Attachment History as a Moderator of the Alliance Outcome Relationship in Adolescents

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The role of the alliance in predicting treatment outcome is robust and long established. However, much less attention has been paid to mechanisms of change, including moderators, particularly for youth. This study examined the moderating role of pretreatment adolescent–caregiver attachment and its impact on the working alliance–treatment outcome relationship. One hundred adolescents and young adults with primary substance dependence disorders were treated at a residential facility, with a cognitive–behavioral emphasis. The working alliance and clinical symptoms were measured at regular intervals throughout treatment. A moderator hypothesis was tested using a path analytic approach. Findings suggested that attachment to the primary caregiver moderated the impact of the working alliance on treatment outcome, such that for youth with the poorest attachment history, working alliance had a stronger relationship with outcome. Conversely, for those with the strongest attachment histories, alliance was not a significant predictor of symptom reduction. This finding may help elucidate alliance-related mechanisms of change, lending support for theories of corrective emotional experience as one function of the working alliance in youth psychotherapy.

Keywords: working alliance, attachment, treatment outcome, mechanisms of change

The therapeutic alliance has a well-established history as a factor predicting treatment outcome across various treatment approaches. Findings are robustly replicated in >7,000 studies of adult psycho-

therapy, demonstrating an effect size of .275 (Horvath, Del Re, Flückiger, & Symonds, 2011). Compared with the adult literature, youth alliance research is sparse. However, it has grown exponentially over the past two decades, and findings replicate adult effects. For example, in a meta-analysis of studies with alliance measurement on par with investigation of adults, Shirk, Karver, and Brown (2011) found an alliance–outcome association of $r = .22$. Not only is the working alliance a robust predictor of symptom reduction, the alliance and therapeutic relationship are the areas identified as most important by youth practitioners (Kazdin, Siegel, & Bass, 1990), clients, and parents (Kendall & Southam-Gerow, 1995) and are the most frequently endorsed reason for discontinuing treatment (Garcia & Weisz, 2002).

Despite the evidence supporting the alliance–outcome link, much remains unknown about mechanisms of change. Viewed by some as curative in and of itself, and by others as a necessary, but insufficient, condition to allow techniques to have their effect, the influence of the alliance is differently conceived depending on treatment orientation. Moreover, we possess limited knowledge regarding the factors that may mediate and moderate the alliance–outcome correlation (Castonguay, Constantino, & Holtforth, 2006; Shirk & Karver, 2011).

Moderators of Youth Alliance

Findings from meta-analysis suggest that the youth alliance–outcome relationship is likely moderated by a variety of factors, with preliminary evidence for client variables, including age and presenting problem (Shirk & Karver, 2011), as well as therapist behaviors, such as collaborative language versus emphasizing common ground or pushing the child to talk (Creed & Kendall, 2005). Given that alliance is characterized as a relationship variable, client characteristics related to the ability to form adaptive and trusting social relationships are good candidates for moderators of the alliance–outcome relationship (Eltz, Shirk, & Sarlin, 1995). The goal of this study was to further our knowledge of interpersonal mechanisms by investigating attachment history as a potential moderator of the alliance–outcome relationship in youth.

Attachment

According to attachment theory, infants form expectations about others based on their early experiences of caregivers. Consistent and sensitive attention to the infant's needs molds the affective bond with the caregiver and builds a representation of their relationship that helps the developing child achieve a feeling of safety and security in the world; this operates as a template for future relationships (Bowlby, 1980). In as much as the therapeutic alliance is a relationship, it could be expected that it too may be affected by client attachment history. Within the adult literature, client attachment history has been linked to both quality of alliance and to treatment outcome (see Diener and Monroe (2011); Smith, Msetfi, & Golding, 2010 for review and meta-analysis). In the youth psychotherapy literature, links have been theoretical (Liddle & Schwartz, 2002; Poa, 2006; Shirk & Saiz, 1992) though attachment has been targeted for change in adolescent treatments (Diamond, Siqueland, & Diamond, 2003; Johnson, Maddeaux, & Blouin, 1998; Sexson, Glanville, & Kaslow, 2001). To date, the role of pretreatment attachment history as an adolescent client variable moderating the therapeutic process has received little attention, with the exception of one family therapy study (Johnson, Ketering, Rohacs, & Brewer, 2006). In addition, although attachment has been traditionally assessed in studies using psychodynamic treatment approaches, it has not received considerable empirical attention in cognitive–behavioral or other approaches in which the relationship is not the hypothesized mechanism of action.

This study sought to establish the predictive validity of attachment history on alliance and outcome overall, and examine whether in instances in which the risk of poor attachment is overcome, this results in a greater positive effect of alliance on outcome. In investigating the potential moderating role of attachment history, this study was guided by the recommendation of Weisz regarding methodological design. Weisz (2000) has argued that to best understand client variables that moderate treatment outcome, research must be conducted in naturalistic settings. Such studies offer the advantage of more accurately reflecting the types of clients seen by the majority of practicing clinicians. Moreover, given that studies conducted in naturalistic settings have been shown to have clients with more severe pathology, comorbid disorders, and barriers to treatment (Southam-Gerow, Weisz, & Kendall, 2003), they are likely to better capture a full range of interpersonal attachment history.

We predicted a small-to-moderate positive relationship between alliance and outcome, in keeping with existing studies. Poor attachment history was predicted to have a negative impact on both alliance and outcome individually. In addition an interaction effect was expected, such that for youth with poorer pretreatment attachment, a positive alliance would be more strongly associated with outcome. This was thought to be the case because adolescents with poor pretreatment relationships are more likely to come to therapy with negative expectations of and poorer skill with relationships more broadly and, thus, a predisposition toward poorer alliances. A positive alliance, although harder to form under these conditions, is likely to constitute a more significant corrective emotional experience and, thus, to have a stronger effect on outcome. Identifying the characteristics of clients that make them more likely to struggle with forming an alliance to their primary therapist offers the potential advantage of helping clinicians to understand at the outset which adolescents may require greater attention to engage in treatment, and sets the stage for studies that would determine how interventions can best be tailored to these more challenging youth.

Method

Participants

Adolescents and young adults entering treatment at a residential substance abuse care facility over a 6-month period were invited to participate in ongoing research throughout their stay. During the study period, 139 patients entered treatment; all provided informed consent and were assessed and admitted into the study. However, 39 of these patients subsequently left treatment against medical advice. A total of 100 clients between the ages of 11 and 25 years ($M = 17.39$, $SD = 2.30$) completed treatment and were included in the study analyses; 68% were male and 89% were heterosexual. A CONSORT flowchart, shown in Figure 1, details completion of study components and assessment measures by participants.

The majority of the client sample identified as Caucasian (84%), followed by Hispanic (6%), African American (1%), Native American (1%), and Other (8%). All patients carried a primary substance dependence diagnosis, with symptoms of conduct disorder being the most frequent secondary problem, followed by anxiety, attention deficit hyperactivity disorder (ADHD), and depression.

Therapists

Therapists included 15 clinicians (5 males, 10 females) with a range of 1 to 13 years of treatment experience ($M = 4.53$ years, $SD = 4.41$), and a mean age of 35.27 years ($SD = 9.93$). Five therapists had a M.A. or M.S.W. degree. All but two therapists had a B.A. or A.A., with one of these two therapists being a Licensed Chemical Dependence Counselor with over a decade of treatment experience, and the other therapist a Chemical Dependency Counselor Intern. Three therapists were Chemical Dependency Counselor interns, seven therapists were
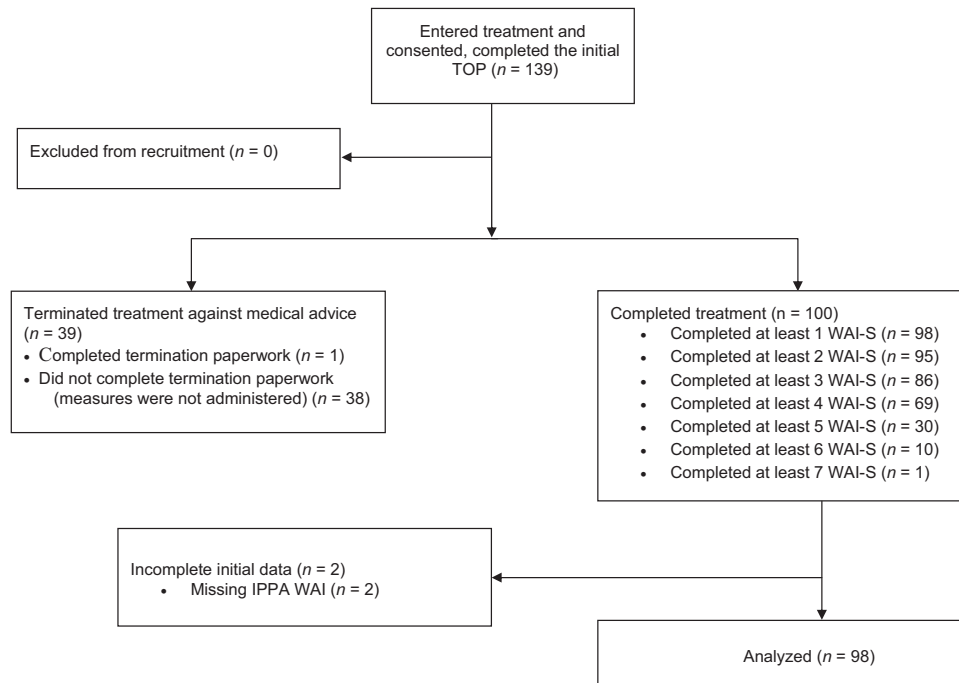
Figure 1. Flow diagram.

Licensed Chemical Dependency Counselors, three therapists were Master's level counselors, and two therapists were Master's level counselor interns with a B.A. Clinicians received 6 hours of supplemental training and ongoing supervision and competency evaluation (8 to 12 additional hours annually) in rational emotive behavioral therapy (REBT) by a Licensed Psychologist holding an Advanced Certificate in REBT from the Albert Ellis Institute.

Treatment

REBT adapted for adolescents (Adelman, 2007) was provided on a daily basis as part of an integrated program that encompassed individual and group counseling, as well as therapeutic recreational, vocational, and life skills; medical/nursing; and 12-step study groups. In addition, a 3-day intensive family program composed of chemical education, family systems, and multifamily therapy occurred on a monthly basis. Treatment length was naturalistically determined by factors such as clinical need, family collaboration, and insurance limitations. The average length of treatment was 43.44 days (SD = 18.42, range = 10–96).

Procedures

Youth were administered pretreatment self-report measures assessing symptoms and functioning with the *Treatment Outcome Package (TOP*; Kraus et al., 2005) and attachment relationship to caregivers and peers with the *Inventory of Parent and Peer Attachment (IPPA*; Armsden & Greenberg, 1987). The working alliance to the primary therapist was assessed via youth self-report using the *Working Alliance Inventory—Short Form*

(WAI-S; Tracey & Kokotovic, 1989). All self-report measures were administered by staff. Patients were informed that therapists were not privy to the results during the course of the study; all patients provided informed consent to have their data included in the study.

Measures

Treatment outcome package. The TOP was designed as a measure of treatment outcome to be used in naturalistic settings and was developed in accordance with the recommendations for Universal Core Batteries (Horowitz, Strupp, Lambert, & Elkin, 1997). Child, adolescent, and adult versions of the measure have been created; the Adolescent (ages 12–17) and Adult (18 and older) versions were used in the current study. The TOP has undergone repeated refinement based on confirmatory factor analysis, item analysis, and studies of test–retest reliability, convergent, discriminant, and criterion validity, piloting, and feedback (Kraus, Seligman, & Jordan, 2005). The revised Adolescent version is a 58-item symptom checklist resulting in 10 subscales: attention, conduct, depression, interpersonal functioning, panic, psychosis, school, sleep, suicidality, and violence/temper. The Adult version has the same number of items (58 items), with 11 scales corresponding to: depression, panic, cognitive disturbances/psychosis, mania, suicidality, violence, social functioning, work functioning, sleep, quality of life, and sexual functioning. The TOP total score for both the Adolescent and Adult versions was used as the outcome variable in this study. TOP items correspond to the stem "How much of the time during the past two weeks have you . . . " and are rated on a 6-point scale from "none" to "all." For the TOP total score

calculation, item ratings were reversed scored and summed so that higher scores indicated better health (possible raw range between 58 and 348). Means for clinical samples have been established in a validity study, $M = 241.42$, $SD = 12.94$ (Boswell, Kraus, Nordberg, & Castonguay, 2009). Normative means may be obtained from TOP author, David Kraus.[1] The TOP symptom items were designed to reflect Diagnostic and Statistical Manual of Mental Disorders-IV (DSM) Axis I symptoms that were deemed measurable by self-report (Kraus et al., 2005).

Good psychometric properties have been demonstrated for the Adult version of the measure. Test–retest reliability for the Adult TOP ranges from $r = .87$–$.94$. The TOP total score has been found to have good convergent validity with well-established outcome measures, including the Brief Symptom Inventory (BSI; $r = -.91$) and Behavior and Symptom Identification Scale (BASIS)-32 ($r = -.89$; Boswell, Kraus, Nordberg, & Castonguay, 2009). The factor analytic structure of the Child TOP has also been studied (Kraus, Boswell, Wright, Castonguay, & Pincus, 2010). Concurrent validity of the Adolescent version of the TOP is currently undergoing evaluation. Coefficient alpha for this sample was $\alpha = .94$. All Adolescent TOP data are processed centrally (by outcome referrals), and transformed into z-scores indicating clinically significant severity based on a general population of adolescents. The z-score calculations were derived from a sample consisting of >600 adolescents in two representative school districts in the United States. For this study, we started with the raw TOP total scores for both the Adolescent and Adult versions. Standardized scores (described below) were only used for inferential analyses.

Working Alliance Inventory—Short Form. The WAI (Horvath & Greenberg, 1986) is the most widely used of the adult self-report measures tapping client, therapist, and observer perspectives of the client–therapist alliance. This measure has been used in >100 published empirical studies and several meta-analyses (Busseri & Tyler, 2003). For adolescents, there is no agreed upon gold standard measure of the alliance (Shirk & Karver, 2011); however, the two most commonly used measures are the WAI and the Therapeutic Alliance Scale for Children (TASC; Shirk & Saiz, 1992). The WAI has been used with adolescents and was modified for the 11–18-year-old age range through downward extension with promising initial findings (DiGuiseppe, Linscott, & Jilton, 1996). Given the paucity of research demonstrating clear superiority of any particular youth alliance measure, the WAI-S was used, as it has been well-normed and widely used for the upper age range of the current sample and has been successfully used in at least one study with younger adolescents (Wintersteen, Mensinger, & Diamond, 2005).

The WAI was developed by Horvath and Greenberg (1986) to assess three dimensions of the therapeutic relationship as conceptualized by Bordin—client and therapist (a) agreement on goals (goals), (b) agreement on how to achieve these goals (tasks), and (c) affective relationship (bond). The original 36-item questionnaire is rated using a 7-point likert scale, with items mapping on to a global alliance dimension as well as the three component subscales of goal, task, and bond. Confirmatory factor analysis by Tracey and Kokotovic (1989) found validity for this bilevel model. These authors also created a 12-item short version of the WAI

(WAI-S) by taking the four items that loaded most strongly on each of the three factors. They found that this 12-item brief measure retained the same structure and subscales as the longer version. Both the long and short forms of the WAI have been widely used with adult populations. Internal consistency is strong with alphas of .83–.98. Content validity has also been supported through expert rater agreement on the items' reflection of the three main constructs, as well as data analytic methods. The interchangeability of the WAI and the WAI-S was evaluated in a direct comparison study by Busseri and Tyler (2003) who found equally good test–retest reliability, concurrent validity, and predictive validity for therapeutic improvement using both measures. They conclude that the WAI-S may actually be preferable to the WAI, given its greater ease of administration and equally strong psychometric properties measure.

Shirk and Karver (2011) identified four recently published studies that used the WAI-S in an adolescent substance abuse population (Auerbach et al., 2008; Darchuk, 2007; Diamond et al., 2006; Tetzlaff et al., 2005). Auerbach et al. (2008) reported a mean total score (client report) of 5.31 ($SD = 1.37$). Tetzlaff et al. (2005) reported marginal means for multiple relapse groups at three months after treatment initiation. The average score (client report) between the groups was $M = 5.87$ ($SE = 1.53$). Darchuk reported a mean WAI-S at session three of 6.48 ($SD = .58$). Diamond et al. (2006) did not report WAI-S descriptive information. As a whole, these studies found that the WAI-S demonstrated excellent internal consistency for the total scale ($\alpha > .90$) in adolescent samples, and the direction and magnitude of the relationships with outcome were consistent with what has typically been found in the adult population (weighted mean r between .12 and .25; see Shirk & Karver, 2011). However, Diamond et al. (2006) did not find support for the three-factor working alliance model (goals, tasks, and bond) in a relatively large adolescent sample. Consequently, we chose to focus on the WAI-S total score and overall scale means in our analyses. Coefficient alpha for this sample was $\alpha = .92$.

Inventory of Parent and Peer Attachment. The IPPA was developed by Armsden and Greenberg (1987) as a self-report measure assessing security of attachment to parents and peers. The measure was modeled after Bowlby's theory of attachment, suggesting that human beings at any age are most well-adjusted when they have confidence in the accessibility and responsiveness of a trusted other. The IPPA expands on an earlier measure by Greenberg, Siegal, and Leitch (1984) by adding an affective/cognitive dimension to the earlier behavioral measure. The IPPA was developed on undergraduate students with an age range of 16 to 20 years. The measure is a 60-item self-report rated on a 5-point likert scale from "Almost Never or Never" to "Almost Always or Always." Three factors were found for the parent questions, accounting for 92% of the total variance; these factors were interpreted as Trust (10 items), Communication (10 items), and Alienation (8 items). Three parallel factors were found for the peer questions explaining 84% of the total variance and were interpretable in the same manner. Factor loadings ranged from .45 to .75 but were sufficiently interrelated to

suggest that a unifactorial measure of security–insecurity along a single dimension may be more appropriate than use of the subscales. The IPPA measure of security–insecurity was found to predict adolescent well-being, affective status, life satisfaction, self-esteem, negative life events, and family and peer utilization and self-disclosure in times of stress (Armsden & Greenberg, 1987). Together parent and peer attachment accounted for 37% variance in self-esteem and 22% variance in life satisfaction scores. Peer attachment was more highly related to self-esteem than life satisfaction, while parent attachment was highly related to both. Three-week test–retest reliability was $r = .93$ for Parent Attachment and .86 for Peer Attachment.

The most recent version of the IPPA, which was used in this study, includes separate subscales for mothers and fathers (i.e., Caregiver 1 and Caregiver 2). This version and scoring approach is the one recommended by Greenberg & Armsden, (2009). As noted above, the IPPA was originally developed and validated in nonclinical adolescent and youth samples. However, this measure also performs adequately in clinical samples, and attachment scores have been linked to levels of pathology in clinical samples (Greenberg & Armsden, 2009, http://prevention.psu.edu/pubs/documents/IPPAmanual0809.pdf). For example, less secure attachment on the IPPA has been related to the presence of major depressive disorder, parent ratings of adolescents' depressive symptoms, and patients' self-ratings of depression (Armsden, Mc-Cauley, Greenberg, Burke, & Mitchell, 1991). Coefficient alpha for Caregiver 1 in this sample was $\alpha = .94$; Caregiver 2 was $\alpha = .95$; Peer was $\alpha = .94$. In a normative adolescent sample (McKinney, 2002), the mean Mother/Caregiver 1 Attachment score for the IPPA was 102.92 ($SD = 15.58$); the mean Father/Caregiver 2 Attachment score was 93.56 ($SD = 20.15$); $M = 60.7$, $SD = 16.2$; the mean score for Peer Attachment was 103.36 ($SD = 14.92$). These results are similar to another normal sample investigated by Coleman (2003). In an adolescent inpatient sample, DiFilippo and Overholser (2000) reported an average Parent Attachment score of 77.27 ($SD = 23.93$) and average Peer Attachment score of 96.58 ($SD = 19.80$). We were unable to find descriptive IPPA data using the Mother/Caregiver 1, Father/Caregiver 2, Peer approach for isolated outpatient or substance treatment samples.

Repeated measurement. The TOP was administered repeatedly throughout treatment at ~2-week intervals (range = 1–7 observations). The average number of days between the first and second TOP administration was 17.79 days ($SD = 4.85$); second and third TOP administration was 18.44 days ($SD = 6.27$); third and fourth TOP administration was 14.62 days ($SD = 8.2$ days); fourth and fifth TOP administration was 15.62 days ($SD = 9.72$); fifth and sixth TOP administration was 11.10 days ($SD = 8.95$); sixth and seventh TOP administration was 11.10 ($SD = 9.11$). The average number of days between the initial TOP administration and the last observation was 43.44 days ($SD = 18.42$, range = 10–96). The WAI was also administered repeatedly within the first week of treatment and approximately every 2 weeks thereafter (range = 1–7 observations). The average initial WAI administration was 5.88 days ($SD = 3.67$) days into treatment. The average number of days between the first and second WAI administration was 17.57 days ($SD = 7.13$); second and third WAI administration was 13.75 days ($SD = 10.93$); third and fourth WAI administration was 10.0 days ($SD = 10.84$); fourth and fifth WAI administra-

tion was 12.06 days ($SD = 11.3$); fifth and sixth WAI administration was 14.53 days ($SD = 13.92$); sixth and seventh WAI administration was 17.0 days ($n = 1$).

Results

Preliminary Analyses

Missing data. As is commonly the case in naturalistic treatment research involving repeated assessments, missing data were present for some cases. A missing value analysis was conducted to examine the nature of the missing data (Little & Rubin, 2002). In addition to observed scores, several variables (e.g., gender, ethnicity, initial severity on the TOP) were included in these analyses, to assist in the detection of patterns and determine if the data were missing completely at random (MCAR), missing at random (MAR), or not missing at random (NMAR). Most scale items had <5% missingness (Tabachnick & Fidell, 2007). Although a visual inspection of the patterns indicated more missing values at later time points, Little's MCAR test for the WAI scores was nonsignificant, $\chi^2 (43) = 43.42$, $p = .41$, indicating that the data were likely MAR or MCAR. Similar results were observed for the IPPA, $\chi^2 (14) = 15.43$, $p = .35$, and TOP, $\chi^2 (52) = 66.85$, $p = .08$. To further explore the nature of the missing data on the TOP, we calculated a Spearman's rank correlation between the number of observations for each individual and his or her initial TOP score. The correlation was nonsignificant ($r_s = -.20$, $p = .09$), and the direction of the relationship trend indicated that participants who began treatment with lower severity had fewer TOP observations. This trend would be expected in a naturalistic treatment setting where less severe cases are likely to be discharged sooner. Given that the missing data could be characterized as random, we decided to conduct our analysis with observed data (rather than rely on estimation or imputation), and used the last TOP observation carried forward as the outcome indicator, which is common practice in naturalistic outcomes research.

TOP version. Although most of the clients who enter this treatment program are adolescents (≤18 years old), young adults (e.g., 18–25 years) also receive services. Study clients who were under the age of 17 years completed the Adolescent version of the TOP throughout their participation, while participants who were ≥18 years completed the Adult version of the TOP. A total of 38 participants in this study were assessed with the Adult version of the TOP. The specific differences between the Adolescent and Adult versions were described above. Rather than focus on specific subscales, we used the TOP total score as our outcome variable. Along with calculating standardized scores for each version, we viewed this approach as optimizing comparability. We conducted a MANOVA to test for any differences in both initial and last observation severity between the two versions of the TOP. Results indicated that the levels of baseline severity were not significantly different, $F(1, 98) = 1.76$, $p = .19$, $\eta_p^2 = .02$, between the Adolescent TOP ($n = 62$, $M = 259.8$, $SD = 42.19$) and Adult TOP ($n = 38$, $M = 249.2$, $SD = 33.62$). However, there was a significant difference in the severity of last observation scores between the two versions, with the average Adolescent TOP scores ($n = 62$, $M = 311.9$, $SD = 17.58$) being higher than the average Adult TOP scores ($n = 38$, $M = 299.6$, $SD = 19.54$), $F(1, 98) = 8.83$, $p < .01$, $\eta_p^2 = .08$.

Because the effects of the TOP version could be confounded with age, we examined the relationship between age and TOP version. As would be expected, participants who completed the Adult version of the TOP were older ($M = 19.0$, $SD = 2.05$) than those who completed the Adolescent version ($M = 16.0$, $SD = 1.17$), $F(1, 89) = 121.88$, $p < .001$. Regression analyses indicated that age was unrelated to baseline severity, $R^2 = .01$, $b = -.10$, $t(89) = -0.95$, $p = .34$, CI -5.55 to 1.95; nor was age related to the severity of the TOP at the last observation when controlling for baseline severity, $R^2 = .02$, $b = -.16$, $t(88) = -1.58$, $p = .12$, CI -3.05 to 0.35. Therefore, in addition to using standardized scores, we included TOP version as a categorical covariate in subsequent inferential analyses. For inferential analyses, raw TOP total scores for each version were respectively converted to z-scores. These were calculated by taking the difference between the observed TOP total score and the respective version's mean TOP total score in the sample, and dividing it by the version's standard deviation in the sample.[1]

Therapist Differences

We conducted a series of ANOVAs to examine potential differences between therapists in the sample on the WAI-S, TOP, and IPPA. ANOVA results indicated no significant differences between therapists on any study variable (ps ranged between .10 [initial TOP total score] and .98 [IPPA Caregiver 1 score]).

Descriptive Statistics

The means and standard deviations for initial and last observation on the TOP, WAI, and IPPA are presented in Table 1. We then calculated a series zero-order correlation coefficients to examine the relationships between the working alliance, outcome on the TOP, and attachment. Most of the alliance observations were significantly correlated (average $r = .42$), so we used the average alliance score for each participant in this and subsequent analyses. These correlations are presented in Table 2. Both the average WAI score and the attachment score for the primary

Table 1
Descriptive Statistics for Major Study Variables

	Mean	SD	Minimum	Maximum
Baseline TOP ($n = 100$)	255.82	39.32	159.00	324.00
Post TOP ($n = 100$)	306.59	19.06	221.00	331.00
WAI Time 1 ($n = 95$)	5.14	1.34	2.00	7.00
WAI Time 2 ($n = 98$)	5.67	0.98	2.42	7.00
WAI Time 3 ($n = 86$)	5.76	0.88	3.75	7.00
WAI Time 4 ($n = 69$)	5.89	0.92	2.83	7.00
WAI Time 5 ($n = 30$)	5.98	0.78	3.92	7.00
WAI Time 6 ($n = 10$)	4.62	0.98	2.83	7.00
Average WAI	5.63	0.74	3.65	7.00
IPPA Caregiver 1 ($n = 91$)	90.87	20.18	34.00	124.00
IPPA Caregiver 2 ($n = 85$)	87.51	22.87	28.00	125.00
IPPA Peer ($n = 78$)	95.64	19.68	39.00	122.00

Note. We did not include data for the one participant who completed a seventh WAI. TOP = Treatment Outcome Package, higher scores reflect *better* functioning; reported TOP scores are "raw" total scores; WAI = Working Alliance Inventory (client report), higher scores reflect stronger alliance; IPPA = Inventory of Parent and Peer Attachment, higher scores reflect stronger/more secure attachment.

caregiver were significantly correlated with the last observation of the TOP ("Post-TOP"). Average WAI was also significantly correlated with the attachment score for the secondary caregiver, and the attachment scores for the primary and secondary caregivers were significantly correlated.

Alliance and Outcome

We conducted a regression analysis to examine the relationship between average alliance score and outcome (last observation on the TOP). This analysis also controlled for baseline severity on the TOP and TOP version. A statistically significant relationship between alliance and outcome was observed, $R^2 = .10$, $b = .31$, $t(97) = 3.44$, $p < .01$, CI $= 3.27$–12.20, $pr = .34$, indicating that higher alliance scores were associated with less symptom severity at the last TOP observation.

Moderator Analyses

As a preliminary step, we examined both linear and curvilinear relationships between working alliance and the last observation on the TOP. Results indicated that a linear trend best fit the data ($R^2 = .10$, $b = .30$, $t(97) = 2.85$, $p < .01$), once again showing that higher alliance scores were associated with better outcome. The moderator analyses were conducted in SPSS using the PROCESS macro developed by Hayes (2012; Hayes & Matthes, 2009). This is a path-analysis approach to moderation that simultaneously models multiple conditional effects using ordinary least squares regression for continuous outcomes. Bootstrap bias-corrected confidence intervals (95%) are estimated to guide inference, where nonzero overlapping confidence intervals indicate a significant effect. Also aiding in interpretation, conditional effects are estimated at different levels of the moderator, which indicates the point the effect of the moderator (i.e., attachment) becomes no longer significant. For the present model, we tested conditional effects of average alliance on outcome moderated by attachment. Alliance and attachment were mean centered, and TOP version and initial TOP score were included in the model as covariates. We tested three separate models—one for each IPPA subscale (Caregiver 1, Caregiver 2, and Peer). Results from the IPPA Caregiver 1 model were significant and are presented in Table 3 ($R^2 = .41$, $F(5, 85) = 6.30$, $p < .01$). The interaction effect for IPPA $\times$ WAI$_{ave}$ was nonsignificant for both the IPPA Caregiver 2 (IPPA $\times$ WAI$_{ave}$ $b = 0.001$, $SE = 0.001$, df $= 84$, $t = -0.92$, $p = .36$, CI $= -0.01$ to 0.01) and IPPA Peer (IPPA $\times$ WAI$_{ave}$ $b = 0.001$, $SE = 0.001$, df $= 77$, $t = 0.07$, $p = .94$, CI $= -0.01$ to 0.01) models. Therefore, we focus on the results of the IPPA Caregiver 1 model below.

In the moderator model examining the effect of attachment to Caregiver 1, significant main effects were observed for both the average WAI and IPPA scores. More positive alliance and attachment scores were, respectively, associated with lower levels of severity on the TOP at the last study observation. However, the interaction between WAI and IPPA Caregiver 1 was also significant, indicating a significant moderator effect. Specifically, the relationship between working alliance and outcome was conditional on client attachment measured at baseline. Table 4 presents the conditional effects of the WAI on outcome at different levels of attachment. These data indicated that the relationship between

Table 2

Pairwise Correlations Between Major Study Variables

	Baseline TOP	Post TOP	Average WAI	IPPA Caregiver 1	IPPA Caregiver 2	IPPA Peer
Baseline TOP ($n = 100$)	—					
Post TOP ($n = 100$)	.36*	—				
Average WAI ($n = 98$)	−.08	.28*	—			
IPPA Caregiver 1 ($n = 91$)	.17	.39*	.37*	—		
IPPA Caregiver 2 ($n = 85$)	.01	.18	.37*	.62*	—	
IPPA Peer ($n = 78$)	−.06	.13	.14	.13	.04	—

Note. Cases with missing data were excluded for each calculated correlation coefficient, so the number of participants in each calculation reflects the lower of the two variables. For example, correlations with IPPA Peer scores reflect $n = 78$. TOP = Treatment Outcome Package; WAI = Working Alliance Inventory (client report); IPPA = Inventory of Parent and Peer Attachment.
* $p < .01$.

working alliance and outcome was significant only when lower levels of attachment were present. In other words, for clients with higher levels of attachment, the relationship between alliance and outcome was not significantly different from zero (see Figure 2).

Discussion

The primary goal of this study was to solidify and expand our knowledge of the alliance in youth treatment. Specifically, we aimed to (a) examine the relationship between alliance and treatment outcome within a naturalistic treatment setting; (b) explore attachment as a potential interpersonal moderator of this relationship; (c) investigate whether attachment, traditionally thought to be a psychodynamic construct, might operate in a common factors manner in a CBT treatment.

Our findings replicated the established alliance–outcome link demonstrated in youth psychotherapy meta-analysis (Shirk & Karver, 2011); stronger alliance was associated with greater symptom reduction at the end of treatment, a small to moderate effect. In addition, we hypothesized that this relationship would be moderated by clients' pretreatment attachment histories. As predicted, poorer attachment to caregivers was negatively associated with alliance scores and treatment outcome individually. However, the predicted interaction effect was also supported, such that the alliance–outcome relationship conditionally held true only for those youth with poorer pretreatment attachment to their primary caregiver. As attachment scores improved (i.e., became more secure), the alliance–outcome correlation weakened, and for those

with the strongest attachment history, the alliance–outcome correlation was essentially zero. Our hypothesis was based on the theory that adolescents with poorer pretreatment relationships are more likely to enter treatment with negative expectations of and poorer skill with relationships more broadly and, thus, a predisposition toward poorer alliances. A positive alliance, although harder to form under these conditions, is likely to constitute a more significant corrective emotional experience for these clients and, thus, to have a stronger influence on outcome. Although this explanation was not causally demonstrated in the current study, the findings offer preliminary support for this hypothesis. Interestingly, neither pretreatment attachment to peers nor to the secondary caregiver was associated with treatment outcome, suggesting, in line with Bowlby (1980), that it is the attachment to the primary caregiver that forms the secure base and the internal working model.

This conditional finding has potential implications for intervention, as it suggests possible utility in providing additional focus on alliance building, maintenance, and repair for those youth with poorer pretreatment attachment histories, and may also suggest a benefit to matching those clients with the poorest attachment histories to advanced therapists. Although therapist training has been generally unrelated to treatment outcome, Kivlighan and colleagues (1998) found that, for adults, the alliance was moderated by therapist skill with those clients who

Table 3

Results of Model Testing Conditional Effect of Alliance on Outcome When Including Interaction With Attachment

	Coefficient	SE	t	LLCI	ULCI
TOP version	−0.56	0.18	−3.03**	−0.92	−0.19
Initial TOP	0.33	0.12	2.77**	0.09	0.57
IPPA Caregiver 1	0.25	0.08	2.60**	0.11	0.40
Average WAI	0.02	0.01	2.59*	0.01	0.04
IPPA × WAI	−0.03	0.01	−3.06**	−0.05	−0.01

Note. $N = 91$. TOP = Treatment Outcome Package; IPPA = Inventory of Parent and Peer Attachment; WAI = Working Alliance Inventory; IPPA and WAI scores were mean centered. CI = 95%.
* $p < .05$. ** $p < .01$.

Table 4

Conditional Effect of Alliance on Outcome at Different Levels of Attachment

IPPA Caregiver 1	Percentile	Effect	SE	t	LLCI	ULCI
−1.42	10th	0.07	0.02	3.55**	0.03	0.11
−0.67	25th	0.04	0.01	3.50**	0.02	0.07
0.08	50th	0.02	0.01	2.35*	0.01	0.04
0.78	75th	−0.01	0.01	−0.20	−0.02	0.02
1.21	90th	−0.02	0.01	−1.19	−0.04	0.01

Note. $N = 91$. Scores were centered such that lower scores indicate more impaired attachment. CI = 95%. Percentile = relative rank of working alliance score such that a higher percentile is indicative of more positive alliance. The effect is on the TOP total score at the last observation. IPPA = Inventory of Parent and Peer Attachment.
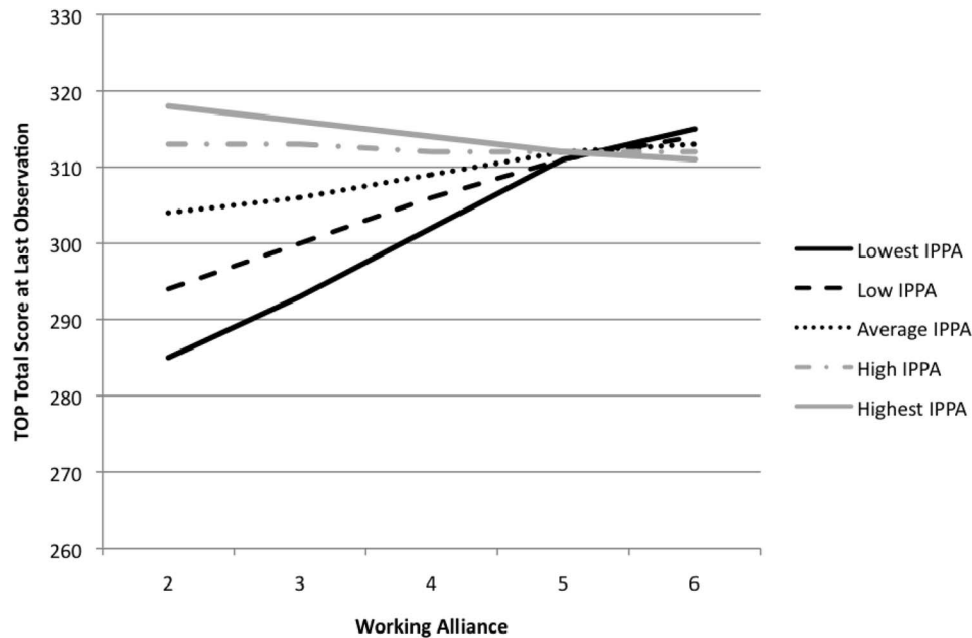* $p < .05$. ** $p < .01$.

Figure 2. Conditional effect of alliance on outcome at different levels of attachment ($N = 91$). Higher TOP total scores are indicative of better functioning. The relationship between working alliance and outcome is significant and more robust with clients who reported more impaired levels of attachment. As client-reported attachment to caregiver increases, the relationship between working alliance and outcome becomes no longer statistically significant.

have discomfort with intimacy, but not for clients with more secure attachment histories. Although that study did not examine effects on treatment outcome, our findings suggest that the ability to form a strong working alliance in the face of poor attachment history is directly associated with outcome. Moreover, adolescent clients have been found in meta-analyses to benefit significantly more from treatment by professionals as opposed to paraprofessionals (Weisz et al., 1995), which may be related to the greater ability of professionals to form an alliance with characteristically more difficult and resistant clients. The IPPA is a brief and easy to administer self-report measure; if it can identify at pretreatment those patients who are likely to struggle with forming a working alliance with their primary therapist, it offers the potential advantage of helping clinicians to understand, before treatment begins, which adolescents may require greater efforts to engage in treatment. This also sets the stage for studies that could determine how interventions can best be tailored to these more challenging youth.

Additionally, this study supports the shift from thinking of attachment as a construct only relevant to psychodynamic therapy to consideration of attachment as a common factor (Connors, 2011) or a "faux-unique" variable (Castonguay, 2011, 2013). In the context of a cognitive–behavioral therapy, pretreatment attachment was found to meaningfully predict the strength of the alliance–outcome relationship, which might be more traditionally expected in studies that posit the relationship or corrective interpersonal experience as the mechanism of change.

There are several limitations to consider when interpreting the results of this study. First, given the naturalistic study design, treatment length and, thus, therapeutic dose was variable among patients and was likely established by a variety of factors including patient improvement, family variables, insurance or financial limitations, and patient drop-out. Additionally, although all staff were trained in REBT, our study lacked fidelity and adherence checks to confirm that this was the predominant mode of individual treatment provided by psychotherapists, limiting the strength of our conclusion that attachment, originating as a psychodynamic construct, was found to act as a common factor in this study involving a CBT intervention. The naturalistic design, although offering strengths with relation to generalizability of findings, also limits our ability to draw causal conclusions regarding our moderator findings, but acts as a strong preliminary finding to argue for the testing of this hypothesis within the context of a randomized clinical trial.

Also unknown is the generalizability of these findings to children, as participants in the present study ranged from preadolescent to young adult. Findings to date have been mixed as to the effect of age in youth alliance–outcome studies, with most recent meta-analytic findings indicating marginally stronger alliance–outcome links in studies of child than adolescent therapy (Shirk & Karver, 2011). Another limitation of this study is that we did not employ multilevel modeling to account for potential therapist effects. The results may have, at least partially, been accounted for by differences between therapists in the sample. Although ANOVA results did not support between-therapist differences on the study variables, this method does not adequately account for both between- and within-therapist variance. If possible, we recommend that future research in this area use a larger sample of therapists and account for therapist-level variability in the data analytic approach.

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