (Schafer & Graham, 2002). Descriptive statistics for each of the imputed variables were examined for each of the five imputed data sets. The distributional properties of the imputed variables did not differ from those of the observed data. Also, independent-samples t tests comparing the observed scores to imputed scores derived from combining results across the five imputed data sets (Rubin, 1987) showed no significant differences on any variable. Therefore, the imputed scores were used as the outcome variables in all study analyses.

Diagnosing and Controlling Therapist Effects

Therapist main effects. *Therapist main effects* refers to mean-level differences among multiple therapists in a given study with respect to implementing treatment models or producing client outcomes (Cris-Christoph & Mintz, 1991). First, therapist differences in therapeutic alliance were examined in three separate analyses of variance (ANOVAs; adolescent alliance in CBT, adolescent alliance in MDFT, parent alliance in MDFT) within each treatment group; therapist was entered as a fixed-factor independent variable and the alliance variable as the dependent variable. No therapist effects were found. Second, separate analyses of covariance were conducted for each outcome variable (drug use, internalizing, externalizing) and for retention within each treatment group. For outcome variables, therapist was entered as a fixed-factor independent variable, pretreatment score on the given outcome as a covariate, and posttreatment outcome score as the dependent variable. No therapist effects were found for outcome or retention in either condition.

Therapist clustering effects. *Therapist clustering effects* (or the inverse: *client nesting effects*) refers to the fact that the error terms of outcome data from clients treated by the same therapist are likely to be correlated, which can lead to biased standard errors of the parameter estimates and inflated Type I error rates when using ordinary least squares regression (Wampold & Serlin, 2000). Mixed effects modeling addresses this problem by directly analyzing the covariance structure of the data using maximum-likelihood estimation, incorporating estimates of random error into standard error calculations. We used SAS Proc Mixed (SAS/STAT, Version 8) to model random error for the therapist factor.

Results

Descriptive Analyses of Adolescent and Parent Alliance

In CBT, adolescent alliance scores ranged from 1 to 4, with a mean score of 2.58 ($SD = 0.59$). The distribution of scores had a skew of -0.42 ($SE = 0.32$) and kurtosis of 0.64 ($SE = 0.63$). In MDFT, adolescent alliance scores ranged from 1 to 4, with a mean score of 2.96 ($SD = 0.57$), a skew of -1.32 ($SE = 0.36$), and kurtosis of 4.00 ($SE = 0.70$); parent scores ranged from 2 to 4, with a mean of 3.41 ($SD = 0.36$), a skew of $-.36$ ($SE = 0.36$), and kurtosis = 0.10 ($SE = 0.70$). These data show that the alliance variables had distributions that approximated normality and were appropriate for use in process–outcome analyses. One exception is the high kurtosis for adolescent alliance in MDFT. Because multivariate outliers were removed from regression analyses, this variable was not transformed.

An independent t test was conducted to compare the mean adolescent alliance scores in MDFT versus CBT. Adolescent alliance was found to be significantly higher in MDFT than in CBT, $t(98) = 3.19, p < .01$. Within the MDFT condition, a dependent-samples t test was conducted to compare adolescent and parent alliance scores. A significant difference was found, with therapists having stronger alliances with parents than adolescents, $t(43) = -4.30, p < .001$. The parent and adolescent alliance scores in the MDFT condition were not significantly correlated, $r(44) = -.08$.

Demographic differences in adolescent alliance within CBT and MDFT were examined using ANOVA. A 2 (sex) \times 2 (age: 12–15 years vs. 16–18 years) \times 2 (ethnicity: African American vs. other) ANOVA was conducted for each treatment group separately. No significant results were found for either condition. The same analyses were conducted for parent alliance in MDFT; no differences were found.

Alliance–Outcome Analyses: Full Sample

Overview of regressions. Hierarchical regressions were conducted to investigate whether alliance predicted treatment outcome for each outcome variable separately within each treatment condition. In all regression equations, pretreatment level of the outcome variable was entered in Step 1, and the adolescent alliance score was entered in Step 2. For MDFT clients only, the parent alliance score was also entered in Step 3, and the interaction between adolescent and parent alliance in Step 3. This permitted inference about the unique influence of adolescent and parent alliance on outcomes while controlling for the influence of the other variable. Variables used in interaction terms were centered to control for multicollinearity between predictors. Each regression was run five times, once on each of the five imputed data sets.

Regression diagnostics. Extensive regression diagnostics were carried out to screen for multivariate outliers. For each regression, studentized residuals, leverage, Cook's *D*, and standardized *df*beta were examined (Tabachnick & Fidell, 2001). These indices were examined within each of the five imputed data sets. Within each data set, clients who were above the critical value on at least two of these four indices were determined to be outliers in that data set. Only clients who were outliers in all five data sets for a particular regression were considered outliers for that regression. Each equation produced between one and three outliers, all belonging to different clients. All regressions were run twice, with and without the outliers. The results reported are those with out-

liers removed. Removing outliers decreased the probability value of one outcome from $p < .10$ to $p < .05$, and another from nonsignificance to $p < .10$.

Results of alliance–outcome regressions. Results for all alliance–outcome analyses are reported in Table 1. No significant effects of therapeutic alliance on treatment outcome were found in the CBT condition.

For adolescent alliance in the MDFT condition, there was a significant main effect for parent-report externalizing at post ($B = 7.17, p < .001, d = 1.03$, confidence interval [95% CI] = 2.97 to 11.37) and at 6-month follow-up ($B = 10.78, p < .001, d = 1.31$, 95% CI = 5.72 to 15.84). However, these results were opposite to expectations: Higher adolescent alliance scores predicted increases in externalizing symptoms. Similarly, higher adolescent scores predicted increases in parent-report internalizing symptoms at post ($B = 6.38, p < .001, d = 1.37$, 95% CI = 3.54 to 9.23). In addition, there was a significant interaction between adolescent alliance and parent alliance for post internalizing ($B = 7.48, p < .05$, 95% CI = 0.09 to 14.85). This interaction was probed following the procedures outlined by Aiken and West (1991) for two continuous predictor variables, which involve dichotomizing one predictor according to observed values one standard deviation above and below the mean and then testing new simple regression slopes. Results showed that adolescent alliance was positively associated with internalizing problems only for clients with relatively strong parent alliance ($B = 7.19, p < .001, d = 1.56$).

Table 1

Results of Alliance–Retention and Alliance–Outcome Regressions for Cognitive–Behavioral Therapy (CBT) and Multidimensional Family Therapy (MDFT) in the Full Study Sample at Post and 6-Month Follow-Up

Variable	Pretreatment symptoms			Adolescent alliance			Parent alliance			Adolescent × Parent Alliance		
	<i>B</i>	<i>SE B</i>	<i>t</i>	<i>B</i>	<i>SE B</i>	<i>t</i>	<i>B</i>	<i>SE B</i>	<i>t</i>	<i>B</i>	<i>SE B</i>	<i>t</i>
CBT												
Retention	—	—	—	2.34	2.00	1.17	—	—	—	—	—	—
Post drug use	0.26	0.14	1.88†	0.96	2.27	0.42	—	—	—	—	—	—
Post internalizing—P	0.77	0.12	6.24***	1.63	1.62	1.00	—	—	—	—	—	—
Post externalizing—P	0.64	0.09	6.54***	1.24	2.34	0.53	—	—	—	—	—	—
Post internalizing—A	0.77	0.11	7.08***	−0.50	1.98	−0.25	—	—	—	—	—	—
Post externalizing—A	0.48	0.13	3.72***	0.84	2.43	0.35	—	—	—	—	—	—
6-month drug use	0.19	0.09	2.00*	−1.73	1.64	−1.05	—	—	—	—	—	—
6-month internalizing—P	0.57	0.10	5.51***	−0.71	1.48	−0.48	—	—	—	—	—	—
6-month externalizing—P	0.57	0.13	4.30***	0.59	2.50	0.24	—	—	—	—	—	—
6-month internalizing—A	0.46	0.19	2.41*	−0.61	2.12	−0.29	—	—	—	—	—	—
6-month externalizing—A	0.49	0.15	3.26**	1.34	2.05	0.66	—	—	—	—	—	—
MDFT												
Post drug use	0.14	0.16	0.89	0.57	1.57	0.37	−4.29	2.53	−1.70†	2.08	4.47	0.47
Post internalizing—P	0.44	0.11	4.16***	6.38	1.45	4.40***	−1.29	2.40	−0.54	7.48	3.70	2.02*
Post externalizing—P	0.61	0.13	4.85***	7.17	2.14	3.35***	−6.11	3.07	−1.99*	4.36	5.28	0.82
Post internalizing—A	0.41	0.11	3.65***	−0.80	2.28	−0.35	0.88	2.95	0.30	−4.11	6.51	−0.63
Post externalizing—A	0.37	0.12	3.11**	−1.72	2.85	−0.60	1.80	4.07	0.44	−2.64	9.41	−0.28
6-month drug use	0.39	0.22	1.79†	0.68	2.56	0.27	0.92	4.35	0.21	8.98	7.06	1.27
6-month internalizing—P	0.63	0.14	4.39***	3.07	2.17	1.41	−0.87	3.03	−0.29	0.47	7.12	0.07
6-month externalizing—P	0.68	0.14	4.85***	10.78	2.58	4.18***	−1.05	3.89	−0.27	−6.96	8.56	−0.81
6-month internalizing—A	0.49	0.13	3.93***	0.84	1.79	0.47	2.76	2.88	0.96	5.54	5.04	1.10
6-month externalizing—A	0.48	0.11	4.57***	−0.34	2.55	−0.13	4.03	3.40	1.19	0.96	8.37	0.12

Note. All *B* values are values generated from the predictor's original point of entry into the equation. Dashes indicate that these data were not obtained for the study. P = parent; A = adolescent.

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

For parent alliance in MDFT, main effects of parent alliance were found for drug use (at trend level; $B = -4.29, p < .10, d = 0.52, 95\% \text{ CI} = -9.28 \text{ to } 0.70$) and for parent-report externalizing behavior ($B = -6.11, p < .05, d = 0.61, 95\% \text{ CI} = -12.15 \text{ to } -0.07$) at post only and in the expected direction: Stronger alliance with parents predicted reductions in drug use and externalizing behavior.

Exploratory Analyses of the Paradoxical Effect of Early Alliance on Externalizing

To explore the paradoxical result of positive correlations between early adolescent alliance and parent-report externalizing symptoms at posttreatment in MDFT, we examined a subset of MDFT clients ($n = 25$) for which observational ratings of alliance were completed on one randomly selected session from the middle phase of treatment (Sessions 6–12). Every MDFT client with at least one video-recorded midtreatment session was included in this subsample analysis; midtreatment sessions were coded concurrently with early phase sessions using the same raters and rating procedures described earlier. The subsample of midphase completers attended an average of 19.5 ($SD = 5.3$) sessions. The subsample was divided into two subgroups: clients in which the adolescent alliance score was higher at midphase than early phase (improved: $n = 8$) and clients in which the midphase score was lower (declined: $n = 17$). The goal of creating these small subgroups was to explore whether the positive alliance–externalizing correlation could be attributed (a) primarily to the fact that lower early alliance scores predicted reductions in externalizing by means of improvements in working alliance during therapy, (b) primarily to the fact that higher alliance scores predicted increases in externalizing by means of declines in working alliance during therapy, or (c) to neither (a) nor (b) definitively (i.e., the positive correlation is a straightforward main effect).

For the improved group, the mean early alliance score was 2.41 ($SD = 0.81$) and the mean midtreatment score was 2.88 ($SD = 0.52$); the midtreatment score was higher at a trend level, $t(7) = 2.35, p < .10, d = 1.78$. For the declined group, the mean early alliance score was 3.18 ($SD = 0.31$) and the mean midtreatment score was 2.63 ($SD = 0.44$); the midtreatment score was significantly lower, $t(16) = -5.00, p < .001, d = 2.50$. The early alliance score for the improved group ($M = 2.41$) was significantly lower than that of the declined group ($M = 3.18; t(7.98) = -2.63, p < .05, d = 1.86$). A mean comparison between these two subgroups was conducted on the residualized changes scores for externalizing symptoms at post, controlling for intake symptom levels. The improved group showed significantly greater change in externalizing from intake to post than the declined group, $t(23) = -2.27, p < .05, d = .94$. Improved clients showed an overall reduction in externalizing symptoms (mean change score = $-.60, SD = 0.82$) whereas declined clients had an average increase in externalizing (mean change score = $.28, SD = 0.94$). A similar between-groups comparison of the follow-up externalizing scores did not yield a significant result, but the direction of effect was the same: mean change for externalizing was $-.11 (SD = 1.45)$ in the improved group and $.05 (SD = 0.72)$ in the declined group, $t(8.66) = -0.29, ns, d = .15$.

These exploratory analyses suggest that the positive correlation between early adolescent alliance and externalizing symptoms

primarily means that weak initial alliance predicted a decrease in externalizing; that is, clients with relatively poor early alliance had sufficient “room to grow” in a manner that predicted eventual therapeutic progress on this important outcome. We also conducted the same exploratory analyses on parent-report internalizing symptoms at post, although this main effect was moderated by parent alliance; results were nonsignificant. For completeness, analyses of improved versus declined adolescent alliance subgroups were also conducted on CBT clients for externalizing and internalizing symptoms, even though main study analyses produced no alliance–outcome effects in CBT; all results were nonsignificant.

Alliance–Outcome Analyses: High-Dose Subsample

All alliance–outcome analyses were repeated using a subsample of clients who completed at least 10 sessions of therapy (29 clients in CBT, 32 in MDFT). This was done to investigate alliance effects for clients who received a strong dose of treatment, thereby maximizing the potential for alliance to impact immediate and long-term outcomes. The CBT high-dose subsample attended an average of 19.2 sessions ($SD = 5.5$), the MDFT subsample 19.6 sessions ($SD = 5.1$). As before, there were no significant alliance–outcome results in CBT. In MDFT, there were no additional alliance effects. With regard to effects reported earlier for the full MDFT sample, restricting analyses to the high-dose subsample produced changes in three of the findings. First, the trend-level effect of parent alliance on drug use at post strengthened to a conventionally significant level ($B = -5.55, p < .05$). Second, the effect of parent alliance on parent-report externalizing symptoms at post failed to reach significance. Third, the interaction between adolescent and parent alliance for parent-report internalizing at post failed to reach significance, so that the paradoxical main effect of adolescent alliance on internalizing was not moderated. On balance, results for the MDFT high-dose subsample were not substantially different from those for the full sample.

Alliance–Retention Analyses

Regression analyses were conducted to investigate whether therapeutic alliance predicted treatment retention (i.e., number of sessions attended). Because previous research has investigated alliance–retention effects in the MDFT condition of original randomized trial (Robbins et al., in press), only CBT clients were included in the current analyses. Results are presented in Table 1. One linear regression was conducted, with adolescent alliance as the independent variable and number of sessions in treatment as the dependent variable; regression diagnostics were carried out as described earlier. No significant effects were found.

Discussion

This study found that early therapeutic alliance exerted a differential impact on treatment outcome for adolescents who engaged in substance abuse depending on the modality of treatment. Alliance bore no relation to treatment retention or behavioral outcomes up to 6 months after treatment in individual CBT. In family therapy, both adolescent alliance and parent alliance were salient predictors of outcome, although not in the consistently

positive manner typically found in studies with adult populations. As expected, stronger parent alliance predicted reductions in teen drug use and parent-report externalizing symptoms at post. However, contrary to hypotheses, stronger adolescent alliance predicted an increase in parent-report externalizing behavior at post and 6-month follow-up. Post hoc analyses of these paradoxical results on a subsample of MDFT completer clients revealed that adolescents whose alliances improved from early to midtreatment also demonstrated a corresponding improvement in externalizing, whereas adolescents with deteriorating alliances showed a worsening of symptoms. Similarly, stronger adolescent alliance was associated with increased internalizing symptoms at post, but only for clients with relatively strong parent alliances.

The relation of alliance to treatment outcome in MDFT presents a complex portrait of effects. In contrast to Shelef et al.'s (2005) findings on a different MDFT sample, we found that strong early alliance with parents, rather than teens, predicted improvements in drug use and related symptoms. This is consistent with ecological intervention theories that emphasize cultivation of multiple therapeutic alliances when one is treating adolescents (Liddle, 1995). Adolescent alliance also predicted outcome, but not in a straight-forward "more is better" manner. Instead, having a weaker early alliance predicted more success in treating externalizing problems. How might this occur? The explanation may lie in the potential for a positive shift in alliance level: Youths whose alliances started low but improved during therapy showed corresponding symptom improvement; conversely, declining alliance was associated with symptom escalation.

A few studies with adult samples corroborate our finding that growth in alliance predicts good outcome (e.g., Kivlighan & Shaughnessy, 1995). Two studies with youth samples have examined this. Eltz, Shirk, and Sarlin (1995) found that psychiatrically hospitalized adolescents who developed stronger alliances between intake and discharge evinced greater treatment gains. Florshiem, Shotorbani, Guest-Warnick, Barratt, and Hwang (2000) examined working alliance for delinquent adolescents in residential treatment facilities. As in the current study, they found that strong early alliance predicted an increase in externalizing and internalizing behaviors (and recidivism) and, furthermore, that change in alliance during treatment was more predictive of outcome than early alliance level. Their developmental interpretation of these results suggests that antisocial youth who are adept at "looking good" during the honeymoon phase of therapy may actually be less inclined or equipped to sustain positive relations and make treatment progress as therapeutic demands intensify over time. Of course the converse may be equally true: Initially recalcitrant adolescents who become more collaborative and invested in the treatment process may have a superior prognosis.

This alliance-shift explanation for the paradoxical alliance–outcome effects in this study is clinically coherent and fits with the minimal research base on adolescents. Particularly in the case of teens engaging in drug use and delinquency, who typically enter therapy under mandate from juvenile authorities, there are considerable, but not insurmountable (Diamond et al., 1999), challenges to establishing a trusting and participatory therapeutic relationship (Liddle, 1995). From this perspective, the primary task of any psychotherapy approach with this population may well be growing the early alliance to work-ready status. Nevertheless, the alliance-shift explanation is only tentative, pending further research of

several kinds. First, the study design did not permit examination of whether early changes in behavioral symptoms may have preceded changes in alliance, so that alliance changes were actually markers of therapeutic progress (Feeley et al., 1999; Klein et al., 2003). To examine in definitive fashion the link between change in therapy process and change in symptomatic functioning would require more dense "mechanisms of change" measurement designs that assess processes and outcomes repeatedly over the course of treatment (Kazdin & Nock, 2003). Second, shift analyses were conducted only on clients who completed at least 6 treatment sessions and averaged almost 20; thus, the shift explanation may not hold for early dropout clients. Because substantial changes in alliance (positive or negative) can occur in the first few sessions of therapy (Diamond et al., 1999; Robbins et al., in press), the impact of very early alliance shifts on treatment retention and outcome is an important area for continued research.

It was quite surprising that therapist–adolescent alliance did not predict outcome or retention in the CBT condition, wherein the adolescent was the sole focus of intervention. Although the overall strength of the adolescent alliance was less in CBT than in MDFT, the mean CBT alliance score fell in the midrange of the scale, and there was sufficient variability to support process–outcome analyses. Working alliance in individual treatment has consistently predicted outcome at a moderate level across a wide variety of client populations and therapeutic orientations, including CBT (Martin et al., 2000). On the other hand, both Carroll et al. (1997) and Barber et al. (2001) have found that alliance in CBT did not predict outcome and had a nonsignificant or negative relation with treatment attendance for individuals who abuse cocaine. It appears the jury is still out regarding the role of therapeutic alliance in individual CBT with substance abusers, perhaps even more so for adolescent clients. Shirk and Karver's (2003) conjecture that a clinically meaningful alliance takes longer to develop with youth may be particularly relevant to individual treatment modalities. Studies that track alliance trajectories over the course of therapy (e.g., Kivlighan & Shaughnessy, 1995) are needed to investigate this possibility.

Confidence in the reliability of study findings is bolstered by the fact that mean alliance scores in both conditions were located in the middle of the scale with essentially normal distributions. Thus, analyses were not hampered by a restricted range of alliance scores (see Barber et al., 2001), perhaps owing in part to use of observational rather than self-report methods. Alliance scores were not moderated by age, sex, or ethnicity, and study results were basically equivalent between the full sample and a subsample of high-dose clients (10 sessions or more). Also, the study had several methodological features that strengthen the validity of findings: Process–outcome analyses controlled for therapist effects, multivariate outliers were removed, and 6-month follow-up data were examined to provide a strong test of the significance and durability of effects. Consider also that because study therapists were selected and monitored during a controlled efficacy trial, the observed variance in alliance across study clients may be substantially less than would be expected from practitioners in routine care settings. This would attenuate process–outcome effects in this study that may be seen more readily in standard practice. However, even given these conservative conditions, all significant and trend-level effect sizes were in the medium to high range, indicating that reported findings are relatively robust. Still, enthusiasm for the

implications of these results is tempered by the fact that alliance demonstrated a marginal impact on drug use outcomes, which was a main target of both treatment models, and no impact on adolescent-reported internalizing or externalizing symptoms. Although generally true that parents and adolescents show modest levels of dyadic agreement in rating adolescent symptoms (Youngstrom, Loeber, & Stouthamer-Loeber, 2000), there is no ready explanation for why alliance effects were found for parent but not adolescent reports.

One limitation of the current study is its exclusive focus on a therapist–client relationship factor (alliance) for predicting outcome. Model-specific intervention techniques and other therapist-driven aspects of the treatment process (e.g., therapist competence) may be equally or more responsible for good outcomes (Stevens, Hynan, & Allen, 2000) and may interact with relationship factors in complex ways (Feeley et al., 1999). Another limitation is that only observational ratings of alliance were used. It has been argued that therapist and client self-reports provide unique information about the alliance, although the most recent meta-analytic evidence indicates that type of alliance rater does not moderate the alliance–outcome relation (Martin et al., 2000). A small percentage of selected sessions (10%) were first sessions, when many assert that alliance conditions are not sufficiently established to yield a valid measurement. Also, there are several ways to conceptualize alliance in family-based interventions. We chose to examine therapist–adolescent and therapist–parent alliances in MDFT as independent constructs, setting aside plausible alternatives such as creating average scores or difference scores (e.g., Robbins et al., 2003) to represent family alliance. Finally, with regard to study generalizability, it is important to note that study participants were a hard-to-engage, hard-to-treat sample of inner-city, juvenile justice-involved, primarily male, primarily ethnic minority adolescents and families.

The complex and sometimes surprising results of this study underscore the need to develop a more complete understanding of engagement and alliance processes with adolescent clients. Process research on child and adolescent psychotherapy lags far behind adult research on almost every front (Shirk & Karver, 2003), and the unique developmental and ecological challenges faced by youth from various age groups surely translate into unique clinical challenges in the therapy room. For this reason, even consensus knowledge from the adult literature, such as consistent positive effects of early alliance on treatment outcome, must be developmentally reformatted and rigorously tested before gaining status as clinical wisdom for youth populations.

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Received February 7, 2005

Revision received July 19, 2005

Accepted July 27, 2005 ■