Racial and Ethnic Variation in Perceptions of VA Mental Health Providers are Associated With Treatment Retention Among Veterans With PTSD

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Background: Veterans with posttraumatic stress disorder (PTSD) who seek mental health care in the Veterans Health Administration frequently discontinue treatment prematurely. Early discontinuation of mental health treatment is more common among Veterans with PTSD who are of minority race or ethnicity.

Objectives: To determine whether retention in individual therapy or pharmacotherapy among Veterans with PTSD are associated with patients' ratings of their mental health providers, and if those associations differ depending on Veteran race or ethnicity.

Research Design: Latino, African American, and white Veterans (n = 2452) who participated in a prospective national cohort study of Veterans with PTSD at the beginning of an episode of care were surveyed immediately following Veterans' PTSD diagnoses and 6 months later. Pharmacy and mental health service utilization were abstracted from Veterans Health Administration administrative databases for 6 months postdiagnosis. Retention in treatments were modeled using logistic regression among Veterans who initiated individual therapy or pharmacotherapy. Demographics, treatment need, treatment-related beliefs, treatment process measures, and ratings of mental health providers were considered as predictors.

Results: Ratings of mental health providers, more than treatment beliefs, were associated with treatment retention. Among African American Veterans, retention in pharmacotherapy was reduced if the provider was perceived as not having helped manage medication side-effects (odds ratio, 0.36; confidence interval, 0.16–0.80). All Latino Veterans but one (99% or n = 64) who rated their therapist as not caring discontinued individual psychotherapy.

Conclusions: Ratings of mental health providers were associated with treatment retention. The salience of specific provider behaviors to treatment retention varied by Veteran race or ethnicity.

Key Words: race and ethnicity, veterans, posttraumatic stress disorder, mental health treatment

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Many people who develop posttraumatic stress disorder (PTSD) following a traumatic event will experience gradual symptom remission; however, a significant minority will develop a chronic course to their illness.[1] Left untreated, chronic PTSD can have a devastating impact on peoples' lives, elevating rates of cardiovascular and autoimmune diseases, hospitalization, unemployment, poverty, and suicide.[2–6] Although effective treatments exist, a substantial portion of patients who enter mental health care for PTSD discontinue treatment, often before realizing any clinical benefit.[7–9]

Persistence in mental health treatment requires renewed commitments to treatment each time a treatment-related action (eg, attending appointments) is required.[10] It is in the context of this recursive decision process that the quality of patients' relationships with providers becomes most consequential. More collaborative and communicative relationships foster treatment persistence; lower quality relationships lead to premature termination.[11,12] Providers may improve treatment retention among their patients through discussions about illnesses and available treatments, by addressing treatment barriers, and by enhancing patients' self-efficacy to follow providers' recommendations.[13–15] In mental health

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treatment, the quality of the patient-provider relationship is particularly important as it more directly impacts treatment persistence, progression, and outcome.[13,16,17]

People of minority race or ethnicity are more likely to experience lower quality relationships with their primarily white non-Latino (hereafter referred to as "white") mental health care providers.[18,19] Relative to white patients' relationships with mental health providers, patient-provider relationships for racial and ethnic minority patients are more likely to be characterized by less communication, more emotional distance, shorter appointment durations, and nonclinical variation in diagnostic assessments and treatment.[20–24] Notably, when providers are culturally sensitive, communication is improved and the odds of treatment retention increases.[18,25,26]

Racial and ethnic minority Veterans with PTSD are less likely than their white counterparts to persist in mental health treatment. For example, African American and Latino Veterans with PTSD are less likely than whites to continue in pharmacotherapy long enough to receive a minimal trial of treatment.[27,28] African American Veterans seeking treatment for mental health problems, including PTSD, evidence lower rates of psychotherapy persistence than do white Veterans,[29] and Latino Veterans with PTSD attend fewer appointments.[27] African American and Latino women Veterans are similarly less likely to persist in treatment long enough to receive a minimal trial of either psychotherapy or pharmacotherapy.[7]

Accordingly, we wondered if the quality of patient-provider relationships contributes to premature mental health treatment termination among racial and ethnic minority Veterans with PTSD. That African American Veterans treated in specialized PTSD outpatient programs were more likely to drop-out of treatment than were white patients, unless their providers were also African American, supports this possiblity.[26,30] To determine whether patient-provider relationship quality contributes to mental health treatment persistence for Veterans with PTSD, we conducted an exploratory secondary analysis of a prospective national cohort study of Veterans who had been recently diagnosed with PTSD in a Veterans Health Administration (VA) facility. We examined whether Veterans' ratings of their pharmacotherapy and individual psychotherapy treatment providers were associated with persistence in these treatments, controlling for levels of treatment need and treatment-related beliefs assessed at the beginning of the episode of care. Treatment persistence was defined as remaining in treatment long enough such that the patient received a minimal trial of individual psychotherapy or of pharmacotherapy. We tested for racial or ethnic differences in the relationship between premature treatment termination and patients' reports of their relationships with providers and beliefs about psychotherapy and pharmacotherapy.

METHODS

Study Overview

In this planned secondary analysis, we examined a dataset combining a longitudinal survey of a national sample of Veterans with PTSD with data from VA administrative databases. Using VA databases, we identified Veterans diagnosed with PTSD by a VA clinician, at the beginning of an episode of care (defined below). We sent them 2 questionnaires—the first soon after they received a PTSD diagnosis, and the second 6 months later. Mental health service use and pharmacy data were then abstracted from VA databases for the 6-month period following the PTSD diagnosis. The study was approved by the local VA Institutional Review Board.

Sample

Methods for collection of the baseline survey dataset are described in detail elsewhere.[28] A weighted stratified random sample was drawn from all Veterans diagnosed with PTSD (ICD9 code 309.81) during an outpatient visit at any VA facility from June 2008 to July 2009. Sampling was stratified by race, ethnicity, and sex. Sampling fractions, derived from previous work,[28,31] were applied to the largest administratively defined racial/ethnic groupings—white, African American, and men of unknown race (0.1, 0.19, and 0.51, respectively). We surveyed all women, men of smaller racial/ethnic groups, and Latino men (independent of race), thereby increasing the proportion of women, and racial and ethnic minorities in the sample.[31] Although many had prior mental health treatment, to capture Veterans at the beginning of an episode of care, we excluded those Veterans who received antidepressants, antipsychotics or who had any mental health diagnoses or appointments other than for chemical dependency[32] in the prior year. Also excluded were Veterans with moderate to severe cognitive impairments, schizophrenic spectrum disorders, no available mailing address, or who died during the study sampling period.

Eligible patients were identified by demographic, diagnostic and VA health care utilization data from the National Patient Care Database and outpatient prescriptions from the Decision Support System National Pharmacy Extract database. Data on outpatient encounters are uploaded daily to the National Patient Care Database from each VA facility and made accessible every 2 weeks; we identified Veterans within 1–14 days of their PTSD diagnostic appointment.

For these analyses, we restricted our dataset to those survey respondents who self-identified as white, Latino, or African American. Veterans from other racial/ethnic groups and those diagnosed in clinics other than mental health or primary care were excluded because their small numbers greatly limited statistical power. As detailed elsewhere, race and ethnicity were assessed in the baseline survey allowing for multiple endorsements.[28] Of Veterans who self-identified as Latino, 90% (n = 532) endorsed no racial category, n = 9 endorsed African American race, and n = 47 white race. Veterans who identified as both Latino and African American (n = 9) differed significantly in age, sex, and geographic distributions from Veterans in either group alone and so were omitted from the analyses. Veterans who endorsed Latino and white (n = 47) had comparable age, sex, and geographic distributions as those who identified as Latino only, and so were included in that group.

Model Predictors and Data Sources

Age, sex, race/ethnicity, treatment need (PTSD symptom severity, mental and physical health quality of life), treatment-related beliefs (stigma associated with mental illness, beliefs about antidepressants and about psychotherapy to treat PTSD), treatment-process measures (ratings of medication side-effect distress for pharmacotherapy and proportion of psychotherapy content focused on military stressors for psychotherapy), and ratings of mental health providers were considered as potential determinants of treatment retention. Baseline surveys assessed race/ethnicity, treatment need, and treatment-related beliefs. The 6-month follow-up survey assessed treatment process measures and patient satisfaction ratings of their providers. Age and sex were abstracted from VA databases.

Treatment Need

PTSD symptom severity was assessed by the PTSD Check List-Military version ($\alpha = 0.94$).[33] Health-related quality of life, was assessed by the Mental Health Component Score and the Physical Health Component Score of the Veterans Short Form-12.[34,35]

Treatment Beliefs

Stigma was assessed by an abbreviated version of the Internalized Stigma of Mental Illness Scale ($\alpha = 0.87$), which was developed on a VA population, has good retest reliability and construct validity (eg, "I am disappointed in myself because I have PTSD").[36] Beliefs about psychotherapy were assessed using individual items from the Beliefs about Psychotherapy Scale, which has good concurrent validity and sensitivity to cultural differences.[37] Because avoidance is a primary symptom of PTSD,[38] we added the item, "I would be able to talk about what bothers me in therapy." Beliefs about antidepressants were assessed by 5 individual items from the Patient Attitudes Toward and Ratings of Care for Depression scale[39,40] adapted to PTSD (eg, "Antidepressants are effective in treating emotional problems or PTSD"). Individual items assessing beliefs about psychotherapy and antidepressants were used rather than scale totals because the association of specific beliefs with treatment retention might differ depending on patient race or ethnicity.[41]

Treatment Process Measures

We assessed the extent to which psychotherapy focused on military stressors by the item, "How much of the time when you were seeing this provider did you focus on stressful military experiences?", rated on a 4-point scale: "most of the time," "about half of the time," "some of the time," "not at all." Given the response distributions, for this analysis we combined "some of the time" and "not at all." Medication side-effect distress was assessed by the item: "How distressing were the problems or side-effects you experienced from the medication you had taken in the last 6 months for your PTSD symptoms or other emotional problems?" Respondents rated side-effect distress on a 5-point scale: "I had no problems from the medication," "the problems were distressing at first, but they went away," "the problems were a little distressing all along," "the problems were somewhat distressing," and "the problems were extremely distressing." Given response distributions, we combined the last 2 ratings indicating moderate to severe distress.

Provider Ratings

Veterans who initiated individual therapy or pharmacotherapy rated their individual providers with the Interpersonal Style of the Patient-Provider Relationship Scale.[42] We included additional items of provider availability, trust and expertise used in standard provider rating instruments adapted to mental health and PTSD.[43] Six items were added for pharmacotherapy providers and 5 for psychotherapy providers. Items were rated by degree of agreement (strongly agree, agree, disagree, strongly disagree), and scored dichotomously (agree/disagree). Provider rating items are available in the online Supplementary Digital Content 1 (http://links.lww.com/MLR/B405). For provider ratings, we used individual items in our models rather than scale totals because composite scores may obscure racial and ethnic variations in perceptions of providers.[44]

Survey Procedure

For both the baseline and 6-month follow-up surveys, we used a modified Dillman approach.[45] First, an introductory letter was mailed, followed 2 days later by a packet containing a cover letter with informed consent information, a survey, $10 cash payment, and a postage-paid return envelope. Ten days later, nonrespondents were sent a second cover letter and survey. Nonrespondents to the second packet were sent a third through Federal Express. Baseline surveys were sent between June 2008 and August 2009. Follow-up surveys were sent 6 months after the PTSD diagnosis was made and, except for the introductory letter, followed the same procedures as the baseline mailing.

Study Outcomes

Treatment persistence was operationalized as receipt of a minimal trial of treatment in the 6 months following patients' PTSD diagnoses among those who initiated treatment. Pharmacotherapy and psychotherapy outcomes were dichotomous—did/did not have a minimal trial of treatment.

Minimal Trial of Psychotherapy

We defined a minimal trial of individual psychotherapy, as completion of at least 8 individual therapy appointments.[7,8,28] From VA administrative data, we identified individual psychotherapy sessions by therapy-related Current Procedural Terminology coded appointments (excluding the initial diagnostic appointment). Only those therapy appointments delivered by mental health providers were included.

Minimal Trial of Pharmacotherapy

We defined a minimal trial of pharmacotherapy as at least 4 months of a PTSD Clinical Practice Guideline recommended class of medication (ie, selective serotonin reuptake inhibitors or serotonin-norepinephrine reuptake inhibitors).[46] We used 4 months because VA users may receive 90-day supplies by mail-order pharmacy—at least one refill was

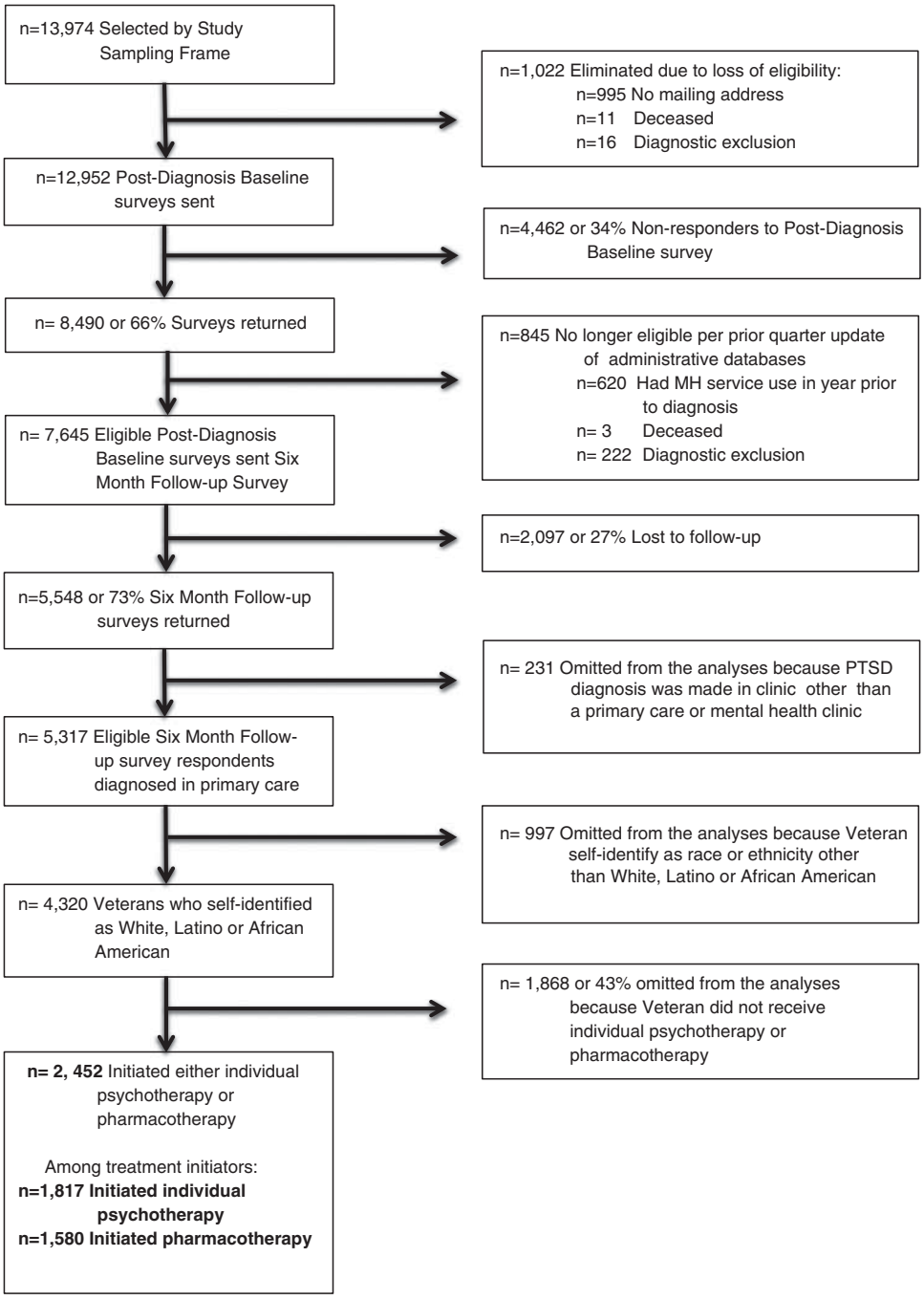

FIGURE 1. Flow chart of study sample. MH indicates mental health; PTSD, posttraumatic stress disorder.

required to reflect treatment persistence.[7,28] Most Veterans receiving pharmacotherapy had appointments with prescribing providers, and these were examined in sensitivity analyses (online Supplementary Digital Content 2, http://links.lww.com/MLR/B406).

Data Analyses

We first investigated bivariate associations between patient race/ethnicity, treatment retention outcomess, and responses to the follow-up survey. To determine what medication beliefs and provider ratings were associated with pharmacotherapy retention, we developed a retention model: (1) using backward elimination logistic regression, we entered all potential explanatory factors and covariates into a model to determine which variables were associated with pharmacotherapy retention (ie, 4 mo of pharmacotherapy). Given the analyses were exploratory, a liberal criterion for variable retention was used ($P < 0.25$), and significance set at

TABLE 1. Bivariate Demographic, Belief and Provider Ratings by Race/Ethnicity Among Veterans With Posttraumatic Stress Disorder Who Initiated Individual Psychotherapy

Predictor	White (N = 961 or 53%)	African American (N = 431 or 24%)	Latino (N = 425 or 23%)	Total (N = 1817)
PCL score [*M* (SD)]	58.5 (13.07)[a]	62.6 (12.9)[b]	61.9 (13.4)[b]	60.3 (13.2)
SF-12 MCS [*M* (SD)]	31.7 (10.8)	30.6 (10.4)	30.8 (11.0)	31.2 (10.7)
SF-12 PCS [*M* (SD)]	37.9 (11.9)[a]	34.7 (10.3)[b]	36.8 (10.6)[a]	36.9 (11.3)
Age (y) [*M* (SD)]	50.8 (15.7)[a]	51.7 (11.9)[a]	47.9 (16.2)[b]	50.3 (15.1)
Negative illness identity/stigma [*M* (SD)]	13.2 (3.2)	13.1 (3.5)	13.5 (3.4)	13.3 (3.3)
Female [n (%)]	220 (23)[a]	101 (23)[a]	33 (8)[b]	354 (20)
Beliefs about psychotherapy [n (%)]				
I feel comfortable talking about things in therapy	739 (81)[a]	363 (88)[b]	340 (84)[a,b]	1442 (83)
Therapy is a waste of time	44 (5)	19 (5)	22 (5)	85 (5)
Therapy can harm your relationships	110 (12)	41 (10)	54 (13)	205 (12)
Therapy can help you overcome stress	817 (88)	368 (87)	373 (90)	1558 (88)
Military stressor focus of therapy [n (%)]				
None or little of the time	375 (46)[a]	136 (38)[b]	132 (35)[b]	643 (42)
About half of the time	199 (25)	72 (20)	99 (26)	370 (24)
Most of the time	238 (29)[a]	147 (41)[b]	144 (38)[b]	529 (34)
Ratings of therapy provider [n (%)]				
I can talk about personal things with therapist	633 (78)[a,b]	289 (81)[b]	275 (73)[a]	1197 (78)
I do not always feel comfortable asking therapist questions	316 (39)[a]	141 (40)[a,b]	165 (45)[b]	622 (41)
Sometimes therapist does not listen to me	105 (13)	48 (14)	52 (14)	205 (13)
Provider makes effort to give me control of my treatment	662 (84)[a]	269 (77)[b]	294 (80)[a,b]	1225 (81)
Therapist understands how I feel	626 (77)	273 (77)	274 (74)	1173 (77)
Therapist cares about me	669 (84)	273 (80)	303 (82)	1245 (83)
I am concerned what therapist puts in my chart	371 (46)[a]	187 (54)[b]	192 (53)[b]	750 (50)
Provider really knows how to treat problems like mine	611 (78)	267 (78)	276 (76)	1154 (78)
Provider has good information or ideas about how I can deal with things that are bothering me	659 (82)[a]	305 (87)[b]	301 (82)[a,b]	1265 (83)
Hard to see therapist as often as I need to	387 (48)[a]	165 (48)[a]	215 (58)[b]	767 (50)
Outcome: at least 8 individual therapy sessions [n (%)]*	137 (14)[a]	47 (11)[a,b]	44 (10)[b]	228 (13)

For some items, numbers and percentages do not add up due to rounding and missing values. Racial/ethnic groups compared with analysis of variance or χ^2 tests, and values with different superscripts differed $P < 0.05$.

Posttraumatic stress disorder checklist: possible scores range from 17 to 85 with higher scores indicating more severe posttraumatic stress disorder symptoms. SF-12 MCS: possible scores range from 0 to 100, with higher scores indicating better mental health quality of life. SF-12 PCS: possible scores range from 0 to 100, with higher scores indicating better physical health quality of life. Negative illness identity/stigma: possible scores range from 5 to 20, with higher scores indicating more negative self-concept related to mental illness.

*Among responders to follow-up survey. Measures collected at the postdiagnostic baseline assessment include PCL, Veteran SF-12, negative illness identity/stigma, and beliefs about psychotherapy. Provider ratings and military stressor focus of therapy were assessed at the 6-month follow-up assessment.

MCS indicates Mental Component Score; PCL, Posttraumatic stress disorder Check List; PCS, Physical Component Score; SF-12, short form-12.

$P < 0.05$.[47,48] (2) We then entered all retained variables and their interactions with Veteran race/ethnicity into a subsequent logistic regression model to determine whether the importance of factors to treatment retention varied across racial/ethnic groups. (3) As a final refinement, those interactions with *P*-values exceeding our retention criterion were eliminated and the models were-run. The same model-building approach was used for psychotherapy retention using the relevant explanatory variables. In addition, a Firth correction[49] was used to address quasi-separation stemming from small numbers of Veterans for some combinations of race/ethnicity, therapy retention, and provider ratings.

Planned Sensitivity Analyses

Although backward elimination logistic regression allowed us to refine our models, minimize collinearity, and preserve statistical power, the risk of spurious findings remained given the observational nature of the data and lower response rates among Latino Veterans. Accordingly, we conducted sensitivity analyses adjusting the final models for item and survey nonresponse biases as described below.

To impute values of missing dichotomous, ordinal and interval survey items among respondents, we used Markov Chain Monte Carlo multiple imputation. For the remaining categorical variables, we constructed multinomial logistic regression models using all other survey items as predictors to impute values of missing survey items. Ten different sets of imputed values were constructed for each missing survey item.

To address potential nonresponse bias, a propensity model for survey response to the baseline and follow-up surveys was developed using available administrative data as predictors and stratifying the sample by both the original survey sampling strata and the estimated survey response propensity vector. Within each stratum, we then adjusted the original sample design weights for those responding to both surveys by multiplying these weights by the ratio of the number of stratum members to the number of stratum respondents. We then refit the retention models by weighting observations using the reweighted survey inclusion probabilities (within propensity strata) to each of the imputed datasets and then aggregated results using

TABLE 2. Demographic, Belief and Medication Provider Ratings Among Veterans With Posttraumatic Stress Disorder Who Received at Least 1 SSRI/SNRI Prescription Across Racial/Ethnic Groups

Predictors	White (N = 790 or 50%)	African American (N = 405 or 26%)	Latino (N = 385 or 24%)	Total (N = 1580)
PCL score [*M* (SD)]	60.1 (12.4)[a]	64.3 (11.6)[b]	64.4 (12.4)[b]	62.2 (12.4)
SF-12 MCS [*M* (SD)]	30.7 (10.3)[a]	29.5 (10.1)[a,b]	28.6 (10.5)[b]	29.9 (10.5)
SF-12 PCS [*M* (SD)]	36.3 (11.4)[a]	34.1 (9.7)[b]	35.8 (10.6)[a]	35.6 (10.8)
Age (y) [*M* (SD)]	51.4 (15.5)[a]	51.2 (12.7)[a]	49.1(16.0)[b]	50.8 (15.0)
Negative illness identity/stigma [*M* (SD)]	13.3 (3.2)[a]	13.2 (3.7)[a]	13.7 (3.2)[b]	13.4 (3.3)
Female [n (%)]	152 (19)[a]	95 (24)[a]	29 (8)[b]	276 (18)
Side effect distress [n (%)]				
None	252 (36)[a]	81 (23)[b]	83 (24)[b]	416 (30)
A little, but went away	117 (17)	72 (20)	72 (21)	261 (19)
A little, but stayed	123 (17)	62 (17)	61 (18)	246 (18)
Moderate to severe distress	215 (30)[a]	143 (40)[b]	128 (37)[b]	486 (35)
Beliefs about antidepressants as a treatment [n (%)]				
Antidepressants are addictive	345 (47)[a]	211 (58)[b]	213 (59)[b]	769 (53)
Antidepressants are effective	572 (78)[a]	259 (70)[b]	269 (74)[a,b]	1100 (75)
Antidepressants make you feel drugged	356 (48)[a]	253 (68)[b]	221 (60)[c]	830 (56)
Antidepressants make you back to normal	547 (74)[a]	215 (57)[b]	214 (58)[b]	1976 (66)
Antidepressants just cover up problems	419 (56)[a]	229 (61)[a,b]	231 (63)[b]	879 (59)
Using antidepressants is a sign of weakness	95 (12)[a]	63 (16)[a,b]	78 (21)[b]	236 (15)
Provider satisfaction ratings [n (%)]				
I can talk about personal things with medical provider	528 (72)	280 (76)	257 (73)	1065 (73)
Medical provider knows how to treat problems like mine	548 (77)	276 (78)	261 (76)	1085 (77)
I do not always feel comfortable asking medical provider questions	331 (46)	144 (40)	148 (43)	623 (43)
Sometimes medical provider does not listen	140 (19)	58 (16)	59 (17)	257 (18)
Medical provider gives me control of my treatment	546 (76)	259 (73)	252 (74)	1057 (75)
Medical provider understands how I feel	483 (67)	244 (68)	239 (70)	966 (68)
Medical provider cares about me	544 (76)	280 (79)	275 (80)	1099 (78)
I am concerned what medical provider puts in my chart	347 (48)[a]	199 (56)[b]	170 (49)[a,b]	716 (50)
Medical provider helps with me with medication side-effects	584 (83)	288 (82)	286 (85)	1158 (83)
Medical provider has not always told me what to expect from treatment	229 (32)	122 (34)	109 (31)	460 (32)
It is hard to get appointment with medical provider	328 (45)[a]	167 (46)[a,b]	181 (52)[b]	676 (47)
Outcome: at least 4 mo of SSRI/SNRIs [n (%)]	458 (58)[a]	182 (45)[b]	189(49)[b]	829 (53)

Percentages do not add up due to rounding and missing values. Racial/ethnic groups compared with analysis of variance or χ^2 tests, and values with different superscripts differ $P < 0.05$.

Posttraumatic stress disorder checklist: possible scores range from 17 to 85 with higher scores indicating more severe posttraumatic stress disorder symptoms. SF-12 MCS: possible scores range from 0 to 100, with higher scores indicating better mental health quality of life. SF-12 PCS: possible scores range from 0 to 100, with higher scores indicating better physical health quality of life. Negative illness identity/stigma: possible scores range from 5 to 20, with higher scores indicating more negative self-concept related to mental illness.

Measures collected at the postdiagnostic baseline assessment included PCL, Veteran SF-12, negative illness identity/stigma, and beliefs about antidepressants. Provider ratings and side-effect distress were assessed at the 6-month follow-up assessment.

MCS indicates Mental Component Score; PCL, Posttraumatic stress disorder Check List; PCS, Physical Component Score; SF-12, short form-12; SSRIs, selective serotonin reuptake inhibitors; SNRIs, serotonin-norepinephrine reuptake inhibitors.

standard methods for multiple imputation. Because some propensity strata included very few Veterans which limited statistical power, results were used to examine potential biases, and to confirm/refute findings by comparing the direction and approximate magnitude of the point estimates. Because small cell sizes increased the variance of estimates in the adjusted models, we considered a close approximation confirmatory even if the significance differed.

Post Hoc Sensitivity Analyses

To better understand our findings, we conducted 4 post hoc sensitivity analyses examining the timing of initial therapy appointments and timing and number of pharmacotherapy follow-up appointments in treatment persistence (online Supplementary Digital Content 2, http://links.lww.com/MLR/B406).

RESULTS

Response Rates and Missing Items

Response rates to the 6-month follow-up survey (Fig. 1) varied by Veteran race and ethnicity. Among psychotherapy initiators, Latinos were slightly less likely to respond to the follow-up survey (66%) than were African American (73%) or white Veterans (76%; $\chi^2 = 21.4$, $df = 2$, $P < 0.001$). Among pharmacotherapy initiators, both African American (71%) and Latino (66%) Veterans were less likely than whites (76%) to respond to the follow-up survey ($\chi^2 = 17.1$, $df = 2$, $P < 0.001$). Group age differences only partly contributed to these response rate differences.

The rate of survey item missingness was relatively low. On the baseline survey, fewer than 3% of PTSD Check List and stigma scale items were missing. Missingness of items assessing therapy and antidepressant be-

TABLE 3. Model of a Minimal Trial of Psychotherapy Among Veterans With PTSD

	Unadjusted Model [OR (95% CI)]	Adjusted Model [OR (95% CI)][†]
African American	1.97 (0.48–7.99)	1.98 (0.08–49.01)
Latino	0.37 (0.21–6.49)	0.72 (0.01–42.40)
White	Reference	Reference
vSF-12 MCS	0.99 (0.97–1.00)	0.99 (0.96–1.02)
Male	0.51 (0.35–0.72)**	0.36 (0.18–0.75)**
Female	Reference	Reference
Therapy harms relationships	0.58 (0.32–1.04)	0.70 (0.28–1.77)
Therapy focused on trauma (TF) (simple effects for white Veterans)		
Most of the time	1.99 (1.26–3.13)**	2.52 (1.02–6.2)*
About half	0.90 (0.53–1.53)	1.29 (0.39–4.24)
None or little	Reference	Reference
Therapist has good ideas	1.52 (0.82–2.82)	1.13 (0.33–3.84)
Therapist lets patient control sessions (simple effect for white Veterans)	2.44 (1.17–5.06)*	1.41 (0.29–6.98)
Therapist cares about patient (simple effect for white Veterans)	1.80 (0.82–3.96)	5.57 (0.84–36.84)
Therapist easy to talk to	1.68 (1.01–2.78)*	1.16 (0.41–3.27)
Can ask therapist questions	1.42 (0.97–2.06)	1.53 (0.77–3.04)
Therapist does not always listen	0.39 (0.22–0.69)**	0.47 (0.15–1.51)
Worried about documentation/chart	1.33 (0.95–1.85)	2.61 (1.33–5.18)**
Can see therapist as often as needed (simple effect for white Veterans)	2.04 (1.34–3.12)**	1.51 (0.63–3.60)
Race/ethnicity × therapy focused on trauma (TF) (reference: almost no focus on military trauma)		
TF of therapy for African American: almost all white (reference group)	1.33 (0.49–3.64)	0.93 (0.14–5.99)
TF of therapy for African American: about half white (reference group)	4.96 (1.63–15.02)**	2.81 (0.32–24.36)
TF of therapy for Latino: almost all white (reference group)	0.67 (0.27–1.66)	0.40 (0.77–2.10)
TF of therapy for Latino: about half white (reference group)	0.87 (0.30–2.49)	0.27 (0.03–2.10)
Race/ethnicity × therapist lets patient control sessions (reference: does not let patient control sessions)		
Therapist lets patient control sessions: African American	1.02 (0.29–3.59)	1.41 (0.09–21.01)
Therapist lets patient control sessions: Latino	0.28 (0.08–0.92)*	0.56 (0.05–6.79)
Therapist lets patient control sessions: white	Reference	Reference
Race/ethnicity × therapist cares (reference: does not care)		
Therapist cares: African American	0.20 (0.06–0.68)*	0.10 (0.01–1.44)
Therapist cares: Latino	12.39 (0.73–>100)[‡]	3.26 (0.09–>100)[‡]
Therapist cares: white	Reference	Reference
Race/ethnicity × can see therapist as often as I need (reference: cannot see as often as needed)		
See as often as needed: African American	0.56 (0.25–1.26)	1.14 (0.26–5.13)
See as often as needed: Latino	0.58 (0.26–1.27)	1.26 (0.27–5.76)
See as often as needed: white	Reference	Reference

[†]Model adjusted for stratified sampling, item nonresponse and survey nonresponse using survey weights, multiple imputation and propensity scores.

[‡]Estimates and CI's are very large even with Firth correction due to very low frequency of treatment retention among those Latino Veteran who perceived their therapist as not caring. This imperfect adjustment incidentally obscures the *P*-value indicator of "significance" despite a very strong association (see text).

CI indicates confidence interval; MCS, Mental Component Score of the vSF-12; OR, odds ratio; TF, trauma focus; vSF-12, Veterans Short Form-12.

*$P < 0.05$.

**$P < 0.01$.

liefs were minimal ($M = 3.4\%$, SD = 1.1 and $M = 6.7\%$, SD = 1.0, respectively). Missingness of pharmacotherapy provider items on the follow-up survey averaged 9.8% (SD = 1.0), but was higher for psychotherapy provider rating items 16.4% (SD = 0.9), mostly due to respondent errors on follow-up survey skip-out instructions.

Treatment Rates

Of the n = 1817 patients who initiated individual psychotherapy, only 13% (n = 228) persisted in psychotherapy long enough to receive 8 sessions in the 6-month follow-up period (Table 1). Of the n = 1580 patients who initiated pharmacotherapy, 53% (n = 829) received at least 4 months of medication (Table 2). About 39% (n = 945) of Veterans in the sample initiated both treatments. White Veterans were more likely than African Americans or Latinos to receive a minimal trial of either treatment; however, the difference between whites and African Americans did not reach significance for psychotherapy retention.

Multivariable Models

In the binomial logistic regression model of psychotherapy persistence (Table 3), the odds of a minimal trial of therapy among white Veterans was more likely if therapy focused on military-related stressors most of the time (vs. minimally; Table 1). If therapy focused on military stressors about half of the time, African Americans were more likely to persist in treatment than were white Veterans. Therapy persistence among Latino Veterans was most strongly associated with ratings of whether their therapist cared. Of the 65 Latino Veterans who did not perceive their therapist cared, only 1 persisted in psychotherapy long enough to get 8 sessions. Among African American Veterans, the therapist cared rating was significantly less important for treatment persistence than among whites.

In the pharmacotherapy regression model (Table 4), the odds of retention were substantially lower among African American Veterans who did not perceive that their providers helped them with medication side-effects (odds ratio, 0.36; 95% confidence interval, 0.16–0.80).

TABLE 4. Model of a Minimal Trial of Pharmacotherapy Among Veterans With PTSD

	Unadjusted Model [OR (95% CI)]	Adjusted Model [OR (95% CI)][†]
African American	0.30 (0.13–0.69)**	0.30 (0.71–1.27)
Latino	0.51 (0.21–1.20)	1.13 (0.27–4.8)
White	Reference	Reference
vSF-12 MCS	0.98 (0.97–0.99)**	0.97 (0.94–0.99)**
SSRI/SNRIs make you feel drugged	1.15 (0.89–1.47)	1.08 (0.68–1.72)
Medical provider helps patient with medication side-effects (simple effects for white Veterans)	1.02 (0.66–1.58)	0.97 (0.44–2.15)
SSRI/SNRIs are effective to treat PTSD (simple effect for whites)	1.41 (0.93–2.13)	2.61 (1.23–5.55)*
Experiences medication side-effect distress		
None	Reference	Reference
Little, but goes away	1.29 (0.91–1.84)	1.10 (0.61–1.99)
Sometimes	0.79 (0.56–1.13)	0.49 (0.27–0.91)*
Most always	0.64 (0.47–0.87)**	0.52 (0.30–0.89)*
Race/ethnicity × medical provider helps with SEs (SE help)		
African American SE help	2.76 (1.25–6.13)*	5.61 (1.54–20.48)**
Latino SE help	0.89 (0.40–1.97)	0.97 (0.25–3.82)
White SE help	Reference	Reference
Race/ethnicity × SSRI/SNRIs are effective to treat PTSD		
African American SSRI/SNRIs effective	0.92 (0.48–1.76)	0.61 (0.20–1.84)
Latino SSRI/SNRIs effective	1.91 (0.96–3.77)	1.29 (0.41–4.07)
White SSRI/SNRIs effective	Reference	Reference

[†]Model adjusted for stratified sampling, item nonresponse and survey nonresponse using survey weights, multiple imputation and propensity scores.

CI indicates confidence interval; MCS, Mental Component Score of the vSF-12; PSTD, posttraumatic stress disorder; OR, odds ratio; SE, side effects from antidepressant medications; SF-12, Short Form-12; SSRI/SNRI, selective serotonin reuptake inhibitors/serotonin norepinephrine reuptake inhibitors; vSF-12, Veteran SF-12.

*$P < 0.05$.

**$P < 0.01$.

Planned Sensitivity Analyses

Estimates in the planned sensitivity analyses using adjusted models addressing survey response biases, item missingness and sampling design, largely supported findings observed in the unadjusted models (Tables 3 and 4), suggesting that our findings are robust to the effects of these potential biases.

Post Hoc Sensitivity Analyses

In post hoc analyses (online Supplementary Digital Content 2, http://links.lww.com/MLR/B406), we found no differences between groups in the timing of the initial individual therapy appointment. In addition, there was no evidence that differential opportunity to address medication issues existed between groups based on timing or frequency of medication management appointments.

DISCUSSION

Consistent with prior research on the importance of patient-provider relationships to treatment persistence,[18,25] we found that ratings by Veterans with PTSD of their mental health treatment providers were associated with persistence in individual psychotherapy and pharmacotherapy. Although racial and ethnic group differences in treatment-related beliefs are often presumed to contribute to differences in treatment behavior (eg, Jimenez et al[41]), we found that beliefs were not the primary drivers of racial/ethnic variation in treatment persistence; rather, rated characteristics of treatment providers were more important.

Patient-provider interactions may contribute to disparities through either the quality of the interaction context (relational aspect of the interaction) and/or interaction content (information exchange).[50] The findings from this study suggest that to understand disparities among Veterans with PTSD engaged in treatment, both interaction context and content are important. Because specific provider ratings associated with the odds of a minimum treatment trial differed by treatment modality, general provider education trainings to address disparities may not be sufficient to impact treatment persistence across settings and clinical contexts.

There are several limitations to this study. We modeled treatment retention using backward elimination because uneven and limited subsample sizes and correlations between variables required us to limit our predictors to avoid overfitting the models. It is possible that our findings might have differed if we had a larger sample and could have approached model development differently. Even though we used adjusted models to corroborate our findings, the model fit was imperfect. It is possible that our adjusted models did not adequately address nonresponse biases due to small cell sizes and data missing not at random, and that our findings might have differed if patient responses were complete. Moreover, because of small sample sizes, we could only use adjusted models in a general, confirmatory capacity. Although we attempted to incorporate the best available evidence factors contributing to disparities in treatment may not have been assessed by the survey. We also do not know the content of the psychotherapy sessions, whether patients actually took medications they received, or whether treatments were specifically for PTSD (rather than a comorbidity)—all of which could alter our findings. It is possible that provider ratings, collected at the follow-up assessment, were subject to retrospective biases and that ratings collected during the course of treatment might have revealed different associations. Finally, we do not know the race/ ethnicity of any providers, and our conclusions might differ had this been known.

Although exploratory, this study suggests that both similarities and differences in provider behavior contribute to treatment retention across racial/ethnic groups. All patients were more likely to remain in treatments they expected to be effective, with providers who listened and of whom they felt comfortable asking questions. Racial and ethnic differences were observed in the salience of specific aspects of provider interaction context and content to mental health treatment persistence. This suggests that interventions focusing on provider contributions to therapeutic interactions may more successfully engender treatment retention among racial and ethnic minority Veterans with PTSD than interventions that "culturally tailor" treatments to match belief systems of patient demographic groups. Because patients' needs of providers may differ depending on the type of treatment,

provider-oriented interventions may need to be adapted to specific clinical contexts to be successful. To address equity issues in treatment persistence and to corroborate and extend these findings, it will be important to evaluate patients' experiences with mental health providers and treatments throughout the course of treatment.

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