Psychological Services
2016, Vol. 13, No. 4, 341–348

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1541-1559/16/$12.00 http://dx.doi.org/10.1037/ser0000093

Predicting Engagement in Psychotherapy, Pharmacotherapy, or Both Psychotherapy and Pharmacotherapy Among Returning Veterans Seeking PTSD Treatment

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Both pharmacotherapy and psychotherapy are effective treatments for posttraumatic stress disorder (PTSD). Better understanding factors that are associated with engaging in these different treatment options may improve treatment utilization and outcomes. This issue is especially important among veterans returning from Iraq and Afghanistan, given high rates of those seeking PTSD treatment. This study examined potential predictors of the type of treatment (psychotherapy, pharmacotherapy, or both) 232 returning veterans (92% male, mean age = 33.38) engaged in within 1 year of seeking treatment at a VA PTSD clinic. Results indicated that 32.3% of returning veterans engaged in pharmacotherapy only, 23.7% engaged in psychotherapy only, and 44.0% engaged in both. Veterans who engaged in pharmacotherapy only or in both pharmacotherapy and psychotherapy had higher pretreatment PTSD and depression symptoms than did those who engaged in psychotherapy only. History of pharmacotherapy treatment was associated with engagement in pharmacotherapy only or both pharmacotherapy and psychotherapy, as compared with psychotherapy only. Treatment engagement type was not significantly associated with differences in age, gender, race/ethnicity, service branch, alcohol use/misuse, history of psychotherapy, distance from the VA, or PTSD service connection. Implications for enhancing PTSD treatment engagement are discussed.

Keywords: posttraumatic stress disorder, treatment engagement, treatment preference, pharmacotherapy, psychotherapy

Posttraumatic stress disorder (PTSD) is a prevalent disorder in the general population (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Kilpatrick et al., 2013) as well as among veterans (Epidemiology Program, Post-Deployment Health Group, Office of Public Health, Veterans Health Administration, Department of Veterans Affairs, 2015a). The lifetime prevalence of PTSD is estimated to be 8.3% in the general population (Kilpatrick et al., 2013), 18.7% to 30.9% among Vietnam veterans (Dohrenwend et al., 2006), and 21.8% among returning veterans of the conflicts in Iraq and Afghanistan (i.e., cumulative prevalence among veterans presenting for treatment during the six year study period; Seal et al., 2009). Individuals who seek PTSD treatment may opt to engage in psychotherapy, pharmacotherapy, or both, but little is known about the factors associated with preferences for or engagement in these options. Better understanding factors that are associated with preferring or choosing to engage in these different treatment options may ultimately improve PTSD treatment utilization and outcomes. This issue is also important given preliminary evidence that receiving one's preferred treatment is associated with improved PTSD treatment outcomes (Youngstrom, Feeny, Roy-Byrne, Mavissakalian, & Zoellner, 2013) and that giving PTSD patients a choice of medication or psychotherapy is more cost-effective than is giving no treatment choice (Le, Doctor, Zoellner, & Feeny, 2014).

This article was published Online First July 18, 2016.

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This material is based upon work supported by the Office of Academic Affiliations, Department of Veterans Affairs.

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Both pharmacotherapy and psychotherapy are effective treatments for PTSD (Watts et al., 2013). Effective medications include selective serotonin reuptake inhibitors (SSRIs; Watts et al., 2013), although only sertraline and paroxetine are approved by the Federal Drug Agency for PTSD. In addition, prazosin can be helpful for nightmares and sleep disturbances that often characterize PTSD (Raskind et al., 2007). Psychotherapies with the greatest evidence of effectiveness for PTSD include prolonged exposure (PE), cognitive processing therapy (CPT), and eye movement desensitization and reprocessing (EMDR; Watts et al., 2013). Meta-analytic work indicates that psychotherapy is more effective than is pharmacotherapy for PTSD, although both are effective. Specifically, the average effect size for cognitive behavior therapy for PTSD is 1.14, whereas the average effect size for antidepressants is .42 (Watts et al., 2013). Although combining medication and psychotherapy is common in clinical settings, more research is needed to understand whether a combined treatment approach is significantly more effective than psychotherapy alone (Muse, Moore, & Stahl, 2013).

Across a range of mood and anxiety disorders, meta-analytic research indicates that there is a threefold preference for psychological interventions over pharmacological interventions (McHugh, Whitton, Peckham, Welge, & Otto, 2013). McHugh et al. (2013) also found that younger individuals and women were especially likely to prefer psychotherapy. With respect to treatment for PTSD and other trauma-related disorders, a recent systematic review similarly indicated a preference for psychotherapy over medication (Simiola, Neilson, Thompson, & Cook, 2015). In fact, this review found that participants were 5 to 12 times more likely to prefer psychotherapy over medication, and two to three times more likely to prefer medication over no treatment. This review also indicated that beliefs about PE were generally more positive than were beliefs about sertraline when participants were given rationales for these specific therapeutic approaches.

Studies have also attempted to identify potential demographic and psychological predictors of treatment preference for PTSD. There is some evidence (Feeny, Zoellner, Mavissakalian, & Roy-Byrne, 2009; Zoellner, Feeny, & Bittinger, 2009) that greater severity of psychopathology and co-occurring depression is associated with less likelihood of choosing psychotherapy compared with medication (specifically, sertraline rather than PE). One study examining PTSD treatment preferences offering an option of both medication and psychotherapy found that depression symptoms were associated with increased odds of preferring combination treatment (both PE and sertraline) relative to PE alone (Rytwinski, Rosoff, Feeny, & Zoellner, 2014). However, findings are generally inconsistent with respect to demographic predictors and treatment history as predictors of treatment preferences. More idiographic predictors such as underlying beliefs and perceptions (e.g., "I need to talk about it;" see Angelo, Miller, Zoellner, & Feeny, 2008) may ultimately prove to be stronger predictors of PTSD treatment preference.

Although this body of research reflects an important starting point for understanding PTSD treatment preferences, it should be noted that the studies reviewed by Simiola and colleagues (2015) included analogue samples without PTSD (i.e., if this event had happened to you, what would you do?), nontreatment seeking samples, samples with subthreshold PTSD, and samples in which treatment options were limited to sertraline or PE, rather than pharmacotherapy or psychotherapy more broadly. Further, in many studies, participants were not actually given a choice about what treatment they would engage in (i.e., they were simply asked about hypothetical preference). Examining the type of PTSD treatment individuals with PTSD actually choose to engage in when they seek treatment could reveal different findings.

Better understanding factors that determine one's decision to engage in psychotherapy and/or pharmacotherapy for PTSD is especially important among returning veterans who served in Iraq and Afghanistan, as there are currently about 392,000 returning veterans using VA health care who are diagnosed with PTSD with numbers rising approximately 10% each year (Epidemiology Program, Post-Deployment Health Group, Office of Public Health, Veterans Health Administration, Department of Veterans Affairs, 2015b). A few recent studies provide insight into PTSD treatment preferences among veterans and military personnel. In a study of 174 soldiers deployed to Iraq who were provided a hypothetical scenario about difficulties after combat, Reger et al. (2013) found more positive reactions to PE and virtual reality exposure therapy as compared with PTSD medication. Schumm, Walter, Bartone, and Chard (2015) examined treatment preferences among 183 veterans (all eras) presenting to a VA PTSD clinic. Following an orientation group that provided an overview of services, they found that most veterans preferred psychotherapy plus medication (63.4%) or psychotherapy only (30.1%), whereas only 2.7% preferred medications only (3.8% preferred no treatment).

The present study sought to build on this research by examining type of PTSD treatment engagement within a sample of veterans who served in Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), or Operation New Dawn (OND). First, we sought to describe the type of treatment returning veterans chose to engage in when they presented for PTSD treatment: psychotherapy, pharmacotherapy, or both. That is, rather than examining pretreatment preferences, we examined the type of treatment returning veterans actually engaged in within one year of presenting to an OEF/OIF/OND PTSD specialty clinic. Second, we sought to conduct a series of exploratory analyses of variable (ANOVAs) examining potential predictors of type of PTSD treatment engagement: demographic variables, severity of psychopathology, treatment history, distance veteran lives from the VA, and whether the veteran was service connected for PTSD. Given the lack of research on this topic, we refrained from making specific hypotheses.

Method

Participants

Participants were drawn from a sample of 400 OEF/OIF/OND veterans (93% male, mean age = 33.20, *SD* = 7.91) who presented for intake assessments or treatment within a VA OEF/OIF/OND PTSD clinic serving returning veterans with PTSD related to combat or military traumas between the dates of December 2011 and May, 2014 (this allowed for examination of treatment utilization through May, 2015). Examining participants' branch of service indicated 27.2% in the Army, 35.9% in the Navy, 32.7% in the Marine Corps, 1.8% in the Air Force, and 1.3% in the National Guard. Participants' ethnicities were 22.5% Hispanic/Latino, 73.2% non-Hispanic/Latino, and 4.3% unanswered. Participants' races were 57.1% White, 19.4% African American, 11.1% Asian, 2.3% Pacific Islander, 1.0% American Indian, 1.8% biracial, and 7.3% other/declined to answer.

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Participants were included in the present study if they were diagnosed with PTSD by a clinician (see Procedure below), and received pharmacotherapy or psychotherapy for PTSD within one year of presenting to the OEF/OIF/OND PTSD clinic. Because we specifically sought to examine the type of treatment returning veterans with PTSD choose to engage in, we excluded participants who did not meet full criteria for PTSD ($n = 73$) and those who did not attend any follow-up appointments after the orientation group ($n = 81$) or intake ($n = 35$). Note there was some overlap between participants in these categories. The final sample for this study consisted of 232 OEF/OIF/OND veterans (92% male, mean age = 33.38, $SD = 8.56$).

Procedure

All study procedures were approved by the VA Institutional Review Board and data were collected as part of an unfunded study. Participants were recruited from a weekly orientation group for new referrals to the OEF/OIF/OND PTSD clinic. The clinic was part of a large, urban VA medical center on the west coast of the United States, with services provided within the medical center as well as a community-based outpatient clinic (both located in close proximity to several military installations). During the study period, the clinic received on average of 100 consults per month. The clinic was staffed by three psychologists, one social worker, one peer support specialist, five psychology trainees, and five psychiatrists. There were no substantial changes to clinic procedures during the study period. All patients completed a battery of self-report questionnaires at the orientation group (estimated to take 20 to 45 min to complete). Patients were asked if they were interested in consenting to allow this information and other information collected during their intake/treatment (per chart review) to be used for research purposes. Interested participants completed informed consent during their orientation group appointment.

Veterans seeking treatment in the OEF/OIF/OND PTSD clinic attended a single-session, 1.5-hr clinic orientation group led by four clinicians (social workers and psychologists trained in cognitive–behavioral evidence-based PTSD therapies) and 1 peer support specialist (peer support services were available as an adjunctive treatment). Although all veterans were requested to attend the orientation prior to engagement in care, those who refused to attend orientation were allowed to directly schedule for an intake if needed. The agenda of the orientation group included (a) a 20-min group psychoeducational presentation on PTSD and evidence-based treatment with a description of the PTSD clinical team, treatment offerings, and other resources and referrals; (b) completion of clinical self-report measures with the option to engage with a PTSD peer support specialist; and (c) an individual meeting with a clinician to answer questions, review clinical needs, and complete treatment planning or intake scheduling.

Group leaders defined evidence-based treatment for PTSD as effective and supported by research and presented the clinic treatment offerings, including evidence-based psychotherapy, evidence-based pharmacotherapy, or a combination of both therapy and medication. All three options were available to all veterans in the present study. Clinicians generally indicated that group therapy options were more readily available than individual therapy options; however, patients were not aware of the actual wait time of each treatment option. Veterans attending orientation group who had an established active PTSD diagnosis through intake in a mental health clinic were able to self-select directly into their choice of treatments following individual discussion with a clinician after the orientation group. Veterans attending orientation group who still required a mental health intake to confirm PTSD diagnosis were directly scheduled for an intake and self-selected for treatments at the subsequent intake appointment with a clinician.

Veterans who were not diagnosed with PTSD or who were primarily interested in treatment to address presenting problems other than PTSD were referred for treatment at a more appropriate clinic. Likewise, veterans who desired supportive therapy were referred for treatment at other VA clinics, to the local Vet Center, or for non-VA treatment. Veterans who expressed interest in medications for PTSD either during the orientation group or during intake were scheduled with a psychiatrist if they were not already prescribed medication for PTSD by a doctor outside the clinic. Veterans who initially declined medications but later expressed interest in considering medication for PTSD during psychotherapy were also referred to a clinic psychiatrist. Further, veterans who initially declined psychotherapy but later expressed interest were also referred to a clinic psychologist or social worker.

Data for this study were either collected through the self-report questionnaires given at the clinic orientation group or were extracted from the VA Computerized Patient Record System (CPRS). Many data for the present study were extracted as part of dissertation research for author Ursula Myers using a manual she developed with clearly defined data extraction rules (Myers, 2016) The coding manual was developed for this study based on a manual obtained from researchers who completed similar studies and consulted with Ursula Myers on best practices for data extraction (Hundt et al., 2014; Mott, Hundt, Sansgiry, Mignogna, & Cully, 2014)). All data were entered into an SPSS database.

Measures

Missing data on the below measures ranged from 0% to 4%, with the exception of "distance to VA" which was missing for 16% of participants due to no address provided in CPRS. There were no missing data on the variable indicating type of treatment engagement.

Type of PTSD treatment engagement. The type of treatment veterans chose to engage in was categorized into three groups: pharmacotherapy only, psychotherapy only, or both pharmacotherapy and psychotherapy. Psychotherapy in the OEF/OIF/OND PTSD clinic consisted primarily of individual PE and individual and Group CPT. Because wait times for individual therapy were longer than for group therapy, patients typically waited longer if they had a preference for PE (as this therapy is only delivered in individual format). Other cognitive–behavioral or acceptance-based psychotherapies (e.g., acceptance and commitment therapy, dialectical behavior therapy) were available on a case by case basis based on case conceptualization and psychiatric comorbidity. There was also a drop-in PTSD cognitive–behavioral therapy coping skills group available, which patients were encouraged to utilize as an adjunctive therapy or if the aforementioned psychotherapy options were not immediately available (there were three participants who opted not to engage in any additional form of psychotherapy other than the PTSD skills group; results were

unchanged when these participants were excluded from analyses). Participants were considered to have engaged in psychotherapy for PTSD if they attended at least one session of psychotherapy. Participants were considered to have engaged in pharmacotherapy for PTSD if they were prescribed an FDA-approved SSRI for PTSD (sertraline or paroxetine) or prazosin for PTSD by any clinic or VA provider within a year of seeking treatment. This operationalization helps us understand initial type of treatment engagement (i.e., whether the veteran was willing to engage in psychotherapy or pharmacotherapy), and does not address treatment completion, drop-out, or discontinuation of medication, which we believe are separate but related issues.

Demographic variables. Participants' age, gender, race/ethnicity, and branch of service were extracted from CPRS.

PTSD symptoms. Participants reported on their PTSD symptoms in the past month via the 17-item Posttraumatic Stress Disorder Checklist—Specific (PCL-S; Weathers, Litz, Herman, Huska, & Keane, 1993), which maps directly onto *DSM–IV* diagnostic criteria. Items ranged from 1 (*Not at All*) to 5 (*Extremely*). A summary score totaling all items was computed (Cronbach's $\alpha = .92$; $M = 62.35$, $SD = 13.49$).

Depression symptoms. Participants' self-reported depression symptoms over the past two weeks were assessed via the Patient Health Questionnaire-9 (PHQ-9; Kroenke & Spitzer, 2002), a 9-item screening instrument for depression. Items range from 0 (*Not at all*) to 3 (*Nearly Every Day*). A summary score totaling the items was created (Cronbach's $\alpha = .85$, $M = 15.07$, $SD = 6.19$).

Alcohol use and misuse. The three alcohol consumption items from the Alcohol Use Disorders Identification Test (AUDIT-C; Saunders, Aasland, Babor, De La Fuente, & Grant, 1993) were used to assess alcohol consumption ($M = 3.76$, $SD = 3.17$). The AUDIT-C has well-established validity and reliability (Babor, Higgins-Biddle, Saunders, & Monteiro, 2002). A score of 4 or more for men (Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998) and 3 or more for women (Bradley et al., 2003) is considered to be a positive screen for an alcohol use disorder. In addition to computing a continuous measure of alcohol consumption by summing the three items, we also computed a dichotomous alcohol misuse variable in which participants were coded 0 (49.3%) if they did not have a positive screen on the AUDIT-C and were coded as 1 (50.7%) if they had a positive screen.

Treatment history. Data were extracted from CPRS (per chart and remote VA data review) in order to determine whether participants had ever previously attended pharmacotherapy (i.e., had been prescribed PTSD medication) or psychotherapy appointments at the VA. 64.4% of participants had previous pharmacotherapy treatment, and 47.7% of participants had previous psychotherapy treatment.

Distance to VA. Participants' zip codes at the time the chart review was conducted were extracted from CPRS in order to determine travel distance to the VA facility. Those zip codes were then entered into Google maps, and the driving distance to the VA was calculated. On average, participants traveled 23.72 miles ($SD = 18.10$; range: 3.10 to 119.00).

Service connection for PTSD at intake. Data were extracted from CPRS in order to determine whether participants were service connected for PTSD (i.e., receiving disability compensation for military-related PTSD) when they initially presented for treatment. 30.0% of participants were service connected for PTSD at intake. Among those service connected for PTSD, rating ranged from 10% to 100% ($M = 43.91\%$, $SD = 19.32$).

Data Analytic Strategy

One-way ANOVAs and chi-square analyses were used to examine significant differences between the three treatment engagement groups on continuous and categorical variables, respectively. We believe this analytic approach was the most straightforward way to determine which variables predicted whether individuals engaged in pharmacotherapy, psychotherapy, or both (i.e., which variables distinguished between the three treatment engagement groups). For ANOVAs, Fisher's least significant difference (LSD) post hoc tests were conducted, which appropriately restricts the family wise error rate to .05 when there are exactly three groups (Howell, 2013).

Results

PTSD Treatment Engagement

Of the 232 veterans included in the present study, 75 (32.3%) engaged in only pharmacotherapy for PTSD, 55 (23.7%) engaged in only psychotherapy for PTSD, and 102 (44%) engaged in both psychotherapy and pharmacotherapy for PTSD within one year of seeking PTSD treatment. A one-sample chi-square test supported significant differences in the number of veterans who chose these options, $\chi^2(2) = 14.388$, $p < .001$, such that higher than expected number of veterans chose both psychotherapy and pharmacotherapy, and a lower than expected number chose psychotherapy only and pharmacotherapy only.

Comparisons Between Treatment Engagement Groups

Table 1 presents comparisons between treatment engagement groups on continuous variables, and Table 2 presents comparisons between treatment engagement groups on categorical variables.

Demographics. Participants who opted to engaged in pharmacotherapy, psychotherapy, or both did not significantly differ in terms of age, $F(2, 228) = 1.29$, $p = .277$; gender, $\chi^2(2) = .120$, $p = .942$; or branch of service, $\chi^2(4) = 1.288$, $p = .863$. Further, type of PTSD treatment engagement did not differ between minority ethnicities and non-Hispanic Caucasians, $\chi^2(2) = 2.491$, $p = .288$.

Psychopathology and alcohol use. Results indicated that there were significant differences between treatment engagement groups on PTSD symptoms, $F(2, 229) = 5.09$, $p = .007$. Specifically, participants who opted to engage in pharmacotherapy only had significantly higher PTSD symptom severity ($p = .002$, $d = .56$) than did participants who opted to engage in only psychotherapy. Participants who opted to engage in both pharmacotherapy and psychotherapy also had significantly higher PTSD symptom severity ($p = .022$, $d = .38$) than did participants who opted to engage in only psychotherapy. Those who engaged in both pharmacotherapy and psychotherapy did not significantly differ in PTSD symptoms when compared with those in the pharmacotherapy only group ($p = .258$, $d = .18$).

There were similar differences between treatment engagement groups on depression symptoms, $F(2, 226) = 5.96$, $p = .003$.

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Table 1
Results of Analyses of Variance Comparing Posttraumatic Stress Disorder (PTSD) Treatment Engagement Groups on Continuous Variables

Variable	Pharmacotherapy only *M (SD)*	Psychotherapy only *M (SD)*	Both pharmacotherapy and psychotherapy *M (SD)*	*df*	*F*	*p*
Age (years)	32.28 (8.32)	34.72 (9.58)	33.47 (8.13)	2,228	1.29	.277
PTSD symptoms	65.11 (12.84)	57.69 (14.19)	62.82 (13.04)	2,229	5.09	.007
Depression symptoms	15.90 (6.11)	12.61 (6.04)	15.81 (6.03)	2,226	5.96	.003
Alcohol use	4.07 (3.01)	3.47 (3.27)	3.68 (3.25)	2,220	.60	.552
Distance from VA hospital	22.51 (15.64)	21.61 (16.11)	25.77 (20.58)	2,192	1.02	.364

Note. VA = Veterans Affairs.

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Participants who opted to engage in pharmacotherapy had significantly higher ($p = .003$, $d = .54$) depression symptoms than did participants who opted to engage in only psychotherapy. Participants who opted to engage in both pharmacotherapy and psychotherapy also had significantly higher depression symptoms ($p = .002$, $d = .65$) than did participants who opted to engage in only psychotherapy. Those who engaged in both pharmacotherapy and psychotherapy did not significantly differ from those who engaged in pharmacotherapy only ($p = .919$, $d = .01$) on depression symptoms.

There were no differences among the treatment engagement groups on alcohol use, $F(2, 220) = 0.60$, $p = .552$. Further, type of PTSD treatment engagement did not differ between those who screened positive for an alcohol problem and those who screened negative for an alcohol problem, $\chi^2(2) = 0.81$, $p = .669$.

Treatment history. Participants who had previously attended pharmacotherapy treatment (or came into the clinic already taking PTSD medication) were significantly more likely to engage in pharmacotherapy only treatment (70.8%) or both pharmacotherapy and psychotherapy treatment (72.7%), as compared with psychotherapy only (39.2%), $\chi^2(2) = 18.41$, $p < .001$. Participants who had previous psychotherapy did not significantly differ in their type of PTSD treatment engagement, $\chi^2(2) = 0.049$, $p = .976$.

Distance from the VA. Participants who opted to engage in pharmacotherapy, psychotherapy, or both did not significantly differ in terms of the distance that they lived from the VA, $F(2, 210) = 0.180$, $p = .835$.

Service connection for PTSD. Whether participants were service connected for PTSD did not differentiate between the PTSD treatment engagement groups, $\chi^2(2) = 0.096$, $p = .953$. This was also true when level of PTSD service connection was examined as a continuous variable, $F(2, 210) = 0.180$, $p = .835$.

Discussion

The purpose of the present study was to examine the type of treatment (psychotherapy, pharmacotherapy, or both) veterans chose to engage in within one year of seeking treatment at a VA PTSD clinic, as well as potential predictors of type of PTSD treatment engagement. Results indicated that 32.3% of returning veterans engaged in only pharmacotherapy, 23.7% engaged in only psychotherapy, and 44.0% engaged in both pharmacotherapy and psychotherapy. Only severity of psychopathology and history of pharmacotherapy treatment differentiated among these groups. That is, veterans who engaged in pharmacotherapy or in both pharmacotherapy and psychotherapy had higher PTSD and depression symptoms and were more likely to have had previous pharmacotherapy treatment compared with those who engaged in only psychotherapy. Veterans who opted to engage in pharmacotherapy, psychotherapy, or both did not significantly differ in terms of age, gender, race/ethnicity, branch of service, alcohol use/misuse, history of psychotherapy, distance from the VA, or PTSD service connection.

Table 2
Results of Chi-Square Tests Comparing Posttraumatic Stress Disorder (PTSD) Treatment Engagement Groups on Categorical Variables

Variable	Pharmacotherapy only (%)	Psychotherapy only (%)	Both pharmacotherapy and psychotherapy (%)	*df*	χ^2	*p*
Gender (% male)	92.0%	92.7%	91.2%	2	0.120	.942
% non-Hispanic Caucasian	52.1%	46.3%	39.8%	2	2.491	.288
% with positive alcohol problem screen	54.8%	47.3%	49.5%	2	0.805	.669
% with previous pharmacotherapy treatment	70.8%	39.2%	72.7%	2	18.406	<.001
% with previous psychotherapy treatment	48.6%	48.1%	46.9%	2	0.049	.976
% service connected for PTSD at intake	31.4%	29.2%	29.5%	2	.096	.953
Branch of service				4	1.288	.863
% Army	28.2%	37.3%	29.9%			
% Navy	38.0%	33.3%	36.1%			
% Marine Corps	33.8%	29.4%	34.0%			

Note. Branch of service analysis was limited to Navy, Army, and Marine Corps because of low frequencies of participants in other branches.

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Patients' preferences for and engagement in PTSD treatment are understudied topics, particularly among veterans and in real-world treatment settings. Findings help us better understand the type of PTSD treatment veterans actually choose to engage in when they seek treatment for PTSD. Although most existing research on trauma treatment preferences (as well as research on mood/anxiety treatment in general; McHugh et al., 2013) indicates a preference for psychotherapy over medication (Simiola et al., 2015), our findings diverged in that the largest proportion of veterans engaged in both psychotherapy and pharmacotherapy, which was followed by veterans who engaged in pharmacotherapy only. There are important differences between our study and most of those reviewed in the Simiola et al. (2015) article; namely, all participants in the current study were treatment-seeking, diagnosed with PTSD, and had a choice about what treatment to engage in (including the option for both psychotherapy and pharmacotherapy) rather than being asked about hypothetical preference in an either/or scenario. It is possible that individuals who do not actually have PTSD or were not actually exposed to trauma may theoretically prefer psychotherapy to pharmacotherapy (the Semiola article included analogue samples), but those who are currently suffering from PTSD want to consider medication.

The finding that veterans who had more severe PTSD symptoms and depression symptoms were significantly more likely to engage in pharmacotherapy or both psychotherapy and pharmacotherapy (rather than psychotherapy only) suggests that veterans with more severe psychopathology want pharmacotherapy treatment for PTSD—either as a stand-alone treatment or as an adjunct to psychotherapy. This finding is consistent with evidence that psychiatric severity and comorbidity appear to be associated with increased preference for medication for PTSD (Feeny et al., 2009; Simiola et al., 2015; Zoellner et al., 2009).

It should be noted that this study examined type of treatment engagement within a year of seeking treatment rather than pretreatment preferences. This is an important distinction, as studies looking at actual behavior rather than preferences are lacking, and also because preferences may change over time (e.g., someone who is initially reluctant to consider medication may opt for pharmacotherapy after further discussing this issue during the course of psychotherapy). Given the lack of research predicting the type of treatment in which individuals with PTSD actually engage, we drew on the treatment preference literature when interpreting our findings. The rates of engagement in psychotherapy and pharmacotherapy in our study differ somewhat from the treatment preference rates found by Schumm et al. (2015), who examined veterans' treatment preferences after an orientation group. Although we similarly found that the largest proportion of veterans opted to engage in both psychotherapy and pharmacotherapy (Schumm et al. found that 63.4% preferred both; we found 44.0% preferred both), we found that a substantial proportion of veterans (32.3%) opted to engage in pharmacotherapy only, whereas Schumm et al., found that only 2.7% of veterans preferred pharmacotherapy only.

Our finding that about a third of veterans seeking PTSD treatment engaged in only pharmacotherapy sheds light on low rates of psychotherapy utilization and high drop-out rates reported in other studies (e.g., Kehle-Forbes, Meis, Spoont, & Polutny, 2016; Lu, Duckart, O'Malley, & Dobscha, 2011; Seal et al., 2010). It may be that a significant proportion of veterans who are diagnosed with PTSD may not want psychotherapy and may prefer pharmacotherapy only treatment. It is possible that shared decision making interventions, which have shown promise for increasing engagement in evidence-based psychotherapy for PTSD over other psychotherapies (Mott, Stanley, Street, Grady, & Teng, 2014), may help to increase engagement in psychotherapy among veterans who may otherwise opt for only pharmacotherapy.

With respect to treatment history, it is interesting that history of pharmacotherapy but not psychotherapy treatment differentiated among the PTSD treatment engagement groups. Given that veterans who had previously taken medications for PTSD, or came into the clinic already taking PTSD medication, were more likely to continue to want pharmacotherapy treatment (or both psychotherapy and pharmacotherapy), it is likely that veterans perceived these medications to be helpful. No conclusions can be drawn about how history of psychotherapy affects decisions to engage in psychotherapy versus pharmacotherapy in the future, as veterans with previous psychotherapy were no more or less likely to engage in psychotherapy.

This is the first study of which we know to examine how distance to VA health care may affect veterans' choices about pharmacotherapy versus psychotherapy for PTSD. As previous research has found that OEF/OIF/OND veterans who lived farther from the VA were less likely to attend visits at the VA (Brooks et al., 2012; Cully et al., 2008; see Elhai, Reeves, & Frueh, 2004, for an exception), one could hypothesize that veterans seeking PTSD treatment who lived farther away would be more likely to engage in pharmacotherapy only treatment (which would require fewer appointments than psychotherapy). Although we did not find this to be true, it should be noted that our study was limited in that the address we pulled from the chart to calculate distance to the VA may have differed from the address at the time that veterans initially sought treatment.

The finding that PTSD service connection was not associated with type of PTSD treatment engagement is important in light of a controversial literature with some research suggesting that some veterans may attend more mental health appointments in order strengthen their disability claim (McNally & Frueh, 2013). Although we did not look at number of appointments in our study, if the previous hypothesis were true we would have expected that veterans who were not service connected for PTSD or had lower ratings would engage in psychotherapy for PTSD or both psychotherapy and pharmacotherapy appointments in order to maximize appointments. The lack of association between service connection and treatment engagement in our study is consistent with several other studies (e.g., DeViva, 2014; Elhai et al., 2004; Grubaugh, Elhai, Monnier, & Frueh, 2004).

It is unsurprising that demographic predictors did not differentiate between the type of PTSD treatment groups, given inconsistent findings in previous research with respect to demographic variables (e.g., Angelo et al., 2008; Chen, Keller, Zoellner, & Feeny, 2013; Roy-Byrne, Berliner, Russo, Zatzick, & Pitman, 2003; Zoellner et al., 2009). However, our sample consisted of predominantly male OEF/OIF/OND veterans and was thus truncated on both age and gender; it is possible that more heterogeneous samples could reveal demographic differences in type of treatment engagement or preference.

Several limitations to this study should be noted. First, this study only included veterans enrolled in VA health care, which is only

about 61% of OEF/OIF/OND veterans (Epidemiology Program, Post-Deployment Health Group, Office of Public Health, Veterans Health Administration, Department of Veterans Affairs, 2015a). It is possible that findings may not generalize outside of VA PTSD clinics with similar procedures or to other eras of veterans. Second, the fact that our study only included veterans who were engaging in PTSD treatment through a PTSD clinic may have biased results toward engaging in psychotherapy or both psychotherapy/pharmacotherapy. Veterans with PTSD who were only interested in pharmacotherapy for PTSD could have been prescribed medications by a provider outside the clinic (e.g., primary care doctor) and would thus not have been captured by our study. Third, although the purpose of the orientation group was to simply provide an overview of evidence-based treatments for PTSD (including both psychotherapy and pharmacotherapy), it is possible that group leaders may have influenced veterans' decisions about type of treatment engagement given that descriptions of treatment options were not standardized. Similarly, it is possible that participants' decisions about type of treatment engagement may have been influenced by interactions with previous treatment providers, as well as participants' prior treatment experiences and beliefs regarding PTSD treatment (which we were unable to measure). Fourth, our history of psychotherapy and pharmacotherapy variables were based on VA records only. It is possible that participants may have had previous treatment outside the VA, and this would not have been captured by our study. Fifth, we did not have or provide patients with reliable estimates of wait-times for each type of treatment that was offered, which could have influenced decisions about what type of treatment to engage in. Finally, we did not collect data on reasons why veterans chose to engage in the type of treatment that they did. Future studies examining a wide range of reasons for choosing specific treatment options would help providers to better guide veterans in their decision-making about their treatment options, and could also inform interventions that could enhance treatment utilization and engagement.

In summary, this study indicates that both psychotherapy and pharmacotherapy are desired treatment options among individuals seeking PTSD treatment. We found strong demand for both options, and pharmacotherapy appears to be especially utilized by individuals with more severe symptoms. Although evidence indicates that psychotherapy is more effective than pharmacotherapy for PTSD (Watts et al., 2013), both options are effective, and ensuring that individuals are able to engage in their preferred treatment may ultimately help to improve outcomes (Swift & Callahan, 2009).

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Received December 21, 2015
Revision received April 13, 2016
Accepted May 2, 2016 ■

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