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Early Therapeutic Alliance as a Predictor of Treatment Outcome for Adolescent Cannabis Users in Outpatient Treatment

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The association of early alliance to treatment attendance and longitudinal outcomes were examined in 356 adolescents participating in a randomized clinical trial targeting cannabis use. Both patient and therapist views of alliance were examined, and outcomes were evaluated over 12 months after numerous other sources of variance were controlled. Patient-rated alliance predicted a reduction in cannabis use at three and six months and a reduction in substance-related problem behaviors at six months. Therapist-rated alliance did not predict outcomes. Neither patient nor therapist alliance ratings were associated with attendance. The findings support the important and often overlooked role that alliance can play in treating substance abusing, often delinquent, adolescents. (Am J Addict 2006;15:26–33)

Therapeutic alliance has consistently been associated with treatment outcome.[1] Individual and meta-analytic studies on the therapeutic alliance with adults have demonstrated that: a) it is established by the third or fourth session; b) early alliance is a better predictor of outcome than later alliance; c) it predicts outcome equally well regardless of theoretical orientations; d) patient, therapist, and observer alliance ratings are all predictive of outcome, with patient's point of view being especially predictive; and e) the correlations between these different perspectives are low.[2,3] There is also evidence that alliance impacts treatment retention.[4]

Most alliance research has focused on adult individual psychotherapy, with very few studies focused on children and adolescents.[5] This is surprising given that alliance formation and engagement are particularly important when working with adolescents. Many adolescents are coerced to attend treatment by parents, school personnel, probation officers, or other external sources.[6] They deny needing treatment and lack motivation for change.[7] In fact, 50–70% of adolescents terminate treatment early.[8] This is particularly true for substance-abusing adolescents, where nearly 73% of teens in a national sample of outpatient treatment exited therapy before receiving a clinically recommended dose (i.e., 12 sessions over three to four months).[9]

Shirk and Karver[5] recently completed a meta-analysis of 23 studies on alliance and other broad therapy relationship factors in child and adolescent treatment. Most of the studies were methodologically weak (e.g., single sample, non-standardized measures, poorly defined constructs of alliance), but still some interesting conclusions were drawn. Overall, they found a moderate effect size (.22), similar to those found in the adult literature, demonstrating that measures of alliance and the therapeutic relationship are predictive of outcome. The association was not moderated by age, behavioral versus non-behavioral treatment, therapy modality, or manualized versus non-manualized treatment. In contrast to adult studies, therapist report of alliance was a stronger predictor of outcome than patient report. Furthermore, they noted that child-reported alliance tended to cluster at the positive end of ratings,[10] indicating a tendency for appraisals to be positively biased. Also in contrast

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to adult studies, later alliance ratings had a stronger relationship with outcome than those taken earlier in treatment.

A few studies have now looked at alliance and engagement specifically with adolescent delinquent or substance-abusing populations. Findings from the DATOS-A study[11] found that adolescent background factors were related to engagement, but only through a connection with treatment readiness. In a residential study with delinquent teens, Florsheim and colleagues[12] found that alliance measured after three months of treatment predicted better functioning and lower recidivism after discharge than alliance measured after two weeks of treatment. In fact, early alliance predicted worse outcomes. These authors suggest that high early alliance ratings in residential settings may reflect social desirability more than the quality of relationships. In a study of adolescent substance abusers receiving Functional Family Therapy, Robbins and colleagues[13] found that the quality of the therapist-adolescent alliance at the second session of treatment predicted treatment completion. While these studies are informative, clearly more research in this area is needed.

As a contribution to this research area, the Cannabis Youth Treatment study[14,15] is the first large-scale, methodologically sound, randomized clinical trial to assess alliance and its association with treatment outcome for adolescents. The CYT study has several methodological strengths that make it well positioned for a programmatic investigation of alliance. First, the total sample consists of over 600 ethnically diverse adolescents from four treatment sites around the nation. Second, the study compared five different manualized treatments that represent a wide range of treatment approaches (individual, group, family, multi-component, etc.). Third, all therapists were well-trained, certified, and supervised throughout the study. Fourth, the Working Alliance Inventory (WAI),[16] a psychometrically sound and widely used measure, was administered to both adolescents and therapists. Finally, a comprehensive, psychometrically sound outcome assessment battery was administered at four time points over a 12-month period. These methodological strengths provide a rigorous context for a study of therapeutic alliance.[5]

Given the strengths of the CYT study, we are engaged in a systematic investigation of the formation and role of alliance when treating this population. In an initial paper,[17] we examined how alliance, measured any time during treatment, predicted treatment relapse. When controlling for initial substance use and substance-related problems, we found that the WAI, but not treatment satisfaction, predicted use at three and six months post-intake. We also had objective raters code adolescent and parent alliance in only the family therapy condition of CYT.[18] Findings suggested that parent alliance with therapist predicted increased retention and adolescent alliance with therapist predicted positive treatment outcome.

The current study builds on these investigations in several ways. In this study, we look at adolescent alliance as a predictor of treatment attendance as well as outcome. We examine not only patients' self-report view of alliance, but also therapists' self-reported perception of the adolescent's alliance. We also focus explicitly on early alliance, thereby avoiding the confound of treatment improvement inflating alliance (i.e., becoming a proxy for satisfaction).[19] Finally, we control for a number of patient and therapist characteristics to account for "third variable" explanations of the results.

As one of the first studies of its kind with this population, we wanted to see if the basic findings about alliance with adults were consistent within our clinically representative adolescent sample. Based on the current literature, our study had two primary hypotheses. First, we expected that higher scores on therapeutic alliance, as rated by both the adolescent and the therapist, would predict better treatment attendance and outcome (e.g., number of sessions attended, reduction in cannabis use, and reduction of substance problem behaviors). Second, based on consistent findings from the adult literature, we predicted that patient-rated alliance would be a better predictor of outcome than therapist-rated alliance. Although the Shirk and Karver[5] review found the opposite for children, we wanted to compare this sample to those in more rigorously designed, usually adult, studies. Because there were relatively no differences in outcome between treatments, we were unable to examine whether alliance and outcome were influenced by treatment type.

METHOD

Study Overview

The Cannabis Youth Treatment Study[14] was a four-site, randomized clinical trial funded by the Center for Substance Abuse Treatment to evaluate five brief, manualized outpatient treatments for adolescents with cannabis abuse or dependence. At two of the four sites (Operation PAR in St. Petersburg, FL, and the Alcohol Research Center at the University of Connecticut Health Center [ARC]), patients were assigned to one of three treatments. One treatment was a combination of Motivational Enhancement Therapy (MET) plus Cognitive-Behavioral Group therapy (referred to as MET/CBT5), lasting five weeks. The second treatment was MET/CBT12, lasting 12 weeks. The third treatment was MET/CBT12 plus the Family Support Network (FSN), also lasting 12 weeks.

At the other two sites (Chestnut Health Systems in Madison County, Illinois, and The Children's Hospital of Philadelphia), patients were also randomized to three treatments. One treatment was the five-week MET/CBT5

CBT5 described above. The other treatments were the Adolescent Community Reinforcement Approach (ACRA) and Multidimensional Family Therapy (MDFT), each lasting 12 weeks.

All five treatments were manual-guided (either previously tested or developed for this study) and had corresponding adherence measures that were used to monitor treatment fidelity. Only FSN and MDFT had designed family components to the treatments. The other three treatments were primarily individual (see Diamond et al.[15] for a complete description of all treatments). Patients were assessed at intake and at three, six, nine, and 12 months thereafter. Self-reports of drug use and behavior were validated using urine tests and parent reports at intake, and at three- and six-month follow-up points. While participation in the study was voluntary, participants were compensated a nominal fee for each assessment.

Participants

Inclusion and exclusion criteria for CYT are reported elsewhere (see Dennis et al.[20]). Essentially, the study focused on adolescents appropriate for outpatient services, meeting for either abuse or dependency of marijuana use. The final sample looked very similar to patients presenting for publicly-funded outpatient treatment in the United States.[21]

In the total sample of 600 adolescents, 85% were 15 years old or over, 61% were Caucasian non-Hispanic, 32% were African American, and 19% were girls. Sixty-two percent were involved with juvenile justice, 52% came from single-parent homes, 85% first used drugs before the age of 15, and 75% had no prior treatment experience. The average age of the patients was 15.7 years. Patient demographic information is presented in Table 1.

For this study, we wanted to assure that we were measuring alliance early in the treatment rather than in the middle or end of treatment. Since alliance often goes up in response to symptom improvement, early alliance captures adolescents' early assessment of the quality of the therapeutic relationship before the confounds of improvement and attrition occur. Therefore, to be included, participants and therapists had to have completed the Working Alliance Inventory (WAI) on session 2 or 3 for the five-week treatment and on session 2, 3, or 4 for the 12-week treatments. Based on this criterion, 356 (59%) adolescents were included in the patient WAI cohort (115 in MET/CBT5, 61 in MET/CBT12, 45 in MET/CBT12 + FSN, 68 in ARCA, and 67 in MDFT). For the therapist WAI cohort, 349 adolescents were included (114 in MET/CBT5, 63 in MET/CBT12, 31 in MET/CBT12 + FSN, 71 in ACRA, and 70 in MDFT). There was a 76% overlap in the two samples.

Of the 244 patients excluded from this alliance study, 53% did not complete an alliance measure or did not attend a second session. Another 31% of those excluded completed the alliance measure either too early or too late to be included in analyses of early alliance. The remaining 16% completed the alliance measure, but we were unable to accurately determine when it was completed. In the therapist WAI sample, 48% of those excluded did not complete the alliance measure, 24% completed the measure either too early or too late, and 28% completed the measure but at an unspecified time.

TABLE 1. Patient demographic information by available patient and therapist working alliance inventory data

	Patient WAI ($n = 356$)	Therapist WAI ($n = 349$)	Total ($N = 400$)
Sex (%)			
Male	80.6	82.0	81.0
Female	19.4	18.0	19.0
Age (years)			
M	15.7	15.7	15.7
SD	1.2	1.2	1.2
Ethnicity (%)			
Caucasian	60.7	61.6	60.6
African American	30.9	30.7	31.5
Other	8.4	7.7	7.9
Family Structure (%)			
Parents Married and Together	29.5	31.5	30.3
Parents Separated	9.5	8.8	8.9
Single Parent	50.3	52.3	51.5
Other Family Structure	10.7	7.4	9.3
Criminal Justice Involvement (%)			
Yes	61.8	62.7	62.3
No	38.2	37.3	39.7
Number of Days in Treatment			
M	8.1	7.9	8.1
SD	4.1	4.0	4.1
Days of Cannabis Use[a]			
M	35.8	36.2	36.1
SD	28.5	28.2	28.3
Substance Problem Index (SPI)			
M	7.1	7.0	7.1
SD	3.7	3.7	3.7
Patient WAI			
M	71.7	71.4	71.6
SD	11.8	12.4	12.0
Therapist WAI			
M	64.0	62.4	63.1
SD	11.1	12.0	11.6

Note. [a]Days of cannabis use in 90 days prior to randomization. WAI = Working Alliance Inventory.

Using the patient WAI cohort data, we compared the included sample ($n = 356$) to those that were excluded from this study for the above reasons ($n = 244$). Adolescents excluded from this alliance study had higher scores at baseline on the number of cannabis cigarettes used in a single day and the number of problems endorsed on the Substance Problem Index (SPI). Excluded patients also had higher scores on these two substance-related outcome measures at three- and six-month follow-ups. Excluded patients attended significantly fewer sessions ($t = 2.21$, $p < .05$), and therapists rated alliance significantly lower in excluded patients ($t = 2.47$, $p < .05$). Therefore, excluded patients were worse at intake, had poorer outcomes post treatment, and, according to their therapists, appeared less connected to treatment after the second session. While this limits the generalization of these findings, the sample still represents the largest adolescent alliance study ever conducted.

Therapist Training and Supervision

Fourteen therapists were recruited for the study from both within and outside the provider agencies. Therapists had a mean age of 39.3 years ($SD = 9.5$), and 64% were women. Twenty-one percent of all therapists had bachelor's degrees, 57% had master's degrees, and 21% had doctoral degrees. Therapists averaged 5.7 years of experience working with adolescents ($SD = 5.4$). Some therapists were trained on and administered more than one treatment. Eight therapists treated patients with MET/CBT5, five with MET/CBT12, six with MET/CBT12 + FSN, four with ARCA, and three with MDFT. All therapists were extensively trained by the model developers and closely monitored for treatment adherence. In addition, therapists completed a service contact log after each session that documented treatment procedures used and several process variables (e.g., who was present, session duration, etc.).

Measures

Working Alliance Inventory (WAI).[16] Based on Bordin's[22] theoretical work, this instrument is designed to assess three aspects of alliance: tasks, goals, and bonds. To lessen the burden on the subjects and increase the likelihood of compliance, we used a shortened 12-item version of this instrument.[23] In the patient WAI sample, alpha for the total scale was .93, and principal components analysis resulted in a one-factor solution accounting for 56.2% of the variance. In the therapist WAI sample, alpha for the total scale was .95, and principal components analysis resulted in a one-factor solution accounting for 67.2% of the variance. Correlations between the patient and therapist measures of alliance were .50, a finding similar to adult psychotherapy studies.[24,25] Given the lack of support for separate subscales within our sample, we decided to only use the total WAI score.

Treatment Attendance. We defined attendance as the total number of days of face-to-face contacts with the therapist. To control for differences in treatment duration, we analyzed the five-week treatment separately from the 12-week treatments. ANOVA revealed no significant differences between the 12-week treatment models on total number of days of contact ($F = 3.23$, *ns*); therefore, we included all four of these treatments in the treatment attendance comparisons.

Global Appraisal of Individual Needs (GAIN).[26] The GAIN, which was administered at intake, three, six, nine, and 12 months, was designed as a standardized biopsychosocial semi-structured interview for clinical and/or research use, normed on both adults and adolescents.[27] It includes over 1500 questions and 100 scales, including substance use.

Days of Cannabis Use. This GAIN item measures the number of days of use over the past 90 days. Self-reports of cannabis use were consistent at intake and various follow-up waves ($\kappa = .70$–$.90$) with family/collateral reports, on-site urine tests, and gas chromatography/mass spectrometry (GC/MS) tests for delta-9-tetrahydrocannabinol (δ^9-THC).[28] A test-retest reliability study with adolescent outpatients revealed consistent reports of days of cannabis use (rho = .7), and days of alcohol use (rho = .7).[14]

Substance Problem Index (SPI). This scale, taken from the GAIN, is based on 16 items: seven related to DSM-IV criteria for dependence, four for abuse, two for substance-induced health and psychological problems, and three lower severity items (hiding use, people complaining about use, and weekly use). The past month has excellent internal consistency ($\alpha = .90$) and test-retest reliability for number of abuse/dependence symptoms ($r = .73$). Diagnoses based on the full SPI scale have been shown to have adequate test-retest reliability ($\kappa = .55$).[29] For this paper, we used symptom count as the primary measure.

Procedures

Completing the WAI measure was voluntary, and refusal did not exclude patients from receiving treatment. Because of limited staff support and logistical constraints (e.g., research therapists working alone in satellite clinics across the state), some therapists administered the alliance measure to the adolescents. Adolescents were informed about the nature of the instrument and promised confidentiality of their answers from their therapists. They filled out the measure on their own, put it in an envelope, sealed it, and left it in a box in the waiting room. Therapists also filled out the WAI at that time. Adolescents in the MET/CBT12 + FSN condition filled out the measure based on their view of alliance with the MET/CBT12 therapist.

Analysis Plan

To test our hypotheses, we used a series of parallel hierarchical multiple regressions, each comprised of five blocks of variables. In order to test its strength with outcome measures, alliance was entered as the first block, followed by four blocks of covariates:

Block 1 (Alliance): WAI

Block 2 (Patient Characteristics): sex, age, ethnicity, criminal justice involvement

Block 3 (Therapist) Dummy variables were created to represent each therapist in the study. The therapist with the highest overall patient-rated alliance was used as the reference point. While we know that outcomes do not vary significantly based on treatment modality or site and that, as a whole, the CYT sample significantly improved,[20] this strategy allows us to control for these nested effects within each therapist.

Block 4 (Patient-Therapist Match): Previously, we found patient-therapist sex and racial match to predict treatment retention;[30] therefore, we included these variables as possible covariates.

Block 5 (Patient Baseline Substance Use History): SPI (past month), number of days of cannabis use in past 90 days, number of days of alcohol or other drug use in past 90 days, most number of cannabis cigarettes smoked in one day.

In this model, alliance is entered first to examine whether or not its relationship to measured outcomes drops out once covariates are entered into the model. Categorical variables (e.g., ethnicity, criminal justice involvement) were represented as sets of dummy variables. Three dependent variables were predicted, first using the patient WAI data set and then using the therapist WAI data set. Frequency of cannabis use was measured as the number of days of use in the past 90 days. Substance-related problem behaviors were measured using the SPI.

RESULTS

Days of Cannabis Use

The results of the multiple regression analyses for the patient data are shown in Table 2. In the final regression models, alliance predicted frequency of use at three months ($\beta = -.14$, $p < .01$) and six months ($\beta = -.12$, $p < .05$) but not at any other time interval. The most consistent covariate contribution to post-treatment days of cannabis use was baseline substance use history. It predicted future frequency of use at three months ($\Delta R^2 = .13$, $p < .001$), six months ($\Delta R^2 = .10$, $p < .001$), nine months ($\Delta R^2 = .06$, $p < .001$), and 12 months ($\Delta R^2 = .06$, $p < .001$). Early post-treatment days of cannabis use was also predicted by therapist ($\Delta R^2 = .10, p < .001$). Statistics from the final model are presented in Table 2.

Both initially and after all covariates were entered, therapist WAI failed to predict days of cannabis use at three months ($\beta = -.06$, *ns*), six months ($\beta = -.12$, *ns*), nine months ($\beta = -.12$, *ns*), and 12 months ($\beta = -.03$, *ns*).

Substance Problem Index (SPI)

Within the patient WAI data, alliance predicted substance-related problem behaviors (SPI) at nine months ($\beta = -.10$, $p < .05$), but not at any other time point. Again, the strongest covariate contributor to future substance-related problems was baseline substance use history. It predicted SPI scores at three months ($\Delta R^2 = .31$, $p < .001$), six months ($\Delta R^2 = .27$, $p < .001$), nine months ($\Delta R^2 = .15$, $p < .001$), and 12 months ($\Delta R^2 = .12$, $p < .001$). Statistics from the final model are presented in Table 2.

Both initially and after all covariates were entered, therapist WAI failed to predict substance-related problems at three months ($\beta = .08$, *ns*), six months ($\beta = -.07$, *ns*), nine months ($\beta = -.02$, *ns*), and 12 months ($\beta = -.03$, *ns*).

Treatment Attendance

Within the patient WAI data, no covariates contributed to the prediction of the number of sessions in treatment in the five-week MET/CBT5 model, and alliance failed to predict number of sessions in the final model (Wald = .00, *ns*). Similar to the five-week model, neither alliance (Wald = .86, *ns*) nor any of the covariates predicted number of sessions in the 12-week models.

Within the therapist WAI data, a similar finding emerged. Neither alliance (Wald = .00, *ns*) nor any of the covariates predicted number of sessions in the five-week MET/CBT5 model. This was also the case with the longer treatments, although alliance approached significance in the final regression model (Wald = 3.03, $p = .08$).

DISCUSSION

The primary goal of this study was to test if patterns of early alliance identified in adult psychotherapy research were similar for adolescents in outpatient treatment for cannabis abuse or dependence. As the largest and most methodologically rigorous multi-site randomized clinical trial with substance-abusing adolescents, the results would seem to be a robust and reliable depiction of the role that alliance may play in the treatment of this population.

With respect to treatment outcomes, higher patient-rated alliance predicted fewer days of cannabis use at three and six months and less substance-related problem behaviors at six months. The present results are based on a more defined (e.g., early alliance) subset of data

TABLE 2. Significant predictors of days of cannabis use and substance problem index using patient alliance ratings at three, six, nine, and 12 months postrandomization

	ΔR^2			
Predictor	3 months	6 months	9 months	12 months
DV = Days of Cannabis Use				
Block 1: WAI	.03***	.01*	.00	.00
Block 2: patient characteristics	.02	.01	.01	.01
Block 3: therapist	.10***	.06	.07	.05
Block 4: patient-therapist match	.01	.00	.01	.01
Block 5: baseline substance use	.13***	.10***	.06***	.06***
Patient WAI total score	($\beta = -.14$)**	($\beta = -.12$)*	($\beta = -.03$)	($\beta = .04$)
DV = Substance Problem Index				
Block 1: WAI	.00	.00	.00	.00
Block 2: patient characteristics	.09***	.03*	.03*	.01
Block 3: therapist	.07*	.06	.09**	.04
Block 4: patient-therapist match	.01	.01	.00	.00
Block 5: baseline substance use	.31***	.27***	.15***	.12***
Patient WAI total score	($\beta = -.03$)	($\beta = -.10$)*	($\beta = -.07$)	($\beta = -.01$)

Note. Patient WAI total score presented after Block 5 is the effect of alliance in the final model. WAI = Working Alliance Inventory. Patient WAI ($n = 356$). Therapist WAI ($n = 349$).

*$p < .05$; **$p < .01$; ***$p < .001$.

reported in the Tetzlaff et al.[17] study that also found patient-rated alliance, measured any time during treatment, predicted relapse at three and six months. Important here is that, even when controlling for numerous ''third variables,'' alliance continues to predict a variety of treatment outcomes. However, when controlling for these variables, alliance accounted for a much smaller percentage of the variance, a finding consistent with the Project MATCH study.[4] Why this finding did not emerge on two different independent measures is unclear. Possibly, a significant reduction in use precedes a significant reduction in substance-related problem behaviors. That is, even if use abates, associated problems may continue to persist. However, it is promising that, like in adult psychotherapy, adolescent perception of alliance is predictive of treatment success on some indicators, at least early after treatment.

It is not surprising that patient-rated alliance did not predict outcomes beyond six months. While adolescents in the CYT study did get better, only 24% were not using at 12 months, and nearly 40% never benefited from treatment.[20] In contrast, pre-treatment levels of substance use strongly predicted outcomes at all time points. Although developing a strong alliance is important, other therapeutic elements (e.g., skills building, resource development, effective parenting, etc.) may be needed to reduce such a chronic and multifaceted problem as substance use.[31,32] In the end, adolescents with more severe problems may have needed longer or more intense treatment, but severity did not seem to impede alliance development.

Our second hypothesis predicted that patient-rated alliance would be a stronger predictor of outcome than therapist-rated alliance. We found that the correlation between therapist and patient alliance scores was .50, a relationship consistent with other studies in this area.[24,25] In contrast with the findings from the Shirk and Karver[5] review, patient-rated alliance appeared to be a stronger predictor of outcome than therapist-rated alliance. Similar to adult studies, it appears that early post-treatment outcomes are associated with adolescents' positive view of the tasks and goals of therapy, as well as the patient-therapist bond. In other words, if patients have bought into therapy, even if the therapist is unaware of this commitment, they are likely to have better outcomes.

Although patient-rated early alliance was associated with early outcomes, the relationships were not strong. Patient-rated alliance accounted for less than 3% of the variance for predicting outcomes at multiple time points. Treatment coercion and low motivation may be contributing factors.[33] In contrast to voluntary participation in many of the adult studies,[4,34] adolescents in CYT were often coerced into treatment by outside agencies and/or brought to treatment by their parents. In fact, 61% were referred by juvenile justice, schools, or other social systems, and 22% were referred by parents. These conditions may inflate alliance ratings when patients feel they need to appear compliant with treatment. Furthermore, most adolescents in the CYT study were not interested in reducing their marijuana use. Within this sample, 81% reported that, in general, their substance use was not a problem, and 74% denied needing services. Although

mandated treatment can be effective,[35] building early alliance and motivation for change remains a formidable task. This is particularly true for adolescents who began treatment with resistance to the typical tasks and goals of substance abuse treatment. It is possible that, for adolescents, measuring alliance later in treatment, after the battle for trust and goal congruence has been won (or lost), will capture a more accurate reflection of this process.[12] However, in the world of brief treatment, this solution may present a challenge.

We also examined if higher scores on early therapeutic alliance would predict treatment attendance. Neither patient-rated nor therapist-rated alliance predicted treatment attendance for either the five- or 12-week treatment models. The lack of impact alliance played on attendance was surprising given prior research findings,[13,30] although the study by Shelef and colleagues[18] found it was parents' alliance with the therapist that predicted treatment attendance. Unfortunately, a similar process was not evident in therapist ratings, despite the potential confound of therapist ratings to reflect their own negative attitudes about patients, which may inadvertently contribute to early termination. Therapist ratings did, however, approach significance in the longer (12-week) treatment models. In either case, further exploration of task, goals, and bonds as a therapist-rated assessment tool might improve prediction of dropout and identify target areas for focused intervention.

This study was not without limitations. First, patients who did not complete the WAI measure had more severe baseline and outcome scores. Therefore, we cannot generalize the current findings to the most severe adolescents in our sample. We can, however, speculate that more severe patients and/or their therapists are less compliant or concerned with research procedures. Second, the variation of when alliance was collected may have also biased the data, especially for those whose third session converted to a group treatment. Unfortunately, the logistics of collecting within treatment process data in a multi-site study can be challenging, given the many demands on staff. More tenacious commitment by investigators is required. Finally, we recognize that inflation of alpha exists whenever multiple analyses are performed. However, the fact that alliance scores operated in the predicted direction across multiple dependent measures at multiple time points argues against the results being spurious.

Even with the methodological and clinical confounds of this study, alliance predicted reduced cannabis use at three and six months. The methodological strengths of the CYT study give confidence to these results. The association of alliance and outcome in this substance-abusing, mostly delinquent population of adolescents challenges the common emphasis on confrontation as a therapeutic strategy with delinquent teens. In fact, treatments that employ a supportive (bond), collaborative (task), and personally meaningful (goal) approach to treatment can have benefits.[36] Consequently, the field could benefit from the development and comparison of early alliance-building techniques and strategies.[37,38] This line of research would also benefit from mixed-model investigations that use both qualitative and quantitative investigative strategies to better understand the adolescent perspective on what makes for an important therapeutic relationship. Despite the abundance of adolescents entering substance abuse treatment, only a few effective models have been developed to treat this population (see Williams & Chang[39] for a review). With attrition being one of the main barriers to treatment outcome,[40,41] a focus on engagement models seems warranted. This study suggests that the working alliance construct could make a contribution to such a research agenda.

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