

# Racial/Ethnic Disparities in the Decision Points of Mental Health Service Use and Psychotropic Medication Receipt Among Depressed Youth

Youth &amp; Society

1–26

© The Author(s) 2019

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/0044118X19871853

journals.sagepub.com/home/yas



Saijun Zhang<sup>1</sup> , Daphne S. Cain<sup>2</sup>,  
and Minli Liao<sup>3</sup>

## Abstract

Depression has been increasing rapidly and is prevalent among youth. Inadequate mental health service utilization for youth and relevant racial/ethnic disparities are a growing concern. The current study used a nationally representative database to examine racial/ethnic disparities in youth depression prevalence, mental health services utilization, and psychotropic medication receipt. The sequential examination shows that depressed minority youth (22%-30%) were not only much less likely to use specialty mental health services than depressed Caucasian and multiracial youth (40%-43%,  $p < .001$ ), they were also much less likely to receive psychotropic medications (22%-30%) than their Caucasian and multiracial counterparts (38%-44%,  $p = .048$  to  $<.001$ ) when using specialty mental health services. The findings reveal possibly two levels of racial/ethnic disparities at the decision points of accessing specialty mental health services and subsequent

<sup>1</sup>The University of Mississippi, University, USA

<sup>2</sup>The University of Alabama, Tuscaloosa, USA

<sup>3</sup>Morgan State University, Baltimore, MD, USA

## Corresponding Author:

Saijun Zhang, Assistant Professor, Department of Social Work, School of Applied Sciences, The University of Mississippi, 303 Longstreet Hall, University Park, MS 38677, USA.

Email: szhang9@olemiss.edu

treatment methods choice. Implications for mental health policies and practices are also discussed.

### **Keywords**

depression, mental health, race/ethnicity, Asian/Pacific Islander, Latino, African American, quantitative methods

Depression has rapidly evolved from a rare phenomenon to a common symptom in youth population over the past several decades, with about 13% of children 12 to 17 years old ever experiencing a Major Depressive Episode (MDE) in their lifetime (Center for Behavioral Health Statistics and Quality, 2018b). Depression is often characterized by chronic or frequently recurring episodes, and is often comorbid with other psychiatric conditions such as anxiety, externalizing disorders, and substance use (Zahn-Waxler, Shirtcliff, & Marceau, 2008). Depression is one of the leading causes of disability and a major risk factor for suicide. More than half of depressed youth suffer from daily life functional impairment, learning difficulties, or other dysfunctional living situations (Merikangas et al., 2010), and depression is implicated in nearly half of youth suicidalities (Thapar, Collishaw, Pine, & Thapar, 2012). In addition, early onset of depression is also associated with treatment resistant depression later in life (Hatcher-Kay & King, 2003).

Racial/ethnic disparities in youth mental health utilization have long been a concern. Mental health services can be distinguished between specialty and non-specialty services. Specialty services are typically provided in specialized mental health service facilities, which can be further categorized into inpatient and outpatient services, while non-specialty services often refer to services provided by non-mental health professionals or at school-based settings (Center for Behavioral Health Statistics and Quality, 2017; Garland et al., 2005; Gudiño, Lau, Yeh, McCabe, & Hough, 2009; Zhang, Smith, & Tabb, 2018).

Nationally, less than four tenths of youth with an MDE in the past year received mental health services (Cummings & Druss, 2011; Zhang et al., 2018). Significant racial/ethnic disparities persist despite continuous efforts aimed at reducing the disparities (Alegria, Vallas, & Pumariega, 2010). When compared with depressed Caucasian youth, African American and Hispanic depressed youth were about one fifth less likely to receive treatment, while Asian American depressed youth were about half as likely (Cummings & Druss, 2011). A recent national study shows that depressed African American and Hispanic youth were about 30% to 40% less likely to receive specialty

mental health services than depressed Caucasian youth, although there was no difference in the use of non-specialty services (Zhang et al., 2018).

The disparity is similarly manifested among youth who are in public care systems. Studies examining youth 6 to 18 years old in the public care system including child welfare, juvenile justice, special education, alcohol and drug abuse, and mental health service sectors found that more than two thirds of Caucasian youth used formal outpatient services compared with about half of the Latino and African American youth and one third of the Asian American youth, but there was no significant difference in the use of non-specialty services (Garland et al., 2005). The findings concerning racial/ethnic disparities of non-specialty mental health tend to be mixed, with some suggesting the existence of such disparities in school settings (Bear, Finer, Guo, & Lau, 2014; Guo, Kataoka, Bear, & Lau, 2014) while others not when examining the general youth population or youth in a large public care system (Garland et al., 2005; Zhang et al., 2018).

Racial/ethnic disparities in mental health service use are also reflected in the choice of treatment methods, particularly in the use of psychotropic medications for treatment. Trial evidence has suggested that psychotropic medications are effective in the treatment of youth mental health problems including depressive symptoms, in particular, for younger youth, boys, and youth with less severe depressive symptoms (Strawn, Dobson, & Giles, 2017). However, the use of psychotropic medications among youth has been controversial (Loy, Merry, & Hetrick, 2012; Olfson, Blanco, Liu, Wang, & Correll, 2012) due to concerns of inadequate evidence showing efficacy (Loy et al., 2012; Morris & Stone, 2011; Olfson et al., 2012) and potential risks such as suicidalities (Vries, Jonge, Kalverdiijk, & Bos, 2016), weight gain (Loy et al., 2012), and diabetes (Hammerman, Dreiherr, & Klang, 2008). Despite such concerns, psychotropic medication use, especially off-label use (usage for symptoms not indicated by authorities such as the U.S. Food and Drug Administration [FDA]), on the clinical youth population has increased dramatically over time (Loy et al., 2012; Olfson et al., 2012; Vries et al., 2016). For example, the use of antipsychotics for children increased eightfold in the decade after the mid-1990s, with about half of the prescriptions being considered off-label (Alexander, Gallagher, Mascola, Moloney, & Stafford, 2012). The rapid expansion has made youth even more likely to receive antipsychotic prescriptions from psychiatrists than older adults (Olfson et al., 2012).

Similar to mental health service use, substantial racial/ethnic disparities exist in the use of psychotropic medications for the treatment of depression in youth. About one fifth of Caucasian youth with a past year MDE received psychotropic medications for treatment, which was about 2 to 3 times that of

African American and Hispanic counterparts, and 5 times that of Asian counterparts after adjusting demographic and other factors (Cummings & Druss, 2011). The disparity pattern largely persists as shown in a more recent national study (Zhang et al., 2018). Research examining youth enrolled in a state Medicaid program revealed similar patterns, where White youths were about 2.2 to 3.8 times more likely to receive psychotropic medications than African American youth after adjusting other factors (Zito, Safer, Zuckerman, Gardner, & Soeken, 2005).

Various factors may contribute to racial/ethnic disparities in mental health services use. Mental health-associated stigma may compromise youth mental health services access (Radovic et al., 2015; Richardson, 2001), and it is often amplified in minority cultural contexts (Guo et al., 2014). For example, compared with Caucasian youth, Asian American youth were less willing to express mental health problems and service needs because they tend to view them as a burden to family and friends (Guo et al., 2014).

Minority youth, especially African American and Hispanic youth, are often in socioeconomically disadvantaged families, whose financial hardship and lack of insurance are often barriers to mental health services (Kataoka, Zhang, & Wells, 2002; Santiago, Kaltman, & Miranda, 2013; Wirback, Möller, Larsson, & Engström, 2018). However, income alone may not sufficiently reflect the profound impact of economic disadvantages on youth mental health services use (Cummings & Druss, 2011). Recent statewide studies in Ohio and New York revealed that youth mental health seeking was a burdensome process and typically required 40 to 50 days waiting time (Gallo et al., 2018; Olin & Clark, 2016; Steinman, Shoben, Dembe, & Kelleher, 2015). Parents of African American and Hispanic youth often work on benefits stringent jobs (Patten, 2017; Rae, Claxton, Levitt, & McDermott, 2019), which may limit their accommodation of youth mental health service seeking. Referential systems may also play a role. Compared with Caucasian youth, African American youth with moderate mental health symptoms were found less likely to be referred to needed mental health services; and they also tended to receive services with inferior quality (Alegría, Lin, & Green, 2012; Alegría et al., 2010; Snowden, 2003).

Despite extensive research on racial/ethnic disparities concerning youth mental health service use, there are noticeable limitations. Many studies examine mental health service access and psychotropic medication use separately rather than sequentially, which makes it hard to tell whether the racial/ethnic disparity in medication use is due to the variation in mental health service initiation, or indicates another race/ethnicity-related decision disparity in the treatment process. To address the limitations, the current study used a nationally representative database to examine (a) among all youth, the

racial/ethnic variation of youth depression prevalence; (b) among the depressed youth, the racial/ethnic disparity concerning the use of specialty and non-specialty mental health services; and (c) among the depressed youth who received specialty mental health services, the racial/ethnic disparity concerning psychotropic medication use. In addition, most studies that examined racial/ethnic disparities did not distinguish youth of two or more races/ethnicities from other groups, although the proportion of individuals identifying as of two or more races/ethnicities has been increasing dramatically. In our analysis, we included youth identifying as of two or more races/ethnicities as a stand-alone group for examination.

## Method

### Sample

The sample consisted of 7 years of pooled data (2010-2016) derived from the National Survey on Drug Use and Health (NSDUH), a nationally representative study that annually surveyed non-institutionalized individuals 12 years and older in the U.S. civilian population across all 50 states and the District of Columbia. About one quarter to one third of the annual NSDUH survey respondents were youth 12 to 17 years old, and these respondents were used as the base to examine the prevalence of youth's past year and lifetime depression ( $n = 131,777$ ). Furthermore, the study focused on youth who had a past year MDE to examine racial/ethnic discrepancies in their use of specialty and non-specialty mental health services ( $n = 11,553$ ). Finally, the study examined racial/ethnic discrepancies of receiving psychotropic prescriptions (Rx) among youth who had a past year MDE and received specialty mental health services ( $n = 4,380$ ).

**Measures.** Youth with lifetime and past year MDE were measured using an adapted version of the depression section of the National Comorbidity Survey–Youth derived from the World Health Organization Composite International Diagnostic Interview–Short Form (CIDI-SF; Substance Abuse and Mental Health Services Administration, 2017). The CIDI-SF has been validated to show good psychometric concordance with the full CIDI (Kessler, Andrews, & Mroczek, 1998). Youth were coded as whether having a past year or lifetime MDE (yes/no) based on the criteria (Substance Abuse and Mental Health Services Administration, 2017).

As defined by the NSDUH (Substance Abuse and Mental Health Services Administration, 2017), specialty mental health services (yes/no) indicated whether a youth reported receiving mental health services in the past year

from any of six specialty inpatient/residential or outpatient sources for non-alcohol or drug-related behavior or emotional problem: a hospital, residential treatment facility, day treatment facility, mental health clinic, private therapist, and in-home therapist. Specialty mental health services can be distinguished into inpatient and outpatient services (Substance Abuse and Mental Health Services Administration, 2017). Inpatient services (yes/no) indicated whether a youth received specialty mental health services from an overnight stay in a hospital or residential treatment facility. Outpatient services (yes/no) indicated whether a youth received specialty mental health outpatient services from a day treatment facility, mental health clinic, private therapist, or in-home therapist. Non-specialty mental health services (yes/no) indicated whether a youth reported receiving mental health services in the past year from any of five specific non-specialty sources for non-alcohol or drug-related behavior or emotional problem: a school social worker, school psychologist, or school counselor; a special school or program within a regular school for students with emotional or behavioral problems; a pediatrician or other family doctor; a juvenile detention center, prison, or jail; and/or foster care or therapeutic foster care (Substance Abuse and Mental Health Services Administration, 2017).

Rx (psychotropic medication) use (yes/no) indicated whether youth were prescribed with psychotropic medications for their MDE in the past year (Substance Abuse and Mental Health Services Administration, 2017). Nearly all youth who received Rx for MDE had received specialty mental health services. Overnight stay/visit indicated the number of nights or visits youth made to specialty mental health services or settings, and was an ordered variable (0, 1, 2, 3 to 6, 7 to 24, 25 and more stays or visits).

Family structure is derived from two questions that asked youth if their mother or father were at home to indicate three family types: two-parent families, single-parent families, and non-parent families based on whether both parents were at home, one parent was at home, or no parent was at home.

Youth mental health was closely associated with behavioral problems (Fearn et al., 2016; Pickering & Kaplan, 2006; Vaughn, Nelson, Salas-Wright, DeLisi, & Qian, 2016; Vaughn, Salas-Wright, DeLisi, & Maynard, 2014). Two dichotomous variables (yes/no) were used to indicate whether youth had alcohol and illicit drug abuse or dependence problems. In addition, antisocial behavioral problems (yes/no) indicated whether youth had reported any of the following antisocial behaviors: serious fight at school or work, group fight, carrying a handgun, selling illegal drugs, stealing or trying to steal item more than US\$50, and attacking with intent to seriously harm.

For youth with a past year MDE, function impairment due to depressive symptoms was measured with the Sheehan Disability Scale (SDS), which

assessed the severity of function impairment in four domains of daily life, including chores at home, school, or work; family; and social life. The variable was coded as severe or very severe versus moderate or less severe based on the most severe rating across the four domains (Leon, Olfson, Portera, Farber, & Sheehan, 1997; Substance Abuse and Mental Health Services Administration, 2017).

Other variables include race/ethnicity (non-Hispanic White or Caucasian, African American, Hispanic, Asian, two or more races, and Other), age (12-13, 14-15, 16-17), gender (male/female), self-rated health status (excellent or very good vs. good or below), household income (less than US\$50,000 vs. US\$50,000 or more), having health insurance coverage (yes/no), region (large metro, medium metro, and non-metro), and survey year (from 2010 to 2017).

*Analytical methods.* We first conducted descriptive analyses to present sample characteristics across six racial/ethnic groups, which were based on the whole youth population in the sample. Next, we conducted bivariate analyses to examine racial/ethnic discrepancies in the use of specialty and non-specialty mental health services, Rx, and the mean overnight stays/visits, which were based on youth who were identified as having a past year MDE. Third, we used three logistic regression models to examine the association between race/ethnicity and three outcome variables: whether youth had a past year MDE, whether youth who were identified as having a past year MDE used specialty mental health services, and whether those who were identified as having a past year MDE and received specialty mental health services were prescribed with Rx. Finally, we estimated the probabilities of youth experiencing a past year MDE, using specialty mental health services, and receiving Rx across racial/ethnic groups after adjusting confounding factors based on the outputs from the logistic regression models. Following weighting strategies suggested for NSDUH (Center for Behavioral Health Statistics and Quality, 2018a; Substance Abuse and Mental Health Data Archive, 2014), STATA *svyset* and *svy* procedures were used to account for the complex survey design so that the estimates were representative of the national non-institutionalized youth population.

## Results

### *Descriptive Analysis Results*

There were slight age differences but no difference in gender composition across racial/ethnic groups. Most youth (69.35%) were in two-parent families,

but African American youth (42.42%) had a comparatively lower rate. Slightly more than half (52.96%) of the youth were in a family with income US\$50,000 or more, but African American (28.01%) and Hispanic (32.09%) youth were at a substantially lower rate ( $p < .001$ ). About three quarters (75.94%) of the youth rated their health status as excellent or very good, but the "Other" race/ethnicity group (64.64%,  $p < .001$ ) were less likely to do so. Most (93.97%) youth had health insurance coverage, but the rate for Hispanic youth (87.65%,  $p < .001$ ) was comparatively lower. On average, 3.1% of the youth had alcohol abuse or dependence problems, but the rate for Asian American (1.2%) and African American youth (1.65%,  $p < .001$ ) was comparatively lower. On average, 3.85% of youth had illicit drug abuse or dependence problems, with Hispanic (4.51%) and "Other" race/ethnicity youth (5.05%) having the highest rate, and Asian American youth (1.57%,  $p < .001$ ) having the lowest rate. More than one quarter (27.82%) of youth had some type of antisocial behavior in the past year, with African American youth (36.51%), youth who identified as of two or more races (33.09%), and "Other" race/ethnicity youth (37.2%) having a higher rate, and Asian American youth (17.75%) having a lower rate. Slightly more than half of the youth (54.85%) lived in a large metro area, with the highest rate for Asian American youth (77.27%), and the lowest rate for the "Other" race/ethnicity youth (35.75%,  $p < .001$ ; see Table 1).

Overall, about one in six (15.37%) youth experienced an MDE in their lifetime, and the rate of experiencing an MDE in the past year was about one in 10 (10.45%). African American youth had the lowest lifetime (12.57%) and past year (8.08%) MDE, while youth who identified as of two or more races had the highest lifetime (18.26%) and past year (12.77%,  $p < .001$ ) MDE. Among youth with a past year MDE, the majority (70.87%) were identified as having severe to very severe functional impairment due to MDE, but there was no noticeable difference across race/ethnicity (Table 1).

### ***Bivariate Analysis Results***

Table 2 presents the use of different types of mental health services among youth who were identified as having a past year MDE. On average, more than one third (36.54%) of youth with a past year MDE received specialty mental health services, with a small fraction of them (6.28%) receiving inpatient services, and most of them (35.58%) receiving outpatient services. Caucasian (40.71%) and youth who identify as of two or more races (45.54%) were most likely to receive specialty services, while Asian American (21.77%) youth were least likely to receive specialty services ( $p < .001$ ). Racial disparities in specialty mental health services were reflected in the use of specialty outpatient services ( $p < .001$ ), however, there were no significant



**Table I.** Sample Description and Prevalence of MDE,  $n = 114,250$ .

	Non-Hispanic White			African American			Hispanic			Asian			Two or more races			Other			Total		
	$n = 64,359$			$n = 15,255$			$n = 22,712$			$n = 3,987$			$n = 5,627$			$n = 2,310$			$n = 114,250$		
	%	SE		%	SE		%	SE		%	SE		%	SE		%	SE		%	SE	
Age***																					
12 to 13	31.4	0.21		31.27	0.54		33.53	0.50		30.09	1.05		33.55	0.87		35.09	1.73		31.89	1.73	
14 to 15	33.98	0.24		34.03	0.54		33.97	0.47		34.43	0.92		34.27	0.99		32.23	1.61		34	0.20	
16 to 17	34.62	0.25		34.7	0.47		32.5	0.42		35.48	0.95		32.18	1.00		32.68	1.75		34.11	0.18	
Male	51.04	0.26		50.82	0.50		51.33	0.45		50.84	1.08		49.49	1.10		53.86	1.93		51.04	0.20	
Family structure***																					
Two-parent	75.99	0.25		42.42	0.58		68.94	0.48		82.12	0.91		58.22	1.11		60.54	1.75		69.35	0.20	
Single-parent	21.28	0.25		50	0.54		27.32	0.49		14.73	0.83		35.76	1.08		30.21	1.58		26.84	0.20	
Non-parent	2.73	0.10		7.57	0.29		3.73	0.16		3.15	0.41		6.02	0.47		9.24	1.00		3.81	0.07	
Family income > US\$50,000***	67.42	0.29		28.01	0.60		32.09	0.60		62.12	1.11		49.77	1.14		36.95	1.59		52.96	0.29	
Health very good/excellent***	79.33	0.23		72.88	0.47		69.58	0.44		78.91	0.94		74.16	0.93		64.64	1.96		75.94	0.21	
Having insurance***	96.08	0.11		95.37	0.22		87.65	0.37		93.3	0.62		96.49	0.37		95.18	0.92		93.97	0.12	
Alcohol abuse or dependence***	3.53	0.09		1.65	0.15		3.29	0.18		1.2	0.20		3.16	0.29		4.68	0.85		3.1	0.07	
Illicit drug abuse or dependence***	3.86	0.10		3.32	0.19		4.51	0.18		1.57	0.27		4.58	0.41		5.05	0.64		3.85	0.07	
Antisocial behavior***	25.71	0.21		36.51	0.58		28.68	0.42		17.75	0.80		33.09	0.98		37.2	1.99		27.82	0.18	
Region***																					
Large metro	47.09	0.43		63.85	0.83		65	0.66		77.27	0.98		49.02	1.27		35.75	1.78		54.85	0.33	
Small metro	33.05	0.43		25.15	0.73		27.48	0.63		18.8	0.96		35.33	1.17		29.9	1.78		30.04	0.34	
Non-metro	19.86	0.30		11	0.46		7.52	0.28		3.93	0.36		15.66	0.89		34.35	1.96		15.11	0.21	
Ever experienced MDE***	15.82	0.20		12.57	0.35		15.97	0.39		13.87	0.71		18.26	0.77		15.1	1.34		15.37	0.17	
Past year MDE***	10.99	0.17		8.08	0.26		10.65	0.34		9.08	0.65		12.77	0.64		8.78	1.09		10.45	0.13	
Function impairment severe/very severe	72.29	0.71		69.25	1.84		67.65	1.26		71.02	3.51		72.79	2.75		71.01	5.89		70.87	0.57	

Note. All estimations were based on the whole youth population ( $n = 114,250$ ), but estimation for function impairment severe or very severe was based on adolescents who were identified as having a past year MDE ( $n = 11,553$ ). Sampling design was accounted for in the estimation so that the percentages were representative of the national population. Chi-square tests were used for all the bivariate association examination. MDE = Major Depressive Episode.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**Table 2.** The Use of Mental Health Services, Psychotropic Medication Prescriptions (Rx), and Overnight Stay/Visit for Treatment for Adolescents With Past Year MDE.

	Non-Hispanic White			African American			Hispanic			Asian			Two or more races			Other			Total		
	n	SE	%	n	SE	%	n	SE	%	n	SE	%	n	SE	%	n	SE	%	n	SE	%
Received any specialty mental health services***	40.71	0.82	29.17	1.78	30.88	1.35	21.77	3.34	45.54	3.00	31.74	5.76	36.54	0.60							
Received specialty inpatient mental health services	6.89	0.41	6.02	0.78	4.91	0.50	4.97	1.82	7.98	1.48	4.1	1.42	6.28	0.27							
Received specialty outpatient mental health services***	39.8	0.82	27.44	1.76	30.12	1.36	21.31	3.33	44.61	2.97	30.28	5.69	35.58	0.61							
Received any non-specialty mental health services	33.99	0.91	34.93	1.64	32.75	1.43	33.86	3.74	40.12	3.07	36.2	6.38	34.04	0.69							
Used Rx for MDE***	22.09	0.69	10.27	1.15	12.24	(0.95)	8.73	2.07	22.96	2.52	12.25	2.86	17.96	0.45							
Mean overnight stay/visit***	1.47	0.04	1.07	0.09	1.04	0.07	0.85	0.17	1.38	0.15	1.00	0.23	1.29	0.03							

Note. Except for mean overnight stay/visit, others refer to %. Sampling design was accounted for in the estimation so that the percentages were representative of the national population. A regression model was used to examine whether mean overnight stay/visit was equal across racial/ethnic groups, and chi-square tests were used for all other bivariate association examination. MDE = Major Depressive Episode.

\*Only data 2013 and after were used for the estimation of mean overnight stay/visit, because the overnight stay/visits provided in the foster care system were included in the calculation of total overnight stay/visits before but not after 2013.

\*\*\*p < .05. \*\*p < .01. \*p < .001.

racial discrepancies in the use of inpatient services. About one third (34.04%) of youth received non-specialty mental health services, and there were no significant racial/ethnic discrepancies. A little less than one fifth (17.96%) of youth who were identified as having a past year MDE received Rx, with Caucasian (22.09%) and youth who identified as of two or more races (22.96%) at the highest rate and Asian American (8.73%) youth at the lowest rate ( $p < .001$ ). Youth with a past year MDE, on average, had 1.29 ( $SE = 0.03$ ) overnight stays in, or visits to, specialty mental health services, with Caucasian ( $M = 1.47$ ,  $SE = 0.04$ ) and youth who identified as of two or more races ( $M = 1.38$ ,  $SE = 0.15$ ) at a higher than average number and Asian American ( $M = 0.85$ ,  $SE = 0.17$ ) youth at a lower than average number.

### *Multivariate Analysis Results*

Table 3 presents the results from logistic regression models that used race/ethnicity and other covariates to predict three outcome variables: past year MDE prevalence in the youth population; the use of any specialty mental health service in the past year among youth who were identified as having a past year MDE, and the receipt of Rx among youth who were identified as having a past year MDE and also received specialty mental health services.

When examining factors associated with youth having a past year MDE (Table 3, Model 1), minority youth (except for Asian American youth and youth who identified as of two or more races) had a 11% to 40% lower odds of experiencing a past year MDE than Caucasian youth (odds ratio [OR] = 0.6-0.89, 95% confidence interval [CI] = [0.55, 0.98]). Among the covariates, older youth (14-17 vs. 12-13 years old), being in single-parent or non-parent families (vs. two-parent families), having alcohol and illicit drug abuse or dependence, having antisocial behavior, and being included in the survey in more recent years (2012 and later vs. 2010) were all significantly associated with a higher odds of experiencing a past year MDE. However, being male, reporting excellent or very good health, and living in non-metro rather than metro areas, were significantly associated with lower odds of experiencing a past year MDE (Table 3, Model 1).

When examining factors associated with receiving specialty mental health services among youth having a past year MDE (Table 3, Model 2), minority youth (except for those who identified as of two or more races and the "Other" race youth group) had a 44% to 67% lower odds of receiving specialty mental health services for MDE than Caucasian youth (OR = 0.43-0.66, 95% CI = [0.29, 0.76]). Among the covariates, being in single-parent or non-parent families (vs. two-parent families), having a family income of US\$50,000 or higher, having severe or very severe functional impairment

**Table 3.** Logistic Regression Models Predicting MDE Prevalence, the Use of Any Specialty Mental Health Service, and the Use of Rx.

	Experienced past year MDE (n = 111,343) (Model 1)				Past year specialty MHs use (n = 11,468) (Model 2)				Past year Rx use (n = 4,367) (Model 3)			
	OR	95% CI	b		OR	95% CI	b		OR	95% CI		b
Main												
Race (non-Hispanic White)												
African American	0.60	[0.55, 0.66]	-0.51***		0.56	[0.47, 0.68]	-0.58***		0.47	[0.33, 0.66]		-0.76***
Hispanic	0.89	[0.81, 0.98]	-0.11*		0.66	[0.57, 0.76]	-0.41***		0.47	[0.36, 0.60]		-0.76***
Asian	0.85	[0.72, 1.00]	-0.16		0.43	[0.29, 0.63]	-0.85***		0.53	[0.28, 0.99]		-0.63*
Two or more races	1.06	[0.93, 1.20]	0.06		1.13	[0.88, 1.46]	0.12		0.78	[0.51, 1.20]		-0.25
Other	0.67	[0.50, 0.90]	-0.40**		0.64	[0.38, 1.08]	-0.45		0.36	[0.16, 0.82]		-1.01*
Age (12 to 13)												
14 to 15	1.90	[1.77, 2.05]	0.64***		1.09	[0.95, 1.25]	0.09		1.66	[1.27, 2.18]		0.51***
16 to 17	2.33	[2.14, 2.53]	0.85***		0.93	[0.80, 1.08]	-0.07		2.01	[1.55, 2.60]		0.70***
Male	0.26	[0.25, 0.28]	-1.33***		0.74	[0.65, 0.83]	-0.30***		1.03	[0.85, 1.25]		0.03
Family structure (two-parent)												
Single-parent	1.15	[1.08, 1.23]	0.14***		1.33	[1.16, 1.51]	0.28***		1.10	[0.89, 1.36]		0.10
Non-parent	1.20	[1.01, 1.41]	0.18*		1.32	[1.03, 1.69]	0.27*		1.76	[1.16, 2.66]		0.56**
Family income > US\$50,000	1.05	[0.98, 1.12]	0.05		1.13	[1.00, 1.27]	0.12		0.80	[0.65, 0.98]		-0.23*
Health excellent/very good	0.66	[0.62, 0.70]	-0.42***		0.81	[0.73, 0.89]	-0.21***		0.69	[0.59, 0.82]		-0.37***
Function impairment severe or very severe					2.25	[1.95, 2.59]	0.81***		1.76	[1.40, 2.22]		0.57***

(continued)

**Table 3. (continued)**

	Experienced past year MDE (n = 111,343) (Model 1)			Past year specialty MHS use (n = 11,468) (Model 2)			Past year Rx use (n = 4,367) (Model 3)		
	OR	95% CI	b	OR	95% CI	b	OR	95% CI	b
No insurance	0.97	[0.86, 1.10]	-0.03	0.57	[0.45, 0.72]	-0.57***	0.62	[0.39, 1.00]	-0.47*
Alcohol abuse or dependence	1.70	[1.49, 1.92]	0.53***	1.12	[0.94, 1.34]	0.11	1.42	[1.10, 1.85]	0.35**
Illicit drug abuse or dependence	1.90	[1.69, 2.14]	0.64***	1.30	[1.09, 1.55]	0.26**	1.62	[1.24, 2.12]	0.48***
Having antisocial behavior	2.00	[1.88, 2.14]	0.69***	1.34	[1.19, 1.52]	0.30***	1.00	[0.85, 1.18]	-0.00
Region (large metro)									
Small metro	0.98	[0.91, 1.05]	-0.02	0.93	[0.84, 1.04]	-0.07	1.04	[0.87, 1.25]	0.04
Non-metro	0.91	[0.84, 0.99]	-0.09*	0.88	[0.75, 1.02]	-0.13	0.90	[0.71, 1.15]	-0.10
Year (2010)									
2011	1.05	[0.96, 1.14]	0.05	1.03	[0.85, 1.26]	0.03	1.25	[0.89, 1.75]	0.22
2012	1.22	[1.09, 1.35]	0.20***	1.07	[0.87, 1.32]	0.07	1.24	[0.91, 1.69]	0.22
2013	1.45	[1.30, 1.62]	0.37***	1.07	[0.89, 1.29]	0.07	1.18	[0.90, 1.56]	0.17
2014	1.58	[1.43, 1.74]	0.45***	1.35	[1.11, 1.66]	0.30**	1.52	[1.09, 2.11]	0.42*
2015	1.82	[1.64, 2.02]	0.60***	1.13	[0.95, 1.36]	0.13	1.42	[1.02, 1.96]	0.35*
2016	1.89	[1.72, 2.07]	0.63***	1.45	[1.21, 1.74]	0.37***	1.93	[1.45, 2.58]	0.66***
Constant			-2.47***			-1.16***			-1.31***

Note. The sample assessing youth with a past year MDE outcome was based on the total adolescent population, the sample for past year specialty mental health use was limited to adolescents with a past year MDE, and the sample for past year Rx use was limited to those with a past year MDE and who also received specialty mental health services in the past year. Variable effects are based on t test. MDE = Major Depressive Episode; MHS = mental health services; OR = odds ratio; 95% CI = 95% confidence interval; b = coefficient.  
\*p < .05. \*\*p < .01. \*\*\*p < .001.

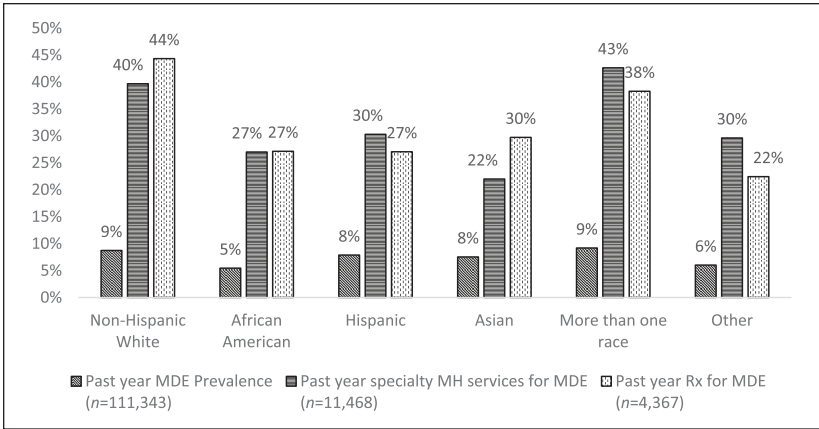
due to an MDE, having alcohol and illicit drug abuse or dependence, having antisocial behavior, and being included in the survey in more recent years (2014 and 2016 vs. 2010) were all significantly associated with a higher odds of receiving specialty mental health services. However, being male, reporting excellent or very good health, and no insurance coverage were significantly associated with lower odds of receiving specialty mental health services (Table 3, Model 2).

When examining factors associated with receiving Rx for youth who were identified as having a past year MDE and who also received specialty mental health services (Table 3, Model 3), minority youth (except for those who identified as of two or more races) had a 47% to 74% lower odds of receiving Rx than Caucasian youth ( $OR = 0.36-0.53$ ,  $95\% CI = [0.16, 0.99]$ ). Among the covariates, older youth (14-17 vs. 12-13 years old), being in non-parent families (vs. two-parent families), having severe or very severe functional impairment due to an MDE, having alcohol and illicit drug abuse or dependence, and being included in the survey in more recent years (2014-2016 vs. 2010) were all significantly associated with higher odds of receiving Rx. However, having a family income of US\$50,000 or higher, reporting excellent or very good health, and no insurance coverage were significantly associated with lower odds of receiving Rx (Table 3, Model 3).

Figure 1 was based on the model outputs presented in Table 3 to visualize the predicted probability of youth experiencing a past year MDE, using specialty mental health services, and receiving Rx after controlling for confounding factors. The predicted risk of having a past year MDE was similar across racial/ethnic groups (8%-9%) except that African American and "Other" youth were somewhat lower (5%-6%,  $p = .008$  to  $<.001$ ). Among youth with a past year MDE, the predicted probability of using specialty mental health among minority youth (22%-30%,  $p < .001$ ) was substantially lower than Caucasian youth (40%) and youth of two or more races (43%). Among youth who had a past year MDE and received specialty mental health services, the predicted probability of receiving Rx among minority youth (22%-30%,  $p = .048$  to  $<.001$ ) was also substantially lower than Caucasian youth (44%) and youth of two or more races (38%) (Figure 1).

## Discussion

Using a large nationally representative database, the study examined racial/ethnic disparities on depression prevalence and the use of mental health services and psychotropic medications among youth 12 to 17. Distinctive from previous studies, the current study treated accessing mental health services



**Figure 1.** MDE prevalence, specialized mental health service use, and Rx for MDE by race/ethnicity.

*Note.* Percentages were derived from models in Table 3, adjusting for race, age, gender, family structure, family income, health status, function impairment, insurance, alcohol abuse or dependence, illicit drug abuse or dependence, having antisocial behavior, region, and survey years. MDE = Major Depressive Episode.

and use of psychotropic medications as sequential decision points and revealed multilevel racial/ethnic disparities throughout the process.

Our findings indicate that, on average, about one sixth of youth (15.37%) experienced a past year MDE, with the highest percentage among youth of two or more races (18.26%) and the lowest proportion among African American youth (12.57%) (Table 1). The rates for non-Hispanic White, Hispanic, and Asian American youth range from 13.87% to 15.97%. These findings are generally consistent with those of previous research (Center for Behavioral Health Statistics and Quality, 2017; Cummings & Druss, 2011). They also further highlight multiracial youth’s especially high risk of experiencing depression, which is consistent with findings from emerging research in the area, such as a study that examined a large sample of high school students (Fisher, Reynolds, Hsu, Barnes, & Tyler, 2014). Today, more than 17% of married couples are interracial, and 14% of offspring identify as multiracial (Bialik, 2017). Due to the growth among this population, it is important to pay close attention to their high mental health risks and service needs.

By focusing on youth with a past year MDE, we examined racial/ethnic disparities of youth accessing mental health services based on whether depressed youth ever used non-specialty and specialty mental health services. The findings are consistent with previous findings that only a small proportion

of youth in need of mental health services seek specialty mental health services, and there are substantial racial/ethnic disparities (Cummings & Druss, 2011; Garland et al., 2005; Gudiño et al., 2009). After adjusting covariates, depressed youth of two or more races (43%) and Caucasian youth (40%) are much more likely to use specialty mental health services than depressed minority youth (22%-30%,  $p < .001$ ; Figure 1). Further breakdown analyses suggest that the racial/ethnic disparities are mainly manifested in the use of outpatient services but not inpatient services (Table 2). The inconsistency between outpatient and inpatient services may be due to the difference of case nature. Depressed youth who seek inpatient services are likely under serious conditions that require immediate specialty treatment. In such cases, factors contributing to racial/ethnic disparities such as parental perceptions of mental health services may be less influential as they are with less imminent cases that usually seek outpatient services.

The patterns of racial/ethnic disparities among specialty service utilizers as indicated in the bivariate analyses (Table 2) are confirmed by the multivariate analyses that control for various confounding factors including clinical, family, social, economic, and other characteristics (Table 3 and Figure 1). Among covariates, income is not linked to specialty mental health services use disparities in depressed youth, but having no health insurance coverage is linked to lower likelihood of using specialty services (Table 3), which support previous findings that health insurance coverage is fundamental to meet mental health service needs regardless of family income levels (Cummings & Druss, 2011). The findings also suggest the need of examining family social economic status more than income to understand its impact on mental health services usage, because family social economic status related factors such as caregivers' time flexibility, social support, parenting skills, and communication efficacy with service providers have been found to be closely linked to youth mental health access (Gallo et al., 2018; Harrison, McKay, & Bannon, 2004; Olin & Clark, 2016; Steinman et al., 2015).

The prominent racial/ethnic disparities in specialty mental health service use may be attributed to racial/ethnic disparities of parental and youth perceptions of mental health services (Alegria et al., 2010; Guo et al., 2014; Sherman & Ali, 2017). Perceptions of mental health services are often linked to stigma (Clement et al., 2015; Lindsey, Joe, & Nebbitt, 2010) that affects minority youth most significantly (Eisenberg, Downs, Golberstein, & Zivin, 2009; Guo, Nguyen, Weiss, Ngo, & Lau, 2015). For example, compared with people of other cultural backgrounds, Asian Americans are more likely to stress the importance of contributing to family and friends while avoiding "bothering" them with issues such as mental health problems, leading to restrictions in expressing mental health needs and services seeking (Guo



et al., 2014; Kim, Sherman, & Taylor, 2008; Telzer & Fuligni, 2009). A national study showed that African Americans are more likely to link mental health problems such as depression to violent behavior (Anglin, Alberti, Link, & Phelan, 2008). Another contributor to racial/ethnic variation of perceptions on mental health services may derive from mental health literacy. Research has suggested that youth whose parents recognize youth internalizing mental health problems are much more likely to use mental health services than youth whose parents do not (Breland et al., 2014), while minority families are more likely to lack such mental health literacy and service resources (Abe-Kim et al., 2007; Gudiño et al., 2009).

About one third of depressed youth in our sample received non-specialty mental health services, and there were few racial/ethnic disparities. Non-specialty services such as counseling services by school psychologists and social workers are more likely to be initiated by non-parental adults, and thus may be less subject to the influence of parental perceptions and other racial/ethnic-related factors. For example, previous studies have suggested that there are few racial/ethnic disparities in school-based youth mental health service identification and referrals (Alegria et al., 2012).

The most interesting findings are the revelation of racial/ethnic disparities in psychotropic medication use among depressed youth who received specialty mental health services. We limited the sample for the examination to youth who were identified as having a past year MDE and also used specialty services, which eliminates the possibility that the disparities may be caused by racial/ethnic variation in the use of specialty mental health services among depressed youth. The results show that among depressed youth who also used specialty mental health services, Caucasian youth (44%) and youth of two or more races (38%) were much more likely to receive psychotropic medications than their counterparts of other racial/ethnic groups (22%-30%,  $p = .048$  to  $<.001$ ), after controlling for confounding factors (Figure 1). The findings advance the understanding of racial/ethnic disparities in youth mental health service utilization. Previous studies usually examined racial/ethnic disparities in psychotropic medication use among the whole youth population or among youth who were identified as having depression or other mental health symptoms (Cummings & Druss, 2011; Marcus & Olfson, 2010; Olfson, Druss, & Marcus, 2015). Such analyses could not disentangle whether the disparities in psychotropic medication use were due to racial/ethnic variation of service initiation, or actually signaled an additional racial/ethnic disparity after mental health service initiation. Our current two-stage analyses resolved such an issue, and the results tend to suggest that racial/ethnic disparities occur not only when depressed youth and families decide to use

specialty mental health services but also, additionally, at the time when they receive psychotropic medications after initiating the specialty services.

Given the fact that youth in disadvantaged settings such as the child welfare system or Medicaid are often more likely to be prescribed with psychotropic medications (Bellonci et al., 2013; Brenner, Southerland, Burns, Wagner, & Farmer, 2014; Lee, Walker, & Bishop, 2016), it is unlikely that mental health professionals would be less willing to prescribe psychotropic medications to depressed minority youth. More likely, minority youth and their caregivers' preferences and perceptions play an important role that leads to the racial/ethnic disparities in psychotropic medication use. Studies have suggested that youth and their parents prefer psychotherapeutic treatment and express concerns toward psychotic medications (Bradley, McGrath, Brannen, & Bagnell, 2010; McHugh, Whitton, Peckham, Welge, & Otto, 2013). Furthermore, studies have found that depressed African American patients viewed antidepressants as less acceptable than non-Hispanic White patients (Cooper et al., 2003), and African American adults were less willing to use psychotropic medications for themselves or children (Schnittker, Freese, & Powell, 2000). About two thirds of African Americans relative to more than one third of Caucasians were concerned that patients were treated as uninformed experimental participants when receiving prescriptions from physicians (Corbie-Smith, Thomas, & St. George, 2002).

Compared with their counterparts of Caucasian and youth of two or more races, depressed minority youth are not only less likely to initiate specialty mental health services, but also less likely to receive psychotropic medications after they initiate the services. Such disparities suggest that concerns toward psychotropic medication prescriptions may inhibit youth seeking needed mental health services from the beginning. Given that minority youth especially African American youth and their parents have a higher level of concern toward psychotropic medications than their Caucasian counterparts (Cooper et al., 2003; Schnittker et al., 2000), depressed minority youth and their parents may be especially concerned that mental health treatment is affiliated with psychotropic medication use and try to avoid initiating the services. The dramatic increase in psychotropic medication use among youth clinical population along with the concerns about their largely off-label use, efficiency, and risks (Loy et al., 2012; Morris & Stone, 2011; Olfson et al., 2012; Vries et al., 2016) may further feed such a deterring effect. Future research is needed to further examine the possible link between the perception of psychotropic medications and the initiation of mental health services.

There are limitations in the study. First, NSDUH only surveys general populations but not homeless and institutionalized youth such as youth in the juvenile systems who may have a different pattern on the examined

outcomes. This limits the scope of the findings' implications. Second, the accuracy of MDE and some other key measures remains a concern. Researchers have long been concerned that culturally based mental health reporting may bias the estimation. For example, Asian Americans' low prevalence of mental health problems and service use may be attributed to potential underreporting because of a strong stigma attached to these issues in Asian culture. This may be further complicated by language barriers and Western culture-based mental health definitions that can overlook symptoms unique to Asian populations (Sue, Cheng, Saad, & Chu, 2012). Finally, despite rich information in the database, NSDUH surveys only asked whether youth took prescribed medications for MDE symptoms in the past year. This limits further exploration of racial/ethnic disparities in other important dimensions such as the use of multiple types of medications and length in medications (dosReis et al., 2011).

## Conclusions and Implications

Racial/ethnic disparities in the use of mental health services and psychotropic medications are serious public health concerns, and it is important to advance the understanding of such disparities for more responsive policy and practice considerations. Our findings reveal that youth of two or more races are at the highest risk of experiencing depression and deserve special attention, especially with their sizable and increasing proportion in the youth population. The study reveals similar patterns of racial/ethnic disparities at the decision points of accessing specialty mental health services and subsequent use of psychotropic medications, which suggest that race/ethnicity is associated with not only the initiation of specialty mental health service use but also the choice of mental health treatment methods. One plausible explanation is that service-needing youth and their families' concerns on psychotropic medication may deter their initiation of mental health services use, and such concerns may be more amplified in minority youth and their caregivers than their Caucasian counterparts (Cooper et al., 2003; Schnitker et al., 2000; Sue et al., 2012). If this is the case, it is important to strengthen rigorous evidence that shows psychotropic medications' efficacy and low risks on youth clinical populations to reduce such concerns to achieve both an improvement in access to mental health services and a reduction of racial/ethnic disparities. It may also highlight the importance of promoting evidence-based psychotherapeutic treatment for youth mental health treatment, which has been well accepted by the youth and parents (Watanabe, Hunot, Omori, Churchill, & Furukawa, 2007). Future research is needed to disentangle causes underlying racial/ethnic disparities between the use of

specialty mental health services and psychotropic medications to verify such an assumption for policy and practice considerations.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

### ORCID iD

Saijun Zhang  <https://orcid.org/0000-0002-0179-7758>

### References

- Abe-Kim, J., Takeuchi, D. T., Hong, S., Zane, N., Sue, S., Spencer, M. S., . . . Alegria, M. (2007). Use of mental health-related services among immigrant and US-born Asian Americans: Results from the National Latino and Asian American Study. *American Journal of Public Health, 97*, 91-98. doi:10.2105/AJPH.2006.098541
- Alegria, M., Lin, J., & Green, J. (2012). Role of referrals in mental health service disparities for racial and ethnic minority youth. *Journal of the American Academy of Child & Adolescent Psychiatry, 51*(7), 1-15. doi:10.1016/j.jaac.2012.05.005.
- Role
- Alegria, M., Vallas, M., & Pumariega, A. (2010). Racial and ethnic disparities in pediatric mental health. *Child and Adolescent Psychiatric Clinics of North America, 19*, 759-774. doi:10.1016/j.chc.2010.07.001.Racial
- Alexander, G. C., Gallagher, S. A., Mascola, A., Moloney, R. M., & Stafford, R. S. (2012). Increasing off-label use of antipsychotic medications in the United States, 1995-2008. *Pharmacoeconomics and Drug Safety, 20*, 177-184. doi:10.1002/pds.2082.INCREASING
- Anglin, D. M., Alberti, P. M., Link, B. G., & Phelan, J. C. (2008). Racial differences in beliefs about the effectiveness and necessity of mental health treatment. *American Journal of Community Psychology, 42*, 17-24.
- Bear, L., Finer, R., Guo, S., & Lau, A. S. (2014). Building the gateway to success: An appraisal of progress in reaching underserved families and reducing racial disparities in school-based mental health. *Psychological Services, 11*, 388-397. doi:10.1037/a0037969
- Bellonci, C., Huefner, J. C., Griffith, A. K., Vogel-Rosen, G., Smith, G. L., & Preston, S. (2013). Concurrent reductions in psychotropic medication, assault, and physical restraint in two residential treatment programs for youth. *Children and Youth Services Review, 35*, 1773-1779. doi:10.1016/j.childyouth.2013.08.007

- Bialik, K. (2017). *Key facts about race and marriage, 50 years after Loving v. Virginia*. Retrieved from <http://www.pewresearch.org/fact-tank/2017/06/12/key-facts-about-race-and-marriage-50-years-after-loving-v-virginia/>
- Bradley, K. L., McGrath, P. J., Brannen, C. L., & Bagnell, A. L. (2010). Adolescents' attitudes and opinions about depression treatment. *Community Mental Health Journal*, 46, 242-251. doi:10.1007/s10597-009-9224-5
- Breland, D. J., McCarty, C. A., Zhou, C., McCauley, E., Rockhill, C., Katon, W., & Richardson, L. P. (2014). Determinants of mental health service use among depressed adolescents. *General Hospital Psychiatry*, 36, 296-301. doi:10.1016/j.genhosppsych.2013.12.003
- Brenner, S. L., Southerland, D. G., Burns, B. J., Wagner, H. R., & Farmer, E. M. Z. (2014). Use of psychotropic medications among youth in treatment foster care. *Journal of Child and Family Studies*, 23, 666-674. doi:10.1007/s10826-013-9882-3
- Center for Behavioral Health Statistics and Quality. (2017). *2016 National Survey on Drug Use and Health—Public use file codebook*. Rockville, MD: Substance Abuse and Mental Health Services Administration.
- Center for Behavioral Health Statistics and Quality. (2018a). *2016 National Survey on Drug Use and Health Methodological Resource Book Section 13: Statistical inference report*. Rockville, MD: Substance Abuse and Mental Health Services Administration.
- Center for Behavioral Health Statistics and Quality. (2018b). *2017 National Survey on Drug Use and Health: Detailed tables*. Rockville, MD: Substance Abuse and Mental Health Services Administration.
- Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., . . . Thornicroft, G. (2015). What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological Medicine*, 45, 11-27. doi:10.1017/S0033291714000129
- Cooper, L. A., Gonzales, J. J., Gallo, J. J., Rost, K. M., Lisa, S., Rubenstein, L. V., . . . Ford, D. E. (2003). The acceptability of treatment for depression among African-American, Hispanic, and White primary care patients. *Medical Care*, 41, 479-489. doi:10.1097/01.MLR.0000053228.58042.E4
- Corbie-Smith, G., Thomas, S. B., & St. George, D. M. M. (2002). Distrust, race, and research. *Archives of Internal Medicine*, 162, 2458-2463. doi:10.1001/archinte.162.21.2458
- Cummings, J. R., & Druss, B. G. (2011). Racial/ethnic differences in mental health service use among adolescents with major depression. *Journal of the American Academy of Child & Adolescent Psychiatry*, 50, 160-170. doi:10.1021/nl061786n.Core-Shell
- dosReis, S., Yoon, Y., Rubin, D. M., Riddle, M. A., Noll, E., & Rothbard, A. (2011). Antipsychotic treatment among youth in foster care. *Pediatrics*, 128, e1459-e1466. doi:10.1542/peds.2010-2970
- Eisenberg, D., Downs, M. F., Golberstein, E., & Zivin, K. (2009). Stigma and help seeking for mental health among college students. *Medical Care Research and Review*, 66, 522-541. doi:10.1177/1077558709335173

- Fearn, N. E., Vaughn, M. G., Nelson, E. J., Salas-Wright, C. P., DeLisi, M., & Qian, Z. (2016). Trends and correlates of substance use disorders among probationers and parolees in the United States 2002-2014. *Drug and Alcohol Dependence*, 167, 128-139. doi:10.1016/j.drugalcdep.2016.08.003
- Fisher, S., Reynolds, J. L., Hsu, W. W., Barnes, J., & Tyler, K. (2014). Examining multiracial youth in context: Ethnic identity development and mental health outcomes. *Journal of Youth and Adolescence*, 43, 1688-1699. doi:10.1007/s10964-014-0163-2
- Gallo, K., Olin, S. S., York, N., York, N., Storfer-Isser, A., & Horowitz, S. M. (2018). Parent burden in accessing outpatient psychiatric services for adolescent depression in a large state system. *Psychiatric Services*, 68, 411-414. doi:10.1176/appi.ps.201600111.Parent
- Garland, A. F., Lau, A. S., Yeh, M., McCabe, K. M., Hough, R. L., & Landsverk, J. A. (2005). Racial and ethnic differences in utilization of mental health services among high-risk youths. *American Journal of Psychiatry*, 162, 1336-1343. doi:10.1176/appi.ajp.162.7.1336
- Gudiño, O. G., Lau, A. S., Yeh, M., McCabe, K. M., & Hough, R. L. (2009). Understanding racial/ethnic disparities in youth mental health services: Do disparities vary by problem type? *Journal of Emotional and Behavioral Disorders*, 17, 3-17. doi:10.1177/1063426608317710
- Guo, S., Kataoka, S. H., Bear, L., & Lau, A. S. (2014). Differences in school-based referrals for mental health care: Understanding racial/ethnic disparities between Asian American and Latino youth. *School Mental Health*, 6, 27-39. doi:10.1007/s12310-013-9108-2
- Guo, S., Nguyen, H., Weiss, B., Ngo, V. K., & Lau, A. S. (2015). Linkages between mental health need and help-seeking behavior among adolescents: Moderating role of ethnicity and cultural values. *Journal of Counseling Psychology*, 62, 682-693. doi:10.1037/cou0000094
- Hammerman, A., Dreiherr, J., & Klang, S. (2008). Antipsychotics and diabetes: An age-related association. *Annals of Pharmacotherapy*, 42, 1316-1322. Retrieved from <http://aop.sagepub.com/content/42/9/1316.short>
- Harrison, M. E., McKay, M. M., & Bannon, W. M. (2004). Inner-city child mental health service use: The real question is why youth and families do not use services. *Community Mental Health Journal*, 40, 119-131. doi:10.1023/B:COMH.0000022732.80714.8b
- Hatcher-Kay, C., & King, C. A. (2003). Depression and suicide. *Pediatrics in Review*, 24, 363-371. doi:10.1542/PIR.24-11-363
- Kataoka, S. H., Zhang, L., & Wells, K. B. (2002). Unmet need for mental health care among U.S. children: Variation by ethnicity and insurance status. *American Journal of Psychiatry*, 159, 1548-1555. doi:10.1176/appi.ajp.159.9.1548
- Kessler, R., Andrews, G., & Mroczek, D. (1998). The World Health Organization Composite International Diagnostic Interview short-form (CIDI-SF). *International Journal of Methods in Psychiatric Research*, 7, 171-185. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1002/mpr.47/full>

- Kim, H. S., Sherman, D. K., & Taylor, S. E. (2008). Culture and social support. *American Psychologist*, 63, 518-526. doi:10.1037/0003-066X
- Lee, T. G., Walker, S. C., & Bishop, A. S. (2016). The impact of psychiatric practice guidelines on medication costs and youth aggression in a juvenile justice residential treatment program. *Psychiatric Services*, 67, 214-220. doi:10.1176/appi.ps.201400544
- Leon, A. C., Olfson, M., Portera, L., Farber, L., & Sheehan, D. V. (1997). Assessing psychiatric impairment in primary care with the Sheehan Disability Scale. *The International Journal of Psychiatry in Medicine*, 27, 93-105. doi:10.2190/T8EM-C8YH-373N-1UWD
- Lindsey, M. A., Joe, S., & Nebbitt, V. (2010). Family matters: The role of mental health stigma and social support on depressive symptoms and subsequent help seeking among African American boys. *Journal of Black Psychology*, 36(4), 1-19. doi:10.1177/0095798409355796.Family
- Loy, J., Merry, S., & Hetrick, S. (2012). Atypical antipsychotics for disruptive behaviour disorders in children and youths. *Cochrane Database of Systematic Reviews*, 12(9), CD008559. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008559.pub2/pdf>
- Marcus, S. C., & Olfson, M. M. W. (2010). National trends in the treatment for depression from 1998 to 2007. *Archives of General Psychiatry*, 67, 1265-1273. doi:10.1001/archgenpsychiatry.2010.151
- McHugh, R. K., Whitton, S. W., Peckham, A. D., Welge, J. A., & Otto, M. W. (2013). Patient preference for psychological vs. pharmacological treatment of psychiatric disorders: A meta-analytic review. *Journal of Clinical Psychiatry*, 74, 595-602. doi:10.4088/JCP.12r07757
- Merikangas, K. R., He, J., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., . . . Swendsen, J. (2010). Lifetime prevalence of mental disorders in US adolescents: Results from the National Comorbidity Survey Replication-Adolescent Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry*, 49, 980-989.
- Morris, J., & Stone, G. (2011). Children and psychotropic medication: A cautionary note. *Journal of Marital and Family Therapy*, 37, 299-306. doi:10.1111/j.1752-0606.2009.00178.x
- Olfson, M., Blanco, C., Liu, S.-M., Wang, S., & Correll, R. W. B. (2012). National trends in the office-based treatment of children, adolescents, and adults with antipsychotics. *Archives of General Psychiatry*, 69, 1247-1256. doi:10.1001/archgenpsychiatry.2012.647
- Olfson, M., Druss, B. G., & Marcus, S. C. (2015). Trends in mental health care among children and adolescents. *New England Journal of Medicine*, 372, 2029-2038.
- Olin, S. S., & Clark, L. J. (2016). Access to care for youth in a state mental health system: A simulated patient approach. *Journal of the American Academy of Child & Adolescent Psychiatry*, 55, 392-399. doi:10.1016/j.jaac.2016.02.014
- Patten, E. (2017). *Racial, gender wage gaps persist in U.S. despite some progress*. Retrieved from <https://www.pewresearch.org/fact-tank/2016/07/01/racial-gender-wage-gaps-persist-in-u-s-despite-some-progress/>



- Pickering, R. P., & Kaplan, K. (2006). Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders on alcohol and related conditions. *Archives of General Psychiatry*, 61, 807-816.
- Radovic, A., Reynolds, K., McCauley, H. L., Sucato, G. S., Stein, B. D., & Miller, E. (2015). Parents' role in adolescent depression care: Primary care provider perspectives. *The Journal of Pediatrics*, 167, 911-918. doi:10.1016/j.jpeds.2015.05.049
- Rae, M., Claxton, G., Levitt, L., & McDermott, D. (2019). *Long-term trends in employer-based coverage*. Retrieved from <https://www.healthsystemtracker.org/brief/long-term-trends-in-employer-based-coverage/#item-start>
- Richardson, L. A. (2001). Seeking and obtaining mental health services: What do parents expect? *Archives of Psychiatric Nursing*, 15, 223-231. doi:10.1053/apnu.2001.27019
- Santiago, C. D., Kaltman, S., & Miranda, J. (2013). Poverty and mental health: How do low-income adults and children fare in psychotherapy? *Journal of Clinical Psychology*, 69, 115-126. doi:10.1002/jclp.21951
- Schnittker, J., Freese, J., & Powell, B. (2000). Black-White differences in beliefs about the cause and appropriate treatment of mental illness. *Social Forces*, 78, 1101-1130. doi:10.3868/s050-004-015-0003-8
- Sherman, L. J., & Ali, M. M. (2017). Mothers' mental health treatment associated with greater adolescent mental health service use for depression. *Journal of Child and Family Studies*, 26, 2762-2771. doi:10.1007/s10826-017-0781-x
- Snowden, L. R. (2003). Bias in mental health assessment and intervention: Theory and evidence. *American Journal of Public Health*, 93, 239-243. doi:10.2105/AJPH.93.2.239
- Steinman, K. J., Shoben, A. B., Dembe, A. E., & Kelleher, K. J. (2015). How long do adolescents wait for psychiatry appointments? *Community Mental Health Journal*, 51, 782-789. doi:10.1007/s10597-015-9897-x
- Strawn, J. R., Dobson, E. T., & Giles, L. L. (2017). Primary pediatric care psychopharmacology: Focus on medications for ADHD, depression, and anxiety. *Current Problems in Pediatric and Adolescent Health Care*, 47, 3-14. doi:10.1016/j.CPPEDS.2016.11.008
- Substance Abuse and Mental Health Data Archive. (2014). *How do I account for complex sampling design when analyzing NSDUH data?* Retrieved from <http://samhda-faqs.blogspot.com/2014/03/how-do-i-account-complex-sampling.html>
- Substance Abuse and Mental Health Services Administration. (2017). *2016 National Survey on Drug Use and Health—Public use file codebook*. Rockville, MD: Author.
- Sue, S., Cheng, J. K. Y., Saad, C. S., & Chu, J. P. (2012). Asian American mental health: A call to action. *American Psychologist*, 67, 532-544. doi:10.1037/a0028900
- Telzer, E. H., & Fuligni, A. J. (2009). Daily family assistance and the psychological well-being of adolescents from Latin American, Asian, and European backgrounds. *Developmental Psychology*, 45, 1177-1189. doi:10.1037/a0014728



- Thapar, A., Collishaw, S., Pine, D. S., & Thapar, A. K. (2012). Depression in adolescence. *The Lancet*, 379, 1056-1067. doi:10.1016/S0140-6736(11)60871-4
- Vaughn, M. G., Nelson, E. J., Salas-Wright, C. P., DeLisi, M., & Qian, Z. (2016). Handgun carrying among White youth increasing in the United States: New evidence from the National Survey on Drug Use and Health 2002-2013. *Preventive Medicine*, 88, 127-133. doi:10.1016/j.ypmed.2016.03.024
- Vaughn, M. G., Salas-Wright, C. P., DeLisi, M., & Maynard, B. R. (2014). Violence and externalizing behavior among youth in the United States: Is there a severe 5%? *Youth Violence and Juvenile Justice*, 12, 3-21. doi:10.1177/1541204013478973
- Vries, Y., Jonge, P., Kalverdijk, L., & Bos, J. (2016). Poor guideline adherence in the initiation of antidepressant treatment in children and adolescents in the Netherlands: Choice of antidepressant and dose. *European Child & Adolescent Psychiatry*, 25, 1161-1170. Retrieved from <http://link.springer.com/article/10.1007/s00787-016-0836-3>
- Watanabe, N., Hunot, V., Omori, I. M., Churchill, R., & Furukawa, T. A. (2007). Psychotherapy for depression among children and adolescents: A systematic review. *Acta Psychiatrica Scandinavica*, 116, 84-95. doi:10.1111/j.1600-0447.2007.01018.x
- Wirback, T., Möller, J., Larsson, J. O., & Engström, K. (2018). Social differences in diagnosed depression among adolescents in a Swedish population based cohort. *BMC Psychiatry*, 18, 15-17. doi:10.1186/s12888-018-1765-0
- Zahn-Waxler, C., Shirtcliff, E. A., & Marceau, K. (2008). Disorders of childhood and adolescence: Gender and psychopathology. *Annual Review of Clinical Psychology*, 4, 275-303. doi:10.1146/annurev.clinpsy.3.022806.091358
- Zhang, S., Smith, D. C., & Tabb, K. M. (2018). Adolescent depression and the use of services and psychotropic medications in relation to family structure and race/ethnicity. *Children and Youth Services Review*, 94, 636-643. doi:10.1016/J.CHILDYOUTH.2018.09.004
- Zito, J. M., Safer, D. J., Zuckerman, I. H., Gardner, J. F., & Soeken, K. (2005). Effect of Medicaid eligibility category on racial disparities in the use of psychotropic medications among youths. *Psychiatric Services*, 56, 157-163. doi:10.1176/appi.ps.56.2.157

## Author Biographies

**Saijun Zhang**, is an assistant professor of Social Work at the University of Mississippi. His research focuses on child maltreatment and youth behavioral health problems such as bullying, mental health, and substance abuse. He also has rich experiences in policy analyses and program evaluations.

**Daphne S. Cain**, is the associate dean and professor at the University of Alabama School of Social Work. She is also the Editor in Chief of *Best Practices in Mental Health*. Her areas of scholarship, funding and research interests include disaster mental health, parenting interventions with high-risk and vulnerable families, religion/spirituality and social work practice and child welfare training.

**Minli Liao**, is an assistant professor at the Morgan State University School of Social Work. Her research focuses on urban child welfare, children with disabilities, child abuse & neglect, grandparenting, and quantitative & qualitative research methods.