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Examining Effects of Perceived Discrimination and Loneliness on Overall Health Outcomes in Black Americans

Social Sciences

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ABSTRACT

On average, Black Americans suffer more from a wide range of diseases when compared to White Americans. The national mortality rate for Black Americans is also 24% higher than their White counterparts. Although there are multiple factors contributing to such disparities, one line of research provides strong evidence that negative health outcomes are more likely to occur in Black Americans who experience racial discrimination than those who experience no discrimination. A separate line of research also provides evidence that loneliness is a major health risk factor. In fact, prior research indicates that the experience of discrimination and loneliness are both associated with increased physiological stress reactions that can lead to overall detrimental health effects. However, few studies have examined the effects of perceived discrimination and loneliness on a Black individual's overall health simultaneously. As such, this study aims to address additive and interactive effects of perceived discrimination and loneliness on health in unfairly disadvantaged Black Americans. In order to adequately address Black Americans' health status and improve their overall quality of life, gaining a more comprehensive understanding of the multiple factors interacting with each other to predict Black Americans' health outcomes is necessary.

KEYWORDS

Racial Health Disparities • Chronic Stress • Social Rejection • Physical Health • Mental Health

Introduction

Racial Health Disparities as a Major Public Health Issue in the US

Across all stages of life, Black Americans experience higher mortality rates when compared to their White counterparts (Louie et al., 2021). Though the same factors contribute to increased mortality rates in both Black and White individuals, factors such as diabetes, cardiovascular heart disease, hypertension, and obesity have been found to affect Black individuals disproportionately more than White individuals (Mays et al., 2007). For every 100,000 people, Black Americans die from heart disease at an increased rate of 321.3 whereas White Americans die at a rate of 245.6. Likewise, the pattern remains the same for other diseases, with diabetes at a rate of 49.9 in Black individuals and 22.1 in White individuals. With strokes, Black individuals die at a rate of 80.0 for every 100,000 while White individuals die at a rate of 55.9. Hypertension leads to a rate of 34.2 Black individuals versus a rate of 25.8 White individuals. In fact, racial disparities exist at every developmental stage, including the moment individuals are born. For example, fetal mortality rates in Black women are also disproportionately higher than White women, at 2.3 times higher in Black women than in White women (MacDorman, 2011). Even further, preterm births, which are associated with high rates of death and disability, affect Black women disproportionately more than White women, at a rate of 59% more (MacDorman, 2011). The average calculated life expectancy from birth is about 3.6 years more for White individuals than Black individuals (Louie et al., 2021). In addition, studies have consistently shown that Black individuals suffer from earlier onset and increased severity of

various illnesses, as well as lower survival rates when compared to White individuals (Williams et al., 2010). Black young-adults are 20 times more likely to experience heart failure, a condition that is more common in older adults, than White young-adults (Williams et al., 2010). Not only this, but Black individuals are more likely to

experience an earlier onset of hypertension than their White counterparts (Mays et al., 2007; Williams et al., 2010). With the addition of recent global health emergencies such as the COVID-19 pandemic, the disparity gap has widened even more (Andrasfay & Goldman, 2022). Black individuals not only experienced a monumental projected decrease in life expectancy, a rate almost twice as large for Black individuals than for White individuals, but also living and working conditions that have increased their risk of infection and mortality (Andrasfay & Goldman, 2022).

Factors Contributing to Racial Health Disparities

There are multiple factors that contribute to racial health disparities such as socioeconomic status, geographical factors, life history, and health insurance coverage (Weisfeld & Perlman, 2005; Dovidio et al., 2008). It's important to make the distinction between structural factors (e.g., unfair institutional policies that preserve barriers to access) and individual-level factors (e.g., social interactions between individuals that perpetuate discrimination) as both of these types of factors contribute to racial health disparities in different ways (Bleich et al., 2019). In order to eradicate racial health disparities, it's crucial that both levels are addressed. However, structural-level factors remain relatively resistant to change as compared to individual-level

factors. Thus, it's imperative that individual-level factors are investigated in order to improve health outcomes presently.

Prior research provides strong evidence that perceived discrimination is an important individual-level factor contributing to health disparities. Experiencing discrimination is stressful for many people regardless of race (Barnes & Lightsey, 2005; Mays et al., 2007; Pascoe & Smart Richman, 2009). However, Black individuals are subjected to discrimination more than any other racial/ethnic group (Bleich et al., 2019). This suggests that the experience of discrimination is one major chronic stressor for many Black individuals (Allen, 2019; Williams & Mohammed, 2009). Just like with other forms of chronic stressors, the experience of discrimination can result in worse health outcomes (Allen, 2019; Hausmann et al., 2008).

Another major factor at the individual-level that has been found to consistently predict individuals' health outcomes is loneliness (Luanaigh & Lawlor, 2008; Park et al., 2020). Similarly to the experience of discrimination, the experience of loneliness is stressful. However, there is little research examining loneliness as a factor contributing to racial disparities between Black and White individuals. The experience of loneliness might be an important factor to consider when examining the sources of racial health disparities due to the similarities between the experiences of discrimination and loneliness. First, both discrimination and loneliness are specific forms of rejection and social exclusion (Allen, 2019; Smart Richman & Leary, 2009; Hutchison et al., 2007). One study even found that greater levels of discrimination were associated with greater feelings of loneliness (Sutin et

al., 2015). Second, the mechanism through which each factor contributes to poor health is the same. As major chronic stressors, they can trigger physiological stress reactions which lead to adverse health outcomes overall (Brosschot, 2010; Gleij et al., 2007).

The Association Between Perceived Discrimination and Health

In one cross-sectional study, researchers investigated the association between perceived discrimination and psychological wellbeing by analyzing data collected from a sample of 810 African American and 360 Caribbean Black youth in the National Survey of African Life (Seaton et al., 2008). The main finding of this study was that greater reports of perceived discrimination were associated with more depressive symptoms, lower levels of self-esteem, and lower reports of life satisfaction. This study further examined the group difference (African American versus Caribbean Black). Even though the amount of perceived discrimination reported was the same between the groups overall, the association between perceived discrimination and negative psychological wellbeing was stronger for Caribbean Black youth than for African American youth. Several possible explanations for the observed group difference include cognitive dissonance (immigrant parents endorse the belief that Western society is a meritocracy when it isn't), lack of coping skills, and differing socialization practices.

In another cross-sectional study, researchers used data collected in a sample of 397 Black individuals from the National Health Measurement Study in order to examine the role of perceived discrimination in self-reported mental health (Yoon et al., 2019). This study distinguished between different types of

racial discrimination: everyday discrimination and lifetime discrimination. Despite that the researchers found Black Americans generally report better psychological wellbeing than individuals from other racial/ethnic groups, those who report greater experiences of everyday discrimination, but not lifetime discrimination, did suffer from greater depressive symptomology.

While cross-sectional studies only suggest potential correlational relationships between constructs, longitudinal studies implicate potential causal relationships. In one longitudinal study, researchers examined the associations between the experience of racial discrimination and physical and mental health using data collected from 623 Black Americans in the National Survey of Black Americans (Jackson et al., 1996). The study has shown that higher reports of perceived racial discrimination at the initial data collection were associated with higher levels of overall negative health outcomes, including psychological distress and physical health, subsequently. Another longitudinal study also used the National Survey of Black Americans to examine the association between racial discrimination and mental health (Brown et al., 2000). Because mental health can be operationalized in many different ways, the study assessed multiple mental health-related constructs. In this study, researchers used a larger sample of 2,107 Black Americans and found that greater reports of racial discrimination are significantly associated with higher levels of psychological distress, but not depressive symptoms, partially replicating the study conducted by Jackson and colleagues (1996). Taken together, perceived discrimination has been continuously shown to contribute

negatively to Black individuals' overall health.

The Association Between Loneliness and Health

In one cross-sectional study, researchers assessed the association between loneliness and self-rated general health by using a convenience sample of 1,343 Black church-goers pulled from one wave of a longitudinal study on African American health (Fisher et al., 2014). Researchers found that those who reported higher levels of loneliness were also more likely to report worse general health, as compared to those who reported lower levels of loneliness. In another cross-sectional study, researchers tested the association between loneliness, self-reported physical health, and self-reported mental health in a sample of 2,323 Black individuals from the Health and Retirement Study (Taylor, 2021). The findings indicate that loneliness was significantly associated with poor overall self-rated health with increased rates of chronic health conditions, greater likelihood of development of psychiatric disorders, and greater levels of depressive symptoms.

Findings from cross-sectional studies are further supported by findings from longitudinal studies. For example, in one longitudinal study, researchers followed 163 individuals who are from racially diverse backgrounds (37.3% White, 34.4% Black, and 28.3% Hispanic/Latinx) and assessed the association between loneliness and subjective well-being (VanderWeele et al., 2012). The findings suggest a reciprocal association between loneliness and subjective well-being, meaning both constructs are mutually influential over another. In another longitudinal study, researchers examined the association

between loneliness and depressive symptoms by using a racially diverse sample of 229 participants (35.8% White, 35.4% Black, and 28.8% Hispanic/Latinx) (Cacioppo et al., 2010). Higher levels of loneliness assessed at the initial data collection predicted greater depressive symptomatology subsequently. The strength of this association has been shown to stay relatively fixed over the course of the adult lifespan despite varying levels of loneliness at different stages of life (Nolen-Hoeksema & Ahrens, 2002). These results suggest that greater reports of loneliness, regardless of race, indicate worse health outcomes.

Perceived Discrimination and Loneliness as Chronic Stressors

Discrimination and loneliness act more similarly than not as chronic stressors. Many studies have shown that discrimination impacts Black Americans disproportionately more than their White counterparts and in fact has been shown to be pervasive in many areas of their lives (e.g., places of shopping, place of employment, housing system, healthcare system, criminal justice system) (Bleich et al., 2019; Van Dyke et al., 2020). Loneliness operates similarly in this way as this construct has been shown to lead to chronic stress because of its unwanted yet omnipresent nature in all areas of life. Individuals who experience loneliness generally lack and subsequently crave fulfilling social relationships which can often be an inescapable source of stress. This absence of favorable social interaction gnaws away at individuals, invading their every waking moment with its lingering presence in both the conscious and unconscious mind (Lepore, 1997; Roberts & Krueger, 2021). Studies have shown that chronic stressors, whether due to the experience of

discrimination or loneliness, have been found to manifest itself as various physical and mental health conditions such as cardiovascular disease, obesity, diabetes, musculoskeletal disorders, neurological disorders, autoimmune disorders, cancer, periodontal diseases, anxiety, depression, post-traumatic stress disorder, psychotic disorders, and alcohol dependence (Guidi et al., 2021; Mushtaq et al., 2014).

Perceived Discrimination and Loneliness as Forms of Rejection

Another similarity between discrimination and loneliness is that both constructs are considered specific types of social rejection. Social rejection is an exclusionary and painful experience to most, as humans typically have a fundamental need to be liked and accepted (Kross et al., 2011; Watson & Nesdale, 2012). As such, those experiencing any form of social rejection are likely to feel hurt and angry (Smart Richman & Leary, 2009; Watson & Nesdale, 2012). Discrimination acts as a form of social rejection because it's more often than not an intentionally painful practice intended to socially exclude individuals (Berger & Sarnyai, 2015). Similarly, loneliness acts as a form of social rejection because it's a painfully isolating experience that involves minimal favorable social interaction (Shiovitz-Ezra & Shemesh, 2018).

Individuals that have experienced discrimination and loneliness are more likely to become sensitive to rejection (London et al., 2007; Page-Gould et al., 2014). Rejection sensitivity is a state of being in which negative social cues are constantly being expected and has been shown to predict loneliness (Allen, 2019; Masi et al., 2011; Zhou et al., 2020). Even further, repeated experiences of racial discrimination often lead individuals to

anxiously expect that same negative treatment across social situations, which is called race-based rejection sensitivity (Page-Gould et al., 2014). Experiencing chronic social rejection disposes individuals to develop rejection-sensitivity, which comes with a lack of gratification in social situations (London et al., 2007). Rejection sensitivity has been shown to incite activations of defense mechanisms designed to protect individuals from further harm, oftentimes in the form of hypervigilance. This is a state of being in which individuals feel the need to perpetually be on guard to protect against negative social evaluation (Hawkley & Cacioppo, 2010; Mays et al., 2007). Hypervigilance is a feature associated with rejection sensitivity and may lead to misconstrual of intent (e.g., if an individual accidentally talks over another in a social setting, they may misinterpret this as malicious and purposeful) and maladaptive coping behaviors (e.g., hostility, aggression, social withdrawal, anxiety) which increases feelings of social isolation (Masi et al., 2011; Mays et al., 2007; Watson & Nesdale, 2012). These negative feelings and experiences may manifest as physical and mental health-damaging behaviors such as excessive drinking and/or drug use, reduced medical adherence, as well as decreased likelihood of seeking medical care (Hawkley & Cacioppo, 2003; Pascoe & Smart Richman, 2009; Smart Richman & Leary, 2009; Williams & Mohammed, 2009).

Many studies have also found evidence to support the idea that social rejection contributes to negative neurobiological and physiological responses. One such study found that the human brain equates social rejection to physical pain (Berger & Sarnyai, 2015; Kross et al., 2011). In fact, increased levels of psychological distress

due to racial discrimination have been shown to lead to chronic pain (Allen, 2019). In that respect, prior research has also indicated that increased levels of social isolation and loneliness often lead to increased perceptions of chronic musculoskeletal pain through rumination and negative thought processes (Smith, 2017). Another study found that social rejection in the form of racial discrimination was linked to greater levels of cardiac activity and lowered vasculature resistance, which is directly linked to blood pressure (Jamieson et al., 2013). Similar to discrimination in this way, loneliness is associated with feelings of psychological distress which are associated with heightened blood pressure levels, worse sleep quality, and weakened immune responses (Brown et al., 2018).

Remaining Gaps in Knowledge

Though discrimination and loneliness share some similarities, they are also distinctly different psychological constructs. Discrimination is inequitable treatment based on social status that can mainly be attributed to systemic and interpersonal factors (Allen, 2019). The feeling of loneliness, on the other hand, is a state of distress brought on by a discrepancy between an individual's imagined social support versus actual social support (Fisher et al., 2014; Gerst-Emerson & Jayawardhana, 2015). This is more to do with the quality of said social relationships rather than the quantity (Masi et al., 2011). This also means that the likelihood of occurrence differs between discrimination and loneliness. Discrimination mainly occurs in individuals that possess one or more out-group identities, meaning not all humans will experience this (Berger & Sarnyai, 2015). However, loneliness is a universal

human experience that any individual, regardless of social identity, may experience at one or many points in their lives (Masi et al., 2011). Aside from those fundamental differences, it can also be said that these constructs juxtapose each other in a way. Specifically, discrimination may be a result of social interaction while loneliness may stem from a lack of social interaction (Bleich et al., 2019; Masi et al., 2011).

The Present Study

Discrimination and loneliness have been found to independently and consistently predict negative health outcomes; however, little research has been done to examine the simultaneous effects. This study aims to bridge that gap in knowledge by investigating whether perceived discrimination and loneliness will be associated with negative health outcomes in Black Americans independently or interactively. Such findings are vital to understanding and adequately addressing the possible compounded effects of these constructs in order to improve the health outcomes of Black Americans. In order to address the research question, the current study conducted a secondary data analysis using a publicly available data set from Project STRIDE: Stress, Identity, and Mental Health (Meyer et al., 2018).

Methods

Parent Study

Project STRIDE was conducted between 2004 and 2005 in New York City, New York.

The goal of the project was to examine the relationship between social stressors and health outcomes specifically

in individuals who self-identified as LGBTQ (i.e., lesbian, gay, bisexual, gay, or queer). Researchers used both snowball sampling techniques to recruit individuals and representative case quota sampling techniques at various locations within the city.

The study collected data at two data points, at baseline and at a one-year follow-up. Data was collected using a variety of methods including computer-assisted interviews (CAPI),

face-to-face interviews, and telephone interviews. Though this data set was longitudinal in nature, the present study only used data collected at one point in time (baseline) because not all variables relevant to the current project were assessed at the second point in time (one-year follow-up). Participants received incentives in the form of financial compensation (\$80 for baseline interviews and \$60 for one-year follow-up interviews). Participants for the current secondary study were a subset of the Project STRIDE sample who self-identified as Black/African Americans.

Participants

The current sample consisted of 131 LGBTQ Black/African Americans aged 18-59 ($M = 31.60$, $SD = 8.53$). On average, participants obtained some college education ($M = 6.37$, $SD = 1.97$), were employed ($M = .58$, $SD = .50$), and made \$20,000 annually ($M = 20.17$, $SD = 8.56$). Gender identity was equally split, with 50.2% of participants identifying as male and 49.8% identifying as female.

Measures

Racial Discrimination

Racial discrimination was assessed using a modified version of an 8-item questionnaire created by Williams et al. (1997). This questionnaire measured

chronic and covert forms of everyday discrimination rather than acute and overt. Experiences such as being treated with less respect or courtesy than others, receiving poorer quality of service than others, as well as being harassed or insulted (e.g., name-calling, verbal threats) were assessed using this questionnaire. This measure used a 4-point scale (1 = "often" to 4 = "never") in order to determine frequency of discrimination over the respondent's lifetime. Then, each item was re-coded by dichotomizing responses into 0 (never) and 1 (any). The composite score was created by computing a sum of the dichotomized eight items, which ranged from 0 to 8. High scores were indicative of more instances of everyday discrimination.

Loneliness

Loneliness was assessed using a single item obtained from the modified version of Wheaton's (1999) 28-item questionnaire that measures the experience of chronic strain.

Specifically, loneliness was assessed with the following item: "You are alone too much." A 3-point scale ranged from 1 = "not true," 2 = "somewhat true," to 3 = "very true," where higher scores were indicative of more loneliness.

Overall Health

Overall health was assessed using the well-validated SF-12 (Ware et al., 1996), a shortened version of the SF-36. The SF-12 assesses eight domains of health: four related to physical health (general health, physical functioning, physical role limitations, and body pain) and four related to mental health (mental health, vitality, social functioning, and emotional role limitations). This measure used a 5-point scale ranging from 1 = "all of the time" to 5 = "none of the time." Separate composite scores were created for physical and mental health by

computing a sum of four items within each subscale. Each composite score ranged from 0-100, where high scores indicated better health.

Analysis Plan

The analysis was conducted using IBM SPSS (Version 28). First, descriptive statistics were conducted to examine means, standard deviations, and bivariate correlation among all variables. I then checked whether physical or mental health outcomes were skewed and needed data transformation. Bivariate correlations revealed that age, employment, education, income, gender, and being born in the United States were associated with health outcomes and were consequently included in the analysis as control variables (see the Results section for more details). The main analysis was conducted with a linear regression for physical and mental health separately by using PROCESS Model 1 with $N = 5,000$ bootstrap resamples (Hayes et al., 2013). Each regression model included the main effect of racial discrimination, the main effect of loneliness, a two-way interaction between racial discrimination and loneliness, and sociodemographic characteristics listed above as covariates. The statistical significance level was set to $p < .05$ for all tests.

Results

Descriptive Statistics

Table 1 presents means and standard deviations of both independent variables (racial/ethnic discrimination and loneliness) and dependent variables (physical and mental health). Participants on average reported racial/ethnic discrimination slightly higher than the midpoint ($M = 4.72$, $SD = 2.68$) but loneliness lower than the midpoint ($M =$

1.51, SD = .46) on their respective scales. Additionally, on average, participants reported physical health higher than the midpoint ($M = 53.50$, $SD = 8.55$) but mental health lower than the midpoint ($M = 48.02$, SD

$= 10.25$). Examination of the distribution of each variable suggests that physical health was negatively skewed (Skewness = -1.40 , $SE = .21$). Further visual inspection of a histogram suggests that the skewness was driven by several outliers (-3 SDs $n = 2$ or -2 SDs $n = 6$).

Although the exclusion of those outliers reduced the skewness, I decided to include them in the main analysis because the omission of their reports was not truly representative of their personal experiences of physical health.

Correlation analyses were conducted to identify demographic characteristics that needed to be included in the main analysis. Specifically, Pearson correlation and Point-Biserial correlation were conducted to test associations between two continuous variables and between a continuous and a dichotomous variable, respectively. Age ($r = .33$, $p < .001$), employment ($r =$

$.24$, $p = .006$), education ($r = .39$, $p < .001$), and income ($r = .39$, $p < .001$) were significantly and positively associated with racial/ethnic discrimination. That is, participants who were older, employed, with higher education and income were more likely to report greater levels of discrimination than participants who

were younger, unemployed, with lower education and income. These findings are consistent with prior research (Assari, 2020; Bird & Bogart, 2001; Harnois, 2014). Also consistent with prior research (Hopf et al. 2022; Özdemir & Tuncay, 2008), relationship status ($r = -.23$, $p = .009$) was significantly and negatively associated with loneliness such that individuals who were in relationships reported lower levels of loneliness.

Turning to demographic characteristics associated with outcomes, age ($r = -.25$, $p = .004$), children ($r = -.19$, $p = .027$), education ($r = .29$, $p < .001$), and income ($r = .17$, $p = .050$) were significantly associated with physical health, whereas gender ($r = .23$, $p = .007$) and being born in the United States ($r = -.23$, $p = .008$) were associated with mental health. Specifically, participants who were older (López Ulloa et al., 2013), had children (Spence, 2009), and had lower education and income levels (Ross & Wu, 1996) reported poorer physical health while participants who were female (Afifi, 2007) and born in the United States (Dedania & Gonzales, 2019) reported poorer mental health. Again, these patterns of results are consistent with prior research examining factors that predict health outcomes in racially/ethnically minoritized people. Therefore, these six demographic characteristics were included in the main analysis as control variables.

Table 1. Descriptive Statistics and Bivariate Correlations Among All Variables.

	1	2	3	4	5	6	7	8	9	10	11	12
1. Racial/Ethnic Discrimination	--											
2. Loneliness	-.03	--										
3. Physical Health	.04	.10	--									
4. Mental Health	.02	-.20*	.05	--								
5. Gender	.14	-.06	.02	.23**	--							
6. Age	.33**	-.04	-.25**	-.02	-.03	--						
7. Employment	.24**	-.13	.15	.11	.00	.03	--					
8. Relationship	.06	-.23**	.02	-.01	-.33**	-.07	.12	--				
9. Children	-.12	.01	-.19*	.05	-.30**	.37**	-.05	.05	--			
10. Born in the US	.10	.04	-.11	-.23**	-.09	.11	-.08	.05	.08	--		
11. Education	.39**	-.12	.29**	.11	.16	.13	.26**	-.01	-.22*	-.08	--	
12. Income	.39**	-.17	.17*	.12	.13	.08	.37**	.06	-.15	-.01	.45**	--
<i>M</i> (<i>SD</i>)	4.72 (2.68)	1.51 (0.46)	53.50 (8.55)	48.02 (10.25)	N/A	31.60 (8.53)	N/A	N/A	N/A	N/A	6.37 (1.97)	20.17 (8.56)
<i>Range</i>	0-8	1-3	23.5-69.2	17.2-65.5	N/A	18-58	N/A	N/A	N/A	N/A	3-11	0-33
<i>Skewness</i> (<i>SE</i>)	-.32 (.21)	.88 (.21)	-1.40 (.21)	-.57 (.21)	N/A	.74 (.21)	N/A	N/A	N/A	N/A	-.18 (.21)	-1.04 (.21)

Note. * indicates p < 0.05 and ** indicates p < 0.01. N/A indicates a nominal variable so central tendency, variability, range, and skewness were not computed.

Physical Health

The overall regression with the main effects of racial/ethnic discrimination and loneliness, two-way interaction between the two, and age, children, education, income as covariates was significant, with 19.3% of the variance in physical health explained by the model ($R^2 = .19$, $F_{7,120} = 4.10$, $MSE = 63.18$, $p < .001$). Inconsistent with the prediction, neither the main effect of racial/ethnic discrimination ($\beta = -.02$, $SE = .32$, $p = .94$, $CI_{95\%} = [-.6543, .6083]$) nor the main effect of loneliness was significant ($\beta = 2.68$, $SE = 1.54$, $p = .09$, $CI_{95\%} = [-.3797, 5.7316]$). The two-way interaction between racial/ethnic discrimination and loneliness was not significant either ($\beta = -.53$, $SE = .59$, $p = .37$, $CI_{95\%} = [-1.6866, .6301]$).

Mental Health

The overall regression with the main effects of racial/ethnic discrimination and loneliness, two-way interaction between the two, and gender and being born in the US as covariates was significant, with 13.2% of the variance in mental health explained by the model ($R^2 = .13$, $F_{5,125} = 3.79$, $MSE = 94.91$, $p < .001$). Though the main effect of racial/ethnic discrimination was not significant ($\beta = .01$, $SE = .32$, $p = .98$, $CI_{95\%} = [-.6326, .6509]$), the main effect of loneliness was significant ($\beta = -3.93$, $SE = 1.84$, $p = .04$, $CI_{95\%} = [-7.5770, -2.2775]$). The two-way interaction between racial/ethnic discrimination and loneliness was not significant ($\beta = .28$, $SE = .70$, $p = .69$, $CI_{95\%} = [-1.1073, 1.6713]$). Table 2 summarizes the results from the regression analysis.

Table 2. Multiple Linear Regressions Predicting Physical and Mental Health

	Physical Health					Mental Health				
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% <i>CI</i> [<i>LL</i> , <i>UL</i>]	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% <i>CI</i> [<i>LL</i> , <i>UL</i>]
(Intercept)	52.15	4.03				51.52	2.69			
Loneliness	2.68	1.54	1.73	.086	[-.3797, 5.7316]	-3.92	1.84	-2.13	.035	[-7.5770, -.2775]
Racial/Ethnic Discrimination	-.02	.32	-.07	.943	[-.6543, .6083]	.01	.32	.03	.978	[-.6326, .6509]
Loneliness x Racial/Ethnic Discrimination	-.53	.59	-.90	.368	[-1.6866, .6301].	.28	.70	.40	.689	[-1.1073, 1.6713]

Discussion

The goal of this study was to investigate both the additive and interactive effects of racial/ethnic discrimination and loneliness on self-reported physical and mental health outcomes. Overall, there was no evidence to support that racial/ethnic discrimination predicted either physical or mental health outcomes in the current study. This is in contrast to the initial hypothesis as well as prior research that has consistently found a negative association between racial/ethnic discrimination and overall health outcomes.

There are theoretical and methodological reasons that may explain this lack of association. Prior research provides evidence that attributions play an important role in how individuals react to the experience of racial/ethnic discrimination (Harrell, 2000). Specifically, it has been documented that making an attribution of the discrimination they experienced to external factors (i.e. racism), rather than internal factors (e.g., personality, intelligence, appearance, attractiveness),

serves to protect individuals from the negative health consequences of racial/ethnic discrimination (Major & Eliezer, 2011). This is because the stress and consequential negative health effects are displaced when an individual believes the discrimination they experienced was due to no fault of their own. The current study did not assess attributions of the experience of discrimination.

Another reason for this result could be the unique characteristics of the current sample. This study utilized data from Project STRIDE, which was a study that specifically recruited those who were minoritized due to sexual orientation and/or gender identity. That is, everyone included in the current analysis had multiple minoritized identities: race, sexual orientation, and/or gender identity. There is some evidence suggesting that those individuals often experience discrimination differently, both qualitatively and quantitatively, from individuals who only possess one minoritized identity (Williams et al., 2020). Therefore, the lack of association between the experience of racial/ethnic discrimination and health outcomes may simply reflect the current study's inability

to look at the fuller picture of the association between the experience of discrimination due to the intersectional effects of multiple identities and health outcomes.

Turning to loneliness, consistent with the hypothesis, individuals who reported higher levels of loneliness experienced poorer mental health. However, loneliness was not associated with physical health outcomes. A growing body of evidence suggests that loneliness is a chronic stressor (Xia & Li, 2018). Chronic stressors not only affect individuals' mental health, but their physical health as well (Guidi et al., 2021; Mushtaq et al., 2014). However, there is some evidence to support that chronic stress often first manifests as mental health effects as opposed to physical health effects. Chronic stress, antithetical to acute stress, is defined as the compounded result of exposure to majorly stressful life events that occur infrequently (acute stressors) as well as minorly stressful experiences that occur frequently (chronic stressors) (Guidi et al., 2021). Chronic stress often first manifests psychologically, as feelings of anxiety and overwhelmedness; however, if not successfully addressed, allostatic overload can occur (Guidi et al., 2021), which is the end result of systemic physiological dysregulation (Van Dyke et al., 2020). This dysregulation can lead to a multitude of physical and mental health conditions (Guidi et al., 2021; Mushtaq et al., 2014). The current sample consisted of individuals who were, on average, in their early thirties, therefore, the physical health effects of loneliness may not have had time to manifest yet.

Additionally, physical health effects can sometimes be less obvious than mental health effects. For example, physical health effects, such as

hypertension, high cholesterol, and diabetes, can sometimes go undetected as the diagnoses of these ailments can require multiple visits to the doctor and various tests (Björk, 2001; Elliot, 2003). In contrast, mental health effects such as anxiety, depression, post-traumatic stress disorder, psychotic disorders, and alcohol dependence can often be more overt and outwardly observable (American Psychiatric Association [APA], 2013). Because the current study employed self-report surveys to collect data on health outcomes, it failed to take into account any condition participants were unable to report experiencing physiologically.

Finally, there was no evidence, at least in the current sample of Black Americans with minoritized sexual orientations and/or gender identities [i.e., lesbian, gay, bisexual, or queer (LGBQ)], to suggest that racial/ethnic discrimination and loneliness interactively predict either physical or mental health. It could be the case that there is truly no interactive effect between racial/ethnic discrimination and loneliness on health outcomes. However, the null findings could have been due to the current small and unique sample.

Limitations and Future Directions

One major limitation of this study was its small sample size. In order to investigate the current research question, I had to find a data set that included both racial/ethnic discrimination and loneliness reported by Black Americans. Project STRIDE was the only publicly available data set that met these criteria. A small sample size, in general, can lead to false negative results (Nayak, 2010).

Although Project STRIDE allowed me to investigate the main research question, it also resulted in an additional, unexpected limitation; its focus on a very unique subset of Black Americans.

Specifically, the project only recruited individuals who self-identified as LGBTQ. Thus, participants in the current sample have likely faced discrimination based on the intersectional effects of race, sexual orientation, and/or gender identity. This unique sample, together with the small sample size, undermines the generalizability of the current findings to the larger population of Black Americans as a whole (Faber & Fonseca, 2014).

Another limiting factor of this study was the geographical location. All participants in this study hailed from one particular city, New York City, which could have possibly influenced the study's results. This is because different geographical locations yield varying levels of racial/ethnic discrimination (Nanlohy et al., 2021) as well as loneliness (Abshire et al., 2022). Especially in the Southern United States, racial/ethnic discrimination is more obviously and outwardly expressed. This is largely because of the enactment of the Jim Crow Laws (i.e. legal discrimination against Black Americans) which occurred in the South during the late 1800s (Nanlohy et al., 2021). This legislation has long since been overturned, but has unfortunately had pervasive, long-lasting effects on the United States. In recent years, the United States as a whole has mostly moved away from explicit acts of racial/ethnic discrimination and is now mostly known for covertly discriminating against Black Americans. However, individuals in Southern states, as opposed to Northern states, are currently still more likely to participate in explicit racial/ethnic discrimination (e.g., joining white supremacist groups that encourage hateful and intentionally discriminatory behavior towards Black Americans, such as the Ku Klux Klan) (Schmitz, 2016). Thus, collecting data from various states may have led to a different outcome.

Similar to racial/ethnic discrimination, levels of loneliness could also vary depending on location. This is largely because community integration is a key factor in fending off loneliness, and different geographic locations have varying levels of this (Abshire et al., 2022; Chipuer, 2001).

Another limitation of the present study was the parent study was conducted two decades ago. However, the data is still informative. Although there has been a slight decrease in the magnitude of racial health disparities in general, the disparity has still persisted over two decades. For example, heart disease is a leading cause of mortality for all Americans regardless of race, but has shown steady and substantial Black-White differences. In 1999, the difference in mortality rates between Black and White Americans was 163.6, while the difference in 2019 was 100.4 (Kyalwazi, 2022). Furthermore, just as racial health disparities have remained steady over time, racial discrimination experienced by Black Americans has also remained steady. For example, in a longitudinal study of Black youths, experiences of racial/ethnic discrimination remained stable over time with participants reporting an average score of 1.63 in 1997 and 1.46 in 2017 (Assari et al., 2018).

In sum, future research should consider replicating this study with a larger sample size and random sampling methods from multiple geographical locations. As mentioned previously, larger sample sizes decrease the chance that false negatives may occur as well as increase the generalizability and overall validity of the study. Though purposeful sampling was implemented to satisfy certain demographic characteristics in Project STRIDE, future studies should employ random sampling methods within the

present study's parameters to ensure demographic representation as well as inclusion of varied lived experiences.

Conclusion

The present study sought to examine the roles of racial/ethnic discrimination, which is a topic appropriately well-represented by Black Americans, as well as loneliness, which is a topic currently underrepresented by Black Americans, in physical and mental health outcomes. The only significant association that was supported was the association between loneliness and mental health outcomes. The current findings found no evidence of an interactive effect of racial/ethnic discrimination and loneliness on health outcomes as well. Future research should consider replicating this study on a larger scale to confirm or contradict the present study's findings in order to adequately improve the health outcomes of Black Americans.

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