

Structural indicators of suicide: an exploration of state-level risk factors among Black and White people in the United States, 2015–2019

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Abstract

Purpose – Death by suicide among Black people in the USA have increased by 35.6% within the past decade. Among youth under the age of 24 years old, death by suicide among Black youth have risen substantially. Researchers have found that structural inequities (e.g. educational attainment) and state-specific variables (e.g. minimum wage, incarceration rates) may increase risk for suicide among Black people compared to White people in the USA. Given the limited understanding of how such factors systematically affect Black and White communities differently, this paper aims to examine these relationships across US states using publicly available data from 2015 to 2019.

Design/methodology/approach – Data were aggregated from various national sources including the National Center for Education Statistics, the Department of Labor, the FBI's Crime in the US Reports and the Census Bureau. Four generalized estimating equations (GEE) models were used to examine the impact of state-level variables on suicide rates: Black adults suicide rate, Black youth (24 years and younger) suicide rate, White adult suicide rate and White youth suicide rate. Each model includes state-level hate group rates, minimum wage, violent crime rates, gross vacancy rates, and race-specific state-level poverty rates, incarceration rates and graduation rates.

Findings – Across all GEE models, suicide rates rose between 2015–2019 ($\beta = 1.11 - 2.78$; $\beta = 0.91 - 1.82$; $\beta = 0.52 - 3.09$; $\beta = 0.16 - 1.53$). For the Black adult suicide rate, state rates increased as the proportion of Black incarceration rose ($\beta = 1.14$) but fell as the gross housing vacancy rates increased ($\beta = -1.52$). Among Black youth, state suicide rates rose as Black incarcerations increased ($\beta = 0.93$). For the adult White suicide rate, state rates increased as White incarceration ($\beta = 1.05$) and percent uninsured increased ($\beta = 1.83$), but fell as White graduation rates increased ($\beta = -2.36$). Finally, among White youth, state suicide rates increased as the White incarceration rate rose ($\beta = 0.55$) and as the violent crime rate rose ($\beta = 0.55$) but decreased as state minimum wages ($\beta = -0.61$), White poverty rates ($\beta = -0.40$) and graduation rates increased ($\beta = -0.97$).

Originality/value – This work underscores how structural factors are associated with suicide rates, and how such factors differentially impact White and Black communities.

Keywords Mental health, Healthcare, Education, Criminal justice, Race, Socioeconomic status, Structural inequities, Suicidology

Paper type Research paper

Death by suicide has become a major public health issue that has been receiving attention in research and media. Within the past decade, death by suicide among youth aged 10–24 have increased by 56% (Curtin and Heron, 2019). In addition, suicide has increased from the third to the second leading cause of death in adolescents 11–18 years old (Ibid). Among children and youth, there has been an increase in death by suicide in Black children under 12 years of age (Bridge *et al.*, 2018). In fact, the rates of

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suicide among White children have gone down while rates for suicide among Black children are steadily rising (Lindsey *et al.*, 2019). Moreover, while rates of suicide have decreased slightly overall and among White adults since 2018, rates among Black adults have increased by 30% between 2014 and 2019 (Ramchand *et al.*, 2021). Additionally, Black adults in the USA have a higher rate of incarceration compared to White people, which may increase their likelihood of having poor mental health outcomes and increase risk of death by suicide (Gunter *et al.*, 2013; Nowotny and Kuptsevych-Timmer, 2018).

Although emerging research has examined the relationship between race and suicide, misinterpretations of such findings have suggested race as a risk factor for suicide instead of acknowledging structures of oppression that have created systematic disadvantage based on race (Standley, 2020). Indeed, previous research has suggested that there are larger societal and social factors contributing to suicide that may be impacting Black youth differently than White youth (Debnam and Temple, 2021).

Prior research has illustrated that structural inequities such as socioeconomic status; Schober *et al.*, 2021; Xiao and Lindsey, 2021) and state-specific variables (e.g. minimum wage, overall housing vacancy rate in an area; Kaufman *et al.*, 2020) systematically affect Black and White people differently, which may aid in explaining racial differences in suicide rates. For example, researchers have found lower socioeconomic status to be both a risk factor for suicidal ideation and attempts among adolescents (Xiao and Lindsey, 2021), as well as significantly associated with suicide deaths (Wilkins *et al.*, 2019). Therefore, it is imperative that structural risk factors that may increase the likelihood of suicide be assessed to inform policy and community-based interventions. Expanding on previous research, we examined how such factors impact Black and White youth and adult suicide rates across each US state using publicly available data from 2015 to 2019.

Purpose of study

Wong *et al.* (2014) recommended that researchers examine the macro-level factors that perpetuate inequities (e.g. job availability, housing vacancy) and other structural factors (e.g. state minimum wage, incarceration rates) that may contribute to racial differences in suicide rates. Therefore, this study was informed by a socio-ecological approach commonly used in public health research (Center for Disease Control and Prevention [CDC], 2007) to understand how individual, interpersonal, community and social and structural factors interact to contribute to health and well-being (Cramer and Kapusta, 2017; Decker *et al.*, 2018). Prior studies have used a socio-ecological approach to understand multi-level risk and protective factors associated with youth suicide (Standley and Foster-Fishman, 2021), interpersonal violence and suicide (Decker *et al.*, 2018) and discrimination and mental health (Seng *et al.*, 2012). Herein, we leverage this approach to assess the state-level differences between Black and White resident's suicide rates using publicly available data.

Methods

State-level data

State-level aggregate data for 2015–2019 were collected from a number of national databases and when possible parsed by race. Our outcome of interest: suicide rates, were collected from the Centers for Disease Control and Prevention's (CDC) web-based Wide-Ranging Online Data for Epidemiologic Research (WONDER) program. Scores represent the rate of death per 100,000 persons. Suicide rate data were further parsed by race (Black versus White) and age (24 years and younger versus 25 years and older). A number of covariates were included in the subsequent general estimation models to examine variations in suicide rates over time. Hate group rate data were obtained from the Southern Poverty Law Center's Hate Map (Southern Poverty Law Center, 2018). Scores in the analysis represent the rate per 1,000,000 persons and are aggregated for the entire state population. Poverty rate data came from the Kaiser Family

Foundation ([Kaiser Family Foundation, 2021](#)). Scores represent the percentage of state residents living below the poverty threshold parsed by race and ethnicity. Incarceration rates were obtained from the Bureau of Justice Statistics Prisoners reports ([Bureau of Justice Statistics, 2021](#)). Scores in the analysis represent the incarceration rate per 1,000 persons parsed by race and ethnicity. Minimum wage data came from the U.S. Department of Labor ([US Department of Labor, 2021](#)). Scores represent the highest hourly minimum wage in the state for the total population.

Graduation rate data represent the four-year adjusted cohort graduation rates (ACGR) provided by the National Center for Education Statistics ([National Center for Education Statistics, 2021](#)). The values represent the percentage of public high school freshmen who graduate with a regular diploma within 4 years of starting 9th grade and are parsed by race and ethnicity. Violent crime rates were obtained from the Federal Bureau of Investigation's Crime in the US annual reports ([Department of Justice, 2021](#)). These data represent the violent crime rate per 100,000 persons in the overall population. Gross vacancy rate data represent the vacancy rate per 100 housing units for the overall state population. Rates were obtained from the US Census ([US Census, 2021a](#)). The percentage of state's residents who did not have medical insurance coverage were obtained from the US Census ([US Census, 2021b](#)). These scores represent the percentage of persons without health insurance for each state's overall population.

Analysis plan

To assess the impact of several state-level covariates on suicide rates, a series of generalized estimating equations (GEE) were used. When examining panel data, measurements between years are often correlated making the use of generalized linear models less than ideal. GEE are able to supply accurate regression coefficients even when there is unmeasured dependence between outcome variables ([Diggle *et al.*, 1994](#)). The estimates provided in GEE account for within-subject correlation and assess the degree to which average responses across the population change with each one-unit change in the covariates. This method is an ideal fit because it allows the present study to illuminate how changes in the predictors and outcome over time are associated while considering the within-subject correlations. The present analysis used an autoregressive correlation matrix (AR-1) and an Identity link function with US state as the subject effect and time as the within-subject effect. An AR-1 matrix assumes that the output variable depends linearly on previous values. This makes AR-1 the most appropriate correlation matrix to use when it is expected that values closer together are more similar than those further apart as is to be expected with panel data. Four linear models were examined:

1. Black adult suicide rates;
2. Black youth suicide rates;
3. White adult suicide rates; and
4. White youth suicide rates.

Each GEE model includes *time*, *state hate group rating*, *state poverty rate*, *state incarceration rate*, *state minimum wage*, *state ACGR*, *state violent crime rate*, *state gross vacancy rate* and the *percentage of state residents without medical insurance* as predictors. To assist in interpretation, all non-categorical variables were standardized using Z-scores. The estimates of each predictor can be interpreted as the amount of change in the outcome variable with a one-unit change in the predictor.

Results

Descriptive statistics and bivariate associations for the sample can be seen in [Tables 1](#) and [2](#), respectively. These associations are largely in line with expectations. For example,

Table 1 Descriptive statistics for outcome and predictor variables

Variable	Minimum	Maximum	M (SD)
White adult suicide rate per 100,000	12.80	41.40	24.3 (5.80)
White youth suicide rate per 100,000	3.50	17.40	8.34 (2.56)
Adult Black suicide rate per 100,000	3.45	22.40	9.23 (3.29)
Youth Black suicide rate per 100,000	1.89	13.50	5.37 (4.89)
Hate groups per 1,000,000	0.00	9.60	3.11 (1.61)
White poverty rate	0.05	0.18	0.10 (0.02)
Black poverty rate	0.13	0.60	0.25 (0.07)
Minimum wage	5.15	13.50	8.40 (1.48)
White incarceration rate per 1,000	1.02	5.68	2.89 (1.07)
Black incarceration rate per 1,000	4.25	24.90	12.60 (3.83)
White adjusted cohort graduation rate (ACGR)	74.00	95.00	87.70 (4.42)
Black adjusted cohort graduation rate (ACGR)	54.00	90.00	76.30 (6.53)
Violent crime rate per 100,000	112.00	885.00	370.00 (148.00)
Gross vacancy rate per 100 housing units	7.70	24.10	13.60 (3.58)
Percent uninsured	2.50	18.40	8.33 (3.05)

incarceration rates for White adults ($r = 0.49$, $p < 0.001$), White youth ($r = 0.37$, $p < 0.001$), Black adults ($r = 0.31$, $p < 0.001$) and Black youth ($r = 0.37$, $p < 0.001$) were all statistically significant and positively associated with higher suicide rates. However, some associations were in directions opposite to anticipations, such as the finding that greater *gross vacancy rates* were associated with higher White adult and youth suicide rates ($r = 0.30$, $p < 0.001$; $r = 0.25$, $p < 0.001$, respectively) but were associated with lower Black adult and youth suicide rates ($r = -0.22$, $p < 0.01$; $r = -0.25$, $p < 0.01$, respectively).

Generalized estimating equation results

Results of the GEE analysis can be seen in [Table 3](#). The parameter estimate represents how a single-unit change in the covariates impact suicide rates taking into account variability over time. Below the results of the GEE are expanded upon in more detail by race and age.

Model 1: Black adult suicide rates. In Model 1, time, the *incarceration rate* for Black residents in each state, and the *state's gross housing vacancy rate* all significantly contributed to the model (QIC = 1267.8). As is to be expected given national data, as time progressed, suicide rates among Black adults rose ($B = 1.11 - 2.78$, $p < 0.05$). Additionally, Black *incarceration rates* were positively associated with Black adult suicide rates, such that as the rate of Black incarcerated persons in a state increased, so too did that state's Black adult suicide rate ($B = 1.14$, $p = 0.002$). Finally, as the *gross housing vacancy rate* rose in each state, the suicide rate for Black adults dropped ($B = -1.52$, $p = 0.026$). The prevalence of *hate groups in a state*, *poverty rates*, *minimum wage*, *ACGR*, *violent crime rates*, *gross vacancy rates* and the *percentage of those not medically insured* did not significantly contribute to the prediction of Black adult suicide rates.

Model 2: Black youth suicide rates. In Model 2, time and the *incarceration rate* for Black residents were significant predictors of the state's Black youth suicide rate (QIC = 471.6). Similar to Black adults, over time suicide rates for Black youth rose ($B = 0.91 - 1.82$, $p < 0.05$). Also, in line with the result for Black adults, suicide rates for Black youth rose in states as the incarceration rate of Black person's rose ($B = 0.93$, $p = 0.029$). As with Model 1, the prevalence of *hate groups*, *poverty rates*, *minimum wage*, *ACGR*, *violent crime rates*, *gross vacancy rates* and the *percentage of state residents who were not medically insured* did not significantly contribute to the prediction of Black youth suicide rates.

Model 3: White adult suicide rates. In Model 3, time, *incarceration rates*, *ACGR* and the *percentage of state residents who did not have health insurance* all significantly contributed

Table 2 Bivariate associations between study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Adult - White suicide rate	—														
2. White Youth suicide rates	0.77***	—													
3. Adult - Black suicide rate	0.44***	0.53***	—												
4. Black Youth suicide rate	0.39***	0.54***	0.71***	—											
5. Hate groups per 1,000,000	0.14*	0.15*	-0.12	-0.16	—										
6. White poverty rate	0.39***	0.17**	-0.01	0.04	0.22***	—									
7. Black poverty rate	0.16*	0.20**	0.03	0.05	0.13	0.45***	—								
8. Minimum wage	-0.27***	-0.26***	0.10	0.04	-0.08	-0.26**	-0.30***	—							
9. White incarceration rates	0.49***	0.37***	0.08	0.19*	0.28***	0.51***	0.13	-0.28***	—						
10. Black incarceration rates	0.15*	0.13	0.31***	0.37***	-0.03	0.15*	0.21**	-0.16*	0.38***	—					
11. White ACGR	-0.55***	-0.48***	-0.23**	-0.23*	0.09	-0.28**	-0.17*	-0.01	-0.24***	-0.01	—				
12. Black ACGR	-0.16*	-0.14*	-0.18*	-0.16	0.23***	0.04	-0.23***	-0.05	0.18**	-0.20**	0.62***	—			
13. State violent crime rate	0.36***	0.32***	0.08	-0.04	0.06	0.16*	-0.10	0.06	0.31***	0.13*	-0.25***	-0.10	—		
14. State gross vacancy rate	0.30***	0.25***	-0.22**	-0.25**	0.11	0.26**	0.25***	-0.08	0.22***	-0.04	-0.22***	0.13*	0.12	—	
15. Percent uninsured	0.55***	0.43***	-0.01	-0.02	0.19**	0.17**	0.04	-0.41***	0.54***	0.17**	-0.23***	0.06	0.40***	0.17**	—

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 3 Generalized estimating equations (GEE) predicting suicide rates among Black adults, Black youth, White adults and White youth

Time	Model 1: Black Adults			Model 2: Black Youth			Model 3: White Adults			Model 4: White Youth		
	B(SE)	95% C.I. Lower	95% C.I. Upper	B(SE)	95% C.I. Lower	95% C.I. Upper	B(SE)	95% C.I. Lower	95% C.I. Upper	B(SE)	95% C.I. Lower	95% C.I. Upper
2015	-ref.	-ref.	-ref.	-ref.	-ref.	-ref.	-ref.	-ref.	-ref.	-ref.	-ref.	-ref.
2016	1.11 (0.56)	0.01	2.21	0.91 (0.33)	0.25	1.56	0.52 (0.30)	-0.08	1.11	0.16 (0.33)	-0.50	0.81
2017	1.63 (0.48)	0.7	2.57	1.77 (0.38)	1.03	2.51	2.66 (0.56)	1.57	3.76	1.38 (0.29)	0.81	1.94
2018	2.43 (0.60)	1.25	3.62	1.77 (0.46)	0.86	2.68	3.08 (0.47)	2.17	4	1.51 (0.31)	0.90	2.13
2019	2.78 (0.73)	1.35	4.2	1.82 (0.62)	0.61	3.03	3.09 (0.74)	1.64	4.55	1.53 (0.37)	0.80	2.25
Hate groups rate	0.56 (0.72)	-0.86	1.98	0.14 (0.61)	-1.05	1.33	-0.24 (0.27)	-0.76	0.29	0.08 (0.25)	-0.41	0.58
Poverty rate	0.80 (0.56)	-0.31	1.9	-0.06 (0.65)	-1.33	1.22	1.48 (0.78)	-0.04	3.00	-0.40 (0.18)	-0.76	-0.04
Incarceration rate	1.14 (0.37)	0.42	1.86	0.93 (0.43)	0.10	1.76	1.05 (0.39)	0.28	1.82	0.55 (0.22)	0.12	0.98
Minimum wage	0.16 (-0.22)	0.48	-1.16	0.06 (0.30)	-0.52	0.65	-0.20 (0.33)	-0.84	0.45	-0.61 (0.25)	-1.11	-0.12
ACGR	-0.22 (0.48)	-1.16	0.73	-0.52 (0.35)	-1.21	0.17	-2.36 (0.41)	-3.17	-1.56	-0.97 (0.21)	-1.37	-0.56
Violent crime rate	0.69 (0.83)	-0.93	2.32	0.24 (0.57)	-0.89	1.36	0.22 (0.58)	-0.93	1.36	0.55 (0.28)	0.01	1.09
Gross vacancy rate	-1.52 (0.68)	-2.86	-0.18	-0.69 (0.61)	-1.87	0.50	0.28 (0.40)	-0.50	1.05	0.37 (0.20)	-0.02	0.76
Percent Uninsured	0.08 (0.51)	-0.93	1.08	0.38 (0.43)	-0.45	1.22	1.83 (0.51)	0.83	2.83	0.14 (0.24)	-0.32	0.61

Notes: *Italic values* have reached statistical significance, $p < 0.05$ ACGR = Adjusted cohort graduation rate Models 1 and 2 use the Black incarceration rate, poverty rate and ACGR; Models 3 and 4 use the White incarceration rate, poverty rate and ACGR. All other variables are for the state population as a whole

to the prediction of White adult suicide rates (QIC = 3302.7). Matching with national trends, over time suicide rates among White adults rose ($B = 2.66 - 3.09$, $p < 0.05$). Additionally, as the number of White persons *incarcerated in a state* and *the percentage of the overall population who were uninsured* rose so too did the White adult suicide rate ($B = 1.05$, $p = 0.008$, $B = 1.83$, $p < 0.001$, respectively). Finally, as the *ACGR* rose, the suicide rate among White adults declined ($B = -2.36$, $p < 0.001$). *State hate group rates*, *poverty rates*, *minimum wages*, *violent crime rates* and *gross vacancy rates* did not significantly contribute to the prediction of White adult suicide rates.

Model 4: White youth suicide rates. Finally, in Model 4, time, *poverty rates*, *incarceration rates*, *minimum wage*, *ACGR scores*, and the *violent crime rate* all significantly contributed to the prediction of White youth suicide (QIC = 838.9). Matching with White adult rates, the rate of suicide among White youth increased over time ($B = 1.38 - 1.53$, $p < 0.05$). Additionally, as *incarceration rates* for White state residents and the *overall violent crime rate* in a state rose so too did the White youth suicide rate ($B = 0.55$, $p = 0.013$, $B = 0.55$, $p = 0.046$). However, as the *poverty rate* of White residents, the *minimum wage* and the *ACGR* rose, the White youth suicide rate decreased ($B = -0.40$, $p = 0.030$, $B = -0.61$, $p = 0.015$, $B = -0.97$, $p < 0.001$). Finally, the *state hate group rates*, *gross vacancy rates* and the *percentage of those without medical insurance* did not significantly predict the White youth suicide rates.

Discussion

The present study contributes to the literature on understanding structural state-level differences in suicide rates between Black and White people across the age spectrum living in the USA. First, this study found that *incarceration rates* were positively associated with suicide rates across all groups. This result is consistent with prior research that highlights the negative impact of incarceration on overall mental health (Hawthorne *et al.*, 2012) as well as risk of death by suicide (Barnert *et al.*, 2019). High incarceration rates in a community can have devastating mental health consequences for residents due to loss of loved ones to the criminal justice system which can be overwhelming to children and families. Furthermore, research has indicated that communities that have heavy police presence and arrest rates are more likely to have high crime rates and repeated exposure to trauma (Lardier *et al.*, 2021). These events leave residents of those communities experiencing poor mental health symptoms, feelings of hopelessness and engagement in negative health-risk behaviors (Opara *et al.*, 2020), which are all risk factors for suicide and suicide ideation.

Another finding in the study suggests that *graduation rates*, which can be indicative of educational level and socioeconomic status, had a negative relationship with suicide rates for White adults and youth only. An explanation for this finding could be that high socioeconomic status in Black youths and adults does not serve as a buffer against poor mental health symptoms, that can lead to suicide ideation, due to the experience of racism and discrimination Black people endure overall (Assari and Caldwell, 2018). Findings in this study could also provide some support, albeit tentative, for the role of *despair* in White suicide as outlined by Case and Deaton (2020). According to Case and Deaton, the rising rates of suicide in the USA are largely driven by suicide mortality among White persons without a college education and they point toward lower wages, rising health-care costs and lack of social safety nets as potentially influential in what they call *deaths of despair* (i.e. suicide, drug overdose and alcohol related mortality). In the current study, lower education rates and a greater percentage of the medically uninsured were predictive of White adult suicides and, alongside lower minimum wage, White youth suicide. However, poverty rates for White youth were associated with decreased rates of suicide among this population, which would be unexpected if White suicide mortality is largely driven by economic

hardships within this population (though Case & Deaton's work is largely centered on White adult mortality).

A surprising finding in this study involved *house vacancies* which were added in the model to represent environmental context (Rollings *et al.*, 2017). There were discrepancies in the nature of the relationship between gross vacancy rates and suicide rates. Among White adults and youth, bivariate correlations indicated that as gross vacancy rates increased, suicide rates increased. However, for Black adults and youth, as gross vacancy rates rose, suicide rates fell. In the GEE analysis, gross vacancy rates were significant only for Black adults and, as with the bivariate associations, as vacancy rates increased, suicide rates decreased.

It is unclear as to why there would be a protective effect of gross vacancy rate on Black adult and youth suicide rates. Previous work has linked foreclosures with increased risk among White populations but not other racial groups but we could find no evidence that housing issues, such as vacancies, should serve as a protective factor among marginalized groups (Houle and Light, 2017). It could be that the association between gross vacancy rates and lowered rates of suicide among Black adults and youth is a byproduct of where the concentration of vacancy rates occur. Higher concentrations of vacancy are likely to occur in metropolitan areas, where Black persons are more heavily concentrated and which typically experience lower suicide rates than less urban and more rural areas (Kegler *et al.*, 2017). Among residents who live in urban neighborhoods and live with family, Denney *et al.* (2015) found that they were less likely to attempt suicide than urban residents who do not live with family, even after controlling for socioeconomic status. Therefore, there may be an indirect link to the importance of social support within urban and metropolitan context that can be protective against suicide for certain groups (Melo *et al.*, 2014). Future research would benefit by continuing to examine other structural factors by city level such as housing vacancy to understand differences and its impact on Black and White populations and in relation to suicide risk.

Limitations

Although this study has several strengths, there are a few limitations. First, while we did not specifically test for perceived experiences with racism, we conceptualized exposure to racism by including the number of hate groups in the state. Our conceptualization of hate crimes is consistent with the US Department of Justice (2021) definition of hate crimes, which includes "acts of physical harm and specific criminal threats motivated by animus based on race." Further, some evidence links the presence of hate groups to ideologically motivated violence (Adamczyk *et al.*, 2014). Second, individual-level variables were not examined; however, the goal of this study was to move away from individual-level indicators and highlight the associations that structural-level factors have on suicide rates by race. Further, extrapolating findings to the individual-level from macro-level data may be difficult and poses risks to generalizability. Future research is needed to contextualize individual health outcomes within the larger socio-ecological context. Third, our study did not examine potential occupational differences in risk of death by suicide. Specifically, prior research by Han *et al.* (2016) indicates people working in careers that require a higher level of education (e.g. lawyers, social scientists, communication workers) were approximately three times more likely to report suicide ideation in the past year compared to physical labor workers (e.g. fisherman, farmers and other forestry occupations). Additionally, people in medical professions (e.g. veterinarians and physicians) may be at increased risk of death by suicide due to stressful workplace conditions (Fink-Miller and Nestler, 2018). Future research is needed to examine the state-level determinants of suicide found in this study in relation to different occupations.

Implications

Findings from the current study have several implications. Given the rise of death by suicide over about the past 10 years ([American Foundation for Suicide Prevention, 2017](#)), various disciplines including psychology, ([Westefeld, 2019](#)) pediatrics/primary care ([Lines, 2019](#)) and public health ([Kearney, 2020](#); [Stone et al., 2005](#)) have all issued call for actions to tackle suicide through an interdisciplinary lens. Through this lens, future research is necessary to better define and understand the issue of racial disparities in suicide. Such research should:

- examine the multi-level and longitudinal effects of racism on suicidality ([Jones, 2000](#));
- use and develop relevant theoretical frameworks such as intersectionality ([Crenshaw, 1989](#)) and socio-ecological theory ([Cramer and Kapusta, 2017](#)) to holistically examine risk and prevention ([Opara et al., 2020](#)); and
- engage communities themselves in the design, execution and analysis of research to more authentically represent their voices and experiences.

For example, given that suicide attempts among Black youth in urban areas are about double the national rate ([Bennett and Joe, 2015](#)), additional research examining how institutionalized racism impacts community-level policies which then contribute to suicidality is necessary.

Institutionalized racism can be described as “differential access to the goods, services, and opportunities of society by race” ([Jones, 2000](#), p. 1212). This differential access is seen in educational attainment, socioeconomic status, and access to services and resources, all of which are related to mental health outcomes and suicidality for Black youth and adults ([Willis et al., 2002](#)). Our finding regarding the association between state incarceration rates and suicide rates among Black adults and children may be evidence of this conceptualization. Though our study findings indicated that education, poverty level and health insurance did not have relationships with suicide rates among Black adults and children, it is essential for researchers to continue investigating race-specific risk factors (e.g. perception of racism, racial microaggressions) that may be understudied in Black death by suicide. Moreover, while the number of hate groups in a state was not statistically significant in any of the four models, future research should aim to add to our understanding of the impacts of personally mediated racism on suicidality within Black communities.

A “comprehensive set of public policies to address [the] developmental, social, and economic needs” of communities is necessary to effectively combat suicide ([Gibbs, 2000](#), p. 76). These policies should work to both *redress* inequity and *promote* equity simultaneously. Based on our findings and prior research, for example, policies that invest at multiple levels to mitigate the impacts of racism on mental health and suicide (e.g. public awareness campaigns; health-care access expansion and criminal justice reform and decarceration; [Smedley and Myers, 2014](#)), provide financial safety nets for individuals and communities (e.g. increased minimum wage and housing supports; [Gunnel et al., 2020](#); [Kaufman et al., 2020](#)) and adequately support multi-level prevention and intervention programs ([Gunnel et al., 2020](#); [Sakashita and Oyama, 2019](#)) may help reduce well-known risk factors for suicide.

Conclusion

Taken together, our study adds to the literature by examining structural- and state-level factors that differentially influence suicide rates by race. While our work is a first step toward examining these differences, future research is needed to assess the broader systemic issues that contribute to racial differences in death by suicide. While psychological assessment and treatment of individual suicidality may be beneficial in reducing risk for some, a more holistic public health focus that:

- emphasizes an upstream approach to prevention;
- recognizes the importance of structural indicators of suicide risk; and
- works to address structural causes rather than symptoms is more likely to result in positive long-term outcomes, particularly for those most systematically marginalized.

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