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## Racial/Ethnic Differences in Diagnoses and Treatment of Mental Health Conditions across Healthcare Systems Participating in the Mental Health Research Network

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**Abstract**

**Objective**—The objective of this study is to characterize racial/ethnic variation in mental health diagnoses and treatments in large not-for-profit healthcare systems.

**Method**—Participating systems were 11 private, not-for-profit healthcare organizations constituting the Mental Health Research Network (MHRN) and had a combined 7,523,956 patients aged 18 years or older, who received care during 2011. Rates of diagnoses, psychotropic medications, and formal psychotherapy sessions received were obtained from insurance claims and electronic medical record databases across all healthcare settings.

**Results**—Of the 7,523,956 patients in the study, 1,169,993 (15.6%) received a mental health diagnosis in 2011. This varied significantly by race/ethnicity with Native American/Alaskan Native patients having the highest rates of any diagnosis (20.6%) and Asians having the lowest rates (7.5%). Among patients with a mental health diagnosis, 73% (n = 850,585) received a psychotropic medication. Non-Hispanic white patients were significantly more likely (77.8%) than other racial/ethnic groups (range 61.5% to 74.0%) to receive medication. In contrast, only 34% of patients with a mental health diagnosis (n = 548,837) received formal psychotherapy. Racial/ethnic differences were most pronounced for depression and schizophrenia where non-Hispanic blacks were 20% more likely to receive formal psychotherapy for their depression and 2.64 times more likely to receive formal psychotherapy for their schizophrenia when compared to whites.

**Conclusions**—There were significant racial/ethnic differences in diagnosis and treatment of mental health conditions across 11 U.S. healthcare systems. Further study is needed to understand underlying causes of these observed differences and whether processes and outcomes of care are equitable across these diverse patient populations.

## Introduction

It is estimated that at least 25% of adults 18 and older in the U.S suffer from some type of mental health condition at any one time<sup>1</sup>. The most common are depression and anxiety<sup>1</sup>. Mental health conditions lead to greater disability than other chronic illnesses and cost the U.S. as much as 300 billion dollars annually<sup>2,3</sup>. A number of reports have detailed racial/ethnic differences in diagnosis of mental health conditions, most of which rely on survey responses from both patients and providers<sup>4</sup>. In general, survey-reported rates of depression are lower in non-Hispanic black and Hispanic patients than their non-Hispanic white counterparts<sup>5,6</sup>. In contrast, non-Hispanic black and Hispanic patients are more than three times as likely as non-Hispanic whites to be diagnosed with schizophrenia across a number of settings including community and academic medical centers<sup>7-10</sup>.

Treatment for mental health conditions also varies by race/ethnicity. Individuals of racial/ethnic minorities who are diagnosed with any mental health condition are less likely than non-Hispanic whites to receive a medication for their condition<sup>5, 11-13</sup>. Like the findings for diagnoses, most of the treatment studies are also based upon survey reports from patients and providers. The evidence that exists for the accuracy of patient reported medical treatment is mixed and depends upon the treatment being delivered<sup>14,15</sup>. Major treatment modalities such as surgery are much more accurately reported than receiving a prescription for a condition<sup>16</sup>. Physician reported care practices are much less studied, with the limited evidence suggesting that physician self-reported treatment does not match that recorded in the medical record<sup>17</sup>.

The few published studies that have examined actual prescription patterns (rather than data gathered from surveys) have found conflicting results. One found lower prescription rates for racial/ethnic minority Veterans with serious mental illness compared to their non-Hispanic white counterparts<sup>11</sup>, while another large study of Medicaid patients from 42 states suggested that the off-label use of antipsychotic drugs is *greater* in racial/ethnic minorities<sup>19</sup>. These disparate findings are likely due to a number of differences among patient populations, treatment practices, and healthcare system guidelines. Racial/Ethnic variation in the use of psychotherapy is even less well understood. Like the pharmacotherapy literature, there are equivocal findings about differences in psychotherapy use by racial/ethnic minorities<sup>20-23</sup>.

The current study is designed to address two major gaps in the literature. First, most available evidence for racial/ethnic differences in mental healthcare is based on national surveys asking patients/caregivers to self-report their own care and providers to self-report their practices<sup>24-26</sup>. By contrast, our study used medical and pharmacy record data on rates of diagnoses, medications dispensed, and formal psychotherapy sessions attended. Second, the few studies of diagnosis and treatment patterns using electronic medical records are from a narrow cross-section of providers and systems, relatively small samples of racial/ethnic minority patients, and/or reflect a large proportion of patients receiving federally subsidized care (Veterans Health Affairs<sup>11</sup> and Medicaid<sup>19</sup>). Using data from 2011, our study is designed to expand the evidence for differences in race/ethnicity in mental health diagnoses

and treatment in a large, geographically diverse and racially/ethnically representative sample of over 7.5 million patients enrolled in 11 healthcare systems across the U.S.

## Methods

### Settings

Data for this study were obtained from the Mental Health Research Network (MHRN), a nation-wide consortium of public-domain research centers based in large, not-for-profit healthcare systems in the U.S. At the time that data analyses were conducted, these systems provided both private, primarily commercial, and subsidized public insurance coverage and healthcare to over 10 million people living in 11 states<sup>27</sup>. All healthcare systems have meaningful use-compliant electronic medical records. Table 1 provides basic descriptors for each of the systems included in this study.

For all systems, electronic medical records, insurance claims, and other data systems were organized in a Virtual Data Warehouse (VDW) to facilitate population-based research<sup>28</sup>. Protected health information remains at each healthcare system, but sites apply common data definitions and formats to ensure equivalent de-identified data for analysis. Only frequencies are shared between institutions for analyses. Institutional Review Boards at each healthcare system approved the methods for this study.

### Patients

Patients were selected for the study if they were continuously enrolled members of their health plan for at least 10 months in 2011, had medical and prescription drug coverage for at least 10 months of that year, and were aged 18 years and older ( $n = 7,523,956$ ). Of this population, 15.6% had at least one mental health diagnosis in 2011 ( $n = 1,169,993$ ). These patients were used for analyses of medication and formal psychotherapy utilization.

### Measures

**Race and Ethnicity**—Self-reported race/ethnicity was obtained from the VDW. All healthcare systems were implementing meaningful use requirements<sup>29</sup> to collect self-reported race/ethnicity from their members in 2011. Typically, new and current members were asked to complete a self-report form that included separate questions for both their race and ethnicity. These forms were included in both membership applications and at clinical outpatient visits. Responses from both sources were entered into the electronic medical record by healthcare system staff. Choices for race and ethnicity recorded by the VDW are standardized across healthcare systems and follow national recommendations for mutually exclusive race categories.<sup>30,31</sup>

Regardless of the race category they endorsed, patients self-reporting Hispanic ethnicity were considered Hispanic according to recommendations from a national survey of Hispanics living in the U.S. that Hispanic people considered themselves a race of people and not an ethnicity<sup>3</sup>. If a patient's records contained two or more race categories (rather than a single category of "mixed race"), they were assigned the least prevalent race category in the U.S. population. For example, if a patient indicated they were both Native Hawaiian/Pacific

Islander and non-Hispanic black, they were categorized as Native Hawaiian/Pacific Islander in our analyses. This was done to maximize our ability to understand differences in diagnoses and treatment for the least represented racial/ethnic minority patients. This is a convention used for analyses using the VDW.<sup>28</sup>

**Mental health diagnoses**—Data for mental health diagnoses were obtained from all encounters in both electronic medical records and insurance claims. Claims data contained information from contracted facilities and physicians who billed the healthcare systems. We abstracted diagnoses made by any healthcare provider in primary care, psychiatry, emergency department, and inpatient settings for our analyses. Standard ICD-9 codes were used to define the following mental health conditions: depression, bipolar disorder, anxiety, attention deficit disorders, autism spectrum disorders, schizophrenia, other psychoses, substance use disorders, and dementia. Patients were counted in each category for which they had a diagnosis. This meant that an individual patient could be counted more than once in our analyses if they had multiple mental health conditions.

**Pharmacy records**—Information on filled pharmacy prescriptions was extracted from electronic medical records and pharmacy claims. We collected information on drugs in the following classes: antidepressants, stimulants, lithium, anticonvulsants, first and second generation antipsychotics, benzodiazepines, other hypnotics, and other anxiolytics. Results for pharmacotherapy were referred to as rates of “receiving” a drug for a mental health condition which meant that the patient or caregiver paid for the prescription (i.e. filled the prescription).

**Psychotherapy treatment**—Procedure codes were captured by claims and/or electronic medical records data. We defined formal psychotherapy treatment using current procedural terminology (CPT) codes: diagnostic interviews and assessments, individual psychotherapy, insight-oriented, at least 45 – 80 minutes, and individual psychotherapy, interactive with equipment/devices/non-verbal communication, at least 45 – 80 minutes. We excluded any treatment that was less than 30 minutes and/or clearly designated as medication management only. In the healthcare systems included in this study, visits less than 30 minutes in length are rarely used for formal psychotherapy. We did not exclude visits where medication management occurred, however, we required that there also be an indication of psychotherapy.

## Analyses

Rates of diagnosis, pharmacy fills and psychotherapy treatment were adjusted for healthcare site and presented across a number of mental health conditions by race/ethnicity. These rates are compared statistically with non-Hispanic whites as the referent group using odds ratios and 95% confidence intervals. Data are presented for all mental health conditions combined and individually for anxiety, depression, bipolar disorders, schizophrenia, and other psychoses. Autism spectrum disorders, attention deficit disorders, substance use disorders, and dementia diagnoses were only included in the analyses of overall rates of mental health conditions because of their low prevalence in our population.

## Results

### Patients

Table 1 presents descriptive statistics for patients included in the study and the systems in which they were treated. Of the 7,523,956 patients in the study, 45% were non-Hispanic white, 17% were Hispanic, 10% were Asian, 8% were non-Hispanic black, 1% were Native Hawaiian/Pacific Islander, 0.4% Native American/Alaskan Native, 0.1% mixed race/ethnicity, and 20% were of unknown race/ethnicity. Patients were primarily 40 – 64 years old (48%), had estimated annual incomes above \$40,000 (72%), and 18.5% had Medicare and/or Medicaid insurance as their primary coverage for healthcare.

### Diagnoses

Table 2 presents descriptive statistics, and odds ratios with confidence intervals adjusted for healthcare site for comparisons of diagnosis rates for non-Hispanic whites to the other races/ethnicities. The overall diagnosis rate for any mental health condition was 16% (n = 1,169,993). Specifically, 20.6% among Native American/Alaskan Natives (highest), 19.8% among non-Hispanic whites, 14.3% among Hispanics, 13.5% among non-Hispanic blacks, 9.1% among Native Hawaiian/Other Pacific Islanders, 14.6% among mixed race/ethnicity, 7.5% among Asians (lowest), and 12.0% among those with unknown or missing race/ethnicity. In general, when compared to non-Hispanic whites, most racial/ethnic minorities had much lower rates of diagnosed mental health conditions (ranging from 64% lower in Asians to 28% lower in Hispanics). The exception was Native American/Alaskan Native patients who had slightly higher rates of diagnoses (1.03; CI = 1.01, 1.06). Although diagnoses for specific mental health conditions such as depression and schizophrenia appeared to mirror these findings, there was one clear exception. Non-Hispanic blacks were nearly twice as likely as non-Hispanic whites to receive a schizophrenia diagnosis (1.98; CI = 1.89, 2.07).

### Pharmacotherapy

Rates of receiving a psychotropic medication when diagnosed with a mental health condition are shown in Table 3. Of all patients with a mental health diagnosis in 2011, 73% (n = 850,585) received a psychotropic medication in the same year. Across mental health conditions, after adjusting for healthcare site, racial/ethnic minorities were much less likely to receive a psychotropic medication than non-Hispanic whites (range from 52% less likely in non-Hispanic blacks to 19% less likely in Native American/Alaskan Natives). In general, this pattern was the same when individual mental health conditions were examined with the exception of schizophrenia and other psychosis. Only non-Hispanic black patients were less likely to receive medication than whites (.65; CI = .56, .75) for their schizophrenia and only Asian (.84; CI = .73, .96) and non-Hispanic black (.86; CI = .77, .95) patients were less likely than non-Hispanic whites to receive a medication for other psychosis. Native American/Alaskan Natives had similar rates of receiving a medication when compared to non-Hispanic whites for almost all mental health conditions except depression.

## Formal Psychotherapy

Rates of receiving formal psychotherapy for any mental health condition are shown in Table 4. Thirty-four percent (n = 548,837) received formal psychotherapy. This is less than half the rate of receiving a psychotropic medications (73%). Unlike diagnoses and pharmacotherapy, there were no clear differences in receiving formal psychotherapy across races/ethnicities. Across combined mental health conditions, after adjusting for healthcare site, only Asians (.93; CI = .91, .94) had lower rates of formal psychotherapy use in comparison to non-Hispanic whites. The remaining groups of patients had similar rates (Hispanics .99; CI = .98, 1.00) or higher rates (range 10% higher in Native Hawaiian/Other Pacific Islander to 55% higher in patients with mixed race heritage) of receiving formal psychotherapy when compared to non-Hispanic whites.

This overall pattern varied widely by specific mental health condition. For example, all racial/ethnic minorities were more likely than non-Hispanic whites to receive formal psychotherapy for their depression (range 4% higher in Asians to 42% higher in patients with mixed race heritage). However, rates of receiving formal psychotherapy for bipolar disorder were generally lower than non-Hispanic whites (18% lower for Native Hawaiian/Other Pacific Islander to 33% lower for Asians and Hispanics). Interestingly non-Hispanic blacks had the same rates of formal psychotherapy compared to whites for their bipolar disorder (in contrast to lower rates of medication use for this disorder). Except for Hispanics, all races/ethnicities were more likely to receive formal psychotherapy for their schizophrenia than non-Hispanic whites (range 67% higher in Native Hawaiian/Other Pacific Islanders to 1.64 times higher in non-Hispanic blacks).

## Discussion

We found that the prevalence rates for depression and anxiety diagnoses among insured patients at 11 large private, not-for-profit healthcare systems across the U.S. were lower in racial/ethnic minority patients compared to non-Hispanic whites. This is consistent with some previous reports<sup>5</sup>. The one exception was Native American/Alaskan Native members whose prevalence rates for these conditions were similar to those of non-Hispanic whites. Some of these differences were pronounced such as Asian members being 68% less likely than non-Hispanic white members to receive a diagnosis of depression. As in previous studies, we also found that non-Hispanic blacks were nearly twice as likely as non-Hispanic whites to be diagnosed with schizophrenia<sup>7</sup>.

Regarding pharmacotherapy for these conditions, we found wide variation in rates of use for depression and anxiety across races/ethnicities, with non-Hispanic whites consistently higher than all other races/ethnicities. Asians not only were much less likely to receive a diagnosis of depression but when diagnosed, were 55% less likely than non-Hispanic whites to receive a medication to treat this condition. In contrast with findings from a decade ago, we found no significant differences in use of psychotropic drugs across racial/ethnic groups with schizophrenia and other psychosis<sup>11, 32, 33</sup>. One reason for this difference may be that the previous studies focused on patients from the Veterans Health Administration<sup>7, 11, 34</sup> or Medicaid<sup>19, 35, 36</sup> which tend to serve the most disadvantaged patients. The one exception to this finding was in non-Hispanic blacks who were 35% less likely than whites to receive a

medication for their schizophrenia even though they were nearly twice as likely as whites to receive this diagnosis. Finally, with respect to bipolar disorder, there were still large differences between racial/ethnic minorities and non-Hispanic whites in the likelihood of receipt of medication. This difference was most pronounced in Native Hawaiian/Other Pacific Islanders (49% less likely) and non-Hispanic blacks (46% less likely).

We also found that the likelihood of receiving formal psychotherapy for any mental health condition, regardless of racial/ethnic heritage, was much lower than for receiving pharmacotherapy (34% vs. 73%). This is consistent with the recent trends in treatment of mental health conditions reported by Olfson and colleagues<sup>38, 39</sup>. Across mental health conditions, formal psychotherapy rates were similar (Asians and Hispanics) or higher for racial/ethnic minorities compared to non-Hispanic whites. Most of these differences were primarily due to variation in rates of formal psychotherapy treatment for depression and schizophrenia. This is consistent with reports in the literature that non-Hispanic black patients were more likely than non-Hispanic white patients to prefer psychotherapy over medications for treatment of their depression<sup>22</sup>.

Although we found large statistical differences among races/ethnicities in receiving formal psychotherapy for schizophrenia treatment (non-Hispanic blacks were 2.64 times more likely to receive formal psychotherapy than whites), it is difficult to determine whether these differences are clinically meaningful because the overall rate of psychotherapy treatment for serious mental illness was very low (0 – 3%). Although pharmacotherapy is the treatment of choice for serious mental illness, there are clinical recommendations that suggest, especially at the first onset of symptoms, that psychotherapy can be very effective<sup>40,41</sup>. Our data suggest this is an opportunity for improving services for these patients.

Our study does not provide answers to why racial/ethnic differences in the diagnosis and treatment of mental health conditions persist, especially for non-Hispanic black patients. There are many patient- and provider-level factors that could contribute to these findings. There is some evidence that certain cultures prefer complementary and alternative medicine (i.e. herbal remedies) to allopathic pharmacotherapy for treatment of depression or anxiety<sup>42,43</sup>. In addition, other factors such as immigration status<sup>44</sup>, language preference<sup>23</sup>, socioeconomic status<sup>11</sup>, and having subsidized insurance<sup>23</sup> have all been related to whether a patient is diagnosed with a mental health condition and subsequently prescribed medication.

Provider-level factors have also been shown to account for differences in diagnosis and treatment of mental health conditions. For example, some reports indicate that when providers are presented with the same mental health symptoms (i.e. irritability, violent outbursts, anger), they are much more likely to diagnose non-Hispanic blacks with bipolar disorder or schizophrenia; while non-Hispanic whites often receive a diagnosis of major depression<sup>45, 46</sup>. In addition, limited access to therapists who speak the patient's preferred language will likely determine whether or not these patients receive psychotherapy.

There are a number of limitations with the present study that should be considered when interpreting our findings. Because we did not have individual-level data to analyze, we could



not account for other factors that have been shown to determine racial/ethnic minority differences in diagnosis and treatment of mental health conditions such as socioeconomic status and acculturation/generational status<sup>7, 11, 23,47</sup>. If we had adjusted for these factors we may have found different results. To this point, a large study from national data sources found that patient self-reported, unadjusted rates of utilization of psychotherapy services were lower for Hispanics when compared to non-Hispanic whites and blacks.<sup>23</sup> However, when these rates were adjusted for other demographic factors, English language preference and not Hispanic ethnicity was the strongest determinant of the use of psychotherapy.

Finally, 20% of our sample were missing self-reported race. There are a number of reasons for this including patient refusal to provide this information, healthcare system staff failure to enter paper-based responses into the electronic medical record, and/or patients not having an outpatient visit during the time that the healthcare systems enacted data collection in response to meaningful use requirements<sup>29</sup>. When the results for patients with unknown/missing race are examined (see Tables 2 – 4) they are in the middle range of results across different racial/ethnic groups. This suggests that the unknown/missing group of patients contains patients of all racial/ethnic groups and would be unlikely to change the findings if they were added to the known categories of patients. Another limitation related to the race/ethnicity data is that we cannot verify if the information was self-reported by all patients. It is likely that some of this data is not self-report because the healthcare systems in the study were in the process of implementing self-reported member demographics. There is evidence that electronic medical record race/ethnicity data may not reflect a patient's self-reported preferences<sup>48</sup>.

In spite of these limitations, this study shows compelling evidence of persistent racial/ethnic differences in the diagnosis and treatment of depression, bipolar disorder, and schizophrenia in a large sample of insured patients across 11 states. This was especially true for non-Hispanic black patients who were more likely to be diagnosed with schizophrenia, and less likely to use medication but more likely to use formal psychotherapy, when compared to whites.

Our findings filled two important gaps in the literature: 1) most population-based studies of U.S. rates of diagnosed mental health conditions and treatment in the U.S. have been based upon patient self-report or provider reports of their practice and not objective sources such as electronic medical records, and 2) those studies that have examined electronic sources of information have been done so in populations using subsidized healthcare. Our study, in combination with other recently published work<sup>4, 5, 8, 19, 26, 38, 39, 47</sup> provides a more complete picture of the differences among racial/ethnic groups in the U.S. with respect to diagnosis and treatment of major mental health conditions. Future research is necessary to understand how patient preferences and provider practices determine the differences we have reported.

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**Table 1**

**Descriptive statistics**

Descriptive statistics are presented for healthcare systems included in the study.

	System 1	System 2	System 3	System 4	System 5	System 6	System 7	System 8	System 9	System 10	System 11	All Systems
<b>Membership (n)</b>	426,139	337,298	2,310,099	2,428,482	153,871	394,894	568,768	479,045	147,648	176,734	100,978	7,523,956
<b>Mental Health Condition (%)</b>												
<b>Women* (%)</b>	19.7	20.0	14.0	14.8	9.5	16.9	17.6	20.6	9.3	13.7	15.2	15.5
<b>Age* (years)</b>												
<b>18 – 39 (%)</b>	32.3	33.1	34.8	36.7	34.1	32.5	39.4	36.8	24.7	37.7	31.9	35.4
<b>40 – 64 (%)</b>	50.9	48.0	46.5	46.4	46.9	48.2	50.7	55.9	51.1	51.8	46.1	48.0
<b>&gt; 65 (%)</b>	16.9	18.9	18.7	16.9	19.0	19.3	9.9	7.3	24.2	10.5	22.0	16.6
<b>Race/Ethnicity</b>												
<b>White (%)</b>	52.1	76.0	50.5	36.1	24.8	58.3	46.3	20.5	55.8	36.7	60.6	44.7
<b>Asian (%)</b>	6.1	4.6	16.9	9.3	34.9	2.2	2.2	0.9	3.0	5.0	0.5	9.7
<b>Black (%)</b>	3.2	2.6	7.0	9.3	0.9	3.4	3.7	1.7	34.1	38.9	6.6	7.7
<b>Hispanic (%)</b>	3.3	5.1	15.9	32.4	4.8	9.9	0.5	0.9	1.3	3.3	6.1	16.6
<b>Native Hawaiian/Other Pacific Islander (%)</b>	0.8	0.6	0.7	0.7	22.9	0.2	0.03	0.02	0.04	0.09	0.01	1.0
<b>Native American/Alaskan Native (%)</b>	1.2	0.7	0.4	0.3	0.9	0.6	0.4	0.05	0.5	0.3	0.08	0.4
<b>Mixed</b>	.	.	.	0.01	.	.	0.6	0.03	0.7	0.07	.	0.1
<b>Unknown</b>	33.4	10.5	9.5	11.9	10.7	25.3	46.3	75.9	4.7	15.7	26.1	19.8
<b>Annual Income &lt; \$40,000 (%)*</b>	45.4	51.5	26.0	25.9	21.8	22.4	25.2	17.2	45.5	23.5	58.2	27.9
<b>Coverage*</b>												
<b>Medicare (%)</b>	18.9	21.2	20.2	18.5	3.6	20.8	8.2	4.0	22.1	0	18.7	17.0
<b>Medicaid (%)</b>	0.7	1.3	1.2	1.9	7.5	0.8	2.6	0	0	0	0	1.5
<b>Commercial (%)</b>	75.2	75.1	78.6	75.1	78.5	73.6	85.1	96.0	74.7	86.8	66.3	78.4
<b>Other (%)</b>	5.2	2.4	0	4.4	10.4	4.8	0	0	3.2	13.2	14.9	3.2

\* Annual income and education are calculated at the census block level and reflect statistics for the entire membership including children in each healthcare system. Coverage reflects the entire membership including children.

**Table 2**

**Rates of mental health diagnoses in 2011**

Rates are presented for 7,523,956 adults 18 years and older from 11 healthcare organizations participating in the Mental Health Research Network (MHRN).<sup>7</sup> Data are presented by mental health condition and race/ethnicity, and expressed as % (n). Odds ratios and confidence intervals adjusted for healthcare site are also presented for the comparison of non-Hispanic whites (referent group) to other racial/ethnic groups of patients.

Diagnosis by Race/Ethnicity	n	Rate	OR	CI	P
<b>Any Mental Health Diagnosis</b>					
White	665,538	19.8%	---	---	---
Asian	54,694	7.5%	.36	.35 – .36	<.001
Black	78,361	13.5%	.69	.69 – .70	<.001
Hispanic	179,109	14.3%	.72	.71 – .72	<.001
Native Hawaiian/Other Pacific Islander	6,801	9.1%	.47	.46 – .48	<.001
Native American/Alaskan Native	6,074	20.6%	1.03	1.01 – 1.06	<.001
Mixed	719	14.6%	.64	.59 – .69	<.001
Unknown/Missing	178,697	12.0%	.44	.43 – .44	<.001
<b>Anxiety Disorder</b>					
White	302,080	9.0%	---	---	---
Asian	27,581	3.8%	.43	.42 – .43	<.001
Black	33,219	5.7%	.65	.64 – .65	<.001
Hispanic	92,265	7.4%	.83	.82 – .83	<.001
Native Hawaiian/Other Pacific Islander	2,901	3.9%	.47	.46 – .49	<.001
Native American/Alaskan Native	2,869	9.7%	1.09	1.05 – 1.14	<.001
Mixed	333	6.8%	.68	.60 – .76	<.001
Unknown/Missing	83,374	5.6%	.47	.47 – .48	<.001
<b>Depressive Disorder</b>					
White	423,981	12.6%	---	---	---
Asian	29,764	4.1%	.32	.32 – .33	<.001
Black	47,161	8.1%	.68	.67 – .69	<.001
Hispanic	107,791	8.6%	.70	.69 – .70	<.001
Native Hawaiian/Other Pacific Islander	3,909	5.2%	.46	.44 – .47	<.001

Diagnosis by Race/Ethnicity	n	Rate	OR	CI	p
Native American/Alaskan Native	3,754	12.8%	.99	.96 – 1.03	>.05
Mixed	476	9.7%	.66	.60 – .73	<.001
Unknown/Missing	104,889	7.0%	.42	.41 – .42	<.001
<b>Bipolar Spectrum Disorder</b>					
White	36,778	1.1%	---	---	---
Asian	1,810	.2%	.24	.23 – .25	<.001
Black	3,982	.7%	.65	.63 – .67	<.001
Hispanic	5,605	.5%	.44	.42 – .45	<.001
Native Hawaiian/Other Pacific Islander	217	.3%	.33	.29 – .38	<.001
Native American/Alaskan Native	430	1.5%	1.34	1.21 – 1.47	<.001
Mixed	23	.5%	.65	.43 – .98	<.001
Unknown/Missing	8,006	.5%	.41	.40 – .42	<.001
<b>Schizophrenia Spectrum Disorder</b>					
White	7,565	.2%	---	---	---
Asian	1,322	.2%	.77	.72 – .81	<.001
Black	2,505	.4%	1.98	1.89 – 2.07	<.001
Hispanic	2,177	.2%	.72	.68 – .75	<.001
Native Hawaiian/Other Pacific Islander	99	.1%	.67	.54 – .75	<.001
Native American/Alaskan Native	70	.3%	1.18	.93 – 1.50	>.05
Mixed	7	.2%	.88	.42 – 1.86	>.05
Unknown/Missing	1,360	.2%	.43	.40 – .46	<.001
<b>Other Psychosis</b>					
White	14,158	.4%	---	---	---
Asian	1,328	.2%	.50	.47 – .53	<.001
Black	2,337	.4%	1.13	1.08 – 1.19	<.001
Hispanic	2,679	.2%	.61	.58 – .63	<.001
Native Hawaiian/Other Pacific Islander	108	.1%	.51	.42 – .62	<.001
Native American/Alaskan Native	97	.3%	.80	.66 – .98	<.001
Mixed	11	.2%	.34	.24 – .79	<.001

Diagnosis by Race/Ethnicity	n	Rate	OR	CI	p
Unknown/Missing	2,758	.4%	.33	.32 – .35	<.001

The overall diagnosis rate for any mental health condition was 15.6% (n = 1,169,993).

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**Table 3**  
**Psychotropic medication fill rates for various mental health conditions in 2011**

Fill rates are presented for 1,169,993 adults 18 years and older who had a mental health condition diagnosed during 2011 in any of 11 healthcare organizations participating in the Mental Health Research Network (MHRN)<sup>1</sup>. Data are presented by mental health condition and race/ethnicity, and expressed as % (n). Odds ratios and confidence intervals adjusted for healthcare site are also presented for the comparison of non-Hispanic whites (referent group) to other racial/ethnic groups of patients.

Medication Use by Race/Ethnicity	n	Rate	OR	CI	p
Any Mental Health Diagnosis	665,538 <sup>2</sup>	77.8%	---	---	---
White	54,694	63.3%	.48	.47 – .49	<.001
Asian	78,361	65.4%	.53	.52 – .54	<.001
Black	179,109	66.8%	.57	.56 – .57	<.001
Hispanic	6,801	63.8%	.48	.45 – .50	<.001
Native Hawaiian/Other Pacific Islander	6,074	74.0%	.81	.76 – .86	<.001
Native American/Alaskan Native	719	61.5%	.63	.54 – .73	<.001
Mixed	178,697	66.2%	.58	.57 – .58	<.001
Unknown/Missing					
Anxiety Disorder	302,080	82.3%	---	---	---
White	27,581	66.7%	.41	.40 – .42	<.001
Asian	33,219	74.0%	.59	.57 – .61	<.001
Black	92,265	73.2%	.57	.56 – .58	<.001
Hispanic	2,901	72.8%	.48	.44 – .53	<.001
Native Hawaiian/Other Pacific Islander	2,869	81.7%	.94	.86 – 1.04	>.05
Native American/Alaskan Native	333	68.6%	.70	.55 – .89	<.001
Mixed	83,374	72.3%	.58	.57 – .60	<.001
Unknown/Missing					
Depressive Disorder	423,981	83.0%	---	---	---
White	29,764	69.5%	.45	.44 – .46	<.001
Asian	47,161	71.6%	.50	.49 – .51	<.001
Black	107,791	72.8%	.53	.53 – .54	<.001
Hispanic					

Medication Use by Race/Ethnicity	n	Rate	OR	CI	p
Native Hawaiian/Other Pacific Islander	3,909	70.8%	.49	.45 – .53	<.001
Native American/Alaskan Native	3,754	80.6%	.85	.78 – .92	<.001
Mixed	476	68.4%	.66	.54 – .81	<.001
Unknown/Missing	104,889	72.0%	.58	.57 – .59	<.001
<b>Bipolar Spectrum Disorder</b>					
White	36,778	92.1%	---	---	---
Asian	1,810	91.3%	.79	.67 – .94	<.001
Black	3,982	86.2%	.54	.48 – .59	<.001
Hispanic	5,605	88.9%	.68	.62 – .74	<.001
Native Hawaiian/Other Pacific Islander	217	88.5%	.51	.33 – .78	<.001
Native American/Alaskan Native	430	90.0%	.80	.58 – 1.11	>.05
Mixed	23	82.6%	.90	.31 – 2.66	>.05
Unknown/Missing	8,006	86.8%	.50	.46 – .55	<.001
<b>Schizophrenia Spectrum Disorder</b>					
White	7,565	91.0%	---	---	---
Asian	1,322	92.7%	1.17	.93 – 1.47	>.05
Black	2,505	87.2%	.65	.56 – .75	<.001
Hispanic	2,177	90.1%	.87	.73 – 1.03	>.05
Native Hawaiian/Other Pacific Islander	99	91.9%	1.13	.53 – 2.44	>.05
Native American/Alaskan Native	70	85.7%	.64	.32 – 1.26	>.05
Mixed	7	85.7%	1.09	.13 – 9.09	>.05
Unknown/Missing	1,360	82.1%	.45	.37 – .53	<.001
<b>Other Psychosis</b>					
White	14,158	76.4%	---	---	---
Asian	1,328	74.1%	.84	.73 – .96	<.001
Black	2,337	74.3%	.86	.77 – .95	<.001
Hispanic	2,679	78.9%	1.10	.99 – 1.22	>.05
Native Hawaiian/Other Pacific Islander	108	77.8%	.99	.62 – 1.59	>.05
Native American/Alaskan Native	97	71.1%	1.01	.63 – 1.64	>.05

Medication Use by Race/Ethnicity	n	Rate	OR	CI	p
Mixed	11	0.0%			
Unknown/Missing	2,758	71.4%	.69	.62 – .76	<.001

<sup>1</sup>The overall psychotropic medication sold rate for any mental health condition was 72.7% (n = 850,585).

<sup>2</sup>The denominator for each cell is shown in parentheses and reflects the number of patients with a mental health condition of a certain race/ethnicity. For example, there were 665,538 non-Hispanic white patients diagnosed with any mental health condition. Of these patients, 77.8% received pharmacotherapy.

**Table 4**

**Psychotherapy rates for various mental health conditions in 2011**

Psychotherapy rates are presented for 1,169,993 adults 18 years and older who had a mental health condition diagnosed during 2011 in any of 11 healthcare organizations in the Mental Health Research Network (MHRN)<sup>1</sup>. Data are presented by mental health condition and race/ethnicity, and expressed as % (n). Odds ratios and confidence intervals adjusted for healthcare site are also presented for the comparison of non-Hispanic whites (referent group) to other racial/ethnic groups of patients.

Diagnosis by Race/Ethnicity	n	Rate	OR	CI	p
Any Mental Health Diagnosis	665,538 <sup>2</sup>	33.4%	---	---	---
White	54,694	30.2%	.93	.91 – .94	<.001
Asian	78,361	35.7%	1.13	1.12 – 1.15	<.001
Black	179,109	30.7%	.99	.98 – 1.00	>.05
Hispanic	6,801	35.3%	1.10	1.05 – 1.15	<.001
Native Hawaiian/Other Pacific Islander	6,074	39.5%	1.26	1.21 – 1.32	<.001
Native American/Alaskan Native	719	53.4%	1.55	1.37 – 1.76	<.001
Mixed	178,697	41.6%	.90	.89 – .91	<.001
Unknown/Missing					
Anxiety Disorder	302,080	10.8%	---	---	---
White	27,581	10.2%	.99	.97 – 1.02	>.05
Asian	33,219	10.7%	.99	.97 – 1.01	>.05
Black	92,265	10.6%	1.05	1.03 – 1.06	<.001
Hispanic	2,901	10.6%	1.04	.97 – 1.12	>.05
Native Hawaiian/Other Pacific Islander	2,869	12.7%	1.18	1.11 – 1.26	<.001
Native American/Alaskan Native	333	16.1%	1.38	1.16 – 1.64	<.001
Mixed	83,374	13.1%	.93	.91 – .94	<.001
Unknown/Missing					
Depressive Disorder	423,981	14.6%	---	---	---
White	29,764	14.4%	1.04	1.02 – 1.06	<.001
Asian	47,161	16.6%	1.20	1.18 – 1.22	<.001
Black	107,791	14.4%	1.08	1.07 – 1.10	<.001
Hispanic					

Diagnosis by Race/Ethnicity	n	Rate	OR	CI	p
Native Hawaiian/Other Pacific Islander	3,909	16.5%	1.13	1.06 – 1.20	<.001
Native American/Alaskan Native	3,754	16.2%	1.10	1.04 – 1.17	<.001
Mixed	476	25.4%	1.42	1.23 – 1.63	<.001
Unknown/Missing	104,889	19.2%	.94	.93 – .95	<.001
<b>Bipolar Spectrum Disorder</b>					
White	36,778	1.9%	---	---	---
Asian	1,810	1.2%	.67	.63 – .72	<.001
Black	3,982	1.9%	1.00	.96 – 1.05	>.05
Hispanic	5,605	1.1%	.67	.64 – .70	<.001
Native Hawaiian/Other Pacific Islander	217	1.3%	.82	.33 – .78	<.001
Native American/Alaskan Native	430	2.5%	1.35	1.18 – 1.54	<.001
Mixed	23	1.5%	1.00	.60 – 1.68	>.05
Unknown/Missing	8,006	1.9%	.81	.78 – .84	<.001
<b>Schizophrenia Spectrum Disorder</b>					
White	7,565	.3%	---	---	---
Asian	1,322	.6%	1.82	1.63 – 2.03	<.001
Black	2,505	.8%	2.64	2.43 – 2.85	<.001
Hispanic	2,177	.3%	1.04	.96 – 1.13	>.05
Native Hawaiian/Other Pacific Islander	99	.4%	1.67	1.19 – 2.36	<.001
Native American/Alaskan Native	70	.1%	2.38	1.12 – 5.03	<.001
Mixed	7	0%			
Unknown/Missing	1,360	.3%	.88	.79 – .98	<.001
<b>Other Psychosis</b>					
White	14,158	.4%	---	---	---
Asian	1,328	.7%	1.69	1.53 – 1.86	<.001
Black	2,337	.8%	1.97	1.83 – 2.13	<.001
Hispanic	2,679	.4%	1.06	.98 – 1.14	>.05
Native Hawaiian/Other Pacific Islander	108	.6%	1.75	1.32 – 2.33	<.001
Native American/Alaskan Native	97	.2%	1.02	.63 – 1.65	>.05

Diagnosis by Race/Ethnicity	n	Rate	OR	CI	p
Mixed	11	0%			
Unknown/Missing	2,758	.5%	.78	.72 – .84	<.001

<sup>1</sup>The overall psychotherapy rate for any mental health condition was 34.3% (n = 548,837).

<sup>2</sup>The denominator for each cell is shown in parentheses and reflects the number of patients with a mental health condition of a certain race/ethnicity. For example, there were 665,538 non-Hispanic white patients diagnosed with any mental health condition. Of these patients, 33.4% received psychotherapy.