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Ethnoracial Risk Variation Across the Psychosis Continuum in the US
A Systematic Review and Meta-Analysis

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IMPORTANCE Studies suggest a higher risk of schizophrenia diagnoses in Black vs White Americans, yet a systematic investigation of disparities that include other ethnoracial groups and multiple outcomes on the psychosis continuum is lacking.

OBJECTIVE To identify ethnoracial risk variation in the US across 3 psychosis continuum outcomes (ie, schizophrenia and other psychotic disorders, clinical high risk for psychosis [CHR-P], and psychotic symptoms [PSs] and psychotic experiences [PEs]).

DATA SOURCES PubMed, PsycINFO and Embase were searched up to December 2022.

STUDY SELECTION Observational studies on ethnoracial differences in risk of 3 psychosis outcomes.

DATA EXTRACTION AND SYNTHESIS Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines were followed. Using a random-effects model, estimates for ethnoracial differences in schizophrenia and PSs/PEs were pooled and moderation by sampling and setting was determined, along with the assessment of heterogeneity and risk of bias.

MAIN OUTCOMES AND MEASURES Risk of schizophrenia and other psychotic disorder, CHR-P, and conversion to psychosis among CHR-P and PSs/PEs.

RESULTS Of 64 studies in the systematic review, 47 were included in the meta-analysis comprising 54 929 people with schizophrenia and 223 097 with data on PSs/PEs. Compared with White individuals, Black individuals had increased risk of schizophrenia (pooled odds ratio [OR], 2.07; 95% CI, 1.64-2.61) and PSs/PEs (pooled standardized mean difference [SMD], 0.10; 95% CI, 0.03-0.16), Latinx individuals had higher risk of PSs/PEs (pooled SMD, 0.15; 95% CI, 0.08-0.22), and individuals classified as other ethnoracial group were at significantly higher risk of schizophrenia than White individuals (pooled OR, 1.81; 95% CI, 1.31-2.50). The results regarding CHR-P studies were mixed and inconsistent. Sensitivity analyses showed elevated odds of schizophrenia in Asian individuals in inpatient settings (pooled OR, 1.84; 95% CI, 1.19-2.84) and increased risk of PEs among Asian compared with White individuals, specifically in college samples (pooled SMD, 0.16; 95% CI, 0.02-0.29). Heterogeneity across studies was high, and there was substantial risk of bias in most studies.

CONCLUSIONS AND RELEVANCE Findings of this systematic review and meta-analysis revealed widespread ethnoracial risk variation across multiple psychosis outcomes. In addition to diagnostic, measurement, and hospital bias, systemic influences such as structural racism should be considered as drivers of ethnoracial disparities in outcomes across the psychosis continuum in the US.

Supplemental content

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Research has demonstrated that Black individuals and, in some studies, Latinx populations, are overrepresented among those with psychotic disorders. These ethnoracial disparities are often solely attributed to artifactual explanations, such as misdiagnosis, which may obscure the identification of other important contributors. One way to further our understanding is by investigating disparities across the psychosis continuum as opposed to focusing exclusively on diagnoses. This continuum reflects a distribution of psychosis outcomes that include psychotic experiences (PEs) and symptoms (PSs), clinical high risk for psychotic disorder (CHR-P), and nonaffective psychotic disorders such as schizophrenia—the severe end point of the distribution.[1,2] PEs are commonly considered any subclinical psychotic experience in the general population, regardless of associated distress, and PSs are usually defined as hallucinations and delusions in the presence of distress and help-seeking behavior but not meeting the threshold for a psychotic disorder.[2]

This study focuses on the US as it possesses a unique racial history and context rooted in white supremacy, with the displacement of First Nations/Indigenous people and enslavement of African individuals at the core of its generations of economic wealth.[3] In addition, over a century of immigration policy has resulted in a heterogeneous population socially stratified by a racial taxonomy based on distance from perceived Whiteness.[4] Minoritized US citizens have been subject to racist practices and policies like segregation, forced resettlement, and hostile immigration policies.[5-7] Given the role stress plays in the development of psychosis,[8] these factors make the US an important context within which to examine differences across the psychosis continuum among multiple ethnoracial groups.

We first conducted a systematic review of the existing evidence on the association between ethnoracial group and risk for nonaffective psychotic disorders, CHR-P syndrome (and conversion to psychosis among CHR-P), and for PSs/PEs. Second, we conducted a comprehensive meta-analysis in a subgroup of eligible studies, comparing the pooled effect estimates for risk of psychotic disorder and PSs/PEs in different ethnoracial groups. Finally, we identified methodological sources of heterogeneity (eg, type of sample) across study findings for the 3 different psychosis continuum outcomes.

Key Points

Question Do ethnoracial groups in the US differ in risk of schizophrenia and other psychotic disorders, clinical high risk for psychosis (CHR-P), and psychotic symptoms (PSs) and experiences (PEs)?

Findings In this systematic review and meta-analysis including 64 studies of which 47 studies were included in the meta-analysis, risk of schizophrenia diagnosis was significantly increased among Black individuals and those categorized as other ethnoracial group compared with White individuals, and risk of PSs/PEs was significantly increased among both Black and Latinx groups. Findings regarding CHR-P were equivocal.

Meaning Ethnoracial risk variation in the US is present across multiple psychosis-related outcomes, suggesting that factors other than diagnostic bias alone underlie these disparities.

Methods

A prospective registration of this study was registered in PROSPERO (CRD42020220267). We followed the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) reporting guidelines (eTable 1 in Supplement 1).[9]

Eligibility Criteria

We included US-based observational studies (ie, incidence, case-control, prevalence, or other type of population-based study) with psychotic disorder, CHR-P, or PSs/PEs as outcomes including at least 2 ethnoracial groups, ie, American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latinx, multiracial, Native Hawaiian or Other Pacific Islander, White, or other. Eligibility criteria are explained in detail in the eMethods in Supplement 1.

Categorization of Ethnoracial Groups

Studies that designated an "other" ethnoracial category and a multiracial group category were consolidated into "other ethnoracial group." American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and/or multiracial individuals were also included in the other category. The Hispanic group was combined with and referred to as Latinx.

Systematic Search and Data Extraction

A librarian-assisted search strategy was applied to PubMed, PsycINFO (EBSCO), and Embase including literature up to December 2022. The eMethods in Supplement 1 contain details on the search string, study selection, the risk of bias assessment, and data extraction.

Statistical Analysis

We performed meta-analyses for a subgroup of studies on psychotic disorders and PSs/PEs. Studies on CHR-P were too heterogeneous and few to enable meaningful pooling of effect sizes. Ethnoracial group categorization and eligibility criteria for the meta-analyses are explained in the eMethods of Supplement 1. The diagnostic category most commonly used was schizophrenia, which we selected as the primary outcome for the meta-analysis. Unadjusted odds ratios (ORs) for schizophrenia were extracted or calculated for each ethnoracial group difference. Cohen *d* was calculated for studies providing mean differences in PSs/PEs by ethnoracial group and Cohen *h* was calculated for studies providing percentages. Cohen *h* and *d* are comparable because they are on the same standardized effect size scale. Extracted data were imported into R (R Project for statistical Computing).[10] The metafor package was used to pool the effect size estimates and create forest plots for each ethnoracial group comparison for schizophrenia and PSs/PEs outcomes.[11] We quantified statistical heterogeneity using the I^2 statistic and created funnel plots to visually inspect the risk of publication bias. We performed sensitivity analyses based on setting (inpatient vs outpatient or

mixed inpatient and outpatient) and diagnosis (schizophrenia vs all other psychotic disorders), as well as on the sampling of studies on PSs/PEs (ie, general population, college, clinical/mixed clinical and community).

Results

Study Characteristics and Risk of Bias

A flowchart detailing the study selection procedures is in eFigure 1 in Supplement 1, and an overview of the study characteristics is presented in eTable 2 in Supplement 1. Of 64 studies[12-76] in the systematic review, 47 studies[12-15,17-29,35-48,50,53-67] were included in the meta-analysis comprising 54 929 people with schizophrenia (4653 Asian, 15 146 Black, 14 516 Latinx, 19 744 White, and 870 with other ethnoracial group) and 223 097 people (16 951 Asian, 25 528 Black, 17 683 Latinx, 156 627 White, and 6308 with other ethnoracial group) with data on PSs/PEs. We included 32 studies[12-29,56-64,68-72] on psychotic disorder, 3 studies[30-32] on CHR-P syndrome, and 29 studies[33-55,65-72] on PSs/PEs. Ethnoracial group was assessed using clinician or self-assessment, and most studies captured selected self-identification at the intersection of the US Census racial taxonomy (eg, Asian, Black, White) and Latinx ethnicity. An overview and description of the risk of bias of each study can be found in eTable 3 and the eResults of Supplement 1.

Schizophrenia and Other Psychotic Disorders

Twelve studies[12-21,24,25] out of 16 studies[12,21,24-27,29,62] comparing diagnoses in Black and White individuals in general mental health services found that Black individuals received higher rates of schizophrenia spectrum diagnoses. The only incidence study[22] reported that Black offspring were over twice as likely to receive a lifetime schizophrenia spectrum diagnosis than White offspring in a sample of women receiving prenatal care. Most studies relied on hospital records or databases keeping clinical diagnoses. Among studies[12,22-29] ascertaining the diagnoses with research-driven instruments, all 7 examining differential schizophrenia rates among Black and White individuals found increased schizophrenia rates among Black individuals in the US.[12,22-25,27,29] Among studies comparing rates between Latinx and White individuals in the mental health system, 2 found similar[17,28] and 1 lower[15] rates of psychotic disorder among Latinx individuals. Regarding other minoritized groups, results were mixed. More details are provided in the eResults of Supplement 1.

Clinical High Risk for Psychosis

Two key studies[30,31] found differences by CHR-P status among Black and Latinx individuals that were not observed among White individuals. For example, on the Prime screen, Black individuals who were not at CHR-P rated themselves similarly or more severely than Black and White individuals who were at CHR-P,[30] and Latinx individuals at CHR-P exhibited lower social functioning and more negative symptoms than Latinx individuals who were not at CHR-P[31] (eResults in Supplement 1). Two studies[31,32] that prospectively examined outcomes (2-2.5 years) in help-seeking individuals at CHR-P found comparable conversion risk between Latinx and non-Latinx individuals at CHR-P[31] and higher risk among Asian and Native Hawaiian or Other Pacific Islander (OR, 4.59; 95% CI, 1.21-17.37) and Black (OR, 2.68; 95% CI, 1.05-6.63) individuals than White individuals at CHR-P (the latter of which was explained by demographic and clinical confounders).

Psychotic Symptoms and Experiences

Of the studies that assessed PSs and PEs by ethnoracial status, 12 were from general population,[33-36,48,65-67,73-76] 9 from US colleges,[39-47] and 8 from clinical or mixed clinical and community samples.[37,49-55]

A detailed synthesis is available in the eResults in Supplement 1. Based on the Collaborative Psychiatric Epidemiology Surveys (n = 16 423) the prevalence of PEs was estimated at 9.6% for Asian, 15.3% for Black, 13.6% for Latinx, and 9.7% for White US citizens. Adjusting for sociodemographic and clinical variables, Latinx individuals had significantly higher lifetime PEs (OR, 1.7; 95% CI, 1.3-2.2) compared with White individuals.[33] In national US samples, migration was not associated with a greater risk of PEs. Specifically among Latinx respondents, there was a lower likelihood of reporting PEs among immigrants compared with US-born individuals.[33] This corroborated earlier findings[34] highlighting higher prevalence of PEs among US-born vs immigrated Mexican American individuals.

Subpopulation Studies

In the first and second Survey of Police-Public Encounters (SPPE I, N = 1615; SPPE II, N = 1000) past-year PEs prevalence was highest among Black individuals (24%) and Latinx individuals (30%), followed by the other group (20%) and White individuals (17%).[35] Black individuals had significantly increased odds of any past-year PEs (OR, 1.52; 95% CI, 1.00-2.31) (eResults in Supplement 1). DeVylder and colleagues[36] reported similar findings in the recent National Survey of Polyvictimization and Mental Health Survey (N = 1048). In the Philadelphia Developmental Cohort study (N = 6533; participants aged 11-21 years), Black and Latinx youth had increased odds of PEs compared with non-Latinx White youth.[37] In contrast, the highest prevalence reported from the online psychosis screen of Mental Health America was among Native American individuals and multiracial individuals.[65]

Psychotic Experiences in College Settings

In most college sample studies,[38-47] Black individuals endorsed significantly more attenuated psychotic experiences or schizotypy symptoms compared with White individuals.[40,42,45,47,48] Findings regarding Latinx and White college students were mixed. Asian students were more likely to endorse PEs than Latinx,[39] multiracial,[41,42] and White students. Only 1 study[40] found no ethnoracial group differences in schizotypy symptoms (eResults in Supplement 1).

Psychotic Symptoms in Clinical/Mixed Clinical and Community Samples

Of 8 studies, half were interviewer administered,[49-52] and the other half used self-report measures.[37,53-55] In most studies,

Table 1. Meta-Analytic Results of Epidemiological Studies on the Association Between Ethnoracial Group and Risk of Schizophrenia in the US

Ethnoracial group	Reference group: Asian			Black			Latinx			Other			White		
	k	OR (95% CI)[a]	I^2, %[b]	*k*	OR (95% CI)[a]	I^2, %[b]	*k*	OR (95% CI)[a]	I^2, %[b]	*k*	OR (95% CI)[a]	I^2, %[b]	*k*	OR (95% CI)[a]	I^2, %[b]
Asian	NA	NA	NA	6	0.54 (0.24-1.20)	99.5	6	1.11 (0.47-2.60)	99.5	2	NA	NA	8	1.43 (0.94-2.20)	99.2
Black	6	1.85 (0.84-4.10)	99.5	NA	NA	NA	10	1.89 (1.45-2.46)	98.1	4	2.00 (1.47-2.72)	66.3	19	2.07 (1.64-2.61)[c]	97.9
Latinx	6	0.90 (0.38-2.11)	99.5	10	0.53 (0.41-0.69)	98.1	NA	NA	NA	2	NA	NA	10	1.12 (0.74-1.69)	99.3
Other[d]	NA	NA	NA	4	0.50 (0.37-0.68)	66.3	NA	NA	NA	NA	NA	NA	5	1.81 (1.31-2.50)[c]	87.3
White	8	0.70 (0.46-1.07)	99.2	19	0.48 (0.38-0.61)[c]	97.9	10	0.89 (0.59-1.35)	99.3	5	0.55 (0.40-0.76)[c]	87.3	NA	NA	NA

Abbreviations: *k*, number of estimates; NA, not applicable; OR, odds ratio.

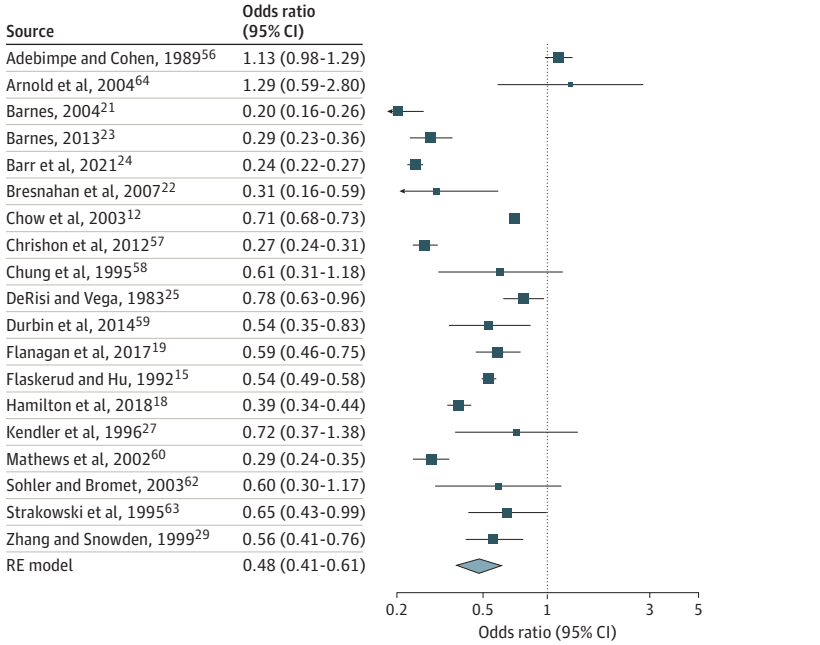
[a] Pooled unadjusted odds ratio with 95% CIs.

[b] Measure of heterogeneity; all values were statistically significant.

[c] Odds ratio is significant at the .01 level (2-tailed).

[d] Other ethnoracial group includes American Indian or Alaska Native, multiracial, and Native Hawaiian or Other Pacific Islander individuals.

Figure 1. Forest Plot on Risk of Schizophrenia Among Black and White Individuals



The reference group is Black individuals in the US.

Latinx individuals were more likely to experience PSs than White individuals.[50,51,53,54] Two studies[50,51] showed no difference in PSs between Black individuals and other ethnoracial groups in primary care clinical settings. More details are provided in the eResults of Supplement 1.

Meta-Analyses

Table 1 provides an overview of the association between ethnoracial group and odds of schizophrenia for each ethnoracial group comparison. We found no significant differences when comparing odds of schizophrenia diagnosis in Asian individuals with Black, Latinx, or White individuals. Among Black individuals, we found higher risk of schizophrenia compared with Latinx and White individuals (**Figure 1**), as well as those identifying as other ethnoracial group.[12,15,18,19,21-25,27,29,56-64] Except for lower risk of schizophrenia compared with the Black group, Latinx groups were, on average, not significantly different in odds than all other ethnoracial groups included. Individuals classified as other ethnoracial group could only be compared with Black and White individuals due to the small number of available effect sizes and were at significantly higher risk than White individuals (OR, 1.81; 95% CI, 1.31-2.50) and significantly lower risk than Black individuals (OR, 0.50; 95% CI, 0.37-0.68). Forest plots for group contrasts are shown in eFigure 2 in Supplement 1. When these analyses were repeated with all other psychotic disorders (except schizophrenia) as an outcome, the pattern of findings was similar (eTable 4 in Supplement 1). Sensitivity analysis by setting (ie, inpatient vs mixed and outpatient samples) demonstrated that, relative to White individuals, risk of schizophrenia was higher for Black individuals across settings and for Asian individuals among inpatient samples only (**Table 2**).

Table 2. Sensitivity Analyses of Ethnoracial Group Comparisons for Risk of Schizophrenia and Psychotic Symptoms and Experiences by Setting

Outcome, setting	Schizophrenia						Psychotic symptoms and experiences								
	Inpatient			Outpatient and mixed setting			Community			College			Clinical		
	k	OR (95% CI)	I^2, %	*k*	OR (95% CI)	I^2, %	*k*	Cohen *d* (95% CI)	I^2, %	*k*	Cohen *d* (95% CI)	I^2, %	*k*	Cohen *d* (95% CI)	I^2, %
Black vs White	11	2.22 (1.61 to 3.07)[a]	96.1	8	1.86 (1.33 to 2.62)	98.2	7	0.25 (0.13 to 0.38)[a]	96.5	4	0.17 (0.15 to 0.19)[a]	0	4	0.22 (0.05 to 0.38)[b]	69.83
Black vs Latinx	3	1.14 (0.84 to 1.56)	79.0	7	2.41 (2.21 to 2.63)	76.5	6	0.03 (−0.02 to 0.08)	55.9	5	0.09 (0 to 0.18)[c]	33.2	3	0.13 (−0.16 to 0.43)	NA
Black vs Asian	1	NA	NA	5	2.04 (0.77 to 5.39)	99.7	2	0.12 (0.01 to 0.23)[c]	92.5	5	0.08 (−0.02 to 0.18)	51.7	NA	NA	NA
Black vs other[d]	1	NA	NA	3	1.86 (1.22 to 2.85)	82.7	7	0.22 (−0.03 to 0.47)	96.3	3	−0.08 (−0.23 to 0.07)	09.4	NA	NA	NA
Latinx vs White	4	1.55 (0.70 to 3.39)	97.5	6	0.90 (0.60 to 1.36)	99.2	6	0.20 (0.08 to 0.31)[a]	94.2	6	0.10 (−0.01 to 0.20)	68.1	3	0.12 (−0.05 to 0.28)	NA
Latinx vs Asian	1	NA	NA	5	0.80 (0.29 to 2.21)	99.6	2	0.09 (0.03 to 0.15)[b]	74.6	7	−0.08 (−0.18 to 0.03)	74.6	NA	NA	NA
Latinx vs other	NA	NA	NA	NA	NA	NA	6	0.08 (−0.07 to 0.23)	86.3	5	−0.10 (−0.26 to 0.06)	74.7	NA	NA	NA
Asian vs White	3	1.84 (1.19 to 2.84)[b]	97.6	5	1.17 (0.59 to 2.32)	99.3	2	−0.05 (−0.12 to 0.03)	87.0	6	0.16 (0.02 to 0.29)[c]	90.1	NA	NA	NA
Asian vs other	NA	NA	NA	NA	NA	NA	2	−0.19 (−0.33 to −0.04)[c]	73.2	5	−0.02 (−0.20 to 0.16)	87.5	NA	NA	NA
White vs other	2	NA	NA	3	0.60 (0.35 to 1.02)	89.6	7	−0.04 (−0.20 to 0.13)	92.9	5	−0.16 (−0.20 to −0.13)[a]	0	NA	NA	NA

Abbreviations: *k*, number of estimates; NA, not applicable; OR, odds ratio.

[a] $P < .001$.

[b] $P < .01$.

[c] $P < .05$.

[d] Other ethnoracial group includes American Indian or Alaska Native, multiracial, and Native Hawaiian or Other Pacific Islander individuals.

Table 3. Meta-Analytic Results of Epidemiological Studies Examining the Association Between Ethnoracial Group and Risk of Psychotic Experiences in the US

Ethnoracial group	Reference group: Asian			Black			Latinx			Other		
	k	Cohen *d* (95% CI)	I^2, %	*k*	Cohen *d* (95% CI)	I^2, %	*k*	Cohen *d* (95% CI)	I^2, %	*k*	Cohen *d* (95% CI)	I^2, %
Black	7	0.10 (0.03 to 0.16)[a]	74.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Latinx	9	−0.03 (−0.12 to 0.07)	90.1	14	−0.07 (−0.13 to 0.00)[b]	75.9	NA	NA	NA	NA	NA	NA
Other[c]	7	0.08 (−0.06 to 0.22)	94.1	10	−0.18 (−0.38 to 0.02)	96.7	11	−0.01 (−0.12 to 0.11)	90.6	NA	NA	NA
White	8	−0.10 (−0.22 to 0.02)	96.6	15	−0.23 (−0.31 to −0.15)[c]	94.5	15	−0.15 (−0.22 to −0.08)[d]	87.9	12	−0.09 (−0.20 to 0.01)	93.8

Abbreviations: *k*, number of estimates; NA, not applicable.

[a] $P < .01$.

[b] $P < .05$.

[c] Other ethnoracial group includes American Indian or Alaska Native, multiracial, and Native Hawaiian or Other Pacific Islander individuals.

[d] $P < .001$.

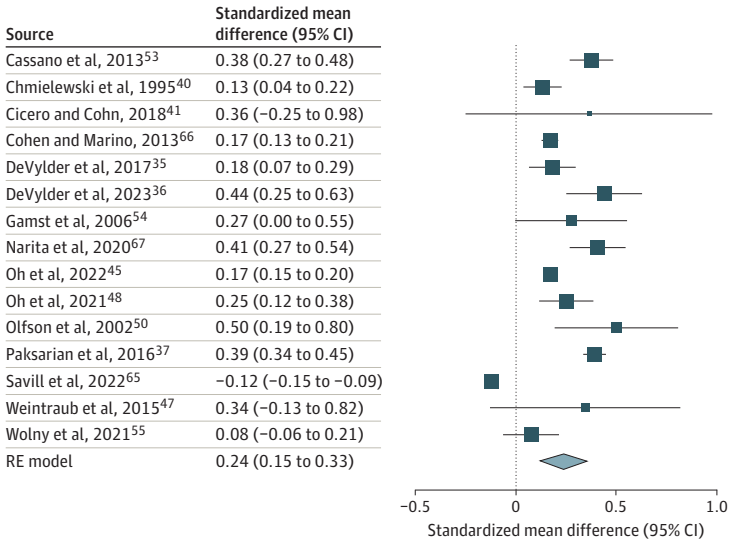
For PSs/PEs as the outcome, 7 studies[35-37,48,65-67] from general population, 8 studies[39-45,47] from college, and 4 studies[50,53-55] from clinical/community samples were included in the meta-analyses. We found significantly increased standardized mean levels or proportion of PSs/PEs for Black (pooled standardized mean difference [SMD], 0.10; 95% CI, 0.03-0.16) and Latinx (pooled SMD, 0.15; 95% CI, 0.08-0.22) vs White individuals; and for Black vs Latinx and Asian individuals (**Table 3**). Forest plots are depicted in **Figure 2**[35-37,40,41,45,47,48,50,53-55,65-67](Black-White comparison) and in eFigure 3 in Supplement 1 for the remaining group comparisons.

Comparing effect sizes by sampling context showed increased standardized differences for Black vs White individuals in all settings (Table 2). The pooled effect size was significantly increased in Latinx compared with White individuals exclusively in community settings, as was the effect size of Black compared with Asian individuals. In contrast, Asian groups exhibited significantly higher PEs than White individuals exclusively in college settings (pooled SMD, 0.16; 95% CI, 0.02-0.29). Furthermore, individuals categorized as other, which included multiracial individuals, had increased standardized differences compared with White individuals in college settings and compared with Asian individuals in community settings. Several group comparisons were not made for clinical settings due to lack of effect estimates, which could mean the stratified setting analysis may be underestimating such differences.

Bias Across Studies

Risk of publication bias was explored by visual inspection of all funnel plot comparisons (eFigures 4 and 5 in Supplement 1). As the funnel plots were reasonably symmetrical for analyses of both diagnostic and symptom outcomes, we concluded the risk of publication bias was low. There was high

Figure 2. Forest Plot on Risk of Psychotic Symptoms and Experiences Among Black and White Individuals



The reference group is Black individuals in the US.

heterogeneity, ranging from 66.3% to 99.6% in all ethnoracial group contrasts on schizophrenia and other psychotic disorders, and ranging from 79.6% to 99.8% in group comparisons on PSs/PEs dimensions. This suggests that other factors, besides sampling, may affect the associations. Although between-group contrasts were investigated with subgroup analyses, there continued to be significant heterogeneity.

Discussion

To our knowledge, this systematic review and meta-analysis was the largest, most extensive study to date that synthesized disparities across ethnoracial groups in the US across psychosis continuum outcomes. Our findings suggest a fairly consistent pattern across 2 outcomes on the psychosis continuum with an increased risk of schizophrenia diagnoses and reporting of PSs/PEs among Black vs White individuals. Among Latinx individuals, there was higher risk of reporting PSs/PEs compared with White individuals, but lower risk compared with Black individuals. For schizophrenia diagnoses, there was increased risk among individuals categorized as other vs White individuals and lower risk in Latinx than Black individuals. Asian individuals were at lower overall risk of receiving a schizophrenia diagnosis and of reporting PSs/PEs than Black individuals. There was also evidence of moderation by setting. In college settings, specifically, there was evidence that Asian individuals and those categorized as other were at higher risk of PEs than White individuals. In community settings specifically, there was evidence that Latinx and those categorized as other were at higher risk of PEs than Asian individuals. In inpatient setting specifically, Asian individuals were at increased risk for schizophrenia compared with the White group, whereas for Black individuals, their risk was increased in inpatient as well as in outpatient and mixed settings..

Interpretation of Findings Within Existing Literature

Consistent with our findings, 2 prior reviews found increased rates of schizophrenia among Black compared with White individuals in the US, regardless of treatment setting.[77,78] To date, especially in the US, the predominant hypothesis has been that ethnoracial disparities in rates of psychotic disorders, like schizophrenia, are driven by clinician bias and/or misdiagnosis.[51,78,79] Our review highlights several ethnoracial differences across the psychosis continuum, specifically in PSs/PEs, that are not driven by clinician diagnostic practices. Although there is evidence of measurement bias in the assessment of PSs/PEs across ethnoracial groups,[30] PSs/PEs are a marker of mental health morbidity, regardless of diagnosis,[80,81] and are associated with trauma, suicidal ideation, and poorer functioning.

This review highlights that recent migration history was protective for PSs/PEs among Latinx individuals. This may be explained by the fact that immigrants constitute a relatively healthy selection of the population of the country of origin. It is also possible that the length of exposure to risk factors driven by structural racism and social determinants, more common among minoritized ethnoracial and immigrant groups, is associated with increased risk for outcomes across the psychosis continuum.[38] These risk factors (eg, discrimination, trauma, individual- and neighborhood-level disadvantage) can cause cumulative stress, perinatal complications, and altered neurobiology in disadvantaged groups, all of which are mechanisms by which psychosis risk is thought to occur.[38] This may explain why Black individuals, who tend to report more experiences of discrimination than other groups, were also at higher risk of PEs/PSs compared with Latinx and Asian individuals. Future work, however, needs to elucidate how these nonspecific risk factors translate into psychosis-specific risk and how intermediary pathways differentially affect ethnoracial groups. For example, meta-analytic studies on the protective role of high neighborhood ethnic density (ie, the proportion of individuals from your own ethnic

group in your neighborhood) show this effect is particularly salient for psychosis outcomes.[82]

The overall findings of increased risk of schizophrenia for individuals in the other ethnoracial category are consistent with these models of risk. Although difficult to interpret, as the other category is quite broad, this should be interpreted as a signal that individuals from multiracial heritage, potentially due to the complexity of having to integrate multiple cultural identities, may be particularly vulnerable to developing psychotic disorders, generally, and psychotic symptoms, especially in college settings. It is consistent with research indicating that multiracial individuals are at relatively high risk of receiving treatment for a psychotic disorder[24] and of endorsing psychotic symptoms.[65] Future research should include options beyond other for individuals to identify with, to improve clarity and avoid an uninformative category.

Strengths and Limitations

Notable strengths to the current study are the effortful expansion of ethnoracial groups and psychosis-related outcomes included and the focus on the US context. Instead of centralizing White individuals, we used the data to compare all ethnoracial groups with each other, deepening our understanding of between-group psychosis spectrum variation and moving beyond oversimplified minority-majority comparisons.

There are several limitations to this study. First, our risk of bias assessments show many of the included studies had low representativeness of the study populations, poorly assessed ethnoracial groups, and insufficiently controlled confounds. Second, studies including an other category frequently failed to explicitly define that group. For many studies, it was left unclear how multiracial individuals were categorized, and Indigenous individuals were not included in most studies. Third, our data synthesis relied on unadjusted effect sizes. The assessment and adjustment for confounds was too inconsistent across studies to use adjusted estimates in our meta-analyses. Fourth, the interpretability of our findings is further limited by high heterogeneity, which suggests that variation in effect sizes may be due to other uncontrolled factors. Future work should continue to report ethnoracial variation across psychosis-related outcomes to unravel sources of heterogeneity. Fifth, for the assessment of PSs, most studies used well-validated instruments (eg, Prodromal Questionnaire), whereas others used loosely defined standardized assessment forms. Not only do the psychometric properties of these measures vary, their intention might vary (eg, screening for psychosis risk, assessing for full psychosis symptoms). There may also be possible differential response to measurement of PEs, as the measures in college samples tend to be continuum-based, and community epidemiological samples tend to use categorical scales. A further discussion of measurement and other types of bias can be found in the eDiscussion in Supplement 1. Lastly, studies on CHR-P were too few and heterogeneous to include in a meta-analysis.

Conclusions

Results of this systematic review and meta-analysis showed marked ethnoracial disparities in multiple psychosis outcomes. Even though disadvantaged groups, especially Black communities, were more likely to present with psychosis, research shows they are less likely to reach high-quality mental health services, such as coordinated specialty care.[83] Future studies should improve the measurement of race and ethnicity by using more fine-grained measures, especially for the group labeled as other. Furthermore, examining related concepts, such as an individual's ethnoracial identity, may improve our understanding of underlying mediating mechanisms. A promising avenue for further inquiry also includes the role of various intersecting characteristics that defines a person's social position,[84] thereby impacting psychosis liability.

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