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Working Alliance in Exposure-Based Treatments of Posttraumatic Stress Disorder Related to Childhood Abuse

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Objectives: Working alliance is considered an important determinant of outcome of psychotherapy. Patients with posttraumatic stress disorder (PTSD) following childhood abuse (CA-PTSD) may have challenges in building interpersonal relationships, including working alliance. Phase-based treatment provides an opportunity to strengthen alliance prior to trauma-focused treatment. This study aimed to compare the development of working alliance among patients with CA-PTSD in three variants of prolonged exposure (PE) therapy: standard PE, intensive PE (iPE), and skill training in affective and interpersonal regulation + prolonged exposure (STAIR + PE). We also examined the effect of alliance on treatment outcome and dropout. ***Method:*** Self-reported PTSD Checklist for *Diagnostic and Statistical Manual of Mental Disorders, fifth edition* (Blevins et al., 2015) and patient-rated Working Alliance Inventory (Tracey & Kokotovic, 1989) were assessed in a clinical trial. We analyzed data from 138 adult patients (76.1% female; 42% non-Western). Analyses were performed using mixed-effects models. ***Results:*** Patients established a satisfactory alliance early in treatment, which increased over time. For PE and STAIR + PE, a larger decrease in PTSD symptom severity was related to a higher alliance in the subsequent session, but not the other way around. In STAIR + PE, a higher alliance in Phase 1 was related to lower PTSD symptoms in Phase 2. In all conditions, a higher initial working alliance was related to a lower chance of treatment dropout. ***Conclusion:*** In the treatment of CA-PTSD, all three variants of prolonged exposure foster positive development of the working alliance. Across conditions, working alliance did not precede symptom decline. Therapists should strive for a strong alliance at the beginning of treatment as this reduces the likelihood of dropout.

What is the public health significance of this article?
This study demonstrates that individuals with PTSD report strong alliances with therapists in a variety of trauma-focused therapies. No clear evidence was found that alliance should be built *prior* to the start of exposure-based treatment sessions. Clinicians are advised to assess the patient's evaluation of the relationship with the therapist early in treatment, as a negative evaluation increases the chance of dropout.

Keywords: working alliance, childhood abuse-related posttraumatic stress disorder, prolonged exposure, skills training in affective and interpersonal regulation, intensive treatment

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The relationship between a therapist and a patient is considered crucial in psychotherapy as it includes the bond, agreement on goals, and task assignment (Bordin, 1979; Horvath, 2018). A positive working alliance (WA) is linked to better posttraumatic stress disorder (PTSD) treatment outcomes (Capaldi et al., 2016; Hoffart et al., 2013; McLaughlin et al., 2014) after prolonged exposure (PE), a first-line treatment for PTSD (Hamblen et al., 2019; Lewis et al., 2020).

Given their history of negative experiences in trusting relationships, patients with childhood abuse-related PTSD (CA-PTSD) often face interpersonal challenges in building relationships, which might also affect their ability to build a good working alliance with their therapists (Cloitre et al., 2002). To illustrate, in those suffering from CA-PTSD, a relationship between interpersonal problems outside of therapy (e.g., in family life or friendships) and therapeutic alliance was found, such that fewer interpersonal personal problems predicted a stronger alliance during treatment (Lawson et al., 2020). In a phase-based approach (Cloitre et al., 2006), the first phase of treatment is directed to skills training (e.g., interpersonal skills), which provides extra time to strengthen the working alliance between patients and their therapist. This might contribute to the effectiveness of exposure therapy in the second phase of treatment. It has been suggested that a phase-based approach may be especially beneficial for those suffering from CA-PTSD with more complex symptom profiles that include interpersonal problems (International Society for Traumatic Stress Studies Guidelines Committee, n.d.).

However, several studies have suggested that patients with CA-PTSD do not need additional time to strengthen the working alliance during exposure therapy through the use of skills training prior to exposure therapy. No significant differences were observed in rupture–repair patterns in alliance during PE in patients with PTSD, with or without childhood abuse (McLaughlin et al., 2014). Similarly, a history of childhood sexual abuse was not significantly related to worse working alliance early in PE (Keller et al., 2010). Moreover, working alliance significantly improved over the course of PE without skill training in a group of adolescent girls with chronic or subthreshold PTSD related to (childhood) sexual assault (Capaldi et al., 2016). Taken together, there are indications that CA-PTSD patients have adequate skills to build a working alliance with their therapist during exposure therapy without specific skills training. Studies comparing the development of alliance during phase-based versus PE treatment and its impact on treatment outcome are lacking. The first aim of this study was to compare the quality of working alliance among three variants of exposure-based treatment: phase-based, standard PE, and intensive PE (iPE).

iPE treatment for PTSD involves delivery of trauma-focused treatment sessions at a higher frequency within a short period (Ragsdale et al., 2020; Sciarrino et al., 2020; Wachen et al., 2019). Two controlled studies using cognitive therapy (Ehlers et al., 2014) and cognitive processing therapy (Galovski et al., 2022) showed no differences in alliance between intensive and standard treatments, indicating that alliance can be built in a relatively short period of time. Furthermore, a stronger alliance (assessed weekly) during intensive cognitive processing therapy predicted greater reductions in PTSD symptoms (Held et al., 2022). However, most of these studies did not focus on patients with CA-PTSD, who may have more challenges than other patients in building a strong working alliance, especially within a short period. An uncontrolled study on iPE did include primarily patients with CA-PTSD, with treatment being delivered by more than one therapist (Van Minnen et al., 2018). This therapist rotation is a novel way of delivering trauma-focused treatment, and it is largely unknown if and how this affects the working alliance. Interestingly, the findings of this initial uncontrolled study showed that patients with CA-PTSD reported on average a good working alliance with rotating therapists at the end of their treatment. No randomized clinical trial has yet examined the development of alliance in iPE nor its relationship with treatment outcome.

The second aim was to test the direction of the relationship between alliance and symptom improvement in PE for patients with CA-PTSD. Cloitre et al. (2002, 2004) found that a better working alliance in the first phase of phase-based treatment predicted a larger reduction in PTSD symptoms in the subsequent PE treatment phase. In line, better alliance during residential PE treatment predicted reduction in PTSD symptoms, but not the other way around (Hoffart et al., 2013). One study testing the effect of alliance on PTSD symptoms in cognitive therapy for PTSD (Keefe et al., 2022) found evidence for the predictive effect of alliance on subsequent PTSD symptom improvement, but no evidence for the reverse effect. Whereas, in another study on cognitive therapy for PTSD (Beierl et al., 2021), therapeutic alliance predicted subsequent PTSD symptom decrease, but the reverse was also true when looking at therapist-rated alliance. Interestingly, a recent meta-analysis about the reciprocal relationship between alliance and symptoms across patient populations and therapeutic interventions also showed that a positive alliance predicted subsequent symptom reduction but also that this relationship was reciprocal (Flückiger et al., 2020). Taken together, open questions remain about the directionality of the relationship between alliance and PTSD symptom decline, especially in phase-based treatment.

In addition to the relationship with trauma treatment outcome, a good working alliance may lead to fewer treatment dropouts. For various psychological disorders, moderately strong relationships have been found between working alliance and dropout (Roos & Werbart, 2013; Sharf et al., 2010). However, a systematic review including studies with adults with a history of trauma suggested that alliance was not related to dropout (Ellis et al., 2018). In line with these results, one study regarding PE for PTSD found that alliance did not predict dropout (Van Minnen et al., 2002) nor were differences in alliance found between those who dropped out and those who completed phase-based treatment for PTSD (Cloitre et al., 2004). However, another study on PE found that alliance was associated with the total number of sessions completed and with treatment adherence (Keller et al., 2010). Considering that the dropout rate from trauma-focused treatments for CA-PTSD is relatively high (24%; Ehring et al., 2014), the influence of working alliance on treatment dropout warrants further investigation.

The aims of the present study were to compare (the development of) the quality of the WA in three treatment conditions that varied in dosage, timing, and intensity of PE, as well as in the number of therapists involved, and its relationship with treatment outcome and dropout. In the context of a randomized clinical trial with patients with CA-PTSD, we compared WA during three variants of exposure therapy: (a) phase-based treatment (skills training in affective and interpersonal regulation + prolonged exposure [STAIR + PE]), (b) weekly standard PE therapy, and (c) intensive prolonged exposure, in which the sessions were delivered three times per week (iPE). In both STAIR + PE and PE, all sessions were provided by one therapist, whereas in the iPE condition, the sessions were delivered by two rotating therapists.

Our first hypothesis was that the working alliance would improve over the course of treatment across the three conditions, and compared with PE, this improvement would be larger in the STAIR + PE condition because of its explicit focus on the skills for the strengthening of a positive working alliance and smaller in the iPE condition because of the alternating therapists and the limited time to develop a working alliance. Second, to study the reciprocal effects in more detail, we tested the direction of the relationship between WA and PTSD symptom decline. We hypothesized that a better working alliance would be related to a larger subsequent PTSD symptom improvement, while we did not expect a reverse effect (influence of symptom improvement on subsequent working alliance). In addition, to align with previous studies involving the phase-based treatment, we replicated the analyses of Cloitre et al. (2004), testing the hypothesis that a better working alliance in treatment Phase 1 would be related to lower PTSD symptom severity in treatment Phase 2. Third, we hypothesized that a lower early working alliance score would predict treatment dropout, irrespective of treatment condition.

Method

Transparency and Openness

We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study, and we follow the Journal Article Reporting Standards. Data, code, treatment manuals, and intervention materials are available upon reasonable request. Anonymized individual patient data that underlie the results of this article will be available for individual participant data meta-analyses after the publication of this article. Proposals for the use of data and requests for access should be directed to the corresponding author.

The analysis plan for the current article was not preregistered. This study uses data from the improving PTSD treatment for adults with childhood trauma (IMPACT) study. The IMPACT study was registered in the Clinical Trial Registry (Number NCT03194113).

Design

Data were collected from the IMPACT study, a multicenter randomized controlled trial that compared the efficacy of phase-based treatment (STAIR + PE), weekly standard PE therapy (PE), and iPE in a sample of CA-PTSD.

Detailed information about the procedures, sample size calculation and outcome of the IMPACT study can be found in the design article and the main outcome article (Oprel et al., 2018, 2021). The study was approved by the Medical Ethical Committee of Leiden University Medical Center (NL57984.058.16).

Participants

The participants were adult patients (18–65 years) with a PTSD diagnosis according to the *Diagnostic and Statistical Manual of Mental Disorders, fifth edition* (*DSM-5*; established with the Clinician Administered PTSD Scale [CAPS-5]; Boeschoten et al., 2018) and at least moderate severity of PTSD symptoms (CAPS-5 score ≥26; see also Weathers et al., 2018) and at least one specific memory of the index trauma. Other inclusion criteria for the IMPACT study were as follows: multiple traumata related to childhood sexual and/or physical abuse that occurred before 18 years of age, committed by a primary caretaker or an authority figure as index event, and sufficient fluency in Dutch to complete treatment and research protocols.

Patients could not participate if they were involved in a compensation case or legal procedures concerning admission or stay in the Netherlands. Other exclusion criteria were as follows: pregnancy; severe nonsuicidal self-injury that required hospitalization during the past 3 months; severe suicidal behavior, a suicide attempt during the past 3 months or acute suicidal ideations with serious intent to die with a specific plan for suicide and preparatory acts; severe disorder in the use of alcohol or drugs during the past 3 months according to the Mini International Neuropsychiatric Interview (Sheehan et al., 1998); cognitive impairment (estimated IQ < 70); changes in psychotropic medication in the 2 months prior to inclusion; and engagement in any current psychological treatment.

In the IMPACT study, we randomized 150 patients to PE, iPE, or STAIR + PE between November 23, 2016, and December 18, 2018. One participant lost her PTSD diagnosis between randomization and the start of treatment and was excluded. In the present study, we included participants with at least one complete measurement of the Working Alliance Inventory (WAI). Nine patients dropped out before Session 2 (wherein working alliance was first assessed). In both PE and STAIR + PE, one patient withdrew from the study prior to the start of treatment, and one patient dropped out after the first session. In the iPE group, four patients withdrew before the start of treatment, and one dropped out after Session 1. From three patients there was no complete WAI. The final sample size for the present study was $n = 138$. Table 1 lists the demographic and clinical characteristics of the included participants. No significant differences were found in the baseline characteristics of the participants between treatment conditions.

Therapists

Twenty therapists (18 women and 2 men) participated. All therapists had a master's degree in clinical psychology. Their mean age was 36.20 ($SD = 7.36$), and they had a mean of almost 10 years of work experience ($M = 9.75$ years; $SD = 6.78$). All therapists attended a 2-day training in PE and a 2-day training in the STAIR treatment. Before participation in the clinical trial, therapists' competence was assessed with nontrial patients. Furthermore, all therapists' attendance at weekly supervision (on PE and STAIR) was mandatory. Treatment adherence was high: the mean number of session elements completed was 98% and 90% for STAIR and PE, respectively. All therapists delivered all three forms of treatment.

Procedure

The study took place at two outpatient mental health services. Patients who seemed to fulfil inclusion criteria received written information about the study, followed by a phone call and invitation for a preparatory meeting. Written informed consent was obtained before baseline assessment. The randomization procedure was carried out by an independent researcher.

Measures and Assessment

PTSD symptom severity was measured with the CAPS-5 (Boeschoten et al., 2018), a clinical interview consisting of 20 items

Table 1
Demographic and Clinical Characteristics

Characteristic	Total (N = 138)	PE (n = 46)	iPE (n = 45)	STAIR + PE (n = 47)
Demographic characteristics, No. (%)				
Age, *M* (*SD*), years	36.9 (12.0)	34.2 (10.8)	39.1 (12.1)	37.3 (12.7)
Gender: female	105 (76.1)	36 (78.3)	33 (73.3)	36 (76.6)
Gender: male	32 (23.2)	10 (21.7)	11 (24.4)	11 (23.4)
Gender: other	1 (0.7)	0 (0)	1 (2.2)	0 (0)
Married/cohabitating	52 (37.7)	13 (28.2)	23 (51.1)	16 (34.1)
Education (high)[a]	25 (18.1)	9 (19.6)	9 (20.0)	7 (14.9)
Employed	51 (37.0)	18 (39.1)	18 (40.0)	15 (31.9)
Incapacitated	35 (25.4)	13 (28.3)	7 (15.6)	15 (31.9)
Cultural background (non-Western)[b]	58 (42.0)	19 (41.3)	15 (33.3)	24 (51.1)
Trauma category (single or multiple) *DSM-5* A criterion (CAPS-5)				
Childhood sexual abuse	98 (71.0)	38 (82.6)	29 (64.4)	31 (66.0)
Childhood physical abuse	85 (61.6)	27 (58.7)	28 (62.2)	30 (63.8)
Sexual abuse in adulthood	27 (19.6)	11 (23.9)	9 (20.0)	7 (14.9)
Physical abuse in adulthood	38 (27.5)	15 (32.6)	13 (28.9)	10 (21.3)
Axis 1 diagnoses (MINI)				
Current depression	78 (56.5)	26 (56.5)	21 (46.7)	31 (65.9)
Severe suicidality past month	61 (44.2)	23 (50.0)	19 (42.2)	19 (40.4)
Current bipolar disorder (Types 1 and 2)	9 (6.5)	4 (8.7)	2 (4.4)	3 (6.4)
Disorder: alcohol/drug use past year	32 (23.2)	12 (26.1)	12 (26.7)	8 (17.0)
Any personality disorder diagnosis (SCID-II)	83 (60.1)	33 (71.7)	22 (48.9)	28 (59.6)

Note. PE = Prolonged exposure condition; iPE = intensive prolonged exposure condition; STAIR + PE = skills training in affective and interpersonal regulation + prolonged exposure; N = sample size; No. = number; CAPS-5 = Clinician Administered PTSD Scale for *DSM-5*; MINI = Mini-International Neuropsychiatric interview; SCID-II = Structured Clinical Interview for *DSM-IV* Personality Disorders; PTSD = posttraumatic stress disorder; *DSM* = *Diagnostic and Statistical Manual of Mental Disorders*.
[a] High education = higher vocational education or university. [b] Non-Western cultural background = at least one parent was not born in a Western country.

that evaluate both the diagnostic criteria for PTSD according to the *DSM-5* and the overall severity of PTSD symptoms. Scores on the CAPS-5 range from 0 to 80, with higher scores indicating more severe symptoms. The interview was administered over events that were most strongly related to participants' current PTSD symptoms. For all participants index events included childhood sexual and/or physical abuse.

The Mini International Neuropsychiatric Interview (Sheehan et al., 1998) was used to assess baseline comorbid Axis 1 disorders, while the Structured Clinical Interview for *DSM-IV* Personality Disorders (Weertman et al., 2003) was employed for the evaluation of baseline personality disorders.

Posttraumatic Stress Disorder Outcome Measurement

The PTSD Checklist for *DSM-5* (PCL-5; Blevins et al., 2015) is a widely used 20-item self-report questionnaire, with a total score ranging between 0 and 80. Its internal consistency at baseline was high (Cronbach's $\alpha = .89$; Oprel et al., 2021). In the PE and STAIR + PE conditions, the PCL-5 was filled out by the participant weekly at every therapy session. In the iPE condition, the PCL was also completed weekly; however, because participants in the iPE condition underwent several sessions a week, the PCL-5 was not assessed during every treatment session, but only at Sessions 1, 4, 7, 10, 12, 13, and 14.

Working Alliance

The WAI 12-item form (Tracey & Kokotovic, 1989) was used to measure WA. The WAI is based on Bordin's concept of WA (Bordin, 1979). The WAI is a self-report measure consisting of 12 items rated on a 7-point Likert scale (1 = *never*; 7 = *always*; the total score ranges from 12 to 84, with a higher score indicating a better working alliance). The WAI is widely used in PTSD outcome studies (Howard et al., 2022; Martin et al., 2000) and has good psychometric properties (Horvath & Greenberg, 1989).

In the iPE treatment condition, with two therapists performing the treatment alternately, the WAI items were adapted; the phrase "my therapist" was changed to "my therapists." Furthermore, patients were instructed to rate the working alliance for the two therapists together.

Measurement of WA took place before therapy Sessions 2, 5, and 9 and before the last therapy session (in PE and STAIR + PE Session 16 and in iPE Session 14). Patients completed the WAI in the waiting room without the therapist's presence. Immediately after completion, the patient placed the questionnaire in a sealed envelope to ensure that the therapist could not see the patient's answers. We considered the score on the WAI at Session 2 as "early alliance." The internal consistency of the WAI at the first assessment (i.e., Session 2) was high (Cronbach's $\alpha = .90$). Table 2 and Table A1 present overviews of the measurements per condition.

Treatments

Standard Prolonged Exposure Therapy

The study protocol for standard PE therapy (PE) was based on the treatment manual by Foa et al. (2007; for details see Oprel et al., 2018) and included psychoeducation, imaginal exposure, and exposure in vivo. PE was delivered in 16 weekly sessions of 90 min, with homework assignments between sessions. In the PE manual,

Table 2
Overview of the Working Alliance Inventory and PTSD Checklist for DSM-5 Measurements per Time Point

	Session															
Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PE	PCL	PCL WAI	PCL	PCL	PCL WAI	PCL	PCL	PCL	PCL WAI	PCL	PC	PCL	PC	PCL	PCL	PCL WAI
STAIR + PE	PCL	PCL WAI	PCL	PCL	PCL WAI	PCL	PCL	PCL	PCL WAI	PCL	PCL	PCL	PCL	PCL	PCL	PCL WAI
iPE	PCL	WAI		PCL	WAI		PCL		WAI	PCL		PCL	PCL	PCL WAI		

Note. PE = Prolonged exposure condition; iPE = intensive prolonged exposure condition; STAIR + PE = skills training in affective and interpersonal regulation + prolonged exposure condition; WAI = Working Alliance Inventory 12-item form; PCL = PTSD Checklist for *DSM-5*; PTSD = posttraumatic stress disorder; *DSM-5* = *Diagnostic and Statistical Manual of Mental Disorders, fifth edition.*

Foa et al. (2007) stressed the importance of empathy, support, and good alliance when delivering PE, especially when working with patients who experienced interpersonal violence. A trustworthy and collaborative alliance might help the patient emotionally process traumatic events. However, although WA is considered important, it is not a goal on its own in PE.

Intensive Prolonged Exposure Therapy

iPE therapy followed the same treatment protocol as PE, except that the sessions were delivered in a different timeframe: three weekly sessions of 90 min PE for a period of 4 weeks, followed by two PE sessions after 1 and 2 months, 14 sessions in total. Furthermore, two therapists delivered the iPE sessions alternately.

Phase-Based Treatment

Phase-based treatment contained STAIR + PE. The study protocol for STAIR + PE was based on the treatment manual of Cloitre et al. (2006; for more details, see Oprel et al., 2018). The first treatment phase (eight sessions) was aimed at improving emotion regulation and interpersonal skills. Between sessions homework was assigned. In the second treatment phase (Session 9–16), patients received PE based on the treatment manual by Foa et al. (2007), similar to the PE in the other two treatment conditions. STAIR + PE was delivered in 16 weekly sessions. Just like in PE, in STAIR working alliance between therapist and patient is seen as an essential basis for therapy. But a noteworthy difference is that in STAIR working alliance is not only seen as a foundation of treatment but also as a therapeutic element in itself. As Cloitre et al. (2006) stated, working alliance is also a way "to reverse or repair some of the interpersonal disturbances that so often undermine success in a variety of life tasks" (p. 83). The STAIR therapist's manual provides comprehensive background information about potential working alliance problems therapists might encounter when working with individuals with childhood trauma, such as possible problems with power dynamics, and gives advice on therapeutic attitudes, such as understanding the complex relationships that can exist with their abusers. The idea in this phase-based approach is that therapist and client develop a good mutual understanding (first phase) before the trauma-focused work starts (second phase).

Statistical Analysis

Analyses were performed in R Version 3.6.2 using packages lme4, Bootmer, and stats (Bates et al., 2015; R Core Team, 2018). For all analyses, participants were included with at least one measurement of the WAI (n = 138) who filled out 472 measurements of the WAI in total. Incomplete measurements of the WAI were considered missing data (n = 25, 5.3%), which resulted in a final number of 447 measurements. In the analyses involving the development of WA over time, time was modeled linearly based on the assessment number. Missing data were handled using maximum-likelihood estimations. α was set at .05 (two tailed) for all analyses.

Our first hypothesis was that the working alliance would improve over the course of treatment across the three conditions, and compared with PE, this improvement would be larger in the STAIR + PE condition and smaller in the iPE condition. For this hypothesis, we performed a linear mixed-effects model to correct for the dependence in observations over time with WAI score as the dependent variable and time, condition (dummy coded with PE as comparator), and their interaction effect as fixed independent variables. A random intercept and the random effect of time were included to model differences in the development of the WAI scores. We used semiparametric bootstrapping to derive the prediction intervals of the modeled data to account for the uncertainty in the variance of the parameters due to the random effects.

For the second hypothesis, that a better working alliance would be related to a larger subsequent PTSD symptom improvement, but not vice versa, we performed a series of linear mixed-effects models. In the first model, we included the total WAI score as the independent variable and subsequent change in total PCL score as the dependent variable while including random intercepts. In the second model, we added the main effect of condition (dummy coded with PE as comparator) and its interaction with total WAI score to assess whether the influence of WAI scores on subsequent change in PCL scores differed between conditions. In the third and fourth models, we performed identical analyses but only included the PE and STAIR + PE condition since these conditions included more PCL measurements and therefore could estimate subsequent change in total PCL scores more precisely. For the fifth model, we tested the effects in the opposite direction with change in total PCL score as the independent variable and subsequent total WAI score as the dependent variable while including random intercepts. In the sixth

model, we added the main effect of condition (dummy coded with PE as comparator) and its interaction with change in total PCL score as the independent variables in the model. In the seventh and eight models, we performed identical analyses but only included the PE and STAIR + PE condition to estimate the temporal effects more precisely. Additionally, following the data analytic strategy of earlier work (Cloitre et al., 2004), we calculated the average WAI score at Sessions 2 and 5 and correlated this averaged score with the last available PCL session score for the three conditions separately. We only included participants who completed at least one PCL after Session 8 (n = 113).

For the third hypothesis, that a lower early working alliance score would predict treatment dropout irrespective of treatment condition, we performed a generalized linear model with treatment dropout as the dependent variable and the first measurement of the WAI (at Session 2) as the independent variable (n = 127). We also performed a generalized linear model with treatment dropout after the second WAI measurement (at Session 5) as the dependent variable and with the change in WAI score between the first and second measurements of the WAI as the independent variables (n = 114). Family was set to binominal for both models. We decided post hoc to also perform a generalized linear model with treatment dropout after the second WAI measurement as the dependent variable and WAI score at the second measurement as the independent variable to check whether the WAI score itself at the second measurement was related to subsequent treatment dropout (rather than the change in WAI score from the first to second measurement).

The assumptions of all analyses were met. We evaluated effect sizes with modeled data using the function lme-dscore from R package EMAtools (Kleinman, 2017).

Results

The Development of Working Alliance in Three Conditions

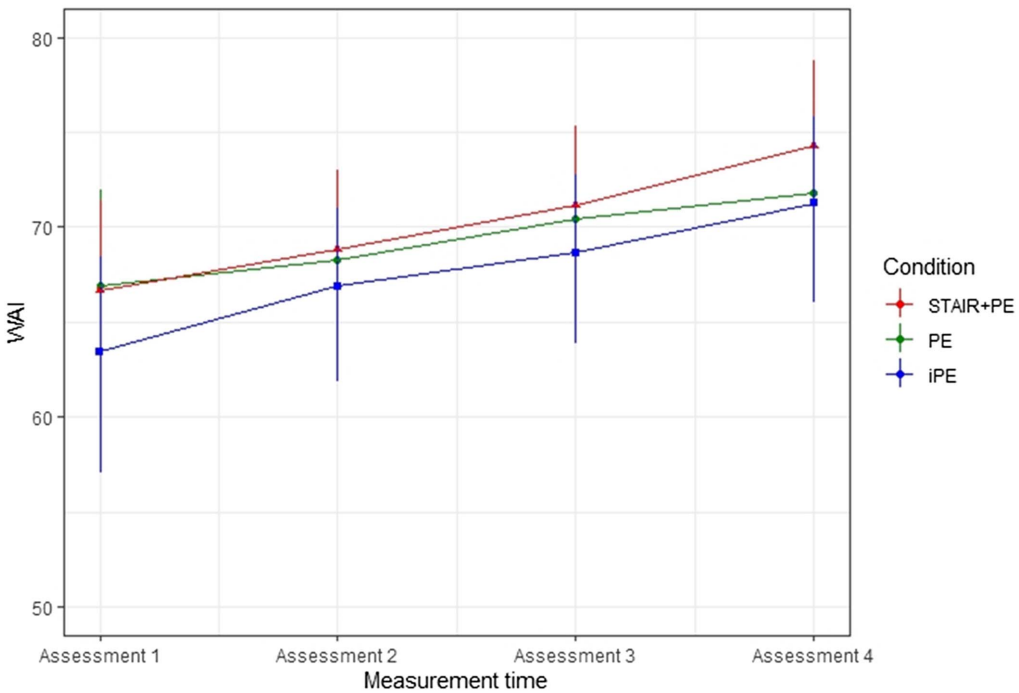
In general, participants already showed a reasonably good working alliance early in treatment (Session 2) in PE ($M_{estimated}$ = 66.6), STAIR + PE ($M_{estimated}$ = 66.8), and iPE ($M_{estimated}$ = 63.4) without any statistical differences between conditions. Moreover, WA significantly increased over time across conditions, b = 2.04; $t(120) = 5.66$, $p < .001$; d = 1.03; see Figure 1. We did not find a larger increase in WAI scores in STAIR + PE compared with PE, b = .12; $t(128)$ = .13, p = .90, nor a smaller increase in iPE compared with PE, b = .15; $t(129)$ = .16, p = .87 (see Table A1).

Relationship Between Working Alliance and Posttraumatic Stress Disorder Symptoms

Higher WAI score was not related to a subsequent larger change in PCL scores, b = .14; $t(281) = 1.78$, p = .08, and this effect was not different for PE compared with STAIR + PE, b = −.11; $t(281)$ = −.58, p = .56, or PE compared with iPE, b = .01; $t(281)$ = .04, p = .97. When only modeled for PE and STAIR + PE, the total WAI

Figure 1

Development of the Working Alliance Inventory During Treatment in Three Conditions



Note. Assessment 1 = at Session 2; Assessment 2 = at Session 5; Assessment 3 = at Session 9. Assessment 4 = at the last therapy session (in iPE Session 14; in STAIR + PE and in PE: Session 16). WAI = Working Alliance Inventory; iPE = intensive PE; STAIR + PE = skills training in affective and interpersonal regulation + prolonged exposure; PE = prolonged exposure. See the online article for the color version of this figure.

score was also not related to subsequent change in PCL scores, $b = .11$; $t(195) = 1.15$, $p = .25$, and this effect was not different for STAIR + PE compared with PE $b = -.05$; $t(195) = -.27$, $p = .79$.

When reversed, larger change in PCL scores was not related to higher subsequent total WAI score, $b = .04$; $t(209) = 1.19$, $p = .24$, and this effect was not different for PE compared with STAIR + PE, $b = -.06$; $t(212) = -.75$, $p = .46$, or PE compared with iPE, $b = -.05$; $t(212) = -.49$, $p = .63$. However, when only modeled for PE and STAIR + PE, we found that a larger decrease in PCL scores was related to a higher subsequent total WAI score, $b = .16$; $t(145) = 4.69$, $p < .001$. This effect was not different for STAIR + PE compared with PE, $b = .006$; $t(155) = .08$, $p = .94$.

With regard to the replication analysis, higher early WAI scores were moderately related to lower last available PCL session scores in STAIR + PE ($r = -.52$; $p < .001$), but not in PE ($r = -.10$; $p = .56$) and iPE ($r = -.26$; $p = .12$).

Working Alliance and Dropout

There were 26 dropouts (18.8%) with no significant difference among the three conditions. Lower WAI total score at the start of the second therapy session was significantly related to a higher chance of subsequent treatment dropout, $b = -.05$, $z = -2.62$, $p = .009$. For every point increase in the WAI total score, the estimated chance of subsequent treatment dropout was reduced by 4.9% of its previous value. Figure A1 depicts this relationship. The change in WAI total score between the start of Session 2 and the start of Session 5 was not related to subsequent treatment dropout ($b = .04$, $z = 1.50$, $p = .13$), neither was the WAI total score at the start of Session 5 ($b = -.03$, $z = -1.26$, $p = .21$).

Discussion

We investigated working alliance in three different forms of exposure therapy for patients with childhood abuse-related PTSD, namely, weekly standard PE therapy, phase-based treatment STAIR + PE, and iPE therapy.

The first research question concerned the development of working alliance over time. The mean working alliance scores were comparable to those of other studies on the psychological treatment of PTSD (reviewed by Howard et al., 2022). The finding that patients with a history of childhood abuse showed a satisfactory working alliance with their therapists, even early in PE, is in line with other studies (Hoffart et al., 2013; Keller et al., 2010; McLaughlin et al., 2014). As expected and in line with previous PE research (Capaldi et al., 2016), the working alliance increased during therapy, with a large effect size. However, in contrast to our first hypothesis, we did not find significant differences in the development of a working alliance between the three treatments, despite their differences in dose, timing, intensity, and number of therapists. Therefore, additional time to build a positive working alliance in the STAIR + PE condition before prolonged exposure may not be necessary to achieve a satisfactory working alliance. Furthermore, therapist rotation in the iPE condition did not compromise the formation and growth of the working alliance (Van Minnen et al., 2018). Qualitative interviews have revealed that participants may even appreciate variations in personal styles (Thoresen et al., 2022). Our finding that patients can establish a strong working alliance during iPE despite its accelerated pace is of clinical importance. This implies that trauma treatment can be effectively delivered within a relatively brief period, without compromising the quality of the working alliance.

With regard to our second research question, in contrast to our hypothesis, we found no evidence for a predictive relationship between the strength of the working alliance and PTSD symptom reductions in all conditions. This finding stands in contrast with findings in earlier studies (Capaldi et al., 2016; Held et al., 2022; Hoffart et al., 2013; McLaughlin et al., 2014), although not all studies found evidence for this relationship (Van Minnen et al., 2002). Interestingly, when only modeled for PE and STAIR + PE, we did find a relationship in the opposite direction. A larger decrease in PTSD symptom severity was related to a higher subsequent working alliance in subsequent sessions. This may be due to a decrease in PTSD symptoms that are specifically linked to interpersonal relationships (cognitions like "trust in others"), which facilitates bonding with the therapist. Next, patients who achieve treatment gains might develop increased appreciation and trust toward their therapist. The explanation for the fact that we only found the effect of symptom decline on working alliance in the last model (i.e., when only including the weekly delivered treatment formats, PE and STAIR + PE) might be that the measurement points of the WAI and PTSD symptom severity were more aligned in these two treatment conditions, which increased temporal precision.

As stated above, across conditions, we did not find evidence that the quality of the working alliance in a session was significantly related to an improvement in PTSD symptom severity in subsequent sessions. However, following previous work (Cloitre et al., 2004), we ran additional analyses wherein we examined the relationship between the averaged strength of the working alliance during the first eight sessions of treatment (Phase 1 in STAIR + PE) with the last available PTSD symptom severity score in the second six (iPE) to eight (STAIR + PE and PE) treatment sessions. In these analyses, carried out per condition, we found a significant negative relationship between the strength of the averaged working alliance in the first half of treatment and PTSD symptom severity in the STAIR + PE condition, but not in the other conditions. This implies that in STAIR + PE, the strength of the alliance during the skills training affects exposure results in the second phase of therapy, while the treatment outcomes of the other exposure variants are more independent of the quality of the alliance early in treatment. As these analyses were carried out post hoc, future studies should aim to replicate these findings.

Together, these findings suggest that the relationship between alliance and treatment outcome in exposure-based treatments for PTSD is not direct or linear but may be more complicated and may represent some form of a reciprocal effect, but different from what we expected. In all, we found no strong evidence that a positive working alliance precedes PTSD symptom decline. A decline in PTSD symptoms may also increase trust in the expertise of the therapist and enlarge beliefs in the treatment rationale and feasibility of the treatment goals, which together enhance the alliance and, in turn, have positive effects on treatment outcomes in the long run. In future research, it would be interesting to study which specific PTSD symptoms are related to the building and strengthening of the working alliance with therapists. For instance, PTSD symptoms such as negative beliefs about others and detachment might specifically affect building satisfactory interpersonal relationships, including alliance with the therapist.

Our third hypothesis, that, irrespective of the treatment condition, a lower working alliance predicted subsequent treatment dropout, was confirmed only for early working alliance (in treatment Session 2). This is in line with a previous study, which found early alliance to be predictive of dropout and that this was related to patients' readiness for change (Principe et al., 2006), a factor that is also found to be important in the implementation of PTSD treatment (Cook et al., 2017). Interestingly, in line with previous studies, changes in the working alliance later in the treatment (i.e., changes between Sessions 2 and 5) were not related to dropout (see for a review Ellis et al., 2018). More specifically, Cloitre et al. (2004), who also studied treatment outcomes in childhood abuse-related PTSD, did not find an influence of alliance (defined as the average WAI scores of Sessions 3, 4, and 5) on dropout. Taken together, based on our study, it is suggested that alliance assessed even earlier in treatment might be important because we did find an influence of alliance at the beginning of Session 2 on dropout. As dropout is an important problem in the treatment of childhood abuse-related PTSD (Ehring et al., 2014), our results are clinically relevant. In future studies, we suggest measuring alliances directly at the start of treatment and considering factors such as readiness for change.

Strengths, Limitations, and Recommendations

Our study comprised a sample that included patients with severe psychiatric conditions and was characterized by cultural diversity, thereby enhancing the generalizability of our findings. Another strength of this study is that we were able to directly compare working alliance in phase-based versus immediate exposure treatments (Cloitre et al., 2002, 2004). Next, to the best of our knowledge, this is the first study to test the effect of therapist rotation on working alliance in a randomized controlled trial. Thus, our study design enabled us to "manipulate" the alliance in an ethical manner, which is one of the challenges in alliance research (Cuijpers et al., 2019; Wampold & Flückiger, 2023). In addition, we measured the working alliance at several time points during treatment until the end of the treatment. Therefore, it is possible to study the reciprocal effects between working alliances and PTSD symptom severity.

However, given the different delivery formats of the treatments, we used different measurement time points for intensive exposure than for standard exposure. To ensure that our findings regarding the relationship between working alliance and changes in PTSD symptom severity were robust and not influenced by the timeframe of the assessments, we used two different models. Another limitation is that we were unable to disentangle within- and between-patient effects, which might have provided more information about the relationships between alliances and outcomes (Baier et al., 2024). Therapists administered treatments to patients in each condition to mitigate potential systematic variations arising from differences among therapists. Owing to the limitations in statistical power, we were unable to analyze the impact of individual therapists. It is recommended that future studies take this into account, as therapists may vary in their capacity to establish a working alliance with the patient. Another limitation of the study is that in the intensive exposure condition, we asked patients to rate the working alliance for two rotating therapists together. For future research on therapist rotation, it would be worthwhile to rate both therapists separately to further investigate their influence on the working alliance.

Regarding clinical recommendations, our results imply that, to prevent dropout, therapists should focus on how patients perceive the working alliance at a very early stage, as the working alliance at Session 2 was found to be related to dropout. Second, delivering treatment by two rotating therapists did not compromise the working alliance; this finding is novel and clinically significant as it could enhance the feasibility of implementing intensive treatment programs in outpatient treatment settings.

Finally, our findings suggest that it is not necessary for patients with CA-PTSD to include a treatment phase with skills training in interpersonal relationships before starting exposure therapy to strengthen the working alliance. However, a good working alliance can be helpful in achieving good endpoint treatment effects in phase-based treatments and in preventing dropouts. As symptom improvement preceded the increased alliance in our study, therapists could start directly with trauma-focused treatment aimed at decreasing PTSD symptoms.

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Appendix

Details on the Working Alliance per Measurement Point and it's Relationship With Dropout During Treatment

Table A1

Raw Means (Number/Standard Deviation) of Working Alliance Inventory per Measurement Time Point

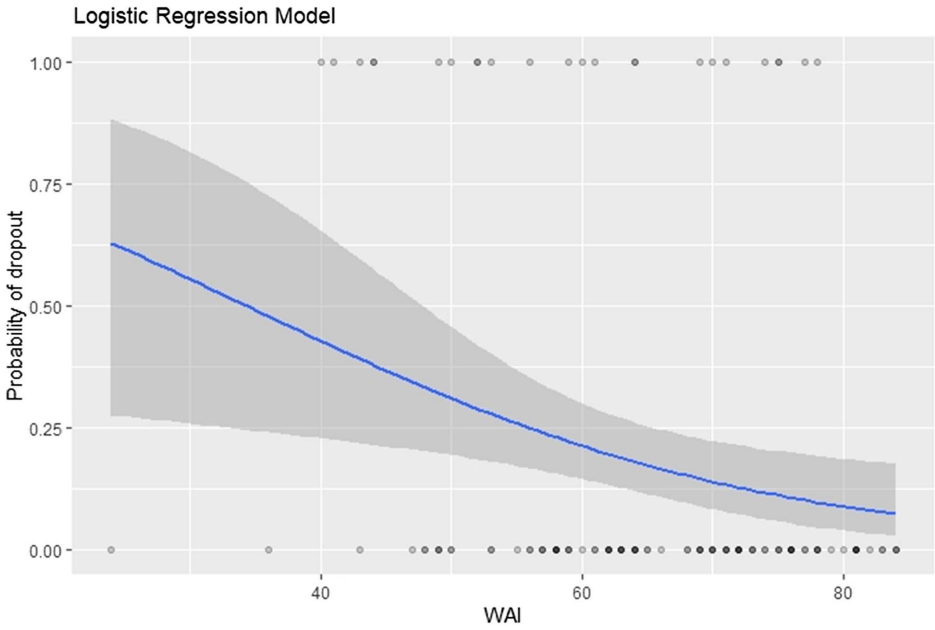
Measure	Session 2	Session 5	Session 9	Session 14	Session 16	Total
PE						
n	43	42	33		18	
M	66.8	68.7	69.9		71.9	68.8
SD	11.3	9.4	8.5		9.2	9.9
STAIR + PE						
n	44	44	42		33	
M	65.5	70.6	71.0		73.6	69.9
SD	13.4	9.4	9.8		10.2	11.1
iPE						
n	40	37	37	34		
M	62.9	66.8	70.6	70.0		67.4
SD	10.6	12.1	10.2	11.5		11.4

Note. PE = prolonged exposure; STAIR + PE = skills training in affective and interpersonal regulation + prolonged exposure; iPE = intensive prolonged exposure.

(*Appendix continues*)

Figure A1

Relationship Between Working Alliance Inventory Total Score and Dropout During Treatment



Note. WAI = Working Alliance Inventory. See the online article for the color version of this figure.

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