



Barriers to Mental Health Service Use and Predictors of Treatment Drop Out: Racial/Ethnic Variation in a Population-Based Study

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Published online: 19 February 2020
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Abstract

This study examines racial/ethnic differences in perceived need for mental health treatment, barriers to treatment receipt, and reasons for dropout. Data are from the Collaborative Psychiatric Epidemiology Studies, a pooled dataset from three U.S. nationally-representative adult samples. Among respondents with a 12-month psychiatric disorder who received no treatment ($N = 1417$), Asians and Latinos reported lower perceived need than Blacks and Whites, and Latinos reported the fewest attitudinal barriers. Among those with a 12-month disorder who dropped out of treatment, Asians and Latinos gave more reasons for dropping out. Significant interactions of race/ethnicity with other characteristics identified subpopulations with high unmet need.

Keywords CPES · Mental health · Services · Treatment · Disparities · Inequities · Race/ethnicity

Introduction

A high proportion of U.S. adults with mental disorders never receive treatment (Alegría et al. 2008; Cook et al. 2013), and these rates are substantially higher among Blacks, Latinos, and Asians than among Whites (Alegría et al. 2002;

Cook et al. 2017). The disparities between treatment use for Whites and for Blacks and Latinos appear to be increasing (Cook et al. 2017), with only half as many ethnic/racial minorities as Whites with disorders receiving treatment (Alegría et al. 2002). Similar patterns of higher rates of treatment use by Whites, as compared to racial/ethnic minority and immigrant populations, have been reported internationally (Cooper et al. 2013; Svetlicic et al. 2012; Tiwari and Wang 2008). Even when racial/ethnic minorities do enter treatment, they are significantly more likely to drop out prior to treatment completion (Fortuna et al. 2010; Mowbray et al. 2018). Racial/ethnic minorities have lower lifetime prevalence of disorders than Whites (Alvarez et al. 2019). However, a concern is that mental disorders are both more persistent (Breslau et al. 2005) and more disabling (Williams et al. 2007) among Blacks and Latinos than Whites, underscoring the importance of understanding racial/ethnic variations in barriers to treatment receipt and reasons for early termination.

Multiple factors could differentially influence likelihood of treatment use across racial/ethnic groups (e.g., Andersen 1995, 1995; Stokols 1996; Pescosolido et al. 1998; Bonabi et al. 2016; Wong et al. 2018). For example, some studies have described racial/ethnic variation in perceived need for treatment (i.e., perceptions of whether disorders are

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s10488-020-01021-6>) contains supplementary material, which is available to authorized users.

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problematic and the extent to which treatment is needed; Ortega and Alegría 2002). Racial/ethnic differences might also exist in attitudinal barriers, which include negative beliefs about treatment such as stigma, perceptions that treatment will be ineffective, and people's desire to handle problems on their own (Mojtabai et al. 2011; Wong et al. 2018). For example, rates of stigma are higher among older Black than White adults with depression (Conner et al. 2010). Finally, structural barriers refer to factors influencing the ability to access treatment such as the convenience of treatment, its cost, and its availability. For example, neighborhood poverty is associated with fewer local providers and decreased treatment accessibility (Kirby and Kaneda 2006), in addition to poorer outcomes for those in treatment (Clark et al. 2018).

The results of several prior studies on racial/ethnic differences in barriers to treatment have been inconsistent (see Cook et al. 2018 for a review). For example, analysis of the National Comorbidity Survey Replication (NCS-R) did not find racial/ethnic differences in reports of perceived need for treatment, attitudinal, or structural barriers (Mojtabai et al. 2011). In contrast, a study using data from the larger and more racially/ethnically diverse National Survey of Drug Use and Health (NSDUH) found significantly lower perceived need for treatment among all racial/ethnic minority groups as compared to Whites (Breslau et al. 2017).

The current study extends previous work to examine racial/ethnic differences in perceived need for treatment, in addition to attitudinal and structural barriers associated with treatment receipt and reasons for dropout. We use pooled data from three nationally representative surveys of psychiatric disorders and treatment use in the U.S. that include substantial proportions of Blacks, Latinos, and Asian Americans. Previous studies using this dataset have found that, among the full set of respondents, Whites reported higher rates of any past-year mental health treatment and any past-year treatment by a mental health specialist as compared to Latinos, Blacks, and Asians (Cook et al. 2013). We hypothesized that Black, Latino, and Asian respondents would report more barriers to treatment and more reasons for dropping out of treatment compared to Whites.

Method

Sample

Participants are from the Collaborative Psychiatric Epidemiology Studies (CPES; Heeringa et al. 2004). The CPES is comprised of pooled data from three population-based surveys of mental disorders: The National Comorbidity Survey-Replication (NCS-R) (Kessler and Merikangas 2004), the National Latino and Asian American Study (NLAAS)

(Alegría et al. 2004), and the National Survey of American Life (NSAL) (Jackson et al. 2004). All three surveys sampled U.S. household residents ages 18 and older and were conducted between 2001 and 2003. The NCS-R is a probability sample of U.S. English-speaking household residents, whereas the NLAAS and NSAL over-sampled areas known to have high concentrations of African Americans, Caribbean Blacks, Asian Americans and Latinos. The NLAAS recruited participants who completed interviews in English, Spanish, Mandarin, Cantonese, Tagalog, and Vietnamese. As described in more detail elsewhere (Alvarez et al. 2019), the consolidated sample included 21,024 respondents: 42.4% non-Latino White (henceforth called *White*), 29.6% non-Latino Black (henceforth called *Black*), 17.3% Latino, and 10.6% Asian. The three surveys were weighted to adjust for differences in probabilities of selection and non-response (Heeringa et al. 2004), then samples were merged to create a single, nationally-representative study using design-based analysis weights. The final merged sample was adjusted for the residual differences between the sample and the U.S. household population on several socio-demographic and geographic characteristics. Details about each survey and procedures for merging the samples can be found elsewhere (Alegría et al. 2004; Heeringa et al. 2004; Jackson et al. 2004; Kessler and Merikangas 2004; Pennell et al. 2004).

The Human Subjects Committees of all participating universities approved recruitment, consent, and field procedures. Informed consent was obtained before conducting surveys for all participants.

Measures

Diagnostic Assessment

DSM-IV disorders were assessed using the Composite International Diagnostic Interview (CIDI) (Kessler and Üstun 2004), a fully-structured interview administered by trained lay interviewers. The current study is restricted to respondents who reported at least one 12-month disorder from among those assessed in all three CPES surveys: mood disorders (major depressive disorder, dysthymia), anxiety disorders (generalized anxiety disorder, social phobia, agoraphobia with or without panic disorder, post-traumatic stress disorder, panic disorder), externalizing disorders (conduct disorder), and substance use disorders (alcohol or drug abuse with or without dependence). Prior research (Haro et al. 2006) found good agreement between diagnoses based on the CIDI and those based on blinded clinical reappraisal interviews with the Structured Clinical Interview for DSM-IV (SCID; First et al. 2002). Total number of 12-month mood, anxiety, externalizing, and substance use disorders were calculated for each respondent. Disorders

were classified as severe, moderate, or mild using criteria described previously (Mojtabai et al. 2011).

Barriers to Treatment

Respondents who reported no use of mental health services (including outpatient, inpatient, complementary and alternative medicine, and human services) were first assessed for perceived need for treatment (Fig. 1). They were asked whether there was a time in the past 12 months that they felt that they might have needed to see a professional for problems with their emotions, nerves, mental health, or use of substances. Those who responded affirmatively were subsequently asked about a series of reasons that people have for not seeking help (even when they might need it) from a list of attitudinal barriers (wanted to handle problem on their own, perceived ineffectiveness, stigma, thought would get better, and problem was not severe) and structural barriers (financial, availability, transportation, and inconvenience). Those who responded negatively were subsequently asked to indicate why they did not want to see a professional: because they did not think they had a problem, thought they could handle the problem on their own, or thought they needed help but didn't think that professional treatment would be helpful. Respondents were coded as having no/low perceived need if they provided the first answer (i.e., said they did not think they had a problem), while those who reported the other two answers (i.e., they could handle the problem on their own or did not think professional treatment would be helpful) were included in the "wanted to handle problem on their own" and "perceived ineffectiveness" attitudinal barriers to treatment use groups, respectively (Fig. 1). This approach to constructing the measures of perceived need and attitudinal barriers is consistent with a number of prior studies (Andrade et al. 2014; Kessler et al. 2001; Mackenzie et al. 2010; Mojtabai et al. 2011; Oleski et al. 2010; Sareen et al. 2007; Wells et al. 1994).

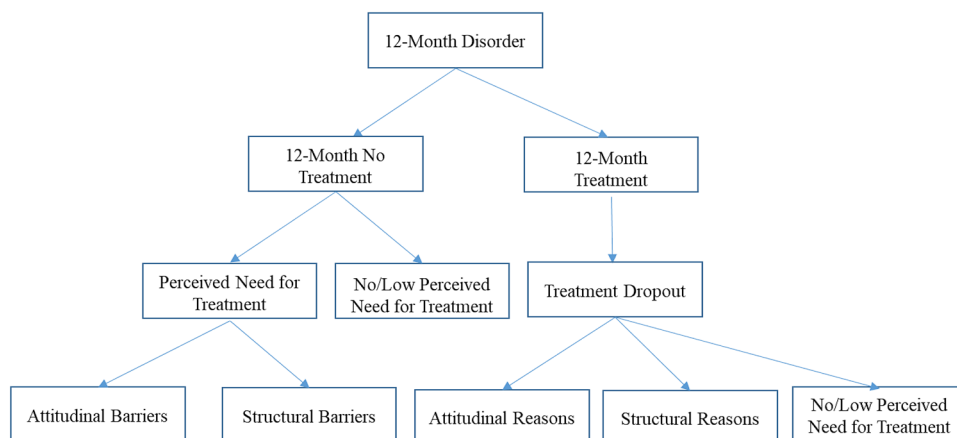
Reasons for Dropout

Respondents who reported that they received mental health services in the past 12 months were asked whether the treatment had stopped and, if so, whether they "quit before the [provider] wanted [them] to stop." These respondents were asked to indicate reasons for dropping out of treatment from a list of statements similar to the list of barriers to treatment. These included no/low perceived need (i.e., didn't need help anymore, got better), attitudinal barriers (i.e., perceived ineffectiveness of treatment, stigma, wanting to handle problem on their own, negative experience with treatment, problem got better on its own), and structural barriers (i.e., financial, availability, transportation/inconvenience). Only those who stopped all treatment were considered to have dropped out and were asked about reasons for dropping out of treatment (Fig. 1).

Race/Ethnicity

Respondents reported their race and ethnicity with the option to make multiple selections. Approximately 6% of respondents indicated more than one race. For these participants, responses were categorized using a hierarchical system by which all respondents who reported being Asian were coded Asian regardless of any other response provided. Subsequently, respondents who reported Hispanic or Latino ethnicity were coded as Latino regardless of any other responses. Then, respondents who reported being Black or African American were coded as Black regardless of any other responses provided. Remaining respondents were coded as being White if they reported no other race or ethnicity. Respondents who identified themselves only as "Other" or as American Indians, Alaska Natives, Native Hawaiians, and Pacific Islanders were excluded from analysis because of limited group numbers within the sample. This approach led to minor (less than 2%) different totals for each race than previously reported for the individual surveys.

Fig. 1 Question flow for CPES service use section on barriers to treatment and treatment dropout



Socio-demographic Covariates

Covariates included in the analyses were respondent age (18–29, 30–44, 45–59, and 60+), gender (male, female), education level (less than high school education [0–11 years], high school graduate/GED [12 years], some post-secondary education [13–15 years], and a college degree or more [16+ years]), annual personal income (a continuous variable), and marital status (married/cohabitating, separated/widowed/divorced, never married).

County-level Covariates

Using the 2002 Area Resource File (ARF), we calculated the percent of the county population living below poverty in 2000 and the racial/ethnic density of the county (i.e., the percent of residents in each county who identified as Latino, Asian, and African-American in 2002). We also calculated the urbanicity of each county based on whether the county was a metropolitan area with a population of 1 million or more (metropolitan), an urban county with 250,000 to 1 million residents (urban), or a rural county with fewer than 250,000 residents (rural). These county-variables have been used previously in research with the CPES (Cook et al. 2013).

Analysis Methods

The analyses of barriers to treatment were conducted in three steps, modeled after analyses conducted by Mojtabai et al. (2011). First, we examined perceived need for treatment in the total sample of respondents with a 12-month disorder who received no treatment and separately in subgroups defined by race/ethnicity. Then, among those with a 12-month disorder who received no treatment, we examined attitudinal and structural reasons in the full sample and in subgroups by race/ethnicity. We present F-tests for overall differences across racial/ethnic groups, as well as the significant pair-wise comparisons for F tests with p values < 0.05. In all cases, p values of statistical tests for pair-wise comparisons were adjusted using the Bonferroni method.

Second, multivariate logistic regression models were estimated to examine the association of race/ethnicity, other socio-demographic covariates, and county covariates with barriers to treatment, controlling for disorder severity and number of mood, anxiety, externalizing, and substance use disorders. Three main-effect models were estimated, one for each of the three broad categories of reasons (no/low perceived need, any attitudinal barrier, and any structural barrier). These multivariate analyses were then repeated with interaction terms added between race/ethnicity, each socio-demographic and county covariate, and counts of disorders to examine whether the association of each covariate with

each type of barrier was uniform regardless of race/ethnicity. Because of small cell sizes, models predicting structural and attitudinal variables would only converge when county-level covariates were excluded from the models and when Asians were not included in analyses. We repeated main effects models in samples stratified by race/ethnicity to interpret significant interaction terms. In these multivariate analyses, logistic regression coefficients and their standard errors were exponentiated and reported as odds-ratios (OR) and 95% confidence intervals (CI).

Finally, among those who prematurely left treatment, we examined racial/ethnic differences in perceived need for treatment, attitudinal reasons, and structural reasons for dropping out. We report percentages and standard errors (SEs) (or means and standard deviations (SDs) when appropriate). As in the analyses of barriers for seeking treatment, we also present F-tests for overall differences across racial/ethnic groups and the significant (Bonferroni adjusted) pair-wise comparisons for F tests with p values < 0.05.

To account for missing data, we applied multiple imputation using the chained equation method as implemented in Stata. Statistical significance was evaluated using 0.05-level two-sided tests implemented in the Stata software system (StataCorp 2017) to adjust for the weighting and clustering of observations, as well as for multiple imputation and small sample size.

Results

Reasons for Not Seeking to Treatment

In total, there were 13,775 CPES respondents who met criteria for at least one 12-month disorder. White respondents were significantly more likely to have a 12-month disorder (20.2%) than Latinos (16.2%), Blacks (15.4%), and Asians (8.8%; $F_{3137} = 40.1$, $p < 0.001$). The majority (67.6%) met criteria for a 12-month anxiety disorder, 44.5% for a mood disorder, 17.7% for a substance disorder, and 2.8% for an externalizing disorder. Among these, 52.4% did not receive any treatment in the past 12-months. Those with externalizing disorders were most likely to go without treatment (62.2%), as compared to those with substance (58.4%), anxiety (50.6%), and mood disorders (40.0%). Latinos with 12-month disorders were more likely to indicate that they did not receive treatment (61.9%) than Blacks (52.5%) and Whites (51.0%); there were not significant differences between other racial/ethnic groups and Asians (59.2%; $F_{3137} = 5.54$, $p < 0.001$).

Almost half of respondents (43.1%) with a 12-month disorder who received no treatment indicated that they had no/low perceived need for treatment (Table 1). Perception of need was significantly associated with respondent race/

Table 1 Barriers to treatment in the past 12-months among respondents with a 12-month disorder who did not use services ($n = 1417$)

Barrier	Total % (SE)	Asian % (SE) ($n = 111$)	Latino % (SE) ($n = 259$)	Black % (SE) ($n = 413$)	White % (SE) ($n = 634$)	F, p value	Significant group differences ^a
No/low perceived need	43.1 (1.8)	68.6 (5.7)	57.9 (2.9)	44.1 (3.0)	39.9 (2.4)	12.22*, $p < .001$	B + W < A + L
Structural barriers	20.6 (2.4)	7.8 (5.1)	21.7 (4.8)	21.2 (3.5)	20.6 (3.0)	1.86, $p = .014$	
Financial	14.8 (1.9)	7.8 (5.1)	16.4 (3.7)	13.9 (2.9)	14.8 (2.4)	0.57, $p = 0.63$	
Availability	12.3 (1.8)	6.6 (5.0)	13.6 (4.6)	11.4 (2.6)	12.3 (2.2)	0.39, $p = 0.76$	
Transport	6.0 (1.1)	6.6 (5.0)	2.5 (1.9)	6.7 (2.1)	6.3 (1.5)	1.11, $p = 0.35$	
Inconvenient	8.4 (1.5)	6.6 (5.0)	8.8 (3.7)	6.5 (1.9)	8.6 (1.9)	0.26, $p = 0.85$	
Attitudinal barriers	94.1 (1.1)	82.9 (6.4)	67.9 (5.8)	99.0 (0.6)	96.5 (1.1)	12.16*, $p < .001$	B + W > L
Handle on own	71.2 (1.6)	68.0 (7.8)	48.7 (6.2)	70.1 (4.2)	73.9 (1.8)	5.48*, $p < .001$	B + W > L
Treat ineffective	18.7 (1.5)	15.0 (7.7)	19.2 (5.6)	23.0 (4.0)	18.1 (1.7)	0.50, $p = 0.69$	
Stigma	8.6 (1.4)	1.7 (1.7)	10.1 (4.3)	11.2 (2.7)	8.2 (1.7)	4.26*, $p = 0.01$	B + W > A
Thought get better	11.5 (1.9)	0.0 (0.0)	11.5 (4.1)	15.0 (2.7)	11.3 (2.4)	22.13*, $p < .001$	L + B + W > A
Problem not severe	12.8 (1.5)	6.4 (3.8)	11.6 (2.9)	14.0 (3.5)	12.9 (1.8)	0.9, $p = 0.44$	

* $p \leq .05$ ^aWhere differences are statistically significant, notation indicates the results of post-hoc analyses determining whether Asian (A), Latino (L), Black (B), or White (W) respondents were more or less likely to report barriers

ethnicity. Asians and Latinos more often reported no/low perceived need for treatment (68.6% and 57.9%, respectively) as compared to Whites (39.9%) and Blacks (44.1%; $F_{3135.04} = 12.22$, $p < 0.001$). Among those who reported a need for treatment, respondents in all racial/ethnic groups more often reported attitudinal barriers (94.1%) than structural barriers (20.6%). Latinos reported attitudinal barriers less often (67.9%, respectively) than Whites (96.5%) and Blacks (99.0%; $F_{3122.02} = 12.16$, $p < 0.001$). The most common reason for not seeking treatment was wanting to handle problems on their own (71.2%). This desire was reported significantly more frequently by Whites and Blacks (73.9 and 70.1%, respectively) than Latinos (48.7%; $F_{3122.04} = 5.48$, $p < 0.001$). Whites, Blacks, and Latinos were more likely to report that they did not seek treatment because they thought the problem got better on its own (11.3–15.0%), compared to Asians (0.0%; $F_{3122.04} = 22.13$, $p < 0.001$). Finally, Whites and Blacks more often reported that they did not seek treatment because of stigma (8.2% and 11.2%, respectively) than Asians (1.7%; $F_{3122.05} = 4.26$, $p = 0.01$).

In models controlling for other socio-demographic covariates, county-level covariates, and disorders (number and severity), race/ethnicity was associated with no/low perceived need ($F_{3135.03} = 20.91$, $p < 0.001$) and, among those with perceived need, attitudinal barriers ($F_{3120.01} = 9.44$, $p < 0.001$), but not structural barriers (Table 2). Asians and Latinos were more likely to report no/low perceived need for treatment than Whites (OR 4.5, CI 2.0–10.3 for Asians; OR 4.3, CI 2.9–6.6 for Latinos). Latinos were less likely to report attitudinal barriers than Whites (OR 0.1, CI 0.0–0.3).

Several other covariates were associated with barriers to treatment. No/low perceived need was associated with being

male, having more years of education, reporting lower personal earnings, and living in a county with a lower density of Latinos. As expected, people with a higher number of mood, anxiety, and substance use disorders were more likely to perceive a need for treatment. Among those with perceived need for treatment, those with higher personal earnings were more likely to report attitudinal barriers, whereas having a higher number of mood disorders was associated with reduced reports of attitudinal barriers. Further, among those perceiving a need for treatment, having a severe disorder and having a higher number of anxiety disorders were associated with increased reports of structural barriers, whereas living in a rural, rather than metropolitan, area was associated with reduced reports of structural barriers.

We also tested interactions between race/ethnicity and each of the other covariates and disorder variables in predicting perceived need as well as structural, and attitudinal barriers. There were no significant interactions between race/ethnicity and other covariates or disorder variables in predicting perceived need or attitudinal barriers. However, respondent age ($F_{6111.78} = 3.81$, $p < 0.001$), education ($F_{6111.77} = 2.99$, $p = 0.01$), and urbanicity ($F_{2112.03} = 4.94$, $p = 0.01$) interacted with race/ethnicity in predicting perceived structural barriers. For age, more structural barriers were reported among younger/middle aged (< age 60) than older (\geq age 60) adults, and this difference was greater among Black (OR 54.1, CI 2.4–1,110.5 for ages 18–29; OR 200.0 CI 10.1–3944.4 for ages 30–44; OR 150.0, CI 7.1–3183.5 for ages 45–59) than Latino (OR 39.3, CI 2.0–762.4 for ages 30–44; other groups non-significant) and White (OR 7.2, CI 1.2–43.6 for ages 18–29; OR 5.5, CI 1.2–26.0 for ages 45–59; ages 30–44 non-significant) respondents. For education, greater structural

Table 2 Associations of demographic predictors with barriers to treatment ^a (*n* = 1417)

	No/low perceived need OR (CI)	Any structural barriers OR (CI)	Any attitudinal barriers OR (CI)
Age (60+, reference)			
18–29	0.7 (0.4–1.2)	6.4* (1.5–28.2)	0.2 (0.0–1.8)
30–44	0.6 (0.3–1.0)	5.2* (1.4–19.7)	0.2* (0.1–0.9)
45–59	0.6 (0.3–1.1)	5.8* (1.5–22.2)	0.3 (0.1–1.2)
F, <i>p</i> value	1.37 (<i>p</i> = 0.26)	2.33 (<i>p</i> = 0.08)	1.66 (<i>p</i> = 0.18)
Gender (male, reference)			
Female	0.7* (0.5–0.9)	1.5 (0.9–2.6)	1.0 (0.4–2.9)
Race/ethnicity (White, reference)			
Asian	4.5* (2.0–10.3)	0.4 (0.1–1.5)	0.3 (0.1–1.3)
Latino	4.3* (2.9–6.6)	0.8 (0.2–2.5)	0.1* (0.0–0.3)
Black	1.5 (0.9–2.6)	0.5 (0.2–1.7)	4.8 (0.7–33.3)
F, <i>p</i> value	20.91 (<i>p</i> < 0.001)	0.81 (<i>p</i> = 0.49)	9.44 (<i>p</i> = 0.00)
Education (16+ years, reference)			
0–11	0.6* (0.3–1.0)	1.1 (0.5–2.3)	0.6 (0.2–1.8)
12	0.9 (0.5–1.6)	1.0 (0.5–2.1)	0.3* (0.1–1.0)
13–15	1.3 (0.8–2.0)	1.0 (0.4–2.3)	0.3* (0.1–0.9)
F, <i>p</i> value	5.20 (<i>p</i> < 0.001)	0.05 (<i>p</i> = 0.98)	1.68 (<i>p</i> = 0.17)
Income (continuous)			
Personalized earnings	0.8* (0.6–1.0)	1.0 (0.7–1.6)	2.5* (1.2–4.9)
Disorder severity (mild, reference)			
Severe	0.7 (0.4–1.1)	4.1* (2.2–7.8)	3.2 (0.7–13.5)
Moderate	0.9 (0.6–1.2)	1.5 (0.9–2.7)	2.7* (1.1–6.8)
F, <i>p</i> value	1.33 (<i>p</i> = 0.27)	12.46 (<i>p</i> < .001)	2.48 (<i>p</i> = 0.09)
Marital status (never married, reference)			
Married/cohabitating	1.0 (0.7–1.6)	1.4 (0.7–2.6)	0.8 (0.2–3.4)
Separated/widowed/ divorced	0.8 (0.5–1.4)	1.5 (0.6–3.8)	0.6 (0.1–5.7)
F, <i>p</i> value	1.00 (<i>p</i> = 0.37)	0.55 (<i>p</i> = 0.58)	0.09 (<i>p</i> = 0.91)
# of disorders (Continuous)			
# mood	0.5* (0.4–0.7)	1.6 (1.0–2.8)	0.4* (0.2–0.9)
# anxiety	0.7* (0.5–0.8)	1.5* (1.1–2.0)	0.9 (0.5–1.6)
# substance use	0.5* (0.3–0.9)	1.4 (0.8–2.3)	1.5 (0.4–6.2)
# externalizing	2.0 (0.7–5.9)	3.6 (0.9–14.5)	– ^b
Poverty (% in county, continuous)			
% Below poverty level	0.9 (0.2–3.9)	6.8 (0.6–78.0)	0.0 (0.0–5.1)
Race/ethnicity (% in county, continuous)			
% Latino	0.4* (0.2–1.0)	0.7 (0.1–4.4)	2.7 (0.3–22.5)
% Asian	0.5 (0.1–4.8)	0.1 (0.0–2.6)	0.0 (0.0–1.1)
% Black	1.0 (0.4–2.7)	0.8 (0.1–5.7)	3.1 (0.0–249.2)
Urbanicity (Metro, reference)			
Urban	1.3 (1.0–1.8)	0.9 (0.4–2.4)	0.9 (0.1–6.0)
Rural	1.3 (0.7–2.6)	0.3* (0.1–1.0)	– ^b
F, <i>p</i> value	1.42 (<i>p</i> = 0.25)	2.11 (<i>p</i> = 0.13)	0.01 (<i>p</i> = 0.91)

*Significant at the 0.05 level, two-sided test

^aBased on multivariate logistic regression models^bNumber of externalizing disorders and rural urbanicity were dropped from analysis because they predict the outcome perfectly

barriers were reported by respondents with less than a high school education relative to those with 16+ years of education, but only among Blacks (OR 7.4, CI 1.2–45.2). For urbanicity, greater structural barriers were reported by urban relative to metropolitan respondents, but only among Latinos (OR 19.2, CI 4.1–88.7; rural was omitted because there were no observations in the Latino-rural interaction; results available on request).

Reasons for Dropping Out of Treatment

Among those in the CPES with a 12-month disorder who received treatment in the past 12-months, 115 participants (9.3%) reported dropping out of treatment (sample sizes by racial/ethnic group were small: $n=13$ Asians, $n=24$ Latinos, $n=28$ Blacks, $n=50$ Whites; Table 3). The total number of reasons for dropout was significantly higher among Asian ($M=3.69$, $SD=1.35$) and Latino ($M=2.95$, $SD=0.37$) than Black ($M=1.73$, $SD=0.31$) and White ($M=1.79$, $SD=0.15$) respondents ($F_{3,69,08}=3.61$, $p=0.02$). Among all respondents, no/low perceived need for treatment was the most common reason for dropout (30.1%). The majority reported at least one attitudinal reason (88.6%) and one-third (32.0%) reported a structural reason. There were significant racial/ethnic differences in reports of financial reasons for dropout ($F_{3,69,08}=3.77$, $p=0.01$), dropout because of availability of treatment ($F_{3,69,08}=4.29$, $p=0.01$), and dropout because of a negative experience ($F_{3,69,08}=6.72$, $p<0.001$).

Specifically, Asians were most likely to report dropout due to financial reasons (49.5%) as compared to Blacks (2.5%) and Asians were more likely to report dropout due to availability (59.1%) compared to Whites (6.6%). Black respondents were less likely to report dropping out because of negative experiences (1.0%) as compared to Whites (16.4%).

Discussion

In the current study, we investigate whether barriers to treatment and reasons for dropout differ by race/ethnicity. Our findings are consistent with previous studies (Mojtabai et al. 2011; Andrade et al. 2014) in documenting that the most common reason for not receiving treatment is no/low perceived need and that, among those who did perceive a need for treatment, attitudinal barriers were more common than structural barriers. Specifically, the most common attitudinal barrier was preferring to handle problems on ones own (Sunderland and Findlay 2013). Furthermore, as in prior studies (Mojtabai et al. 2011), we find that attitudinal reasons are the most common reasons for treatment dropout.

Several findings may have implications for reducing disparities in treatment access. First, we find that no/low perceived need is significantly more common among Asians and Latinos with a 12-month disorder who did not receive treatment than Blacks and Whites. This finding is a departure from Mojtabai et al.'s (2011) finding of no significant

Table 3 Reasons for dropping out of treatment among respondents with a 12-month disorder who discontinued treatment ($n=115$)

Barrier	Total % (SE)	Asian % (SE) ($n=13$)	Latino % (SE) ($n=24$)	Black % (SE) ($n=28$)	White % (SE) ($n=50$)	F, p value	Significant group differences ^a
No/low perceived need	30.1 (6.1)	37.1 (17.3)	36.7 (10.0)	45.4 (11.1)	25.9 (7.2)	0.86 $p=0.47$	
Structural barriers	32.0 (5.2)	59.1 (18.2)	55.7 (10.8)	24.3 (11.9)	28.4 (6.0)	2.50, $p=0.07$	
Financial	14.6 (4.2)	49.5 (21.4)	23.9 (11.1)	2.5 (2.2)	13.6 (5.1)	3.77*, $p=0.01$	A > B
Availability	12.0 (4.1)	59.1 (18.2)	34.3 (10.8)	9.4 (9.1)	6.6 (4.0)	4.29*, $p=0.01$	A > W
Transport/inconvenient	16.4 (3.1)	38.5 (24.6)	25.1 (11.0)	12.6 (9.1)	14.7 (3.2)	0.61, $p=0.61$	
Attitudinal barriers	88.6 (4.3)	81.5 (12.1)	95.8 (2.9)	90.4 (8.5)	87.6 (5.8)	0.94, $p=0.43$	
Handle on own	49.0 (7.1)	55.0 (19.8)	44.0 (11.1)	47.6 (11.9)	49.7 (9.3)	0.10, $p=0.96$	
Treat Ineffective	23.0 (4.4)	46.4 (22.3)	37.4 (12.1)	17.2 (7.3)	20.6 (5.4)	1.10, $p=0.36$	
Stigma	25.5 (7.2)	44.3 (22.9)	48.1 (11.1)	14.4 (9.3)	23.2 (9.8)	2.04, $p=0.12$	
Negative experience	16.7 (3.8)	46.4 (22.3)	26.9 (11.3)	1.0 (1.1)	16.4 (4.5)	6.72*, $p<.001$	W > B
Problem got better	41.1 (7.5)	29.6 (15.0)	55.7 (11.1)	68.6 (11.5)	34.5 (9.0)	2.45, $p=0.07$	
Total number of reasons mean (SD)	1.98 (0.1)	3.69 (1.4)	2.95 (0.4)	1.73 (0.3)	1.8 (0.2)	3.61*, $p=0.02$	L > W

* $p \leq .05$

^aWhere differences are statistically significant, notation indicates the results of post-hoc analyses determining whether Asian (A), Latino (L), Black (B), or White (W) respondents were more or less likely to report barriers

racial/ethnic differences in perceived need for treatment and also differs from the results of Breslau et al. (2017), who found that perceived need was lower in all racial/ethnic groups studied as compared to Whites. Some have speculated that differences in perceived need for treatment may explain racial/ethnic disparities in treatment access (Alegria et al. 2002; Breslau et al. 2017), and perceived need may have contributed to the lower treatment utilization we observed among Latinos. Our finding that Asians and Latinos report lower perceived need than Whites and Blacks supports recommendations for researchers and clinicians to pay greater attention to cultural perceptions of mental health need, as well as culturally informed approaches to outreach and engagement in interventions (Breslau et al. 2017).

A second key finding is that reports of attitudinal barriers varied by race/ethnicity, with Asians less likely and Latinos far less likely to report attitudinal barriers than Whites and Blacks. Examination of Table 1 suggests that Latinos were the least likely to report that they wanted to handle problems on their own (the most common attitudinal barrier). Given evidence suggesting that Latinos often utilize informal sources of support (e.g., social networks, family; Cabassa et al. 2006), it is possible that Latinos might have sought informal rather than formal supports, and that they discussed problems with their family and friends, rather than handling problems on their own. Importantly, a prior study found that Latinos with greater family cohesion had a reduced likelihood of mental health treatment receipt (Chang et al. 2013).

Third, race/ethnicity was not significantly associated with structural barriers overall, but the association of several socio-demographic factors with perceived structural barriers varied by race/ethnicity. Respondents under the age of 60 were significantly more likely to report structural barriers than those over the age of 60, particularly among Blacks. Prior research has documented lower rates of mental health treatment use among adults under the age of 30 and over the age of 60, as compared to other adults (Neighbors et al. 2007). Results here suggest that structural barriers might have less of an impact on older Black adults who need care. Having not completed a high school education was also associated with increased reports of structural barriers, but again only among Blacks. This result is also consistent with prior findings that fewer years of education are associated with decreased likelihood of mental health treatment use (Neighbors et al. 2007). These results highlight the importance of efforts to reduce structural barriers to treatment for Blacks, particularly those who may lack available resources and encounter substantial challenges when navigating the healthcare system (Snowden 2001). Finally, structural barriers were more often reported by Latinos living in urban than metropolitan counties. This finding is consistent with prior research using the CPES that found respondents living in large cities are more likely to receive treatment than those in smaller counties (Cook et al. 2013).

The result here is specific to Latinos and might reflect the difficulty in finding providers who speak Spanish in smaller cities (Snowden and McClellan 2013). Although other studies have identified no racial/ethnic differences in CPES respondent reasons for dropping out of treatment (Mowbray et al. 2018), we find that Latinos report a greater number of reasons for dropout than Whites. We also find that Asians are more likely to report dropping out because of provider availability than Whites and are more likely to report dropping out for financial reasons than Blacks. Further, Blacks are less likely to report dropping out due to negative experiences than other racial/ethnic groups. The latter two findings are unexpected. Asians in the full sample reported higher income than Latinos and Blacks, and prior studies have found that Blacks receive lower quality of mental health care than other racial/ethnic groups (Young et al. 2001). Results here may be due to the very small number of Asians ($n=13$) and Blacks ($n=28$) with 12-month disorders who sought treatment and then dropped out. Given that many Black respondents with 12-month disorders did not enter treatment, it is possible that those who did access care were predisposed to perceive it to be a positive and effective experience. Indeed, the small number of Black respondents who dropped out of treatment were more likely to report that they left treatment because the problem got better than did respondents from other racial/ethnic groups.

Several study limitations are worth noting. First, disorders, treatment, treatment barriers, and reasons for dropout were all based on retrospective reports over the past 12-months, and thus the responses might be susceptible to recall bias. Second, respondents were provided with a list of barriers to treatment seeking and treatment dropout that were based on previous research. It is likely that there were other barriers to treatment and reasons for dropout that were not included in the current study. Some of these barriers were included in individual surveys (e.g., “I thought I would not be able to communicate because of linguistic barriers” was included in the NLAAS), but were not included in the current study, because data were not available across all three CPES studies. Third, there is a need for more conceptual clarity around the intersection of no/low perceived need and some of the attitudinal barriers assessed in the current study, specifically items assessing whether the respondent did not receive treatment because they perceived the problem got better on their own or that the problem was not severe. We conducted a series of sensitivity analyses in which we removed these specific items from the measure of attitudinal barriers. We found no changes in patterns of racial/ethnic differences in reports of any attitudinal barriers, however, this analysis resulted in some differences in the association of other covariates with attitudinal barriers (results available on request).

Fourth, country-level indicators are based on Area Resource File counties, however, they might not reflect the geographic areas in which respondents typically access

treatment. Fifth, although the CPES is comprised of the NCS-R, NSAL, and NLAAS, because of inconsistencies across the three studies, we only included diagnoses that were assessed across the three datasets and covariates that were available in all datasets. This limited our analyses and means that some results in the current report differ from those in reports published from the individual studies. Sixth, we had a limited sample in each racial/ethnic group for the analysis of treatment dropout. Finally, policy changes (for example, the implementation of the Affordable Care Act) occurred after these data were collected and the dynamic nature of US healthcare policies means that it remains unclear whether and how they will impact barriers to treatment and disparities in treatment access. Relatedly, although these data were collected over a decade ago, this dataset remains the largest and most racially/ethnically diverse dataset providing information on DSM disorders and treatment utilization. Documenting disparities in barriers to care in this dataset provide a critical baseline for understanding subsequent policy changes and determining changes over time, when future national epidemiological studies are conducted. The findings from this study suggest a need for increased public discourse about culturally appropriate treatment engagement options (Mojtabai et al. 2011). It is necessary to develop interventions that target perceptions of need among racial/ethnic minorities and the most common attitudinal and structural barriers. Several strategies have been developed that are promising approaches for eliminating disparities and increasing engagement among minority patients (Alegría et al. 2014, 2018; Sanchez et al. 2015; Lopez et al. 2018). Results of the current study suggest a need to test these approaches among subgroups who experience the greatest barriers to care (e.g., Blacks with less than high school education). Using internet-based interventions (e.g., Ebert et al. 2015) might also decrease some barriers to treatment, but research is needed to determine their effectiveness and feasibility for the most vulnerable populations.

Funding Research reported in this publication was supported by the National Institute on Minority Health and Health Disparities (NIMHD) of the National Institutes of Health under Award Number R01MD009719. Dr Jackson is supported by the NIMHD Center for Integrative Approaches to Health Disparities (P60-MD002249). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Compliance with Ethical Standards

Conflict of interest In the past 3 years, Dr. Kessler received support for his epidemiological studies from Sanofi Aventis; was a consultant for Johnson & Johnson Wellness and Prevention, Shire, Takeda; and served on an advisory board for the Johnson & Johnson Services Inc. Lake Nona Life Project. Kessler is a co-owner of DataStat, Inc., a mar-

ket research firm that carries out healthcare research. The other authors declare no competing interests.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Research Involving Human Participants All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Appendix

Barriers to use and reasons for dropout treatment: CPES surveys.

Barriers to use	Reasons for dropout
<i>Low perceived need</i>	<i>Low perceived need</i>
The problem went away by itself, and I did not really need help	You didn't need help anymore
<i>Structural barriers</i>	<i>Structural barriers</i>
My health insurance would not cover this type of treatment	The therapist or counselor left or moved away
I was concerned about how much money it would cost	The policies were a hassle
I was unsure about where to go or who to see	There were problems with lack of time, schedule change, or lack of transportation
I thought it would take too much time or be inconvenient	You moved
I could not get an appointment	Treatment was too expensive
I had problems with things like transportation, childcare, or scheduling that would have made it hard to get treatment	Your health insurance would not pay for more treatment
<i>Attitudinal barriers</i>	<i>Attitudinal barriers</i>
I thought the problem would get better by itself	You got better
I didn't think treatment would work	You were not getting better
I was concerned about what others might think if they found out I was in treatment	You wanted to handle the problem on your own
I wanted to handle the problem on my own	You had bad experiences with the treatment providers
I was scared about being put in the hospital against my will	You were concerned about what people would think if they found out you were in treatment
I was not satisfied with available services	You were treated badly or unfairly
I received treatment before and it did not work	You felt out of place
The problem didn't bother me very much	Your family wanted you to stop

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