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A Pilot Test of Written Exposure Therapy for PTSD in Residential Substance Use Treatment

RUNNING HEAD: WRITTEN EXPOSURE FOR PTSD IN RESIDENTIAL SUD CARE

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Abstract

Background and Objectives. Post-traumatic stress disorder (PTSD) is highly comorbid with substance use disorders (SUD) and can impede SUD recovery^{1,2}. Residential SUD treatment is a crucial opportunity to address PTSD. However, PTSD treatment is lacking in residential SUD care³.

Methods. We conducted a nonrandomized feasibility study of Written Exposure Therapy (WET), a brief, evidence-based treatment for PTSD, with patients in residential SUD treatment⁴. We assessed attitudes towards treatment (Credibility and Expectancy Questionnaire, Barriers to Treatment Participation Scale) and mental health indicators (PTSD Checklist for DSM-5, Trauma Coping Self-Efficacy, Difficulties in Emotion Regulation-Short Form, and Brief Assessment of Recovery Capital).

Results. Thirty of 49 eligible participants completed WET (61%) and 92% ($n = 45$) attended at least one WET session. Paired samples t -tests revealed significant post-treatment improvement across all mental health indicators, with medium to large effect sizes.

Discussion and Conclusions. Attendance and completion rates compared favorably to prior exposure-based treatment for PTSD in SUD settings. Although causality cannot be inferred without a randomized controlled trial, mental health indicators, including PTSD, improved significantly following WET.

Scientific Significance. These findings provide evidence that PTSD can be successfully treated in short-term residential care using brief exposure-based interventions, which is a crucial clinical need that has been minimally studied in the past.

Keywords: PTSD, substance use disorder, exposure therapy, residential substance use treatment

Introduction

Posttraumatic stress disorder (PTSD) is highly comorbid with substance use disorders (SUD). Up to 50% of individuals in residential care for SUDs also have PTSD¹. Patients with comorbid PTSD-SUD are more likely to relapse to SUD compared to those with either disorder alone, and this risk is associated with PTSD symptom severity, highlighting the importance of treating PTSD to support SUD recovery⁵.

Residential SUD treatment represents a crucial opportunity to treat PTSD, given the potentially pivotal nature of a residential treatment episode. Patients are in a controlled environment designed to focus entirely on personal growth and sustainable changes to behaviors that are often entrenched and life-threatening. Pragmatic barriers to treatment engagement, such as transportation, occupational obligations, and childcare, are temporarily reduced.

Meta-analyses reveal that cognitive-behavioral treatments for PTSD delivered concurrently with SUD treatment improve PTSD symptoms^{6,7}. Exposure-based therapies are first-line treatments for PTSD and “most promising” for comorbid PTSD-SUD^{8–10}. Patients who receive exposure treatment for PTSD exhibit greater improvement in PTSD symptoms than those who receive SUD treatment only¹¹.

Despite strong evidence that PTSD and substance use are mutually exacerbating and can be successfully treated concurrently, PTSD treatment is rarely offered in SUD treatment settings and is virtually unavailable in residential SUD care³. Historical concerns that patients with SUDs would not tolerate PTSD-focused treatment have persisted, despite being unsupported by data^{6,12}.

The length of some PTSD treatments (10-12 sessions) may be difficult to fit into existing SUD programming, particularly in short-term residential care that may only last a month or less. Even longer-term residential or outpatient settings may lack capacity to for this additional treatment³. Further, treatments that require high-level reading and cognitive skills may be challenging for educationally disadvantaged or cognitively impaired individuals. Extensive training is required to deliver typical PTSD treatments (e.g., a master’s or doctoral degree, plus specialized training)^{13,14}. Many community clinics

are staffed by licensed drug and alcohol counselors not trained in exposure-based approaches, and clinics lack capacity to provide such training³. Thus, implementing evidence-based PTSD treatments is unrealistic in many community SUD treatment settings.

To date, only three reports describing behavioral treatment of PTSD in residential SUD care have been published. Mills et al.¹⁵ assessed the feasibility and acceptability of an hour-long PTSD psychoeducational session and found that PTSD symptoms dropped significantly and remained below baseline through the three-month follow-up. Schumacher et al.¹⁶ observed PTSD symptom reductions in a case series of three patients in group Written Exposure Therapy. Coffey et al.¹⁷ conducted the sole randomized clinical trial to date and reported that patients randomly assigned to receive PE exhibited significantly reduced PTSD symptoms compared to control participants¹⁷. Treating PTSD in residential SUD care could significantly enhance patient outcomes.

Written Exposure Therapy (WET) is a 5-session exposure-based treatment for PTSD⁴. Exposure occurs through writing repeatedly about a prespecified traumatic event. Unlike longer exposure treatments (e.g., Cognitive Processing and Prolonged Exposure Therapies), discussion of the trauma is limited and there is no homework. Because the purpose of the written exposures is to address the trauma memory, writing quality (i.e., grammar, sentence structure, spelling) is unimportant. WET is noninferior to Cognitive Processing Therapy and work is underway on a noninferiority comparison with PE^{18,19}. Because of its simplicity and brevity, WET may be more readily implemented in SUD residential care than other exposure-based approaches for PTSD. However, to date the only test of WET among people with comorbid SUD is the case study series of group WET, in which only one of the three participants completed treatment¹⁶.

We conducted an uncontrolled feasibility study of Written Exposure Therapy with patients in residential treatment for SUD. We assessed 1) the feasibility and acceptability of implementing WET in residential SUD treatment, based on recruitment, retention, and patient attitudes; and 2) changes in

PTSD symptoms and other mental health indicators. (emotion regulation, post-traumatic coping, We chose to assess emotion regulation and post-traumatic coping self-efficacy because evidence suggests that these constructs are associated with substance use following traumatic event exposure²⁰. The study design and resources precluded the inclusion of a post-discharge follow-up to assess relapse. Therefore, we assessed substance use recovery capital instead, which has been shown to predict substance use remission²¹.

Methods

Participants and Setting

Patients who reported trauma histories and indicated interest in the study, heard about the study from another patient or staff member and asked to participate, or exhibited elevated PCL-5 scores in a separate study were approached by study staff, who confirmed interest in participation and scheduled a baseline assessment. Eligibility criteria were: 1) score of 31 or higher on the PCL-5²²; 2) at least 18 years of age; 3) at least two weeks remaining at the facility (to allow sufficient time to complete study procedures); 4) sufficient memory of the index trauma to write detailed narratives about it; 5) absence of severe suicidality with intent; 6) absence of severe, uncontrolled psychotic symptoms; and 7) fluency in English. Figure 1 presents patient flow data. Treatment as usual included Medication Assisted Treatment and psychiatric medication for co-occurring conditions, individual case management, daily group SUD psychotherapy, and 12-step facilitation groups.

Procedures

All procedures were approved by the affiliated Institutional Review Board.

Baseline assessment. Participants were enrolled in care for at least two days before the consent/baseline appointment to avoid acute intoxication effects. Figure 2 presents a timeline of the study procedures. Potentially eligible participants met with a study staff member to complete informed consent and the baseline assessment, which included self-report questionnaires to assess trauma

history and PTSD symptoms. If participants reported at least one criterion A event and scored 31 or higher on the PCL-5, the researcher preliminarily identified an index trauma to be the focus of WET with the participant. A study therapist was assigned and approached the participant to initiate WET. Participants received a \$10 gift card for completing the baseline assessment.

Written Exposure Therapy. WET procedures were modified to include additional discussion of the index trauma before treatment. At the initial session, the study therapist confirmed that the index trauma identified in the baseline assessment was correct and identified an alternative event if needed (e.g., if a different event was more distressing). Session 1 included PTSD psychoeducation and the rationale for exposure therapy, followed by 30 minutes of writing about the index event in response to a writing prompt. Sessions 2-5 consisted of 30 minutes of prompted writing and 10 minutes of check-ins regarding PTSD symptoms and written narratives. Prompts for Sessions 1-2 instruct participants to provide a detailed description of the trauma event (e.g., “it is important that you provide as many specific details as you can remember. For example, you might write about what you saw, what you heard, or what you smelled”), as well as their thoughts and feelings during the event. From Sessions 3-5, participants shift from writing about the details of the trauma to how the trauma has changed their life (e.g., “I would also like you to write about how the trauma event has changed your life. You might write about if the trauma has changed the way you view your life, the meaning of life, and how you relate to other people”). The clinician reviewed narratives between sessions to ensure that the patient was completing exposures as intended⁴. Therapists ($n = 9$) were predoctoral externs and master’s or doctoral-level clinicians who completed a 2-hour WET training with the first and second authors, followed by bi-weekly group supervision and as-needed consultation between supervision meetings.

Follow-up. Participants completed follow-up questionnaires at the end of Session 5. Participants received a \$10 gift card for completing the follow-up assessment.

Baseline Measures

Attitudes Towards Treatment. The Credibility/Expectancy Questionnaire (CEQ; 6 items) was modified to assess cognitive and affective expectations specific to WET²³. Items were rated on a scale of 1-9 or 0-100%, with higher scores indicating more favorable expectations. Subscale reliabilities were excellent (Cronbach's $\alpha > 0.90$) except for the baseline credibility subscale, which was good ($\alpha = 0.75$).

Mental Health Indicators. An adapted Trauma History Questionnaire (THQ; 27 items)²⁴ assessed Criterion A event exposure. Three items from the Life Events Checklist²⁵ were added (committing harm to others, being held in captivity, or being threatened with physical injury).

The PTSD Checklist for DSM-5 (PCL-5; 20 items; possible range 0-80) assessed last-month PTSD symptoms on a scale of 0 (not at all bothered) to 4 (extremely bothered). A score of 31 or higher indicates probable PTSD²⁶. Reliability for the current sample was high at both time points (Cronbach's $\alpha > 0.89$).

The Trauma Coping Self-Efficacy scale (CSE-T; 9 items; possible range 9-63)²⁷ assesses ability to cope after a traumatic event (1 = not at all capable; 7 = totally capable), with higher scores indicating more self-efficacy. Reliability in the current sample was good (Cronbach's $\alpha > 0.85$ at both time points).

The Difficulties in Emotion Regulation Short-Form (DERS-SF; 18 items; possible range 18-90) assessed difficulties with emotion regulation across six subscales: nonacceptance of emotions, goal-oriented behavior, impulse control, emotional awareness, emotional clarity, and emotion regulation strategies²⁸. Participants rated how frequently they experienced each item on a scale of 1 ("almost never") to 5 ("almost always"), with higher scores indicating more difficulties. Reliability in the current sample was high (Cronbach's $\alpha = 0.87$ at both time points).

The Brief Assessment of Recovery Capital²¹ (BARC-10; 10 items; possible range 10-60;) assessed recovery capital, defined as internal and external resources that support a person in their recovery from substance use problems, on a scale of 1 ("strongly disagree") to 6 ("strongly agree").

agree”), with higher scores indicating more recovery capital. Reliability at baseline was low (Cronbach’s $\alpha = 0.56$) and good at follow-up ($\alpha = 0.82$).

The substance use modules of the *M.I.N.I.* Version 7.0.2 evaluated the baseline presence and severity of past-year alcohol and drug use disorders, based on DSM-5 criteria²⁹.

Post-treatment measures

The CEQ, PCL-5, CSE-T, DERS-SF, and BARC-10 were re-administered post-treatment. In addition, the Barriers to Treatment Participation Scale (BTPS) assessed attitudes towards treatment across four subscales: competing stressors and obstacles, treatment demands, treatment relevance, and therapist relationship³⁰. Twenty-three of 58 items were retained and reworded for use with an adult sample. Participants rated each barrier on a 1 (never a problem) to 5 (very often a problem) scale. Reliability in the current sample was excellent for the overall scale (Cronbach’s $\alpha = 0.96$). Subscale reliability was good (> 0.85) except for the competing stressors and obstacles subscale, which was acceptable ($\alpha = 0.71$).

Data analytic approach

To assess retention rates, analyses were conducted with all participants who were consented and eligible for WET ($n = 49$). Of these, 46 had complete baseline questionnaire data and were included in preliminary analyses assessing potential differences among participants who completed vs. did not complete WET. Primary analyses were conducted with participants who completed WET ($n = 30$). One did not have follow-up PCL-5 data and was excluded from primary analyses, leaving a final n of 29 (Figure 1). Two-tailed independent t -tests or chi-squared analyses assessed differences between completers and non-completers. Paired t -tests assessed pre- to post-treatment changes. Cohen’s d was used to estimate effect sizes. CEQ responses were standardized before analyses.

Missing data. Four participants’ baseline or follow-up data were missing due to protocol deviations. They were excluded from analyses as described above. Mean imputation was used for single-

item missing data, which was less than 1% of the data set for participants with otherwise complete data³¹. Only six noncompleters completed follow-up measures; therefore, noncompleters and completers could not be compared at follow-up.

Results

Preliminary analyses

Forty-nine participants were eligible for WET. Of these, 84% ($n = 41$) were enrolled in 28-day residential SUD care (ASAM Levels 3.7 and 3.7WM) and 16% ($n = 8$) were enrolled in 90-day residential care (ASAM Levels 3.5 and 3.3).

Retention. Nearly all eligible patients (92%; $n = 45$) attended at least one WET session. Sixty-one percent ($n = 30$) completed all five sessions. Sixty-one percent ($n = 150$) of 245 WET sessions across all eligible and consented participants were attended (Figure 1).

Demographic data. Forty-six consented and eligible participants had complete baseline data. Mean age was 38.29 years ($SD = 11.96$). Fifty-four percent ($n = 25$) were men, 44% ($n = 20$) women, and 2% ($n = 1$) transgender. One-half were Black (49%; $n = 21$), 40% ($n = 17$) white, 9% ($n = 4$) multiracial, and 2% ($n = 1$) Native American. Thirteen percent ($n = 6$) were Hispanic/Latinx. Approximately one-third completed some high school (34%; $n = 15$), 32% ($n = 14$) completed high school or trade/vocational school, 27% ($n = 23$) completed some college, and 7% ($n = 3$) completed college. Mean monthly income was \$695.03 ($SD = 822.99$).

Attitudes towards treatment and mental health indicators. Mean CEQ scores were 22.14 ($SD = 4.68$) for Credibility and $z = 0.00$ ($SD = 2.77$) for Expectancy. Mean PCL score was 58.25 ($SD = 12.19$). Mean CSE score was 31.87 ($SD = 11.63$). Mean DERS-SF score was 55.09 ($SD = 15.58$). Mean BARC-10 score was 40.50 ($SD = 6.55$). Forty-eight percent ($n = 21$) met criteria for alcohol use disorder, including 17 who also met criteria for drug use disorder. Opioid (33%; $n = 15$) and stimulant (33%; $n = 15$) use

disorders were most common, followed by cannabis (15%; $n = 7$) and other substances (benzodiazepines, PCP, and cough medicine; 10%; $n = 5$).

Completers vs. noncompleters did not differ on any variables (age, gender, race, ethnicity, educational level, income, baseline CEQ Credibility or Expectancy, total PCL, CSE-T, DERS-SF, or BARC-10; p -values ranging from .112 to .905).

Primary analyses (N = 29)

Total scores for baseline and follow-up assessments from participants who completed WET ($n = 29$) are presented in Table 1. Subscale means and t -test results are presented below.

Attitudes towards treatment. CEQ Credibility subscale scores indicated significantly increased credibility of WET post-treatment ($t[25] = -2.23$, $p = 0.035$; Cohen's $d = -0.44$). CEQ Expectancy subscale scores did not change significantly (standardized baseline z -score was $M = -0.18$, $SD = 2.69$; follow-up z -score was $M = 0.64$, $SD = 2.68$; $t[25] = -1.27$, $p = .214$). Follow-up BTPS subscale means indicated competing stressors and obstacles was the most highly rated barrier to treatment participation ($M = 2.04$; $SD = 1.01$), including the only BTPS item rated above 2 on the 1-5 scale: "During the course of treatment, I experienced a lot of stress in my life," with a mean of 2.67 ($SD = 1.49$). The remaining subscale means were lower: relevance of WET ($M = 1.59$; $SD = 0.81$), demands of WET ($M = 1.55$; $SD = 0.80$), and therapist relationship ($M = 1.40$; $SD = 0.88$).

Mental health indicators. PCL-5 total scores decreased significantly at follow-up ($t[28] = 4.92$, $p < 0.001$; Cohen's $d = 0.91$). Total scores for 31% of the sample ($n = 9$) were below 31 at follow-up, suggesting that they no longer met criteria for probable PTSD. Subscale analyses revealed significant decreases for each PCL-5 subscale (ps ranging from $< .001$ to $.002$; Table 1). CSE-T scores indicated significantly increased self-efficacy for trauma-related coping at post-treatment ($t[25] = -5.79$, $p < 0.001$; Cohen's $d = -1.14$). DERS-SF scores indicated significantly decreased difficulties with emotion regulation

at post-treatment ($t[25] = 2.85, p = 0.009$; Cohen's $d = 0.56$). BARC-10 scores indicated significantly increased recovery capital post-treatment ($t[25] = -4.24, p < 0.001$; Cohen's $d = -0.83$).

Discussion

In this nonrandomized pilot test of Written Exposure Therapy for PTSD, we found that WET is feasible and acceptable to patients in residential substance use disorder treatment. Sixty-one percent of participants completed WET and 92% attended at least one session. We observed significant post-treatment improvement in PTSD symptoms, trauma coping self-efficacy, emotion regulation, and recovery capital, with medium to large effect sizes.

Patient acceptability

Retention rates were similar to or better than prior studies of PTSD-focused treatment for patients with comorbid PTSD-SUD. The 61% completion rate is nearly identical to treatment completion rates across exposure treatment studies of patients with PTSD-SUD and the completion rate in an RCT testing Prolonged Exposure Therapy among patients in residential SUD care^{7,11,17}. Of the 19 participants who did not complete WET, 10 withdrew because they left the treatment facility, whereas nine withdrew from WET but remained in SUD treatment. This suggests that WET is generally, but not universally, well-tolerated among residential SUD patients. Participants reported generally favorable attitudes towards WET. Means on the Credibility and Expectancy questionnaire were above the scale midpoint at baseline and improved at follow-up, suggesting that participants' favorable assessment did not deteriorate after experiencing exposure therapy. Ratings suggested that the stress of residential SUD care and early recovery from SUD outweighed the stress of WET itself as a barrier to treatment engagement.

We found no significant baseline differences between treatment completers and noncompleters on any demographic, treatment attitude, or mental health indicators. These findings largely replicate prior findings with residential SUD patients undergoing exposure therapy for PTSD³². In contrast, we did

not find that participants who reported lower educational levels were more likely to leave exposure therapy prematurely³². This may be evidence that WET is more accessible than Prolonged Exposure Therapy for patients with less education. However, the sample may have been insufficiently powered to test between-subjects effects and these findings should be interpreted with caution.

Mental Health Indicators

Our hypothesis that PTSD symptoms would improve after WET was supported. Participants exhibited significant decreases in PCL-5 scores at follow-up and approximately one-third were no longer above the cutoff for probable PTSD. These findings are consistent with published reports indicating that PTSD can be treated concurrently with SUD and that exposure-based interventions are most effective^{6,7,11}

Improvements in trauma coping self-efficacy and emotion regulation are consistent with prior findings indicating that these outcomes improve following exposure therapy among individuals with PTSD-SUD^{20,33,34}. Improvements in recovery capital scores suggest that participants felt more positively about SUD recovery post-WET³⁵. Overall, results suggest that WET is associated with improvements in mental health indicators important to PTSD-SUD recovery, in addition to PTSD symptom reduction.

Clinical implications

These findings are notable given the instability of the patient population. The modal patient was publicly insured and presented with longstanding, severe PTSD symptoms and functional impairment across multiple psychosocial domains. They were newly abstinent from crisis-level SUD use and adjusting to new medications and residential treatment. Yet they were eager to receive treatment for PTSD, tolerated WET well, and showed clinically significant improvement afterwards. This is further evidence that patients with severe and clinically complex presentations can benefit from exposure-based treatment for PTSD and that such treatment should be available in SUD treatment contexts.

Although WET was generally well-tolerated, some participants exhibited significant post-exposure distress, suggesting that post-exposure grounding techniques may be indicated to meet the clinical needs of individuals with severe PTSD undergoing WET, particularly in residential care, where patients return to the treatment milieu after the session. Many individuals with severe PTSD have extensive histories of trauma exposure and identifying a single target event for treatment can be complex. There is limited discussion of identification of the index event in the WET manual. Therefore, a pre-treatment discussion with the patient to identify an index trauma for treatment may be indicated in the absence of a structured clinical interview to assess traumatic event exposure and PTSD symptoms.

Although PTSD symptoms decreased, two-thirds of the sample remained above the cutoff for probable PTSD. This is unsurprising considering the high severity of pre-treatment PTSD and SUD symptoms and many challenges faced by our sample. We speculate that even a small dose of exposure may have meaningful impact on willingness and readiness to engage in additional exposure treatment for PTSD after discharge. Thus, WET may work well as an initial step in a stepped-care model to treat PTSD in short-term SUD contexts, with follow-up PTSD treatment in a continuing care setting.

Limitations

The most important consideration in interpreting these findings is the lack of a control group. The improvement exhibited by participants may have occurred for reasons unrelated to WET. Participants were undergoing residential SUD treatment, which likely contributed to symptom reduction. However, most published data suggest that SUD-only treatment is limited in its capacity to affect PTSD symptoms, particularly when compared to exposure-based treatments offered concurrently with SUD treatment^{7,11}. Nevertheless, a randomized controlled trial is needed to assess whether symptom improvement can be attributed to WET or other factors.

Our sample size precluded assessment of treatment moderators. We were unable to assess follow-up differences between completers and noncompleters or reasons for withdrawing from WET.

Such analyses will be important in future work to identify individuals who may be likely to withdraw from exposure therapy prematurely and address barriers before beginning treatment. A post-discharge assessment would illuminate whether the gains exhibited immediately following WET were maintained and related to substance use relapse. We did not assess fidelity to WET as written and between-therapist variability is unknown. We were unable to conduct diagnostic interviews to confirm participants' PTSD diagnostic status. Although most participants (84%) were enrolled in the same short-term residential care program, the remainder were in a longer-term residential care program and may represent a different patient population. Ten of 29 participants completed the monthly PCL-5 at follow-up; this may have obscured post-WET improvement in PTSD symptoms. As this was an initial test of WET in residential SUD care, we aimed to follow the treatment as written and retained the individual format described in the manual. However, a group format may warrant future study as being more readily implementable in group-focused treatment contexts.

Conclusions

The results of this uncontrolled pilot test of WET in residential SUD care are promising and support further study, via a randomized controlled trial with longer-term follow-up, to compare WET to treatment as usual and assess whether the gains observed in this study are maintained and support long-term recovery from PTSD and SUD. More broadly, WET warrants additional study as being implementable in SUD treatment contexts as a treatment for PTSD.

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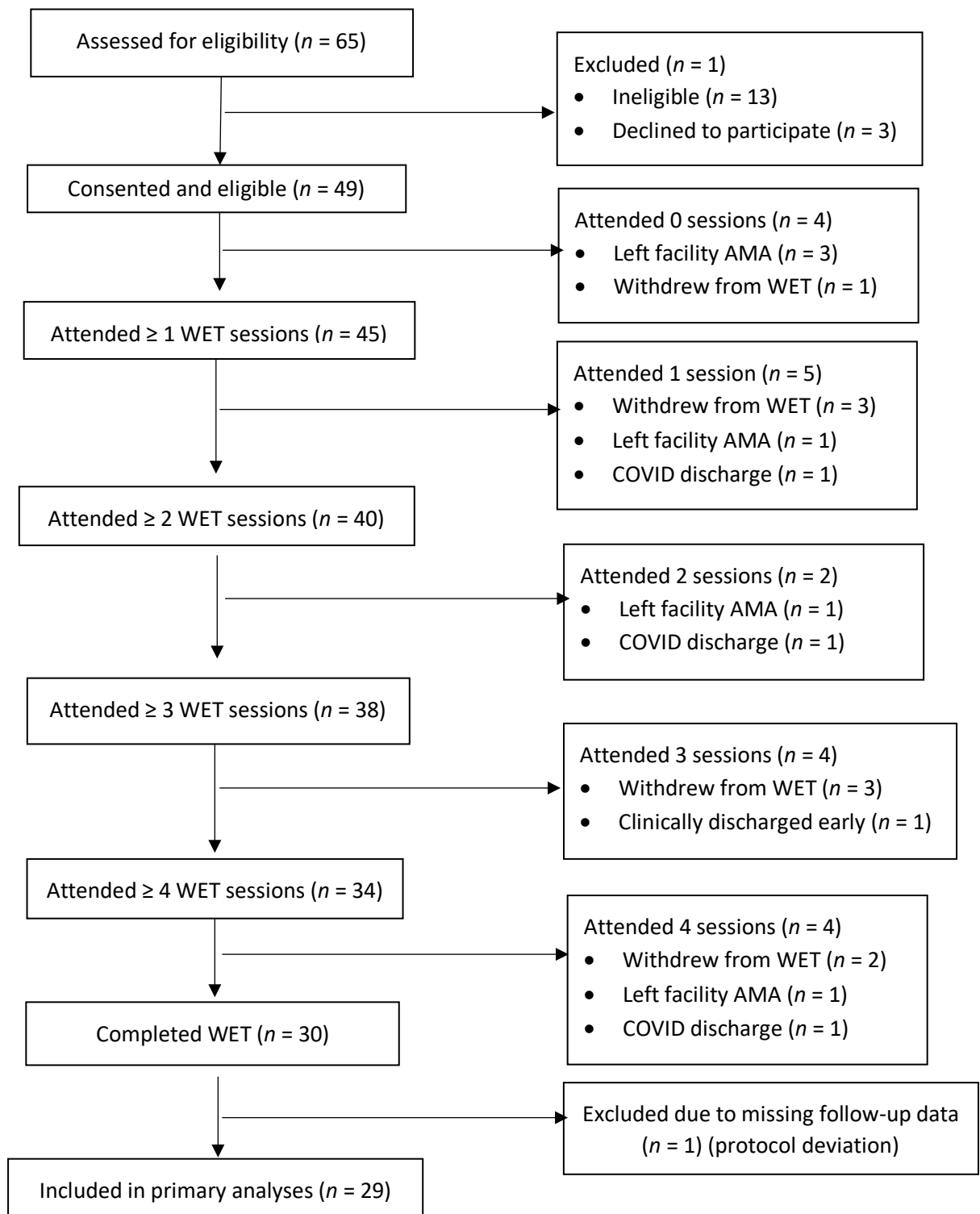
Table 1. Baseline characteristics and primary outcomes for patients who completed Written Exposure Therapy ($N = 29$).

Construct	Variable (Possible range)	Mean (SD) or % (n)	
Demographics	Age in years	40.50 (11.34)	
	Gender	Women	41% (12)
		Men	59% (17)
	Race	Black	52% (14)
		White	37% (10)
		Multiracial/Native American	10% (3)
	Ethnicity	Hispanic/Latinx	13% (6)
		Not Hispanic/Latinx	87% (39)
	Highest educational level	Some high school	25% (7)
		Completed high school	21% (6)
		Trade/vocational school	11% (3)
Attitudes towards Treatment		Some college	39% (11)
		College graduate	4% (1)
	Monthly income	\$680.91 (822.05)	
		Baseline	Follow-up
	CEQ Credibility (3-27)	21.73 (4.36)	23.81 (4.24)*
	CEQ Expectancy (0-100%) [†]	61.61 (24.69)	63.70 (23.60)
	CEQ Expectancy Symptom Reduction (1-9)	6.46 (1.73)	6.67 (2.00)
	Barriers to Treatment Participation (BTPS) (23-115)	--	36.44 (18.16)
	PCL-5 Total (0-80) ^{††}	58.38 (13.08)	44.91 (19.80)***
		Intrusion (0-20)	15.29 (3.88)
		Avoidance (0-8)	6.03 (2.00)
Mental Health Indicators		Cognitive/mood changes (0-28)	19.51 (5.65)
		Arousal (0-24)	17.86 (4.53)
	Coping Self-Efficacy (CSE-T) (9-63)	32.23 (11.36)	45.58 (9.04)***
	Emotion Regulation (DERS-SF) (18-90)	54.96 (14.36)	46.92 (13.22)**
	Recovery Capital (BARC-10) (10-60)	41.23 (6.41)	48.81 (6.35)***

[†]The two Expectancy subscale items scored as percentages are averaged and presented separately from the third Expectancy subscale item, which was scored on a 1-9 scale. Inferential analyses were only calculated for the complete Expectancy subscale (via z-scores; see Results).

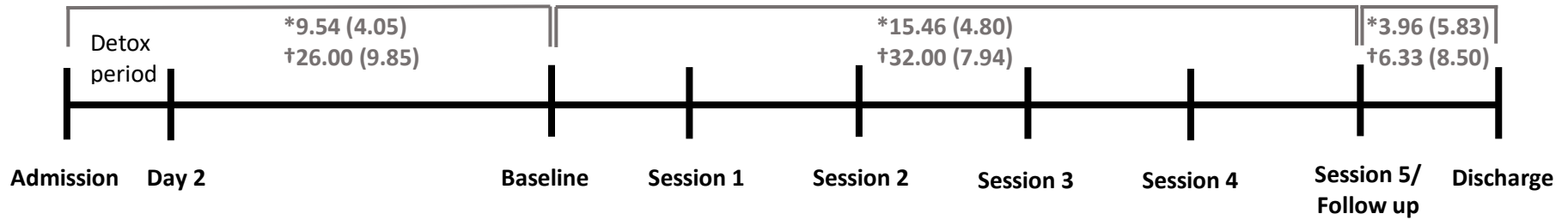
^{††}Ten participants completed the PCL-Monthly at follow-up; 19 completed the PCL-Weekly. * $p < .05$ ** $p < .01$. *** $p < .001$ based on two-tailed, paired-sample t -tests.

Figure 1. Participant Flow Diagram



Note. AMA = Against Medical Advice. WET = Written Exposure Therapy.

Figure 2. Mean Days to Complete Study Procedures for WET Completers ($n = 29$)



Note. Figure 2 depicts the mean (SD) days between admission, baseline, WET completion, and discharge from the SUD treatment facility.

*Denotes participants in the 28-day program.

†Denotes participants in the 90-day program.