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The Effect of Therapeutic Alliance on Dropout in Cognitive Processing Therapy for Posttraumatic Stress Disorder

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A substantial number of individuals who undergo cognitive processing therapy (CPT) for posttraumatic stress disorder (PTSD) drop out before receiving a full course of treatment. Therapeutic alliance, defined as the working relationship between the therapist and client, is a dynamic process within therapy that may change over time. Research suggests that therapeutic alliance is associated with dropout in various treatments. However, no studies have yet examined the association between therapeutic alliance and dropout in CPT, and few studies have examined therapeutic alliance longitudinally over the course of treatment. Examining alliance in CPT through different methods may increase clinicians' understanding of how to tailor interventions to prevent treatment dropout. The present study examined the association between therapeutic alliance and treatment dropout among 169 participants in a randomized implementation effectiveness trial. In total, 33.1% of clients dropped out over the course of CPT, and nearly half of these individuals dropped out during the first six sessions. Continuous-time survival analysis results indicated that mean ratings of alliance significantly predicted treatment dropout, Wald $\chi^2(1, N = 167) = 4.08$, $\text{Exp}(\beta) = .64$, $p = .043$, whereas initial alliance, late alliance, and change in alliance over treatment did not. These findings suggest that overall therapeutic alliance is an important predictor of dropout from CPT.

Left untreated, posttraumatic stress disorder (PTSD) is a pernicious and debilitating condition that is associated with multiple individual and societal costs (Kessler, 2000; Van Amerigen et al., 2008). Fortunately, efficacious treatments have been developed for treating PTSD, including cognitive processing therapy (CPT; Resick et al., 2017), which is recommended as a first-line evidence-based treatment for the disorder (American Psychological Association, 2017; Bisson et al., 2019; Veterans Health Administration & Department of Defense, 2017). Although CPT has been found to produce clinically significant reductions in PTSD symptoms (e.g., Asmundson et al., 2019), a substantial number of individuals who begin CPT do not receive a full course of treatment due to dropout. Examining factors associated with dropout may increase clinicians' knowledge of how to tailor interventions to prevent dropout before it occurs. Though various studies have examined client characteristics (e.g., age, gender, marital status) as predictors of PTSD dropout, few consistent predictors have been found (Kehle-Forbes et al., 2016). Therapeutic alliance may be a variable particularly deserving of attention given that the broader psychotherapy literature has found alliance to be associated with dropout (Sharf et al., 2010). Therefore, the present study examined the association between therapeutic alliance and treatment dropout in a randomized controlled effectiveness trial of CPT for PTSD.

Developed by Resick and colleagues (2017), CPT is a time-limited, trauma-focused, and manualized intervention for PTSD (Resick et al., 2017). The intervention consists of 12 sessions that build upon each other, with new skills introduced throughout treatment. Several studies have found that individuals who drop out of CPT generally do so before their fourth session (Davis et al., 2013; Kehle-Forbes et al., 2016; Mott et al., 2014), which occurs before trauma appraisals have been specifically targeted. Dropout is particularly problematic in a treatment such as CPT given that skills build upon one another over the sessions, and clients who drop out do not have an opportunity to learn new skills from later sessions that may be helpful to them. For instance, the last half of the CPT protocol

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emphasizes examining beliefs that relate to how the client views others and the world as a result of their traumatic experience. In CPT, symptom reduction is hypothesized to occur via the modification of maladaptive cognitions and emphasis on approaching, rather than avoiding, thoughts and feelings related to trauma (Resick et al., 2017). Due to dropout, clients may not have the chance to examine how these cognitions may be maintaining their PTSD symptoms. Exploring the association between therapeutic alliance and dropout in CPT may help clinicians understand how to prevent dropout before it occurs early in the course of treatment. To date, no studies of which we are aware have examined the association between therapeutic alliance and dropout in CPT.

Treatment dropout is a significant problem in evidence-based treatments for PTSD, with dropout rates ranging from 18% to 72% in the literature (DeViva, 2014; Kehle-Forbes et al., 2016; Mott et al. 2014, Zayfert et al., 2005). Clients may end treatment for various reasons, including logistical barriers to attending sessions, limited symptom improvement, and early treatment response, defined as a reduction in symptoms prior to receiving 12 sessions (Galovski et al., 2012). Regardless of the reason, therapeutic alliance may be a factor that predicts dropout. In the present study, we refer to participants who dropped out of treatment as a distinct group from early responders. As early responders were beyond the scope of this study, we limit our discussion to individuals who end treatment early without achieving early response. Clients who drop out of PTSD treatment are more likely to have poorer treatment outcomes (Zayfert et al., 2005), and these individuals often continue to experience high levels of PTSD symptoms after they discontinue treatment (Hembree et al., 2003; Kehle-Forbes et al., 2016). In one study, treatment dropout from a PTSD residential program was found to be associated with less improvement in functioning during treatment and higher levels of substance use (Szafranski et al., 2014). Dropout may also lead to a sense of failure and impact individuals' treatment-seeking behavior in the future (Berke et al., 2019). Thus, treatment dropout can be associated with various negative consequences for clients.

Therapeutic alliance, also known as working alliance, is recognized as an important variable in psychotherapy outcomes. Although various definitions of therapeutic alliance exist, most researchers agree the alliance consists of three components: (a) an affective bond between the client and therapist, (b) mutually agreed-upon goals between the client and therapist, and (c) collaboration between the client and therapist on assigned tasks (Bordin, 1979; Gaston, 1990; Horvath & Symonds, 1991). In their meta-analysis, Sharf et al. (2010) examined the association between therapeutic alliance and dropout across various treatment populations. Alliance was negatively correlated with dropout, with a Cohen's *d* effect size of .55 (i.e., medium effect). This finding indicates that individuals with weaker therapeutic alliances were more likely to drop out of treatment, whereas clients with stronger alliances were less likely to drop out (Sharf et al., 2010). This literature suggests therapeutic alliance may be a key contributing factor to treatment dropout.

Most research in this field has used either a single rating of alliance or has collapsed several alliance ratings across sessions into an average score (Chu et al., 2014; Doran et al., 2016). Further, alliance measured early in treatment may be a particularly robust predictor of treatment outcome when compared to later alliance ratings (Castonguay et al., 1996; Constantino et al., 2002; Horvath & Greenberg, 1986). Sexton et al. (1996) argued that alliance is largely formed in the first session of therapy, and research also suggests that alliance measured as early as the first session may predict treatment dropout in various psychotherapies (Barber et al., 1999; Kokotovic & Tracey, 1990; Tryon & Kane, 1993). However, in a meta-analysis that compared effect sizes of the alliance–outcome association based on the timing of alliance assessment, early and midtreatment alliance had the same effect size (i.e., $r = .25$), which was smaller than the effect sizes for late alliance ($r = .39$) or alliance averaged across sessions ($r = .31$; Horvath et al., 2011). Comparing alliance ratings at various time points may provide information on the strength of alliance during different phases of psychotherapy. In samples of individuals receiving PTSD treatment, mean ratings of alliance have been shown to predict symptom outcomes at posttreatment (Cloitre et al., 2004; McLaughlin et al., 2014), although these studies have not compared alliance ratings at different assessment points during treatment. These approaches are limited in that they do not provide a clear picture of how alliance develops over time or whether patterns of change are associated with outcomes.

In addition to the potential importance of the timing of an alliance, the rater of the alliance may also influence findings. Some research suggests that therapeutic alliance reported from the client's perspective is the strongest and most reliable predictor of dropout and outcome (Horvath & Symonds, 1991; Martin et al., 2000). However, alliance measures scored by independent raters and clients have demonstrated comparable associations with outcomes (Horvath, 2001). For instance, Horvath and Symonds (1991) found that both client and observer ratings of therapeutic alliance were stronger outcome predictors than therapist-rated therapeutic alliance. In contrast, in one study of trauma-focused cognitive behavioral therapy (CBT) delivered to youth with PTSD, therapist-rated therapeutic alliance was significantly associated with the risk of treatment dropout, whereas parent- and youth-rated alliance scores were unrelated to treatment dropout (Ormhaug & Jensen, 2018).

Therapeutic alliance is considered to be a dynamic process that can fluctuate over time (Walling et al., 2011). Understanding the trajectory of alliance across sessions may provide useful information on how alliance strengthens or erodes over the course of treatment. Some studies have found alliance to have a positive linear pattern of change during treatment, indicating that alliance increases over time (Kivlighan & Shaughnessy, 1995; Thompson-Hollands et al., 2018). Other studies have found a quadratic or U-shaped pattern (i.e., high scores for early and late sessions, lower scores for middle sessions; Halfon et al., 2019; Kivlighan & Shaughnessy, 2000). To date, only one study has explored the trajectory of alliance in

treatment for PTSD. Thompson-Hollands et al. (2018) tested three potential patterns of alliance (i.e., linear, quadratic, cubic) in a sample of participants receiving group CBT or present-centered therapy. The authors found that alliance increased over time in a linear fashion, with a greater increase among participants who received group CBT. However, this study did not examine how these patterns of changes in alliance related to treatment outcome. To date, no studies of which we are aware have examined patterns of alliance in CPT for PTSD, which would elucidate the field's understanding of how alliance changes over the course of 12 sessions.

A limited number of studies have examined the association between treatment dropout and therapeutic alliance in samples of individuals with a PTSD diagnosis. In two studies that examined the association between alliance and dropout in early sessions of prolonged exposure (PE; Keller et al., 2010; Theodore, 2015) and one study of trauma-focused CBT (Ormhaug & Jensen, 2018), higher ratings of alliance were associated with a lower risk of dropout. These studies all used either a single rating or mean measure of alliance, and none examined the trajectory of alliance during treatment. Examining alliance in a more nuanced way may help inform treatment process research by delineating if it is the first or last impression, the global appraisal, or the growth or erosion of alliance over time that predicts treatment dropout in CPT.

As no prior studies have explored the association between alliance and dropout in CPT, the aims of this study were twofold. First, to replicate past research demonstrating a negative association between therapeutic alliance and dropout, we aimed to examine whether alliance was significantly associated with dropout from CPT. Our second aim was to examine the unique associations among alliance and dropout when alliance was measured at the start of treatment (i.e., initial alliance), measured at the end of treatment (i.e., late alliance), averaged over the course of treatment (i.e., mean alliance), and as a trajectory of change (i.e., slope of alliance).

Method

Participants

All participants were enrolled in a larger ongoing randomized implementation trial of CPT, approved by the Research Ethics Board at Ryerson University as well as 11 local Research Ethics Boards in the community. The aim of the parent study was to examine two methods of posttraining consultation to advance sustained and improved CPT delivery. The consultation conditions to which therapists were randomized were (a) a fidelity-oriented learning community or (b) a continuous quality improvement learning community. Therapists who participated in a prior implementation trial, as well as new therapists who attended CPT workshops, were recruited for the current study and joined learning collaborative cohorts with their clinics. Therapists ($N = 45$) recruited clients from their routine practice i.e., operational stress injury clinics, Canadian Forces Health Services clinics, hospitals, and private practices) across Canada. Therapists were eligible to participate if they (a) provided psychotherapy to individuals with PTSD, (b) agreed to provide CPT to six or more additional clients over the course of 2 years, (c) consented to be randomized to one of the two study conditions, (d) were willing to audio-record therapy sessions, and (e) had internet access.

Clients who completed 12 sessions of the CPT protocol were categorized as treatment completers. Completion was determined by noting the presence of a submitted Session 12 outcome measure. Dropout was defined as clients whose outcome measures stopped prior to Session 12 and had a therapist note confirming the client dropped out of CPT. Individuals who were enrolled in the study and dropped out before beginning therapy were excluded from the present analyses, as prior research has suggested differences between clients who do not show up for therapy and those who begin but ultimately drop out of treatment (Baekeland & Lundwall, 1975; Garfield, 1989).

To be eligible for the study, participants were required to (a) have a current PTSD diagnosis, per the criteria in the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*), as designated by a PTSD Checklist for *DSM-5* (PCL-5; Weathers et al., 2013) score indicating probable PTSD; (b) not have previously received CPT; (c) be willing to complete symptom outcome measures and have their CPT sessions audio-recorded and reviewed by study personnel; and (d) be at least 18 years old. Participants were permitted to continue other psychotherapy if it did not specifically target PTSD symptoms. Exclusion criteria were current uncontrolled psychotic or bipolar disorder, substance dependence that required daily use or medical detoxification, imminent suicide or homicide risk that required immediate intervention, and cognitive impairment that prevented engagement in therapy.

On average, participants were approximately 41 years old ($SD = 11.20$), 57.4% were male, 40.2% identified as female, and 1.2% identified as transgender. The majority of the sample was White (85.2%), with 3.0% identifying as Asian, 2.4% as Black, and 2.4% as being of Latino ethnicity. Close to half of the sample were active duty soldiers or veterans (47.9%). Regarding index traumatic events, 28.4% of the sample endorsed military-related trauma, 18.9% reported sexual trauma, 13.6% reported physical trauma, 8.9% had experienced a motor vehicle accident or occupational trauma, and 21.9% reported another type of index traumatic event. Among all participants, the mean PTSD symptom score on the PCL-5 from the first session was 50.56 ($SD = 14.46$). Most clients had not received prior evidence-based treatment for PTSD (82.8%) or any other condition (62.1%). The average therapist age was approximately 41 years ($SD = 9.82$), and therapists predominantly identified as White (84.8%). Approximately three-quarters (76.1%) of the therapists identified as female, with 23.9% identifying as male. On average, therapists had been practicing as mental health professionals for 11.59 years ($SD = 7.64$), and most (73.9%) had received training in at least one evidence-based treatment for anxiety disorders or PTSD.

Procedure

As described previously, CPT is a manualized intervention with a protocol that consists of 12 sessions, each lasting 60 min. The first session entails psychoeducation about PTSD, the rationale for the treatment, and an overview of the remainder of treatment. The next two sessions focus on making meaning of the traumatic event, using worksheets to differentiate thoughts from feelings, and finding "stuck points" that have interfered with the client's recovery process. Sessions 4 and 5 involve clients reading their written trauma accounts aloud, if assigned, and therapists using Socratic questioning to challenge stuck points, particularly those related to self-blame and guilt. In the current effectiveness study, therapists and clients collaboratively decided on whether each client should complete the trauma account. Sessions 6–12 teaches clients to become their own therapists, through the introduction of more worksheets, and focus on areas that may have been impacted by the traumatic event, including safety, trust, power and control, esteem, and intimacy.

Therapists recruited clients from their routine practice settings. After obtaining consent, therapists initiated CPT in their practice setting. Audio recordings that therapists submitted to the study team were randomly selected to be evaluated by independent raters. Therapeutic alliance raters were psychologists or graduate-level students in clinical psychology. When rating sessions, raters were uninformed of the consultation condition, time spent in consultation, and clients' outcomes. The raters were trained to 90% interrater reliability agreement within 2 points on the scale before independent study rating began. The intraclass correlation (ICC) between raters on alliance ratings was good, ICC = .76.

Measures

Therapeutic Alliance

The Working Alliance Inventory–Observer Version–Short Form (WAI-O-S; Tichenor & Hill, 1989; Tracey & Kokotovic, 1989) was used to measure therapeutic alliance. The observer version of the WAI was used in the present study to minimize the assessment burden on both clinician and patient participants. The scale consists of 12 questions, such as "There is agreement about the steps taken to help improve the client's situation" and "There is mutual trust between the client and therapist." Independent raters listened to audio-recorded CPT sessions submitted by therapists, scoring each WAI-O-S item using a 7-point Likert scale ranging from 1 to 7, with higher total scores indicating a stronger therapeutic alliance. Confirmatory factor analysis conducted with the original 36-item WAI has demonstrated support for the validity of a General Alliance factor, which was extracted to form the WAI-O-S (Tracey & Kokotovic, 1989), and the WAI-O-S has been shown to have good reliability (r = .81; Gelfand & DeRubeis, n.d., as cited in Andrusyna et al., 2001).

Data Analysis

Analyses were conducted with clients who began CPT and had at least one session of therapeutic alliance rated. Before conducting the main analyses, baseline demographic and clinical characteristics were compared using *t* tests and chi-square analyses to identify differences between individuals who dropped out of treatment and those who completed CPT and determine if any potential covariates should be included in the final analyses.

Following the procedures outlined in previous studies (e.g., Iverson et al., 2011; Walling et al., 2012), the analyses were conducted in two steps. First, we conducted growth curve analyses using a multilevel regression framework (e.g., Singer & Willet, 2003) to model change in alliance over time. Second, the change parameters (i.e., initial status and slope) from this multilevel model were saved as variables into a new dataset and used as predictors in continuous-time survival analyses in order to evaluate their association with the number of sessions completed. The intercept was also reverse coded to represent the last session (i.e., late alliance).

In the current longitudinal study, repeated assessments (i.e., Level 1, or within-subjects) were nested within clients (i.e., Level 2, or between-subjects), which were nested within therapists (i.e., Level 3, or cluster). Time ranged from 0 to 12, centered on Sessions 1–12. Following a model-building approach, we first evaluated a three-level unconditional, intercept-only model to examine the distribution of variance across each level of nesting. Next, we conducted unconditional change models, with time included as a covariate to determine the best-fitting trajectory (linear vs. quadratic) for alliance over time and accurately specify the variance components of the growth factors. We calculated R^2 values as the proportion of random error variance for the more saturated model divided by the random error variance in the null model subtracted from one (Snijders & Bosker, 2012). To compare nested models, a chi-square difference test was calculated, using the difference of the log-likelihood based goodness-of-fit statistic (i.e., deviance statistic) of the more saturated model from the less saturated model (*dev*; which conforms to a chi-square distribution) and the difference in the number of parameters in the model equal to the degrees of freedom (Raudenbush & Byrk, 2002).

Our primary question was whether initial alliance, late alliance, mean alliance, or change in alliance predicted treatment dropout. To answer this question, dropout was coded as a dichotomous variable with "1" representing participants who dropped out and "0" representing completion. Clients who were classified as early responders (i.e., those who ended the treatment in fewer than 12 sessions due to achieving good end-state PTSD) were coded as completers and given a score of "0" for the purpose of the survival analysis. The number of available alliance ratings for each client–therapist dyad ranged from one to 12 ($M = 3.70$, $SD = 2.11$). Out of 169 potential ratings for each session, the number of ratings ranged from 33 to 96. The mean alliance score across all 12 sessions ranged from 1.75 to

Table 1
Model Fit Indices for Multilevel Growth Models of Working Alliance Over Time

Model	Deviance	Parameters	AIC	BIC	*p*
Unconditional models					
2-level intercept only	1,513.06	3	1,519.06	1,532.37	< .001
3-level intercept only	1,484.56	4	1,516.56	1,534.30	
Conditional models					
2-level linear fixed variance	1,509.91	4	1,517.91	1,535.66	< .001
2-level linear random variance	1,499.59	5	1,509.59	1,531.89	
2-level quadratic random variance	1,500.02	7	1,512.02	1,519.59	.210

Note. AIC = Aikake information criterion; BIC = Bayesian information criterion.

6.83. We first constructed life tables to examine the proportion of clients who dropped out of treatment at each session. Then, the derived growth parameters (i.e., initial, late, and change over time, as measured by the slope) and mean alliance across all available sessions were entered into separate Cox regressions to examine their unique effects on treatment dropout. Given the potential for differences in outcomes based on consultation conditions, we also tested a model that included consultation condition as a predictor in the Cox regression; however, consultation condition was not a statistically significant predictor of treatment dropout and, therefore, was not retained in the model.

Growth curve analyses were conducted in *Mplus* (Version 8; Muthén & Muthén, 2017), and survival analyses were conducted in SPSS (Version 27; IBM Corporation, 2020). Missing data were handled using maximum likelihood estimation.

Results

Participants in the present study ($N = 169$) were clients who either began CPT as part of this study and then dropped out ($n = 56$) or clients who completed the CPT protocol ($n = 113$). Additionally, five clients were considered early responders, as they achieved good outcomes prior to completing all 12 sessions of CPT; these individuals were coded as treatment completers. Two participants who were included in the growth curve model but not survival analyses were treated by a therapist who dropped out. We conducted *t* tests and chi-square analyses to compare participants who dropped out to those who completed CPT with regard to age, educational attainment, ethnicity, marital status, type of index traumatic event, Session 1 PCL-5 (i.e., PTSD) symptom scores, prior evidence-based treatment for PTSD, and prior non-PTSD evidence-based treatment. All results were statistically nonsignificant and, therefore, these variables were not included as covariates in the final analyses.

Fit statistics for all models tested are shown in Table 1. We first examined a three-level unconditional intercept-only model of the alliance. The total variance was distributed as follows: 54.0%, $p < .001$ for Level 1; 12.6%, $p = .001$ for Level 2; 5.7%, $p = .112$ for Level 3. Although the three-level model demonstrated a better relative fit than the two-level model, we retained a more parsimonious two-level nested structure (i.e., repeated assessments nested within clients) for the final model because variance among therapists was not high. Next, we examined an unconditional change model to specify the best-fitting form (i.e., linear vs. quadratic) and variance structure (i.e., fixed vs. random). The model with linear time and fixed variance structures best fit the data. However, because the random variance component was significant, $p = .009$, we chose to retain the random variance structure to maximize variability in the growth factors. The model produced a significant effect for initial alliance, $B = 4.92$, $SE = 0.05$, $p < .001$, but a nonsignificant effect of change in alliance over time, $B = 0.012$, SE, $= 0.01$, $p = .292$. However, the R^2 value showed that the model that included time accounted for 17.1% of the overall variance in alliance. In the context of the nonsignificant growth factor coefficient for alliance, this suggests that time accounted for a significant proportion of the variance in alliance but did so differently across clients such that some clients had a significant positive trajectory, whereas some had a significant negative trajectory. However, at the aggregate level, the mean trajectory of alliance was not significantly different from 0.

We then constructed a life table to examine overall rates and temporal patterns of treatment dropout (see Table 2). In total, 66.9% of participants completed all 12 sessions. A proportionate number of clients ($n = 26$, 48.1%) who dropped out did so between Session 1 and Session 6. Four Cox regressions with each alliance measure entered separately revealed that mean alliance was negatively associated with the likelihood of treatment dropout, Wald $\chi^2(1, N = 167) = 4.08$, $\text{Exp}(\beta) = .64$, $p = .043$. There was no effect of initial alliance, Wald $\chi^2(1, N = 167) = 1.97$, $\text{Exp}(\beta) = .47$, $p = .161$; late alliance, Wald $\chi^2(1, N = 167) = 1.80$, $\text{Exp}(\beta) = .70$, $p = .179$; or change in alliance over time, Wald $\chi^2(1, N = 167) = 1.59$, $\text{Exp}(\beta) = 1{,}764.37$, $p = .208$. In the model, the mean values were 4.92 ($SD = 0.24$) for initial alliance, 5.04 ($SD = 0.46$) for late alliance, and 4.98 ($SD = 0.60$) for mean alliance.

Table 2
Life Table Depicting Treatment Dropout by Session Number

Interval between sessions	Participants in treatment (*n*)	Participants who discontinued treatment[a] (*n*)	Terminal events (dropout) (*n*)	Proportion who discontinued (hazard)	Proportion remaining in treatment (survival)	Cumulative proportion remaining in treatment
0–1	167	0	0	.00	1.00	1.00
1–2	167	0	4	.02	.98	.98
2–3	163	0	6	.04	.96	.94
3–4	157	0	9	.06	.94	.89
4–5	148	0	2	.01	.99	.87
5–6	146	0	5	.03	.97	.84
6–7	141	0	10	.07	.93	.78
7–8	131	1	7	.05	.95	.74
8–9	123	1	2	.02	.98	.73
9–10	120	1	5	.04	.96	.70
10–11	114	1	4	.04	.96	.68
11–12	109	1	0	.00	1.00	.68

Note. Two participants who withdrew from the study due to therapists dropping out were considered as missing values and not included in the table.
[a]Early treatment responders who were coded as completers.

Discussion

A significant number of individuals engaged in CPT for PTSD do not receive a full course of treatment due to premature termination of therapy (i.e., treatment dropout). To better tailor interventions to prevent early treatment termination, research examining factors associated with treatment dropout is needed. Thus, the current study investigated the role of alliance in predicting dropout from CPT. The first aim of the study was to extend prior literature that has examined the association between alliance and dropout by examining this association in a trial of CPT. Given literature suggesting that the point during therapy that alliance is measured and changes in alliance over time may be predictive of outcomes (e.g., Horvath et al., 2011; Walling et al., 2012), the second study aim was to examine the measurement of alliance in multiple ways. More specifically, this study examined four different measurements of alliance as a predictor of dropout: initial (i.e., Session 1) alliance, late (i.e., Session 12) alliance, change in alliance over the course of treatment, and the mean alliance score across all available sessions. We hypothesized that therapeutic alliance would be a significant predictor of treatment dropout.

The results of multilevel growth modeling indicated that the variance in therapeutic alliance mainly occurred between sessions (54.0%) and between clients (12.6%), and relatively little variance occurred between therapists (5.7%). This is consistent with prior studies that have failed to find differences in alliance across therapists (Cloitre et al., 2004; Walling et al., 2012) as well as research that suggests therapist characteristics (e.g., years of experience, level of professional training) are unrelated to alliance (Hersoug et al., 2001). In line with this work, our findings do not suggest that certain clinicians are better at forming an alliance than others. Instead, alliance may be more about the relational match between the therapist–client dyad, which is consistent with studies suggesting that alliance is a dyadic process (DeRubeis et al., 2005; Cohen, 2007).

The linear slope in the unconditional growth curve model was nonsignificant, suggesting that across clients, there was no significant trend for alliance scores to improve or worsen over time. Although this finding might seem counterintuitive given previous research that has suggested that alliance evolves over the course of treatment (Kivlighan & Shaughnessy, 1995; Thompson-Hollands et al., 2018), at least one other study has similarly found a nonsignificant trajectory of alliance (Walling et al., 2012). These results suggest that alliance cannot be explained by a stable trajectory that applies to all clients but rather some therapeutic relationships may improve over time, whereas others worsen and some stay stable throughout CPT. Given that there may be different trajectories for different clients, specific contents of CPT sessions may not be responsible for influencing alliance scores.

Our findings indicated that approximately one-third of clients dropped out over the course of CPT. This proportion is consistent with prior effectiveness trials of trauma-focused treatments (e.g., Kehle-Forbes et al., 2016; Mott et al., 2014; Zayfert et al., 2005). Furthermore, approximately half of the clients who dropped out did so in the first half of CPT, which is lower than rates documented in prior literature. One reason may be that the current study did not include dropout that occurred between study enrollment and Session 1, as did some previous studies that documented higher rates (e.g., Gutner et al., 2016; Holmes et al., 2019). At the same time, given that a number of clients dropped out between Sessions 6 and 8, further

research on differences in early compared to late dropout in CPT is needed.

Although the association between therapeutic alliance and treatment dropout has been examined in other populations and as well as for other PTSD treatments, such as PE, this was the first study to examine the relation between these variables in CPT. The findings indicate that initial alliance scores, late alliance scores, and alliance score change did not predict dropout, although mean alliance scores across sessions did. Initial alliance ratings did not predict dropout in the current study, which is inconsistent with a prior study that found Session 1 therapist-rated alliance scores predicted the risk of dropout in adolescents receiving trauma-focused CBT; however, parent and adolescent alliance ratings were not associated with treatment dropout (Ormhaug & Jensen, 2018). This may suggest that the rater of therapeutic alliance matters. As we did not have participants or therapists in the current study rate therapeutic alliance, comparing ratings from multiple sources during CPT is an area in which future studies can expand.

Other studies that have examined early sessions of trauma-focused treatment, but not specifically the first session, have found significant associations between alliance and dropout (Keller et al., 2010; Theodore, 2015). In the broader alliance literature, Horvath and Luborsky (1993) posited that there are two critical phases of therapeutic alliance. The first is in early sessions when the alliance is being initially formed, typically peaking during Session 3. The second phase is posited to be when the therapist begins to challenge the client through the use of more active interventions (Horavath & Luborsky, 1993). It is possible that alliance as measured in the first session of CPT is too early, as this session primarily focuses on psychoeducation, and the formation of an alliance may not be representative of the client–therapist alliance over the course of treatment. This nonsignificant effect may be viewed in a positive light such that the first impressions of alliance may not determine who drops out, providing therapists many chances over the course of CPT to strengthen their alliance. In addition, late alliance measured in the final CPT session also did not predict treatment dropout; taken together, these findings may suggest that examining alliance at time points in isolation may not accurately predict dropout but rather that the overall alliance is key.

Our finding that mean alliance ratings predicted dropout suggests that, overall, in the context of trauma-focused therapy, a solid alliance may be needed for clients to comfortably work with their therapists to approach traumatic memories. The findings may also suggest that alliance has room to grow and change across different phases of treatment. The mean alliance score takes into account fluctuations in alliance across interventions in CPT that occur later in treatment, such as reviewing trauma accounts with clients and actively challenging maladaptive cognitions. It is possible that alliance changes during these later sessions, contributing to differences in mean scores versus initial alliance scores. It is interesting to note that the results also indicated that changes in alliance did not significantly predict treatment dropout. Rather, it is possible that there was individual variability within the sample that may have led to different patterns of change that were potentially related to treatment dropout. For instance, some clients may have exhibited U-shaped alliance trajectories, with high ratings of alliance in early and late treatment and lower midtreatment scores, whereas others demonstrated V-shaped patterns, which denote brief decreases in alliance scores. These fluctuations may represent rupture-and-repair episodes of the therapeutic alliance, a pattern associated with positive treatment outcomes (Stiles et al., 2004). McLaughlin et al. (2014) found that unrepaired ruptures in therapeutic alliance were predictive of poorer treatment outcomes in PE. These results and prior work on ruptures and repairs may imply that alliance measured only at one time point does not have enough variance to predict dropout but rather the cumulation of alliance over the course of treatment is important. If confirmed with future studies on fluctuations in alliance, these findings could have important clinical implications for therapists. Specifically, whereas individual sessions with high or low alliance may not represent a meaningful indicator of whether patients drop out of treatment, attending to and addressing series of ups and downs in alliance across CPT sessions may be one method to prevent dropout. Further research examining various trajectories of alliance and exploring ruptures and repairs may provide more information on how changes in alliance predict dropout in CPT.

The present study had several strengths, including that alliance was rated by expert independent raters. Some researchers have argued that observer-rated measures of alliance are preferable because independent raters have a higher degree of objectivity, and interrater reliability can be assessed (Horvath & Greenberg, 1986). This procedure also addresses concerns of shared method variance when client-rated measures of alliance and outcomes are used (Kazdin & Nock, 2003). Another strength of the present study was that it included therapists from a variety of diverse settings across North America. Effectiveness trials have higher levels of external validity, making them more generalizable to real-world clinical practice settings.

Although the present study had notable strengths, there were a number of limitations. Although clients were diverse in some regards (e.g., trauma type, veteran status), the majority of the sample was White, which limits the generalizability of these results to other ethnic groups. Treatment dropout was operationalized as not completing the 12-session protocol, although dropout may be defined in other ways, such as termination before receiving an adequate dose of CPT or before the client and therapist agree that treatment goals have been achieved. Alliance ratings were randomly selected for each therapist, and missing data across sessions may have limited our power to estimate trajectories of alliance.

As this was the first study examining alliance and dropout in CPT, further research is needed, and these findings should be considered preliminary. Studies that examine alliance in a different manner, such as with regard to specific dimensions of alliance (i.e., goal, task, bond) may be helpful to determine if there are particular facets that are more predictive of dropout.

Future studies should measure alliance from multiple sources, including therapist, client, and observer perspectives to provide a richer understanding of alliance and compare these ratings in their ability to predict dropout. Methodologies beyond rating scales that code moment-to-moment changes in alliance during sessions may also provide a more granular understanding of the changes in alliance within sessions. Various moderators should also be examined in future studies, including the version of CPT delivered (i.e., with or without the trauma account), the timing of treatment dropout, and early response versus dropout with significant PTSD symptoms. Finally, given that we did not examine therapist factors in relation to alliance in the current study, further research on therapist factors that are relevant to CPT (e.g., fidelity to the treatment protocol) and dyadic characteristics may be a fruitful avenue for future research.

The present study adds to the extant literature on the association between therapeutic alliance and treatment dropout in treatments for PTSD. The results indicate that mean alliance significantly predicted dropout, meaning that client–therapist dyads with higher overall alliance ratings demonstrated a lower risk of treatment dropout, whereas those with lower alliance scores had a higher risk of dropout. Initial alliance, as measured in the first session; late alliance, as measured in the last session; and the slope of alliance over time did not significantly predict dropout, suggesting that first and last impressions, as well as linear changes in alliance across sessions, do not pose a risk for dropout. These findings highlight the importance of the overall client-–therapist working relationship in CPT for predicting who completes treatment.

Open Practice Statement

The parent trial was a registered clinical trial (https://www.clinicaltrials.gov/ct2/show/NCT02449421?term=cognitive/processing/therapy/palo/alto&draw=2&rank=7), with the current study consisting of secondary analyses that used the partial dataset available before data were completely collected. Following the publication of the parent trial, data will be made available from the authors.

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