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Original article

## Mental Health Disparities Among College Students of Color

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### A B S T R A C T

**Purpose:** Understanding the mental health needs of students of color is a growing priority on college and university campuses nationwide. This study aims to capture the state of mental health among students of color, including the prevalence of mental health problems and treatment utilization.

**Methods:** The sample is comprised of 43,375 undergraduate and graduate students at 60 institutions that participated in the survey-based Healthy Minds Study from 2012 to 2015. These data include over 13,000 students of color; we look separately at African-American, Latinx, Asian/Asian American, and Arab/Arab American students. Data are analyzed at the individual level using bivariate and multivariate modeling to elucidate variations across race/ethnicity. We examine symptom prevalence (measured by validated screens such as the Patient Health Questionnaire-9 for depression), help-seeking behaviors, and related factors (including knowledge and stigma).

**Results:** Across race/ethnicity, we find modest variation in symptom prevalence and larger variation in service utilization. Overall, treatment use is lower among students of color relative to white students, even when controlling for other variables in regression models. Asian/Asian American students have the lowest prevalence of treatment, at only 20% among those with apparent mental health conditions. Attitudes related to mental health treatment also vary significantly and help to explain the primary findings.

**Conclusions:** College students of color represent a disparities population based on greater levels of unmet mental health needs relative to white students. This paper takes an important step toward understanding these needs and points to implications for future research and practice.

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### IMPLICATIONS AND CONTRIBUTION

This study describes the prevalence of mental health problems and treatment utilization among college students of color. Results indicate that students of color represent a disparities population based on greater unmet mental health needs relative to white students.

**Abbreviations:** HMS, Healthy Minds Study; PHQ-9, Patient Health Questionnaire-9; GAD-7, Generalized Anxiety Disorder 7-item scale; NSSI, non-suicidal self-injury; OR, odds ratio; CI, confidence interval

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Mental health and mental health service utilization are important issues to examine in the increasingly diverse landscape of U.S. higher education. There are over 17 million students enrolled in colleges and universities across the country (representing roughly half of young adults nationwide), with about 40% being students of color [1]. College populations have a special significance for mental health policy given that nearly 75% of mental illnesses have first onset by the mid-20s [2], and mental health in early adulthood is linked to important outcomes, including economic productivity [3]. There is also a growing body of evidence demonstrating a

connection between mental health and college degree completion [4–6]. The national 6-year bachelor's graduation rate is less than 60% [1], and rates are significantly lower among African-American and Latinx students [7]. Understanding and addressing the mental health needs of racially diverse students is essential to supporting their success and creating equity in other dimensions, including persistence and retention.

College students of color remain an understudied population with regard to mental health. Some studies have found a higher prevalence of depression and anxiety among students of color, as well as higher levels of functional impairments relative to white students [8], while others have found that symptoms do not vary [9]. Numerous studies suggest that mental health treatment is lower among students of color [9–12], with many pointing to higher levels of stigma, particularly among Asian [11,13] and African-American students [13].

However, much of this evidence is drawn from studies conducted on single campuses, many of which have small sample sizes, typically comprised only of undergraduates [9,13–15]. The only multicampus study in this area that we are aware of [10] used data collected in 1997–1998. There is a pressing need for large, multicampus studies that can speak to the mental health needs of today's diverse student populations.

The present study aims to contribute key findings related to the prevalence of mental health and service utilization across both undergraduate and graduate students' racial and ethnic identities, drawing from one of the largest campus-based surveys, the Healthy Minds Study (HMS). Previous studies using HMS data have revealed a high prevalence of mental health problems [8] and significant unmet need [16], but little has been done to explore differences by race. The goal of this research is to improve understanding of the mental health needs of students of color in order to promote equity.

## Methods

### Study design

**Data:** HMS is an annual web survey examining mental health, service utilization, and related factors among undergraduate and graduate students. In the present study, we analyze three waves of data (2012–2015), which include 60 institutions. Colleges and universities elect to participate in HMS; there are no exclusion criteria for institutional enrollment. Study sites are diverse across campus characteristics, including institutional type, geography, and selectivity.

Data were collected using Qualtrics software. HMS was approved by the Institutional Review Boards on all campuses. A National Institutes of Health Certificate of Confidentiality provided further protections.

**Recruitment and informed consent:** At each institution with  $\geq 4,000$  students, our study team recruited a random sample of 4,000 degree-seeking students from the full population; at smaller institutions, we recruited all students. Student sample files containing information used for recruitment (e.g., name, email address) and nonresponse analyses were obtained from the Registrar at each site. Students had to be at least 18 years old to participate; there were no other exclusion criteria. Students were recruited via email. To incentivize participation, students were informed of their eligibility for one of several prizes totaling \$2000 annually (10 \$100 and two \$500 gift cards per wave). Upon clicking a personalized link in the email, students

were presented with an informed consent page and had to agree to the terms of participation before entering the survey. The overall response rate across years was 21%.

To adjust for potential differences between responders and nonresponders, we constructed sample probability weights. We obtained administrative data from participating institutions, including gender, race/ethnicity, academic level, and grade point average. We used this data to construct response weights, equal to 1 divided by the estimated probability of response, using a logistic regression to predict the likelihood of response associated with each variable.

### Measures

Detailed information about each measure is included in the Appendix (Table A1).

**Mental health:** We examine eight binary measures of mental health: (1) *flourishing*; (2) *depression*; (3) *anxiety*; (4) *eating disorders*; (5) *non-suicidal self-injury (NSSI)*; (6) *suicidal ideation*; (7) *any mental health problem*; and (8) *impairment*. We focus on binary measures because most of these measures have been validated based on standard cutoffs.

- (1) To estimate the proportion of students who are *flourishing*, we use the eight-item Flourishing Scale [17], which has been shown to have high convergence with similar scales [18]. The scale is designed to assess major aspects of social–psychological functioning, including relationships, self-esteem, purpose, and optimism. Scores range from 8 to 56, with higher scores indicating higher well-being. This scale does not have a recommended cutoff; rather a score of  $\geq 48$  was selected because it best matches rates of flourishing in other scales (e.g., the Mental Health Continuum [19]) in U.S. college populations.
- (2) We examine symptoms of *depression* using the Patient Health Questionnaire-9 (PHQ-9) [20,21]. The PHQ-9 has been validated as internally consistent and highly correlated with clinical diagnosis [20–23], including among people of color [24]. We used the standard cutoff of  $\geq 1$ .
- (3) Symptoms of *anxiety* are measured by the Generalized Anxiety Disorder 7-item (GAD-7) scale [25], which has been used in racially diverse samples [25,26]. We used the standard cutoff of  $\geq 10$ , which has been shown to have high sensitivity and specificity [25]. In 2012, HMS included a different anxiety screen, so that year is excluded from our analyses of anxiety (N = 20,343 students from 2012 excluded).
- (4) Symptoms of *eating disorders* are assessed using the five-item SCOFF [27]. Scores range from 0 to 5, with  $\geq 2$  constituting a positive screen. Prior studies have determined this cutoff to be sensitive and specific [27,28]. Unlike the PHQ-9 and GAD-7, there have been no validation studies of the SCOFF specifically among people of color. The SCOFF was added to HMS in 2013; as such, our measure of eating disorders also excludes the 2012 sample.
- (5) The following item, developed for HMS, is used to assess NSSI: “This question asks about ways you may have hurt yourself on purpose, without intending to kill yourself. In the past year, have you ever done any of the following

intentionally?” The full list of response options is included in the Appendix.

- (6) A single question measured *suicidal ideation*: “In the past year, did you ever seriously think about attempting suicide?” Students answered “yes” or “no” and were categorized accordingly.
- (7) We created a variable of *any mental health problem*, defined as the presence of one or more of the above-mentioned problems. Given that the GAD-7 and SCOFF were added in 2013, any mental health problem excludes the 2012 sample.
- (8) *Impairment* is classified as a response of 3 or more days to the following item: “In the past 4 weeks, how many days have you felt that emotional or mental difficulties have hurt your academic performance?”

**Knowledge and attitudes:** We examine knowledge and attitudes among students with any mental health problem. Analyses focus on five binary outcomes, as detailed in the Appendix: (1) *treatment among friends/family*; (2) *perceived need*; (3) *knowledge*; (4) *perceived stigma*; and (5) *personal stigma*.

**Help-seeking:** We examine six binary outcomes related to help-seeking: (1) *insurance* for mental health; (2) *any diagnosed mental health condition*; (3) *past-year psychotropic medication use*; (4) *past-year therapy*; (5) *past-year treatment* (medication and/or therapy); and (6) *past-year informal help-seeking* (support from friends, family, etc.). In order to understand disparities not attributed to differences in clinical need, we examine help-seeking among students meeting criteria for any mental health problem.

**Treatment barriers:** We also explore barriers to mental health services as endorsed by students with any mental health problem. Students were asked why they had not received treatment and were instructed to “select all that apply” from a list of 27 options (Table A1).

**Race/ethnicity:** The primary independent variable is students’ racial/ethnic identity, operationalized as mutually exclusive dummy variables (0–1) for white, African-American, Latinx, Asian, Arab/Arab American, other, and multiracial.

**Covariates:** The following are included as covariates in the multivariate analyses: (1) *age*; (2) *gender*; (3) *parental education*; (4) *financial background*; (5) *current financial situation*; and (6) *citizenship*. To further understand the contexts and causes of poor emotional functioning, in the multivariate model for “any mental health problem”, we control for experiences of *discrimination*.

#### Data analysis

For each of the mental health measures described above, we calculate prevalence stratified by race/ethnicity. We report proportions for each race/ethnicity, overall and by gender. Next, we estimate bivariate statistics for knowledge, attitudes, and help-seeking among students with any mental health problem, stratified by race/ethnicity with percentages overall and by gender. As an exploratory analysis, we examine outcomes separately for Asian American and Asian international students (which represent the largest proportion of international students in the sample) (results in text). In the tables, we report *p* values based on two-tailed chi-squared tests. We also examine barriers by race/ethnicity (results in text).

We estimate multivariate correlates of seven outcomes: (1) any mental health problem, and (2–7) the help-seeking outcomes

described above (among students with any mental health problem). We conduct two logistic regressions for each help-seeking outcome: the first controlling for the covariates, and the second adding controls for knowledge and attitudes. We report odds ratios (ORs), 95% confidence intervals (CIs), and standard errors (SEs). SEs are clustered within schools. We conducted two sensitivity analyses: (1) we estimated the help-seeking models among students with impairment (as another way to understand disparities not attributed to differences in need); and (2) we estimated each model with campus-level fixed effects to confirm that results were not driven by variations between schools or over time. Results remained consistent in magnitude and direction. Analyses were conducted using Stata 14.2 and weighted using the weights described above.

#### Participants

The sample is comprised of 43,375 students and includes both undergraduate and graduate students, with graduate students representing 21% of the sample. Just over half are female and approximately two-thirds are between ages 18 and 22. With regard to race/ethnicity, 71% identified as white, 4% as African-American, 5% as Latinx, 10% as Asian (with 39% being international), 1% as Arab/Arab American, 4% as other, and 6% as multiracial. In total, the sample includes 13,412 students of color (Table 1).

#### Results

##### Mental health

Overall, 42% of students meet criteria for a mental health problem. The proportion who are flourishing ranges from 51% (Asians) to 62% (African-Americans). Prevalence of any mental health problem ranges from 40% (African-Americans) to 53% (Arab/Arab Americans), with higher prevalence among females relative to males of the same race/ethnicity (Table 2).

##### Knowledge and attitudes

Among students meeting criteria for a mental health problem, 87% report treatment by friends/family, 61% perceive a need for help, 68% know of campus mental health services, 54% endorse perceived stigma, and 9% personal stigma. Treatment by friends/family is highest among white (92%) and lowest among Asian (67%) students. Asians also have the lowest levels of perceived need (47%). Knowledge ranges from 52% (Arab/Arab Americans) to 70% (white students). Estimates are generally higher among females compared to males of the same race/ethnicity.

Perceived stigma ranges from 52% (white students) to 63% (African-Americans), and personal stigma from 6% (African-Americans) to 23% (Asians), with Asian international students having even higher levels (35%). For both stigma measures, levels are higher among males relative to females (Table 3).

##### Help-seeking

Among students with a mental health problem, 56% report insurance for mental health, 43% report diagnoses of a mental illness, 41% report past-year treatment (27% psychotropic medication use and 30% therapy), and 79% report informal help-seeking. Diagnoses range from 21% (African-Americans) to 48% (white students). Treatment ranges from 23% (Asians) to 46% (white students), with higher treatment among females than males. Asian

**Table 1**  
Sample characteristics (N = 43,375)

	%
Gender	
Female	56.6
Male	43.5
Age	
18–22	65.3
23–25	13.8
26–30	11.0
≥31	9.9
Degree level	
Undergraduate	79.0
Graduate student	21.0
Race/ethnicity	
African-American	3.8
Latinx	4.7
Asian/Asian American	9.8
Arab/Arab American	.8
White	71.2
Multiracial	6.0
Other	3.5
Citizenship	
International	7.3
Parental education	
First-generation	36.6
Financial background	
“Poor, not enough to get by”	3.6
“Enough to get by but not many ‘extras’”	33.4
“Comfortable”	51.7
“Well to do”	11.3
Current financial situation	
“Financial struggle”	19.8
“Tight but I am doing fine”	57.8
“Finances are not really a problem”	22.4
Experienced discrimination, past 12 months	
Overall	24.4
Among African-American students	69.5
Among Latinx students	45.6
Among Asian/Asian American students	51.1
Among Arab/Arab American students	50.9
Among White students	14.4
Among multiracial students	38.7
Among students of other race/ethnicity	44.8

**Notes:** Table values are percentages of the weighted sample. In subsequent tables, Asian/Asian American students are referred to as “Asian” and Arab/Arab American students as “Arab.”

international students have even lower treatment (19%). Informal help-seeking is relatively across groups, ranging from 67% (African-Americans) to 82% (white students) (Table 4).

### Treatment barriers

The most commonly reported barrier is “I prefer to deal with issues on my own,” endorsed by 51% of all students. This is also the most common barrier within each of the racial/ethnic identities, with between 46% (Arab/Arab Americans) and 57% (multiracial students) endorsement across groups. While only 4% of the overall sample reported not seeking help because providers “are not sensitive enough to cultural issues,” this was endorsed by 12% of Arab/Arab Americans. Just 1% reported not seeking help because “I have a hard time communicating in English,” although this was higher among Asian international students (9%).

### Multivariate correlates

Controlling for the covariates and relative to white students, African-Americans (OR = .67, 95% CI = .53, .83,  $p < .001$ ) are

significantly less likely and Arab/Arab Americans (OR = 1.59, 95% CI = 1.15, 2.20,  $p = .005$ ) and multiracial students (OR = 1.15, 95% CI = 1.00, 1.32,  $p = .05$ ) more likely to meet criteria for a mental health problem. Experiencing discrimination and being financially disadvantaged are also associated with significantly higher odds (Table 5a and 5b).

Among those with a mental health problem, students of color generally have lower odds of help-seeking. African-Americans have 73% lower odds of being diagnosed and Asians have 64% lower odds of medication use and 51% lower odds of therapy. Knowledge and attitudes are significant predictors of help-seeking, and controlling for these produces slightly higher odds for students of color (i.e., seems to explain some of the lower levels of help-seeking). Personal stigma is associated with lower odds of help-seeking. Most notably, perceived need is associated with 8.5 times higher odds of treatment.

### Discussion

This study provides the most detailed evidence to date on mental health and service use among college students of color at a national level. The ability to examine these outcomes among over 40,000 students, including more than 13,000 students of color, is a unique strength of the present study and an important contribution to the literature. Additionally, the use of a random sampling approach at the student-level increases the generalizability of our findings. In this large and diverse sample drawn from 60 campuses, we find some variations in the prevalence of mental health problems and significant disparities in treatment across race/ethnicity.

Arab/Arab American students have the highest prevalence of mental health problems. This finding is a unique contribution, as Arab/Arab Americans on campus represent an understudied population with regard to mental health. To begin to understand the causes of mental health problems among students of color, we explore how discrimination and financial difficulties relate to mental health, finding these to be significant risk factors even when controlling for other characteristics.

In the past year, 40% of students with a mental health problem received treatment. We find that diagnoses, medication use, and therapy are lower among students of color relative to white students. This is consistent with prior studies in the college context [9,10,12,29] and in general populations [30]. In our sample, nearly half of white students received a diagnosis compared to less than one-quarter of African-American students. This is also consistent with prior studies in campus [31] and community settings [32]. Our results indicate that Asians have the lowest prevalence of treatment, with roughly 80% of cases going untreated. International Asian students are even less likely to seek services, a finding which aligns with other studies in campus [14] and noncampus contexts [33]. One study found that Asians who sought treatment on campus had the highest rates of distress at intake, followed by Latinx, African-American, and then white students [10], suggesting that delays from symptom onset to treatment may be resulting in higher levels of need and missed opportunities for prevention and early intervention for students of color.

Our findings regarding knowledge and attitudes help to contextualize variations in service use. Arab/Arab American students, who have the highest prevalence in our study, also report the lowest levels of knowledge. Results point to a need for culturally tailored outreach and education in order to increase awareness of mental health resources among Arab/Arab Americans.

**Table 2**  
Mental health status by race/ethnicity (%)

	Overall								Females								Males							
	Flour	Dep	Anx	ED	NSSI	SI	Any prob	Impair	Flour	Dep	Anx	ED	NSSI	SI	Any prob	Impair	Flour	Dep	Anx	ED	NSSI	SI	Any prob	Impair
Overall	57.2	16.8	17.7	16.5	15.6	7.8	42.2	26.0	58.9	16.8	20.6	21.5	16.6	7.9	46.5	27.3	55.1	16.7	13.8	10.0	14.1	7.8	36.6	24.1
African-American	61.6 <sup>***</sup>	17.3	11.9 <sup>***</sup>	15.1	9.8 <sup>***</sup>	7.2	40.1	23.6	59.9	18.0	15.4 <sup>**</sup>	18.5	11.4 <sup>***</sup>	7.8	43.9	25.8	64.6 <sup>***</sup>	16.2	6.2 <sup>**</sup>	9.6	7.3 <sup>***</sup>	6.0	33.8	19.8
Latinx	60.8 <sup>***</sup>	19.4 <sup>**</sup>	19.3	18.9	13.7	7.7	44.0	26.2	61.3	20.6 <sup>**</sup>	22.4	23.4	14.4	8.3	48.8	27.3	60.2 <sup>**</sup>	18.0	15.5	13.3 <sup>*</sup>	12.9	7.1	38.3	24.8
Asian	50.9 <sup>**</sup>	18.9	14.6 <sup>**</sup>	19.8 <sup>*</sup>	14.7	6.8 <sup>*</sup>	43.6	25.0	50.5 <sup>**</sup>	19.6 <sup>**</sup>	16.6 <sup>**</sup>	25.4 <sup>**</sup>	15.6	7.5	48.3	27.3	51.4 <sup>**</sup>	18.0	12.2	13.2 <sup>**</sup>	13.5	5.9 <sup>*</sup>	38.0	22.1
Arab	58.3	24.5 <sup>***</sup>	23.9 <sup>*</sup>	27.4 <sup>***</sup>	10.8 <sup>*</sup>	6.9	53.4 <sup>**</sup>	31.4 <sup>*</sup>	58.9	23.4 <sup>*</sup>	29.8 <sup>*</sup>	34.6 <sup>**</sup>	12.1	4.5	64.5 <sup>***</sup>	29.3	57.9	25.3 <sup>**</sup>	19.4	21.8 <sup>**</sup>	9.9	8.6	44.8	32.8 <sup>*</sup>
White	57.9 <sup>**</sup>	15.8 <sup>**</sup>	17.8	15.4 <sup>**</sup>	15.7	7.7	41.1 <sup>***</sup>	25.6 <sup>**</sup>	60.1 <sup>***</sup>	15.7 <sup>***</sup>	21.1	20.7 <sup>**</sup>	16.6	7.5 <sup>**</sup>	45.6 <sup>*</sup>	26.8 <sup>*</sup>	55.0	15.9 <sup>*</sup>	13.4	8.3 <sup>***</sup>	14.2	7.9	35.0 <sup>***</sup>	23.8
Multiracial	54.1 <sup>**</sup>	20.2 <sup>***</sup>	22.2 <sup>***</sup>	19.6 <sup>**</sup>	20.9 <sup>***</sup>	10.8 <sup>***</sup>	48.7 <sup>***</sup>	31.1 <sup>**</sup>	55.7 <sup>*</sup>	20.8 <sup>**</sup>	22.8	22.4	22.3 <sup>***</sup>	10.6 <sup>**</sup>	50.4 <sup>*</sup>	32.8 <sup>***</sup>	52.1	19.0	21.0 <sup>***</sup>	15.5 <sup>**</sup>	18.5 <sup>**</sup>	11.0 <sup>**</sup>	46.0 <sup>***</sup>	28.3 <sup>*</sup>
Other	55.8	19.8 <sup>*</sup>	18.7	14.9	17.1	9.9 <sup>*</sup>	43.8	30.1 <sup>**</sup>	56.5	18.5	21.0	19.5	19.0	12.6 <sup>**</sup>	47.0	30.7 <sup>*</sup>	55.4	20.9 <sup>*</sup>	16.3	10.3	14.9	7.1	40.3	29.3 <sup>*</sup>

**Notes:** Table values are percentages of the weighted sample. “Flour” (flourishing) is  $\geq 48$  on the Flourishing Scale; “Dep” (depression) is  $\geq 10$  on the PHQ-9; “Anx” (anxiety) is  $\geq 10$  on the GAD-7; “ED” (eating disorder) is  $\geq 2$  on the SCOFF; NSSI is any past-year non-suicidal self-injury; “SI” is any past-year suicidal ideation; “Any prob” (any mental health problem) is a positive screen for depression, positive screen for anxiety, positive screen for an eating disorder, any past-year non-suicidal self-injury, and/or any past-year suicidal ideation. “Impair” is  $\geq 3$  days of impairment due to mental health in the past month.

\*\*\*  $p \leq .001$ .

\*\*  $p \leq .01$ .

\*  $p \leq .05$ ;  $p$  values based on two-tailed chi-squared tests, with significant differences determined between students who identify as each particular race/ethnicity and those who do not (e.g., African-American students versus all other students).

**Table 3**  
Knowledge and attitudes among students with any mental health problem by race/ethnicity (N = 9,851) (%)

	Overall					Females					Males				
	F/F	PN	Know	Perc Stig	Pers Stig	F/F	PN	Know	Perc Stig	Pers Stig	F/F	PN	Know	Perc Stig	Pers Stig
Overall	86.6	60.7	67.6	54.3	9.1	89.2	65.3	70.5	51.2	6.7	82.5	52.8	63.0	59.6	13.2
African-American	75.9 <sup>***</sup>	53.6	68.5	63.1 <sup>*</sup>	6.1	78.2 <sup>***</sup>	61.9	72.4	63.4 <sup>***</sup>	6.1	71.0 <sup>*</sup>	36.1 <sup>*</sup>	60.2	62.6	5.9
Latinx	80.8 <sup>*</sup>	55.4 <sup>*</sup>	59.8	61.3 <sup>**</sup>	11.7	85.2 <sup>**</sup>	62.5	60.4 <sup>***</sup>	60.7 <sup>***</sup>	9.8 <sup>*</sup>	74.1 <sup>**</sup>	44.3 <sup>*</sup>	58.9	62.3	14.8
Asian	66.6 <sup>***</sup>	46.6 <sup>**</sup>	59.4 <sup>***</sup>	59.4 <sup>***</sup>	22.6 <sup>***</sup>	71.7 <sup>***</sup>	51.3 <sup>**</sup>	60.4 <sup>***</sup>	54.9	18.8 <sup>***</sup>	59.0 <sup>***</sup>	39.4 <sup>**</sup>	58.0	66.2 <sup>**</sup>	28.2 <sup>***</sup>
Arab	77.5 <sup>*</sup>	61.0	51.7 <sup>**</sup>	57.5	12.4	80.3 <sup>*</sup>	58.2	55.2 <sup>**</sup>	54.9	3.2	74.4	64.1	47.7	60.3	22.6
White	91.5 <sup>***</sup>	63.5 <sup>***</sup>	70.2 <sup>***</sup>	51.8 <sup>***</sup>	6.5 <sup>***</sup>	93.2 <sup>***</sup>	67.8 <sup>***</sup>	73.3 <sup>***</sup>	48.5 <sup>***</sup>	4.5 <sup>***</sup>	88.4 <sup>***</sup>	55.8 <sup>***</sup>	65.1 <sup>*</sup>	57.6 <sup>*</sup>	10.1 <sup>***</sup>
Multiracial	89.5	67.2 <sup>**</sup>	69.1	56.8	9.6	92.4 <sup>*</sup>	69.4	71.9	54.1	6.4	85.7	63.9 <sup>**</sup>	64.3	61.3	14.7
Other	81.4 <sup>**</sup>	57.2	61.4	55.9	10.2	82.9 <sup>**</sup>	65.4	63.6 <sup>*</sup>	52.5	7.9	79.4	47.8	58.1	59.9	12.9

**Notes:** Table values are percentages of the weighted sample among students with any mental health problem. “F/F” is any mental health treatment among friends and family. “PN” is perceived need. “Know” is knowledge of campus mental health resources. “Perc Stig” is perceived stigma, and “Pers Stig” is personal stigma.

\*\*\*  $p \leq .001$ .

\*\*  $p \leq .01$ .

\*  $p \leq .05$ ;  $p$  values based on two-tailed chi-squared tests, with significant differences determined between students who identify as each particular race/ethnicity and those who do not (e.g., African-American students versus all other students).

**Table 4**  
Help-seeking among students with any mental health problem by race/ethnicity (N = 9,851) (%)

	Overall																	
	Females						Males											
	Ins	Dx	Rx	Ther	Tx	Inf	Ins	Dx	Rx	Ther	Tx	Inf						
Overall	55.5	42.8	27.4	30.2	40.8	79.1	57.5	45.4	29.2	34.1	44.6	84.2	52.0	38.2	24.3	23.7	34.3	70.5
African-American	54.6	21.3	15.0	21.6	25.5	67.3	59.0	24.6	14.8	23.5	44.6	71.4	44.7	14.4	15.6	17.6	23.4	58.8
Latinx	52.4	36.9	20.9	23.7	33.0	72.1	50.8	34.5	21.1	27.1	36.4	77.7	54.9	40.6	20.5	18.5	27.8	63.5
Asian	44.5	24.4	12.0	18.9	22.7	69.3	43.4	28.0	14.2	23.1	26.9	75.8	46.2	18.9	8.7	12.5	16.3	59.6
Arab	56.3	39.9	27.3	20.5	36.4	68.5	56.1	41.3	25.1	21.1	38.0	78.2	56.7	38.3	29.7	19.8	34.7	57.6
White	57.9	47.9	31.6	33.3	45.5	82.4	60.6	50.8	33.8	37.1	49.4	87.4	53.2	42.7	27.6	26.7	38.5	73.8
Multiracial	55.8	44.7	27.9	33.0	44.0	81.1	57.4	45.5	27.6	36.7	45.9	84.8	52.9	42.6	27.8	26.9	40.2	75.0
Other	49.4	38.3	23.6	28.2	38.4	74.2	49.8	41.6	24.0	35.2	43.7	77.6	49.2	33.1	22.8	18.9	31.1	69.9

**Notes:** Table values are percentages of the weighted sample among students with any mental health problem. "Ins" is insurance coverage for mental health services; "Dx" is any diagnosed mental health condition; "Rx" is any past-year psychotropic medication use; "Ther" is any past-year treatment use (psychotropic medication use and/or mental health therapy); "Tx" is any past-year informal help-seeking for mental/emotional health concerns.

\*\*\*  $p \leq .001$ .

\*\*  $p \leq .01$ .

\*  $p \leq .05$ ;  $p$  values based on two-tailed chi-squared tests, with significant differences determined between students who identify as each particular race/ethnicity and those who do not (e.g., African-American students versus all other students).

Perceived need appears to be the strongest predictor of help-seeking. In multivariate models, perceived need is associated with nearly nine times higher odds of treatment. Relatedly, the most common barrier ("I prefer to deal with issues on my own") reflects a lack of perceived need around addressing mental health.

We find that levels of perceived stigma are higher than personal stigma (54% versus 9%), with both being higher among males relative to females of the same race/ethnicity. While perceived stigma is similar across race/ethnicity, personal stigma varies significantly: from 6% among African-American to 23% among Asian students. That African-Americans have the lowest levels of personal stigma is a unique finding from the present study, while higher levels among Asian students are consistent with extant research [11,13,34]. Importantly, studies have found that personal (but not perceived) stigma is associated with treatment utilization [34]. In our multivariate models, only personal stigma is associated with help-seeking. Our results imply that stigma reduction efforts on campus may need to be tailored to Asians, particularly international students, as well as males.

An encouraging finding is that over two-thirds of students with positive screens are turning to friends, family, and other informal sources for support. That the majority of students of color are turning to nonclinical sources has important implications. Specifically, it may signal the need for increasing the number of individuals able to recognize mental illness in diverse young people and encourage their service use. Gatekeeper-trainings—providing skills and knowledge to recognize distress and refer to services—may need to be targeted at and tailored for students of color.

Emerging research points to the utility of interventions that promote help-seeking through culturally specific messaging, including for African-Americans and Latinx [29]. Organizations like NAMI have built upon this idea with personal storytelling models whereby individuals of similar backgrounds share stories of mental illness and help-seeking [35]. In the present study, unmet need appears higher among male students of color, a finding that points to opportunities for tailored programs. The Young Black Men, Masculinities, and Mental Health project is one example of a culturally sensitive and gender-specific program designed to address mental health among African-American males ([www.ybmenproject.com](http://www.ybmenproject.com)).

*Future directions for research*

Results from this study point to important directions for future research, including quantitative and qualitative data that can inform the development of culturally relevant intervention and prevention programs. Longitudinal studies, following students of color throughout their college experience, will be especially valuable. Large, multicampus studies are needed to further explore the intersectionality of student identities. Relatedly, there is a need to examine more detailed categories of race/ethnicity (e.g., Southeast Asian versus Central Asia).

Our findings also underscore the importance of understanding how factors such as adjustment to a different culture and experiences of discrimination relate to mental health and help-seeking. Research has found that African-Americans attending predominantly white institutions are more likely than those at historically black colleges and universities to experience race-related stress [36].

It is also worth noting that many students of color in this sample appear to be flourishing. Understanding their experiences and the protective factors associated with their psychological and social well-being represents an important next step for research.

**Table 5a**  
Logistic regressions of any mental health problem and help-seeking

	Any MH prob (N = 23,023)	Ins (N = 9,075)	Dx (N = 9,851)	Rx (N = 9,851)	Ther (N = 9,851)	Tx (N = 9,851)	Inf (N = 9,851)
African-American	.67 (.08) [.53, .83] <sup>***</sup>	1.01 (.17) [.73, 1.40]	.27 (.04) [.20, .37] <sup>***</sup>	.37 (.08) [.25, .56] <sup>***</sup>	.56 (.09) [.40, .77] <sup>***</sup>	.40 (.07) [.29, .56] <sup>***</sup>	.46 (.08) [.32, .66] <sup>***</sup>
Latinx	.93 (.07) [.81, 1.08]	.93 (.11) [.74, 1.17]	.63 (.07) [.51, .79] <sup>***</sup>	.60 (.07) [.47, .77] <sup>***</sup>	.66 (.08) [.53, .83] <sup>***</sup>	.63 (.07) [.51, .78] <sup>***</sup>	.62 (.08) [.49, .79] <sup>***</sup>
Asian	.98 (.06) [.88, 1.09]	.71 (.06) [.60, .83] <sup>**</sup>	.40 (.03) [.34, .47] <sup>***</sup>	.36 (.04) [.29, .45] <sup>***</sup>	.49 (.05) [.41, .59] <sup>**</sup>	.40 (.03) [.34, .47] <sup>***</sup>	.56 (.05) [.46, .67] <sup>***</sup>
Arab	1.59 (.26) [1.15, 2.20] <sup>**</sup>	1.05 (.26) [.64, 1.71]	.73 (.17) [.46, 1.17]	.86 (.24) [.49, 1.50]	.52 (.14) [.31, .89] <sup>†</sup>	.71 (.18) [.44, 1.16]	.61 (.16) [.37, 1.02]
Multiracial	1.15 (.08) [1.00, 1.32] <sup>†</sup>	.97 (.10) [.79, 1.18]	.86 (.09) [.71, 1.05]	.84 (.10) [.66, 1.07]	.99 (.10) [.81, 1.22]	.94 (.10) [.77, 1.15]	.92 (.12) [.72, 1.18]
Other race/ethnicity	.99 (.09) [.82, 1.19]	.77 (.11) [.58, 1.00] <sup>†</sup>	.66 (.08) [.51, .84] <sup>***</sup>	.67 (.10) [.51, .89] <sup>**</sup>	.82 (.11) [.63, 1.08]	.77 (.10) [.60, .99] <sup>†</sup>	.70 (.11) [.52, .94] <sup>†</sup>
Female	1.47 (.06) [1.37, 1.59] <sup>***</sup>	1.28 (.08) [1.14, 1.44] <sup>***</sup>	1.37 (.08) [1.22, 1.54] <sup>***</sup>	1.28 (.09) [1.12, 1.47] <sup>***</sup>	1.67 (.11) [1.48, 1.90] <sup>***</sup>	1.55 (.09) [1.34, 1.74] <sup>***</sup>	2.24 (.15) [1.96, 2.56] <sup>***</sup>
Age 18–22	1.81 (.12) [1.59, 2.06] <sup>***</sup>	.42 (.05) [.33, .53] <sup>***</sup>	.50 (.05) [.41, .62] <sup>***</sup>	.51 (.06) [.41, .64] <sup>***</sup>	.65 (.08) [.52, .82] <sup>***</sup>	.55 (.06) [.45, .69] <sup>***</sup>	1.50 (.18) [1.18, 1.40] <sup>***</sup>
Age 23–25	1.63 (.12) [1.41, 1.89] <sup>***</sup>	.50 (.07) [.38, .65] <sup>***</sup>	.68 (.08) [.53, .87] <sup>**</sup>	.62 (.08) [.48, .81] <sup>***</sup>	.75 (.10) [.58, .97] <sup>†</sup>	.67 (.08) [.52, .86] <sup>**</sup>	1.63 (.23) [1.23, 2.15] <sup>***</sup>
Age 26–30	1.27 (.10) [1.09, 1.48] <sup>**</sup>	.64 (.09) [.49, .73] <sup>**</sup>	.81 (.11) [.63, 1.06]	.76 (.11) [.57, .99] <sup>†</sup>	.88 (.12) [.67, 1.14]	.74 (.10) [.57, .96] <sup>†</sup>	1.54 (.24) [1.13, 2.10] <sup>**</sup>
International	.97 (.06) [.86, 1.10]	.60 (.06) [.49, .73] <sup>**</sup>	.70 (.07) [.58, .85] <sup>**</sup>	.60 (.07) [.47, .76] <sup>**</sup>	.90 (.09) [.73, 1.10]	.75 (.07) [.62, .91] <sup>**</sup>	.66 (.07) [.54, .81] <sup>**</sup>
First-generation	.88 (.04) [.81, .96] <sup>†</sup>	.73 (.05) [.64, .83] <sup>***</sup>	.76 (.05) [.67, .87] <sup>***</sup>	.75 (.05) [.65, .87] <sup>***</sup>	.75 (.05) [.65, .86] <sup>***</sup>	.71 (.05) [.63, .81] <sup>***</sup>	.68 (.05) [.58, .79] <sup>***</sup>
Financial background: "Poor, not enough to get by"	2.13 (.24) [1.70, 2.66] <sup>***</sup>	.84 (.13) [.61, 1.15]	1.25 (.19) [.93, 1.68]	.83 (.14) [.60, 1.15]	1.21 (.18) [.82, 1.53]	.88 (.14) [.65, 1.19]	.87 (.15) [.61, 1.23]
Financial background: "Enough to get by but not many 'extras'"	1.12 (.07) [.99, 1.26]	.79 (.08) [.65, .95] <sup>**</sup>	.74 (.07) [.61, .88] <sup>***</sup>	.69 (.07) [.57, .85] <sup>***</sup>	.88 (.08) [.73, 1.06]	.75 (.07) [.62, .90] <sup>**</sup>	1.01 (.12) [.80, 1.28]
Financial background: "Comfortable"	.95 (.05) [.56, 1.05]	.94 (.08) [.80, 1.11]	.80 (.07) [.68, .94] <sup>**</sup>	.75 (.07) [.63, .89] <sup>***</sup>	.91 (.08) [.77, 1.07]	.80 (.07) [.68, .94] <sup>**</sup>	1.00 (.11) [.82, 1.23]
Current financial situation: "Financial struggle"	1.91 (.12) [1.70, 2.15] <sup>***</sup>	.75 (.07) [.63, .90] <sup>***</sup>	1.63 (.14) [1.37, 1.94] <sup>***</sup>	1.56 (.15) [1.29, 1.88] <sup>***</sup>	1.03 (.09) [.86, 1.22]	1.36 (.12) [1.14, 1.61] <sup>***</sup>	1.14 (.12) [.92, 1.41]
Current financial situation: "Tight but I am doing fine"	1.07 (.05) [.98, 1.16]	.85 (.06) [.74, .97] <sup>†</sup>	1.08 (.08) [.94, 1.24]	1.02 (.08) [.88, 1.19]	.82 (.06) [.71, .94] <sup>†</sup>	.92 (.06) [.80, 1.05]	1.10 (.10) [.92, 1.30]
Discrimination	1.56 (.07) [1.44, 1.70] <sup>***</sup>						
Constant	.27 (.02) [.23, .32] <sup>***</sup>	3.69 (.53) [2.78, 4.88] <sup>***</sup>	1.53 (.21) [1.18, 1.99] <sup>***</sup>	.88 (.13) [.67, 1.17]	.67 (.10) [.50, .88] <sup>**</sup>	1.40 (.19) [1.07, 1.82] <sup>**</sup>	2.15 (.34) [1.58, 2.92] <sup>***</sup>

**Notes:** Table values are odds ratios with standard errors (SE) shown in parentheses and 95% CIs in brackets. SEs are clustered within schools. Reference groups are: White (for race/ethnicity), male (for gender), age  $\geq 31$  (for age), U.S. citizen (for citizenship), nonfirst-generation (for parental education), "well to do" (for financial background), "finances are not really a problem" (for current financial situation), and no discrimination (for discrimination); only controlled for in the model for "any mental health problem". "Ins" is insurance coverage for mental health services; "Dx" is any diagnosed mental health condition; "Rx" is any past-year psychotropic medication use; "Ther" is any past-year mental health therapy; "Tx" is any past-year treatment use (psychotropic medication use and/or mental health therapy); "Inf" is any past-year informal help-seeking for mental/emotional health concerns. "Ins", "Dx", "Rx", "Ther", "Tx" and "Inf" are among students with any mental health problem.

\*\*\*  $p \leq .001$ .

\*\*  $p \leq .01$ .

\*  $p \leq .05$ .

**Table 5b**  
Logistic regressions of help-seeking among students with any mental health problem, controlling for knowledge and attitudes

	Ins (N = 9,075)	Dx (N = 9,851)	Rx (N = 9,851)	Ther (N = 9,851)	Tx (N = 9,851)	Inf (N = 9,851)
African-American	1.15 (.21) [.80, 1.64]	.28 (.05) [.20, .40] <sup>***</sup>	.42 (.10) [.27, .66] <sup>***</sup>	.63 (.14) [.41, .96] <sup>†</sup>	.43 (.09) [.28, .64] <sup>***</sup>	.56 (.10) [.39, .80] <sup>***</sup>
Latinx	1.02 (.12) [.81, 1.29]	.72 (.09) [.56, .93] <sup>†</sup>	.69 (.09) [.53, .89] <sup>†</sup>	.78 (.10) [.60, 1.01]	.73 (.09) [.57, .93] <sup>†</sup>	.75 (.10) [.58, .98] <sup>†</sup>
Asian	.87 (.08) [.73, 1.03]	.53 (.05) [.44, .64] <sup>***</sup>	.48 (.05) [.38, .60] <sup>***</sup>	.76 (.09) [.60, .95] <sup>†</sup>	.55 (.06) [.45, .67] <sup>***</sup>	.85 (.09) [.70, 1.04]
Arab	1.26 (.30) [.78, 2.02]	.85 (.19) [.55, 1.32]	1.03 (.30) [.58, 1.83]	.59 (.17) [.34, 1.03]	.86 (.23) [.51, 1.44]	.73 (.18) [.45, 1.18]
Multiracial	.97 (.10) [.79, 1.19]	.81 (.08) [.67, .99] <sup>†</sup>	.79 (.10) [.62, 1.01]	.98 (.12) [.77, 1.24]	.89 (.10) [.71, 1.11]	.92 (.12) [.71, 1.18]
Other race/ethnicity	.84 (.12) [.64, 1.12]	.74 (.10) [.56, .97] <sup>†</sup>	.76 (.12) [.56, 1.04]	1.02 (.17) [.74, 1.40]	.93 (.14) [.69, 1.26]	.83 (.13) [.60, 1.14]
Female	1.13 (.07) [1.00, 1.28] <sup>†</sup>	1.10 (.07) [.97, 1.26]	1.03 (.07) [.89, 1.19]	1.28 (.10) [1.10, 1.48] <sup>***</sup>	1.18 (.08) [1.03, 1.36] <sup>†</sup>	1.86 (.13) [1.62, 2.15] <sup>***</sup>
Age 18–22	.41 (.05) [.32, .51] <sup>***</sup>	.49 (.06) [.39, .61] <sup>†</sup>	.51 (.06) [.40, .65] <sup>***</sup>	.61 (.08) [.48, .79] <sup>***</sup>	.51 (.06) [.40, .65] <sup>***</sup>	1.64 (.21) [1.28, 2.12] <sup>***</sup>
Age 23–25	.49 (.07) [.38, .64] <sup>***</sup>	.68 (.09) [.53, .87] <sup>†</sup>	.62 (.09) [.47, .81] <sup>***</sup>	.70 (.10) [.53, .94] <sup>†</sup>	.63 (.09) [.47, .83] <sup>***</sup>	1.78 (.27) [1.33, 2.39] <sup>***</sup>
Age 26–30	.62 (.09) [.47, .82] <sup>***</sup>	.78 (.11) [.60, 1.03]	.74 (.11) [.56, .98] <sup>†</sup>	.84 (.13) [.62, 1.13]	.68 (.10) [.51, .90] <sup>†</sup>	1.55 (.25) [1.13, 2.13] <sup>***</sup>
International	.64 (.06) [.52, .78] <sup>***</sup>	.76 (.08) [.61, .93] <sup>†</sup>	.63 (.08) [.50, .81] <sup>***</sup>	1.11 (.14) [.88, 1.42]	.84 (.09) [.67, 1.04] <sup>†</sup>	.78 (.09) [.63, .97] <sup>†</sup>
First-generation	.80 (.05) [.71, .92] <sup>***</sup>	.85 (.06) [.74, .98] <sup>†</sup>	.84 (.06) [.72, .97] <sup>†</sup>	.87 (.07) [.74, 1.01]	.81 (.06) [.70, .94] <sup>†</sup>	.76 (.06) [.65, .89] <sup>†</sup>
Financial background: "Poor, not enough to get by"	.87 (.14) [.63, 1.19]	1.17 (.19) [.85, 1.61]	.75 (.13) [.53, 1.04]	1.03 (.18) [.72, 1.45]	.74 (.13) [.53, 1.04]	.88 (.16) [.62, 1.25]
Financial background: "Enough to get by but not many 'extras'"	.81 (.08) [.66, .98] <sup>†</sup>	.75 (.07) [.61, .91] <sup>†</sup>	.70 (.08) [.56, .87] <sup>***</sup>	.90 (.10) [.72, 1.13]	.75 (.08) [.60, .93] <sup>†</sup>	1.09 (.13) [.85, 1.39]
Financial background: "Comfortable"	.99 (.09) [.83, 1.17]	.83 (.07) [.70, .99] <sup>†</sup>	.77 (.07) [.64, .93] <sup>†</sup>	.98 (.10) [.80, 1.19]	.83 (.08) [.69, 1.00]	1.06 (.12) [.85, 1.31]
Current financial situation: "Financial struggle"	.71 (.07) [.60, .85] <sup>***</sup>	1.60 (.15) [1.33, 1.92] <sup>***</sup>	1.51 (.15) [1.24, 1.84] <sup>***</sup>	.92 (.10) [.75, 1.13]	1.32 (.13) [1.08, 1.60] <sup>†</sup>	1.04 (.12) [.84, 1.30]
Current financial situation: "Tight but I am doing fine"	.84 (.06) [.73, .97] <sup>†</sup>	1.14 (.09) [.98, 1.32]	1.07 (.09) [.91, 1.25]	.82 (.07) [.69, .97] <sup>†</sup>	.95 (.08) [.81, 1.11]	1.10 (.10) [.92, 1.32]
Friends/family tx	1.71 (.16) [1.42, 2.07] <sup>***</sup>	1.99 (.23) [1.59, 2.49] <sup>***</sup>	2.23 (.30) [1.71, 2.90] <sup>***</sup>	1.95 (.30) [1.45, 2.63] <sup>***</sup>	2.07 (.25) [1.63, 2.62] <sup>***</sup>	2.66 (.24) [2.23, 3.17] <sup>***</sup>
Perceived need	1.41 (.08) [1.25, 1.58] <sup>***</sup>	4.30 (.28) [3.79, 4.88] <sup>***</sup>	4.77 (.40) [4.05, 5.61] <sup>***</sup>	15.40 (1.59) [12.58, 18.86] <sup>***</sup>	8.50 (.65) [7.32, 9.88] <sup>***</sup>	2.47 (.18) [2.15, 2.84] <sup>***</sup>
Knowledge	2.05 (.12) [1.82, 2.30] <sup>***</sup>	1.82 (.12) [1.61, 2.07] <sup>***</sup>	1.82 (.13) [1.58, 2.10] <sup>***</sup>	4.66 (.37) [3.98, 5.46] <sup>***</sup>	3.13 (.22) [2.72, 3.61] <sup>***</sup>	1.56 (.11) [1.35, 1.79] <sup>***</sup>
Perceived stigma	.89 (.05) [.79, .99] <sup>†</sup>	1.17 (.07) [1.04, 1.32] <sup>†</sup>	1.17 (.08) [1.03, 1.33] <sup>†</sup>	1.22 (.08) [1.07, 1.39] <sup>†</sup>	1.17 (.07) [1.03, 1.32] <sup>†</sup>	.95 (.07) [.83, 1.10]
Personal stigma	1.03 (.10) [.85, 1.26]	.85 (.10) [.68, 1.06]	.88 (.11) [.68, 1.13]	.54 (.07) [.41, .71] <sup>***</sup>	.72 (.09) [.56, .91] <sup>†</sup>	.66 (.07) [.54, .82] <sup>†</sup>
Constant	1.23 (.21) [.88, 1.73]	.20 (.04) [.14, .29] <sup>***</sup>	.09 (.02) [.06, .13] <sup>***</sup>	.01 (.00) [.01, .02] <sup>***</sup>	.08 (.02) [.05, .12] <sup>***</sup>	.41 (.08) [.28, .60] <sup>***</sup>

**Notes:** Table values are odds ratios with standard errors (SE) shown in parentheses and 95% CIs in brackets. SEs are clustered within schools. Reference groups are the same as in Table 5a. "Ins" is insurance coverage for mental health services; "Dx" is any diagnosed mental health condition; "Rx" is any past-year psychotropic medication use; "Ther" is any past-year mental health therapy; "Tx" is any past-year treatment use (psychotropic medication use and/or mental health therapy); "Inf" is any past-year informal help-seeking for mental/emotional health concerns.

\*\*\*  $p \leq .001$ .

\*\*  $p \leq .01$ .

\*  $p \leq .05$ .

Lastly, we need to understand the acceptability of different forms of treatment (e.g., face-to-face, medication, mobile programs) among students from diverse backgrounds, and promote services accordingly. There is some initial research in this area [37]. An interesting direction for future research would be to document the initiatives and resources campuses implement to improve access for diverse students, and then evaluate how these correlate with greater access, utilization, and satisfaction.

### Limitations

Alongside the strengths of this study, there are several limitations to consider. First, while we measured mental health with validated screens, these assessments are self-reported and do not represent clinical diagnoses. We cannot know for sure how the self-report nature of the study might yield different levels of bias across racial/ethnic groups. While many of the mental health screens have been validated across a range of populations, others, such as our help-seeking measures, have not been explicitly validated in this way. Second, campuses elected to participate; while the institutional sample is diverse, it is not random. Finally, the response rate was 21%; this is typical for online surveys [16] but clearly raises the potential of response bias. As described, we adjusted estimates with nonresponse weights along known characteristics, but there may be differences between responders and nonresponders on unobserved characteristics.

### Conclusion

This study offers important evidence of mental health disparities among college students of color, particularly with regard to treatment. The challenge for researchers, policymakers, and practitioners will be to develop and disseminate programs that effectively reach students of color, recognizing unique needs within and across racial/ethnic groups. In 2017, the Steve Fund and Jed Foundation released the Equity in Mental Health Framework ([www.equityinmentalhealth.org](http://www.equityinmentalhealth.org)), which provides institutions with actionable recommendations and implementation strategies.

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### Supplementary Data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.jadohealth.2018.04.014>.

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