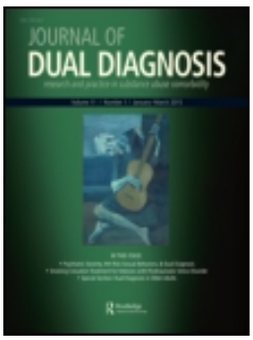

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Treatment Engagement: Female Survivors of Intimate Partner Violence in Treatment for PTSD and Alcohol Use Disorder

Ursula S. Myers, MS,[1,2] Kendall C. Browne, PhD,[1,2] and Sonya B. Norman, PhD[2,3,4,5]

Objective: Treatment engagement rates are low for individuals with comorbid posttraumatic stress disorder (PTSD) and alcohol use disorders across available interventions and treatment modalities. A better understanding of who does and does not engage in treatment can help improve retention, completion, and subsequent treatment outcomes. **Methods:** Forty female survivors of intimate partner violence with PTSD and alcohol use disorder participated in a randomized controlled trial comparing twenty-five 90-minute sessions of either modified Seeking Safety or Facilitated Twelve-Step in a community-based outpatient clinic. This study examined differences in demographics and pre-treatment PTSD symptoms and alcohol use between participants who engaged in treatment (attended ≥ 6 sessions, $n = 18$) and those who dropped out ($n = 22$). **Results:** There were no significant differences in PTSD or alcohol use disorder symptoms between treatment conditions. Women who engaged in therapy versus those who did not were significantly older ($M = 46.2$, $SD = 9.14$ vs. $M = 38.95$, $SD = 10.49$, respectively; $p = .027$), and had fewer dependents ($M = .17$, $SD = .38$, range = 0–1 vs. $M = .95$, $SD = 1.66$, range = 1–7, respectively; $p = .046$). Greater avoidance/numbing PTSD symptoms ($OR = 1.13$, $p = .028$, 95% CI [1.02–1.25]) and more years of heavy drinking ($OR = 1.04$, $p = .03$, 95% CI [1.00–1.07]) were also significantly associated with treatment engagement. **Conclusions:** This study replicates previous findings suggesting a need for additional retention strategies for younger women with dependents in comorbid PTSD and alcohol use disorder treatment. This is an analysis of data collected as part of a clinical trial registered as NCT00607412, at www.clinicaltrials.gov. (*Journal of Dual Diagnosis*, 11:238–247, 2015)

Keywords *intimate partner violence, posttraumatic stress disorder, alcohol use, treatment completion, mental health*

Prevalence of alcohol use disorders among individuals with posttraumatic stress disorder (PTSD) is approximately 40% (Kessler, Chiu, Demler, Merikangas, & Walters, 2005). These high rates of comorbidity are concerning as individuals with both PTSD and alcohol use disorder report greater rates of unemployment, more severe negative alcohol use consequences, and a greater number of mental and physical health problems as compared to those individuals with either a PTSD or alcohol use disorder diagnosis alone (Brown, 2001; Hull, 2002; Liberzon & Martis, 2006). Female trauma survivors are particularly vulnerable to both PTSD and alcohol use disorder. Women exposed to trauma experience PTSD at rates twice as high as men (10.4% vs. 5%; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Moreover, women with PTSD are at greater risk for an alcohol use disorder when compared to trauma-exposed women without PTSD (Sartor et al., 2010). Women are also at higher risk than men for a number of serious consequences related to alcohol use, including becoming intoxicated more quickly, developing cirrhosis of the liver more rapidly, and having greater risk of dying as a result of alcohol-related violence or accidents (Greenfield et al., 2007; Mumenthaler, Taylor, O'Hara, & Yesavage, 1999).

Examining comorbid PTSD and alcohol use disorder in women who have experienced intimate partner violence may be of particular importance. Reported rates of PTSD in this subset of female trauma survivors are high, ranging between 31% and 84% (Gleason, 1993; Kemp, Rawlings, & Green, 2006). This is alarming given that approximately 25% of women report experiencing intimate partner violence in their lifetimes (Thompson et al., 2006). Additionally, alcohol use has been shown to both proceed and follow intimate partner violence at high rates (Quigley & Leonard, 2000) and thus appears to be both a precipitant and a consequence of experiencing this form of trauma.

Recent reviews of evidence-based treatment for PTSD and alcohol use disorder report preliminary evidence supporting the use of integrated psychotherapy (i.e., addressing both disorders during the course of treatment) to treat co-occurring PTSD and alcohol use disorder (Roberts, Roberts, Jones, & Bisson, 2015). Similarly, integrated treatment of PTSD and alcohol use disorder has been recommended to help women recover from both PTSD and alcohol use disorder and reduce the con-

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sequences associated with having these disorders (Ouimette & Back, 2006; Finklestein, 2004). However, the potency of the evidence base is limited by the high rates of dropout from both trauma-focused and non–trauma-focused interventions, which have ranged from 32% to 92% (Foa et al., 2013; Kaysen et al., 2014; Lipsky et al., 2010; Mills et al., 2012; Roberts et al., 2015).

PTSD and alcohol use disorder treatment studies have varied widely in how they operationalize treatment dropout, engagement, and completion. Studies of Seeking Safety, the most widely studied integrated therapy for PTSD and alcohol use disorder, have operationalized treatment completion as attending 25% or more of sessions (Hien, Cohen, Miele, Litt, & Capstick, 2004; Najavits, Weiss, Shaw, & Muenz, 1998). Other studies of integrated PTSD and alcohol use disorder treatments have considered completers to have attended 60% of sessions or more. For example, Gatz et al. (2007) operationalized treatment completion as attending the first 24 out of 36 sessions of a twice-weekly intervention, while Back (2006) operationalized completion as attending seven or more sessions of a 12-week intervention, and Brady, Dansky, Back, Foa, and Carroll (2001) considered completion attending at least 10 sessions out of a 16-session intervention. In other areas of psychotherapy research, such as the depression and schizophrenia research, attendance at 25% of sessions is termed treatment engagement rather than treatment completion (Holdsworth, Bowen, Brown, & Howat, 2014; Huang, Hill, & Gelso, 2013; Kukla, Davis, & Lysaker, 2014).

Regardless of how these terms are operationalized, it is clear that dropout rates among individuals with PTSD and alcohol use disorder are problematically high. Several reasons for these high dropout rates have been proposed within the PTSD and alcohol use disorder literature. For instance, individual demographic characteristics appear to play a role in treatment outcomes. Predictors of treatment dropout identified in the PTSD literature include younger age, female gender, lower socioeconomic status, personality disorder traits, and difficulty with childcare and transportation (Schottenbauer, Glass, Arnkoff, Tendick, & Gray, 2008), suggesting that factors such as having dependents and low income may play a role in treatment engagement. Similarly a meta-analysis of alcohol use disorder treatment studies identified young age as a predictor of treatment dropout (Adamson, Sellman, & Frampton, 2009). Lower education and ethnic minority identification have also been associated with higher rates of alcohol use disorder treatment dropout (Amaro et al., 2007; Jacobson, Robinson, & Bluthenthal, 2007).

A limited number of studies have examined demographic variables as predictors of dropout in women receiving treatment for co-occurring PTSD and alcohol use disorder. Results of a randomized controlled trial of exposure psychotherapy versus naltrexone with motivational enhancement therapy for co-occurring PTSD and alcohol use disorder indicated treatment completers (defined as attending at least 6 sessions out of 18) were older, were more highly educated, and had higher socioeconomic status than dropouts (Foa et al., 2013). However, Hien et al. (2004) reported no significant differences in baseline symptom severity or demographic information between those who attended at least 25% of sessions and those who dropped out in their study that examined women who received Seeking Safety compared to relapse prevention.

PTSD symptoms may play an important role in treatment dropout. Overall PTSD symptom exacerbation has been associated with treatment dropout (Schottenbauer et al., 2008), and specific symptom clusters may be even more influential. One aspect of PTSD that may be particularly related to dropout is avoidance symptoms. The simple act of presenting for treatment often involves exposure to triggers that are typically avoided. For example, in a study examining evidence-based PTSD treatment dropout in a community clinic, patients with higher avoidance symptoms were more likely to drop out (Zayfert, 2005).

Severity of alcohol use disorders may also be associated with treatment dropout. A meta-analysis of alcohol use disorder treatment studies identified greater alcohol dependence severity and alcohol use severity, as well as more co-occurring *Diagnostic and Statistical Manual, Fourth Edition* (*DSM-IV*; American Psychiatric Association, 2000) Axis-I/II diagnoses, as predictors of treatment dropout (Adamson et al., 2009). However, there was no examination of gender differences in this meta-analysis, limiting conclusions that can be drawn with regard to women. Alcohol use has also been identified as a predictor of treatment dropout in the PTSD literature (Schottenbauer et al., 2008).

A limited number of studies have examined alcohol use and PTSD symptom severity as predictors of dropout among women receiving co-occurring PTSD and alcohol use disorder treatment. Findings have been mixed. In the development study of Seeking Safety, the most widely studied integrated PTSD and alcohol use disorder psychotherapy, Najavits et al. (1998) found that women who attended at least 25% of sessions had more severe symptoms of PTSD and alcohol use disorder at baseline than those who did not. Najavits and colleagues posited that women with more severe symptoms may have found Seeking Safety to fit their needs better than women with less severe symptoms. More recently, Hien et al. (2004) conducted a multi-site randomized control trial with women who were randomized to Seeking Safety or standard community treatment. No differences were found in baseline symptom severity or demographic characteristics between those who attended at least 25% of all therapy sessions and dropouts across sites. However, differences between those who dropped out and those who did not were reported in another study of Seeking Safety (Gatz et al., 2007); authors reported that baseline PTSD and alcohol use disorder symptoms were more severe among those who dropped out of treatment during the first 24 out of 36 sessions than for those who did not.

There are few studies examining predictors of dropout in studies of PTSD and concurrent substance use disorders other than alcohol. Brady et al. (2001) examined a group of partici-

pants with comorbid PTSD and cocaine dependence receiving exposure therapy combined with cognitive-behavioral relapse prevention techniques. The authors reported that those who attended fewer than 10 out of 16 sessions had higher avoidance symptoms pre-treatment than those who attended 10 or more sessions.

A better understanding of characteristics that differentiate those who drop out of treatment from those who do not is critical to improving outcomes for individuals with PTSD and alcohol use disorder. The goal of this study was to examine a set of variables that prior literature suggests may be predictive of treatment dropout for women with PTSD and alcohol use disorder in a sample of treatment-seeking female survivors of intimate partner violence with PTSD and alcohol use disorder randomized to a modified Seeking Safety protocol or Facilitated Twelve-Step (Maisto, Clifford, Stout, & Davis, 2007). To be consistent with other Seeking Safety literature, we defined attending fewer than 25% of sessions as treatment dropout (Hien et al., 2004; Hien et al., 2009; Najavits et al., 1998). However, to be consistent with the broader literature on treatment engagement and completion (Holdsworth et al., 2014; Huang et al., 2013; Kukla et al., 2014), we labeled those who attended 25% or more of sessions as treatment engagers rather than treatment completers. Our aim was to examine demographic variables, pre-treatment PTSD symptoms, and pre-treatment alcohol use among women who engaged in at least 25% of sessions. As study participants were randomized to one of two interventions, the role of treatment assignment was explored (integrated PTSD and alcohol use disorder treatment vs. alcohol use disorder-only treatment). Based on prior studies, we hypothesized that participants who engaged in treatment would be older, report more severe PTSD symptoms, and report greater alcohol use.

MATERIALS AND METHODS

Participants

Forty female survivors of intimate partner violence were recruited for a randomized controlled trial comparing an integrated intervention for co-occurring PTSD and alcohol use disorder (Seeking Safety and guilt and functioning modules from cognitive therapy for battered women; Kubany et al., 2004; Najavits et al., 1998) to Facilitated Twelve-Step. Participants were recruited from University of California, San Diego Outpatient Psychiatry Service, community clinics and agencies providing services related to intimate partner violence, and newspaper advertisements. All study activities (assessments and therapy) were conducted at University of California, San Diego Outpatient Psychiatry Service. Inclusion criteria for participants were as follows: (a) females older than 18 years old, (b) at least one month out of the abusive relationship, (c) currently meeting *DSM-IV* criteria for PTSD and alcohol use disorder, and (d) English speaking. Exclusion criteria for women were the following: (a) moderate or severe cognitive impairment (Mini-Mental State Examination score of 18 or less) and (b) history of psychosis or mania not well managed by pharmacotherapy for the most recent 6-month period. Please see Figure 1 for the CONSORT flow diagram.

Design

Women were randomly assigned to twenty-five 90-minute sessions of either Seeking Safety or Facilitated Twelve-Step. Treatment engagement was defined as attending at least 6 of the 25 sessions (Hien et al., 2009; Najavits et al., 1998). At the start of the study, both treatments were delivered in a group format with cohort admission; however, due to scheduling and recruitment difficulties, halfway through the study the format was changed to individual treatment. Twenty-one women received treatment in an individual format ($n = 15$, 71.43% in Seeking Safety, and $n = 6$, 28.57% in Facilitated Twelve-Step) and 19 received treatment in group therapy format ($n = 16$, 84.21% in Seeking Safety, $n = 3$, 15.79% in Facilitated Twelve-Step).

Therapists

Individual therapists included two postdoctoral-level psychologists. Group therapy was co-led by a psychologist and a doctoral student in clinical psychology. Interventions were co-delivered by senior clinicians (e.g., clinical staff or postdoctoral fellows) and doctoral students. Training and monitoring occurred via manual review, direct observation, review of audio recordings, and weekly supervision by the study principal investigator (SB) and co-investigators.

Therapies

Seeking Safety

Seeking Safety is a present-centered therapy that focuses on current PTSD and alcohol use symptoms (Najavits et al., 1998). The treatment has 25 sessions with topics related to its five principles: (a) the first priority is safety; (b) treatment for both disorders is integrated; (c) focus on ideals; (d) cognitive, behavioral, interpersonal, and case management content areas; and (e) attention to therapist processes. The present study incorporated aspects of Kubany's (2004) Cognitive Trauma Therapy for Battered Women with PTSD including modules on the following topics: trauma-related guilt, assertiveness training, managing contact with former abusers, and identifying potential abusers. The 25 therapy sessions were conducted twice a week over a 12-week period.

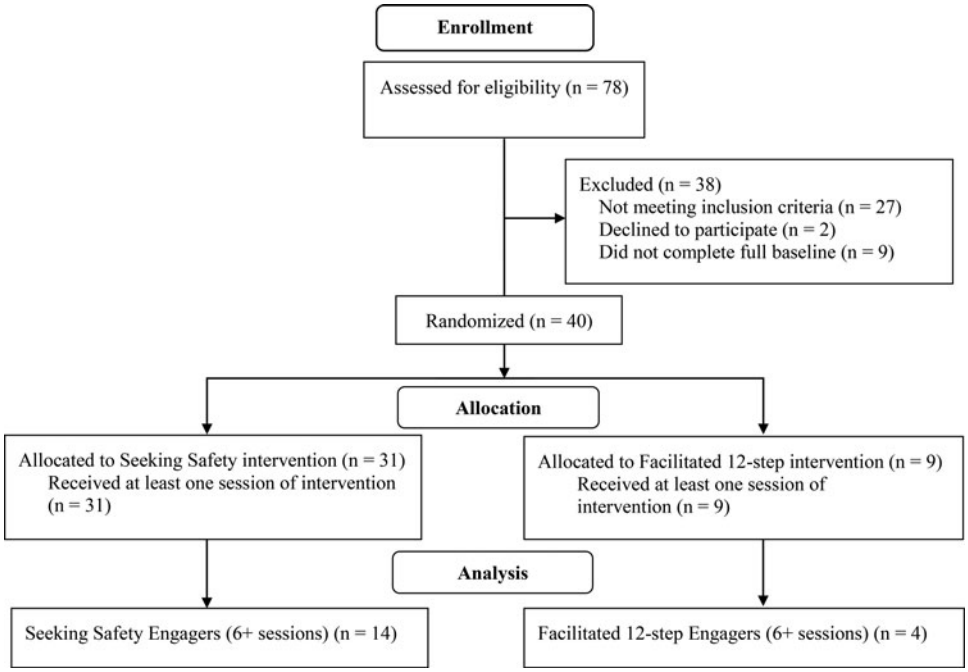

FIGURE 1 CONSORT flow diagram.

Facilitated Twelve-Step

The control condition was a manualized Facilitated Twelve-Step group treatment, modified from Project MATCH (Maisto et al., 2007) by a previous group (Brown et al., 2006). Facilitated Twelve-Step is a therapist-led supportive group using a 12-step model that contains three modules designed to cover specific steps (e.g., steps 1–3) over multiple sessions. Participants were encouraged to discuss issues related to abstinence from alcohol without any discussion of trauma. The 25 therapy sessions were conducted twice a week over a 12-week period.

Procedures

All procedures were performed in accordance with federal standards and were approved and monitored by the University of California, San Diego Human Research Protections Program institutional review board (IRB). Individuals were recruited via flyers inviting them to contact the research coordinator via telephone. Full study procedures were described and, if still interested, potential participants completed an IRB-approved telephone consent and were screened to assess eligibility (defined as any alcohol and/or drug use in the past 30 days and a positive screening result for PTSD). Eligible participants then completed full written study consent and baseline assessment in person. The baseline assessment consisted of both structured interviews and self-report measures (detailed below) before randomization to Seeking Safety or Facilitated Twelve-Step. Participants were then assessed at mid-treatment (6 weeks), post-treatment, and 3- and 6-month follow-up (not reported here). Participants were compensated $25 for completion of research assessments.

Measures

Demographic data including age, education, race, income, number of dependents, and ethnicity were collected via structured interview with the Addiction Severity Index, 5th edition (ASI; McLellan et al., 1992).

The PTSD Checklist (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996), a widely accepted self-report measure of PTSD symptomatology, was used at screening to determine study eligibility. The Clinician-Administered PTSD Scale (CAPS; Blake et al., 1995) was administered at baseline to fully evaluate DSM-IV PTSD symptoms. The CAPS is a 30-item interview that measures the frequency and intensity of PTSD symptoms. Adequate reliability and validity has been shown for the CAPS (Blake et al., 1995; Weathers, Keane, & Davidson, 2001). Total CAPS scores as well as scores for each of the PTSD symptom clusters (B: re-experiencing, C: avoidance/numbing, and D: hyperarousal) were obtained from this measure.

The Structured Clinical Interview for *DSM-IV* (SCID; First, Spitzer, Gibbon, & Williams, 1997) or the MINI International Neuropsychiatric Interview (MINI; Lecrubier et al., 1997) were administered to determine whether the women met criteria for an alcohol use disorder according to the *DSM-IV*. In order to reduce participant fatigue at the baseline session,

the research team chose to switch to the MINI instead of the SCID after the first 10 participants completed the assessment battery. The ASI was used to assess problematic alcohol use. In particular, number of years drinking to intoxication was obtained from this measure and divided by age to create a new variable of years drinking problematically accounting for age. Percentage of days drinking (days alcohol consumed during previous 30 days) at post-treatment was assessed via the Timeline Follow-Back (Sobell & Sobell, 1992).

Data Analytic Plan

Post-treatment differences in PTSD and alcohol use symptoms were compared between treatment conditions using *t*-tests. Demographic variables (age, education, race, income, number of dependents, and ethnicity) and treatment assignment (Seeking Safety individual or group, Facilitated Twelve-Step individual or group) were compared between groups (engagers and dropouts) using t-tests and chi-square tests. PTSD and alcohol use symptom severity were examined as predictors of treatment dropout via logistic regression with treatment engagement (0 = dropouts, 1 = engagers) as the outcome variable. Univariate relationships with PTSD and alcohol symptom severity were tested first, using alpha levels of .05. One univariate test examined the relationship between each *DSM-IV* PTSD symptom cluster (re-experiencing, avoidance/numbing, and hyperarousal) and treatment engagement. One univariate test examined the relationship between alcohol use (number of years drinking to intoxication divided by age) and treatment engagement. The final multivariate model using an alpha level of .05 included demographic variables found to be significantly different between treatment engagers and dropout groups, PTSD symptom clusters, and years of alcohol use (accounting for age).

RESULTS

Baseline Characteristics and Demographics

Twenty-four women (60%) were Caucasian, five (12.5%) were African American, and ten (25%) were Hispanic; their mean age was 42.23 years (SD = 10.48). Please see Table 1 for further information.

Women who engaged in therapy were significantly older than those who dropped out (M = 46.2, SD = 9.14 vs. M = 38.95, SD = 10.49); $t(38)$ = -2.31, p = .027, d = .74. They also had significantly more dependents than those who did not engage in treatment. Only three out of 18 women (16.7%) who engaged in treatment had dependents (each reporting only one dependent; range = 0–1, M = .17, SD = .38), while 9 out of 22 dropouts (40.9%) reported dependents (range = 1–7; M = .95, SD = 1.66); $t(38)$ = 2.12, p = .046, d = .90. The only other demographic characteristic that differed significantly between those who engaged in treatment and those who did not was the number of years drinking, with engagers reported more drinking years (M = 22.06, SD = 12.84) than dropouts (M = 9.08, SD = 8.75); $t(34)$ = –2.27, p = .03, d = .75.

Almost half of the women (n = 18, 45%) engaged in treatment, and 55% (n = 22) dropped out. As expected, those who engaged in treatment attended significantly more treatment sessions than those who did not engage; $t(31)$ = -7.82,

TABLE 1
Baseline Demographics and Treatment Characteristics

	Overall Sample $N = 40$		Engagers $n = 18$		Dropouts $n = 22$		
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	Between-Groups Comparison
Age (years)	42.23	10.48	46.22	9.14	38.95	10.49	$t(38) = -2.31, p = .027, d = .74$
Education (years)	12.31	2.81	12.28	3.89	12.33	1.46	$t(38) = .061, p > .05$
Drinking (years)	15.36	12.62	22.06	12.84	9.08	8.75	$t(34) = -2.27, p = .03, d = .75$
Number of Tx sessions	10.79	8.13	12.15	8.77	7.78	5.78	$t(31) = -7.82, p < .001$
Times treated for AUD	1.76	3.07	1.78	3.17	1.75	3.06	$t(38) = .03, p > .05$
Times treated for SUD	2.63	4.11	2.72	5.04	2.55	3.2	$t(38) = .13, p > .05$
	n	%	*n*	%	*n*	%	
Race/ethnicity							$\chi^2 = .12, p > .05$
Caucasian	24	55.8	14	77.8	10	45.5	—
African American	5	11.6	1	5.6	4	22.7	—
Hispanic	10	27.5	2	11.1	8	31.7	—
Dependents	13	32.5	3	16.67	9	40.9	$t(38) = 2.12, p = .046, d = .90$
Treatment format							$\chi^2 = .33, p > .05$
Individual	19	47.5	7	38.9	12	54.5	
Group	21	52.5	11	61.1	10	45.5	

Note. Tx = treatment, – = underpowered to compare groups, AUD = alcohol use disorder, SUD = substance use disorder.

TABLE 2
Comparisons of Treatment Engagement Between Groups

	Overall Sample		Engagers		Dropouts	
	SS *n*	FTS *n*	SS *n*	FTS *n*	SS *n*	FTS *n*
Treatment condition	31	9	14	4	17	5
Treatment format						
Individual	16	3[1]	6	1	10	2
Group	15	6	8	3	7	3
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Number of Tx sessions	12.5 (8.77)	7.78 (5.78)[2]	16.78 (4.29)	15.22 (6.89)	3.5 (1.29)	1.58 (1.28)

Note. Tx = treatment, SS = Seeking Safety, FTS = facilitated twelve step.
[1] $\chi^2 = 10.62$, $df = 1$, $p < .001$.
[2] $F\ (1, 27) = 5.71$, $p = .024$.

$p < .001$. There was no statistically significant difference in treatment engagement between those who received individual therapy and those who received group therapy ($\chi^2 = .33$, $df = 1$, $p > .05$).

Comparison of Treatment Groups

As shown in Table 2, 31 participants (77.5%) were randomized to the Seeking Safety condition, and nine (22.5%) were randomized to Facilitated Twelve-Step. There was no significant difference between Seeking Safety and Facilitated Twelve-Step in treatment engagement (14 of 31, 45.2% vs. 4 of 9, 44.4%, respectively; $\chi^2 = .28$, $df = 1$, $p > .05$). There were also no significant differences between treatment conditions in post-treatment PTSD symptoms based on the CAPS ($M = 50$, $SD = 26.7$ in Seeking Safety; $M = 45.5$, $SD = 37.5$ in Facilitated Twelve-Step); $t(16) = 0.27$, $p > .05$ (also see Roberts et al., 2015), or in post-treatment percentage of days drinking in the past month ($M = 13.23$, $SD = 21.25$ in Seeking Safety; $M = 13.5$, $SD = 4.95$ in Facilitated Twelve-Step); $t(16) = 0.025$, $p > .05$. With regard to therapy condition, compared to women who did not engage in Seeking Safety, engagers were significantly older ($p = .012$); there were no significant differences in age or other demographics among women who engaged in Facilitated Twelve-Step compared to dropouts. None of the other demographics differed significantly by treatment condition.

The number of treatment sessions attended by participants was significantly different across treatment conditions, with Seeking Safety participants attending more sessions ($M = 12.5$, $SD = 8.77$, range = 1–24) as compared to Facilitated Twelve-Step participants ($M = 7.78$, $SD = 5.78$, range = 1–16); $F(1, 27) = 5.71$, $p = .024$. Further, the number of participants receiving either Seeking Safety or Facilitated Twelve-Step in group or individual format was significantly different, with more participants receiving Seeking Safety individually ($\chi^2 = 10.62$, $p < .001$).

PTSD Regression Model

The avoidance/numbing symptom cluster was significantly associated with treatment engagement (cluster C; $OR = 1.13$, $p = .028$, 95% CI [1.02–1.25]; see Table 3 and Figure 2). For every 1-point increase in avoidance/numbing symptom cluster, the odds that the participant would engage in treatment increased by 6.5%. Neither intrusive symptoms nor hyperarousal symptoms were significantly associated with treatment engagement. Please see Figure 2 for the mean PTSD symptom cluster scores of engagers and non-engagers.

TABLE 3
Regression Analyses Predicting Treatment Engagement

	B	*SE*	Wald	*OR*	95% CI
Univariate PTSD					
Re-experiencing	−.04	.06	.44	.96	[.85, 1.08]
Avoidance/numbing	.13*	.05	5.8	1.13	[1.02, 1.25]
Hyperarousal	−.11	.07	2.5	.90	[.79, 1.03]
Univariate alcohol					
Age controlled Alcohol	.04*	.02	4.82	1.04	[1.00, 1.07]
Full model[1]					
Dependents	.945	.848	1.242	2.573	[.49, 13.56]
Age-controlled alcohol	.001	.002	.242	1.001	[.99, 1.00]
Re-experiencing	−.024	.064	.140	.976	[.86, 1.11]
Avoidance/numbing	.11*	.03	4.43	1.07	[1.00, 1.15]
Hyperarousal	-.11	.08	2.04	.90	[.77, 1.04]

Note. B = unstandardized regression coefficient, *SE* = standard error, OR = odds ratio, CI = confidence interval, PTSD = posttraumatic stress disorder.
[1] Cox & Snell $R^2 = .20$.
* $p < .05$.

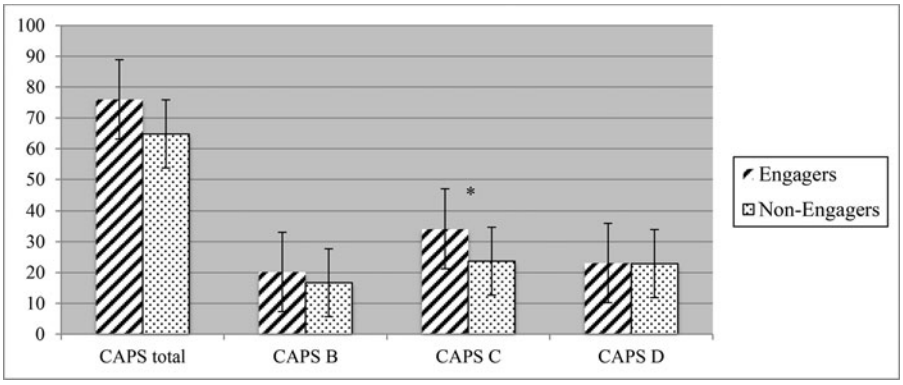

FIGURE 2 CAPS mean score differences between engagers and non-engagers. *Note.* $^{*}p < .05$. CAPS = Clinician-Administered PTSD Scale, CAPS B = re-experiencing symptoms, CAPS C = avoidance/numbing symptoms, CAPS D = hyperarousal symptoms.

Alcohol Use Regression Model

Years of problematic drinking (controlling for age) was significantly associated with treatment engagement ($OR = 1.04, p = 0.03$, 95% CI [1.00–1.07]), such that for every additional year of problematic drinking, the odds that the participant would engage in treatment increased by 3.7%. Put another way, each 5-year period of heavy drinking increased the odds that a participant engaged in treatment by 18.5%.

Demographics, PTSD, and Alcohol Use Regression Model

In the final model, when age, number of dependents, years of problematic alcohol use, and PTSD symptoms were entered simultaneously, the full model did not significantly predict treatment engagement ($\chi^2 = 5.57$, $p = .056$); however, the avoidance/numbing cluster was significant in this model ($OR = 1.07, p = .046$, 95% CI [1.00–1.15], Cox & Snell $R^2 = .20$).

DISCUSSION

This study examined differences in baseline characteristics between women who engaged in treatment (i.e., attended 25% or more of 25 psychotherapy sessions) for comorbid PTSD and alcohol use disorder and those who did not. With respect to demographics, we found that participants who were older and had significantly fewer dependents were more likely to engage in treatment. It is possible that older participants may have been better prepared for treatment based on more previous treatment attempts. Several women reported in therapy that they had not been offered PTSD treatment before and appreciated the opportunity to finally focus on PTSD. Additionally, older women may have been more likely to engage in treatment because they had more flexibility to attend sessions as they may have had fewer demands, such as childcare, on their time. Our data support this hypothesis, with significantly more women with dependents than those without dependents dropping out of treatment.

The findings regarding age and dependents suggest that evening and weekend hours or on-site childcare may help younger women and/or women with children to overcome attendance barriers. Previous studies of residential alcohol use disorder treatment found that treatment engagement rates dramatically increased when women were allowed to bring their children to treatment (Hughes et al., 1995). Community-based clinics operate under tight budgets, limiting the availability of evening/weekend services and childcare; however, investing in such resources may allow a greater number of women to engage in treatment.

Other than age and number of dependents, we did not find significant relationships between demographics and treatment engagement. Previous studies of either PTSD or alcohol use disorder treatment have found that ethnic minorities have lower rates of treatment engagement (Amaro et al., 2007; Jacobson et al., 2007). Brady et al. (2001) reported that in their study, participants who engaged in treatment had more years of education than dropouts. It is possible that our study was not adequately powered to detect these differences. Further, we did not replicate previous findings that income level was associated with treatment engagement (Greenfield et al., 2007). This may have been a function of the community-based clinic where this study was conducted, as women seeking services at this clinic all reported low income, eliminating the possibility of examining the relationship between higher income and treatment engagement. Ethnicity, education, and income level as predictors of treatment engagement for women with PTSD/alcohol use disorder should be further examined in future studies.

As hypothesized, women who engaged in treatment on average had more severe PTSD and alcohol use symptoms at pre-treatment than did dropouts. On a univariate level, even after controlling for age, engagers reported more severe avoidance/numbing PTSD symptoms and more years of problematic

use. Our findings are consistent with other PTSD and alcohol use disorder treatment studies that found that women who engaged in treatment had more severe alcohol use symptoms at baseline (Brady et al., 2001; Gatz et al., 2007; Hien et al., 2009; Najavits et al., 1998). Other studies have not found this (Hien et al., 2004), suggesting that work that disentangles this difference, such as multivariate analyses to examine how different "profiles" of women with comorbid PTSD and alcohol use disorder engaged in treatment, is needed. The present study is an early attempt to do this work; however, power was limited. Larger samples will be needed to examine this question using techniques such as latent profile analysis.

In relation to the PTSD symptom findings, our results are consistent with Najavits et al. (1998) as well as Hien et al. (2009), who found that the women who engaged in Seeking Safety had more avoidance/numbing symptoms at baseline. Previous studies have also reported increased avoidance/numbing symptoms associated with alcohol misuse and dependence (Brady et al., 2001; Saladin, Brady, Dansky, & Kilpatrick, 1995; Stewart, Pihl, Conrod, & Dongier, 1998). It is possible that the avoidance/numbing symptom cluster of PTSD could be a proxy for alcohol use for these women, with alcohol as a tool to "medicate" their PTSD symptoms. This hypothesis is consistent with the self-medication model (Jacobsen, Southwick, & Kosten, 2001), which posits that alcohol depresses the central nervous system, temporarily alleviating avoidance and hyperarousal symptoms of PTSD. The avoidance/numbing symptom cluster includes some symptoms that overlap with symptoms of depression. It is possible that those with a more depressed phenotype of PTSD are more likely to engage in treatment. It is also worth noting that neither of the treatment models offered in this study explicitly included exposure to avoided stimuli or to the trauma memory. It is possible that those with higher avoidance may have been more reticent to take part in treatments that explicitly challenged their avoidance. In fact, in a recent review of psychotherapy for comorbid PTSD and alcohol use disorder, Roberts et al. (2015) found that trauma-focused treatments had higher dropout rates than non–trauma-focused treatments. It is also possible, as proposed by Najavits et al. (1998), that individuals with the most severe PTSD symptoms may have been the most eager for PTSD-focused treatment. As mentioned earlier, anecdotally, many of the women reported that they had never been offered PTSD-related treatment before.

The present study is limited by several factors. This study examined non-veteran female survivors of intimate partner violence; generalizability to veteran or male samples or women with other trauma is limited. The sample size was small, raising the question of whether some existing differences between engagers and dropouts were missed. Individuals were considered treatment engagers if they attended at least 25% of therapy sessions in order to maintain consistency with other Seeking Safety studies (Hien et al., 2004; Hien et al., 2009; Najavits et al., 1998); however, it is unknown whether attending 25% of sessions reflects an adequate dose of treatment. These results may have been different had we selected a different definition of treatment engagement. The number of participants randomized to the experimental condition was significantly greater than the number randomized to the control condition. This discrepancy occurred due to programmatic changes that occurred mid-study in the primary program from which we were recruiting participants. Unfortunately, these changes negatively affected recruitment at a time when randomization was not balanced. Due to low enrollment, we switched from group to individual therapy mid-study. This change in therapy format is another study limitation that should be noted. Further, a recent meta-analysis suggests that neither of the treatments we examined have been found more effective for PTSD and alcohol use disorder than treatment as usual (Roberts et al., 2015). However, the consistently high rate of treatment dropout across different psychotherapy models (e.g., trauma-focused, non–trauma-focused; Roberts et al., 2015) suggests that developing a better understanding of the impact of pre-treatment factors is a vital step needed to improve engagement across any form of treatment for comorbid PTSD and alcohol use disorder in women.

Future Directions

There are a number of factors that were not assessed in this treatment study that may provide more information as to why some women engaged in treatment while others did not. Future studies including evaluation of anger (Forbes, Creamer, Hawthorne, Allen, & McHugh, 2003), motivation (Joe, Simpson, & Broome, 1999), and personality disorders (Justus, Burling, & Weingardt, 2006) may help further elucidate the relationships between risk factors for dropout among women seeking treatment for PTSD and alcohol use disorder.

In addition, further research is needed to understand whether certain patient characteristics might predict better outcomes in coping skills–based treatments versus trauma-focused therapies for PTSD, such as Cognitive Processing Therapy or Prolonged Exposure. Relatedly, more work is needed to understand the timing of when patients drop out of PTSD and alcohol use disorder treatment. For example, patients with worsening alcohol use disorders may require treatments that focus on stabilizing the alcohol use disorder prior to the start of trauma-focused work, as opposed to patients with steady alcohol use disorders, who may respond better to work that addresses their trauma sooner.

Number of treatment sessions attended is often used as a proxy for treatment dose. Greater treatment dose has been associated with greater treatment benefit (Glenn et al., 2013). However, there may be important information missing without a more nuanced approach to understanding treatments sessions attended versus completing treatment. For example, a recent meta-analysis by (Roberts et al., 2015) reported that fewer individuals completed trauma-focused interventions as com-

pared to treatment as usual while the number of individuals completing Seeking Safety and treatment as usual (TAU) were comparable. However, those who received trauma-focused interventions had significantly lower PTSD symptoms at the end of treatment and at follow-up on average than those who received TAU. On the other hand, Seeking Safety was not found to be superior to TAU across studies. We found a vast number of operationalizations of treatment dropout, engagement, and completion. We chose to define engagement as attendance at 25% or more sessions to be consistent with other studies of Seeking Safety. Future studies are needed to develop empirical approaches for identifying the factors that are true indications of dropout, engagement, and completion. The increasing understanding of shared decision making and patient-centered care (Mott, Stanley, Street, Grady, & Teng, 2014) supports moving toward operationalizations that focus on achieving both clinicians' and patients' treatment goals rather than focusing on an a priori number of treatment sessions.

The present study helps elucidate the role of patient characteristics (i.e., younger age, increased number of dependents) and lower symptom severity on treatment dropout for women with PTSD and alcohol use disorder at a community-based clinic. Ultimately, with a clearer understanding of characteristics of individuals related to treatment dropout, engagement, and completion, strategies can be better tailored to meet the needs of the patients, with the goal of improving treatment outcomes.

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