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Running on Empty: The Psychological Impact of Health and Caregiving-Related Strain among
African Americans

A thesis submitted in partial satisfaction of the requirements for the degree Master of Science in
Community Health Sciences

by

Whitney Akabike

2019

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ABSTRACT OF THE THESIS

Running on Empty: The Psychological Impact of Health and Caregiving-Related Strain among
African Americans

by

Whitney Akabike

Master of Science in Community Health Sciences

University of California, Los Angeles, 2019

Professor Courtney Thomas Tobin, Chair

Objective. This study assesses the impact of health and caregiving-related strain on depressive and anxiety symptoms and evaluates how variation in stress exposure, health behaviors, and coping resources account for outcome differences among African Americans. **Method.** Data are from a community study of residents from Miami-Dade County, Florida. The sample used in this study included 573 African Americans. **Results.** Among African Americans, health and caregiving-related strain was a significant predictor of depressive and anxiety symptoms. The elevation in risk was mostly explained by exposure to social stressors. **Discussion.** Findings demonstrate the importance of stress exposure, health behaviors, and coping resources in shaping the relationship between health and caregiving-related strain and mental health among African Americans.

This thesis of Whitney Akabike is approved.

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University of California, Los Angeles

2019

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INTRODUCTION

Who are family caregivers?

The exponential growth of the aging population has increased the need of informal caregivers, or those who provide assistance to another person's health needs. Family caregivers, sometimes called informal caregivers, are usually unpaid family, friends, spouses, partners, or neighbors who serve as a critical resource in providing instrumental assistance to persons with chronic, disabling conditions.¹⁻³ According to American Association of Retired Persons (AARP), approximately 34.2 million (14.3%) of Americans have provided unpaid care to an adult 50 years or older in the prior 12 months.⁴ The majority of caregivers take care of a relative (85%), of which 49% are the parent or parent-in-law to the caregiver and 12% are a spouse or partner to the caregiver.⁴ Although the act of caregiving can provide a sense of satisfaction as caregivers often appreciate having the ability to help their family or friends, the multitude of responsibilities they must fulfill can also be emotionally and physically demanding.⁵ As such, the burden associated with caregiving is becoming a public health issue that impacts the quality of life and well-being for millions of people in the U.S.^{1,4}

Providing care for a person who needs help with activities for daily living (ADLs), such as bathing, medication management, or transportation, is a demanding task that may result in caregiver strain⁵⁻⁷. George and Gwyther⁸ define caregiver strain as the physical, psychological, emotional, social, and financial stress that a caregiver endures due to providing care. Particularly, caregiver strain increases when caregiving duties outsources the caregiver's available resources used to manage their multiple roles and responsibilities. These may include working full-time, being a parent, and serving in other social roles^{4,5}. Moreover, caregiver strain is of a health concern as it has been found to be associated with higher levels for depression, anxiety, lack of sleep, physical health problems and financial strain.^{4,5,9}

African Americans make up the second highest prevalence of caregivers in the United States at 20.3%, compared to Hispanic caregivers at 21%, Asian American caregivers at 20%, and White caregivers, 16.9%.¹⁰ Moreover, American caregivers are considered “high strain” caregivers because they are typically middle-age women, providing care for 25 hours or more a week, along with being employed, and caring for minor children.^{4,10} African Americans are also more likely to care for a person who needs help with more than three Activities of Daily Living (ADLs) (e.g., bathing, dressing, eating) and Instrumental Activities of Daily Living (IADL) (e.g., scheduling doctor visits, preparing food, managing money) compared to other racial groups.^{4,11,12} Given their dual responsibilities and experiences providing care, caregiver strain may be heightened among African Americans, which may also increase their risk for poor mental health and physical health outcomes.^{7,11,13-15}

BACKGROUND RESEARCH

Caregiver Strain: The Health Costs of Caregiving.

The psychological and physical toll of caring for a family member has been well-documented in prior research.^{9,16-19} Over time, studies have found that caregiver strain resulted in caregivers feeling overwhelmed, which also negatively influenced their mental health.⁵ Based on a meta-analysis of 11 nationally representative surveys of caregivers between 2009 and 2014, AARP reported that about 55% of caregivers felt overwhelmed.⁵ Among caregivers, 22% reported that they felt that their health has gotten worse from caregiving, while 38% reported being emotionally stressed as a result of caregiving.⁵ Additional factors that have been found to affect caregiver strain include lack of sleep, having to change personal plans or routine, demands of time, and the relationship with the care recipient.¹⁷ The strain experienced with caregiving is related higher levels of anxiety and depression.^{9,12,18-20} For instance, one study among caregivers of those with cancer reported higher levels of distress, anxiety and depression, in comparison to

the care recipient.⁹ When considering racial differences, the findings are unclear on the impact of caregiver strain on African Americans.^{12,20,21}

A qualitative study among African American caregivers of those with heart failure found that caregivers reported depressive symptoms, mostly due to the stress of having to manage their own health issues, multiple social roles, along with the care recipient health needs.¹³ However, Pinquart and Sorenson²¹ found that African American caregivers reported lower levels of caregiver strain and depression in comparison to White caregivers despite them having to spending more hours providing care. In general, African Americans are less likely to send their family members to senior facilities, such as nursing home, instead, they are more likely to accept caregiving as a reciprocal duty.²¹⁻²³ These beliefs may be guided by the fact that their elders took care of them during their youth, so it is of their duty to care for their elders as they age.²⁴ Because of these traditional values, many African Americans may be more inclined to view their caregiving role more favorable in comparison to other racial groups, which may give reason to these differing mental health outcomes.

Another reason that may explain African American lower rates of depression and anxiety may be due to them having more protective factors, such as higher levels of spirituality, social support, self-esteem, and resilience.²⁵⁻²⁷ A study by Bekhet²³ found that among African American and White caregivers of persons with dementia, African Americans reported higher levels resourcefulness, positive thinking, and overall psychological well-being in comparison to White caregivers. They were also less likely to report caregiver strain, anxiety, or depression.²³ Another study by Rozario¹⁸ found that African American caregivers who had traditional caregiver beliefs reported higher levels of spirituality, caregiver mastery, social support with lower levels of depression and perceived stress. At the same time, previous studies have suggested that African Americans are more likely to use alcohol as a way to cope with stress²⁸

although research about alcohol use among caregivers is limited. In one study by Rospenda ²⁹, they found that caregivers who experienced higher caregiver strain were more likely to have problematic alcohol use; this relationship was higher among Whites than African Americans.

Despite traditional values and protective resources, African Americans are more likely to experience multiple stressors, mostly due to their disadvantaged social statuses in comparison to other racial groups. ^{6,18} For instance, African Americans are more likely to report financial difficulties and live below the poverty level compared to other racial groups. ^{6,18} Living in poverty increases one's likelihood of living in unhealthy, unsafe, and stressful environments that undermine their ability to access resources, such as accessible safe and effective health care. ³⁰ African Americans are also more likely to report racial discrimination, which has been associated with higher levels of depression, anxiety and distress. ³¹ Racial discrimination can be a traumatic experience, as previous research has found that African Americans who reported experiencing racial discrimination had more dissociative symptoms that typically result from one experiencing a traumatic situation. ³² Over time, exposure to multiple stressors can accumulate and lead to poor health outcomes, such as higher levels of distress, depression, anxiety and poor physical health. ³¹

To contribute knowledge about the caregiving experience among African Americans, this thesis will examine the effects of caregiver strain on depression and anxiety symptoms and evaluate the role of multiple social stressors, health behaviors, and personal resources that may impact this relationship. This provides insight into the ways that African Americans' ability to cope with the stress associated with caregiving may influence their psychological health and well-being. Research about coping mechanisms among African Americans has focused on positive behaviors, such as socializing and engaging in physical activity, with less consideration of negative behaviors, such as alcohol use. As such, these factors will be further investigated in

the present study. By considering the cumulative effect of social stressors and the interplay of social and personal resources and health behaviors, this study provides a more comprehensive understanding of the ways that health and caregiving-related strain influences depressive and anxiety symptoms among African Americans.

THEORETICAL MODEL

Stress Exposure Model

While it is understood that caregiving is a stressful task that can impact mental health outcomes, previous studies have indicated that it may not be as burdensome among African Americans.^{22,33,34} However, few studies have considered examining under what conditions may caregiver strain be particularly deleterious to mental health outcomes for African Americans. With the time commitment involved in providing care, caregivers are less likely to be able to fulfill their multiple role obligations, such as being a spouse or a parent.^{1,6,7} Likewise, given the social status of many African Americans in the United States, this group is more likely to experience multiple stressors, such as discrimination. As such, it necessary to understand how personal and social resources may minimize the negative consequences of caregiver strain and these other stressful events.³¹ Thus, the present study will be guided by the stress process model.³⁵

The stress process model is a comprehensive framework that seeks to explain health disparities by considering the interrelationships of exposure to stress and how social and personal resources may shape the health outcomes.³⁵ A key assumption of this framework is that one's social characteristics (e.g., gender, race/ethnicity, socioeconomic status) conditions the number and type of stressors one may experience and also the availability of personal and social resources to handle such stressors. The stress process model serves as a useful framework, especially for racial minority groups, such as African Americans, because it attempts to

understand how their marginalized social statuses shape their exposure to stress, access to resources, and health over the life course.³⁵

It is known that exposure to stress increases the likelihood of poor mental and physical health outcomes.^{31,35} For African Americans, their stressors are often compounded because of their race.^{30,31,36,37} In the United States, living in a racialized society increases their likelihood of experience racism-related stress, in addition to socioeconomic inequality and residential segregation.³¹ Recent studies have found that racism-related stress has been associated with distress, anxiety, and depression among African Americans.^{31,37} The adverse effects of racism-related stress along with other additional stressors due to other social roles and contexts they are placed in results in cumulative disadvantage, which may exacerbate their mental health outcomes. Applying the stress process model in the present study allows for the inclusion of social stressors that are unique to African Americans. Accounting for multiple stress exposures in addition to health and caregiving-related strain may help to better explain the inconsistent findings with depression and anxiety symptoms among African Americans.

Moreover, the stress process model also considers the role of personal and social resources and health behaviors in shaping health and caregiving-related strain and its impact on depressive and anxiety symptoms. For personal resources, I included spiritual coping, as higher rates of religiosity have been found to be associated with lower caregiver burden for African Americans.^{38,39} I included self-esteem and racial identity, which have been found to serve as coping mechanisms to help combat against the social stressors, such as discrimination.⁴⁰ Mastery was included since caregivers with higher rates of mastery report lower levels of depression, anxiety, and caregiver burden.^{41,42} For social resources, past studies have found that caregivers who are socially integrated and have control over their leisure time and personal lives experienced lower caregiver burden.^{43,44} Health promotion activities, such as physical activity,

was included because previous studies have found that caregivers who engaged in healthy behaviors had lower caregiver burden, depression and anxiety symptoms.⁴⁵ Although limited in research, alcohol misuse was also added, as previous studies have suggested that African Americans may use alcohol to cope with stress ²⁹, however in the context of caregiving it is unclear.

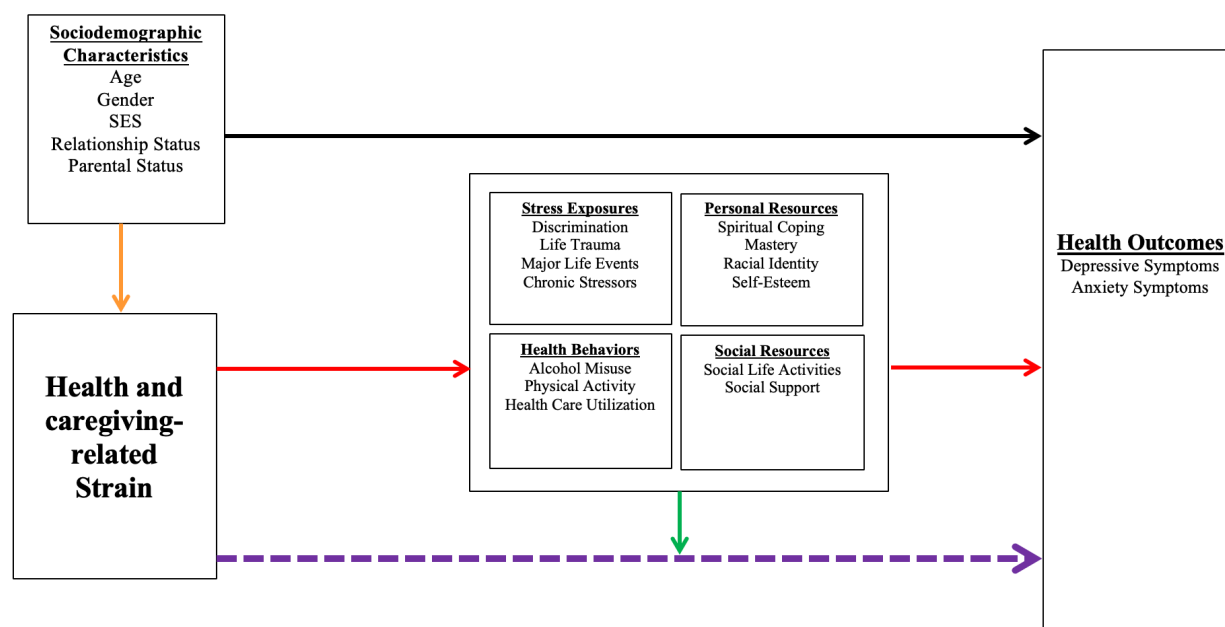
Figure 1 shows the conceptual model adapted from the stress process model to address the aims of the current study. The first aim will consider how sociodemographic characteristics are associated with health and caregiving-related strain. The stress process model suggests that social location shapes exposure to stress, such that more disadvantaged social locations (e.g. sociodemographic status) and roles are associated with greater stress exposure. This study acknowledges that the marginalized identities of African Americans may expose them to more social stressors through their involvement within multiple social contexts and roles. The second aim of this study will examine how health and caregiving-related strain impacts mental health outcomes. Health and caregiving-related strain is considered a stressor and it is the main predictor for the present study. The stress process model suggests that different stressors combined can influence mental health outcomes overtime. Thus, this aim will also examine how the accumulation of social stressors may mediate or condition the relationship between health and caregiving-related strain and depression and anxiety symptoms. Lastly, the stress process model includes coping resources, which are the social resources (e.g., social support), personal resources (e.g. self-esteem), and health behaviors (e.g., physical activity) that people use to deal with stressors. These coping resources may also buffer or worsen the effects of health and caregiving-related strain on mental health outcomes. Given that previous research has suggested African Americans are more likely to draw on positive social and personal resources, it is important to understand how these resources may influence the link between health and

caregiving-related strain and mental health outcomes. Overall, by including these factors, the study aims to provide a more comprehensive understanding of how health and caregiving-related strain impacts depression and anxiety symptoms among African Americans. Given that many caregivers often do not identify as a caregiver, this study also will conduct supplemental analyses on a subgroup of the sample that are identified as having a high degree of health and caregiving related-strain. I will evaluate whether there are significant differences in their sociodemographic factors, stress exposures, health behaviors and resources, in comparison to those who do not identify as caregivers, to determine whether they are at a higher risk for depressive and anxiety symptoms.

STUDY AIMS

1. **AIM #1:** Assess the sociodemographic characteristics associated with health and caregiving-related strain among African Americans.
2. **AIM #2:** Examine the relationship between health and caregiving-related strain and mental health, controlling for sociodemographic characteristics.
3. **AIM #3:** Evaluate the role of (a) social stressors, (b) social resources, (c) personal resources, and (d) health behaviors in the relationship between health and caregiving-related strain and health among African Americans.
 - a. Do these factors mediate or explain the health and caregiving-related strain-health association?
 - b. Do these factors moderate or condition the of health and caregiving-related strain-health association?
4. **AIM #4:** Identify the (a) sociodemographic characteristics, (b) social stressors, (c) social resources, (d) personal resources, and (e) health behaviors among African American caregivers.

Figure 1. Conceptual Model



METHODS

Sample

Data are drawn from a community study of residents from Miami-Dade County, Florida. It was a representative sample in terms of sex, age, race/ethnicity, the presence of physical disability, and language preference. From 2000 to 2001, a total of 1,986 interviews were administered by well-trained and predominantly bilingual interviewers using computerized questionnaires in either English or Spanish, based on participants' preference. The success rate was 82%. Additional details regarding the sampling and interview procedures are presented by Turner.⁴⁶ The study included African American participants, diverse in age and sociodemographic statuses, making this an ideal sample for the present study. Additionally, the study provides data on key measures that will be analyzed, such as health and caregiving-related strain, other stress exposure, personal resources, social resources, and more. The present analyses include data from 573 African

American study participants, of which 31 participants were identified as caregivers based on whether they reported “taking care of aging or ill family member or friend.”

Measures

Summary statistics for all study variables are presented in Table 1.

Outcomes

Depressive Symptoms. Past-month depressive symptoms were measured using the 20-item ($\alpha=0.87$) Center for Epidemiologic Studies Depression (CES-D) scale, a highly reliable and widely-used measure for depression.⁴⁷ Participants were asked about their experiences with depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, loss of appetite, and sleep disturbance. Items included “sleep was restless,” “could not get going,” and “had crying spells.” Response categories included not at all (0) occasionally, (1) frequently, (2) almost all the time. Items were summed together, and scores ranged from 0-50 with higher scores indicating higher depressive symptoms.

Anxiety. Past-month anxiety symptoms were measured using a 5-item questionnaire ($\alpha=0.85$) Items included “felt tense,” “felt anxious” and “felt nervous.” Response categories included (0) not at all, (1) somewhat moderately, (2) very much. Items were summed together, and scores ranged from 0 to 15 with higher scores indicating higher levels of anxiety symptoms.

Health and Caregiving-Related Strain

Health and caregiving-related strain is a dimension of chronic strain that captures to the extent to which individuals experience the health issues of close family/friends and caregiving responsibilities. This measure differs from typical caregiver strain measures, in that it captures the extent to which individuals may be impacted by the poor health of close family or friends and whether they take care of an aging or ill family member or friend. This was measured using three items with the following response categories: (0) Not True, (1) Somewhat True and (2) Very True.

The three items were, “someone in your family or a close friend has a long-term illness or handicap” (83% Not True, 4% Somewhat True, 13% Very True), “have a parent, a child or a spouse or partner who is in very bad health and may die” (95% Not True, 1% Somewhat True, 4% Very True), and “take care of an aging or ill family member or friend” (94% Not True, 1% Somewhat True, 4% Very True). Items were summed, and scores ranged from 0-6 with higher scores indicating higher health and caregiving-related strain.

Sociodemographic Factors

Control variables included gender, age, relationship status, parent status, and socioeconomic status (SES). *Gender* was coded 1 for women and 0 for men. *Age* was measured in years as a continuous variable. *Relationship status* was based on participant descriptions of their current relationship status as (0) single, (1) in a serious relationship, (2) married, (3) widowed, and (4) separated/divorced.” *Parent status* was based on participants’ responses to the question “Do you have any children?” “No” was coded as 0 and “Yes” was coded as 1. Lastly, *socioeconomic Status (SES)* was measured by using a standardized index that included educational attainment, annual household income and occupational prestige level.⁴⁸ Scores on these three categories were standardized and summed and divided by the number of measures on which participants provided data. This calculation resulted in a SES scores that is represented by the number of standard deviations above or below the sample’s mean SES, with higher values indicating higher SES.⁴⁹

Stress Exposure

For a more comprehensive assessment of stress exposure differences, four dimensions of stressful experiences were assessed: chronic stress, major life events, life traumas and discrimination stress.

Chronic Stress. Chronic stress was measured with 36- items that asked participants their experiences with various life stressors. The measure is an adaptation of Wheaton’s 1994 measure,

which was modified to capture stressors more applicable among older individuals.⁴⁹ Items asked about different life domains, such as employment, (e.g., “felt as if my job leaves you both mentally and physically tired”), relationships (e.g., “partner does not understand me”), family (e.g., “wish I could have children, but I cannot”), social life (e.g., “I do not have time for my favorite leisure activities”), and activity expectations (e.g., “people often fail to recognize that there are some things I cannot do”). Response categories included (0) not true, (1) somewhat true, (2), very true. Items were summed together, and scores ranged from 0-72 with higher scores indicating higher number of chronic stressors experienced.

Major Life Events. Major life events were measured with 10 items that asked participants about events experienced in their childhood. Items included “was abandoned by one or both parents,” “failed a grade in school,” and “either parents drank or used drugs so often or so regularly that it caused problems for the family.” Response categories included (0) no, and (1) yes. Items were summed together, and scores ranged from 0-10 with higher scores indicating higher number of major life events experienced.

Lifetime Trauma. Exposure to trauma was measured with 36 items that asked participants if they experienced serious events over the life course. Example items included “been physically assaulted or mugged” and “discovered that partner/spouse was unfaithful.” Response categories included (0) no, and (1) yes. Items were summed together, and scores ranged from 0-36 with higher scores indicating higher number of life traumas experienced.

Discrimination. Discrimination was assessed over the lifetime and for recent experiences using the Major Experience of Discrimination scale ($\alpha=0.56$) and the Everyday Discrimination scale ($\alpha=0.86$).³⁶ The scale was developed to measure discrimination regardless for the reason of discrimination, most of which were interpersonal actions that may hinder one from advancement in their socioeconomic position.⁵⁰ Items included “been treated unfairly, fired or denied a

promotion” and “been treated with less courtesy than other people.” The lifetime discrimination measure included 7- items and the recent discrimination measure included 9- items. For each scale, items were summed together separately, with higher scores indicating higher number of discriminatory events experienced. The range of scores for Everyday Discrimination was from 0-36 and Major Discrimination was 0-7.

Health Behaviors

Alcohol Abuse Past-month alcohol abuse was measured with a 6-item scale ($\alpha=0.78$) that assessed the impact of alcohol use on participant’s daily functioning and relationships. Items included, “how much have you failed to do what was expected of you because of your drinking,” and “how much has your family been hurt by your drinking?” Response categories included (0) not at all, (1) a little, (2) some, and (3) a lot. Items were summed together, and scores ranged from 0 to 18 with higher scores indicating higher alcohol misuse.

Physical Activity. Physical activity was assessed based on participant responses to the question “How often do you take a walk?” Responses were coded as (0) low, (1) moderate, and (2) high. Low was defined as “never,” moderate was defined as “1-4 times a month” and high was defined as “3 or more times a week.”

Health Utilization. Health utilization was assessed based on participant responses to whether they received treatment from a “family physician or general practitioner over the past 12 months.” Response categories included (0) No, and (1) Yes.

Social Resources

Social Support. Social support was measured with a 24-item scale⁵¹ that asked participants to assess their levels of family and friend support. Example items included “family often lets me know that they think I am are worthwhile” and “feel as if my friends really care about me.” Response categories (0) not at all true for you, (1) somewhat true for you, (2) moderately true for

you and (3) very true for you. Items were summed together, and scores ranging from 0-72 with higher scores indicating higher levels of social support.

Social Life. Social life was measured with a 11-item scale ($\alpha=0.64$) that asked participants how they spent their leisure time. Example items included “visit friends”, “go to beaches, zoos, parks” and “spend time on hobby, painting, music.” Response categories included (0) never, (1) once or month or less, (2) 2-3 times a month, (3) once a week, (4) more than once a week and (5) daily. Items were summed together, and scores ranging from 0-55 with higher scores indicating higher social life.

Personal Resources

Self-Esteem. Self-esteem was measured with a 6-item scale ($\alpha=0.67$) that included items, such as “feel that I have a number of good qualities” and “feel that you are a person of worth at least equal to others.” Response categories included (0) strongly disagree, (1) mildly disagree, (2) neither agree nor disagree, (3) mildly agree, and (4) strongly agree. Items were summed together, and scores ranged from 0-24 with higher scores indicating higher self-esteem.

Racial/Ethnic Identity. Racial/ethnic identity was measured with an 11-item scale ($\alpha=0.80$) that assesses the extent to which African Americans identified with their heritage. Items included “have a strong sense of myself as a member of my racial/ethnic group” and “my racial/ethnic background plays a big part in how I interact with others.” Similar to the self-esteem measure, participants were asked their level of agreement with each item. Items were summed together, and scores ranging from 0-66 with higher scores indicating higher racial/ethnic identity.

Mastery. Mastery was measured was a 7-item scale ($\alpha=0.78$) that asked participants whether the items described their life. Items included “feel helpless in dealing with problems in life” and “feel pushed around in life.” Similar to the previous measure, participants were asked

their level of agreement with each item. Items were summed together, and scores ranging from 0-28 with higher scores indicating higher level of mastery.

Spiritual Coping. Spiritual coping was assessed based on participants' responses to "How often do you turn to your religion or your spiritual beliefs to help you deal with your daily problems?" Response categories included (0) never, (1) rarely, (2) sometimes, (3) often and (4) always. Items were summed together, and scores ranging from 0-4 with higher scores indicating higher level of spiritual coping.

ANALYTIC STRATEGY

Analyses for the present study were conducted in 4 stages. First, means and proportions were estimated for all study variables (Table 1). Second, an OLS regression model was used to determine the sociodemographic characteristics associated with health and caregiving-related strain (Table 2). The third stage used nested multivariate regression models to examine the relationship between health and caregiving-related strain and mental health (i.e., depression and anxiety), controlling for sociodemographic characteristics. A similar nested model approach was used to examine the impact of stress exposure, personal resources, social resources, and health behaviors on health and caregiving-related strain - and mental health, controlling for sociodemographic characteristics. These models are presented in Table 3 and 4. Model 1 examines the impact of stress exposures; Model 2 examines the impact of social resources; Model 3 examines the impact of personal resources; Model 4 examines the impact of health behaviors; Model 5 considers the full model, which includes all measures from Models 1-4 simultaneously. In the fourth stage of the analyses, interactions between health and caregiving-related strain and (a) stress exposure, (b) personal resources, (c) social resources, and (d) health behaviors were tested. Table 5 provides a summary of these relationships with each interaction graphed and shown in Figures 3 through 8. Finally, the sociodemographic characteristics, stress exposure, personal

resources, social resources, and health behaviors of caregivers were examined in Table 6. All analyses were conducted in STATA 14 software.

RESULTS

Table 1. Sample Characteristics of African American Respondents^a		
N=573	Mean or %	<i>SD</i>
Health and caregiving-related strain [0-6]	0.479	1.12
<u>Mental Health</u>		
Depressive Symptoms [0-50]	8.69	8.25
Anxiety Symptoms [0-15]	1.39	2.54
<u>Sociodemographic Characteristics</u>		
Age	58.88	15.99
Gender (Ref.=Men) ^b		
Women	56.72	
Socioeconomic Status [-1.09-2.45]	-0.218	0.897
Parental Status (Ref. = No Children) ^b		
Have Children	87.26	
Relationship Status		
Single	10.82	
In a Serious/Romantic Relationship	4.01	
Married	41.71	
Widowed	19.72	
Separated/Divorced	23.73	
<u>Stress Exposures</u>		
Major Discrimination [0-7]	0.897	1.19
Everyday Discrimination [0-36]	6.60	5.49
Lifetime Trauma [0-26]	2.49	2.43
Major Life Events [0-10]	1.17	1.29
Chronic Stressors [0-72]	5.63	7.22
<u>Health Behaviors</u>		
Alcohol Misuse [0-18]	0.068	0.865
Physical Activity		
Low	53.05	
Moderate	12.39	
High	34.55	
Healthcare Utilization		
No Physician in Last 12 Months	20.07	
Seen Physician in Last 12 Months	79.93	
<u>Social Resources</u>		
Social Life Activities [0-55]	18.23	7.14
Social Support [0-72]	25.52	8.63
<u>Personal Resources</u>		
Spiritual Coping [0-4]	3.34	0.958
Racial Identity [0-66]	49.87	12.11
Self-Esteem [0-24]	22.55	2.47
Mastery [0-28]	19.61	6.33
Note. ^a Data is from the Physical Challenge and Health Study, (2001).		
^b Ref.= reference category.		

Table 1 presents the means and proportions of study variables. Overall, respondents reported relatively low levels of health and caregiving-related strain ($m=0.479$; $SD=1.12$; range=0-6). They also had low levels of depressive ($m=8.69$; $SD=8.25$; range=0-50) and anxiety ($m=1.39$; $SD=2.54$; range=0-15) symptoms. The majority of the sample were older ($m=58.8$; $SD=15.9$; range=18-93) women (57%) of low socioeconomic status ($m=-0.218$; $SD=0.897$; range=-1.09-2.45). About 87% of respondents had children and 42% were married. Most reported visiting a physician in the last 12 months (80%), 47% reported moderate to high physical activity levels, and very few abused alcohol ($m=0.067$; $SD=0.865$; range=0-18). On average, participants reported low levels of stress exposure. The average level of chronic stress was 5.63 ($SD=7.22$; range=0-72). For major discrimination, participants reported an average level of 0.897 ($SD=1.19$; range=0-7) and for everyday discrimination, an average level of 6.60 ($SD=5.49$; range=0-36). Lastly, the mean for major life events was 1.17 ($SD=1.29$; range= (0-10) and the mean for lifetime trauma was 2.49 ($SD=2.43$; range=0-26). Respondents reported moderate to high levels of social resources and personal resources. For social life activities, the mean was 18.23 ($SD=7.14$; range=0-39) and for social support the mean was 25.52 ($SD=8.63$; range=0-60). For personal resources, participants reported high spiritual coping ($m=3.34$; $SD=0.958$; range=0-4), racial identity ($m=49.87$; $SD=12.11$; range=0-66), self-esteem ($m=22.55$; $SD=2.47$; range=0-24) and levels of mastery ($m=19.61$; $SD=6.33$; range=0-28).

Table 2. Sociodemographic Correlates of Health and caregiving-related strain among African Americans ^a		
	b	SE
N=573		
Age	-0.000	0.003
Gender (Ref. = Men)	0.326**	0.099
Women		
Socioeconomic Status	0.207***	0.549
Relationship Status (Ref. = Single) ^b		
In a Serious/Romantic Relationship	-0.086	0.271
Married	-0.034	0.184
Widowed	-0.034	0.215
Separated/Divorced	0.194	0.188
Parental Status (Ref. = No Children) ^b		
Have Children	0.171	0.154
Intercept	0.209	0.231
R-squared	0.0725	
Note. ^a Data is from the Physical Challenge and Health Study, (2001).		
^b Ref.= reference category.		
* p <.05. **p<.01. ***p <.001.		

Table 2 presents the sociodemographic factors associated with health and caregiving-related strain. Results indicate that health and caregiving-related strain was higher among women than men (b=0.326, SE=0.099, $p < .01$). Higher socioeconomic status was significantly related to higher levels of health and caregiving-related strain (b = 0.207, SE=0.549, $p < .001$). Relationship status and parental status were not significantly associated with differences in health and caregiving-related strain. Collectively these sociodemographic characteristics explained about 7% of the variation in health and caregiving-related strain. These results suggest that health and caregiving-related strain can be somewhat explained by sociodemographic conditions, such as gender and socioeconomic status, but not entirely.

Table 3. Multiple Regression Analysis Examining the Relationship between Depressive Symptoms and Health and caregiving-related strain ^a														
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE
N=573														
Health and caregiving-related strain	1.65***	0.298	1.65***	0.302	0.208	0.310	1.75 ***	0.299	1.67***	0.288	1.33***	0.257	0.380	0.271
<u>Sociodemographic Characteristics</u>														
Age			-0.106**	0.027									-0.705**	0.023
Gender (Ref. = Men) ^b													0.529	0.617
Women			0.888	0.719										
Socioeconomic Status			-1.60	0.399									-0.347	0.343
Relationship Status (Ref. = Single) ^b														
In a Serious/Romantic Relationship			1.67	1.94									2.61	1.54
Married			1.13	1.32									2.05	1.05
Widowed			1.57	1.55									3.21**	1.22
Separated/Divorced			2.09	1.35									2.99**	1.07
Parental Status (Ref. = No Children) ^b														
Have Children			2.39	1.10									1.25	0.876
<u>Stress Exposures</u>														
Major Discrimination					0.014	0.369							0.031	0.263
Everyday Discrimination					0.224***	0.061							0.156**	0.054
Lifetime Trauma					0.076	0.157							-0.021	0.138
Major Life Events					0.883***	0.251							0.556	0.222
Chronic Stressors					0.389***	0.052							0.306***	0.047
<u>Health Behaviors</u>														
Alcohol Misuse							0.606	0.382					-0.144	0.312
Physical Activity (Ref. = Low) ^b														
Moderate							-0.388	1.05					0.579	0.851
High							-3.08***	7.37					-0.947	0.617
Seen a Physician							-1.53	0.826					-0.189	0.672
<u>Social Resources</u>														
Social Life Activities									-0.297***	0.047			-0.133**	0.042
Social Support									0.185***	4.91			0.065*	0.031
<u>Personal Resources</u>														
Spiritual Coping											0.366	0.307	0.338	0.288
Mastery											-0.419***	0.052	-0.277***	0.050
Racial Identity											0.044	0.023	0.014	0.021
Self-Esteem											-1.01***	0.128	-0.860***	0.125
Intercept	7.90***	0.365	9.89***	1.66	2.22	1.7	12.66***	1.83	11.40***	2.16	40.16***	3.06	29.67***	3.28
R-squared	0.099		0.110		0.286		0.147		0.192		0.363		0.472	
Note. ^a Data is from the Physical Challenge and Health Study, (2001).														
^b Ref.= reference category.														
Sociodemographic variables are included for models 3-6 but not shown.														
* p <.05. **p<.01. ***p <.001														

Table 3 shows the estimated relationships between health and caregiving-related strain and depressive symptoms. Model 1 indicates that health and caregiving-related strain was significantly and positively associated with depressive symptoms ($b = 1.65$, $SE = 0.298$, $p < .001$). In other words, participants who reported higher levels of health and caregiving-related strain had higher levels of depressive symptoms.

In Model 2, an increase in age was significantly associated with a decrease in depressive symptoms ($b = -0.106$, $SE = 0.027$, $p < .01$). Although not significant, women reported higher levels of anxiety symptoms ($b = 0.888$, $SE = 0.719$) in compared to men. Among relationship statuses, respondents who reported being separated/divorced had higher levels of depressive symptoms ($b = 2.09$, $SE = 1.35$). However, none of the relationship statuses were significantly associated with level of depressive symptoms. Compared to respondents with children, respondents with children reported more depressive symptoms ($b = 2.39$, $SE = 1.10$), but the relationship was not significant. Overall, when controlling for sociodemographic characteristics, health and caregiving-related strain was still significantly associated with depressive symptoms ($b = 0.552$, $SE = 0.302$, $p < .001$). This indicates that the effect of health and caregiving-related strain on depressive symptoms is independent of (or not caused by) sociodemographic factors.

Model 3 through 7 examines the associations between depressive symptoms and social stressors, health behaviors, social resources, and personal resources on health and caregiving-related strain, controlling for sociodemographic characteristics. Among stress exposures, Model 3 shows that everyday discrimination ($b = 0.224$, $SE = 0.061$, $p < .001$), major life events ($b = 0.883$, $SE = 0.251$, $p < .001$) and chronic stressors ($b = 0.389$, $SE = 0.052$, $p < .001$), were significantly associated with an increase in depressive symptoms. Furthermore, controlling for sociodemographic characteristics and stress exposures, health and caregiving-related strain is no longer a significant predictor of depressive symptoms ($b = 0.208$, $SE = 0.310$). These findings

suggest that accounting for stress exposures can partially explain relationship between health and caregiving-related strain and depressive symptoms.

Model 4 presents the findings for health behaviors and depressive symptoms. Compared to participants who engaged in low-levels of physical activity, participants who engaged in high physical activity reported a 3.08-point decrease in depressive symptoms ($b = -0.388$, $SE = 1.05$, $p < .001$). Alcohol misuse ($b = -0.388$, $SE = 1.05$). and have been seen by a physician ($b = -1.53$, $SE = 0.826$) were not significantly associated with depressive symptoms. Accounting for sociodemographic factors and health behaviors, there was a significant relationship between health and caregiving-related strain and depressive symptoms ($b = 1.75$, $SE = 0.299$, $p < .001$). About 6 percent of the relationship between health and caregiving-related strain and depressive symptoms could be explained by participant's health behaviors.

Social resources were added in Model 5. An increase in social life activities was associated with a decrease in depressive symptoms ($b = -0.297$, $SE = 0.047$, $p < .001$). Contrarily, an increase social support was associated with an increase in depressive symptoms ($b = 0.185$, $SE = 4.91$, $p < .001$). Controlling for sociodemographic characteristics and social resources, the results indicates that health and caregiving-related strain was a significant predictor of depressive symptoms ($b = 1.67$, $SE = 0.288$, $p < .001$). In other words, participants had similar levels of health and caregiving-related strain irrespective of their social resources. Although small in difference, including social resources explained about 1 percent of the relationship between health and caregiving-related strain and depressive symptoms.

In Model 6, personal resources were included. Respondents with higher levels of mastery ($b = -0.419$, $SE = 0.052$, $p < .001$) and self-esteem ($b = -1.01$, $SE = 0.128$, $p < .001$) reported lower levels of depressive symptoms. Spiritual coping ($b = 0.366$, $SE = 0.307$) and racial identity ($b = 0.044$, $SE = 0.023$) were not significantly associated with depressive symptoms. Additionally,

health and caregiving-related strain was significantly associated with 1.33-point increase in depressive symptoms ($b = 1.33$, $SE = 0.257$, $p < .001$). when controlling for sociodemographic characteristics and personal resources. Although the coefficient decreased by 19 percent, the relationship persisted, which suggest that personal resources explains some of the relationship between health and caregiving-related strain and depression but not all.

Lastly, controlling for all factors, in Model 7, everyday discrimination ($b = 0.156$, $SE = 0.054$, $p < .01$) and chronic stressors ($b = 0.306$, $SE = 0.047$, $p < .001$) were significantly associated with an increase in depressive symptoms. Also, higher levels of mastery ($b = -0.277$, $SE = 0.050$, $p < .001$) and self-esteem ($b = -0.860$, $SE = 0.125$, $p < .001$) was significant in buffering against depressive symptoms. Health and caregiving-related strain was no longer a significant predictor of depressive symptoms ($b = 0.380$, $SE = 0.271$). Nevertheless, by including all variables 47% of the relationship was explained between depressive symptoms.

Table 4. Multiple Regression Analysis Examining the Relationship between Anxiety Symptoms and Health and caregiving-related strain ^a														
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE
N=573														
Health and caregiving-related strain	0.581***	0.091	0.552***	0.937	0.127	0.097	0.478***	0.087	0.562***	0.093	0.560***	0.093	0.133	0.094
<u>Sociodemographic Characteristics</u>														
Age			-0.019*	0.008									-0.005	0.080
Gender (Ref. = Men) ^b														
Women			0.444*	0.223									0.254	0.214
Socioeconomic Status			-0.207	0.123										
Relationship Status (Ref. = Single) ^b														
In a Serious/Romantic Relationship			0.779	0.603									1.00	0.537
Married			0.009	0.41									0.759	0.364
Widowed			-0.098	0.48									0.221	0.424
Separated/Divorced			0.1435	0.419									0.346	0.371
Parental Status (Ref. = No Children) ^b														
Have Children			0.523	0.343									0.262	0.303
<u>Stress Exposures</u>													0.080	0.091
Major Discrimination					0.047*	0.019							0.296	0.018
Everyday Discrimination					0.066	0.094							-0.052	0.048
Lifetime Trauma					-0.023	0.049							0.221*	0.077
Major Life Events					0.288***	0.791							0.112***	0.016
Chronic Stressors					0.123***	0.016								
<u>Health Behaviors</u>														
Alcohol Misuse							-0.036*	0.119					-0.105	0.108
Physical Activity (Ref. = Low) ^b														
Moderate							-0.181	0.330					-0.083	0.295
High							-0.753**	0.231					-0.408	0.214
Seen a Physician							-0.068	0.259					0.153	0.233
<u>Social Resources</u>														
Social Life Activities									-0.032	0.015			0.008	0.014
Social Support									0.033**	0.012			0.001	0.011
<u>Personal Resources</u>														
Spiritual Coping											0.135	0.104	0.100	0.100
Mastery											-0.095***	0.017	-0.570**	0.017
Racial Identity											0.003	0.007	0.006	0.007
Self-Esteem											-0.197***	0.043	-0.195***	0.043
Intercept	1.11***	0.111	1.49**	0.515	-0.626	0.536	2.02	0.574	1.25	0.698	7.41***	1.04	4.78***	1.13
R-squared	0.066		0.099		0.2572		0.117		0.116		0.221		0.331	
Note. ^a Data is from the Physical Challenge and Health Study, (2001).														
^b Ref.= reference category.														
Sociodemographic variables are included for models 3-6 but not shown.														
* p<.05. **p<.01. ***p<.001.														

Table 4 shows the estimated relationships between health and caregiving-related strain and anxiety symptoms. Model 1 indicates that health and caregiving-related strain was significantly and positively associated with anxiety symptoms ($b = 0.581$, $SE = 0.091$, $p < .001$). In other words, participants who reported higher levels of health and caregiving-related strain had higher levels of anxiety symptoms. In Model 2, controlling for all other sociodemographic characteristics, an increase in age was significantly associated with a decrease in anxiety ($b = -0.019$, $SE = 0.027$, $p < .05$). Additionally, women had significantly higher levels of anxiety symptoms ($b = 0.444$, $SE = 0.719$, $p < .05$) in comparison to men. An increase in socioeconomic status was not significantly associated with anxiety symptoms ($b = -0.207$, $SE = 0.040$). Although none of the relationship statuses were significantly associated with anxiety symptoms, respondents in a relationship had higher levels of anxiety symptoms ($b = 0.779$, $SE = 1.94$). Compared to respondents with children, respondents with children reported more anxiety symptoms ($b = 0.523$, $SE = 1.10$) but the relationship was not significant. Lastly, the significant between health and caregiving-related strain and anxiety symptoms persisted even when controlling for all sociodemographic factors ($b = 0.552$, $SE = 0.302$, $p < .001$). By including these factors, it accounted for approximately 5% of the health and caregiving-related strain -anxiety symptoms association.

In Table 6, Model 3 through 7 examines the associations between anxiety symptoms and stress exposure, health behaviors, social resources, and personal resources on health and caregiving-related strain, controlling for sociodemographic characteristics. Model 3 presents the results for stress exposures and anxiety symptoms. Major discrimination ($b = 0.047$, $SE = 0.019$, $p < .05$), major life events, ($b = 0.288$, $SE = 0.0791$, $p < .001$) and chronic stressors, ($b = 0.123$, $SE = 0.016$, $p < .001$) were significantly associated with an increase in anxiety symptoms. Similar

to depressive symptoms, controlling for stress exposures, the relationship between health and caregiving-related strain anxiety symptoms is not significant. This indicates that the impact of health and caregiving-related strain on anxiety symptoms can be partially explained by exposure to stress.

For health behaviors in Model 4, controlling for sociodemographic characteristics, high levels of physical activity were significantly associated a decrease in anxiety symptoms in comparison to low levels of physical activity ($b = -0.753$, $SE = 0.330$, $p < .01$). Higher levels of alcohol misuse were significantly associated with lower levels of anxiety symptoms ($b = -0.036$, $SE = 0.119$, $p < .05$). Having seen a physician in the last 12 months was not significantly associated with anxiety symptoms ($b = -0.068$, $SE = 0.259$). In Model 4, results also showed that health and caregiving-related strain was a significant predictor of anxiety symptoms ($b = -0.478$, $SE = 0.087$, $p < .001$). In other words, participants had similar levels of health and caregiving-related strain irrespective of their health behaviors. Accounting for sociodemographic characteristics, about 1% of the relationship between health and caregiving-related strain and anxiety symptoms can be explained by health behaviors.

Model 5 added social resources. Results showed that an increase in social life activities was associated with a decrease in anxiety symptoms, but the relationship was not significant ($b = 0.032$ $SE = .015$). However, an increase social support was significantly associated with an increase in anxiety symptoms ($b = 0.033$ $SE = 0.012$, $p < .01$). Model 5 also indicated that health and caregiving-related strain was a significant predictor of anxiety symptoms, even if participants reported similar social resources. In addition to the sociodemographic covariates, social resources explained an additional 2 percent of the relationship between health and caregiving-related strain and anxiety symptoms.

For personal resources, Model 6 indicated that a one-unit increase in mastery was associated with a -0.095-point decrease in anxiety symptoms ($SE = 0.017$, $p < .001$). Likewise, a unit increase self-esteem was associated with an -0.197-point decrease in anxiety symptoms ($SE = 0.043$, $p < .001$). Higher levels of spiritual coping ($b = 0.135$, $SE = 0.104$). and racial identity ($b = 0.003$, $SE = 0.007$) were not significant predictors of anxiety symptoms. Accounting for sociodemographic characteristics and personal resources, Model 6 shows that health and caregiving-related strain is a significant predictor of anxiety symptoms. The relationship persisted even though the coefficient decreased by 13 percent, which suggest that personal resources explains some of the relationship between health and caregiving-related strain and depression but not all.

Lastly, Model 7, controlling for all factors, higher level major life events ($b = 0.22$, $SE = 0.077$, $p < .05$) and chronic stressors ($b = 0.112$, $SE = 0.016$, $p < .001$) were significant predictors of reported anxiety symptoms. For health behaviors and social resources, none of the variables were significant predictors of anxiety symptoms. However, among personal resources, spiritual coping ($b = -0.570$, $SE = 0.017$, $p < .01$) and racial identity ($b = 0.195$, $SE = 0.043$, $p < .001$) were associated with a decrease in reported anxiety symptoms. Results also showed that health and caregiving-related strain is no longer a significant predictor of anxiety symptoms ($b = 0.133$, $SE = 0.094$). Similar to depressive symptoms, the relationship between health and caregiving-related strain and anxiety symptoms may be explained by other factors.

Table 5. Summary of Interaction Analyses				
	Depressive Symptoms		Anxiety Symptoms	
	b	SE	b	SE
N=573.				
Health and caregiving-related strain x Chronic Stressors	0.509*	0.237	0.0186*	0.008
Health and caregiving-related strain x Health Utilization			0.796**	0.279
Health and caregiving-related strain x Social Life Activities	-0.066*	0.032		
Health and caregiving-related strain x Mastery	-0.242*	0.524	-0.039**	0.117
Note. * $p < .05$. ** $p < .01$. *** $p < .001$.				

Table 5 presents a summary of interaction analyses. Overall, compared to those with low chronic strain depressive symptoms ($b = 0.509$, $SE = 0.237$, $p < .05$) and anxiety symptoms ($b = 0.18$, $SE = 0.008$, $p < .05$), were exacerbated among participants who experienced high levels of chronic stress, irrespective of health and caregiving-related strain level. Contradictorily, visiting physician or not visiting a physician was associated with higher levels of anxiety symptoms, ($b = -0.796$, $SE = 0.279$, $p < .01$), regardless of health and caregiving-related strain levels. Although small in difference, participants who reported higher levels of social integration had slightly lower levels of depressive symptoms ($b = -0.066$, $SE = 0.032$, $p < .05$), in comparison to those with low levels of social integration. Higher levels of mastery buffered against levels of depressive symptoms ($b = -0.242$, $SE = 0.524$, $p < .05$), and anxiety symptoms ($b = -0.039$, $SE = 0.117$, $p < .01$).

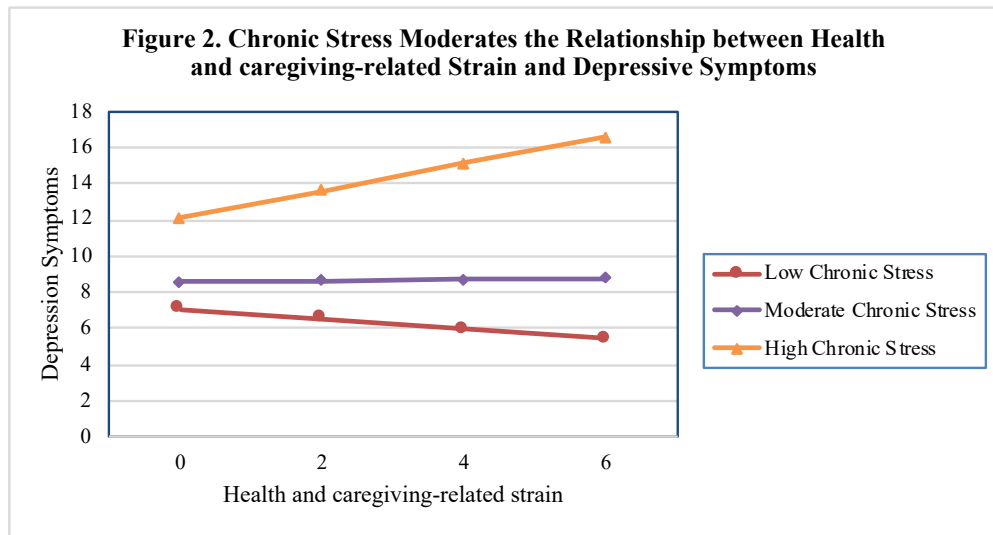


Figure 3 presents the moderation of chronic stress health and caregiving-related strain and depressive symptoms. Compared to those with low to moderate chronic stress, the relationship between health and caregiving-related strain and depressive symptoms is greater for those with high chronic stress. As health and caregiving-related strain increases, depressive symptoms increase significantly for those with high chronic stress. However, for those with low

or moderate chronic stress, there is a weak positive association between health and caregiving-related strain and depressive symptoms.

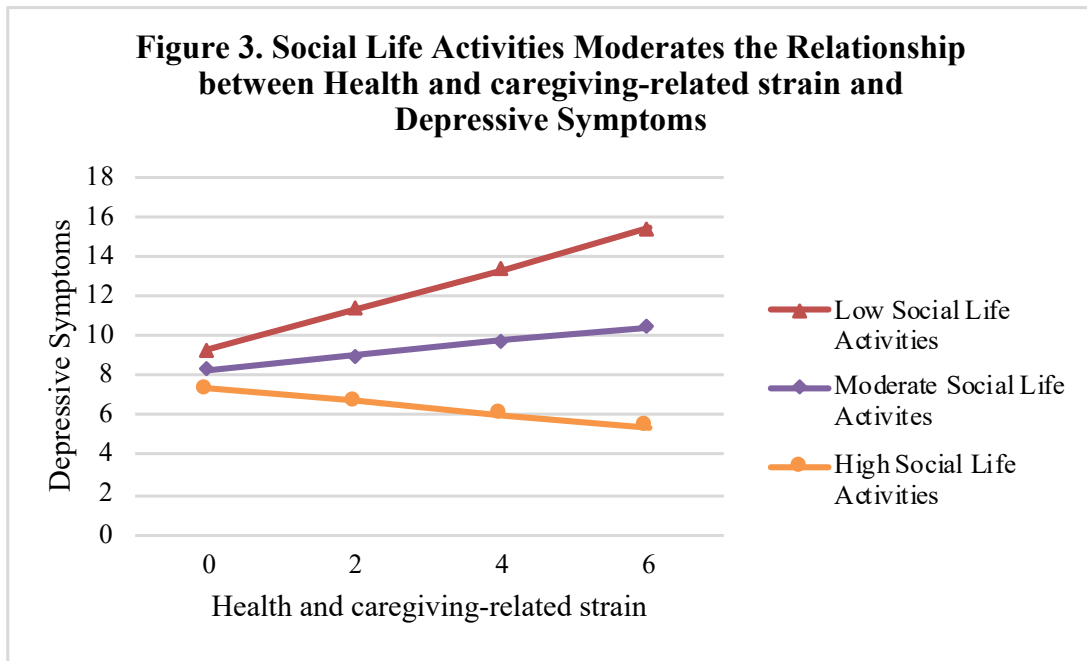


Figure 4 presents the moderation of social life activities between health and caregiving-related strain and depressive symptoms. The relationship between health and caregiving-related strain and depressive symptoms is highest for those with low social life activity levels. The relationship between health and caregiving-related strain and depressive symptoms significantly increased for those who have moderate social life activity levels. Respondents with high social life activity levels had a decrease in health and caregiving-related strain and depressive symptoms. health and caregiving-related strain has a significant impact on depressive symptoms when respondent's social life activity level is low or moderate compared to high social life activity levels.

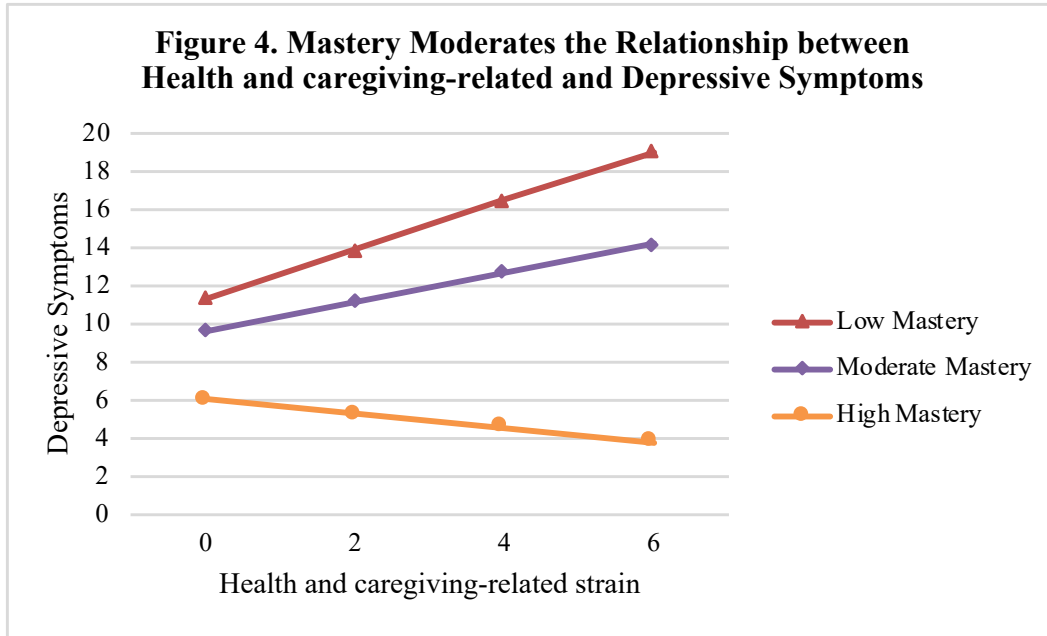


Figure 5 presents the moderation findings of mastery between health and caregiving-related strain and depressive symptoms. The relationship between health and caregiving-related strain and depressive symptoms significantly increased for those who have moderate social life activity levels. Respondents with high social life activity levels had a decrease in health and caregiving-related strain and depressive symptoms. Health and caregiving-related strain has a significant impact on depressive symptoms when respondent's social life activity level is low or moderate compared to high social life activity levels.

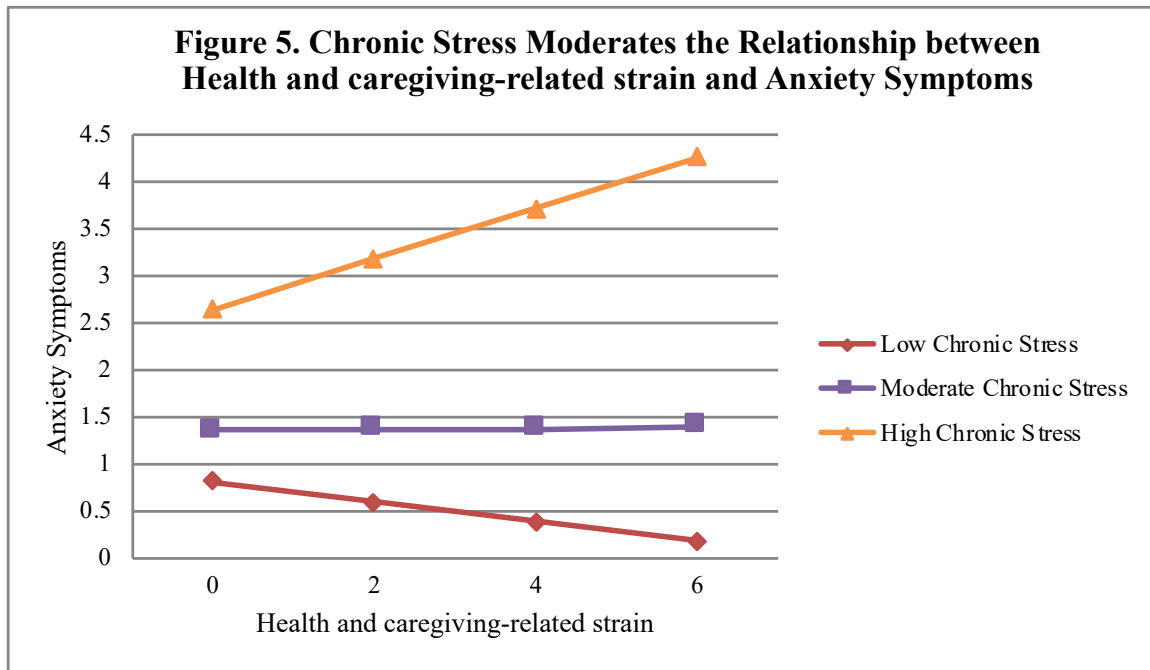


Figure 6 presents the moderation findings of chronic stress between health and caregiving-related strain and anxiety symptoms. The relationship between health and caregiving-related strain and anxiety symptoms is highest for those who experience high chronic stress. The relationship between health and caregiving-related strain and anxiety symptoms is constant among those with moderate levels of chronic stress. Respondents with low chronic stress had a significant decrease in health and caregiving-related strain and anxiety symptoms. Thus, health and caregiving-related strain has a significant impact on anxiety symptoms when chronic stress levels are high, compared to low to moderate chronic stress level

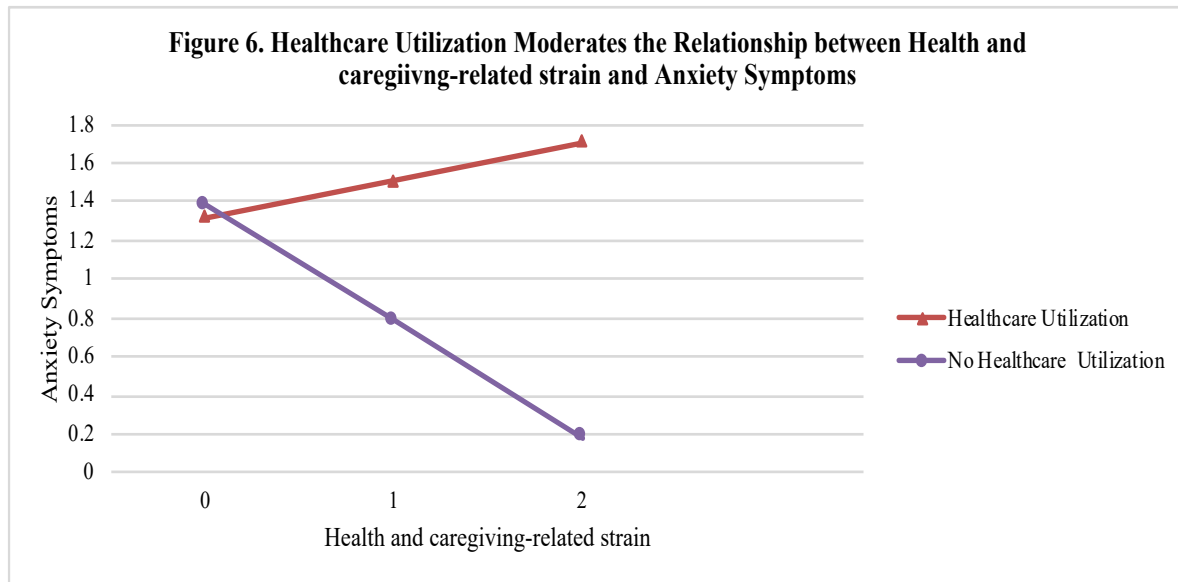


Figure 7 presents the moderation findings of health care utilization between health and caregiving-related strain and anxiety symptoms. The relationship between health and caregiving-related strain and anxiety symptoms is highest for those who had seen a doctor. The relationship between health and caregiving-related strain and anxiety symptoms was significantly lower for those who had not seen a doctor. Thus, health and caregiving-related strain has a significant impact on anxiety symptoms for those who had seen a doctor, compared to those who had not seen a doctor.

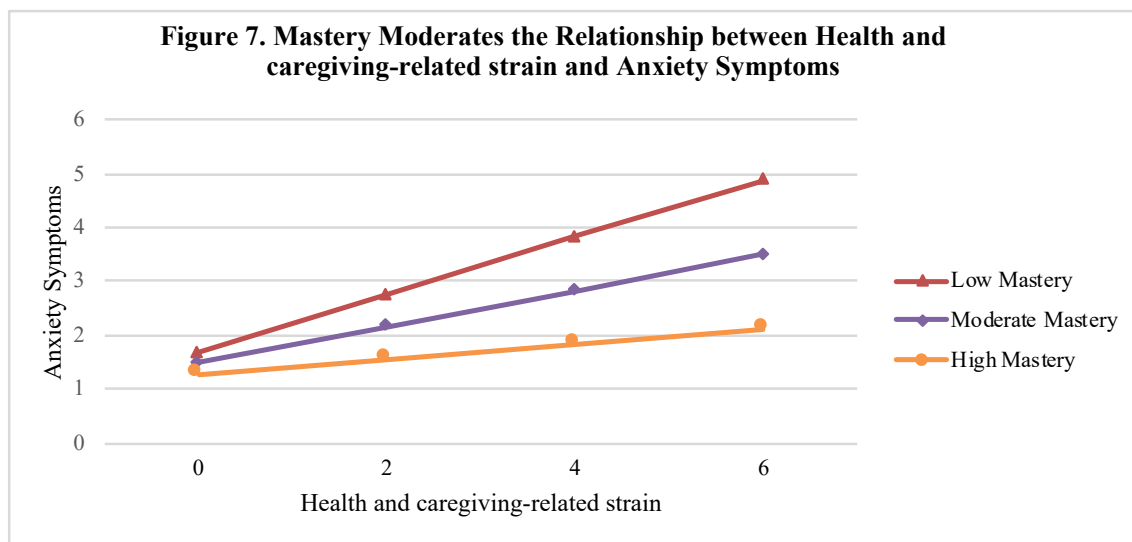


Figure 8 presents the moderation findings of mastery between health and caregiving-related strain and anxiety symptoms. Overall, with each increase in health and caregiving-related strain, participants with low, moderate or high levels of mastery experienced higher levels of anxiety symptoms. However, those with high levels of mastery had the lowest reported levels of anxiety symptoms. Health and caregiving-related strain has a significant impact on anxiety symptoms for those who had low mastery levels compared to those who had moderate to high mastery levels.

Table 6. Sample Characteristics of African American Caregiver Respondents and Non-Caregiver Respondents^a					
	<u>Caregivers (N=31)</u>		<u>Non-Caregivers (N=542)</u>		
	<i>Mean or %</i>	<i>SD</i>	<i>Mean or %</i>	<i>SD</i>	<i>Pvalue</i>
Health and caregiving-related strain [0-6]	3.61	1.56	0.300	0.783	0.000
<u>Mental Health</u>					
Depressive Symptoms [0-50]	11.19	10.67	8.55	8.08	
Anxiety Symptoms [0-15]	2.69	4.02	1.32	2.41	0.005
<u>Sociodemographic Characteristics</u>					
Age	56.41	14.38	59.02	16.07	
Gender (Ref.=Men) ^b					0.017
Women	77.42		55.54		
Socioeconomic Status [-1.09-2.45]	0.387	0.939	-0.252	0.883	0.000
Parental Status (Ref. = No Children) ^b					
Have Children	93.55		86.90		
Relationship Status					
Single	9.68		10.89		
In a Serious/Romantic Relationship	.		4.24		
Married	41.94		41.70		
Widowed	9.68		20.30		
Separated/Divorced	38.71		22.88		
<u>Stress Exposures</u>					
Major Discrimination [0-7]	1.16	1.24	0.881	1.19	
Everyday Discrimination [0-36]	7.58	5.93	6.55	5.46	
Lifetime Trauma [0-26]	3.74	2.97	2.42	2.38	0.003
Major Life Events [0-10]	1.45	1.33	1.15	1.29	
Chronic Stressors [0-72]	13.54	10.22	5.17	6.74	0.000
<u>Health Behaviors</u>					
Alcohol Misuse [0-18]	.	.	0.071	0.889	
Physical Activity					
Low	48.39		53.32		
Moderate	3.23		12.92		
High	48.39		33.76		
Healthcare Utilization					
No Physician in Last 12 Months	12.90		20.48		
Seen Physician in Last 12 Months	87.10		79.52		
<u>Social Resources</u>					
Social Life Activities [0-55]	21.19	7.73	18.06	7.08	0.017
Social Support [0-72]	26.87	8.81	25.44	8.62	
<u>Personal Resources</u>					
Spiritual Coping [0-4]	3.45	0.850	3.39	0.964	
Racial Identity [0-66]	48.06	14.09	49.97	11.99	
Self-Esteem [0-24]	22.64	2.56	22.55	2.46	
Mastery [0-28]	20.25	6.60	19.58	6.31	
Note. ^a Data is from the Physical Challenge and Health Study, (2001).					
^b Ref.= reference category.					

Table 5 presents the means and proportions of the study variables between caregivers and non-caregivers. T-tests and chi square tests were also conducted to determine whether there were group differences between caregivers and non-caregivers. Among caregivers, respondents reported slightly above average levels of health and caregiving-related strain (m=3.61; SD=1.56; range=0-6) in comparison to non-caregivers (m=0.300; SD=0.783; range=0-6) which was significant (p<.001). For mental health outcomes, caregivers had higher levels depressive

symptoms ($m=11.19$; $SD=10.67$; $range=0-50$) in comparison to non-caregivers ($m=8.55$; $SD=8.08$; $range=0-50$). Likewise, for anxiety symptoms, caregivers reported an average level of 2.69 ($SD=4.02$; $range=0-15$) compared to non-caregivers with an average level 1.32 ($SD=2.41$; $range=0-15$) which was significant ($p<.01$).

Among caregivers, the majority of the sample were older ($m=56.41$; $SD=14.3$; $range=24-79$). There was a significant difference between gender, with more women reporting being a caregiver (77%) compared to non-caregivers (55%) ($p<.05$). For socioeconomic status (SES), there was a significant difference, such that caregivers had lower SES ($m=-0.387$; $SD=0.939$; $range=-1.09-2.45$) compared to non-caregivers ($m=-0.252$; $SD=0.883$; $range=-1.09-2.45$) ($p<.001$). About 94% of caregivers had children and 42% were married which was similar to non-caregivers.

On average, caregivers reported higher levels of stress exposures when compared to non-caregiver. For chronic stress exposure, there were significant differences between both groups. On average level for chronic stress for caregivers was 13.54 ($SD=10.22$; $range=0-72$) which was about 8 points higher compared to non-caregivers ($m= 5.17$ $SD=6.74$; $range=0-72$) ($p<.05$) Life trauma was also significantly different between both groups, caregivers reported an average level of 3.74 ($SD=2.97$; $range=0-26$) and non-caregivers reported an average level of 2.42 ($SD= 2.38$; $range 0-26$) ($p<.01$)

Caregivers reported higher levels of Major Discrimination with an average level 1.16 ($SD=1.24$; $range=0-7$) and for Everyday Discrimination with an average level of 7.58 ($SD=5.93$; $range=0-36$) in comparison to non-caregivers ($m= 0.881$ $SD=1.19$ $range=0-7$), ($m=6.55$ $SD=5.46$ $range=0-36$), respectively. Similarly, the mean for major life events was 1.45 ($SD=1.33$; $range=0-10$) was higher for caregivers than non-caregivers ($m=1.15$ $SD=1.29$ $range=0-10$). Both groups had a high likelihood of visiting physician in the last 12 months, caregivers (87%), non-

caregivers (80%). Non-caregivers reported lower levels of physical activity 53%, compared to caregivers 48%. Only non-caregivers reported alcohol misuse ($m=0.071$; $SD=0.889$; $range=0-18$).

Caregivers reported moderate to high levels of social resources and personal resources compared to non-caregivers. For social life activities, the mean was 21.19 ($SD=7.73$; $range=0-55$) which was higher in comparison to non-caregivers ($m=18.06$; $SD=7.08$; $range=0-55$) which was significant ($p<.05$). They also had higher levels of social support with a mean of 26.87 ($SD=8.81$; $range=0-72$). For personal resources, caregivers reported higher spiritual coping ($m=3.45$; $SD=0.850$; $range=0-4$), self-esteem ($m=22.64$; $SD=2.56$; $range=0-24$) and levels of mastery ($m=20.25$; $SD=6.60$; $range=0-28$). Racial identity was slightly higher for non-caregivers ($m=49.97$; $SD=11.99$; $range=0-66$) compared to caregivers ($m=48.06$; $SD=14.09$; $range=0-66$).

DISCUSSION

With a growing aging population in the U.S., there has also been an increase in the prevalence of informal caregivers taking care of their family and/or friends with disabilities. The myriad of responsibilities associated with caregiving often leave caregivers feeling overwhelmed and may result in the experience of caregiver strain. Previous research has found that caregiver strain is associated with an increase in adverse mental health outcomes, such as psychological distress, depression, and anxiety.^{9,16-19} Compared to other racial/ethnic groups, caregiver strain may be particularly impactful for African Americans because they are considered “high strain” caregivers. They are more likely to be middle-age women, providing care for 25 hours or more a week, along with being employed and caring for minor children.¹⁰ As a result, African Americans may face greater mental health risks associated with caregiver strain. However, research about the mental health impact of caregiver strain among African Americans is unclear, with some studies suggesting that African Americans experience relatively low levels of

caregiver strain, as well as depressive and anxiety symptoms.^{12,20,21} Other studies speculate that African Americans have greater personal and social resources serving as coping mechanisms, which may explain their low symptoms.^{25-27,33} Thus, the purpose of this study was to advance our understanding of health and caregiving-related strain and its influence on depressive and anxiety symptoms among African Americans. It is important to note that caregiver strain was measured differently in that it captured the extent to which individuals may be impacted by poor health of family and friends and if they are taking care of an aging or ill member and not necessarily measuring whether they experience caregiving strain. Nevertheless, the study provides important insight of how exposure to family and caregiving-related situations shapes mental health outcomes among African Americans.

There were several key objectives in this study. AIM 1 determined the sociodemographic characteristics associated with health and caregiving-related strain as identifying the sociodemographic factors associated with health and caregiving-related strain may help us know who is at highest risk for strain. Results showed that women reported higher strain than men. Historically, African American women have been recognized as the “backbone” of the family due to their multiple role responsibilities, such as being employed while caring for minor children and the home.^{5,11} These findings show that in addition to caregiving, African American women who must also manage their multiple social roles are at high risk for poor mental health outcomes. In addition, individuals with high socioeconomic statuses reported higher health and caregiving-related strain. In regard to socioeconomic status, these findings were unexpected as previous studies have found that caregivers are more likely to report financial strain because of their limited employment flexibility.^{5,9} While higher socioeconomic status is usually protective, it may be that those with higher socioeconomic statuses experience greater financial opportunity costs due their caregiving role.

This pattern might also be better explained by the “diminishing returns” hypothesis that suggests that higher socioeconomic attainment does not provide the same benefits for African Americans as it does for Whites ⁵²⁻⁵⁴, mostly due to them experiencing higher levels of stress. For instance, one study found that greater levels of racial discrimination were associated with higher depressive symptoms among African Americans with high socioeconomic statuses. ⁵⁴ The diminishing returns hypothesis may also extend to African American caregivers, such that in addition to other stressors they may experience in their workplace and neighborhoods, high socioeconomic status Blacks may face an additional responsibility of taking care of family members. For example, high socioeconomic Blacks may face harsher criticism (relative to their White counterparts) in their work place for taking time off to handle their caregiving duties, such as going to doctor’s appointment, which can contribute to their increase in health and caregiving-related strain levels. Future research should further investigate the ways that health and caregiving-related strain impacts the lives and mental health of high socioeconomic status African Americans.

To understand how health and caregiving-related strain influences mental health, I examined the relationship between health and caregiving-related strain on depressive and anxiety symptoms in AIM 2. Previous studies have been unclear about the mental health impact of caregiver strain for African Americans. As suggested previously, African Americans are considered “high strain” caregivers because of their multiple roles and responsibilities in addition to caregiving. ⁵ Thus, it might be expected that they would have greater mental health risks. However, one study among African American caregivers reported low levels of caregiver strain and low depressive and anxiety symptoms in comparison to Whites. ^{21,33} Nevertheless, the results from this study showed that greater health and caregiving-related strain was associated with greater depressive and anxiety symptoms. This relationship remained consistent even after

controlling for sociodemographic characteristics, suggesting that health and caregiving-related strain does have a significant impact on mental health outcomes for African Americans. Future studies should consider how health and caregiving-related strain impacts other health outcomes, such as physical health especially since African Americans typically have poorer physical health outcomes compared to other racial/ethnic groups.⁵²

Next, guided by the stress process theory, I evaluated the role of social stressors, social resources, personal resources, and health behaviors in the relationship between health and caregiving-related strain and mental health outcomes in AIM 3. In short, social stress theory argues that differential exposure to stress are determined by one's social characteristics and lead to differential health outcomes. In general, there is a lack of literature that incorporates multiple levels of stressors and coping mechanisms in predicting health outcomes for African American caregivers. Past studies have suggested that psychosocial resources and health behaviors may explain their low levels of caregiver strain.²⁵⁻²⁷ By including a variety of psychosocial factors, such as social support and mastery, this study clarifies whether these factors weaken or amplify the relationship between health and caregiving-related strain and depressive and anxiety symptoms. The integration of these components should be useful especially among mental health workers who want to determine which factors are most detrimental to mental health among caregivers and apply appropriate interventions.

Results showed that by including social stressors, health and caregiving-related strain was no longer significant predictor of depressive and anxiety symptoms. These findings suggest that impact of health and caregiving-related strain is explained by differences in other stressors. This also suggests that those with high levels of health and caregiving-related strain also have high levels of other stressors and all of these collectively contribute to worse mental health outcomes. The tendency of caregiver stress giving rise to other stressors can be explained by the stress

proliferation theory.⁵⁵ For many caregivers, the duties of caregiving in addition to roles outside of caregiving results in them experiencing role overload. For instance, a study with African American caregivers reported higher levels of stress due to having to manage their other responsibilities, such as working full-time and also providing duties related to caregiving.⁵⁶ Likewise, caregivers who reported higher levels of stress also reported higher instances of depressive and anxiety symptoms.^{18,19} Among stressors, everyday discrimination, major life events and chronic stress were significant predictors of depressive and anxiety symptoms. These findings were expected given that previous studies have found that African Americans are more likely to experience greater stress, especially race-related stress (i.e., racial discrimination), which has been associated with higher depressive symptoms among African Americans.^{31,54}

When controlling for health behaviors, health and caregiving-related strain remained a significant predictor of depressive and anxiety symptoms, suggesting that health and caregiving-related strain is still an influential predictor of mental health outcomes, regardless of these health behaviors. Compared to those with low levels of physical activity, African Americans with moderate levels of physical activity had significantly fewer depressive and anxiety symptoms. Previous studies have found consistent conclusions, such that caregivers who had higher levels of physical activity had lower levels of distress and better-well-being.⁴⁵ One interesting finding was that alcohol misuse was significantly predictive of fewer anxiety symptoms but not depressive symptoms. Research about the relationship between caregiver strain and alcohol misuse on mental health outcomes is relatively sparse which deserves further attention. Previous studies have found that African Americans are likely to use alcohol as a coping mechanism for anxiety and depressive symptoms.^{28,29} By understanding the relationship of alcohol misuse among African Americans in regard to health and caregiving-related strain, it may help explain their lower mental health outcomes and whether there is need for intervention.

With the consideration of social resources, health and caregiving-related strain was a significant predictor of depressive and anxiety symptoms. Similar to health behaviors, these results suggest that health and caregiving-related strain has a larger impact on mental health outcomes regardless of the protective benefits of social resources. Consistent with previous studies, I found that higher social life activity levels and social support was predictive of lower depressive symptoms and anxiety symptoms.¹⁸ By adding personal resources, health and caregiving-related strain remained a significant predictor of depressive and anxiety symptoms. Given that previous studies have suggested African Americans low caregiver strain levels may be explained by their greater personal and social resources²⁵⁻²⁷, I would have expected to see health and caregiving-related strain to not be significant for both models. Among personal resources, mastery and self-esteem were significant predictors of lower depressive and anxiety symptoms. Mastery and self-esteem are characteristics that allow individuals to cope with hardships, so these findings were expected.^{18,57} Overall, when including all factors in the model, health and caregiving-related strain was no longer a significant predictor of depressive and anxiety symptoms. Thus, although health and caregiving-related strain is predictive in poor mental health outcomes, those who experience multiple social stressors cumulatively, specifically chronic stress, major life events and discrimination are central to understanding variation of depression and anxiety symptoms among African Americans.

Next, I evaluated the whether the relationship between health and caregiving-related strain and mental health was conditional for certain stress exposures, health behaviors, social resources and personal resources. By understanding the conditional relationships, it helps explain the different pathways through which stressors and resources contribute the relationship between health and caregiving-related strain and depressive and anxiety symptoms. For stress exposure, I found that health and caregiving-related strain and mental health outcomes was

conditional on chronic stress exposure. As health and caregiving-related strain increased, African Americans who had greater experiences with chronic stress had even greater levels of depressive symptoms and anxiety symptoms in comparison to those with low to moderate levels of chronic stress exposure. These findings were consistent with previous studies that suggest that African Americans are more likely to face multiple chronic stressors, such as discrimination or poverty, which have been associated with higher rates of depression and anxiety.^{5,18,31} Future studies should consider evaluating the types of discrimination, chronic stressors, and major life events that are most detrimental to African American mental health and whether these relationships are conditional by exposure frequency.

For health behaviors, by looking at the moderation effects, as health and caregiving-related strain increased, anxiety symptoms also increased among those who had seen a doctor. However, when health and caregiving-related strain was minimal, those who had seen a doctor and those who had not seen a doctor had similar anxiety levels. These findings suggest that there may be something inherently different about the study sample, as I would have expected that seeing a doctor regularly would be protective for mental health outcomes. For social resources, the relationship between health and caregiving-related strain and depressive outcomes was conditional for social life activity levels. As health and caregiving-related strain increased, African Americans who had low social life activity levels also reported higher levels of depressive symptoms compared to those with moderate to high social life activity levels. These findings were consistent given that previous studies have found that higher levels of social inclusion reduce the negative impact of health and caregiving-related strain and result in better mental health outcomes.¹⁸ For personal resources, mastery was a significant predictor, such that as health and caregiving-related strain increased, those with low levels of mastery had higher depressive symptoms and anxiety symptoms compared to those with moderate to high levels of

mastery. These findings were expected as previous research has found that caregivers with higher levels of mastery reported better mental health outcomes.¹⁸

Lastly, I evaluated the sociodemographic patterns among those who identified as a caregiver. Caregivers were identified by whether they reported taking care of aging or ill family member or friend. We compared their characteristics with the remaining sample who did not identify as being a caregiver. Due to the small sample size, further regression analyses were not conducted among African American caregivers. Nevertheless, by examining the differences in sociodemographic characteristics, these analyses help us to understand the influence that caregiving has among self-reported caregivers. Results indicated that caregiver's health and caregiving-related strain greater levels of anxiety symptoms while there were no significant differences in depressive symptoms between caregivers and non-caregivers. As expected, caregivers had significantly greater levels of health and caregiving-related strain. These differences were interesting, and I speculated that the multiple responsibilities of caregiving, while simultaneously managing other social roles and responsibilities may result in higher anxiety symptoms. For depression, it may be the case that African Americans who have traditional family values towards caregiving are more likely to be receptive of taking care of their family members and view caregiving not as a burden, but instead as an act of service which may decrease depressive symptoms. Future research should investigate the factors that influence these distinct patterns of anxiety and depressive symptoms among African American caregivers.

In addition, caregivers had significantly lower socioeconomic status compared to non-caregivers, which was expected as caregivers often report financial difficulties.^{5,6,8} For stress exposure, caregivers reported significantly higher instances of chronic stressors and life traumas. No caregivers reported alcohol misuse. Interestingly, caregivers reported greater levels of physical activity in comparison to non-caregivers. For social resources, caregivers reported

higher participation in social life activities in comparison to non-caregivers. Lastly, caregivers and non-caregivers reported similar levels of personal resources, there were no significant differences. These differences suggest that caregivers do indeed experience higher levels of stress, but they also incorporate positive behaviors, such as physical activity and social life activities which may help reduce the burden of caregiving.

LIMITATIONS

The results of this study should be considered within the context of several limitations. First, I examined cross-sectional data, which limits making inferences on causality. The study took place in South Florida, making it difficult to make conclusions on African Americans across the U.S. The sample also mostly included adults with physical disabilities, which may influence their level of health and caregiving-related strain. It may be the case that this sample has higher than average health and caregiving-related strain due to their disabilities making it challenging to assist their family and friends with certain activities and tasks. Future research should examine the differences of health and caregiving-related strain specific to family health issues and caregiving between those who are disabled and those who are not disabled. Likewise, the majority of the sample were older adults, which limits the ability to understand the impact of caregiving among younger populations. Young caregivers are a growing population that should be of concern. They face particular challenges in having to balance multiple responsibilities such as school, work, household chores while providing care. There is an overall lack of research among young caregivers, which future research studies should explore.

The study focused only on African Americans, making it less generalizable to other racial/ethnic groups. Nevertheless, by including only African Americans, it revealed new insight that both advance and challenge prior research that suggested that African Americans are less likely to experience caregiver strain, depressive and anxiety symptoms. The study's survey did

not ask participants about their beliefs in regard to caregiving, which may provide explanation for the significant health and caregiving-related strain and mental health association. Future research should consider the degree to which traditional family beliefs impact the health and caregiving-related strain and mental health relationship. Lastly, the survey did not include a scale that measured caregiver strain, thus, health and caregiving-related strain was estimated based on an index of questions that asked participants if they took care of someone aging or ill but did not ask if that responsibility was necessarily a strain. Future studies should use more specific caregiver strain measures to observe any differences between caregiver strain and mental health outcomes while controlling for social stressors, health behaviors, personal and social resources among African Americans.

CONCLUSION

As the aging population grows, more people are becoming caregivers, which increases the need for more resources to help caregivers adjust to their role. African Americans are less likely to rely on formal caregiving sources, such as nursing homes mostly because of their family values of viewing caregiving as an integral part of family life. Thus, it is necessary that resources are available to make their caregiving role manageable, especially since African Americans are more likely to experience more stress and have to manage multiple roles and responsibilities in addition to caregiving. Although health and caregiving-related strain has been associated with high levels of depression and anxiety, the findings have been unclear among African Americans. The present study aimed to understand the factors that contribute to depression and anxiety.

Overall, the prevalence of caregiving as a strain was considerably low among this sample, which was also related to their low levels of depressive and anxiety symptoms. Nevertheless, as predicted by the study's other dimensions, social stressors, health behaviors, personal and social resources also influenced the health and caregiving-related strain and mental

health relationship. In this sample, health and caregiving-related strain was associated with an increase in depressive and anxiety symptoms. However, the relationship could mostly be explained by whether they experienced social stressors. In particular, African Americans who experienced chronic stress, major life events, and discrimination were at a heightened risk for poor mental health outcomes. These findings confirm the need for interventions that help decrease their stress appraisal among the different stressors as a way to help better balance caregiving duties and their mental health.

Although previous studies have suggested a reason for African Americans low levels of caregiver strain could be explained by their higher levels of social resources (i.e., family/friend support) and personal resources (i.e., spiritual coping), the present study did not support such conclusions. Given that African Americans tend to experience higher levels of stress and may receive “diminishing returns” for higher socioeconomic status, it is possible that having protective resources would not equate to health advantages for African Americans in comparison to other racial/ethnic groups. Thus, while African Americans have low levels of caregiver strain, they also have differential life experiences and access to resources that influence their stress levels.

Given that African American are more likely to experience a myriad of stressors because of their social status within the United States, the stress process model served as useful model to accurately measure African American’s exposure to stress in order to understand their mental health outcomes. Previous studies have found that African Americans are less likely to experience depressive and anxiety symptoms due to caregiving. However, such studies have not taken account of how African American’s differential exposures to stress can impact this relationship, which often leads to misclassification. The results from this study were consistent with the stress process model in which it was expected that health and caregiver-related strain

and mental health outcomes relationship would no longer be significant when accounting for social stressors, health behaviors and personal and social resources. The implications of this study suggest that African Americans should not be studied as a homogenous group. Instead, researchers must acknowledge the complexity of factors (i.e., social stressors, health behaviors, social and personal resources) and the cumulative effect these factors have on the life experiences of African Americans to better understand and provide effective community interventions to reduce the impact of health and caregiving-related strain on mental health outcomes among this population.

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