STRESS ACCUMULATION AND HEALTH AMONG BLACK AMERICANS LIVING IN THE RURAL SOUTH

by

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(Under the Direction of Justin A. Lavner)

ABSTRACT

Centuries of systemic racism in the United States have led to Black Americans facing a disproportionate amount of life stressors. These stressors can have negative health effects, contributing to inequities throughout the lifespan. The current study used longitudinal data from a study of Black families to examine the ways in which neighborhood stress, financial strain, and interpersonal experiences of racial discrimination operate independently and in tandem with one another to impact trajectories of depressive symptoms and sleep difficulties. Additionally, we examined potential protective effects of neighborhood support, partner support, and religiosity. Findings provided support for univariate, additive, and multiplicative stress effects. Findings also suggested that most measured sources of resilience did not significantly buffer these effects. Results underscore how multiple stressors stemming from systemic racism can undermine health among Black Americans and highlight the need for further research on factors that promote well-being in the face of these stressors.

INDEX WORDS: Black Americans; social determinants of health; stress; resilience; mental health

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CHAPTER 1

INTRODUCTION

Black adults living in the United States face a disproportionate burden of disease and disability compared to other racial and ethnic groups (Williams, 2012). Two domains where these disparities are evident are sleep and symptoms of depression. Black adults endorse higher rates of problematically short and long sleep, as well as sleep disordered breathing (e.g., snoring), compared to other racial and ethnic groups (Kingsbury et al., 2013). Although research on rates of depression by race has been mixed, there is consistent evidence that Black Americans experience high rates of depressive symptoms (e.g., Williams et al., 2007). These findings are concerning both for what they mean in terms of Black Americans' sleep and mental health, and because of the health conditions associated with poor sleep and depression. Specifically, both sleep problems and depressive symptoms have been linked to cardiovascular disease and other health conditions that Black Americans experience at disproportionately high rates (Assari et al., 2017; Kingsbury et al., 2013).

There is growing evidence that health inequities between Black Americans and other racial and ethnic groups are driven by stressors arising from structural, systemic, and individual-level racism, consistent with the biopsychosocial model of health (Clark et al., 1999). Previous research has also highlighted how these racial stressors contribute to within-group differences in health, reflecting the heterogeneous nature of Black individuals' experiences in the United States (Earl et al., 2011). In light of these patterns, there is a clear need to understand the nature and impact of multiple stressors related to racism on Black individuals' sleep difficulties and

depressive symptoms over time. Likewise, it is important to identify sources of resilience that protect against the negative effects of such stressors, including individual and interpersonal factors that can be targeted in psychological interventions to complement systemic, policy-level changes. The current study furthers these goals by examining (1) independent associations between three contextual stressors—neighborhood stress, financial strain, and interpersonal experiences of racial discrimination—and sleep problems and depressive symptoms, (2) the potential accumulation or synergistic effects among these stressors on trajectories of sleep problems and depressive symptoms, and (3) the potential buffering role of neighborhood support, partner support, and religiosity among a sample of Black adults living in the rural Southern United States.

Contextual Stress and Health Among Black Americans

Centuries of systemic racism in the United States have led to Black Americans being disproportionately affected by several stressors over the lifespan. For example, many Black Americans face differential access to resources in judicial and legal systems, finances, healthcare, and housing due to systemic injustices that have been cemented in society over time (e.g., Burton et al., 2017). The Sociocultural Family Stress (SFS) Model is an intersectional family stress framework specific to Black American families (Smith & Landor, 2018) that captures many of these stressors and highlights resources that some Black Americans use to counteract these stressors. This model highlights the heterogeneity of Black families' experiences in the United States by positing that an individual family's social position influences their stressors, resources and coping situations, perceptions of stressors, response to stressors, and utilization of resiliency. The model acknowledges that there are a number of intersecting factors that contribute to a family's social position and subsequently their response to stressors.

The model also recognizes that although some of these factors are unique to families (e.g., family identity), there are also a number of factors that are shared across Black families (e.g., interactions with systems based in institutional racism). Specifically, the model includes mundane extreme environmental stress (MEES), a sociocultural context in which Black Americans are subjected to chronic, ongoing, overt and covert forms of discrimination and oppression (Carroll, 1998; Peters & Massey, 1983; Pierce, 1975), as an underlying element for all Black American families. The SFS model specifically highlights underrepresentation (i.e., solo status), experiences of discrimination including microaggressions, institutional forms of oppression, and collective grief as sociocultural stressors to be considered within the underlying context of MEES. The model also features a number of individual-, family-, and community level resources and coping strategies that families may utilize in the face of these stressors, including family and kin networks, solidarity and equality among couples within a family system, and religiosity and spirituality. Here we draw on the SFS model to examine how stressors related to institutional forms of oppression and experiences of discrimination (i.e., neighborhood stress, financial strain, interpersonal experiences of discrimination) and resilience resources (i.e., neighborhood support, partner support, and religiosity) affect depressive symptoms and sleep difficulties.

Neighborhood Stress

Black individuals and families are disproportionately represented in under-resourced neighborhoods in the United States compared to their White counterparts (Lichter et al., 2014; Reardon et al., 2015). For example, in 2010, Black Americans were four times more likely than other racial or ethnic groups to live in neighborhoods with poverty rates of 40% or higher (Firebaugh & Acciai, 2016). Additionally, even after controlling for income, Black Americans

live in neighborhoods with higher rates of environmental hazards such as pollution and dilapidation (Downey & Hawkins, 2009; Sampson & Sharkey, 2008). Environmental policies left over from Jim Crow laws such as redlining (preventing Black individuals and families from living in certain geographic areas through the systematic denial of home ownership loans, mortgages, insurance, and other financial services; Sugrue, 2014) have contributed to neighborhood-level financial inequality and the racial segregation of neighborhoods. Further, poverty traps (reinforcing mechanisms that make it difficult for individuals experiencing poverty to escape it, often persisting into succeeding generations) have resulted in Black individuals and families being disproportionately represented in disadvantaged neighborhoods over time (Sampson, 2009). Neighborhoods can thus be sources of stress for some Black Americans, as they can have higher levels of neighborhood disorder such as crime, delinquency, and dilapidation, as well as lower rates of benefits such as sidewalks and green spaces (Ross & Mirowsky, 2001).

Black individuals and families living in rural areas, especially in the Southern United States, may have unique experiences of neighborhood disadvantage. In addition to heightened exposure to environmental hazards, rural neighborhood disadvantage can be a source of inequality via access to and utilization of resources such as education. Individuals living in rural areas also experience less preventative healthcare access and utilization than individuals living in urban areas (James et al., 2017). Relatedly, across races, rural populations have higher rates of morbidity and mortality compared to urban areas (Meit et al., 2014). Similarly, individuals living in Southern regions experience poorer health outcomes than individuals living in other areas of the country (National Academies of Sciences, Engineering, and Medicine, 2017). For Black individuals living in rural areas, especially those living in primarily Black neighborhoods, these

rates of morbidity and mortality are elevated compared to their White counterparts (e.g., Ferdows et al., 2020; James et al., 2017), likely due to deep rooted legacies of systemic racism impacting access to resources (Burton et al., 2017).

Previous research has found that neighborhood disadvantage can have a significant impact on individual health and well-being. For example, one study from the United Kingdom found that neighborhood problems (e.g., pollution, lack of local amenities, environmental decay) were significantly associated with poorer self-reported health, psychological distress, and worse physiological functioning (Steptoe & Feldman, 2001). Another study in Illinois found that, after controlling for individual factors (e.g., income), adults living in disadvantaged neighborhoods experienced lower levels of physical functioning, higher rates of chronic health problems, and poorer self-reported health (Ross & Mirowsky, 2001). The association between neighborhood disadvantage and health was significantly mediated by perceptions of neighborhood disorder (e.g., crime, vandalism, danger). Other work has similarly found neighborhood disadvantage to be significantly associated with mental health outcomes such as depression, also by way of neighborhood disorder (Kim, 2010).

Financial Strain

Many Black Americans are also faced with stress related to their personal experiences of financial strain. As with neighborhood disadvantage, systemic racism has led to elevated rates of poverty and financial insecurity among Black Americans compared to other racial or ethnic groups. Although poverty rates are generally decreasing across racial groups (U.S. Census Bureau, 2020), rates of poverty are still elevated among Black Americans compared to other racial or ethnic groups. According to U.S. Census data (2020), in 2019, the poverty rate for Black populations was 18.8% compared to a 7.3% poverty rate for non-Hispanic White

populations. Experiences of financial strain may be heightened for Black Americans living in the rural South due to elevated rates of poverty generally seen throughout the Southern United States. Specifically, in 2019, 12% of families in the Southern United States lived below the poverty line compared to 9.4-9.7% of families in other regions of the U.S. (U.S. Census Bureau, 2020).

Financial strain can create stress via an inability to meet basic needs such as access to quality healthcare, food, or education (Institute of Medicine, 2003). This strain can have broad, lasting negative effects on individual health and well-being. Financial strain has been associated with poor physical and mental health outcomes in adulthood, including higher levels of depression and anxiety, poorer sleep, and poorer self-reported health (Hall et al., 2009; Szanoton et al., 2010). For example, researchers from a population-based cross-sectional cohort study of adult African American twins found that individuals reporting higher levels of financial strain in adulthood were significantly more likely to experience depression than individuals who reported financial strain only in childhood and who did not report any financial strain throughout the lifespan (Szanton et al., 2010).

Interpersonal Experiences of Racial Discrimination

Interpersonal experiences of racism stem from systemic racism and create significant stress for Black Americans. Interpersonal racial discrimination can be overt (i.e., language or behaviors that intentionally perpetuate racist attitudes or beliefs) and can also manifest in covert forms such as microaggressions (brief everyday verbal, behavioral, or environmental occurrences that communicate negative or derogatory attitudes toward minoritized groups; Sue et al., 2007). Black Americans report experiencing higher levels of interpersonal racism than individuals from other racial and ethnic groups. Approximately 69% of Black Americans report regularly

experiencing interpersonal discrimination based on their race compared to 30% of White Americans (Lee et al., 2019). Interpersonal racial discrimination can seep into many areas of one's life. For example, Black individuals report experiencing racial discrimination in educational settings, at doctors' visits, and during shopping trips (e.g., Feagin & Sikes, 1994), underscoring the pervasiveness of interpersonal racism in the United States.

Stress from interpersonal discrimination has been associated with deleterious effects on individual health. Racial discrimination has been linked with poorer mental health outcomes such as depression and psychological stress and difficulty sleeping in adults (Slopen et al., 2016; Williams et al., 2019). For example, a longitudinal study of 368 Black, White, and Chinese women found that everyday experiences of discrimination were associated with poorer sleep quality even after controlling for financial strain and depressive symptoms (Lewis et al., 2013). Moreover, in a meta-analysis examining the relationship between discrimination and sleep, all 17 studies included in the review reported at least one association between experiences of discrimination and sleep difficulties, providing consistent evidence for the adverse effect of discrimination on sleep (Slopen et al., 2016). The pervasive nature of interpersonal discrimination and its associated health effects underscore the need to examine and understand the ways in which interpersonal racism may combine with other stressors resulting from macro-level racism (e.g., neighborhood and financial stress) to potentially exacerbate poor health outcomes.

Models of Stress Accumulation

In addition to considering the degree to which each of the aforementioned stressors have independent effects on health, it is important to consider whether and how these stressors might operate in tandem to affect health. One potential model is that each of these stressors (i.e.,

neighborhood stress, financial strain, and interpersonal racial discrimination) could have unique, additive effects on health. In this *additive model*, these effects would neither reduce nor magnify the effects of one another, but instead independently accumulate to impact health (Holmes & Rahe, 1967). Alternatively, the stressors might strengthen the impact of each other. In this *multiplicative model* (Robert & Hockey, 1997), the stressors would significantly interact with each other to predict health, such that the combination of multiple stressors explains additional variance. Lastly, it is possible that experiencing multiple forms of stress might not lead to worsened outcomes beyond experiencing a single stressor. In this case, there would be significant effects of each stressor when considered independently, but when considered together, no stressors or only a single stressor would be significant. This pattern could reflect potential habituation to stress (Helson, 1964), or might arise due to shared variance when the individual sources of stress share a common, underlying cause (e.g., systemic racism).

Findings regarding which model(s) best describes cumulative stress effects on health have been mixed. Several studies have found significant positive linear relationships between the number of stressors experienced and worsened health outcomes across domains, providing support for the additive model (e.g., Blank & Diderichsen, 1996). For example, in a study of 1180 middle-aged and older adults, adverse childhood experiences (e.g., physical abuse, parental substance use) and life stressors in adulthood (e.g., being fired, jail detention) were found to have independent, additive effects on inflammation levels, providing support for the additive model (Hostinar et al., 2015). Additionally, this model has been used to explain gradients in health based on socioeconomic status (Evans & Kim, 2010), and previous research has found evidence for the additive effect of multiple forms of discrimination on mental health outcomes such as depression (Mallory & Russell, 2020; Thoma & Huebner, 2013). However, this model has not

been supported in other contexts and for other health outcomes (e.g., Kessler at al., 1999; Yoshikawa et al., 2004), suggesting that it does not always capture the relationship between multiple stressors and health.

Less research has been conducted examining other multivariate models of stress effects. There is some evidence that stress related to different forms of discrimination has a multiplicative effect on depressive symptoms (Mallory & Russell, 2020), but few other studies have found evidence for multiplicative effects of stressors on well-being (e.g., Moradi & Mezydlo Subich, 2002). There has also been little research examining models in which multiple forms of stress do not prove uniquely impairing, though one study found that the combination of ethnic harassment, gender harassment, and generalized workplace harassment did not predict workplace strain outcomes beyond the effects of generalized workplace harassment alone (Raver & Nishii, 2010). Further, no research has examined these models in the context of the multiple stressors facing Black Americans.

Sources of Resilience

While pursuing systemic changes to eliminate these stressors and their sequalae, it is important to understand individual-, family-, and community-level sources of resilience that can alleviate the effects of stressors on well-being. Researchers have highlighted the importance of understanding resilience at multiple levels in order to create better interventions that improve health outcomes (e.g., Masten, 2021).

Neighborhoods can be a source of stress for individuals and families, but they can also be a source of resilience. Neighborhood support may come in the form of *collective efficacy,* defined by Sampson et al. (1997) as "social cohesion among neighbors combined with their willingness to intervene on behalf of the common good" (p. 918). Collective efficacy in

neighborhoods has been linked to positive physical and mental health outcomes. Specifically, neighborhoods and communities with higher rates of collective efficacy have been associated with lower rates of depression as well as lower overall rates of community mortality and morbidity (Cohen et al., 2006; Skrabski et al., 2004). Prior research has also found that interventions aimed at increasing collective efficacy—particularly those aimed at improving social bonding, social leveraging, social bridging, empowerment, and civic engagement to intervene at multiple social ecological levels—predict improvements in health (for review, see Butel & Braun, 2019). Additionally, collective efficacy has been found to significantly buffer the effects of high levels of life stress (e.g., racial discrimination) on health for Black Americans (e.g., Driscoll et al., 2015; Sharma et al., 2019), highlighting its protective nature among this population specifically.

In addition to community-level resources, family-level support can also be an important source of resilience. Here, we examine the protective nature of *romantic partner support*. Partner support, defined here as the level to which individuals feel comfortable being intimate with, confiding in, and expressing themselves to their romantic partner (McNeil et al., 2014), has long been identified as a source of resilience that promotes positive health outcomes (e.g., Gariépy et al., 2018). Further, researchers have found evidence suggesting partner support may be an important protective factor for Black Americans. Specifically, partner support has been found to buffer the effects of racial discrimination on health in Black individuals (McNeil et al., 2014; O'Neal et al., 2015).

Finally, while many individuals draw from community- and family-level resources, many also draw from individual-level assets as sources of strength in the face of stress. One such resource is religiosity. Here, we focus on individual religious beliefs (i.e., spirituality) rather than

organizational religious participation, although both are associated with positive outcomes (e.g., Shattuck & Muehlenbein, 2018). Religiosity has often been cited as a source of strength associated with positive well-being, especially for Black individuals (e.g., Nguyen, 2020; Park & Slattery, 2013). Additionally, previous research has found a potential protective effect of religiosity on physical and mental health outcomes in the face of contextual life stress (e.g., racial discrimination; Bowen-Reid & Harrell, 2002).

The Current Study

To further understand the effects of stressors both independently and together, as well as the potential mitigating effects of resources at different psychosocial levels, the current study uses data from an ongoing longitudinal study of Black families living in the rural South. As previously outlined, Black individuals and families living in the rural South may face a unique combination of contextual stressors that can disproportionately impair health. Thus, the examination of stress and support effects in this population is especially critical.

Our first aim was to examine the direct effects of each source of stress on health trajectories. Given previous research on the individual impacts of neighborhood stress, financial strain, and racial discrimination on physical and mental health, we hypothesized that each stressor would be significantly positively associated with both depressive symptoms and sleep difficulties, such that more stress would be associated with more depressive symptoms and sleep difficulties initially and/or greater increases in these domains over time.

The second aim of the study was to examine the patterning of multivariate relationships among sources of stress, specifically measuring potential additive or multiplicative effects among stressors on depressive symptoms and sleep difficulties. Based on previous research on the accumulation of different stressors over time, we hypothesized that there would be additive

effects of neighborhood stress, financial strain, and interpersonal racial discrimination such that higher levels of each would be associated with higher levels of difficulty even after accounting for the other stressors.

The final aim of the study was to examine the effects of different sources of resilience within the context of the aforementioned stressors. Specifically, we tested the potential protective or mitigating effects of neighborhood support, partner support, and religiosity, predicting that each of these resources would buffer the adverse effects of stress such that individuals with higher levels of each resource would experience lower depressive symptoms and sleep problems in the face of life stress relative to individuals with lower levels of these resources.

CHAPTER 2

METHOD

Participants

The current study uses data from the first four waves of the Protecting Strong African American Families (ProSAAF) project, a longitudinal randomized control trial of an intervention focused on promoting positive couple and parent-child relationships in African American families living in the rural South (full study overview is provided in Barton et al., 2018). African American couples with children ages 9 to 14 were recruited from schools to participate in the study. Subject enrollment began in 2013 and continued into 2014. Families were visited for Waves 2, 3, and 4 (W2, W3, and W4) assessments a mean of 9.4 months, 17.0 months, and 24.5 months after the baseline. All procedures were approved by the University of Georgia Institutional Review Board (study title: "Protecting Strong African American Families").

Data from W1 to W4 are used in this study. At Wave 1, the sample included 348 Black/African American women and 344 Black/African American men from 346 families. At baseline (W1), the mean age was 36.51 years for women and 39.98 years for men. The majority of the study participants could be classified as working poor: 51% had incomes below 100% of the federal poverty level, and an additional 17% had incomes between 100% and 150% of that level. Median monthly income was $1,375 (SD = $1,375; range $1 to $7,500) for men and $1,220 (SD = $1,440; range $1 to $10,000) for women. Median education levels at W1 were high school or GED (ranging from less than grade 9 to a doctorate or professional degree) for men and some college or trade school (ranging from less than grade 9 to a master's degree) for

women.

Measures

Sources of Stress

Neighborhood Stress. Neighborhood stress was assessed at W1 using a twelve-item scale of community deviance adapted from a measure used by Simons et al. (1995). The scale contains six items assessing neighborhood disorder and dilapidation in which participants were asked to rate how much of a problem common signs of disorder (e.g., graffiti on buildings and walls, litter, broken glass, or trash on the sidewalks or streets) were in their neighborhood. Items on this subscale ranged from 1 *(A big problem)* to 3 *(Not a problem)*. This measure also included six items assessing neighborhood crime in which participants were asked to indicate how often certain incidents (e.g., violent arguments between neighbors, robberies or muggings) occurred in their neighborhood during the past six months. Items within this subscale ranged from 1 (*Never)* to 3 *(Often*). All items in both subscales were reverse coded and summed such that higher overall scores indicated greater levels of neighborhood stress (α_{women} = .89 and α_{men} = .73).

Financial Strain. Financial strain was assessed at W1 using a composite of individual ratings from Conger et al.'s (1994) Financial Adjustment and Unmet Material Needs scales. The *Financial Adjustment* scale included 11 items assessing the specific needs that families had to forgo due to financial hardship during the last 12 months (sample item: "Has your family reduced or eliminated medical insurance because of financial need?"). Responses were 0 = *No* and 1 = *Yes*. Items on this measure were summed to create a total score, with higher scores reflecting more financial adjustments (α_{women} .80 and α_{men} = .80). The *Unmet Material Needs* scale included 4 items assessing participants' perception of their family's ability to meet their needs (sample item: "My family has enough money to afford the kind of home we need"). The

response set ranged from 1 (*strongly disagree)* to 4 *(strongly agree).* For this measure, each item was reverse scored and then all items were summed to create a total score, with higher scores indicating more unmet need (α_{women} = .80 and α_{men} = .78). We created a composite score by first creating standard scores for each scale and then summing the standard scores. Higher scores on the composite indicated more financial strain.

Interpersonal Experiences of Racial Discrimination. Interpersonal experiences of racial discrimination were assessed at W1 using the 9-item Racism and Life Experiences Scale (Harrell, 2000; sample item: "Have you been overlooked, ignored, or not given service because of your race?" in the past 6 months). Responses for these items ranged from 1 (*Never)* to 4 (*Frequently)*. Items were summed with higher scores indicating more experiences of interpersonal racial discrimination (α_{women} = .90 and α_{men} = .92).

Sources of Resilience

Neighborhood Support. Neighborhood support was measured at W1 using a six-item measure of social cohesion and collective efficacy (Sampson et al., 1997; sample item: "In the neighborhood surrounding your house, when there is a problem, the people in the area get together and deal with it"). Responses for these items ranged from 1 (*Not at all true)* to 3 (*Very true).* Items were summed with higher scores indicating higher levels of neighborhood support (α_{women} = .78 and α_{men} = .68).

Partner Support. Perceived partner support was assessed at W1 using items from the Spouse Specific Social Support Scale (Culp & Beach, 1998). This scale was previously shown to be a reliable and valid measure of perceived partner support among couples, showing associations with relationship and individual well-being (Culp & Beach, 1998). Five items were summed and used to assess partners' perceptions of their ability to confide in and receive support

from each other; the response set ranged from 1 (*Almost never*) to 5 (*Almost always*). Sample items included "[Partner's name] is someone I can confide in" and "I feel I can share my most private worries and fears with [partner's name]" (α_{women} = .87 and α_{men} = .82).

Religiosity. Individual religious beliefs were assessed at W2 using three items from the Multidimensional Measure of Religious Involvement (Levin et al., 1995). The first item was "How often do you pray?" Responses on this item ranged from 1 *(Never)* to 6 *(Several times a day).* The second item was "In general, how important is your faith or spiritual beliefs as a source of strength in your day-to-day life?" Responses on this item ranged from 1 *(Not at all important)* to 4 *(Very important)*. The final item was "How religious would you say you are?" Responses on this item ranged from 1 *(Not religious at all)* to 4 *(Very Religious)*. Each item score was standardized and then the total score was calculated by summing standardized item scores such that higher scores indicated higher levels of religiosity (α_{women} = .36 and α_{men} = .48).

Health Outcomes

Depressive Symptoms. Depressive symptoms were assessed at all four waves using the 20-item Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977; sample item: "How often did you feel depressed?" in the past week). Response options ranged from 0 (*Rarely or none of the time [0-1 day]*) to 3 (*Most or all of the time [6-7 days]*). The total score was calculated by summing the items, with higher scores indicating more depressive symptoms. This scale has previously demonstrated good reliability in Black American populations (e.g., Williams et al., 2007) [α_{women} = .85 (W1), .85 (W2), .88 (W3), .88 (W4) and α_{men} = .77 (W1), .81(W2), .84 (W3), .82 (W4)].

Sleep Problems. Sleep problems were assessed at W2, W3, and W4 using a six-item sleep scale adapted from the Medical Outcomes Study (MOS) Sleep Scale (Spritzer & Hays,

2003; sample item: “How often did you awaken from your sleep and have trouble falling asleep again?”). Responses on these items ranged from 1 (*None of the time)* to 5 (*All of the time)* and were summed such that higher scores indicated more sleep problems [α_{women} = .72 (W2), .78 (W3), .74 (W4) and α_{men} = .74 (W2), .72 (W3), .66 (W4)].

Analytic Plan

To address the research questions, growth curve models were estimated within a structural equation modeling (SEM) framework. Analyses were conducted using Mplus software version 7 (Muthén & Muthén, 1998-2015). This method was chosen because of its ability to estimate both within- and between-person differences over time (Curran et al., 2010). For all models, men and women were examined within the same model using nested analyses. Significant interactions were probed by calculating simple slopes at low (-1 SD), average (mean) and high (+1 SD) values of the moderator. None of the variables significantly differed by intervention status and thus intervention status was not controlled in any of the models for parsimony. The sample size of 692 exceeds recommendations for growth curve analyses according to Curran et al. (2010).

To test independent effects of stress on functioning over time (Aim 1), we fit six growth models, with neighborhood stress, financial strain, and interpersonal racial discrimination each serving as an independent predictor of depressive symptoms and sleep problems (in separate models). In each model, we estimated an intercept, representing functioning at baseline, and a slope, representing change in functioning over time, both of which were predicted by the stressor. Model fit was evaluated using the chi-square test (χ^2), the root square mean error of approximation (RMSEA), and the comparative fit index (CFI). Models with non-significant chi-square tests, RMSEA values below .06, and CFI values were determined to have good fit, and

models with CFI values above .90 and RMSEA values smaller than .10 were determined to have acceptable fit (Little, 2013).

To examine potential additive effects of stress on depressive symptoms or sleep problems over time (Aim 2A), similar growth curves to the first models were fit with all three stressors being added as predictors simultaneously rather than separately. This resulted in two models, one for depressive symptoms and one for sleep problems. Next, to examine potential multiplicative effects of stress (Aim 2B), we included the three main effects of the stressors, the three two-way interactions between each pair of stressors (e.g., neighborhood stress x financial strain), and the three-way interaction including all three of the stressors (i.e., neighborhood stress x financial strain x interpersonal racial discrimination) in one model predicting trajectories of depressive symptoms and a second model predicting trajectories of sleep problems.

Finally, to examine potential moderating effects of sources of resilience on the relationship between stress and health (Aim 3), we estimated models with one stressor, one source of resilience, and their interaction (e.g., racial discrimination, religiosity, racial discrimination x religiosity) as predictors of trajectories of depressive symptoms and sleep problems. This resulted in 18 models.

CHAPTER 3

RESULTS

Preliminary Analyses

Descriptive statistics for and bivariate correlations between study variables are presented in Table 1. Amongst the three stressors, interpersonal racial discrimination was significantly positively associated with neighborhood stress (r = .20, p < .001) and financial strain (r = .19, p < .001); neighborhood stress and financial strain were not significantly correlated (r = .05, p > .05). Associations between the stressors and sources of resilience were similarly modest. Neighborhood stress was significantly negatively associated with partner support (r = -.06, p = .02) and religiosity (r = -.11, p < .001), and financial strain was significantly negatively associated with community support (r = -.13, p = .004) and partner support (r = -.10, p = .03). Interpersonal racial discrimination was not significantly associated with any of the sources of resilience (i.e., neighborhood support, partner support, religiosity; all p-values > .05). Depressive symptoms and sleep problems at W2, W3, and W4 were each significantly positively correlated with each other, with a median cross-sectional r of .48.

Univariate Stress Effects on Trajectories of Depressive Symptoms and Sleep Problems

The first aim of the study was to examine univariate effects of each stressor on depressive symptoms and sleep problems at baseline and over time (see Table 2). For depressive symptoms, there were significant stressor effects on initial levels of depressive symptoms (intercepts) but not on changes in depressive symptoms over time (slopes). Specifically, the effects of neighborhood stress (β = 0.23, p < .001), financial strain (β = 0.38, p < .001) and interpersonal

racial discrimination (β = 0.19, $p < .001$) on the intercepts for depressive symptoms were all significant and positive, indicating that higher levels of stress predicted higher levels of depressive symptoms. For sleep problems, there were also significant stressor effects on initial levels of sleep problems (intercepts), but not changes in sleep problems over time (slopes). Specifically, the effects of financial strain (β= 0.13, $p = 0.02$) and interpersonal racial discrimination (β= 0.20, $p < .001$) on intercepts for sleep problems were both significant and positive, indicating that higher levels of stress predicted higher levels of sleep problems.

Multivariate Stress Effects on Trajectories of Depressive Symptoms and Sleep Problems

Our second aim was to examine the patterning of multiple stressors and their impact on health, specifically measuring potential additive or multiplicative effects. There was evidence for an additive pattern of stress accumulation predicting greater depressive symptoms and sleep problems (Aim 2A). For depressive symptoms, when all three stressors were added simultaneously to the model, both neighborhood stress (β = 0.20, $p < .001$) and financial strain (β = 0.35, $p < .001$) had significant positive effects on initial levels of depressive symptoms; interpersonal racial discrimination was still positively associated with depressive symptoms intercepts, but this effect was no longer statistically significant (β = 0.08, $p = .06$). In a similar model predicting sleep problems, both financial strain (β = 0.19, $p <.001$) and interpersonal racial discrimination (β = 0.16, $p < .001$) had significant positive effects on initial levels of sleep problems. As in the univariate models, no stressor significantly predicted changes in depressive symptoms or sleep problems over time.

Next, we examined potential multiplicative effects of multiple stressors on trajectories of depressive symptoms and sleep problems (Aim 2B). Overall, results from these analyses provided limited support for multiplicative effects of stress accumulation on trajectories of

depressive symptoms. In the multiplicative model predicting trajectories of depressive symptoms (see Table 3), there were no significant two- or three-way interaction effects on depressive symptoms intercepts or slopes (all *p*-values > .05).[1] In a similar model predicting sleep problems (see Table 3), there was a significant two-way interaction between neighborhood stress and financial strain on the intercept for sleep problems (β = 0.67, *p* = .01), though none of the other two-way interactions were significant, nor was the three-way interaction significant (all *p* > .05) and there were no significant effects on slopes of sleep problems. The significant two-way interaction between neighborhood stress and financial strain provided support for the multiplicative model as the significant positive effects of financial strain on sleep problems were greatest at higher levels of neighborhood stress (i.e., β at 1 SD above the mean = 0.55, *p* = .05), weaker at moderate levels of neighborhood stress (i.e., β at the mean = 0.49, *p* = .02), and not significant at lower levels of neighborhood stress (i.e., β at 1 SD below the mean = 0.43, *p* > .05).

Stress-Buffering Effects of Sources of Resilience on Trajectories of Health

Before analyzing potential stress buffering effects for neighborhood support, partner support, and religiosity, we first examined how each source of resilience was associated with trajectories of depressive symptoms and sleep problems. In the models for depressive symptoms, neighborhood support (β = -0.22, *p* < .001), partner support (β = -0.26, *p* < .001), and religiosity (β= -0.10, *p* = .04) each significantly negatively predicted depressive symptoms intercepts, indicating that individuals with higher levels of these sources of resilience experienced lower levels of depressive symptoms. Further, both religiosity (β= -0.19, *p* = .03) and partner support

[1]Separate analyses were conducted examining two-way interactions between pairs of stressors. There were no significant interactions in these analyses.

(β= -0.20, p = .02) significantly predicted the slope of depressive symptoms, indicating that individuals who reported being more religious or spiritual and individuals who reported more partner support experienced greater declines in depressive symptoms over time. For sleep problems, neighborhood support (β= -0.12, p = 0.05) and religiosity (β= -0.16, p = 0.02) both significantly negatively predicted intercepts of sleep problems, such that individuals who reported being more spiritual or religious and individuals who reported more partner support experienced lower levels of sleep difficulties. There were no significant effects on slopes of sleep problems.

We then turned to tests of our third research question examining stress-buffering effects (see Tables 4 and 5). Most sources of support did not significantly moderate the association between stress and depressive symptoms or sleep problems; of the 18 analyses conducted, there were only 3 significant interactions between stress and resilience. Specifically, religiosity significantly moderated the association between financial strain and the slope of depressive symptoms as well as the association between financial strain and the intercept of sleep problems. However, results from these models showed opposite patterns of results. In the model predicting the slope of depressive symptoms, financial strain had a significant positive effect at low (i.e., β at 1 SD below the mean = 0.29, p = .007) and moderate levels of religiosity (i.e., β at the mean = 0.17, p = .02), but not at high levels of religiosity (i.e., β at 1 SD above the mean = 0.05, p > .05), consistent with a stress buffering effect. Conversely, in the model predicting the intercept of sleep problems, financial strain had significant positive effects at moderate (i.e., β at the mean = 0.55, p = .006) and high levels of religiosity (i.e., β at 1 SD above the mean = 1.13, p <.001), but not at low levels of religiosity (i.e., β at 1 SD below the mean = -0.04, p > .05), counter to the hypothesized buffering effect. There was also a significant moderating effect of neighborhood

support on the association between financial strain and the intercept of sleep problems. As in the previous model, these results were counter to the hypothesized buffering effect: financial strain had significant positive effects at moderate (i.e., β at the mean = 0.45, $p = .03$) and high levels of neighborhood support (i.e., β at 1 SD above the mean = 0.95, $p < .001$), but not at low levels of neighborhood support (i.e., β at 1 SD below the mean = -0.04, $p > .05$).

CHAPTER 4

DISCUSSION

The extensive history of systemic racism in the United States is manifested today in injustices across ecological systems (Banaji et al., 2021). As a result, many Black individuals living in the United States face high levels of stress across community, interpersonal, and individual levels, raising questions about the effects of these multiple stressors on the health and well-being of Black Americans. Here, we examined the effects of three sources of stress driven by systemic racism—neighborhood stress, financial strain, and interpersonal racial discrimination—on depressive symptoms and sleep problems over time among Black adults living in the rural South. We first tested univariate effects of each stressor on trajectories of depressive symptoms and sleep difficulties, then we examined multivariate effects of neighborhood stress, financial strain, and interpersonal racial discrimination when examined in combination with one another, specifically measuring potential additive and/or multiplicative effects. Finally, we considered the potential stress buffering effects of three sources of resilience measured at parallel ecological levels (i.e., community-, interpersonal-, and individual levels; neighborhood support, partner support, and religiosity, respectively).

Univariate Effects of Stress on Health

Consistent with our first hypothesis, results indicated that each stressor was significantly positively associated with levels of both sleep problems and depressive symptoms, such that higher levels of stress were associated with worse health (i.e., more sleep problems and depressive symptoms). Findings highlighting the stable, detrimental effect of neighborhood

stress on depressive symptoms are consistent with previous findings of stress related to neighborhood disadvantage or disorder leading to worsened health across racial groups (e.g., Ross & Mirowsky, 2001; Kim, 2010). Our findings showing the specific impacts of neighborhood stress on the health of Black individuals living in the United States are concerning because Black Americans are more likely than White Americans to live in environmentally or economically disadvantaged or underresourced neighborhoods (Lichter et al., 2014; Reardon et al., 2015). These findings highlight one way that community-level stress, a manifestation of systemic racism, can contribute to health inequities among Black individuals in the United States.

Additionally, the positive associations between financial strain and initial levels of both depressive symptoms and sleep problems, as well as the stable nature of these effects, is consistent with prior literature highlighting the adverse effects of experiencing financial strain on health (Institute of Medicine, 2003). As with neighborhood stress, finding detrimental health effects from financial strain in our sample of Black Americans is particularly concerning because rates of poverty and financial strain are elevated among Black individuals living in the United States compared to other racial and ethnic groups (U.S. Census Bureau, 2020).

Similarly, our findings regarding the positive, stable associations between interpersonal racial discrimination and both depressive symptoms and sleep problems contribute to an already robust literature outlining the deleterious effects of experiencing interpersonal racial discrimination on health (for review, see Carter et al., 2017). As discussed previously, Black Americans report frequently experiencing interpersonal racial discrimination in everyday settings such as at the doctor's office, in stores, and in classrooms (Lee et al., 2019; Feagin & Sikes, 1994), making these findings particularly worrying.

These results show how neighborhood stress, financial strain, and interpersonal racial discrimination, three stressors caused by systemic oppression, are each negatively associated with health. Further, the lack of significant slope effects for stress on either depression or sleep problems highlights the enduring nature of these stress effects over time (e.g., these effects did not abate over time). These findings provide further evidence for Clark et al.'s (1999) biopsychosocial model of health by showing how experiences of interpersonal racial discrimination adversely impact health outcomes. Additionally, these findings expand upon this model by demonstrating how two other sources of stress driven by systemic racism, neighborhood stress and financial strain, also adversely impact health, underscoring the importance of considering the many ways that systemic racism manifests when attempting to understand health inequities among Black Americans.

Multivariate Effects of Stress on Health

Because these stressors do not occur in isolation, it is important to examine how they operate in tandem with one another to affect health. The results of multivariate models revealed evidence of stress accumulation effects on depressive symptoms and on sleep problems: neighborhood stress and financial strain independently predicted levels of depressive symptoms in the multivariate model, and financial strain and interpersonal racial discrimination independently predicted levels of sleep problems in the multivariate model. These findings provide support for an additive model of stress accumulation, such that the adverse effects of each individual stressor independently contribute to poorer overall health even after considering the effects of the other stressors. These patterns suggest that individuals who experience high levels of multiple stressors will experience worse overall health than individuals experiencing fewer stressors. There was less evidence for multiplicative effects; the only significant

interaction was for financial strain and neighborhood stress on initial levels of sleep problems, in which individuals reported experiencing the highest levels of sleep problems at the highest levels of both financial strain and neighborhood stress.

Taken together, these findings indicate that neighborhood stress, financial strain, and interpersonal racial discrimination each adversely impact health and that these stressors combine in both additive and (less commonly) multiplicative ways to worsen health and contribute to health inequities among Black individuals living in the United States. These findings are consistent with the broader framework of the SFS model (Smith & Landor, 2018), showing that shared higher-level experiences of oppression characterized by MEES may manifest in different community-, interpersonal-, and individual- level stressors and that these stressors often intersect with each other, subsequently impacting individual responses to stress. Notably, although we conceptualized these stressors as all stemming from systemic racism, they were only modestly correlated with one another (median r = .19). This pattern of associations indicates that these are related but distinct constructs and suggests that studying the impact of just one source of stress caused by systemic racism (e.g., interpersonal racial discrimination) is unlikely to fully capture the deleterious impact of systemic racism on the health of Black individuals in the United States; it is necessary to examine multiple manifestations of stress when studying health inequities caused by systemic racism.

Stress-Buffering Effects of Sources of Resilience on Health

Although these sources of stress can have adverse health effects, Black Americans are resilient, and many do not go onto experience negative health outcomes despite facing significant stressors. It is thus important to identify factors that may promote such resilience. Here, we examined potential stress buffering effects at three levels that paralleled the stress effects—

community (neighborhood support), interpersonal (romantic partner support), and individual (religiosity). Preliminary findings indicated that neighborhood support, partner support, and religiosity were each negatively associated with depressive symptoms and sleep problems, such that higher levels of these sources of resources were associated with lower levels of depressive symptoms and/or sleep problems. However, there was minimal evidence for stress buffering effects: only 3 of the 18 stress-support interaction effects were significant, with only 1 of these effects revealing stress-buffering effects. Specifically, results from the significant models indicated that religiosity buffered the impact of financial strain on the slope of depressive problems such that the effect was significant and positive for individuals reporting moderate and low levels of religiosity and spirituality and not significant among individuals reporting the highest levels of religiosity and spirituality. Although these findings are promising, these buffering effects were not present in any other models tested (e.g., religiosity x racial discrimination), providing minimal support for the stress buffering effects of religiosity across contexts. Overall, results suggest that religiosity, partner support, and neighborhood support are promotive factors that are associated with positive health outcomes via direct impacts on health outcomes, consistent with a compensatory model of resilience, but generally do not serve as protective factors that buffer the effects of stress on health (Zimmerman et al., 2013). These findings indicate that, independently, neighborhood support, partner support, and religiosity are not enough to counter the adverse impacts of multisystemic stress on health. Given that the SFS model features these sources of resilience as operating in tandem with each other in a larger network (Smith & Landor, 2018), future research could create a composite of overall resilience or examine potential interactive effects of multiple sources of resilience in the face of stress to

explore whether the presence of more than one source of resilience provides stronger buffering effects.

Strengths and Limitations

This study had a number of important methodological strengths, including the use of longitudinal data from a large sample Black adults living in the rural South, within group analyses to examine heterogeneity within this population, and the examination of predictors across levels to explore the multisystemic nature of Black individuals' experiences of stress and support and their impact on depressive symptoms and sleep problems. There are also limitations to acknowledge. First, both depressive symptoms and sleep problems were assessed using self-report. Future research would benefit from the use of objective measures of functioning (e.g., actigraphy measures of sleep) and the use of collateral reports for fuller assessments of individual functioning. Relatedly, although depressive symptoms and sleep difficulties were measured separately, they likely have some overlap as sleep difficulties are often a key feature of depression and can contribute to the onset and maintenance of depression (American Psychiatric Association, 2013). Although these variables were only moderately correlated with each other (average cross-sectional correlation of r = .48), future research would benefit from additional disentangling of the two variables. Additionally, our religiosity scale had low reliabilities for both women and men (α= .36 and.48, respectively), possibly due to the low number of items in the scale (3; Tavakol & Dennick, 2011), making it difficult to draw strong conclusions from models using this variable. Finally, although we explored depressive symptoms and sleep difficulties at multiple waves, both the stressors and supports were assessed only at the first available wave. Thus, our analyses do not account for potential changes in these predictors (e.g.,

changes in neighborhood stress or financial strain). Future work could examine these changes alongside changes in functioning to better understand stress and support effects.

Implications

The results of this study highlight the need for multilevel interventions to both reduce the amount of stress experienced by Black individuals in the United States and to reduce the impact of this stress on health. Systems-level interventions aimed at addressing and counteracting the effects of systemic racism in the United States will be necessary to mitigate health inequities and promote well-being. Several researchers have highlighted the importance of systems-level interventions and provided suggestions for these types of interventions, including reforming or removing policies that maintain systemic racism and creating new policies aimed at increasing equity (Bailey et al., 2017). Additionally, given that systemic racism in the United States manifests in a number of different ways across community, interpersonal, and individual levels, it will be important to develop and test interventions aimed at promoting positive well-being and mitigating stress effects at and across all three levels. These interventions may target community engagement and support, family-level resilience, or individual-level coping. As outlined in the SFS model as well as Bronfenbrenner's ecological systems theory (1979), these differing levels exist within a broader context and can interact with each other in reciprocal ways. Thus, intervening at one level may promote positive well-being at other levels. Much of this work has already begun with the development and examination of interventions such as Village of Wisdom (Anderson et al., 2020), a community-based organization designed to promote well-being among Black individuals and families through the development of Family Learning Villages. Nonetheless, further research and efforts are needed in light of continuing disparities.

Conclusion

The present study contributes to an already robust literature on the adverse effects of stress caused by systemic racism on the health of Black Americans by demonstrating how the manifestation of systemic injustice in different forms of stress across domains contributes to lasting adverse health effects for Black adults via the independent accumulation and exacerbation of stress effects. Findings foreground the importance of considering multiple forms of stress resulting from systemic racism when studying the health of Black Americans and call for more research and intervention targeted at reducing inequities and promoting well-being across levels.

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Table 1. *Descriptive Statistics for and Correlations Among Study Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Racial discrimination (W1)	-												
2. Neighborhood stress (W1)	.20**	-											
3. Financial strain (W1)	.19**	.05	-										
4. Neighborhood support (W1)	-.08	-.23**	-.13**	-									
5. Partner support (W1)	.05	.02	-.10*	.05	-								
6. Religiosity (W2)	.02	-.11*	-.06	.07	-0.03	-							
7. Depressive symptoms (W1)	.15**	.20**	.31**	-.18**	-0.09	-.07	-						
8. Depressive symptoms (W2)	.17**	.15**	.23**	-.17**	0.00	-.13**	.61**	-					
9. Depressive symptoms (W3)	.01	.13**	.20**	-.15**	-0.05	-.15**	.37**	.44**	-				
10.Depressive symptoms (W4)	.15**	.19**	.21**	-.20**	-0.26**	-.16**	.50**	.61**	.49**	-			
11. Sleep problems (W2)	.20**	.09*	.17**	-.13**	0.07	-.07	.37**	.52**	.25**	.37**	-		
12. Sleep problems (W3)	.17**	.11*	.20**	-.13**	-0.02	-.09*	.37**	.46**	.37**	.40**	.60**	-	
13. Sleep problems (W4)	.20**	.15**	.24**	-.13**	0.00	.03	.36**	.40**	.27**	.48**	.52**	.49**	-
N	690	692	580	690	644	692	692	580	609	569	580	606	569
M	14.09	58.23	0.00	5.19	22.64	16.25	11.56	12.51	12.27	11.91	14.24	13.91	13.90
SD	2.57	8.97	2.09	5.31	3.40	6.10	7.83	8.07	8.99	9.12	4.06	4.31	4.36

Notes. W1 = Wave 1. W2 = Wave 2. W3 = Wave 3. W4 = Wave 4. Correlations were examined used the "Cluster" command to account for nesting among study participants. Sleep problems and religiosity were not assessed at W1.
*$p < .05$ (two-tailed). **$p < .01$ (two-tailed).

Table 2. *Univariate Effects of Stress and Support on Trajectories of Depressive Symptoms and Sleep Problems*

	Depressive Symptoms				Sleep Problems			
	Intercept	Slope	RMSEA	CFI	Intercept	Slope	RMSEA	CFI
Stressors								
Neighborhood stress	0.23**	0.02	.063	.965	0.05	0.19	.000	1.000
Financial strain	0.38**	-0.13	.064	.966	0.13*	0.23	.000	1.000
Racial discrimination	0.19**	-0.03	.072	.956	0.20**	0.00	.000	1.000
Supports								
Neighborhood support	-0.22**	-0.06	.060	.968	-0.12*	-0.03	.000	1.000
Partner support	-0.26**	-0.20*	.068	.962	-0.07	-0.18	.000	1.000
Religiosity	-0.10*	-0.19*	.054	.978	-0.16*	0.35	.048	.993

Notes. Standardized parameter estimates shown. CFI = comparative fit index; RMSEA = root mean square error of approximation. All stressors and supports were examined in separate models.
*$p < .05$ (two-tailed). **$p < .01$ (two-tailed).

Table 3. *Additive and Multiplicative Effects of Stress on Trajectories of Depressive Symptoms and Sleep Problems*

	Depressive Symptoms				Sleep Problems			
	Intercept	Slope	RMSEA	CFI	Intercept	Slope	RMSEA	CFI
Additive Model			.061	.957			.000	1.000
Neighborhood stress	0.20**	0.02			0.06	0.18		
Financial strain	0.35**	-0.13			0.19**	-0.07		
Racial discrimination	0.08	-0.00			0.16**	0.23		
Multiplicative Model			.064	.889			.043	.974
Neighborhood stress	0.08	0.12			0.17	-0.18		
Financial strain	0.18	0.08			0.01	0.75		
Racial discrimination	0.03	0.05			0.24**	-0.19		
Neighborhood stress x financial strain	0.23	-0.49			0.47*	-0.86		
Neighborhood stress x racial discrimination	0.15	-0.17			-0.16	0.39		
Financial strain x racial discrimination	0.14	-0.25			0.04	-0.50		
Three-way interaction	-0.20	0.60			-0.45	0.89		

Notes. Standardized parameter estimates shown. CFI = comparative fit index; RMSEA = root mean square error of approximation. The three-way interaction = neighborhood stress x financial strain x racial discrimination.
*$p < .05$ (two-tailed). **$p < .01$ (two-tailed).

Table 4. *Stress Buffering Effects of Sources of Resilience on Trajectories of Depressive Symptoms*

	Depressive Symptoms					
	Support Effect		Stressor Effect		Stressor x Support Effect	
	Intercept	Slope	Intercept	Slope	Intercept	Slope
Neighborhood support as moderator						
Neighborhood stress	-0.12	-0.04	0.47*	0.11	-0.28	-0.11
Financial strain	-0.42**	-0.05	1.34	-0.05	-0.02	-0.00
Racial discrimination	-0.13	-0.09	0.49*	-0.05	-0.02	0.00
Partner support as moderator						
Neighborhood stress	-0.27**	-0.28	0.14	-0.41	0.11	0.42
Financial strain	-0.19**	-0.24*	0.52	-0.42	-0.17	0.25
Racial discrimination	-0.07	-0.40	0.49*	-0.35	-0.35	0.38
Religiosity as moderator						
Neighborhood stress	-0.09	-0.08	0.24**	-0.05	0.02	-0.16
Financial strain	-0.08	-0.22*	0.35**	-0.13	-0.03	0.21*
Racial discrimination	0.14	-0.22	0.18**	-0.01	-0.03	0.00

Notes. Standardized parameter estimates shown. Parameters represent the effect of the support, stressor, or stressor x support interaction on the intercepts and slopes of depressive symptoms. Stressor x support terms are the effects of interest.
*$p < .05$ (two-tailed). **$p < .01$ (two-tailed).

Table 5. *Stress Buffering Effects of Sources of Resilience on Trajectories of Sleep Problems*

	Support Effect		Stressor Effect		Stressor x Support Effect	
	Intercept	Slope	Intercept	Slope	Intercept	Slope
Neighborhood support as moderator						
Neighborhood stress	-0.08	-0.08	0.22	-0.30	-0.19	0.50
Financial strain	-0.12*	0.02	-0.56*	1.45	0.67*	-1.23
Racial discrimination	-0.05	0.06	0.31	0.20	-0.12	-0.22
Partner support as moderator						
Neighborhood stress	-0.14	-0.13	-0.28	0.36	0.33	-0.18
Financial strain	-0.04	-0.16	0.22	0.07	-0.12	0.16
Racial discrimination	-0.13	-0.14	0.11	0.06	0.13	-0.08
Religiosity as moderator						
Neighborhood stress	-0.18	0.68	0.08	0.28	0.04	-0.36
Financial strain	-0.18**	0.42	0.16*	0.33	0.20**	-0.27
Racial discrimination	-0.04	0.00	0.26**	-0.06	-0.13	0.37

Notes. Standardized parameter estimates shown. Parameters represent the effect of the support, stressor, or stressor x support interaction on the intercepts and slopes of depressive symptoms. Stressor x support terms are the effects of interest.
*$p < .05$ (two-tailed). **$p < .01$ (two-tailed).