Racialized Gender Stress and Mental Health Among Black Women: a Test of the Vance-wade Intersectional Suicide Risk Model with Longitudinal Data

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Abstract

Background The recent shift in Black women's suicide risk calls for a new paradigm focused on unique factors specific to Black womanhood. The Vance-Wade Intersectional Suicide Risk Model (VWISRM) was introduced to contextualize this unexpected spike. According to the VWISRM, for Black women, psychosocial risk factors, gendered racism, and the Strong Black Woman script (SBW) lead to racialized gender stress (RGS) which results in mental health outcomes which are established predictors of suicide-related behaviors.

Methods The National Longitudinal Study of Adolescent Health (Add Health) was used to test for empirical evidence supporting the VWISRM. Our sample consisted of 418 Black female adolescent respondents who fully participated in data collection during Waves 1, 3, and 4. We ran bivariate analyses to examine both (1) what psychosocial factors of Black women are associated with SBW traits, gendered racism, and racialized gendered stress and (2) what mental health outcomes are predicted by SBW traits, gendered racism, and racialized gendered stress.

Results Our analysis showed having both lower scores on the SBW traits and experiencing gendered racism are associated with a PTSD diagnosis. Specifically, the analysis explained 30% of the variation in PTSD diagnoses among Black women. Having both lower scores on the SBW traits predicted anxiety, PTSD, and contemplating suicide, and having experienced RGS linked to depression anxiety and contemplating suicide. Importantly, there were no moderating effects among SBW traits and RGS on PTSD, anxiety, or suicidality.

Conclusions Findings highlight important research and clinical implications for Black women's mental health. The Gendered Racism Intersectional Trauma model (GRIT) is introduced to better understand the breadth of mental health outcomes for Black women. Notably, our findings make a new contribution to the scientific inquiry of PTSD in Black women.

Keywords Mental health · Gendered racism · Suicide-related behavior · Intersectionality · Strong black woman traits · PTSD

Introduction

Contrary to recent Center for Disease Control (CDC) data showing a decline in overall suicide deaths among US population, suicide rates among Black people increased by 30% [1, 2]. The rising rates of Black female youth suicide is a contributing factor to this significant increase. Between 2013 and 2018, Black females ages 15–24 experienced a 59% increase in suicide deaths [2] and a 125% increase from 1999 to 2017 [3]. This was the largest increase across

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all intersections of race and sex in the U.S. The topic of Black women's suicide rates has been an understudied area of research due to trends historically showing lower suicide rates among Black women. Spates [4] review of the literature increased scholarly inquiry and attention to Black women and suicide. Since then, Black woman scholars have been at the forefront of advancing research to elevate the nuanced experiences of Black women's mental health including suicidal behavior [5–8].

The shocking news of former Miss USA 2019 Cheslie Kryst's death by suicide in February of 2022 necessitated public attention to suicide risk and suicidal behavior among Black women in a way that had not been done previously. The recent shift in attention to Black women's suicide calls for a new paradigm focused on unique factors associated with Black womanhood. The Vance-Wade Intersectional Suicide Risk Model (VWISRM) is a conceptual framework introduced to contextualize Black women's outcomes in suicide-related behavior studies [9]. Although components of the model are shaped by existing literature, it is important to assess it to show evidence that it is a viable means to better understanding Black women's suicide risk.

Vance-Wade Intersectional Suicide Risk Model

The VWISRM is a promising approach in guiding studies of Black women's suicide risk, "to best understand the intersecting gendered and racial risk factors for negative mental health outcomes and suicide risk" [9]. This is possible because the VWISRM considers systemic factors and social psychological experiences of Black womanhood, whereas previous suicide risk models focused on race [10] or sex [11] alone. The VWISRM posits that (a) unique experiences of Black womanhood, lead to (b) racialized gender stress, which results in (c) depression, anxiety, and post-traumatic stress disorder, which heightens (d) suicide risk. Each component is detailed below and displayed in Fig. 1 [9].

Experiences of Black Womanhood

The first unique experience of Black womanhood highlighted in the VWISRM is gendered racism. Gendered racism is a stressor that disproportionately impacts individuals from marginalized populations, like Black women. Gendered racism occurs when an individual faces racism and sexism at the same time [12]. So, for example, the narrative that Black Americans' emotional expressions are antisocial is rooted in racism [13]. The idea that Black women are "angry" or Black men are "threatening" if they provide counter arguments is rooted in gendered racism. There is a growing body of literature on health-related implications of gendered racism. These acts have been tied to negative health and mental health outcomes, greater psychological distress, and suicide-related behavior in studies of Black women [10, 12, 14–16]. The literature relative to gendered racism and suicide outcomes is scarce with emerging scholarship exploring the role of gendered racial microaggressions on Black woman living with HIV and suicide [17].

The second unique experience of Black womanhood highlighted in the VWISRM is subscription to the Strong Black Woman (SBW) script. The term *Strong Black Woman* is widely used in the Black community and the topic of much investigation in the social psychological community. As members of two minoritized populations, Black women have adopted the moniker "strong" to describe their ability to face and navigate the oppression and resistance they face [13, 18]. Woods-Giscombé [19] created the Superwoman Schema, informed by focus group analyses to understand the gender role of Black women quantitatively. The tenets of the schema included an obligation to manifest strength, suppress emotions, resist being vulnerable or dependent, succeed despite limited resources, and help others [20]. The act of identifying as "Strong" on one hand frees Black women to exude ethnic and gender pride but, on the other hand, contributes to taking on more responsibilities than other groups and ignoring shifts in their physical and mental health that result from the burdens of their lived experiences.
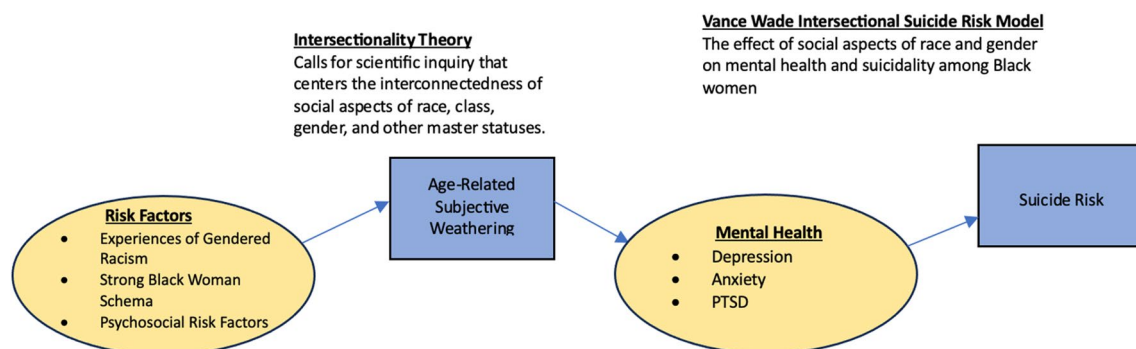

Fig. 1 VWISR model

The third unique experience of Black womanhood highlighted in the VWISRM is psychosocial concerns, which encompass various determinants of mental health for Black women. Research suggests that several psychosocial factors, including access to healthcare [18], cultural and race specific stigma [21–25], and childhood sexual abuse [26–28] are associated with increased suicide risk.

Racialized Gender Stress

According to the VWISRM, racialized gender stress is a precursor to mental health diagnoses including depression, anxiety, and PTSD. Each of these outcomes are highly salient risk factors of suicide and are prevalent mental health issues among Black women [29, 30]. Racialized gender stress, as defined by Vance et al. [9], describes the stress experienced by Black women due to the intersection of race and gender, involving gendered racism. Although research on racialized gender stress related to suicide is limited, it has been linked to other mental health issues like anxiety and depression, especially in socially isolated Black women [31]. Evidence of racialized gender stress can be seen in weathering, where persistent exposure to gendered racism causes Black women to experience premature aging and chronic illnesses [32]. This hyper-aging results from negative emotions leading to unhealthy coping behaviors and early onset of chronic diseases. Recent studies using self-reported measures have explored the impact of maternal racialized gender stress on child health outcomes, revealing that stress and trauma make individuals feel older than their actual age [29, 33]. This subjective weathering, where stress leads to feeling older, subsequently causes further stress, depression, and isolation [33]. In this study, we use self-reported weathering as a measure of age-related subjective weathering, which is a cost of racialized gender stress. This advances the literature on weathering as we determine its relationship to mental health outcomes including suicide risk.

Intersection of Race and Gender and Mental Health Outcomes

The mental health challenges faced by Black women, including depression, anxiety, and PTSD, are intricately linked to the intersecting impacts of race and gender, as well as the cultural pressures exemplified by the Strong Black Woman (SBW) script and the pervasive experience of gendered racism. Researchers have begun to examine more closely the role of gendered racism and more specifically the unique complexity of the SBW typology on depressive symptoms [9, 27, 34–37]. Nelson et al. [38] found that emotional suppression and resistance to vulnerability,

key aspects of the SBW script, are linked to increased depression. The more dimensions of the SBW script a Black woman adheres to, the more severe her depression, which has significant implications for suicide risk.

As with other mental health symptoms, the intersection of race and gender has important implications on the manifestation of anxiety in the lives of Black women [36, 39]. Risk factors contributing to depression, such as feelings of loneliness and social isolation, are also predictors of anxiety [40]. The SBW script [34, 36, 41] and frequency of gendered racist experiences are also associated with increased anxiety symptoms [35], highlighting the impact of daily acute and chronic stress from gendered racism [35, 42].

Black women are at heightened risk of trauma exposure due to poverty, sexual violence, and racial discrimination [43–46]. The extant research examining the relationship between discrimination and PTSD on Black Americans has overwhelmingly excluded gender, albeit Black women's simultaneous exposure to race and gender discrimination [47]. Although Black women are understudied, there are a few studies that link experiences of unfair treatment and racial discrimination with PTSD symptoms [43, 46, 48]. Seng et al. [46] found that Black women endorsed exposure to more types of lifetime traumas and significantly higher PTSD symptoms on average compared to all other women. This was likely due to discrimination attributed to holding multiple marginalized identities and disparate rates of contextual and structural inequality factors. Erving et al. [48] found that Black women were 34% more likely than White women and Black men to experience PTSD in their lifetime, thus calling attention to gender and race differences and heightened risk of PTSD.

Current Study

The VWISRM hypothesized several factors to consider when looking at facilitators of suicide risk among Black women. Several aspects of the model are well-established predictors of poor mental health outcomes. The present study sought to further explore the unique contributions, namely, the SBW traits, gendered racism, and racialized gendered stress. The present study breaks down this exploration into two overarching research questions:

1. What psychosocial factors of Black women are associated with SBW traits, gendered racism, and racialized gendered stress?
2. What mental health outcomes are predicted by SBW traits, gendered racism, and racialized gendered stress?

Method

Data

The current study used three waves of the restricted-use version of the National Longitudinal Study of Adolescent Health (Add Health). Add Health is a multi-wave longitudinal, nationally representative study wherein the respondents have been followed from adolescence through to adulthood. The Add Health data were originally collected by sampling 80 high schools and their feeder schools, stratified across region, school type, urbanicity, ethnic mix, and school size, during the 1994–1995 academic year. The Wave 1 dataset includes 20,745 students in 7th to 12th grade, with oversampling of some racial and ethnic minoritized groups, students with disabilities, and twins.

The present study used Wave 1 data in addition to Waves 3 and 4 (no information relevant to the present study was collected in Wave 2). While Wave 1 provided demographic information, the Wave 3 data provided measures of psychosocial risk factors, SBW traits, and racialized gendered stress. Wave 3 was collected in 2001 and 2002 when the respondents ($N = 15,197$) were 18 to 26 years old. The fourth wave of data, which provided measures of gendered racism and our mental health outcomes of interest, was collected in 2008 and 2009, when the respondents were 25 to 33 years old ($n = 15,701$).

Sample

The sample included in the present study consisted of all respondents who had non-missing information on the variables included in the analytic models who indicated they were Black, non-Hispanic, and female in Wave 1 of data collection, collected in 1994/1995 when participants were between 11 and 19 years old. Of the 20,745 people included in Wave 1, 15,197 were included in Wave 3 (collected in 2001/2002 when respondents were 18 to 26 years old). Of those, only 13,034 were included in Wave 4, collected when participants were between 25 and 33 years old in 2008/2009. Among those who reported in every wave of our study, 1466 were Black women. Among that group, 1453 had non-missing information on our identified psychosocial factors. Of those, 1442 had non-missing information on our identified mental health outcomes. Of those, 418 of them had non-missing information on our identified risk factors. Specifically, the SBW traits, further described below, were only asked of 418 respondents. Thus, we have 418 respondents who meet the inclusion criteria for this study.

Variables

Psychosocial factors, intersectional stressors, and mental health outcomes are the variables included in our analysis and are described in the sections below.

Psychosocial Factors

Our study includes several psychosocial factors as controls for the final set of analyses below, all measured in Wave 3. The first is education, measured with the following question: "What is the highest grade or year of regular school you completed?" A measure of employment was included, asking respondents if they were working full time, part time, or not at all. A measure of how many months in the previous year respondents had health insurance was included as a proxy for health-related capital according to the fundamental cause theory [49]. Finally, given the literature on the importance of religiosity as a protective factor for Black women, a measure of religiosity was included, asking "How important, if at all, is your religious faith to you?" This ordinal-level variable had response options of "very important," "fairly important," "fairly unimportant," and "not important at all."

Intersectional Stressors

The VWISRM outlines unique experiences of Black womanhood that impact their mental health. The first, experiences of gendered racism, was measured through two Wave 4 questions, "In your day-to-day life, how often do you feel you have been treated with less respect or courtesy than other people?" For those who indicated anything other than "never," they were subsequently asked "What do you think was the main reason for these experiences? Choose only one reason." Of the several responses listed, we defined experiences of gendered racism for the Black women in our sample as anyone who indicated their race and gender was the main reason for their negative experience. This variable is included in our model as a binary variable wherein 1 represents respondents who indicated one of these options and 0 represents people who did not, either that they indicated another reason for their negative experience or did not indicate having a negative experience.

The second factor included in the theoretical model is racialized gendered stress. In accordance with previous literature, this is operationalized as age-related subjective weathering or hyper aging that Black women experience. Our weathering variable comes from Wave 3 data: "Some people grow up faster than others, some grow up slower. In terms of social maturity, would you say you grew up faster, slower, or at about the same rate as other people your age?" Respondents are provided with three ordinal-level response

options: slower, about the same, or faster. We acknowledge the potential limitation of this question, as it measures subjective aging without accounting for the nuances of weathering; we feel confident in using it as previous scholars have [29, 33]. We suggest future scholars use a more tailored measure of weathering or add supplemental measures to the question available in Add Health to model previous scholarship.

The final measure included in this section of the model is the SBW traits. These traits are measured in Wave 3 and are an adaptation of the Bem Sex Role Inventory. There are 12 questions that make up a single summary score of SBW traits. SBW characteristics were measured using traits featured in the Bem Sex Role Inventory that represent qualities identified by Black women in over 20 years of SBW research. For one, strength and a keen sense of cultural pride were captured by (1) I defend my own beliefs, (2) I am assertive, (3) I have a strong personality, (4) I am dominant, (5) I am willing to take a stand, and (6) I am independent. For two, care for others or having a caretaker role was captured by (7) I am sensitive to the needs of others, (8) I am compassionate, (9) I love children, (10) I am conscientious, and (11) I am reliable. These traits capture the caretaker role, but not the idea of care for others at the cost of care for self. This is a notable limitation to our secondary data analysis. And for three, resilience was captured by (12) I am adaptable (SBW traits as established in [19, 42, 50–52]. For all 12 questions, higher scores indicate a strong endorsement of the trait. Responses to the Bem range from (1) never or almost never to (7) almost always true. The alpha function in STATA was used to create a single summary score from these 12 items, with a high Cronbach's alpha of 0.888. The SBW traits are included as a single ratio-level variable. Although previous work has highlighted concerns around studying gender among individuals from minoritized race groups using the Bem Sex Role Inventory due to it being created in white samples and not matching nuances of non-white gender roles [53, 54], we feel confident here as we used the list of traits as a tool to develop a culturally tailored gender measure.

Mental Health Outcomes

The present study examined the role of psychosocial factors, SBW traits, gendered racism, and racialized gendered stress on several measures of mental health for Black women, all measured in Wave 4. As detailed here, mental health measures included both formal diagnoses and symptom checklists. Although both approaches to measurement were included in analyses, results below describe specific mental health measures that were significantly associated with the independent variables listed in Research Question 2. PTSD was measured by a single question, "Has a doctor, nurse or other health care provider ever told you that you have or

had: post-traumatic stress disorder or PTSD?" with response options of yes or no.

Anxiety was measured with two questions. The first was like the PTSD diagnosis question but asked about an "anxiety or panic disorder." The second question was a broader operationalization of anxiety but one that has been used in other studies measuring anxiety and emotional stability [55–57] asking "How much do you agree with each statement about you as you are now, not as you wish to be in the future? I am relaxed most of the time." Here, respondents were provided with a five-option ordinal scale ranging from "strongly agree" to "strongly disagree," wherein the higher scores meant that the respondent was not relaxed most of the time.

Depression was measured through three variables. The first, akin to the previous mental health outcomes, was a binary variable measuring a formal diagnosis. The remaining variables represent broader operationalizations of depression, including a question on isolation ("How often do you feel isolated from others?") and feeling blue ("How much do you agree with each statement about you as you are now, not as you wish to be in the future? I seldom feel blue."). Both latter variables are ordinal in nature, where higher scores indicate worse feelings of isolation or feeling blue.

Finally, suicide ideation and attempts were measured through two questions: "During the past 12 months, have you ever seriously thought about committing suicide?" and "During the past 12 months, how many times have you actually attempted suicide?" The first represents a binary variable while the second represents an ordinal-level variable, with options ranging from zero to four.

Analysis

Analyses were longitudinal when data were available. For Research Question 1, we examined what Wave 1 psychosocial factors of Black women are associated with Wave 3 Psychosocial factors of Black Women alongside Wave 4 gendered racism through a series of multivariate regression models. For Research Question 2, we in turn examined what Wave 4 mental health outcomes are predicted by Wave 3 Strong Black Women traits and racialized gendered stress, alongside Wave 4 gendered racism.

We first confirmed that there was no multicollinearity among our variables by observing the variance inflation factors in multiple regression models. For Research Question 1, bivariate analyses were run with three dependent variables of interest: SBW traits, gendered racism, and racialized gendered stress. Independent variables for these bivariate analyses were measures of education, employment, religiosity,

and health insurance. Specific bivariate analyses varied by the level of measurement of both the independent and dependent variables at hand but include chi-square, one-way ANOVA, and correlation. Particular test statistics can inform the reader on what test was used, seen in Table 2.

For Research Question 2, the authors first ran bivariate analyses with our VWISRM factors (i.e., SBW traits, gender racism, and racialized gendered stress) as the independent variables and our measures of mental health as dependent variables (i.e., depression, anxiety, PTSD, and suicidality). After identifying significant predictors of mental health issues from the factors mentioned (SBW traits, gendered racism, and racialized gendered stress), we conducted further analyses to see if the impact of these factors on mental health is compounded or moderated by each other through logistic regressions with interaction terms.

These three dependent variables of interest were a PTSD diagnosis, anxiety diagnosis, and contemplating suicide. To account for the high levels of missing data, specifically for our SBW traits, we then ran supplemental analyses for all logistic regressions included in the study, using Full Implementation Maximum Likelihood (FIML) [58].

Results

Descriptive Results

Of the 418 women in our study, the majority (52%) of them worked full time, with an average of 13 years of education and spent most of the previous year with insurance (average: 9 months). Religion was fairly important to 61% of them and very important to 18% of them. When observing the VWISRM Factors, our sample had an average of 5.53 on the Strong Black Woman traits (SD = 1.02). While a relatively small percentage (9%) had experienced gendered racism, the majority (57%) reported growing up faster than their peers.

While 2% of our sample had a PTSD diagnosis, 8% had an anxiety diagnosis and 12% had a diagnosis of depression. The majority (68%) agreed or strongly agreed that they were relaxed most of the time, and majority (68%) disagreed or strongly disagreed that they felt isolated from others. While 35% agreed that they seldom felt blue, an almost-equal amount (33%) said they disagreed with that statement. While 8% had contemplated suicide, 1% had attempted it one time, with 0.28% of the sample attempting suicide more than once. Further descriptions of our sample can be found in Table 1.

Table 1 Sample description

Psychosocial factors	%	Mean	SD
Employment			
Unemployed	17.39%		
Part time	30.90%		
Full time	51.71%		
Years of education		13.14	1.93
Months in last year with health insurance		8.98	4.73
Religiosity			
Very important	17.50%		
Fairly important	60.81%		
Fairly unimportant	16.33%		
Unimportant	5.35%		
VWISRM contributions			
Strong Black woman traits		5.53	1.02
Experienced gendered racism	8.59%		
Racialized Gendered Stress			
Slower	35.50%		
About the same	8.05%		
Faster	56.79%		
Mental health indicators			
PTSD			
PTSD diagnosis	1.64%		
Anxiety			
Anxiety diagnosis	8.32%		
Relaxed most of the time			
Strongly agree	11.65%		
Agree	56.34%		
Neutral	18.71%		
Disagree	11.72%		
Strongly disagree	1.58%		
Depression			
Depression diagnosis	12.35%		
Feeling isolated from others			
Strongly disagree	39.32%		
Disagree	28.74%		
Neither agree nor disagree	25.19%		
Agree	6.76%		
Seldom feeling blue			
Strongly agree	3.84%		
Agree	35.46%		
Neutral	22.49%		
Disagree	32.51%		
Strongly disagree	5.90%		
Suicide			
Contemplating suicide	7.53%		
Number of times attempting suicide			
0 times	98.29%		
1 time	1.44%		
2–3 times	0.21%		
3 or more times	0.07%		

Research Question 1: What Psychosocial Factors of Black Women Are Associated with SBW Traits, Gendered Racism, and Racialized Gendered Stress?

Generally, higher education is associated with SBW traits and gendered racism, while employment, being underinsured, and less education were associated with racialized gendered stress. Those who had completed more years of education had significantly higher scores on the SBW traits ($r = 0.25$, $p < 0.001$). Similarly, those who had experienced gendered racism had significantly higher years of education (13.5 years versus 13.1 for those who had not experienced gendered racism, $t = -2.57$, $p = 0.01$). Those who grew up faster (a measure of racialized gendered stress) were likelier to be employed ($\chi^2 = 31.89$, $p < 0.001$), have fewer months where they were insured (8.72 versus 9.45 months, $F = 3.77$, $p = 0.025$), and have completed fewer years of education (12.99 versus 13.45, $F = 8.50$, $p = 0.00$), in comparison to those who grew up "slower." A summary of these results can be seen in Table 2.

Research Question 2: What Mental Health Outcomes Are Predicted by SBW Traits, Gendered Racism, and Racialized Gendered Stress?

While racialized gendered stress was associated with a PTSD diagnosis and suicide attempts, SBW traits were associated with anxiety and contemplating suicide. Lastly, racialized gendered stress was associated with a wide range of mental health outcomes, namely, depression, anxiety, and contemplating suicide. Specifically, those who experienced racialized gendered stress were more likely to have a PTSD diagnosis ($\chi^2 = 8.36$, $p = 0.004$) and have attempted suicide significantly more ($\chi^2 = 11.27$, $p = 0.01$). Scoring lower on the SBW traits was significantly associated with having an anxiety diagnosis (0.51 points lower, $t = 2.52$, $p = 0.01$), PTSD diagnosis (1.63 points lower, $t = 2.78$, $p = 0.006$), and contemplating suicide (0.45 points lower, $t = 2.36$, $p = 0.026$). Those who grew up faster (a measure of racialized gendered stress) were likelier to have a depression diagnosis ($\chi^2 = 14.18$; $p = 0.001$), feel isolated from others ($\chi^2 = 27.12$, $p < 0.001$), have an anxiety diagnosis ($\chi^2 = 14.60$, $p = 0.001$), and contemplate suicide ($\chi^2 = 12.44$, $p = 0.002$), in comparison to those who grew up slower. A summary of these bivariate results can be seen in Table 2.

Table 2 Results of bivariate analyses

Psychosocial factors	SBW	GR	RGS
Education	r: 0.25***	t: -2.57**	F: 8.50***
Employed	F: 4.45	χ^2: 0.73	χ^2: 31.90***
Months in last year with health insurance	r: 0.04	F: 1.58	F: 3.77*
Religiosity	F: 3.60	χ^2: 0.82	χ^2: 2.02
Mental Health Indicators			
PTSD			
PTSD diagnosis	t: 2.78**	χ^2: 8.36**	χ^2: 0.98
Anxiety			
Anxiety diagnosis	t: 2.52*	χ^2: 0.03	χ^2: 14.60**
Relaxed most of the time	F: 0.30	χ^2: 0.29	χ^2: 11.77
Depression			
Depression diagnosis	t: 0.75	χ^2: 0.02	χ^2: 14.18*
Feeling isolated from others	F: 1.77	χ^2: 9.10	χ^2: 27.12***
Seldom feeling blue	F: 1.89	χ^2: 8.53	χ^2: 10.99
Suicide			
Contemplating suicide	t: 2.34*	χ^2: 0.28	χ^2: 12.44**
Number of times attempting suicide	F: 0.31	χ^2: 5.10	χ^2: 11.27*

F statistic represents ANOVA tests, run for any variables in which one is ratio-level and the other is a 3-group ordinal variable. t statistic represents t-tests, run for any variables in which one is ratio-level and the other is a 2-group ordinal or nominal variable. χ^2 statistic represents chi-square tests, run for any variables in which both are ordinal or nominal level. r statistic represents correlations, run for any variables in which both are ratio level

*$p < 0.05$, **$p < 0.01$, and ***$p < 0.001$

Because PTSD, anxiety diagnosis, and suicide contemplation were significantly associated with two VWIRSM factors, we then ran hierarchical regressions focused on these factors and psychosocial controls. Having both lower scores on the SBW traits and experienced gendered racism is associated with a PTSD diagnosis. In fact, consideration of these two variables alone can explain 30% of the variation in PTSD diagnoses among Black women (Pseudo $R^2 = 0.30$). When adding control variables (education, employment, religiosity, and health insurance), the amount of variation in PTSD diagnoses for Black women increases slightly (30 to 32%). These results can be seen in Table 3.

Having both lower scores on the SBW traits and having to grow up faster is associated with anxiety diagnoses, although it only explained 5% of the variation in anxiety diagnoses among Black women (Pseudo $R^2 = 0.05$). However, when education, employment, religiosity, and health insurance are added to the model, the model's ability to explain the variation in anxiety diagnoses among Black women doubles from 5 to 10%. Details of this model can be seen in Table 4.

Lastly, having both lower scores on the SBW traits and having to grow up faster is associated with contemplating suicide, and the ability for the model to explain variation in contemplating suicide is exceptionally low (4% with the two primary independent variables in the model and 5% with those variables in addition to our covariates, education, employment, religiosity, and health insurance). Details of this model can be seen in Table 5. Importantly, there were no moderating effects among the VWISRM risk factors on PTSD, anxiety, or suicidality.

Supplemental analyses were run for the multiple regressions seen in Tables 3, 4, and 5, to account for the large amount of missingness, although this missingness was completely random (MCAR). FIML was used and patterning of results was the same.

Table 4 Hierarchal regression model for anxiety diagnosis

	Model 1		Model 2	
	OR	Std Err	OR	Std Err
VWIRSM factors				
Strong Black woman traits	0.6544*	0.1074	0.5989**	0.1055
Racialized gendered stress				
Slower	0.3493*	0.1977	0.2698*	0.1609
About the same	1.3245	0.8742	1.3499	0.9030
Faster	Ref	Ref	Ref	Ref
Psychosocial factors				
Education			0.9690	0.1133
Employed			1.7358	0.5625
Months in last year with health insurance			1.0017	0.0449
Religiosity			1.9936*	0.6570
Pseudo R^2	0.0507		0.0922	

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table 5 Hierarchal regression model for suicide consideration

	Model 1		Model 2	
	OR	Std Err	OR	Std Err
VWISRM factors				
Strong Black woman traits	0.6762*	0.1115	0.6713*	0.1160
Racialized gendered stress				
S lower	0.3352*	0.1888	0.3307*	0.1890
About the same	0.8010	0.6194	0.8061	0.6263
Faster	Ref	Ref	Ref	Ref
Psychosocial factors				
Education			0.9932	0.1089
Employed			1.0688	0.3296
Months in last year with health insurance			1.0127	0.0454
Religiosity			0.9989	0.2720
Pseudo R^2	0.0445			

*$p < 0.05$, **$p < 0.01$, and ***$p < 0.001$

Table 3 Hierarchal regression model for PTSD

	Model 1		Model 2	
	OR	Std Err	OR	Std Err
VWISRM factors				
Strong Black woman traits	0.4357*	0.1614	0.4504*	0.1976
Experienced gendered racism	23.1122*	30.0731	24.1522*	34.3592
Psychosocial factors				
Education			1.0528	0.3594
Employed			0.5088	0.4718
Months in last year with health insurance			1.0825	0.1804
Religiosity			0.7967	0.6273
Pseudo R^2	0.3000		0.3219	

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Discussion

The goal of this study was to test for empirical evidence of the VWISRM. Because several relationships suggested in that model are well established, we focused on testing the unique contributions of the model. Results from our first research question, "What psychosocial factors of Black women are associated with SBW traits, gendered racism, and racialized gendered stress?" provided insights into the unique experiences of Black womanhood highlighted in the VWISRM. Specifically, subscription to the SBW traits and experiences of gendered racism were more prevalent the more educated Black women became. These findings are not entirely unexpected. First, we created a SBW traits scale using attributes listed in the Bem Sex Role Inventory. This means traits that are detrimental to Black women's health, like care for others over care for self, were not included. The SBW traits we identified are adaptive and useful for highly educated Black women as they navigate predominately white spaces like college campuses, the military, parenting circles, and professional careers [59, 60]. Additionally, evidence of racialized gender stress, measured through age-related subjective weathering, was highest among Black women with less education, unstable health care, and full-time employment. This finding is in line with previous work on weathering described earlier [29, 33]. The strain of hyper-aging likely creates a barrier to educational attainment, thus, career success. Additionally, education and access to healthcare are established predictors of well-being [61–63] and full-time employment with limited education often means taking on highly stressful entry level positions. Given the multifaceted ways education improves an individual's life chances, and the barriers that racialized gender stress

creates, more work is needed to understand sources of and ways to mitigate racialized gender stress.

Results from our second research question, "What mental health outcomes are predicted by SBW traits, gendered racism, and racialized gendered stress?" did not support claims made by the VWISRM. We found that Black women who showed evidence of age-related subjective weathering were more likely to be diagnosed with PTSD, depression, anxiety, report feeling isolated, and engage in suicide-related behavior. The VWISRM posited that racialized gender stress led to mental health diagnoses and then to engagement in suicide-related behaviors but missed the direct effect of racialized gender stress on suicide risk. Additionally, the VWISRM claimed that PTSD was a product of psychosocial risk, gendered racism, and SBW traits. We found that the only risk factors related to PTSD were (1) SBW traits, but as a protective factor, and (2) age-related subjective weathering, but not as a moderating variable. Scholars of PTSD are urged to explore racialized gender stress in studies of Black women. This strong, direct relationship can also inform practitioners and policymakers as they work to minimize the prevalence of PTSD in this population (Fig. 2).

The SBW traits may create a protective factor for Black women for several reasons. For one, Buckley and Carter [58] reported that Black girls who adopted both masculine and feminine gender traits had a greater sense of racial identity and higher self-esteem than their counterparts who adopted gender traits from one category. Second, West et al. [64] spoke to Black women about the SBW traits and how they related to mental health and 43% of the respondents talked about the benefits of being an SBW. One respondent from their study stated, "I don't think that it would really affect my mental health because if I were such a strong Black woman,

Fig. 2 GRIT model
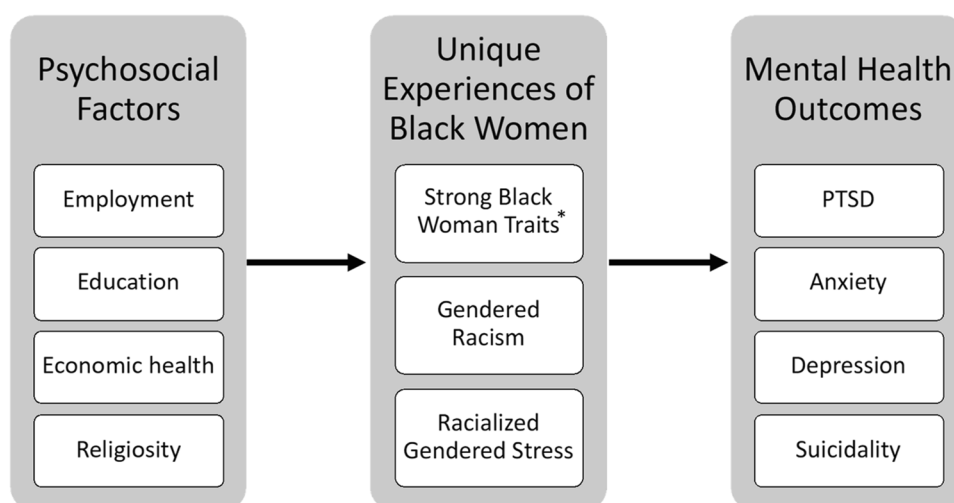
*Although higher education is associated with higher SBW scores, scoring lower on the SBW traits was significantly associated with having an anxiety diagnosis, PTSD diagnosis and contemplating suicide

I would be too grounded to let anything really affect my mental health" [32 (pp.402)]. Also, the SBW narrative is so prevalent today, and it creates a space for sisterhood and solidarity. There are programs, online and in person, throughout the nation that bring Black women together to provide mentorship and a place to vent as they navigate intersectional oppression in their daily lives [62]. Further exploration into ways that SBW traits serve as a protective shield against societal pressures, yet paradoxically inflict harm upon Black women by perpetuating the damaging effects of gendered racism.

The findings from this study have critical implications for the development and implementation of mental health interventions and suicide prevention initiatives specifically for Black women. To guide interventions and improve treatment outcomes, clinicians and practitioners need to acknowledge that Black women are exposed to a lifetime of chronic gendered racism. And due to the pervasiveness and chronicity of gendered racism, Black women will continue to experience racialized gender stress—before and after—receiving mental health diagnoses and engaging in suicide-related behaviors. Therefore, the use of treatment approaches with Black women experiencing racial and gender discrimination that do not center on healing of racial trauma are not culturally responsive interventions. This points to the need for continued work around decolonizing mental health services which includes deconstructing White supremacist systems, beliefs, and practices and promoting the use of cultural and spiritual healing practices.

This study made several methodological contributions that are noteworthy as well. We used the BEM Sex Role Inventory to measure SBW with high reliability in this sample. This means future scholars attempting to understand social aspects of Black womanhood who are limited to the Bem Sex Role Inventory can follow suit. Given the prevalence of SBW traits, this new scale can really create opportunities for inclusive quantitative research. Additionally, the pseudo-r-squared statistic, which for logistic regression quantifies the improvement of the specified model (with covariates and independent variables) over a null (intercept only) model, was 0.30 for the model predicting PTSD from just two variables, SBW traits and gendered racism. Though the pseudo-r-squared statistic does not have the same ease of interpretation as in ordinary least squares regression, it does still quantify overall model fit. Here, the model fit is quite high despite only including two independent variables. This should not be interpreted as a primary finding of our study, per se, but an early indication that the VWISRM may be particularly helpful in understanding trauma and PTSD for Black women.

Similarly, there are other secondary lessons to be learned in the anxiety and suicidality models from looking at our pseudo R^2. The model predicting an anxiety diagnosis had a much better overall fit once the psychosocial factors were included but did not have a particularly strong model fit with just our risk factors included. This suggests that there may be other important contextual factors other than our three risk factors as seen in the VWISRM in predicting anxiety diagnoses. Lastly, there was a poor model fit for suicidality, both for the model that had the VWISRM unique experiences of Black womanhood and the model that added psychosocial controls. This may suggest to future researchers that there are still other important risk factors to consider when looking at suicidality among Black women.

Introducing the GRIT Model

A review of our findings from testing the VWISRM model led us to the creation of a new model, Gendered Racism Intersectional Trauma (GRIT) for use in future studies on Black women's mental health and suicide risk. GRIT enhances the VWISRM in that it accounts for psychosocial factors including, employment, education, economic health, and religiosity that impact Black women's (1) subscription to the SBW traits and (2) experiences of gendered racism as well as racialized gender stress. Again, we were limited to religiosity as measured in ADD Health, but future scholars can adapt that measure to account for diverse manifestations of spirituality. Rather than racialized gender stress leading to suicide risk indirectly, by way of mental health outcomes, we now argue that these unique experiences of Black womanhood have a direct effect on PTSD, anxiety, depression, and engagement in suicide-related behaviors. In the GRIT model, education has a protective effect on Black women's mental health as it promotes subscription to prosocial SBW traits which provides a buffer from PTSD and suicide risk. We understand that the creation of this model may be premature and call for further analysis of GRIT via qualitative methods to better understand the nuance of the model and for improved conceptualization of racialized gender stress.

Limitations

The study is limited by the fact that this is a secondary data analysis, and data were not collected in an ideal manner for this study. One problem is that the Bem Sex Role Inventory questions, many of which make up the SBW traits in our study, were only asked to 29% of our sample, who were randomly selected. This means that our models are smaller because of the inclusion of this variable, even though the pattern of missing is completely at random (MCAR). We decided to still include this variable for two reasons: first,

supplemental analyses that, wherever possible, did not include the SBW traits and had much larger samples that showed a similar patterning of findings. Second, the SBW traits are a demonstrably important and novel contribution to literature. We also added supplemental analyses using FIML for all logistic regressions, demonstrating that even with the full possible sample ($n = 1466$), patterning of findings was the same. It is also important to note that suicide ideation assessed at Wave 4 only queried the past 12 months and did not include a lifetime measure because we were testing a specific model and wanted to establish temporal order. We acknowledge that due to the approximately 7 years between Wave 3 and Wave 4, there may have been events of suicide ideation that were not captured. Similarly, we would also like to acknowledge other measurement limitations due tension between (1) availability/quality of date in each wave, (2) setting up a temporal order to test progression of VWISRM, and (3) general transiency of many of the variables. For instance, we acknowledge the status of psychosocial factors (i.e., education, stable employment, and importance of religion) fluctuates and could vary considerably for participants based on their developmental stage during each Wave of measurement. Another limitation is related to the operationalization of several variables, notably sex, race, and PTSD. Sex and race were binary measures, namely, woman or not, and Black or not. This is problematic given the heterogeneous nature of Black womanhood. PTSD was operationalized only as receiving a diagnosis from a health provider as there was not a "symptom of" option for respondents, likely resulting in the underrepresentation of PTSD diagnoses due to barriers that Black women face in accessing behavioral healthcare. In addition, we could not include every relevant risk factor in our analysis due to missing data. Future work is needed that considers income, sexual abuse, substance use, and criminal justice involvement.

To advance intersectionality research, future work should add to our understanding of the complexities of Black women's lives by considering more social categories to include nonbinary gender orientations, complexion, and nativity. One approach to this is to add a qualitative analysis by incorporating Cole [11 (pp. 171)] *intersectional conceptualizations of social categories* questions. Asking the following questions: "Who is in this category? What role does inequality play? and where are there similarities?" allows for the consideration of how the social categories influence each other, phenomena, and outcomes. A final concern for us is retention. Although the benefits of longitudinal data analysis outweigh the costs associated with attrition, Black Americans, those with low socioeconomic status, and women, populations that are at the center of our work, are the most challenging to retain from one wave to the next [60, 65].

Conclusion

As a new conceptual model in intersectionality and mental health literature, the VWISRM needed to be evaluated for empirical evidence in support of its claims. Here, we did so by using multiple waves of data from the Add Health Dataset. Prior to the VWISRM, conceptual models designed to study Black women's mental health and suicidality were limited to explaining mental health, but not suicide risk; or explaining the protective factors associated with Black womanhood that limit suicide risk. Results from our analysis showed that the VWISRM had both strengths and limitations. It added gendered racism, racialized gender stress, and the SBW traits to the literature on Black women's suicide risk but incorrectly predicted the relationship between SBW traits and mental health and missed the direct effect of racialized gender stress on mental health outcomes and suicide risk. In response to the shortcomings of the VWISRM, we introduced the GRIT model. The GRIT model considers factors that impact Black women's mental health and suicide risk and is supported by empirical data. We suggest continued testing of both models and qualitative data collection to understand and contextualize Black women's experiences. We believe fine-tuning the GRIT model should be a key priority for scholars, practitioners, and policymakers as we work to reverse the current trend in Black women's suicide-related behaviors.

Declarations

Conflict of Interest The authors declare no competing interests.

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