

PATTERNS OF HEALTH CARE UTILIZATION BEFORE FIRST EPISODE PSYCHOSIS IN RACIAL AND ETHNIC GROUPS

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Objective: To compare patterns of health care utilization associated with first presentation of psychosis among different racial and ethnic groups of patients.

Design: The study was a retrospective observational design.

Settings: The study was conducted in five health care systems in the western United States. All sites were also part of the National Institute of Mental Health-funded Mental Health Research Network (MHRN).

Participants: Patients (n = 852) were aged 15 – 59 years (average 26.9 ± 12.2 years), 45% women, and primarily non-Hispanic White (53%), with 16% Hispanic, 10% non-Hispanic Black, 6% Asian, 1% Native Hawaiian/Pacific Islander, 1% Native American/Alaskan Native, and 12% unknown race/ethnicity.

Methods: Data abstracted from electronic medical records and insurance claims data were organized into a research virtual data warehouse (VDW) and used for analysis.

Main Outcome Measures: Variables examined were patterns of health care utilization, type of comorbid mental health condition, and type of treatment received in the three years before first presentation of psychosis.

Results: Compared with non-Hispanic Whites, Asian patients (16% vs 34%; P=.007) and non-Hispanic Black patients (20% vs 34%; P=.009) were less likely to have a visit with specialty mental health care before their first presentation of psychosis.

Conclusions: Early detection of first episode psychosis should start with wider screening for symptoms outside of any indicators for mental health conditions for

INTRODUCTION

Psychotic disorders contribute to high rates of disability and lost productivity as well as substantial excess mortality due both to suicide and higher rates of chronic medical illness.¹⁻³ Longitudinal studies in schizophrenia consistently find that delay in receipt of effective treatment (ie, duration of untreated psychosis) predicts a poorer long-term outcome.^{4,5} The RAISE (Recovery After Initial Schizophrenia Episode) trial demonstrated that comprehensive early intervention for young people with new onset of non-affective psychosis improves both symptomatic and functional outcomes.⁶⁻⁸

Broad and effective implementation of early detection and interven-

tion programs for first-episode psychosis will require population-based data that can provide insight into what factors can be used to determine who may be at highest risk for first clinical presentation of symptoms, and where these patients are presenting in health care settings. True incidence rates of first episode psychosis in real world health care settings have been reported as 86 per 100,000 per year among those aged 15 to 29 years and 46 per 100,000 in those aged 30 to 59 years. These rates were higher than previous estimates based on surveys or inpatient data,^{9,10} further illustrating the importance of population-based studies of real-world clinical practices.

Diagnosis and treatment of psychotic disorders varies by race and ethnicity.¹¹ This could be due to such

non-Hispanic Black and Asian patients. *Ethn Dis.* 2019;29(4):609-616; doi:10.18865/ed.29.4.609

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factors as differences among racial and ethnic groups in the care settings where psychosis is detected, differences among racial and ethnic groups in diagnosis and treatment for other mental disorders such as depression, and/or differences in length of health plan membership, among others. Factors associated with first episode psychosis diagnosis in different racial and ethnic groups of patients would be important to know so that appropriate early detection and treatment programs can be implemented. As with other mental-health conditions, early

and slightly higher rates for other types of outpatient mental health care.¹² To our knowledge, there have been no published studies describing the factors that are associated with first diagnosis of psychosis among different racial and ethnic groups.

In the present analyses, we address this gap in the literature by examining patterns of health care utilization and diagnoses in racial and ethnic minority patients that have been shown to be associated with first presentation of psychosis in health care settings for primarily non-Hispanic White patients¹² and/or might provide an opportunity for a health care system to identify a patient who is at risk for first episode psychosis. These included: 1a) hospitalization with mental health diagnoses; 1b) emergency department visits with mental health diagnoses; 1c) outpatient mental health specialty visits regardless of diagnoses; 1d) outpatient primary care visits with mental health diagnoses; and 1e) outpatient visits of any kind regardless of diagnosis in the three years before presentation; 2) current (at the time of first presentation) or past (three years before presentation) pharmacotherapy for a mental health condition; and 3) co-morbid diagnoses of other mental health conditions in the three years before first presentation.

It is important to note that the first presentation of symptoms of psychosis in health care settings is not equivalent to the first onset of symptoms. It is possible that onset of symptoms was before a patient became a member of the health care system and this was not noted in the patient's history. While lack of access can be a barrier to identification and

psychosis treatment, importantly, all participants in our study were members of integrated health plans and had health insurance coverage, making it unlikely that lack of health insurance would be responsible for any differences between racial and ethnic groups and allowing us to examine other potentially relevant factors.

METHODS

Settings

This study was conducted in five health care systems in the western United States. All sites were also part of the National Institute of Mental Health-funded Mental Health Research Network (MHRN). These health care systems provide pre-paid comprehensive care (including general medical and specialty mental health care) to defined populations of members. Members are enrolled through employer-sponsored commercial insurance, individually purchased insurance, capitated Medicare and Medicaid programs, and state- or federally subsidized insurance for low-income residents. In each health care system, members are generally representative of service area populations in terms of age, sex, and race and ethnicity.¹³⁻¹⁵

Electronic medical records data (for services provided at health care system-operated facilities) and insurance claims data (for services provided by external providers and paid for by the health care system), organized into a research virtual data warehouse (VDW) were used for analysis.¹⁶ In this federated data structure, identifiable data remain at each health care system, but common data

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detection and intervention programs likely need to be tailored to the cultures in which they are implemented.

Compared with general population controls, patients with first episode psychosis had much higher visit rates for all types of outpatient services; and, when compared with patients receiving a first depression diagnosis, patients with first episode psychosis had much higher visit rates for emergency department mental health care

specifications and formats facilitate multi-site research using pooled de-identified data. Institutional Review Boards for each health care system approved waivers of consent for the current retrospective observational study. All procedures were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000.

Population

During the study period of 1/1/2007 to 12/31/2013, billing or encounter diagnoses were used to identify all first-occurring diagnoses of psychotic symptoms within the health care systems participating in the study, including schizophrenia-spectrum disorder (ICD9 295.0 through 295.9), mood disorders with psychotic symptoms (296.04, 296.14, 296.24, 296.34, 296.44, 296.54, 296.64), and other psychotic disorders (297.1, 297.3, 298.8, 298.9) among health plan members aged ≥ 15 and ≤ 59 years. Across all health care systems, electronic health records and insurance claims identified 109,687 individuals with first diagnoses in the health care systems of any non-substance induced psychotic disorder during the study period. We then required that patients be enrolled in the participating health care systems for at least 12 months prior to the first diagnosis and excluded the following patients: 1) those with any diagnosis of psychosis, dementia, or neurodegenerative disease 12 months prior to the first diagnosis, and 2) dementia, or neurodegenerative disease throughout the study period.

Confirmation of putative cases has been described in detail elsewhere.¹⁷ Briefly, a random sample of approximately 1,500 putative cases (approximately 300 at each health care system) was selected for detailed medical record review to confirm presence of psychotic symptoms and absence of prior diagnosis/treatment for any psychotic disorder. Final criteria for confirmation as a true case of first-episode psychosis included: 1) chart notes clearly documented at least one DSM-IV TR criterion A symptom of schizophrenia¹⁸ within 60 days before or after first recorded diagnosis; 2) criterion A symptoms were not clearly attributed to general medical disorder or adverse effect of prescribed medication; and 3) chart notes did not describe diagnosis of or treatment for psychotic symptoms more than 60 days prior to the first recorded diagnosis. After this confirmation process was conducted, 854 patients were available for analyses.

Measures

Patient Demographics

Each health care system implemented meaningful use requirements¹⁹ to collect self-reported gender, race and ethnicity data, which were recorded in electronic medical records and incorporated into the VDW. We followed national guidelines to create mutually exclusive race and ethnicity categories.^{20,21} Patients self-reporting Hispanic ethnicity were considered Hispanic regardless of the race category they endorsed, following recommendations from a US survey that found Hispanics considered themselves a race of people and not

an ethnicity.²¹ 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 US population to maximize our ability to understand differences in diagnoses and treatment for the least-represented racial/ethnic groups. Patients for whom race and ethnicity data were missing were classified as unknown.

Health Care Utilization and Diagnoses

Data were abstracted from electronic medical records for all utilization and associated diagnoses in all settings (inpatient, outpatient, and emergency) for up to three years preceding the first presentation of psychosis. We also obtained pharmacy and membership records during this three-year period.

Analyses

Racial and ethnic minority patients were compared with non-Hispanic White patients using the Chi Squared statistic. An initial omnibus test was done for significant differences among any racial and ethnic group of patients for each pattern of utilization (hospitalization with mental health diagnoses; emergency department visits with mental health diagnoses; outpatient mental health specialty visits regardless of diagnoses; outpatient primary care visits with mental health diagnoses; and outpatient visits of any kind regardless of diagnoses), co-morbid mental health conditions (depressive disorder, anxiety disorder, attention deficit disorder, bipolar disorder, and substance use disorder), and type of

medication used for mental health conditions (antidepressant, stimulant, benzodiazepine, and antipsychotic). Those omnibus tests that were significant ($P < .05$) were then examined for post-hoc paired Chi Squared comparisons of each racial and ethnic group to non-Hispanic Whites to understand what contributed to the omnibus test significance.

RESULTS

Patients with first-recorded psychosis diagnoses within the health care systems participating in the

study ($n = 852$) were aged 26.9 ± 12.2 years, and primarily male (55%) and non-Hispanic White (53%), with 16% Hispanic, 10% non-Hispanic Black, 6% Asian, 1% Native Hawaiian/Pacific Islander, 1% Native American/Alaskan Native, and 12% unknown race/ethnicity. Figures 1 - 3 present the findings for the relationship between race and ethnicity and different factors that have been found to precede first presentation of psychosis in health care settings.¹² Specialty mental health outpatient visits were the only category of utilization that differed by race/ethnicity ($X^2(6) = 19.80$; $P = .003$). Compared

with non-Hispanic Whites, Asian patients (16% vs 34%; $P = .007$) and non-Hispanic Black patients (20% vs 34%; $P = .009$) were less likely to have a visit with specialty mental health care before their first presentation of psychosis (Figure 1).

Racial and ethnic groups differed in the rate at which anxiety disorder ($X^2(6) = 17.96$; $P = .006$), attention deficit disorder ($X^2(6) = 17.22$; $P = .009$), Bipolar Disorder ($X^2(6) = 20.30$; $P = .002$), and substance use disorder ($X^2(6) = 13.21$; $P = .04$) were present before first presentation of psychosis (Figure 2). These differences were primarily for Asian patients, where they

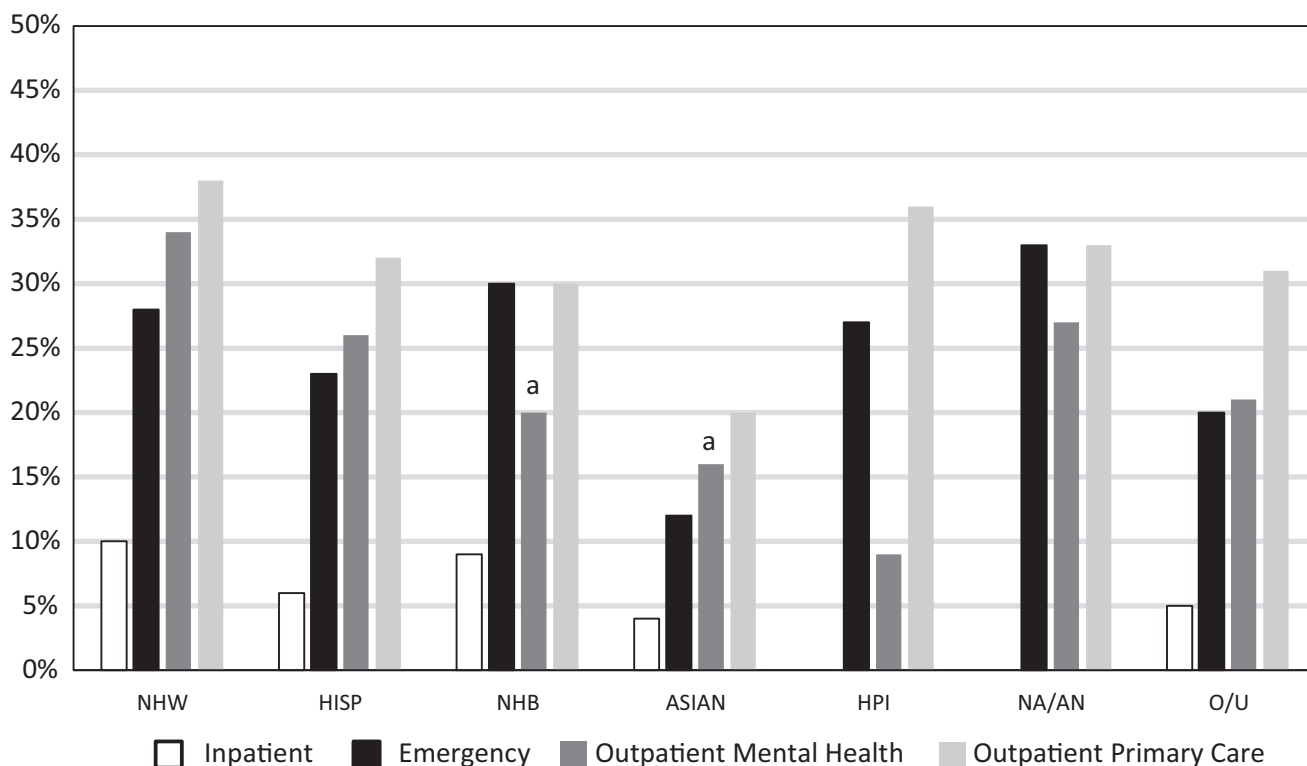


Figure 1. Frequency with which types of utilization were associated with first presentation of psychosis within the health care systems participating in the study across different racial and ethnic groups.

NHW, non-Hispanic White (referent group); HISP, Hispanic; NHB, non-Hispanic Black; HPI, Hawaiian/Pacific Islander; NA/AN, Native American/Alaskan Native; O/U, Other or Unknown race/ethnicity.

a. significantly different than non-Hispanic White $P \leq .01$.

were less likely than non-Hispanic White patients to have a diagnosis of an anxiety (16% vs 36%; $P=.003$), attention deficit (2% vs 14%; $P=.014$), or substance use (4% vs 20%; $P=.006$) disorder before their first psychosis diagnosis. These differences also existed for non-Hispanic Black patients when compared with non-Hispanic White patients for anxiety (24% vs 36%; $P=.021$), attention deficit (6% vs 14%; $P=.027$), and bipolar (1% vs 13%; $P=.001$) disorders, and for Hispanic patients compared with non-Hispanic White patients for attention deficit disorder (7% vs 14%; $P=.023$).

Finally, there were significant racial and ethnic differences for the frequency with which a first episode psychosis diagnosis in health care settings was preceded by use of antidepressants ($X^2(6)=19.90$; $P=.003$) and stimulants ($X^2(6)=26.00$; $P<.001$). Compared with non-Hispanic White patients, Asian patients (18% vs 42%; $P=.001$) and non-Hispanic Black patients (29% vs 42%; $P=.026$) were less likely to have a prescription for antidepressants before their first presentation of psychosis, while non-Hispanic Black patients (0% vs 10%; $P=.002$) and Hispanic pa-

tients (1% vs 10%; $P=.001$) were less likely to have a prescription for stimulants before their first presentation of psychosis (Figure 3).

DISCUSSION

We found significant differences between racial and ethnic minority patients and their non-Hispanic White counterparts in the health care-related factors that preceded a patient's first presentation of psychosis within the health care systems participating in the study. These

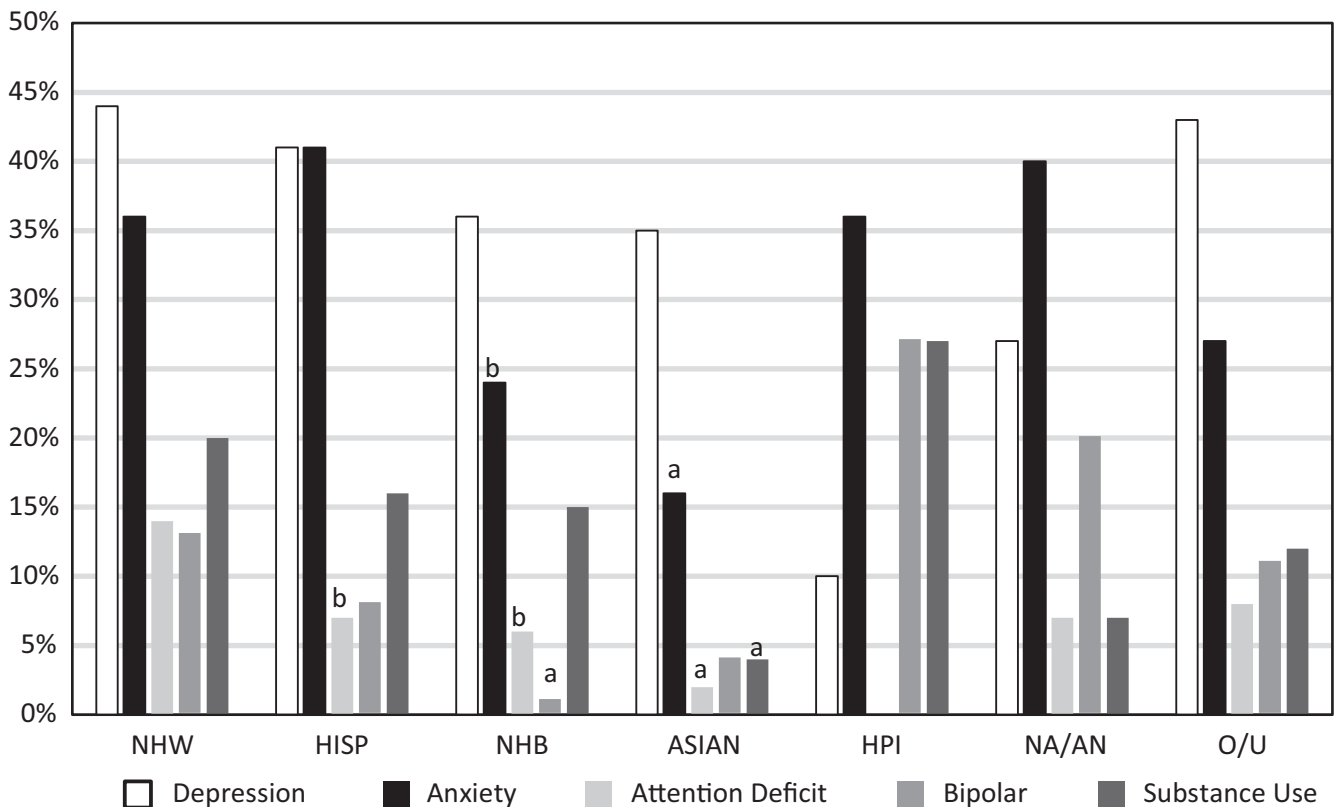


Figure 2. Frequency with which mental health diagnoses were associated with first presentation of psychosis within the health care systems participating in the study across different racial and ethnic groups.

NHW, non-Hispanic White (referent group); HISP, Hispanic; NHB, non-Hispanic Black; HPI, Hawaiian/Pacific Islander; NA/AN, Native American/Alaskan Native; O/U, Other or Unknown race/ethnicity.

a. significantly different than non-Hispanic White $P\leq.01$.

b. significantly different than non-Hispanic White $P\leq.02$.

differences were most pronounced for Asian and non-Hispanic Black patients who were less likely than non-Hispanic Whites to have their incident diagnosis of first episode psychosis in a specialty mental health care setting. They were also less likely to have a diagnosis of anxiety, attention deficit, substance use, or bipolar disorder before their first episode psychosis presentation within the health care systems participating in the study and were less likely to be taking medications for these conditions before their initial psychosis diagnosis.

In previous work on diagnosis and

treatment of all mental health conditions for different racial and ethnic minority patients,¹¹ Asians and non-Hispanic Black patients were least likely to be diagnosed with any mental health disorder and were the least likely groups to receive treatment. This highlights the importance of having early detection systems in health care settings outside of mental health services for racial and ethnic minorities. For Asian patients, who have the lowest utilization of any kind of treatment for mental health conditions in MHRN populations,¹¹ programs will likely be

unsuccessful if implemented in specialty mental health care settings only.

The presentation of psychosis may differ markedly in Asian cultures when compared with other cultures, and families may seek care with traditional herbalists and other practitioners more consistent with their explanatory model of health.^{22,23} This is likely to vary by generation and immigrant status.²⁴ Non-Hispanic Black patients may be more receptive to counseling services tailored to early psychosis, such as coordinated specialty care⁶⁻⁸ than other ethnic minority patients.¹² Close partnerships

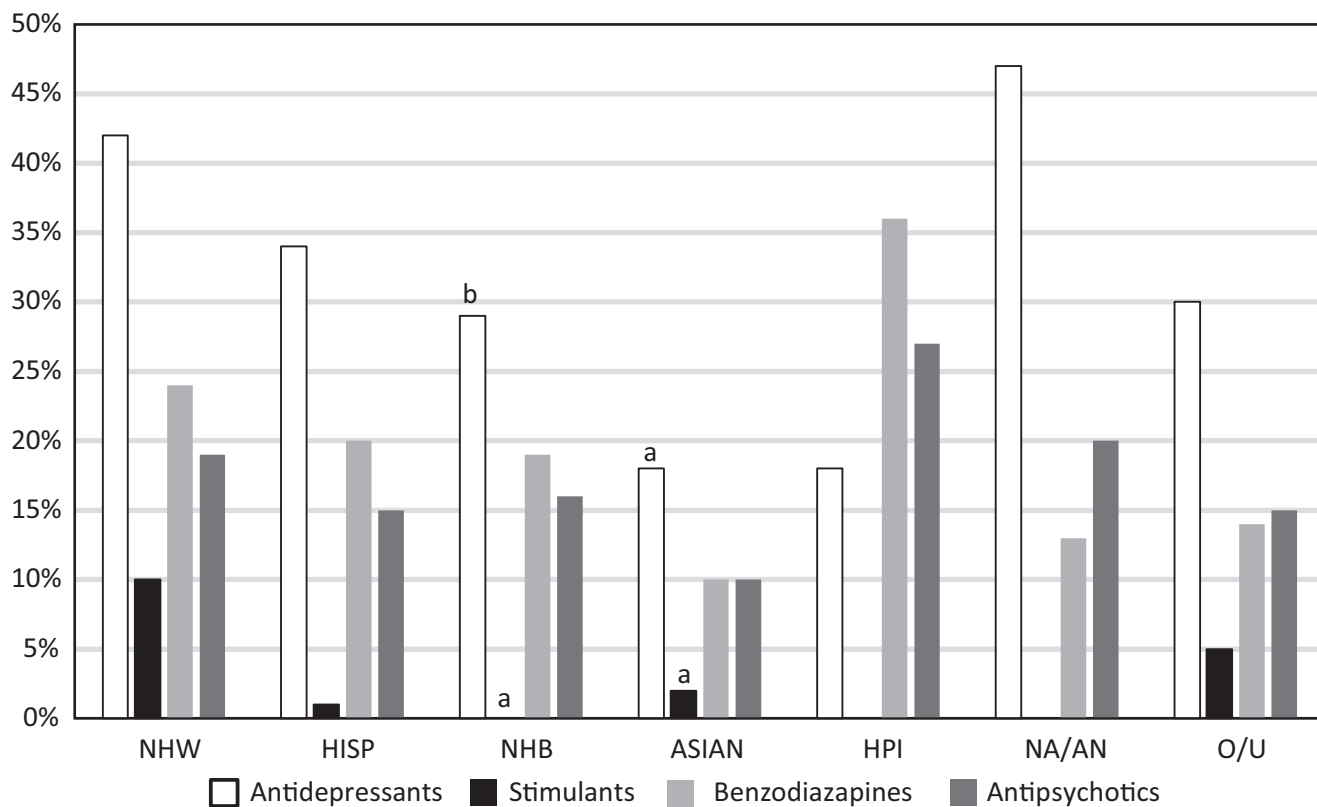


Figure 3. Frequency with which medications used for mental health conditions were associated with first presentation of psychosis within the health care systems participating in the study across different racial and ethnic groups.

NHW, non-Hispanic White (referent group); HISP, Hispanic; NHB, non-Hispanic Black; HPI, Hawaiian/Pacific Islander; NA/AN, Native American/Alaskan Native; O/U, Other or Unknown race/ethnicity.

a. significantly different than non-Hispanic White $P \leq .01$.

b. significantly different than non-Hispanic White $P \leq .02$.

between primary and emergency care settings (where detection is most likely to take place) and community and/or faith-based agencies, culturally relevant health care counseling services, and/or homeopathic practitioners/herbalists for treatment may be more important for racial and ethnic minority patients and their families.²³

Interestingly, there were no significant differences between non-Hispanic White patients and other racial and ethnic minority groups in the frequency of use of any outpatient services before the first presentation of psychosis within the health care systems participating in the study; 88% - 100% of all patients had an outpatient visit, regardless of mental health diagnosis, before first presentation of psychotic symptoms. Particularly for non-Hispanic Black and Asian patients, this might mean that early detection should start with wider screening for symptoms outside of any indicators for mental health conditions. More work needs to be done in this area to understand the diagnoses associated with these outpatient visits to determine if there are other conditions that could be used as flags for detection in Asian and non-Hispanic black patients.²⁵

There are several important limitations with our present study. One is the very small sample size for some of the racial and ethnic minority patients with confirmed first psychosis presentation (eg, 26 Native and Island people), which limits any conclusions we can make about differences between these groups and non-Hispanic Whites. In addition, because of the small sample size, the analyses did not account for confounding factors

such as age, gender, and socioeconomic status that might also determine differences between ethnic and racial groups of patients. Our present study was designed to generate hypotheses that could be tested with a larger study having more diverse geographic locations and data, such as acculturation and language. Finally, it is possible that we misclassified some first presentations of psychosis as patients may have had an incident case before coming to the health care system and this was not noted in their history. It is important to distinguish the first presentation of symptoms of psychosis in health care settings from the first onset of symptoms ever in any setting. It is possible that onset of symptoms was before a patient became a member of the health care system and this was not noted in the patient's history. The first presentation of symptoms may be more important from an implementation standpoint as we are trying to make the case for wider screening and awareness of psychosis in settings where the first presentation of a serious mental illness is not normally considered such as outpatient primary care.

CONCLUSION

Our findings support the inclusion of outpatient settings other than specialty mental health care, such as primary care, in the identification of the first presentation of psychosis within a health care setting in different racial and ethnic groups of patients. This will be challenging, however, given the heavy screening burden in primary care for other conditions,

and the concerns that primary care teams have about their ability to provide adequate treatment resources for patients with serious mental illness.²⁶ Collaborative care and integrated behavioral health models for treatment of mental health conditions in primary care settings are uniquely suited to this challenge.^{27,28} Having a mental health specialist embedded in a culturally competent, patient-centered medical home might be especially important for racial and ethnic minorities with the first presentation of their psychosis. In addition, there is evidence that providers may play a crucial role in differential diagnosis of psychosis in racial and ethnic minority patients.²³ Providers and other health care professionals should be educated about the different presentation of psychosis symptoms across different cultures as well as preferences for care so that they can recognize the signs and intervene more effectively.

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CONFLICT OF INTEREST

No conflicts of interest to report.

AUTHOR CONTRIBUTIONS

Research concept and design: Coleman, Beck, Lynch, Penfold, Hunkeler, Operskalski, Simon; Acquisition of data: Coleman, Yarborough, Beck, Lynch, Stewart, Hunkeler, Operskalski, Simon; Data analysis and interpretation: Coleman, Yarborough, Beck, Stewart, Penfold, Hunkeler, Simon; Manuscript draft: Coleman, Yarborough, Beck, Lynch, Penfold, Hunkeler, Simon; Acquisition of funding: Coleman, Lynch, Hunkeler, Operskalski, Simon; Administrative: Coleman, Yarborough, Beck, Stewart, Hunkeler, Operskalski; Supervision: Coleman

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