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Racial/Ethnic Differences in Perceived Reasons for Mental Health Treatment in US Adolescents With Major Depression

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Abstract

Objective—Racial/ethnic differences in the course of treatment for a major depressive episode (MDE) among adolescents may arise, in part, from variation in the perceived rationale for treatment. We examined racial/ethnic differences in the perceived reasons for receiving mental health (MH) treatment among adolescents with an MDE.

Method—2,789 adolescent participants who experienced an MDE and received MH treatment in the past year were drawn from the 2005–2008 National Survey on Drug Use and Health. Adolescents reported the settings where they received care and reasons for their most recent visit to each setting. Distributions of specific depressive symptoms were compared across racial/ethnic groups. Racial/ethnic differences in endorsing each of eleven possible reasons for receiving treatment were examined using weighted probit regressions adjusted for sociodemographic characteristics, health and mental health status, treatment setting, and survey year.

Results—Despite similar depressive symptom profiles, Hispanic adolescents were more likely than whites to endorse “breaking rules” and “had gotten into physical fights” as reasons for MH

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treatment. Black adolescents were more likely than whites to endorse “problems at school,” but less likely to endorse “feeling very afraid or tense” or “eating problems” as reasons for treatment. Asian adolescents were more likely to endorse “problems with people other than friends or family” but less likely than whites to endorse “suicidal thoughts/attempt” and “feeling depressed” as reasons for treatment.

Conclusion—Racial/ethnic minorities were more likely than whites to endorse externalizing or interpersonal problems and less likely to endorse internalizing problems as reasons for MH treatment. Understanding racial/ethnic differences in the patient’s perceived treatment rationale can offer opportunities to enhance outcomes for depression among diverse populations.

Keywords

Race/ethnicity; mental health services; depression; perceived treatment rationale

INTRODUCTION

Although major depressive episodes (MDEs) affect 8% of adolescents between the ages of 12 and 17 in a given year,¹ the majority of adolescents who experience an MDE do not receive any mental health (MH) treatment.^{2,3} Not only are treatment rates low for all adolescents, but research has documented significantly lower rates of MH treatment among black, Hispanic, and Asian youth with depression compared to their non-Hispanic white counterparts.^{3,4} In addition to differences in the likelihood of receiving any MH treatment, research also suggests racial/ethnic differences exist in the course of MH treatment for adolescents with depression, including the diagnoses given by clinicians,^{5,6} the modality of treatment provided (e.g., antidepressant medication),^{3,7} and treatment duration.^{7,8}

Racial/ethnic differences in the course of treatment for an MDE among adolescents could arise, in part, from group variation in their perceived understanding of the reasons for treatment. More specifically, research on mediators of treatment response in depression has suggested that patient perception of the treatment rationale as credible (i.e., it identifies relevant problem symptoms and a strategy to improve them) early in treatment is associated with patients’ positive expectancies early treatment response, and improved outcomes post treatment.⁹ Clinician awareness of racial/ethnic patterns of perceived problems may therefore help clinicians to explore and identify the problems driving the patient to seek treatment, and may help in developing credible treatment rationales. Thus, information on racial/ethnic differences in the perceived reasons for obtaining care could inform clinicians’ patient-centered strategies for enhancing quality of care among diverse populations.

Although there are a number of reasons to believe there may be differences in how depressed adolescents across diverse populations understand the MH treatment process, there is little evidence to date on whether these differences exist. Cultural differences in the conceptualization of depression as an illness, in symptom expression, in the stigma concerning MH treatment, and in the process of engaging the MH care system could all affect the perceived rationale for treatment among depressed adolescents from diverse backgrounds.^{10–12} To address this gap in the literature, we use data from a large, nationally representative study to derive a sample of adolescents with MDE who received treatment,

and we examine the association between race/ethnicity and the perceived reasons for receiving MH services.

METHOD

Data

We pooled four years of data (2005–2008) from the National Survey on Drug Use and Health (NSDUH), an annual, nationally representative, cross-sectional survey. NSDUH samples non-institutionalized individuals ages 12 and older in the US civilian population from all 50 states and the District of Columbia; adolescents between the ages of 12 and 17 were oversampled. The survey includes a series of questions to assess whether the adolescent respondent experienced an MDE in the previous year according to *DSM-IV* criteria, as well as information about MH services utilization, the perceived reasons for MH treatment, socio-demographic characteristics, substance use and other externalizing behaviors, and health status.

Study Sample

Our analytic sample is derived from the subsample of adolescents who experienced an MDE based on *DSM-IV* criteria and received MH treatment during the year. Past-year MDE was assessed with an adolescent depression module adapted from the depression section of the National Comorbidity Survey-Adolescent.¹³ This module is based on a modified version of the World Health Organization Composite International Diagnostic Interview-Short Form (CIDI-SF),¹⁴ which has good psychometric concordance with the full CIDI.¹⁴ Furthermore, research has indicated a high concordance between the full CIDI and independent clinical diagnoses in the adolescent population.¹⁵

Adolescents were also asked if they received treatment or counseling for their behavior and emotions that were not caused by alcohol or drugs (i.e., MH treatment). Racial/ethnic differences in the prevalence of MDE and the receipt of treatment in these data have been documented elsewhere.³ Of the 71,183 adolescents who participated in NSDUH between 2005 and 2008, 6,031 (8.5%) were identified who had experienced a past-year MDE; of adolescents with an MDE, 2,933 (48.6%) also received MH treatment during that year. Of these, 81 did not indicate any reasons for treatment (dependent variables), and 63 were missing information on at least one key explanatory measure (MDE-related impairment [n=13], externalizing behavior(s) [n=26], and/or treatment setting [n=24]) resulting in an analytic sample of 2,789 adolescents for statistical analyses.

Measures

Perceived Reasons for Mental Health Treatment—Adolescents were asked whether they received treatment because of problems with behavior or emotions (not caused by alcohol or drugs) from one of nine settings or providers (hospital, residential treatment, day treatment program, mental health clinic, private therapist, in home therapist, doctor's office, foster care/therapeutic foster home, school). For each setting in which they indicated they received treatment, they were asked about the reason(s) they received treatment during their last visit and offered the following choices: (1) thought about killing yourself or tried to kill

yourself (i.e., suicidal thoughts/attempt); (2) felt depressed; (3) felt very afraid or tense; (4) were breaking rules or “acting out”; (5) had eating problems; or (6) some other reason. Adolescents could endorse multiple reasons, and if a respondent indicated “some other reason,” an additional set of choices was offered: (7) had trouble controlling your anger; (8) had gotten into physical fights; (9) had problems at home or with family; (10) had problems with your friends; (11) had problems with people other than your friends or family; (12) had problems at school; (13) some other reason. There were no racial/ethnic differences in the likelihood that an adolescent indicated “other reason” in the first set of choices and was offered the second set of choices. We combined reasons 9 and 10 into a single category of “problems with family/friends” after preliminary multivariate analyses indicated there were no racial/ethnic differences in the patterns of responses, resulting in a total of eleven possible reasons. Each reason was coded with a dichotomous indicator if it was endorsed for any of the settings in which treatment was received.

Race/Ethnicity—Race/ethnicity was assigned by the adolescent respondent and grouped into five mutually exclusive categories: non-Hispanic white, Hispanic, black, Asian, and other race/ethnicity. Those classified as “other race/ethnicity” reported more than one racial/ethnic background or a group with small sample sizes (i.e., Native American/Alaskan Native; Native Hawaiian/Other Pacific Islander).

Socio-Demographic and Health Status Measures—Socio-demographic measures included age in years, an indicator for female gender, an indicator for adolescents who live with both parents versus not, a categorical measure of family income (<\$20,000, \$20,000–\$50,000, \$50,000–\$75,000, >\$75,000), and a categorical measure of health insurance status (any private insurance, public insurance, no insurance, insurance status unknown).

Depression-related impairment was assessed by a dichotomous indicator of self-reported severe or very severe impairment (versus no, mild, or moderate impairment) in at least one of four domains: chores at home; school or work; family relationships; or social life. General health status was measured with a dichotomous indicator for fair or poor self-reported health status (versus good, very good, or excellent health).

To control for the presence and severity of alcohol and marijuana use disorders, we created a symptom count for each disorder using 10 of the 11 *DSM-V* symptoms for an alcohol use disorder and 9 of the 10 *DSM-V* symptoms for a marijuana use disorder available in the data, respectively.¹⁶ We also included a dichotomous indicator for those who reported any past year use of an illicit substance other than alcohol or marijuana, including a pain reliever, sedentary tranquilizer, stimulant, and/or sedative.

Because NSDUH does not contain direct measures of externalizing MH disorders among adolescents such as attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), or conduct disorder (CD), several proxy measures of externalizing behaviors were included in the analyses. Four indicators assessed whether the adolescent reported that, in the past year, they: (1) argued or had a fight with a parent at least ten times; (2) had a serious fight at school/work, participated in a group fight, and/or attacked someone with the intent to seriously harm him or her (i.e., participated in a fight); (3) stole or tried to

steal anything worth more than \$50; and/or (4) sold illegal drugs. A categorical measure also assessed whether adolescents reported that they had been arrested and booked for breaking the law in the past 12 months (not arrested and booked, arrested and booked at least once, unknown whether arrested and booked).

Treatment Settings—Because the adolescent’s perception about the MH treatment process may differ depending on the settings in which treatment was received, four indicators control for where the adolescent received past-year MH treatment: (1) inpatient setting (i.e., hospital, residential treatment center); (2) outpatient setting (day treatment program, mental health clinic, private therapist, in-home therapist, doctor’s office); (3) foster care/therapeutic foster home; (4) school setting. These measures are not mutually exclusive, as an adolescent may have received treatment in multiple settings.

Analysis

All analyses were conducted with Stata statistical software.¹⁷ Procedures accommodated the complex survey design in calculating error estimates and used sampling weights provided by NSDUH to adjust for differential subject probabilities of sampling selection, non-coverage bias, and non-response bias. Descriptive statistics were provided for all model covariates, and bivariate comparisons were made between each minority racial/ethnic group and non-Hispanic whites for all covariates using adjusted Wald tests. To assess whether there were systematic differences in the symptom distribution of MDE that could explain any group variation in the perceived reasons for treatment, we also compared the percentages of those who endorsed each of the possible nine criteria for MDE across racial/ethnic categories.

Finally, multivariate analyses were conducted with pooled-weighted probit regression models. Endorsement of each reason for receiving treatment was treated as the dichotomous dependent variable in a separate model, resulting in eleven models. For each model, the independent variables were race/ethnicity, sociodemographic characteristics (age, gender, family status, family income, health insurance status), health status, and mental health status (self-rated health, MDE impairment, substance use, behavioral problems). Models also controlled for the total number of reasons endorsed for treatment and survey year. Predicted percentages (Pct) of endorsing a reason for treatment and marginal effects for each racial/ethnic minority group relative to non-Hispanic whites were estimated using the multivariate model at the observed values of the covariates with the “margins” command. Model-adjusted marginal effects (ME) are presented with 95% CIs. Group differences were considered statistically significant when the CI of the ME excluded 0.

RESULTS

Sample Characteristics

More than three-fourths of adolescents who experienced an episode of MDE in the past year and received MH treatment were female, and the mean age of the analytic sample was 15 years old (Table 1). When comparing sociodemographic characteristics across racial/ethnic groups, black, Hispanic, and Asian adolescents had lower family incomes compared to non-Hispanic white adolescents ($p < .05$). Although there were no racial/ethnic differences in the

percentage that reported severe or very severe MDE-related impairment, a few differences were observed when examining substance use and other externalizing problems. When differences were present, racial/ethnic minorities generally reported lower levels of the externalizing problem compared to non-Hispanic white participants. For example, black and Asian adolescents had lower symptom counts for alcohol and marijuana use disorders compared to non-Hispanic white adolescents ($p < .05$).

Differences were also observed across racial/ethnic groups when examining the settings in which MH treatment was received (Table 1). Black participants were more likely to receive MH treatment in a school setting than non-Hispanic white peers (70.4% versus 54.1%, $p < .001$) but were less likely to receive MH treatment in an outpatient setting (68.6% versus 81.8%, $p < .001$). Hispanic adolescents (72.1%) were also less likely than non-Hispanic white peers (81.8%) to receive MH treatment in an outpatient setting ($p < .01$).

Each of the nine symptom criteria for an MDE had a high rate of endorsement, and there were few significant differences in the likelihood of endorsement of each symptom across racial/ethnic groups (Table 2). Black adolescents were more likely than non-Hispanic white peers to endorse loss of interest or pleasure in most things (98.7% versus 94.6%, $p < .001$), but were less likely to endorse feeling worthless as a symptom (62.7% versus 72.2%, $p < .05$). Asian participants were more likely than non-Hispanic white participants to report an inability to concentrate or make decisions, at 99.4% and 96.0%, respectively ($p < .001$). Other than a modestly lower number of depressive symptoms reported by Asian than by non-Hispanic white participants (7.3 versus 7.8 symptoms, $p < .05$), symptom counts did not differ among racial/ethnic minority groups. In supplemental analyses that examined the rate of endorsement of MDE symptoms among those who did not receive MH treatment (not shown), there were also very few significant differences across racial/ethnic groups.

Racial/Ethnic Differences in Reasons for Treatment

In bivariate (Table 3) comparisons, Hispanic participants were less likely than non-Hispanic white participants to report receiving MH treatment because they had suicidal thoughts/attempt, felt depressed, or felt very afraid or tense, but more likely to report receiving treatment because they got into physical fights and because they broke the rules ($p < .05$). In the multivariate model (Table 4), the findings for the three internalizing problems (suicidal thoughts/attempt, felt depressed, or felt very afraid/tense) were no longer significant, but the findings for the two externalizing behaviors (i.e., participated in physical fights: Marginal Effect [ME]= 3.5 percentage points; broke the rules: ME= 6.0 percentage points) remained statistically significant ($p < .05$). More specifically, these marginal effects indicate the difference in model-adjusted percentage of Hispanic participants that endorsed a specific reason for MH treatment compared to non-Hispanic white participants. As an example, the model-adjusted percentage of non-Hispanic white participants that reported receiving MH treatment for breaking the rules was 26.1%, and the model-adjusted percentage for Hispanic participants was 6.0 percentage points greater, or 32.1%. These findings remained unchanged in sensitivity analyses that also controlled for language of interview (i.e., interview conducted in Spanish versus English).

In bivariate comparisons (Table 3), black participants were less likely than non-Hispanic white participants to report receiving MH treatment because they felt very afraid or tense or because they had eating problems but were more likely to report receiving treatment because they had trouble controlling their anger or had problems at school ($p < .05$). In multivariate models (Table 4), all but one of these differences remained statistically significant. After adjusting for confounders, black participants were less likely than non-Hispanic white participants to report receiving MH treatment because they felt very afraid or tense (ME = -8.2 percentage points, $p < .05$) or because they had eating problems (ME = -11.1 percentage points, $p < .001$). However, black participants were more likely than non-Hispanic white participants to report receiving MH treatment due to problems at school (ME = 5.3 percentage points, $p < .05$).

Compared to non-Hispanic white participants, Asian adolescents were less likely to endorse five perceived reasons for receiving MH treatment in the unadjusted comparisons (Table 3): had suicidal thoughts/attempt; felt depressed; had trouble controlling anger; got into physical fights; and had problems at school ($p < .05$). In the multivariate models (Table 4), these differences remained statistically significant for suicidal thoughts/attempt (ME = -21.1 percentage points, $p < .01$), felt depressed (ME = -12.7 percentage points, $p < .05$), and got into physical fights (ME = -10.6 percentage points, $p < .01$); the marginal effect (-7.2 percentage points) associated with “trouble controlling anger” as a reason for MH treatment approached statistical significance ($p < .10$). Furthermore, in the multivariate model, Asian participants were more likely than non-Hispanic white peers to report receiving MH treatment due to problems with some person other than their family members or friends (ME = 15.6 percentage points, $p < .05$).

Sensitivity analyses were also conducted for those with complete information on all study variables (i.e., no missing information on insurance status and arrested/booked, $n = 2,660$). Results from these analyses did not differ in a meaningful way compared to the main findings presented above.

DISCUSSION

Results from this national survey indicate that among treated adolescents with depression, there were distinct racial/ethnic differences in perceived reasons for their MH treatment. Compared to non-Hispanic white participants, some racial/ethnic minority groups were less likely to endorse reasons for treatment involving internal emotional distress, such as feeling depressed, afraid, or tense. By contrast, racial/ethnic minorities were generally more likely to report reasons for treatment involving externalizing or interpersonal problems—such as getting into a fight or having problems at school. These differences in perceived reasons for treatment existed despite similar reports of specific symptoms of depression among racial/ethnic groups. Our findings raise further questions about why racial/ethnic groups differ in their perceived reasons for treatment.

All three minority groups were less likely than the non-Hispanic white group to endorse at least one reason for treatment that involves an internalizing symptom of distress in the unadjusted comparisons: feeling very afraid or tense (Hispanic and black participants);

feeling depressed (Hispanic and Asian participants); or having suicidal thoughts or an attempt (Hispanic and Asian participants). After adjusting for socio-demographic characteristics, health status, and mental health status, the differences for Asian and black participants remained significant and sizeable. Results also indicated that racial/ethnic minority adolescents with MDE were generally more likely than non-Hispanic white participants to indicate that they received MH treatment due to externalizing and interpersonal problems. Unlike the findings for internalizing symptoms of distress, these findings remained significant (Hispanic participants: involved in a fight, broke the rules; black participants: problems at school) or became significant (Asian participants: problems with other person) in the adjusted model.

These findings raise questions as to why, in a sample of adolescents with past-year MDE who all received MH services, racial/ethnic differences were observed in the perception of why MH treatment was received. One possibility could entail differences in the underlying psychopathology of these adolescents. However, there were very few differences in the distribution of MDE symptoms across racial/ethnic groups, and regression models controlled for MDE-related impairment, substance use, and proxy measures of externalizing problems. Although higher rates of endorsement of externalizing problems as reasons for treatment among racial/ethnic minorities may reflect unmeasured differences in the prevalence of comorbid MH conditions (e.g., ADHD, ODD), national data indicate that there are no racial/ethnic differences in the prevalence of the most common behavioral disorders among adolescents in a community sample.¹⁸ Moreover, in our sample, there was only one instance in which a racial/ethnic minority group was significantly more likely to endorse an externalizing problem compared to non-Hispanic white participants; in all other cases, there were either no statistical differences, or the externalizing problems were less likely to be endorsed by racial/ethnic minorities. Considered together, it is unlikely that unmeasured differences in the underlying psychopathology would entirely account for differences we observed in adolescents' perception of the MH treatment process.

Kleinman distinguishes the concept of disease as the malfunctioning or maladaptation of biological or psychological processes from the concept of illness as the personal and cultural reaction to the disease.¹⁹ Some of the study findings – particularly those for Asian adolescents -- could reflect cultural differences in explanatory models of depression as an illness.^{10,11,19} In the adjusted model, Asian adolescents were less likely than white adolescents to endorse “suicidal thoughts/attempt” and “feeling depressed” as reasons for treatment, but more likely to endorse interpersonal problems with individuals other than family/friends. Asian cultural health beliefs that stem from the paradigm of mind-body holism do not make a clear distinction between psychological and physical health problems.²⁰ Although evidence is mixed,²¹ some researchers have described how Asian patients may be more likely than white patients to conceptualize and experience depression and distress in terms of somatic symptoms (i.e., discomfort, feelings of inner pressure, pain, dizziness, and fatigue) as opposed to psychological symptoms (i.e., feeling sad).^{19,20} Other research has suggested that Asian individuals may be more likely than White individuals to conceptualize depressive symptoms as social^{22,23} and moral problems.²²

Study findings could also reflect differences in culturally-based stigma and attitudes about depression within adolescents, families, and communities. For some Asian youths, seeking MH treatment from a professional and receiving a MH diagnosis could cause an individual to “lose face” and bring shame on the family.^{10,20} In a national sample of youth that were presented vignettes about a peer with depression, Asian/Pacific Islanders exhibited the highest levels of stigmatization in their responses about the peer than all other racial/ethnic groups.²⁴ Thus, cultural stigma could make it more difficult for Asian youths to acknowledge problems such as suicidal thoughts/attempt or depressive feelings as reasons for MH treatment, even if these concerns are present.

Another possible explanation for the study findings – particularly those involving externalizing problems for Hispanic and black youths– could involve systemic differences in how racial/ethnic minorities become engaged with the MH treatment system. Black and Hispanic families, for example, are less likely than white families to initially contact a MH professional as a first step in the help-seeking process (versus reaching out to family or members of the community).²⁵ If racial/ethnic minorities with MDE are less likely than non-Hispanic white individuals to seek help from MH professionals for internalizing problems, those with MDE who become engaged with the MH system may have been more likely to enter treatment through referrals from schools, juvenile justice, or the social welfare system for externalizing problems. In fact, findings from a study of adolescents receiving care at a community mental health clinic found that black youths were more likely to enter treatment through referrals by social agencies, and Hispanic youths were more likely to enter treatment through school referrals compared to their white peers.²⁶ This issue could be compounded if racial/ethnic minority youths are more likely to live in impoverished neighborhoods that increase their exposure to crime and violence as well as their likelihood of participating in delinquent behaviors.²⁷ Thus, differences in the pathways of engagement with the MH system and social environment may increase the likelihood of endorsing externalizing problems as the main reasons for MH treatment among racial/ethnic minority adolescents with MDE.

Differences in the conceptualization of depression as an illness, cultural stigma, and the process of engagement with the MH treatment system can affect patient-provider communication¹¹ and the level of clinical uncertainty in the patient-provider interaction. The Institute of Medicine emphasizes how clinical uncertainty in the patient-provider interaction, along with stereotypes (beliefs) and prejudice (bias) held by the provider about racial/ethnic minorities, can adversely affect the quality of care during the clinical encounter and contribute to healthcare disparities.²⁸ As an example, the extent to which any one of these factors occur during a clinical assessment could reduce the likelihood that depression is accurately diagnosed among racial/ethnic minorities. In inpatient settings, studies have found that black adolescents are more likely than white adolescents to receive diagnoses of CD and psychotic disorders, but are less likely to be diagnosed with mood disorders.^{5,6} In turn, any differences in how clinicians formulate the problem requiring treatment among minority youth may influence adolescents’ impression as to why they are in treatment – thereby further contributing to racial/ethnic differences in the perceived treatment rationale.

Future research should examine how each of these potential mechanisms contributes to racial/ethnic differences in adolescents with depression's perception of the MH treatment process. Nevertheless, the current findings provide empirical support for a cultural formulation of the *DSM* as a strategy to optimize MH treatment for all racial/ethnic groups.²⁹ Our data suggest that in assessing the MH problems of adolescents and in working to develop credible treatment rationales and goals with them and their families, MH providers should be especially cognizant that Asian and black adolescents with an MDE are less likely than non-Hispanic white adolescents to perceive internalizing symptoms as reasons for treatment. By contrast, MH providers may anticipate that racial/ethnic minority adolescents are more likely than non-Hispanic white adolescents to perceive that the MH treatment process is a result of behavioral problems and interpersonal conflicts. Consequently, regardless of the initial reason for treatment-seeking or source of referral, it is important for MH providers to conduct a comprehensive assessment of internalizing and externalizing MH disorders when establishing the clinical diagnoses and developing the treatment rationale with the client.

The findings should be interpreted in light of several additional study limitations. First, the data are cross-sectional, and the results cannot be interpreted as causal relationships. Additionally, measures were not available to assess whether differences in the specific contexts or events that triggered referral for MH treatment, differences in prior experience with the MH treatment system, clinician differences in training, practice, and racial/ethnic biases, or attributes of the neighborhood environment may have further explained the study findings. Finally, data were not available to assess perceived reasons for MH treatment for these youth from the parent's perspective or how the MH provider diagnosed the adolescent. Research in smaller samples suggests that youth and parents have different perceptions about the reasons for seeking MH care, and that these differences are more pronounced for internalizing problems.^{30,31} Because youth may be more likely to report internalizing symptoms than parents,³⁰ it is especially important to understand the adolescent's perspective about perceived reasons for treatment in a sample with MDE. Thus, the documentation of racial/ethnic differences in adolescents' perceived reasons for treatment in these data provides an important foundation for future studies to collect data and examine racial/ethnic differences in how well the adolescent's perspective corresponds to or diverges from parent and MH provider perspectives.

Despite these limitations, this study documents important racial/ethnic differences in adolescents' understanding of the MH treatment process using a national database. These findings provide further insight as to the possible factors that may contribute to racial/ethnic differences in the course of depression treatment. Future research should seek to elucidate the mechanisms that cause racial/ethnic variation in adolescents' understanding of the MH treatment process, as well as the extent to which adolescent perspectives diverge from parent- and provider- perspectives within each racial/ethnic group. Examining these different stakeholder perspectives on depression treatment will be essential in moving towards more patient-centered models of care across diverse populations seen in the child and adolescent mental health treatment system.

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Table 1
 Sample Characteristics of US Adolescents Who Experienced a Major Depressive Episode (MDE) and Received Mental Health (MH) treatment

	All [N=2,789]	NH-White [n=1,838]	Hispanic [n=412]	Black [n=281]	Asian [n=49]	Other [n=209]
<i>Socio-demographic Characteristics</i>						
Age, mean (SD)	15.0 (2.8)	15.1 (2.7)	15.0 (2.7)	14.8* (2.7)	14.7 (2.2)	14.9 (4.2)
Female, %	77.6	77.5	78.5	77.2	79.5	74.9
Family status: Lives in two parent household, %	64.1	66.7	68.1	43.0****	81.8*	53.6*
Family income, %						
Less than \$20,000	16.0	11.3	20.4**	35.1***	24.0	19.5
\$20,000 – \$49,999	32.9	29.7	39.3*	38.9*	41.5	42.5*
\$50,000 – \$74,999	17.8	19.0	17.4	12.7*	15.8	14.7
\$75,000 or More	33.2	39.9	22.9****	13.3****	18.7*	23.2****
<i>Health Insurance Status, %</i>						
Any private insurance	66.4	74.2	49.3****	48.2****	62.1	50.4****
Public insurance (no private insurance)	24.8	17.9	34.9****	46.3****	29.3	44.0****
Uninsured	7.4	6.7	14.2*	5.0	2.7	3.6
Insurance status unknown	1.3	1.2	1.6	0.4	5.8	2.0
<i>Treatment Need-related Characteristics</i>						
Any MDE Impairment, %	79.5	81.4	77.4	74.3	62.0	80.2
Fair/poor health status, %	7.6	7.7	6.3	7.7	7.3	11.4
Alcohol use disorder symptom count, mean (SD)	0.7 (2.9)	0.8 (3.0)	0.7 (2.7)	0.4* (2.1)	0.2*** (1.2)	0.9 (4.7)
Marijuana use disorder symptom count, mean (SD)	0.5 (2.5)	0.5 (2.6)	0.5 (2.6)	0.3* (1.7)	0.2* (1.4)	0.7 (4.9)
Any other illicit drug use, %	22.9	24.8	24.9	7.3***	21.1	31.0
Argued or had a fight with your parents 10 times, %	53.9	58.0	51.5*	36.4****	38.7	53.0
Sold illegal drugs, %	7.7	7.7	8.2	6.2	5.3	13.6
Stole or tried to steal anything worth \$50, %	12.0	11.0	15.6	13.6	6.5	15.0
Participated in a fight, %	52.2	50.4	59.0*	55.9	37.4	56.5
Arrested and booked for breaking the law, %						
Not arrested/booked	88.8	90.5	85.5	85.3	88.9	81.7

	All [N=2,789]	NH-White [n=1,838]	Hispanic [n=412]	Black [n=281]	Asian [n=49]	Other [n=209]
Arrested/booked	7.8	7.0	7.9	9.7	9.6	15.4
Unknown whether arrested/booked	3.4	2.6	6.6	5.0	1.5	2.9
<i>Treatment Setting</i>						
Any MH treatment in school, %	56.3	54.1	55.8	70.4 ^{***}	51.4	59.4
Any MH treatment in outpatient setting, %	78.8	81.8	72.1 ^{**}	68.6 ^{***}	81.4	82.0
Any MH treatment in inpatient setting, %	11.6	10.7	9.7	14.3	24.8	21.6 [*]
Any MH treatment in foster care, %	2.7	1.9	5.7	3.2	1.9	4.2

Note: Data are from the National Survey of Drug Use and Health (2005–2008), N=2,789. Adjusted Wald-test used to compare value for each racial/ethnic minority group to non-Hispanic (NH) white adolescents.

* p<0.05,

** p<0.01,

*** p<0.001

Table 2
Symptoms of Past-Year Major Depressive Episodes Among US Adolescents Who Received Mental Health Treatment

Symptom of major depressive episode	NH-White [n=1,838]	Hispanic [n=412]	Black [n=281]	Asian [n=49]	Other [n=209]
	<i>% of group with symptom</i>				
Felt sad/empty/depressed most of day or discouraged	96.1	96.6	94.9	90.7	94.6
Lost interest or pleasure in most things	94.6	94.0	98.7 ***	83.5	95.0
Had changes in appetite or weight	83.2	83.1	84.1	61.9	90.8 *
Had sleep problems	96.1	95.1	95.4	98.1	96.4
Others noticed that the person was restless or lethargic	66.9	62.1	70.3	55.3	74.1
Felt tired/low energy nearly every day	93.9	92.2	90.9	80.6	91.6
Felt worthless nearly every day	72.2	64.0	62.7 *	68.1	71.1
Inability to concentrate or make decisions	96.0	96.9	96.4	99.4 ***	95.4
Had any thoughts or plans of suicide	86.8	88.7	85.4	89.1	87.7
Symptom count, mean (SD)	7.8 (2.1)	7.7 (2.1)	7.8 (2.2)	7.3 (1.8) *	7.9 (3.0)

Notes: N=2,789 US adolescents with past-year major depressive. Total for each symptom does not sum to 2,789 due to item non-response (1%). Weighted percentages and means presented. Adjusted Wald-test used to compare value for each racial/ethnic minority group to value for non-Hispanic (NH) white participants.

* p<0.05

** p<0.01

*** p<0.001

Table 3
Perceived Reasons for Mental Health Treatment Received Among US Adolescents Who Experienced a Major Depressive Episode, by Race/Ethnicity

<i>Perceived reasons for receiving treatment, %</i>	NH-White [n=1,838]	Hispanic [n=412]	Black [n=281]	Asian [n=49]	Other [n=209]
Suicidal Thoughts or Attempt	38.9	31.4*	30.0	18.5**	31.8
Felt Depressed	77.6	69.8*	70.6	55.7*	66.1*
Felt very afraid or tense	35.1	27.7*	25.1**	29.0	27.0
Eating Problems	20.1	15.0	9.5***	9.2	15.4
Trouble Controlling Anger	18.8	21.9	28.6*	6.9*	20.0
Problems with family/friends ^a	39.6	39.8	46.5	29.3	42.7
Problems with people (not family/friends)	16.9	18.6	23.6	25.4	22.3
Got into physical fights	6.4	12.3*	12.6	0.2***	9.3
Broke rules and "acted out"	25.9	34.1*	28.5	32.4	30.9
Problems at School	25.6	23.3	34.6*	9.1***	30.2
Other Problem	26.8	26.1	28.0	40.7	34.3
Number of reasons endorsed (1-11), mean (SD)	3.3 (4.1)	3.2 (4.2)	3.4 (3.9)	2.6* (2.3)	3.3 (6.1)

Notes: N=2,789; Weighted percentages and means presented. Adjusted Wald-test used to compare value for each racial/ethnic minority group to value for non-Hispanic (NH) white participants.

^a Combines responses from two choices that were offered: (1) problems with family; (2) problems with friends.

* p<0.05,

** p<0.01,

*** p<0.001

Table 4

Predicted Percentage (Pct) and Adjusted Marginal Effects (MEs) From Regression Models Examining Racial/Ethnic Differences in the Perceived Reasons for Mental Health Treatment Among US Adolescents With a Major Depressive Episode in the Past Year

Reason	Suicidal Thoughts or Attempt (Pct=38.3)	Felt Depressed (Pct=76.6)	Felt very afraid or tense (Pct=33.8)	Eating Problems (Pct=19.5)	Trouble Controlling Anger (Pct=19.8)
	ME (95% CI), %	ME (95% CI), %	ME (95% CI), %	ME (95% CI), %	ME (95% CI), %
Hispanic	-5.3 (-11.7, 1.2)	-4.4 (-10.2, 1.5)	-5.3 (-11.6, 1.0)	-4.5 ⁺ (-9.7, 0.7)	1.8 (-1.8, 5.4)
Black	-7.8 ⁺ (-16.5, 1.0)	-4.4 (-10.3, 1.6)	-8.2 [*] (-16.2, -0.2)	-11.1 ^{***} (-16.9, -5.2)	2.7 (-1.6, 6.9)
Asian	-21.1 ^{**} (-36.7, -5.6)	-12.7 [*] (-23.6, -1.9)	1.6 (-12.2, 15.4)	-7.0 (-23.4, 9.4)	-7.2 ⁺ (-15.6, 1.2)
Other race	-12.1 [*] (-23.6, -0.6)	-9.0 ^{**} (-15.6, -2.4)	-6.3 (-14.4, 1.9)	-3.4 (-10.9, 4.1)	-0.6 (-7.0, 5.8)

Reason	Problems with family/friends (Pct=39.3)	Problems with people (not family/friends) (Pct=16.7)	Got into physical fights (Pct=6.9)	Broke rules and "acted out" (Pct=26.1)	Problems at School (Pct=25.4)
	ME (95% CI), %	ME (95% CI), %	ME (95% CI), %	ME (95% CI), %	ME (95% CI), %
Hispanic	2.3 (-3.8, 8.3)	2.3 (-1.8, 6.3)	3.5 ^{**} (1.1, 5.8)	6.0 [*] (0.7, 11.3)	-0.9 (-5.4, 3.7)
Black	4.8 ⁺ (-0.4, 10.1)	4.2 ⁺ (-0.4, 8.8)	1.9 (-0.8, 4.5)	2.5 (-3.8, 8.8)	5.3 [*] (1.2, 9.5)
Asian	3.5 (-8.7, 15.6)	15.6 [*] (3.7, 27.6)	-10.6 ^{***} (-16.4, -4.8)	14.7 ⁺ (-1.2, 30.5)	-7.7 (-23.2, 7.8)
Other race	6.2 (-4.1, 16.6)	5.1 [*] (0.1, 10.0)	2.9 (-1.0, 6.8)	1.3 (-5.7, 8.4)	4.9 ⁺ (-0.6, 10.4)

Note: N=2,789; results estimated using weighted probit models that adjust for socio-demographic characteristics, health and MH status, substance use and other externalizing problems, setting of mental health treatment, total number of reasons endorsed, and survey year. MEs calculated at the observed values of the model covariates. NH = non-Hispanic.

+ p<0.10,
 * p<0.05,
 ** p<0.01,
 *** p<0.001