



HHS Public Access

Author manuscript

J Psychiatr Res. Author manuscript; available in PMC 2019 December 01.

Published in final edited form as:

J Psychiatr Res. 2018 December ; 107: 114–119. doi:10.1016/j.jpsychires.2018.10.019.

Racial and ethnic differences in mental health service utilization in suicidal adults: A nationally representative study

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Abstract

The current study examined racial/ethnic differences in utilization of mental health services in a nationally representative sample of suicidal adults. Data were extracted from the National Survey on Drug Use and Health (NSDUH) from 2009 to 2016. Participants consisted of adults with severe suicidal ideation and/or behavior in the past 12 months (unweighted $n = 17,338$). Multivariate logistic regression analyses were conducted to assess racial/ethnic differences in mental health treatment utilization after adjusting for health insurance status, family income, age, sex, and major depression. Analyses were conducted separately for suicidal ideators with no attempts (i. e., “pure” ideators; unweighted $n = 14,578$) and for suicide attempters (unweighted $n = 2,760$) for psychiatric inpatient and outpatient care, respectively. Racial/ethnic disparities in mental health treatment utilization were less apparent for inpatient care and most evident for outpatient care. For inpatient care, no racial/ethnic differences were observed among suicidal ideators with no attempts. Among suicide attempters, only Hispanics were less likely than non-Hispanic whites to receive inpatient care. In contrast, for outpatient care, treatment use was lower for all racial ethnic minorities, except Native American and multiracial individuals, relative to non-Hispanic whites among suicidal ideators with no attempts. Outpatient service use was also lower for non-Hispanic blacks, Hispanics, and multiracial individuals relative to non-Hispanic whites among suicide attempters. This pattern of findings is consistent with the possibility that suicidal racial/ethnic minorities may delay use of mental health services until clinical severity becomes such that elevated clinical care (i.e., inpatient treatment) is required. Future research accounting for these disparities is warranted.

Keywords

ethnicity; race; suicide; treatment

Introduction

Suicide is one of the 10 leading causes of death. Moreover, between 1999 and 2016, the national suicide rate in the U.S. has steadily increased by 30% (Stone et al., 2018). Of particular note, differences in rates of suicidal behavior across racial/ethnic groups persist, with notably higher rates particularly among Native Americans in early adulthood (Nock et

al., 2008). These findings reflect the fact that suicidal thoughts and behaviors continue to be a serious public health concern, and treatment intervention for this clinical concern is of increasing priority. Two of the most commonly recognized risk factors for death by suicide are suicidal ideation and suicide attempts, which are themselves also clinically significant phenomena (Nock et al., 2008). Despite this recognition, a major obstacle to clinical intervention efforts is the very low treatment utilization rates among individuals with suicidal ideation or behavior. Indeed, a previous study by Han et al., (2014), reports that among adults with suicide attempts in the past 12 months, only 56.3% received mental health treatment at some point during the same time period. Identifying individual characteristics associated with low treatment utilization is especially important for advancing clinical intervention efforts in at-risk populations. One such characteristic, and the focus of this study, are racial/ethnic minorities, a group that has been traditionally understudied in the suicide literature.

Racial/ethnic differences persist in terms of mental health treatment in general, and suicidality in particular. Several historical and contemporary factors likely account for these disparities. For example, historical abuses and the resulting culture of mistrust of healthcare systems (e.g. the Tuskegee experiment) likely contribute to lower service utilization among minorities (Breland-Noble, 2004; Goldston et al., 2008; Nickerson et al., 1994). Perhaps related to this issue of mistrust, better outcomes and treatment compliance have been documented for individuals who receive care from health care providers of the same race/ethnicity (Traylor et al., 2010). Furthermore, racial/ethnic minorities, especially those who are less acculturated, are more likely to seek help through alternative means, (e.g., family and religious providers) rather than formal mental health services (Snowden & Yamada 2005). These concerns regarding factors driving disparities in mental health treatment utilization are particularly heightened in the case of suicide given the added stigma associated with this clinical outcome. That is, although there is stigma surrounding mental health in general, this is even more the case among racial/ethnic minorities (Freedenthal and Stiffman, 2007; Novins et al., 2004). Moreover, this stigma is particularly strong in the case of suicide (Goldston et al., 2008), adding to the challenges of increasing mental health service utilization.

Given these considerations, it is perhaps not surprising that racial/ethnic identity has emerged as a notable predictor of lack of treatment utilization. Racial/ethnic minorities in the U.S. have lower mental health utilization rates compared to non-Hispanic whites, with 22.4% of Latinos and 25.0% of African Americans receiving treatment for diagnosis-based need of mental health care compared to 37.6% of whites (Wells et al., 2001). In addition, failure to make initial treatment contact and delay to make treatment contact were also associated with racial/ethnic minority status (Wang et al., 2005). Furthermore, mental health care specifically among individuals with suicidal thoughts and behaviors mirror these general trends of racial/ethnic disparity. Among adults who attempted suicide in the past year, receipt of mental health treatment over the same time period was lower among non-Hispanic blacks (39.7%) and Hispanics (44.4%) than among non-Hispanic whites (65.8%; Han et al., 2014).

Despite these findings, important gaps remain in the empirical literature on racial/ethnic differences in treatment utilization in suicidal adults. Clarifying precisely the nature of these disparities in treatment use is a necessary step toward addressing suicidality across racial/ethnic minority populations. Specifically, although several prior studies have investigated mental health treatment rates for suicidality across racial/ethnic categories (Chakravarthy et al., 2014; Han et al., 2014; Hines et al., 2017), more fine-grained examinations of severity of suicidality in relation to level of clinical care are necessary for their potential to inform mental health treatment. Intensity of clinical care was determined as receipt of either inpatient treatment services, implying need for acute level of care and temporary admission to a hospital setting, with patients expressing imminent safety concerns for suicidal behaviors compared to outpatient treatment service outside of the hospital setting, utilized by patients at a high risk for suicidal behaviors, albeit presenting a lower immediate threat to their safety. If greater racial/ethnic differences emerged at the less acute, lower levels of mental health care, from a public policy perspective, the strategic allocation of resources towards these outpatient clinics may reduce inequalities.

The objective of the current study was directly to address this alarming gap in the empirical literature by examining racial/ethnic differences in receipt of mental health treatment in a nationally representative sample of suicidal adults at different levels of suicidal severity and intensity of clinical care. That is, the current study assessed psychiatric treatment use separately in suicidal ideators with no attempts (i.e., individuals experiencing suicidal ideation but without any attempts) and suicide attempters. This decision was made to avoid confounding treatment use associated with suicidal ideation and suicide attempts, an important consideration given theoretically and empirically important distinctions between these two clinical phenomena (Klonsky and May, 2014; May and Klonsky, 2016; Van Orden et al., 2010). Furthermore, the current study pooled data across multiple years of an annual, nationally representative survey (National Survey on Drug Use and Health; NSDUH). This puts it in a unique position to overcome the challenge of the naturally low base rate of suicidal ideation and behavior and to yield adequately powered, fine grain analyses of racial/ethnic patterns in treatment use across different levels of suicidality and clinical care.

Methods

Data source and study sample

Data were drawn from NSDUH for years 2009 to 2016 (unweighted $n = 319,609$). The Substance Abuse and Mental Health Services Administration (SAMHSA) conducts this survey, which employs a multilevel stratified hierarchical sampling procedure, annually to determine the prevalence of substance use and related disorders in the United States amongst adolescents and adults. The NSDUH uses multi-state area probability methods to ensure the sample is nationally representative. Data were collected from residents of all 50 states and the District of Columbia of ages 12 and older, including individuals living in residential homes, group homes, shelters, college dormitories, half-way homes, and military bases. NSDUH excludes homeless persons who are not in shelters, military personnel on active duty, and residents of institutional group quarters such as prisons and long-term hospitals (for more information see SAMSHA, 2014). The current study specifically analyzed data

from adults age 18 and over who reported suicidal ideation or suicidal behavior in the past 12 months (unweighted $n = 17,338$).

Procedure

All study items were administered by interviewers using computer-assisted personal interviewing (CAPI) and audio computer-assisted self-interviewing (ACSSI). CAPI was used to gather sociodemographic information, while ACSSI was utilized to collect data of a more sensitive nature (e.g. information about suicidality, illegal activity and substance use), because it provides participants with more privacy than traditional interviewing techniques. ACSSI has been shown to encourage openness and increase the likelihood of honest reporting (Tourangeau and Yan, 2007; Turner et al., 1998).

Study variables

Suicidal ideation over the most recent 12 months was assessed with the question: “At any time in the past 12 months, up to and including today, did you seriously think about trying to kill yourself?” Individuals with a positive endorsement of this item were asked the follow-up question to assess for past-12-month suicide attempt history: “During the past 12 months, did you try to kill yourself?” Individuals who endorsed the suicidal ideation question but not the suicide attempt question were classified as suicidal ideators with no attempts, and those who endorsed the suicide attempt item were classified as suicide attempters.

Major depression within the past 12 months was assessed using items from the depression section of the National Comorbidity Survey-Replication (Kessler and Merikangas, 2004). Major depressive episodes were defined using DSM-IV criteria.

Psychiatric inpatient treatment utilization within the past 12 months was assessed with the question: “During the past 12 months, have you stayed overnight or longer in a hospital or other facility to receive treatment or counseling for any problem you were having with your emotions, nerves, or mental health?” Psychiatric outpatient treatment was ascertained with the question: “During the past 12 months, did you receive any outpatient treatment or counseling for any problem you were having with your emotions, nerves, or mental health at any of the places listed below?” The options provided included: (i) outpatient mental health clinics, (ii) outpatient medical clinics, (iii) partial day hospital or day treatment programs, (iv) private therapists, psychologists, psychiatrists, social workers, or counselors, (v) doctor offices, (vi) other treatment centers.

Data analysis

A series of four multivariate logistic regression analyses was conducted to evaluate differences in mental health treatment utilization across various racial/ethnic groups. Specifically, race/ethnicity were evaluated in relation to treatment utilization, with inpatient treatment and outpatient treatment, respectively, serving as the criterion variable. These two analyses were first performed for suicidal ideators with no attempts and then repeated for suicide attempters. To avoid confounding suicidal ideation and suicide attempts (i.e., the potential for an observed effect for suicidal ideation to be better accounted for by the presence of suicide attempters in the analysis), suicide attempters were excluded from

analyses of suicidal ideation. Age, sex, past-12-month major depression, health insurance status (private, Medicaid, other insurance, or uninsured), and family income (under \$20,000, \$20,000 to \$50,000, \$50,000 to \$75,000, and over \$75,000) were included as covariates in all analyses. Weighting procedures were employed to account for the complex sampling methodology (U.S. Department of Health and Human Services, 2014). Data were analyzed using SPSS Version 23 (IBM Corporation, USA).

Results

Among adults in the current sample, racial/ethnic composition was as follows: 70.22% non-Hispanic white, 10.23% non-Hispanic black, 0.85% Native American, 4.03% Asian, Hawaiian, and Pacific Islander, 2.50% multiracial, and 12.18% Hispanic. The average age in the sample was 26 to 34 years¹, and 53.31% were female. Overall, 47.38% of individuals with severe suicidal ideation but no attempts and 55.04% of suicide attempters had received any mental health treatment in the past year. When considered by level of psychiatric care, 29.93% of suicidal ideators with no attempts and 39.56% of suicide attempters received outpatient care, whereas 4.94% of suicidal ideators with no attempts and 27.13% of suicide attempters received inpatient care.

Sociodemographic characteristics of the sample are detailed in Table 1. Relative to non-Hispanic whites, a higher portion of non-Hispanic blacks were female. Furthermore, in terms of socioeconomic status, racial/ethnic minorities, with the exception of Asians, Hawaiian and Pacific Islanders, tended to be overrepresented in the lower income brackets and underrepresented in the higher income brackets relative to non-Hispanic whites. As it pertains to insurance status, racial/ethnic minorities again with the exception of Asians, Hawaiian and Pacific Islanders, were also generally less likely to have private insurance and more likely to be on Medicaid compared to non-Hispanic whites. Finally, non-Hispanic blacks and Hispanics were more likely to be uninsured than were non-Hispanic whites.

In our multivariate logistic regressions analyses several racial/ethnic differences in treatment utilization arose. These results were robust, remaining significant after covarying age, gender, family income, insurance, and major depression. Among adults with suicidal ideation but no attempts, there were no significant differences across racial/ethnic categories for inpatient treatment utilization. In contrast at the outpatient level of treatment, service use among suicidal ideators with no attempts was significantly lower for non-Hispanic blacks, Asian Hawaiian and Pacific Islanders and Hispanics relative to non-Hispanic whites. These findings are summarized in Table 2. In corresponding analyses with suicide attempters, psychiatric inpatient utilization was significantly lower for Hispanics as compared to non-Hispanic whites. When psychiatric outpatient treatment use was considered instead as the criterion variable, several notable differences emerged. Specifically, psychiatric outpatient use was lower for non-Hispanic blacks, multiracial individuals, and Hispanics relative to non-Hispanic whites. These results are presented in Table 3.

¹Data on age were only available as categorical age brackets, average age bracket rather than average age was computed for the sample.

Discussion

The following study provides an examination of racial/ethnic differences, a generally understudied area in mental health treatment utilization within a nationally representative sample of suicidal adults. This is the first study to do so at different levels of treatment intensity and suicide severity. The current study first and foremost reveals that racial/ethnic minority groups with severe suicidal ideation and suicide attempts report low rates of treatment utilization across all levels of care. Roughly half of adults who experienced suicidal ideation or attempted suicide, respectively, received psychiatric treatment over the last 12 months. It is important to note within this context that the study assessed individuals with *severe* suicidal ideation (i.e., individuals with clinically significant presentations in need of treatment). These trends therefore reflect substantial treatment underutilization among those with clinically severe suicidality across all racial/ethnic categories. They are also consistent with previous findings amongst adult suicide attempters of which only 56.3% received mental health treatment within the past 12 months (Han et al., 2014). These findings underscore the imperative for increased efforts to bridge the significant unmet treatment needs of those at particular risk for self-harm in the general population.

With more fine-grained analyses, important differences in race/ethnicity and the severity of suicidal ideation and behavior emerged regarding psychiatric treatment utilization. Specifically, among individuals experiencing severe suicidal ideation, several racial/ethnic minority groups including non-Hispanic blacks, Asian, Hawaiian and Pacific Islanders and Hispanics were less likely to receive outpatient treatment compared to non-Hispanic white adults. In contrast, no racial/ethnic differences emerged across ideators with no attempts for inpatient care. A similar, but less prominent trend was observed for individuals who attempted suicide. In particular, non-Hispanic blacks, Hispanics, and multiracial individuals were less likely than non-Hispanic whites to receive outpatient care. However, racial/ethnic differences were less pronounced for inpatient treatment for suicidal attempters, with only Hispanics being significantly less likely to receive inpatient care than non-Hispanic whites. Also important to note, that regardless of severity of suicidality certain racial ethnic groups appear particularly less likely to receive treatment. Specifically, non-Hispanic blacks and Hispanics are the two groups that are significantly less likely to receive outpatient care (i.e., across both suicidal ideators with no attempts and attempters). These two groups are thus, in particular need of clinical efforts to reduce this unmet need.”

Collectively, these findings indicate that racial/ethnic differences are evident at less intense levels of psychiatric care (i.e., outpatient) but largely disappear at more intensive levels of care (i.e., inpatient). There are several possibilities that might account for this interesting pattern of findings. First and foremost, these results might indicate that racial/ethnic minorities are less inclined than non-Hispanic whites to access care when symptoms are less severe and thus require less intensive or outpatient level care. Instead, they may wait until clinical severity becomes such that delaying care further is no longer an option, thus decreasing this racial/ethnic gap at the inpatient level. Moreover, the level of suicidal severity at which certain racial/ethnic minorities, including non-Hispanic Blacks, register clinical concern may be significantly higher because of the general view that they are not at risk for suicide (Goldston et al., 2008; Morrison and Downey, 2000). This delay in receipt of

treatment for racial/ethnic minorities has not only been evident within the context of suicidal ideation and behavior, but has emerged more broadly for other mental and physical health conditions including alcoholism, breast cancer and heart failure (Evangelista et al., 2002; Sherri Sheinfeld et al., 2006; Wang et al., 2005).

Complementing this possibility, disparities and potential delays in treatment may be attributed to a complex network of barriers. Such barriers may include the cost of services, lack of insurance, not knowing where to go for help, and not being able to find transportation to appointments. Several of these structural barriers (e.g., difficulty of acquiring necessary transportation to and from appointments) may be a function of greater representation of racial/ethnic minorities among lower income brackets, as was found in the current study. Related to this view, differences in health insurance coverage have been recognized as a factor behind racial/ethnic differences in health care utilization (Lillie-Blanton and Hoffman, 2005). However, lower socioeconomic status and disparities in health insurance do not seem to entirely explain the disparities in treatment use observed in this study, as they persisted even after accounting for family income and health insurance status. Furthermore, racial/ethnic disparities in general health care utilization among suicide attempters were found in another recent study restricting analyses to individuals with health insurance coverage (Ahmedani et al., 2016). There are several other structural barriers that may uniquely affect racial/ethnic minorities in adequately obtaining mental health care. For example, lack of interpreter services or culturally/linguistically relevant resources has been associated with patient dissatisfaction, poor compliance, and low quality care (Bauer and Alegría, 2010). Within Spanish-speaking demographics, those who are unable to receive care in Spanish are more likely to have poor medication adherence, miss appointments, and visit the emergency room for care as compared to those with Spanish-speaking physicians (Hornberger et al., 1997). To the extent that structural barriers interfere with disparities in treatment across racial/ethnic minorities, the need to increase accessibility of culturally relevant treatment options remains an outstanding priority. However, as it stands now there is a gap in the literature with regards to the effects of cultural competence training on patient health status outcomes (Beach et al., 2005),

The possible role of other types of barriers in accounting for racial/ethnic disparities in psychiatric care among suicidal individuals also warrants mention. These disparities may be a reflection of difficulties accessing care as a product of bias, prejudice, and stereotyping amongst healthcare providers who may be less likely to treat and refer racial/ethnic minorities with suicidal ideation and behaviors to treatment (Atdjian and Vega, 2005). Additionally, attitudinal barriers, including stigma surrounding mental health care, may be more common among racial ethnic minorities. Indeed, supporting this view, immigrant non-Hispanic black and Latina women tend to report more concerns related to stigma than U.S.-born non-Hispanic white women (Nadeem et al., 2007). Furthermore, this cultural difference in stigma, and related differences in psychiatric care utilization, may be particularly pronounced in the case of suicide (Klonsky et al., 2016). Given the still rising number of racial/ethnic minorities that constitute the U.S. population (Colby and Ortman, 2015), it is imperative to address the structural and attitudinal barriers that disproportionately prevent these demographics from capitalizing on available treatment.

Finally, other cultural considerations may also account for the patterns of psychiatric treatment use among racial/ethnic groups found in the current study. Specifically, even when the need for help with suicidality is recognized, certain racial/ethnic groups, particularly Asian and Hispanic individuals, may defer contact with mental healthcare providers, preferring instead to deal with this issue within the family or religious community (Cauce et al., 2002; Goldston et al., 2008).

The present study advances our understanding of the nature of racial/ethnic disparities in psychiatric treatment utilization among suicidal individuals. However, it is not without limitations. First, this study relied on cross-sectional data, and thus it was not able to address the temporal relation between suicidal ideation and behavior and treatment utilization across racial/ethnic groups. Racial/ethnic differences in psychiatric care following suicidal ideation and behavior, the general focus of the empirical literature in the area, may differ from racial/ethnic disparities in the emergence of suicidality *following* psychiatric treatment contact (e.g., for depression). This latter possibility is of clinical importance, given the finding that the first several months following treatment are a particularly high-risk period for suicidal ideation and behaviors (Deisenhammer et al., 2007; Hunt et al., 2009; Luoma et al., 2002; Ping and Nordentoft, 2005), and merits investigation in future research. It may be, for example, that racial/ethnic minorities are more likely to prematurely terminate treatment (e.g., inpatient discharge against medical advice). It is also possible that racial/ethnic minorities are less likely to receive follow-up treatment to which they were referred (Alegria et al., 2008). If racial/ethnic minorities are indeed at greater risk for suicidal ideation and behavior following contact with mental healthcare providers for these reasons, it would point to the need for greater support for racial/ethnic minorities in this critical period immediately following treatment contact, focusing clinical resources on supporting treatment adherence and medication compliance. It would also speak to the need for the development of treatment approaches tailored to different populations at risk for suicidality, as well as culturally sensitive strategies for improving transitions of care following hospital discharge.

In addition, this study did not directly assess the relative influence of structural and attitudinal barriers on the observed disparity in treatment utilization among racial/ethnic minority groups. Identifying the barriers of direct relevance to suicidal individuals in racial/ethnic minority populations may directly inform early intervention efforts with these groups. Future research should also assess the underlying mechanisms that lead to barriers in treatment utilization among suicidal individuals, including access to providers, low perceived need, stigma concerning mental health treatment and lack of culturally relevant treatment options. For example, previous studies have revealed that adoption of complementary alternative treatment becomes more likely when access to conventional care is restricted due to financial difficulties, unmet needs in medical care or delayed care, considerations that disproportionately affect minority groups (Su and Li, 2011).

It was also not possible to conduct more fine-grained analyses of racial/ethnic differences for specific forms of outpatient treatment. Thus, it is unclear to what degree the observed disparities hold or differ across notable differently levels of outpatient care (e.g., partial day programs being more intensive than services received in primary care settings). Such

information would be important for strategically focusing resources to reduce disparities in treatment utilization.

Finally, it should also be noted that while commonly used single- and dichotomous-item measures of suicidal ideation and suicide attempts, as are used in this study, provide benefits in terms of economy, multi-item interview measures offer comparably greater precision (Millner et al., 2015).

The findings of the current study, collectively suggestive of a tendency to defer psychiatric treatment use among racial/ethnic minorities until greater clinical severity, are particularly important given the clinically significant consequences of these potential delays in treatment. First, most individuals who progress from suicidal ideation to attempts do so within the first 12-month onset of ideation (Kessler et al., 1999; Nock et al., 2008). Secondly, prior research has found that the risk of attempts increases by 32% with each prior attempt, with shortening intervals between each successive attempt (Goldston et al., 2015; Leon et al., 1990). Intervening early is therefore critical insofar as it could prevent suicidal individuals from following a progressively worsening trajectory. Further research is needed to understand the distinct ways in which racial/ethnic minorities, who engage in suicidal behaviors, are uniquely neglected by mental health care systems, so as to increase access to high-quality mental health treatment.

Acknowledgements

Preparation of this manuscript was supported in part by the National Institute of Mental Health of the National Institutes of Health under Award Number R01MH101138. The content is solely the responsibility of the authors and does not necessarily represent the official views of the funding agency.

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Table 1. Sociodemographic characteristics of the total study sample (unweighted n = 17,338)

Characteristics	Total Sample	Non-Hispanic White	Non-Hispanic Black	Native American	Asian, Hawaiian or Pacific Islander	Hispanic	Multiracial
Female	53.31%	52.35%	60.86% ^{***}	50.76%	57.15%	51.66%	51.83%
Family Income							
>\$75,000	23.52%	26.26%	12.56% ^{***}	4.29% ^{***}	32.03%	16.09% ^{***}	20.35%
\$50,000 to \$75,000	14.12%	15.01%	9.55% ^{***}	11.58%	17.46%	11.84% [*]	14.48%
\$20,000 to \$50,000	33.79%	33.97%	32.10%	24.89%	26.58% [*]	37.46%	32.37%
<\$20,000	28.57%	24.76%	45.79% ^{***}	59.24% ^{***}	23.92%	34.61% ^{***}	32.80% ^{**}
Insurance							
Private	52.10%	56.92%	35.38% ^{***}	18.07% ^{***}	61.66%	37.92% ^{***}	50.13% [*]
Medicaid	17.83%	14.86%	31.24% ^{***}	39.81% ^{***}	13.68%	22.72% ^{***}	22.06% ^{***}
Other	10.65%	10.87%	10.15%	26.88% ^{***}	7.79%	9.14%	12.93%
Uninsured	19.42%	17.36%	23.22% ^{***}	15.25%	16.87%	30.22% ^{***}	14.88%

Note: Non-Hispanic whites served as the reference group in all comparisons

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Multivariate associations of race/ethnicity with mental health treatment among suicidal ideators (unweighted n = 14, 578)^a

Table 2.

Variables	Inpatient Treatment Odds Ratios (95% CI)	P	Outpatient Treatment Odds Ratios (95% CI)	P
Race/Ethnicity				
Non-Hispanic Black	1.09 (0.73–1.62)	0.69	0.55 (0.44–0.69) ***	<0.001
Native American	0.59 (0.27–1.32)	0.20	0.69 (0.39–1.21)	0.19
Asian, Hawaiian and Pacific Islander	1.27 (0.56–2.86)	0.57	0.47 (0.26–0.86) *	0.02
Multiracial	1.08 (0.59–1.95)	0.81	0.74 (0.52–1.07)	0.11
Hispanic	1.38 (0.95–2.02)	0.09	0.70 (0.58–0.84) ***	<0.001
Non-Hispanic White (reference)	1.00		1.00	
Sex				
Female	0.97 (0.76–1.23)	0.78	1.67 (1.45–1.92) ***	<0.001
Male (reference)	1.00		1.00	
Family Income				
<\$20,000	1.50 (0.97–2.32)	0.07	0.86 (0.70–1.06)	0.86
\$20,000 to \$50, 000	0.96 (0.64–1.45)	0.85	0.79 (0.64–0.98)	0.79
\$50,000 to \$75, 000	1.13 (0.70–1.84)	0.61	0.72 (0.57–0.91)	0.72
>\$75,000 (reference)	1.00		1.00	
Insurance				
Private	3.10 (2.92–4.20) ***	<0.001	1.28 (1.08–1.51) **	<0.01
Medicaid	1.94 (1.33–2.84) **	<0.01	1.38 (1.02–1.85) *	0.04
Other	1.23 (0.84–1.78)	0.284	0.64 (0.55–0.76) ***	<0.001
Uninsured (reference)	1.00		1.00	
Age				
18–25 Years Old	0.68 (0.50–0.96) *	0.03	0.62 (0.52–0.74) ***	<0.001
26–34 Years Old	0.82 (0.55–1.23)	0.33	0.86 (0.71–1.05)	0.15
35–49 Years Old	1.19 (0.83–1.71)	0.35	1.17 (0.96–1.43)	0.12
50 or Older (reference)	1.00		1.00	
Major Depression	2.23 (1.75–2.84) ***	<0.001	2.96 (2.58–3.38) ***	<0.001

Note: Each column represents a separate multivariate logistic regression model.

Excluding participants with suicide attempts

100.0 > d ***
10.0 > d **
50.0 > d *

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Table 3. Multivariate associations of race/ethnicity with mental health treatment among suicide attempters (unweighted n = 2,760)

Variables	Inpatient Treatment Odds Ratios (95% CI)	P	Outpatient Treatment Odds Ratios (95% CI)	P
Race/Ethnicity				
Non-Hispanic Black	0.67 (0.42–1.05)	0.08	0.43 (0.29–0.65)***	<0.001
Native American	1.65 (0.66–4.10)	0.28	1.18 (0.51–2.76)	0.69
Asian, Hawaiian and Pacific Islander	0.64 (0.26–1.60)	0.34	0.61 (0.29–1.29)	0.19
Multiracial	0.50 (0.24–1.06)	0.07	0.50 (0.25–0.99)*	<0.05
Hispanic	0.57 (0.37–0.88)*	0.01	0.55 (0.36–0.82)**	<0.01
Non-Hispanic White (reference)	1.00		1.00	
Sex				
Female	0.83 (0.60–1.16)	0.27	1.33 (0.96–1.85)	0.09
Male (reference)	1.00			
Family Income				
<\$20,000	1.38 (0.87–2.18)	0.17	1.24 (0.75–2.02)	0.40
\$20,000 to \$50, 000	0.98 (0.62–1.57)	0.94	0.88 (0.57–1.38)	0.59
\$50,000 to \$75, 000	0.60 (0.31–1.16)	0.13	0.75 (0.43–1.30)	0.75
>\$75,000 (reference)	1.00		1.00	
Insurance				
Private	2.32 (1.60–3.37)***	<0.001	1.82 (1.23–2.69)**	<0.01
Medicaid	0.98 (0.56–1.73)	0.95	1.41 (0.90–2.25)	0.14
Other	1.02 (0.64–1.61)	0.94	0.56 (0.37–0.87)**	<0.01
Uninsured (reference)	1.00		1.00	
Age				
18–25 Years Old	0.78 (0.47–1.29)	0.33	0.85 (0.55–1.31)	0.45
26–34 Years Old	1.17 (0.61–2.23)	0.64	1.91 (1.14–3.20)*	0.02
35–49 Years Old	1.46 (0.82–2.61)	0.20	1.94 (1.17–3.21)*	0.01
50 or Older (reference)	1.00		1.00	
Major Depression	2.75 (2.02–3.76)***	<0.001	4.58 (3.48–6.04)***	<0.001

Note: Each column represents a separate multivariate logistic regression model.

1000

 $p < 0.001$
100
**
 $p < 0.01$
50
*
 $p < 0.05$

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