

Initial Group Versus Individual Therapy for Posttraumatic Stress Disorder and Subsequent Follow-up Treatment Adequacy

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Accessibility of psychotherapy for individuals with posttraumatic stress disorder (PTSD) and retention in treatment are major concerns for the Veterans Health Administration (VA). Group therapy is a common method for improving access to psychotherapy; however, PTSD patients may prefer individual therapy. This study assessed whether initial treatment with individual versus group psychotherapy relates to subsequent psychotherapy adequacy among VA patients with PTSD. The sample consisted of all VA patients who received a new PTSD diagnosis during a subspecialty PTSD clinical team visit in fiscal year 2010. Logistic and negative binomial regression analyses examined the relationship between modality of the first psychotherapy encounter and subsequent number of psychotherapy encounters within 14 weeks. Among 35,144 VA patients who initiated treatment for PTSD, 38% initiated group therapy and 62% initiated individual therapy. Patients who initiated with group therapy received a greater mean number of psychotherapy visits than those who initiated with individual therapy (4.7 vs. 2.8), and were about twice as likely (29.5% vs. 14.2%) to receive a minimally effective dose of 8 or more psychotherapy encounters. Group therapy predicted a greater number of psychotherapy visits ($\beta = 0.46$, $SE = .01$, $p < .001$) and greater likelihood of 8 or more sessions of psychotherapy ($OR = 2.31$, 95% CI [2.19, 2.45], $p < .001$), after adjusting for differences in demographic characteristics, comorbid conditions, and other service use. Greater treatment adequacy among group therapy participants suggests that these patients have greater access to frequent psychotherapy sessions or are more likely to persist with psychotherapy for PTSD than those treated individually.

Keywords: psychotherapy, dropout, attrition, PTSD, veteran

Despite improvements over the past decade in the accessibility of mental health care for veterans (Cully et al., 2008; Mott, Hundt, Sansgiry, Mignogna, & Cully, 2014; Shiner, Drake, Watts, Desai, & Schnurr, 2012), patient engagement and retention in treatment remains a major concern for the Veterans Health Administration (VA; Seal et al., 2010). Treatment retention for individuals with posttraumatic stress disorder (PTSD) continues to be low: Recent estimates indicate that in 2010, only 9% of veterans with PTSD received the minimal level of exposure necessary for many pa-

tients to respond to psychotherapy (Mott, Hundt et al., 2014), defined as eight or more sessions within 14 weeks (Foa, Hembree, & Rothbaum, 2007; Pfeiffer et al., 2011; Wang, Berglund, & Kessler, 2000). Across mental health diagnoses, previous studies suggest that the modality of therapy (individual vs. group) is associated with the subsequent number of sessions received (Burnett-Zeigler et al., 2012; Mott, Hundt et al., 2014). For example, across all Veterans diagnosed with depression or anxiety disorders in 2010, 34% of those who initiated group therapy received eight or more sessions, whereas only 12% of those who initiated individual therapy received eight or more sessions (Mott, Hundt et al., 2014). However, it is unknown whether this differential outcome applies to group therapy for PTSD.

Group formats of trauma-focused cognitive-behavioral therapy for PTSD show good efficacy (Barrera, Mott, Hofstein, & Teng, 2013; Castillo, C'de Baca, Qualls, & Bornovalova, 2012; Sloan, Feinstein, Gallagher, Beck, & Keane, 2013; Smith et al., 2015) and high levels of patient satisfaction and perceived benefit (Mott et al., 2013; Sloan et al., 2013). Given that behavioral avoidance is a hallmark feature of PTSD, commonly including social isolation, group therapy may provide unique benefits to PTSD patients insofar as attendance counteracts behavioral avoidance of others and provides additional therapeutic exposure opportunities. Group modalities may also offer increased social support (Mott et al., 2013; Ready, Sylvers et al., 2012; Ready et al., 2008). This support may take the form of positive peer pressure and an implied social

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contract to attend group sessions (Maguen et al., 2012; Ready, Sylvers et al., 2012). Veterans in a PTSD therapy group may also receive unique validation and normalization from a group of peers who have experienced similar types of traumatic experiences (Ready, Sylvers et al., 2012; Smith et al., 2015). Qualitative analyses further support the hypothesis that social support is an important impetus to attendance for group therapy. An illuminating study of 20 veterans who underwent group-based exposure therapy reported that 78% considered dropping out, but only 5% did so (Mott et al., 2013). Commitment to the other group members was the most frequently cited reason for not dropping out of treatment. In addition, feedback and support from the group members was rated as the single most helpful component of therapy. Group modalities may also provide additional advantages in terms of interpersonal learning, group cohesiveness, and identification with other group members (Yalom & Leszcz, 2005). It is also possible that group and individual therapies operate via distinct therapeutic mechanisms (Hedman et al., 2013). For instance, in a trial of group versus individual therapy for social anxiety disorder, Hedman and colleagues found that the effects of individual therapy were mediated by reductions in avoidance and self-focused attention, whereas improvements through group therapy were mediated by changes in self-focused attention and in anticipatory and post-event cognitive processing (Hedman et al., 2013). Thus, group therapy may operate via distinct mechanisms that offer unique advantages over individual therapy.

Though group therapy may offer distinct advantages, high levels of avoidance may also reduce patient willingness to attend a group. Given this potential bidirectional relationship, the current study was designed to assess whether the type of initial therapy modality (group vs. individual) for veterans with PTSD was related to the number of subsequent psychotherapy visits and the likelihood that a minimally effective dose of psychotherapy was delivered. This study improved upon prior work by additionally controlling for other mental health service use both before and concurrent with PTSD treatment. Due to the potential advantages of group therapy for characteristic symptoms of PTSD, and due to the findings of a recent meta-analysis suggesting that attrition rates for group therapy may be lower than those in individual therapy (Barrera et al., 2013), we hypothesized that receipt of group therapy would be associated with a greater number of subsequent psychotherapy sessions and a greater likelihood of receiving eight or more sessions of psychotherapy.

Method

Data Source

The VA National Patient Care Database provided data on patient demographic characteristics, mental health diagnoses, and provision of outpatient services. The Veterans Affairs Ann Arbor Health System Institutional Review Board approved this study, and granted a waiver of informed consent for access to protected health information.

Study Population

The sample consisted of all VA patients ($N = 65,298$) who received a new PTSD diagnosis during a visit in fiscal year 2010

in subspecialty PTSD clinical teams (PCTs), multidisciplinary outpatient programs designed to serve the needs of veterans with military-related PTSD. Services delivered in these clinics can be identified using unique administrative codes that have been assigned to these clinics in the electronic medical record. In order to identify new episodes of care, the analysis only included patients who had a 180-day dormant period without a diagnosis of PTSD in a PCT clinic prior to their index diagnosis.

Psychotherapy Measures

We examined the modality (group or individual) of the first PCT psychotherapy encounter, as well as the subsequent number of PCT psychotherapy encounters. We identified the modality of therapy sessions with current procedural technology (CPT) codes for individual (90804, 90806, 90808) and group psychotherapy (90853). All psychotherapy visits took place in a PCT, and such visits are coded distinctly from PTSD psychotherapy provided in other mental health settings such as intensive outpatient, residential, or inpatient programs. The first psychotherapy visit was required to take place within 90 days of index diagnosis. We then counted the number of sessions received within 14 weeks of the first psychotherapy visit. Only one visit per day was counted. A minimally effective dose of psychotherapy was defined as eight sessions within 14 weeks. This metric has been identified by the VA as a minimally adequate dose for the purposes of a performance measurement, and was chosen on the basis of manualized clinical trials of psychotherapy and prior retrospective studies of psychotherapy adequacy (Foa et al., 2007; Pfeiffer et al., 2011; Seal et al., 2010; Wang et al., 2000).

Demographic Characteristics and Psychiatric Comorbidity

Measures of demographic characteristics included sex, age (<35, 35–55, >55 years), and race (Black, White, Other [Asian, Hawaiian or Pacific Islander, American Indian and multiracial], Unknown). Age categories were chosen based on recent research showing concordance between these categories and combat era (Vietnam, post-Vietnam, Operation Enduring Freedom/Operation Iraqi Freedom) in predicting psychotherapy adequacy for PTSD (Kehle-Forbes, Meis, Spont, & Polusny, 2016). Past-year psychiatric comorbidities were identified using International Classification of Diseases, 9th Edition, Clinical Modification (ICD-9-CM) data in primary or secondary positions from inpatient and ambulatory care visits for the following disorders: unipolar depressive disorders (296.2x, 296.3x, 298.0x, 300.4x, 309.0x, 309.1x, 311.x, 296.90, 296.99, 293.83, and 301.12); bipolar affective disorders (296.4x–296.8x); psychotic disorders (295.0x–295.9x, 298.1–298.9); alcohol use disorders (303.0x, 303.9x, and 305.0x); other substance use disorders (304.xx, 305.2x–305.9x); personality disorders (301.0, 301.20, 301.22, 301.4, 301.50, 301.6, 301.7, 301.81, 301.82, 301.83, 301.9); dementias (290.x, 291.2, 292.82, 294.0, 294.1x, 294.2x); and other anxiety disorders (300.00, 300.01, 300.02, 300.09, 300.10, 300.20, 300.21, 300.22, 300.23, and 300.29). We also counted the number of non-PCT mental health encounters in the 120 days prior to the first PCT encounter and during the 14 weeks after first PCT encounter.

Analyses

All of the analyses for this study were conducted using SAS version 9.4 (SAS Institute, Inc., 2010) and Stata/MP 13.1 (Stata-Corp LP, 2014). Among those who received any psychotherapy within 90 days of the index diagnosis, descriptive statistics were used to calculate the mean number of individual or group therapy sessions received within 14 weeks of the initial psychotherapy visit. This 14-week period was allowed to extend past the 90 days from initial diagnosis. Wilcoxon's-Mann-Whitney and chi-square tests examined the relationship between the modality of the first psychotherapy encounter and the subsequent number of psychotherapy encounters within 14 weeks. Chi-square tests examined the relationship between demographic characteristics and receipt of eight or more sessions of psychotherapy and between psychiatric comorbidities and receipt of eight or more sessions of psychotherapy. Logistic regression was then used to calculate adjusted odds ratios (ORs) with 95% confidence intervals (CIs) for the receipt of eight or more sessions of psychotherapy associated with each of the independent variables. In addition, zero-inflated negative binomial regression was used to predict the total number of PTSD therapy visits. Binomial regression was used instead of linear regression because the count data representing number of therapy visits was positively skewed, and because zero was the most commonly observed value.

Several sensitivity analyses were then conducted. In the first sensitivity analysis, we included time to initiation of psychotherapy as a covariate in the analysis. In the second sensitivity analysis, we assessed the association between the modality of the second (as opposed to the first) psychotherapy encounter and likelihood of minimally effective dose of treatment. In the third sensitivity analysis, we assessed the association between facility-level frequency of group programming and facility-level treatment adequacy. For this analysis, a generalized linear model with a logit link and robust standard errors was fit in order to predict the facility-level percentage of patients who received a minimally effective dose of treatment. Linear regression was then used to predict the average number of psychotherapy visits received by patients in a given facility. Facility-level analyses were adjusted for mean age, percentage of Caucasian patients, and percentage of patients with comorbid depression.

Results

Descriptive Information

The sample for this study included 65,298 VA patients with a new diagnosis of PTSD in a PCT setting in fiscal year 2010. Fifty-four percent of veterans with newly diagnosed PTSD received a psychotherapy session in PCT within 90 days of their diagnosis; 38% initiated group therapy and 62% initiated individual therapy. Within 14 weeks of initial psychotherapy visit, patients who initiated with group therapy received a greater mean number of psychotherapy visits ($M = 4.7$, $SD = 5.1$) than those who initiated with individual therapy ($M = 2.8$, $SD = 4.0$, $Z = 38.2$, $p < .001$). In addition, patients who initiated group therapy were more likely than those who initiated individual therapy to receive eight or more sessions of psychotherapy (29.5% vs. 14.2%; $\chi^2 = 1211.0$, $p < .001$). Males ($\chi^2 = 119.2$, $p < .001$), patients

over age 55 ($\chi^2 = 1023.2$, $p < .001$), and African American patients ($\chi^2 = 400.9$, $p < .001$) were more likely to start with group therapy, as were those with depression ($\chi^2 = 4.77$, $p = .03$), bipolar disorder ($\chi^2 = 21.3$, $p < .001$), psychosis ($\chi^2 = 21.6$, $p < .001$), alcohol use disorders ($\chi^2 = 60.1$, $p < .001$), substance use disorders ($\chi^2 = 242.7$, $p < .001$), or dementia ($\chi^2 = 7.03$, $p = .008$). Individuals with other anxiety disorders were less likely to initiate group therapy ($\chi^2 = 17.8$, $p < .001$). The presence of comorbid personality disorder was not associated with differential likelihood of group therapy initiation.

Logistic Regression Analysis

Table 1 presents results from the logistic regression model predicting receipt of eight or more sessions of psychotherapy as the outcome, and all other variables entered as covariates. Veterans who initiated group therapy as opposed to individual therapy were more likely to receive eight or more sessions of psychotherapy (OR = 2.31, 95% CI [2.19, 2.45]). In addition, veterans with comorbid depression or other anxiety disorders were more likely to receive eight or more sessions of psychotherapy (see Table 1). Hispanic veterans, veterans with dementia, and veterans with comorbid psychosis were less likely to receive eight or more sessions of therapy. Compared with veterans under 35, veterans between the ages of 35–55 and veterans over 55 were more likely to receive eight or more sessions of therapy.

Negative Binomial Regression Analysis

Table 1 presents the results from the binomial regression model predicting number of PTSD psychotherapy visits as the outcome, and all other variables entered as covariates. Veterans who initiated group therapy as opposed to individual therapy received more psychotherapy ($\beta = 0.46$, 95% CI [0.43, 0.49]). The expected log count of PTSD psychotherapy sessions increased 0.46 units for patients initiating group therapy, indicating that veterans who initiated group therapy received 1.58 additional sessions. In addition, female veterans, veterans of Asian/Hawaiian/Pacific Islander/American Indian/multiracial descent, veterans with comorbid depression, and veterans with other anxiety disorders received more psychotherapy. Veterans with dementia and veterans with comorbid psychosis or personality disorders received less therapy. Compared with veterans under 35, veterans between 35 and 55 and veterans over 55 received more therapy.

Sensitivity Analyses

When time to initiation of psychotherapy was added to the models, initial group therapy receipt remained a significant predictor of the number of psychotherapy sessions received and of the odds of receiving eight or more psychotherapy sessions. These findings also held when we examined the modality of the second psychotherapy visit instead of the first visit. Facility-level analyses indicated that facilities that offered the majority of their programming in group format provided a greater average number of sessions within 14 weeks ($\beta = 0.04$, $p < .001$) and had a greater percentage of patients who received a minimally effective dose of treatment ($\beta = 1.5$, $p < .001$).

Table 1

Results of Logistic Regression Predicting Adequate Dose of Psychotherapy and Negative Binomial Regression Predicting Total Number of PTSD Psychotherapy Visits

Variable	Category	Minimally effective dose (AOR and CI)	Total visits (β and SE)
Therapy modality	Group vs. Individual	2.31 [2.19, 2.45]***	.46 (.01)***
Sex	Male vs. Female	.93 [.84, 1.03]	-.07 (.03)**
Age	35–55 years vs. 18–35 years	1.20 [1.10, 1.30]***	.09 (.02)***
	>55 years vs. 18–35 years	1.26 [1.17, 1.36]***	.07 (.02)***
Race	Black vs. White	1.00 [.94, 1.07]	-.001 (.02)
	Other vs. White	1.11 [.97, 1.27]	.09 (.03)*
	Unknown vs. White	.98 [.90, 1.08]	.02 (.02)
Ethnicity	Hispanic vs. Not Hispanic/Unknown	.85 [.77, .95]**	-.05 (.03)
Depression	Yes vs. No	1.22 [1.15, 1.29]***	.10 (.02)***
Bipolar disorder	Yes vs. No	.99 [.88, 1.11]	.001 (.03)
Psychotic disorder	Yes vs. No	.83 [.71, .97]*	-.10 (.04)*
Alcohol use disorder	Yes vs. No	.98 [.92, 1.06]	.02 (.02)
Substance use disorder	Yes vs. No	.93 [.85, 1.02]	-.03 (.02)
Personality disorder	Yes vs. No	.88 [.77, 1.01]	-.10 (.04)**
Dementia	Yes vs. No	.59 [.36, .96]*	-.23 (.12)*
Other anxiety disorder	Yes vs. No	1.16 [1.09, 1.23]***	.08 (.02)***
Non-PTSD mental health visits	During 120 days prior to PTSD diagnosis	1.01 [1.01, 1.02]***	.01 (.001)***
	During 14 weeks after PTSD diagnosis	1.02 [1.01, 1.02]***	.01 (.001)***

Note. Other race includes veterans of Asian, Hawaiian, Pacific Islander, American Indian, or multiracial descent. AOR = adjusted odds ratio; CI = confidence interval; SE = standard error.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

Among VA patients who received a new PTSD diagnosis during a PCT visit in fiscal year 2010, veterans who received group therapy received more visits, on average, and were over twice as likely to receive eight or more sessions of psychotherapy within 14 weeks of initial psychotherapy visit. Controlling for demographic variables, psychiatric comorbidity, and other types of concurrent mental health treatment, group therapy was associated with a greater number of PTSD therapy encounters and greater likelihood of receiving a minimally effective dose of psychotherapy. Our findings suggest that group therapy for PTSD may offer advantages over individual therapy in terms of treatment engagement and retention.

Our finding of greater receipt of psychotherapy for PTSD among group therapy participants is consistent with previous observational studies of veterans with depression and anxiety disorders (Burnett-Zeigler et al., 2012; Mott, Hundt et al., 2014), as well as across all specialty mental health clinics in VA (Hunt & Rosenheck, 2011). However, previous findings in patients with PTSD are mixed. There has been some suggestion that attrition in trauma-focused treatment is lower in group than individual treatment (Barrera et al., 2013; Shea, McDevitt-Murphy, Ready, & Schnurr, 2008). However, a meta-analysis of randomized clinical trials of studies for PTSD found that group therapy rates of dropout were 12% higher than individual therapy rates (Imel, Laska, Jakupcak, & Simpson, 2013). Another study demonstrated that receiving group plus concurrent individual cognitive processing therapy was associated with less dropout than receiving either individual therapy or group therapy alone (Jeffreys et al., 2014). Discrepancies in these reports may be due to inherent differences between randomized clinical trials and naturalistic, observational clinic data. Ours is the first study to examine a nation-wide sample of veterans receiving PTSD care and report that after controlling for demographic variables

and psychiatric comorbidities, group therapy is associated with greater likelihood of receiving a full course of psychotherapy.

The observed demographic characteristics associated with receipt of group rather than individual therapy are largely consistent with previous studies in the VA. We found that being male, older, and African American was associated with a greater likelihood of receiving group therapy. This is consistent with previous studies of veterans with PTSD (Mott, Barrera, Hernandez, Graham, & Teng, 2014), depression (Burnett-Zeigler et al., 2012), and across mental health clinics (Hunt & Rosenheck, 2011). It is unclear whether individual patient or provider preferences drive these trends or if there are regional or facility-level relationships between patient populations and service design. Further research is warranted to investigate this issue. We also reported that the presence of comorbid bipolar disorder, psychotic disorders, dementia, alcohol use disorders, or substance use disorders was associated with a greater likelihood of initiating group therapy. These findings are partially consistent with previous studies. Among veterans with depression, those with comorbid substance use are more likely to receive group therapy than no therapy (Burnett-Zeigler et al., 2012). Similarly, across mental health clinics, veterans with a substance abuse diagnosis are more likely to receive group therapy (Hunt & Rosenheck, 2011). In PTSD, this pattern may be partially attributable to the availability of group therapies for comorbid PTSD and substance use (such as Seeking Safety; Najavits, 2001). We also found that the presence of a comorbid anxiety disorder was associated with a lower likelihood of initiating group therapy. In contrast to our findings, a study of 388 returning veterans with PTSD found that comorbid anxiety disorders were associated with receipt of group therapy rather than individual therapy (Mott, Barrera et al., 2014). Differences in sample composition (OEF/OIF veterans vs. all-era veterans) may have contributed to the differences in observed findings.

Observed demographic characteristics associated with receipt of eight or more sessions of therapy are also consistent with previous studies. For instance, older veterans with PTSD are less likely to drop out of therapy than younger veterans (Jeffreys et al., 2014) and are more likely to receive a greater dose of PTSD treatment (Kehle-Forbes et al., 2016; Lu, Duckart, O'Malley, & Dobscha, 2011; Maguen et al., 2012; Seal et al., 2010). Future work is needed to better understand reasons for attrition among younger and returning veterans (Kehle-Forbes et al., 2016). Preliminary research suggests that returning veterans may drop out of treatment for different reasons than veterans of earlier service eras; for example, Vietnam-era veterans were more likely in one study to drop out of treatment due to symptom worsening, whereas OEF/OIF Veterans were more likely to drop out of treatment due to symptom improvement or unknown reasons (Eftekhari et al., 2013). This higher rate of attrition has implications at the policy and service delivery level and merits further research. Our other findings were also consistent with previous reports. Previous studies report that female veterans (Maguen et al., 2012; Seal et al., 2010) and veterans with psychiatric comorbidities are likely to receive a greater dose of PTSD treatment (Lu et al., 2011; Maguen et al., 2012; Seal et al., 2010). Though some studies suggest that African American veterans are less likely to complete trauma-focused treatment (Lester, Artz, Resick, & Young-Xu, 2010) and less likely to receive adequate PTSD pharmacotherapy than Caucasian veterans (Spoont, Hodges, Murdoch, & Nugent, 2009), we found no substantial racial disparities in the amount of psychotherapy received. Hispanic veterans, however, were somewhat less likely than non-Hispanics to receive adequate psychotherapy. Thus, continuing efforts are needed to ensure that all veterans have equitable access to adequate PTSD care.

Despite the promising attributes of group therapy, including the fact that groups are presumably more timely and cost-effective than individual therapy, group trauma-focused treatment is not as widely used as individual treatment in the VA system. Results of our analysis indicate that veterans with PTSD were almost twice as likely to begin treatment with individual rather than group therapy in fiscal year 2010. This is consistent with findings of previous studies (Mott, Barrera et al., 2014; Mott, Hundt et al., 2014). From 2004–2010, across depression and anxiety disorders, utilization rates for individual therapy grew faster than rates for group therapy (Mott, Hundt et al., 2014). This low utilization rate may be due to the fact that there are several barriers to delivering group therapy in the VA system. One such barrier is that patients with PTSD appear to prefer individual therapy over group therapy. For example, a sample of 110 OEF/OIF veterans reported that they preferred individual to group therapy due to concerns about taking part in a group, expressing emotions, being misunderstood, and disliking the group composition (Kracen, Mastnak, Loaiza, & Matthieu, 2013). Clinicians and clinic leaders may prioritize individual therapy over group modalities because group therapy for PTSD has a slightly smaller effect size than individual therapy for PTSD, though the effect is still comparable with group therapies for other anxiety disorders (Barrera et al., 2013). Additionally, of the two evidence-based trauma-focused treatments used for PTSD in the VA (cognitive processing therapy and prolonged exposure therapy; VA/DoD, 2010), only cognitive processing therapy is standardized for group formats. This may limit the proportion of veterans that are referred to group therapy as an initial treatment

strategy. However, there is promising evidence that in-session in-group exposure is not associated with poorer outcomes (Barrera et al., 2013; Castillo et al., 2012; Mott et al., 2013; Ready et al., 2008; Ready, Vega, Worley, & Bradley, 2012), suggesting that exposure may be conducted in a group format without adverse effects. If this were the case, then prolonged exposure might be adaptable for group format. Currently, however, group therapy in PTSD clinics may consist of other types of treatment with less evidence basis. As CPT codes do not provide information as to the type of psychotherapy provided, we were unable to determine the type of group therapy received by veterans. A lack of evidence-based groups could potentially discourage providers from referring patients to group therapy rather than individual, trauma-focused treatment. Future studies are needed to assess provider and leadership preferences for the delivery and organization of PTSD psychotherapy.

Several limitations of our study merit discussion. Though one interpretation of our findings is that group therapy increases engagement and reduces therapy dropout, there are other possible factors involved. For one, unaccounted-for differences between patients initiating group versus individual therapy may bias our results. Because patients generally prefer individual therapy to group therapy, it may be the more motivated patients who are willing to engage in group treatment. However, results of our facility-level analyses indicated that facilities that provided more group therapy had greater rates of treatment adequacy; this finding argues against individual selection bias to the extent that modality of initial psychotherapy varies across facilities according to facility programming decisions rather than population preferences. Nonetheless, our analysis is exploratory and our findings require replication with more stringent research designs such as randomized trials in order to fully address potential selection biases. A second source of confounding may have occurred at the clinic level. Clinics that offer group psychotherapies may be more likely to have more skilled clinicians or other support services that are related to treatment engagement. In our analyses, we controlled for demographic and psychiatric comorbidity factors as well as concurrent mental health visits. However, we may not have been able to address all potential confounders. Third, we were unable to determine the type of psychotherapy received by VA patients, including whether treatment was evidence-based or supportive in nature. Recent reports suggest that evidence-based treatments remain in the minority of PTSD care provided to VA outpatients (Finley et al., 2015; Shiner, D'Avolio et al., 2012). It is also possible that evidence-based treatment was provided more often in individual format than in group format. Fourth, our definition of a minimally effective dose of treatment (eight sessions within 14 weeks) is based on studies using individual evidence-based treatment. Group formats may require additional sessions (e.g., Smith et al., 2015). However, it is unlikely that a full course of any type of trauma-focused treatment could consist of fewer than eight sessions. Finally, it was not possible to determine clinical outcomes in this sample, and it is possible that individual therapy participants may have benefited more from treatment. Treatment efficacy may play an important role in likelihood of attrition versus retention. Future studies should assess whether group and individual therapy for PTSD differ in clinical outcomes in the VA system.

In conclusion, veterans who agree to and initiate group psychotherapy compared with veterans who agree to and initiate individ-

ual psychotherapy for PTSD receive a greater number of visits and are more likely to receive eight or more sessions of therapy. Further research is indicated to investigate the comparative effectiveness of group versus individual therapy in routine clinical practice and the trade-offs with respect to treatment initiation and completion. Interventions to address system-level and patient barriers to initiating group therapy rather than individual therapy may substantially improve veterans' access to effective care for PTSD.

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