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Racial and Ethnic Differences in Receipt of Antidepressants and Psychotherapy by Veterans With Chronic Depression

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Abstract

Objective: This study characterized racial-ethnic differences in treatment of veterans with chronic depression by examining antidepressant and psychotherapy use among non-Hispanic black, non-Hispanic white, Hispanic, Asian, and American Indian–Alaska Native (AI/AN) veterans.

Methods: Logistic regression models were estimated with data from the U.S. Department of Veterans Affairs (VA) medical records for a sample of 62,095 chronically depressed patients. Data (2009–2010) were from the VA External Peer Review Program. Three primary outcome measures were used: receipt of adequate antidepressant therapy (≥80% medications on hand), receipt of adequate psychotherapy (at least six sessions in six months), and receipt of guideline-concordant treatment (either of these treatments).

Results: Compared with whites, nearly all minority groups had lower odds of adequate antidepressant use and guideline-concordant care in unadjusted and adjusted models (antidepressant adjusted odds ratio [AOR] range=.53–.82, p<.05; guideline-concordant AOR

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range=.59–.83, p<.05). Although receipt of adequate psychotherapy was more common among veterans from minority groups in unadjusted analyses, differences between Hispanic, AI/AN, and white veterans were no longer significant after covariate adjustment. After adjustment for distance to the VA facility, the difference between black and white veterans was no longer significant.

Conclusions: A better understanding of how patient preferences and provider and system factors interact to generate differences in depression care is needed to improve care for patients from racial-ethnic minority groups. It will become increasingly important to differentiate between health service use patterns that stem from genuine differences in patient preferences and those that signify inequitable quality of depression care.

Depression is a costly chronic condition affecting 9% of adults in the United States, 4% of whom meet criteria for major depression (1). Veterans may be at increased risk of depression compared with the general population (2,3). Effective treatments for depression exist, and clinical guidelines recommend use of antidepressants and psychotherapy as the standard of care (4). Nevertheless, rates of treatment for depression are low, particularly among older adults and underserved racial-ethnic groups (5).

Various studies have identified racial-ethnic disparities in the receipt of guideline-concordant depression care (6–8), including among veterans receiving care in the U.S. Department of Veterans Affairs (VA) health care system. VA has a large integrated health system in which concerted efforts are made to standardize the delivery of high-quality care, including widespread adoption of nationwide depression screening. Nevertheless, a number of studies have found disparate treatment rates between veterans with depression from racialethnic minority groups and white veterans (9–12).

Several gaps in knowledge about disparities in depression care in the veteran population exist. First, many previous studies have focused on either patients with new-onset depression or all patients with depression, regardless of duration. In addition, most guidelines address the initiation of depression care rather than ongoing care. Less is known about the large group of veterans with chronic depression. Second, various studies have used rates of receipt of antidepressants to determine quality of care and have paid less attention to psychotherapy, even though treatment guidelines recommend either or both modalities. Third, most studies evaluating treatment have compared a few racial-ethnic groups—such as black veterans compared with white veterans—which provides an incomplete picture of depression care for veterans from other minority groups (5). This study aimed to characterize differences in treatment for multiple racial-ethnic groups of veterans with ongoing depression, examining rates of both antidepressant and psychotherapy use.

Methods

Sample

Patients with depression were identified from the VA's Office of Analytics and Business Intelligence (OABI) External Peer Review Program (EPRP). The OABI manages VA performance measures for both inpatient and outpatient conditions. In 2007, OABI instituted national annual screening for depression. All veterans who receive care at VA clinics or inpatient settings are screened with the Patient Health Questionnaire (PHQ) (13). The EPRP

process randomly samples patients from all VA facilities, with oversampling of specific groups (for example, women and patients with depression). Data from patients' electronic medical records are abstracted by trained staff, making the process less subject to technical or coding errors. In this way, EPRP auditors perform a systematic and comprehensive chart review of procedures and outcomes of care in order to assess the quality of care provided to veterans in VA facilities (14). We linked EPRP data to inpatient and outpatient treatment files, beneficiary and vital status files, and pharmacy data from the VA Austin Automation Center (15).

We used a prospective study design to analyze EPRP records for fiscal years 2009 and 2010 for veterans with an outpatient visit for depression. To abstract charts for VA depression performance measures, the EPRP program identified a depression visit on the basis of *ICD* −9 codes (296.2X, 296.3X, 298.0, 300.4, 301.12, 309.0, 309.1, 309.28, and 311). We excluded patients with spinal cord injury because they receive the majority of their care outside VA, as well as patients with bipolar disorder or schizophrenia because different treatment approaches may be applicable. We also excluded patients who died during the six-month follow-up period.

This study focused exclusively on patients with chronic depression. Chronic depressive symptoms are common, and up to 70% of patients have depressive symptoms that do not resolve from one year to the next, whereas acute episodes often resolve spontaneously, even without treatment (16). These episodes of depression likely represent significant, fixed depressive symptoms that affect patients and for which some treatment is indicated. EPRP chart abstraction determined whether the index depression visit was a new episode of depression—defined as occurring after a period of at least four months without evidence of any prior treatment for depression. Patients who had prior visits for depression and evidence of depression treatment within the past four months documented in their electronic medical record were categorized as having chronic depression.

Measures

We examined three primary outcome measures separately: receipt of adequate antidepressant therapy, receipt of adequate psychotherapy, and receipt of guideline-concordant depression treatment. We calculated antidepressant medication refills by using VA pharmacy data (17). Medications qualifying as antidepressants included serotonin-specific reuptake inhibitors, serotonin-norepinephrine reuptake inhibitors, bupropion, monoamine oxidase inhibitors, and mirtazapine. We excluded heterocyclics, trazodone, and nefazodone because they are often used for treatment of other conditions, such as chronic pain, insomnia, and anxiety. The total number of days supplied from all identified antidepressant prescriptions that were filled 30 days before the 180 days after a depression diagnosis were used to calculate the proportion of days during which the patient had medication available (17). We defined adequate antidepressant therapy as sufficient prescriptions to take the medication for at least 80% of the six-month follow-up period. This cutoff for antidepressants has been found to predict the likelihood of having a psychiatric hospitalization (18) and has been used in studies examining the treatment of chronic medical conditions (17).

Psychotherapy visits were identified from outpatient visit procedure codes (11). Adequate psychotherapy was defined as at least six psychotherapy sessions during the six-month period after the index depression visit (19–21). Guideline-concordant care for depression treatment was defined by patient receipt of either adequate antidepressant therapy or adequate psychotherapy during the six-month period after the index depression visit.

Race and ethnicity.—We derived race-ethnicity for each patient by using hospital utilization records from the VA Austin Automation Center main-frame. To minimize cases of missing race-ethnicity data, we obtained supplementary information by using linked data from the VA and the Centers for Medicare and Medicaid Services (22). We generated the following categories: non-Hispanic white (white), non-Hispanic black (black), Asian, American Indian or Alaska Native (AI/AN), Hispanic, and unknown.

Other sociodemographic characteristics.—Veterans who fall below an income threshold (via a standardized means test) or meet eligibility requirements for a service-connected disability are exempt from copayment for care received in VA facilities (23). Therefore, we used exemption from mandatory VA copayment (yes or no) as a proxy for low socioeconomic status (24). Additional covariates included in our analyses were male gender (yes or no), age (continuous variable), married (yes or no), and current smoker (yes or no).

Comorbidities and health behavior.—We calculated the Charlson-Deyo Comorbidity Index in the year before the index depression visit by using ICD-9 codes (25). We identified patients with PTSD and substance use disorders from ICD-9 codes listed in EPRP records (309.81; 304.X–305.X, excluding 305.1; 291; 303.9; 303; 425.5; 357.5; 535.3; and 980). To assess current drinking, we used scores from AUDIT-C questionnaires also included in EPRP records (26,27).

Access and utilization.—We included two indicator variables to assess use of VA health care services in the year before the depression diagnosis: any visits to primary care and any visits to mental health clinics. We also included the straight-line distance between the veteran's residence and the VA facility where the depression diagnosis was given (parent facility)by using zip code data as a proxy for travel time (28,29).

Analyses

We estimated unadjusted and adjusted logistic models to predict adequate depression care, controlling for clustering of observations within VA medical facilities. Three sets of models were run for each outcome: unadjusted analyses; adjusted for demographic, socioeconomic, access, utilization, and health status; and adjusted for the aforementioned covariates along with distance to the parent VA facility. Model 1 examined receipt of adequate antidepressant therapy by racial-ethnic group; model 2 and model 3 examined receipt of adequate psychotherapy and guideline-concordant care, respectively. The results are reported as odds ratios (ORs) and adjusted prevalences, each with associated 95% confidence intervals (CIs). We present ORs for ease of comparison with other studies. Adjusted prevalences are presented because they may provide a more accurate estimate of the association given that

ORs may overestimate associations when outcomes are relatively common (30). We used SAS, version 9.2, and Stata, version 11.2, for analyses.

Results

We identified 62,095 veterans with chronic depression whose medical records were reviewed by EPRP in 2009 and 2010 (Table 1). Of these, 72% were white, 16% black, 4% Hispanic, 2% Asian, 2% AI/AN, and 4% unknown racial-ethnic group. Most patients were male (71%), and most were exempt from copayments (88%). For the six-month period after the most recent depression visit, 51% of patients received adequate antidepressant care, 13% attended at least six psychotherapy sessions, and 57% received guideline-concordant care.

Table 2 presents unadjusted and adjusted results for logistic regression models for adequate antidepressant therapy (model 1), adequate psychotherapy (model 2), and guideline-concordant treatment (model 3). For adequate antidepressant therapy, the unadjusted and adjusted iterations (with and without accounting for distance to the parent VA facility) yielded similar results. The adjusted models reflected slight attenuation of the effects, but overall, minority groups had lower odds of receiving adequate antidepressant therapy compared with white veterans (adjusted model with distance to the parent VA facility, black OR=.53; Hispanic OR=.65; Asian OR=.82; and AI/AN OR=.80). The adjusted prevalences reported in Table 2 also showed significantly lower adequate antidepressant therapy for veterans from minority groups compared with white veterans.

In contrast to the findings for antidepressant therapy, veterans from racial-ethnic minority groups had significantly higher unadjusted odds of receiving adequate psychotherapy (attending at least six psychotherapy sessions in the defined six-month window) (black OR=1.52; Hispanic OR=1.18; Asian OR=1.51; AI/AN OR=1.29). When we adjusted for sociodemographic characteristics, health behaviors, and health status factors, the odds were attenuated, although they remained significantly higher for black veterans (OR=1.20) and Asian veterans (OR=1.32). However, once we adjusted for distance to the parent VA facility, no differences in receipt of adequate psychotherapy were observed between black and white veterans, but differences remained between Asian and white veterans (Asian OR=1.26).

Results for model 3 showed differences by racial-ethnic group in the receipt of guideline-concordant care. Overall, findings were attenuated in the adjusted versions of the model. Both adjusted iterations—with and without distance to the parent VA facility—yielded similar numerical and statistical results. Black, Hispanic, and AI/AN veterans had lower adjusted odds of receiving guideline-concordant care relative to whites (adjusted model with distance to parent VA facility, black OR=.59; Hispanic OR=.66; and AI/AN OR=.83). However, Asian veterans were as likely to receive guideline-concordant care as whites.

Figure 1 summarizes the adjusted prevalence results for receipt of adequate antidepressant therapy, adequate psychotherapy, and guideline-concordant depression care across racial-ethnic groups. Relatively low levels of adequate psychotherapy were found across all racial-ethnic groups. White veterans had the highest adjusted prevalence of adequate antidepressant therapy and guideline-concordant depression care. Black veterans had the

lowest adjusted prevalence of adequate antidepressant therapy, and black and Hispanic veterans had nearly identical levels of guideline-concordant depression care, which were lower compared with the other groups.

Discussion

This study used data from a large patient database of chronically depressed veterans to examine differences in the receipt of depression care between multiple racial-ethnic groups. In adjusted models, we found significant differences between racial-ethnic groups. Rates of adequate antidepressant therapy and guideline-concordant depression care were lower for almost all nonwhite groups than for whites. Our finding of lower overall rates of guideline-concordant care could be interpreted as evidence of the existence of a disparity in the quality of depression care that black, Hispanic, and AI/AN veterans receive compared with white veterans, as might happen if clinicians were less likely to treat depression among racial-ethnic minority groups. However, the results may not necessarily imply a disparity in the quality of depression care received by veterans. First, reliance on a composite outcome, such as guideline-concordant treatment for depression, may be misleading. Our findings for guideline-concordant care were largely driven by the racial-ethnic differences in antidepressant therapy that persisted even after the analysis accounted for differences in health, socioeconomic, and geographic variables. These findings lead us to question the utility of a combined metric when greatest insight is gained from examining receipt of adequate psychotherapy and adequate antidepressant therapy separately.

Second, patients from racial-ethnic minority groups may be reluctant to take antidepressants, after these medications are recommended, prescribed, or initially tried (31). We were not able to ascertain providers' attempts to prescribe antidepressants or whether patients refused them. Additional research is needed to clarify the full context of patients' preferences for depression treatment across racial-ethnic groups.

Third, we found that in unadjusted analyses, receipt of psychotherapy was more common among nonwhite veterans. Whereas black, Hispanic, Asian, and AI/AN groups all demonstrated lower odds than whites of adequate antidepressant therapies, these minority groups all had significantly higher odds than whites of receiving psychotherapy treatment. The divergent racial-ethnic patterns seen in psychotherapy and pharmacotherapy are consistent with previous research (10,11), which focused solely on black and white veterans. The findings for psychotherapy could suggest that veterans from minority groups may more often request or be offered psychotherapy or be more amenable to it than white veterans. The findings may also point to a greater preference for psychotherapy (in lieu of medications) among certain racial-ethnic groups.

Unlike previous analyses, which did not adjust for geographic factors, our study found that the differences between racial-ethnic groups in receipt of psychotherapy were not significant once we accounted for distance from the patient's residence to the VA facility where the depression diagnosis was given (parent facility). This finding suggests that geographic factors may account for divergent receipt of psychotherapy. It is also worth noting that the overall prevalence of psychotherapy in this study was relatively low for all racial-ethnic

groups. Together, these findings suggest that veterans living further away from VA facilities may encounter particular difficulties in accessing VA mental health providers for face-to-face psychotherapy care. These findings may suggest the need for VA to augment access to psychotherapy to rural veterans. For instance, telehealth interventions have the potential to reach veterans regardless of distance to a parent VA facility, provide acceptable mental health care, and decrease rates of psychiatric hospitalizations (32–34). Telehealth may be a way to invest in the delivery of mental health services to provide greater access for patients and care that is acceptable across various racial-ethnic groups.

This study had several limitations. A general limitation of relying on quality assessment and administrative data is the limited number of control variables available. However, our data allowed the examination of behavioral, socioeconomic, and demographic factors, an improvement over many VA studies. Second, the data included only clinical encounters within the VA, whereas veterans may have received psychotherapy or antidepressants outside the VA. However, recent efforts to increase access to mental health services—such as by integrating mental health care into primary care settings and requiring primary care clinics to conduct mental health screening—has enabled many veterans to receive all or most of their mental health care in the VA (35). Thus receipt of outside care is unlikely to be a significant factor driving the differences in depression care between racial-ethnic groups. In addition, because of low copayments, most veterans fill medication prescriptions through the VA pharmacy, which were captured in our analyses.

Third, although we were able to ascertain details about diagnoses and receipt of care, we could not determine additional details about how patients and their providers opted to treat or not treat depression. For instance, providers may have offered antidepressants or psychotherapy only to have patients refuse them, or symptoms may have resolved often enough that ongoing treatments were considered unnecessary. There may also be differential rates of diagnosing depression between racial-ethnic groups, particularly for patients being seen for other serious or chronic mental and general medical problems (for example, substance use disorders). This selection bias could confound the measurement of adequate treatment.

We were not able to ascertain severity of depression diagnosis with our data. Treatment recommendations and guidelines for care are contingent on the severity of the depression episode. Whether depression severity varies significantly between racial-ethnic groups remains an important consideration in the interpretation of these results and warrants further investigation. Finally, race-ethnicity data in VA patient records has been criticized as lacking in completeness (22). Recent efforts have led to vast improvements in VA information on race-ethnicity, raising completeness in VA records to 85% across all veterans (36). Still, analyzing large and heterogeneous racial-ethnic categories is not optimal. Future research should take within-group differences into account when examining depression treatment differences.

It is critical to identify and remediate racial-ethnic disparities in care, especially when improved care can reduce suffering and improve quality of life (5). Although our findings suggest that racial-ethnic differences may persist in the VA at a level similar to that found in

2003 (10), the study did not clearly identify a disparity in the quality of mental health care that veterans from minority groups received. It is possible that observed differences in treatment arose from patient-centered preferences for care and not from provider nonadherence to best-care practices for their patients from minority groups. In other words, there may have been unexamined factors that influenced receipt of care that do not constitute a disparity in depression treatment for racial-ethnic minority groups. For instance, recent research about attitudes and cultural beliefs toward antidepressant use among older black adults raises interesting considerations about patient preferences for depression care (37). Cultural beliefs and attitudes toward specific treatment modalities may also have a bearing on the mental health care–seeking behavior of racial-ethnic minority veterans.

Future research concerning disparities in depression care should examine preferences for treatment as well as receipt of treatment and should try to identify treatment attempts made by providers in addition to use of treatments. In addition, analyses of psychotherapy use should account for geographic barriers, especially distance to the parent facility where a veteran receives depression care. Ultimately, equitable depression treatment will consist of care that is clinically effective and that at the same time offers patients the sorts of treatments they want in ways that are both acceptable and accessible.

Conclusions

Differences between racial-ethnic groups in depression care were observed. However, overall rates of guideline-concordant care, and especially psychotherapy, were low. To improve care for patients from minority groups, we need to better understand how patient preferences and provider and system factors interact to generate differences in the use of depression care services. Efforts to improve depression treatment for veterans might benefit from attention to patient preferences for medications or psychotherapy and from dissemination of clinical models such as telemedicine, which may help overcome geographic barriers. It will become increasingly important to differentiate between health service use patterns that stem from genuine differences in patient preferences and those that signify inequitable quality of depression care.

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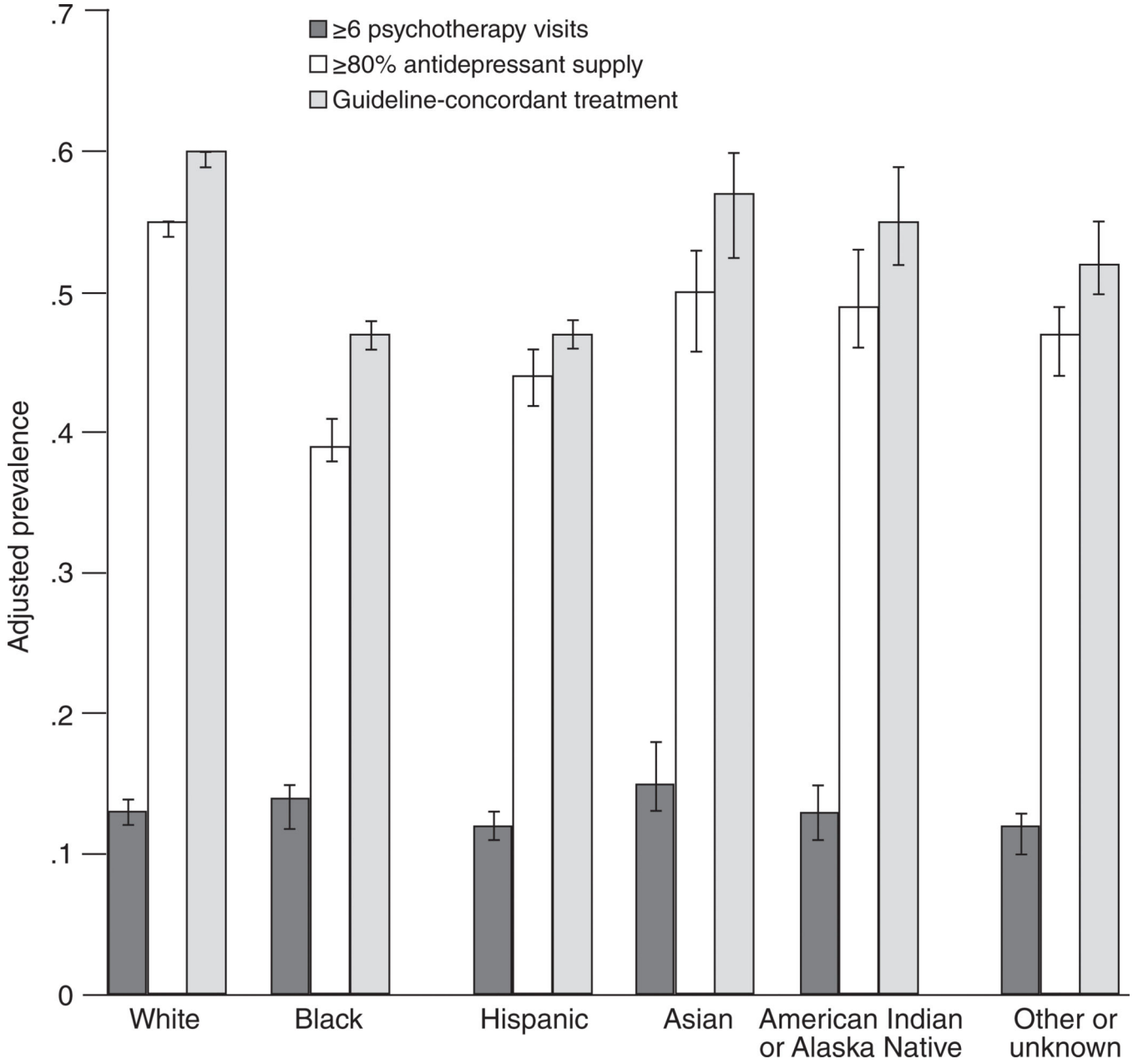

Figure 1:

Adjusted prevalence of adequate depression care among veterans with chronic depression, by racial-ethnic group[a] [a] Guideline-concordant therapy: either ≥6 psychotherapy sessions or an ≥80% supply of antidepressants

Table 1:

Characteristics of 62,095 veterans with chronic depression, by racial-ethnic group[a]

Characteristic	All (N=62,095)	Non-Hispanic white (N=44,896)	Non-Hispanic black (N=9,811)	Hispanic (N=2,678)	Asian (N=1,326)	American Indian or Alaska Native (N=967)	Other or unknown (N=2,417)
Age (M±SD)	57.5±12.5	58.4±12.7	53.7±10.6	54.9±13.5	55.3±13.1	55.2±11.3	51.2±11.1
Male	71.3	73.6	62.2	74.9	67.4	66.6	65.7
Married[b]	45.2	47.4	33.7	49.1	45.9	40.6	49.0
Copay exempt[c]	87.5	86.1	92.2	92.6	92.5	91.5	85.4
Miles to parent facility (median)	31.2	34.0	16.6	24.7	27.6	46.5	33.7
Current smoker[d]	33.0	33.7	33.8	22.8	27.9	36.2	31.0
Comorbidity score (M±SD)[e]	.9±1.6	.9±1.6	1.0±1.7	.9±1.6	.9±1.6	1.0±1.6	.5±1.1
AUDIT-C[f]							
Nondrinker	57.4	57.3	59.9	57.7	57.5	58.4	46.8
Drinker, low to mild level	31.6	32.0	28.9	30.0	30.2	29.5	39.4
Moderate to severe alcohol misuse	7.0	6.9	6.7	8.2	7.5	8.1	9.4
Substance abuse visit ≤2 years before index depression visit	26.0	24.0	35.2	27.7	25.0	30.2	22.6
Posttraumatic stress disorder	40.7	38.9	45.9	46.3	46.3	54.4	39.0
Mental health visit ≤1 year before index depression visit	79.9	78.3	85.9	84.4	84.5	83.8	77.2
Primary care visit ≤1 year before index depression visit	95.7	95.8	95.7	96.0	94.7	96.5	92.8
Adequate antidepressant therapy[g]	51.2	54.5	39.8	44.7	50.0	50.5	45.3
Adequate psychotherapy[h]	12.8	11.8	17.0	13.7	16.8	14.7	11.5
Guideline-concordant depression treatment[i]	56.7	59.1	48.9	51.1	57.8	56.9	50.7

[a] Values are percentages unless otherwise noted.

[b] Data were missing for 141 veterans (.2%). Total never married=8,087 (13.0%)

[c] Used as a proxy indicator of low socioeconomic status

[d] Data were missing for 632 veterans (1.0%).

[e] Possible scores range from 0 to 17, with higher scores indicating increasing comorbidity.

[f] Data were missing for 2,489 veterans (4.0%).

[g] Sufficient prescriptions to take the medication for at least 80% of the 6-month follow-up period

[h] ≥6 sessions in the 6-month follow-up period

[i] Either adequate antidepressant therapy or adequate psychotherapy

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Table 2:

Receipt of adequate depression care by 62,095 veterans with chronic depression, by racial-ethnic group

	Unadjusted				Adjusted but not for distance to VA facility[b]				Adjusted for distance to VA facility[c]			
Model[a]	**OR**	**95% CI**	**Prevalence**	**95% CI**	**OR**	**95% CI**	**Prevalence**	**95% CI**	**OR**	**95% CI**	**Prevalence**	**95% CI**
Model 1: adequate antidepressant therapy												
White (reference)	1.00		.54	.54–.55	1.00		.55	.54–.55	1.00		.55	.54–.55
Black	.55	.52–.59	.40	.38–.41	.52	.49–.56	.39	.38–.40	.53	.50–.56	.39	.38–.41
Hispanic	.68	.63–.73	.45	.43–.46	.65	.60–.69	.44	.42–.46	.65	.60–.70	.44	.42–.46
Asian	.84	.70–1.00	.5	.46–.54	.80	.67–.96	.49	.45–.53	.82	.67–.96	.50	.46–.53
American Indian or Alaska Native	.85	.75–.97	.5	.47–.54	.81	.70–.92	.49	.46–.53	.80	.70–.92	.49	.46–.53
Other or unknown	.69	.63–.76	.45	.43–.48	.72	.66–.79	.47	.44–.49	.73	.66–.80	.47	.44–.49
Model 2: adequate psychotherapy												
White (reference)	1.00		.12	.11–.13	1.00		.12	.12–.13	1.00		.13	.12–.14
Black	1.52	1.35–1.72	.17	.15–.19	1.20	1.05–1.36	.14	.13–.16	1.10	.96–1.22	.14	.12–.15
Hispanic	1.18	1.02–1.37	.14	.12–.15	.98	.85–1.14	.12	.11–.14	.92	.80–1.10	.12	.11–.13
Asian	1.51	1.21–1.88	.17	.14–.20	1.32	1.06–1.63	.16	.13–.18	1.26	1.00–1.55	.15	.13–.18
American Indian or Alaska Native	1.29	1.07–1.54	.15	.12–.17	1.00	.84–1.18	.12	.11–.14	1.05	.89–1.26	.13	.11–.15
Other or unknown	.97	.84–1.12	.12	.10–.13	.91	.78–1.06	.12	.10–.13	.89	.76–1.04	.12	.10–.13
Model 3: guideline-concordant depression treatment												
White (reference)	1.00		.59	.58–.60	1.00		.60	.59–.60	1.00		.60	.59–.60
Black	.66	.63–.70	.49	.48–.50	.60	.56–.63	.47	.46–.49	.59	.56–.62	.47	.46–.48
Hispanic	.72	.67–.78	.51	.49–.53	.66	.61–.72	.50	.48–.52	.66	.61–.72	.50	.48–.52
Asian	.95	.83–1.09	.58	.54–.61	.88	.76–1.01	.57	.53–.60	.89	.78–1.02	.57	.54–.60
American Indian or Alaska Native	.91	.80–1.05	.57	.53–.60	.82	.71–.95	.55	.51–.58	.83	.72–.96	.55	.52–.59
Other or unknown	.71	.65–.78	.51	.48–.53	.73	.67–.81	.52	.50–.55	.73	.67–.81	.52	.50–.55

[a] Adequate antidepressant therapy: sufficient prescriptions to take the medication for at least 80% of the 6-month follow-up period; adequate psychotherapy: ≥6 sessions in the 6-month follow-up period; guideline-concordant treatment: either adequate antidepressant therapy or adequate psychotherapy

[b] Adjusted for age, sex, race, marital status, socioeconomic status, smoking status, alcohol use, substance abuse diagnosis, posttraumatic stress disorder diagnosis, Charlson-Deyo comorbidity score, any primary care visits 1 year before index depression visit, and any mental health visits 1 year before index depression visit

[c] Adjusted for all of the above plus distance from patient's residence to parent facility (where the patient was diagnosed for depression)