

Racial Differences in Financial Hardship and Self-Rated Health among
Middle-Age and Older Adults: Does Social Support Moderate the Association?

Gillian L. Marshall

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University of Washington

Abstract

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Gillian L. Marshall

Chair of Supervisory Committee:

David Grembowski

Health Systems and Population Health

The purpose of this study was to examine the associations between four specific indicators of financial hardship (difficulty paying bills, food insecurity, reduced medication use due to cost, out-of-pocket expenses) and self-rated health (SRH) by race in a sample of older African Americans and White adults. A cross-sectional study using data from the Health and Retirement Study. Path analysis was used to examine the relationships between financial hardship and (SRH) and whether this relationship is mediated by social support. Results supported the hypothesis in that the main effect between all measures of financial hardship and SRH health are positively associated even after controlling for demographic and sociodemographic characteristics. Results also indicate that social support was related to better SRH among both older African American and White Americans. Social support also significantly mediates the relationships between all financial hardship measures and SRH for older adults: that is, positive support can offset some of the harmful effects of financial hardship on SRH. This research highlights the important role that expanded SES measures, such as financial hardship, play in the lives of older adult populations. It also highlights the differences in financial hardship and health and the impact of social support by racial group: African Americans and White Americans.

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CHAPTER 1

INTRODUCTION

Almost 50% of all older adults in the United States are at risk of experiencing some form of financial hardship (Gould & Cooper, 2013), a social determinant of health that with prolonged exposure can result in harmful impacts on overall well-being. Currently, one in every six persons in the United States is 65 years and older (ACL, 2021). It is estimated that by 2060, one in every four persons in the United States will be age 65 years and older (Bureau of the Census, 2018), suggesting the scope of this public health problem may increase in the future. In addition, individuals who suffer from high levels of distress due to limited finances are more vulnerable to experiencing financial hardships and may have fewer or frayed social support networks they can draw from (Selenko & Batinic, 2011; Chatters & Taylor, 2005). As the older adult population continues to age and life expectancy increases (Medina, Sabo, & Vespa, 2020) in the United States, it will be important to understand this population's financial status, the types of financial stressors that may contribute to poor health outcomes, and whether social support is one mechanism that mitigates the impact of those stressors.

Using Pearlin and colleagues (1981) stress process theory, this study examines whether financial hardships are related to self-rated health of older adults and whether this association is mediated by social support. This study also aims to improve our understanding of the complex and unexplored associations between financial hardships and older adult health by racial group. This chapter reviews the literature in this area and describes the significance and importance of the problem, the study's research questions, and the conceptual model driving this study.

Background

The association between socioeconomic status (SES) (e.g., education, income, and occupation) and health is well documented (Braveman, Cubbin, Egerter, Williams, & Pamuk, 2010; Kim, 2011; Miech & Shanahan, 2000; Turner & Avison, 2003; Williams & Collins, 1995). Specifically, low SES is significantly associated with poor health (Matthews, Gallo, & Taylor, 2010). In an effort to understand SES patterns as they pertain to race, a previous study found that SES reduces the Black-White gap in health status (Keith & Brown, 2018). While the contribution of SES is highly important in understanding differences in health outcomes, it still does not fully explain the gap in racial disparities in health status between Whites and African Americans (Cummings & Jackson, 2008).

To address this issue, a number of studies have examined whether other dimensions of SES, such as wealth, debt, and hardships might account for the gap that remains in health status between the two racial groups (Drentea, 2000; Drentea & Reynolds, 2012; Sweet, Nandi, Adam, & McDade, 2013; Marshall & Tucker-Seeley, 2018). Often used as a proxy for SES, financial hardship is actually different from SES in that the construct measures the balance of income and need.

The concept of financial hardship has been largely discussed within the poverty and stress literatures. In the poverty literature, financial hardship has been defined as deprivation across food, shelter, and whether a household is able to meet a number of socially defined necessities (Ouellette, Burstein, Long, & Beecroft, 2004; Bauman 1998). Measures of financial hardship also offer an additional understanding about the relationship between one's day-to-day needs and available resources to meet those needs (Cook & Kramek, 1986; Mayer & Jencks, 1989; Beverly, 2001a, 2001b; Szanton, Allen, Thorpe, Seeman, Bandeen-Roche, & Fried, 2008).

Financial hardship measures provide an opportunity to move the research beyond traditional measures of SES by capturing the day-to-day financial circumstances of adults in later life. Some of the measures of financial hardship include perceived income adequacy, making ends meet, food insecurity, and medication underuse/non-use due to cost (Tucker-Seeley, Li, Subramanian, & Sorensen, 2009; Marshall, Thorpe, & Bruce, 2022).

Literature Review

Research examining the impact of financial hardship on older Americans is growing. Some studies have found that advanced age, being African American, and female were all associated with negative health outcomes in later life (Bierman, 2014; Szanton, Thorpe, & Whitfield, 2010; Wilkinson, 2016). Over 15 million (around 1 in 3) older adults aged 65 years and older in the United States are financially insecure with incomes falling below 200% of the federal poverty level (National Council on Aging, 2021). For older adults above the poverty level, one major adverse life event can increase their risk of newly experiencing financial hardship (National Council on Aging, 2021). Coupled with looming inflation, the rising cost of healthcare, and expanding income inequalities, greater attention needs to be placed on the role of financial hardship (Olson, Schommer, Mott, Adekunle, & Brown, 2022).

An emerging line of research extending current notions of SES by including indicators of financial hardship continues to evolve. Although there has been little consensus on or a consistent measure of financial hardship used across the literature, there are financial hardship indicators that are more commonly used, including difficulty paying bills, hardship related to food (often referred to as food insecurity), medication under use due to cost, and out of pocket expenses.

Difficulty Paying Bills

Falling behind in paying monthly bills such as rent and utilities, can be stressful. Older adults with lifelong financial issues are more likely to accumulate more debt, be financially insecure, and experience a potential lack of health insurance coverage over their entire adult lifetime (National Council on Aging, 2016). Single older adults (43%) depend on Social Security benefits to cover 90% of their living expenses (Dushi, Iamns, & Trenkamp, 2017). The financial issues are particularly severe for older women: on average, older women have received about \$4,500 less annually in Social Security benefits than older men have received (Dushi, Iamns, & Trenkamp, 2017). Millions of older adults are struggling to meet their monthly expenses, even though they are not considered “poor” because they live above the poverty level (Dushi, Iamns, & Trenkamp, 2017).

Food Insecurity

Food insecurity, or the inability to afford nutritious and sufficient food, is a major public health concern. In 2017, nearly 5.5 million adults, aged 60 and older, were food insecure (Ziliah & Gundersen, 2013). While a greater number of older White adults are food insecure, food insecurity among White older adults is at half the rates of Black and Hispanic older adults (Ziliah & Gundersen, 2013). Even within an Integrated Health Care System such as Kaiser Permanente’s, researchers found that that the prevalence of food insecurity among older populations was 10% or higher among members who were Black, Hispanic, had less than high school education, had Medicaid as their primary insurance, or had depression or anxiety (Steiner, Stenmark, Sterrett, Paolino et al. (2018). Another study based in North Carolina found that food insecurity and age (being 60-74 years old) were significantly associated with higher numbers of depressive symptoms (Johnson, Sharkey, & Dean, 2011). With the older population expected to

grow from 49.2 million in 2016 to over 70 million by 2030, the number of older persons who experience food insecurity will also increase if we fail to intervene (U.S. Census Bureau, 2017).

Medication Underuse Due to Cost

Another financial hardship common among older adult populations is underuse or non-use of medications due to cost. Previous research has found that older adults who reduce or forgo taking medications do so because of cost-related concerns, such as low income, a lack of adequate prescription coverage by insurance programs, or increased out-of-pocket costs (Lee, Jiang, Dowdy, Hong, & Ory, 2018), which occurs in approximately 10% to 40% of community-dwelling older adults (Lee et al., 2018). The decision to forgo taking medications, delay purchasing, or reduce medication use compromises treatment goals and overall well-being (Katrana, Richardson, Norris, & Crampton, 2015).

Between the years 2006 and 2020, the price of medications commonly used by older adults to relieve or treat chronic conditions substantially increased every year by an average of 4.3 percent, which is more than 3.5 times higher than the rate of inflation (Purvis, & Schondelmeyer, 2019). As prescription drug costs continue to soar, and those charges are passed on to the consumer through increased out-of-pocket prescription costs, many older adults will continue to have difficulty affording their medications. Some researchers have argued that age-based programs such as Medicare and Social Security protect older adults against the costs associated with medications (Kim & Durden, 2007; Mays & Hogg, 2015). While these programs do offer some protection benefit against costs, many patients still experience high out-of-pocket costs associated with filling prescriptions, especially when the increasing costs of medications

compete with more immediate needs, such as food or rent, which often take priority (Rome, Egilman, & Kesselheim, 2022).

The decision to reduce or not use medications as prescribed due to cost is a quandary many Americans face, and some of the adverse consequences include chronic conditions, poorer health, increased risk of mortality, and greater health care costs (Kurlander, Kerr, Krein, Heisler, & Piette, 2009; Katrana, Richardson, & Norris, 2015). This form of financial hardship also widens the gap in health disparities. The research focused on reduced medication use due to cost among older adults is emerging in the literature.

Out-of-Pocket Healthcare Expenses

Age-based programs such as Medicare and Social Security were established to provide a safety net for adults in late-life. Even with Medicare, which significantly reduces the cost associated with health care, many older adults still struggle financially. One study found that 25% of all Medicare beneficiaries spent 20% or more of their income on out-of-pocket health care expenses and premiums (Schoen, Davis, & Willink, 2017). And given the aging process already brings with it a greater likelihood of developing chronic illnesses and other physical health issues, understanding the impact on health of financial hardship as measured by out-of-pocket healthcare expenses will be of particular importance to policy makers as this population ages.

Hardship and Health by Race

On average, African Americans who experience financial hardships tend to report poorer health outcomes compared to their white counterparts (Liang, Quiñones, Bennett, Ye, Xu, Shaw, & Ofstedal, 2010; Marshall, Thorpe, & Bruce, 2022). In addition, older African Americans, for example, are more vulnerable to suffer from adverse health consequences compared to their

white counterparts (Szanton et al., 2008; Kim, 2011; Lincoln, 2007). Although some studies have found an association between lower SES and poorer health outcomes and higher mortality among African Americans in general (Idler, Russel, & Davis, 2000), how SES affects health is still equivocal. More recent studies focusing on older adults specifically have suggested that individuals with lower SES may also experience greater hardship and lack the means to meet their basic needs (i.e., paying bills, food, medication) (Marshall, Thorpe, & Szanton, 2017; Marshall-Fabien & Miller, 2014). Thus, since financial hardships may be a potential mechanism through which low SES may lead to negative health outcomes, it is important to improve our understanding of socio-economic factors that contribute to poor health status across racial groups.

Importance of Social Support

Social Support is “the provision of assistance or comfort to others, typically to help them cope with biological, psychological, and social stressors. Support may arise from any interpersonal relationship in an individual’s social network, involving family members, friends, neighbors, religious institutions, colleagues, caregivers, or support groups. It may take the form of practical help (e.g., doing chores, offering advice), tangible support that involves giving money or other direct material assistance, and emotional support that allows the individual to feel valued, accepted, and understood” (APA, 2022).

Social support is multi-dimensional and has been measured in a variety of different ways (House, Umberson, & Landis, 1988; Uchino, Bowen, Carlisle, & Birmingham, 2012; Rook, 2015). Evidence has shown the influential impact of social support networks on health outcomes (Berkman, Glass, Brissette, & Seeman, 2000; Uchino, 2009; Ha, Kahng, & Choi, 2017; Krause, 2002). Given the connection between social support and health, strong social support networks

are especially important to improve health outcomes for older adults as they age (Ermer & Proulx, 2019) and contribute to the ability to remain independent over the life course. Older adults with limited economic resources may become more dependent on their social networks to meet their day-to-day needs, and interactions with network members may reduce or shield them from the stress associated with financial strain, thus enabling them to mitigate adverse mental and physical health outcomes.

Some studies on social support indicators have included measuring the frequency of social support (Ha, Kahng, & Choi, 2017; Teo, Choi, Andrea, Valenstein et al., 2015), while others have evaluated the type of social support (Marshall-Fabien & Miller, 2014; Cornwell, Laumann, & Schumm, 2008), or a combination of both (Cornwell & Waite, 2009). There has not been one specific indicator used to measure social support across studies or across racial groups.

Theoretical Framework and Conceptual Model

The stress process theory framework was used to guide this work (Pearlin et al., 1981). Stress process theory posits that individual lives follow unique trajectories of change over time within specific social contexts that are shaped by occurrence, timing, and sequencing of salient stressful life events (e.g., job loss, foreclosure, bankruptcy), which create stress (such as financial hardships), which in turn undermines health. In this study, financial hardship is conceptualized as a secondary stressor that affects one's health in late life.

Figure 1 is a modified conceptual model of the stress process theory and of the association between financial hardship and self-rated health mediated by social support. Demographic factors, such as race, age, gender, and SES, function to influence all components

of the model. There is a direct relationship between financial hardship and social support (A). Social support functions to mediate the direct effect of financial hardship on self-rated health (B). Financial hardship also directly impacts self-rated health outcomes (C).

Prior studies examining financial hardship have at least three limitations: 1) most used a composite score or index of financial hardship; 2) they have measured varying forms of social support rather than one consistent measure; and 3) they have not examined the association of individual indicators of financial hardship and health mediated by social support among older adults by race. The purpose of this study was to use a nationally representative sample of older adults to; 1) investigate whether specific financial hardship indicators are differentially associated with self-rated health and whether or not the associations are similar or different for African Americans and Whites; 2) examine whether or not indicators of social support measure a construct; and 3) examine whether or not social support mediates the association between financial hardship and health, and does it do so differently among African Americans and Whites?

Research Questions

While some studies have examined the relationships between financial hardship and health, few have evaluated whether social support mediates the association. The purpose of this study is to determine the direct association between financial hardship and self-rated health and then to test whether social support mediates this association. The two specific research questions are:

Research Question #1: Direct Effect Models

RQ1: What is the association between individual indicators of financial hardship and self-rated health among older African American and White American adults?

H₁: Having hardship is associated with worse self-rated health in later life, even after controlling for demographic and sociodemographic characteristics.

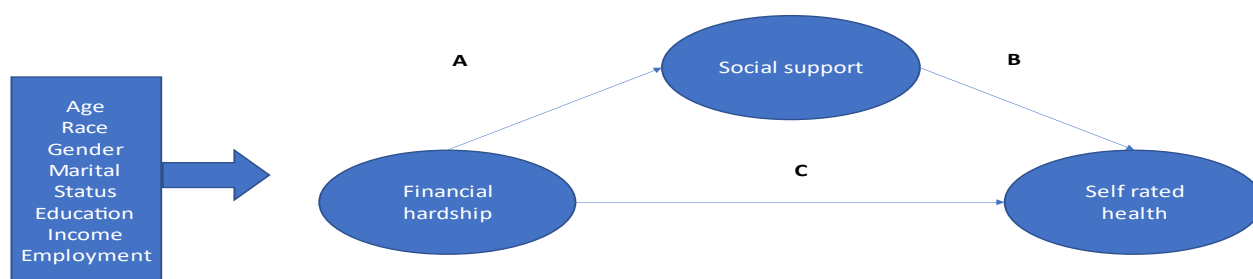
Research Question #2: Indirect Effects Models

RQ2: Does social support mediate the association between individual indicators of financial hardship and self-rated health, and are the associations different among older African Americans and White Americans?

H₁: Higher social support will mediate the effects of hardship on self-rated health.

Figure 1.

Conceptual Model of Hypothesized Relationships Between and Among Financial Hardships, Social Support and Self-Rated Health



CHAPTER 2

METHODOLOGY

This chapter describes the methods used for answering the study's research questions. This study was a cross-sectional secondary data analysis using the 2016 wave of the Health and Retirement Study (HRS) public dataset. This Chapter provides a description of the dataset, the sample population, the study measures, and the data analyses.

Data and Study Sample

The data used for this study came from the Health and Retirement Study, which is a national longitudinal survey that has been funded by the National Institutes on Aging since 1992 when the first cohort was surveyed. The HRS collects data biennially and, using a multistage area probability, contains a nationally representative sample of US households of persons 50 years and older with oversampling for African Americans, Latinos, and Florida residents (Heeringa & Connor, 1995). In 1992, the first cohort of participants who were born between 1931-1941 were recruited and followed every two years thereafter. The next cohorts consisted of the Children of the Depression (born 1924-1930) and War Babies (born 1942-1947), and in 2004 the Early Baby Boomer (born 1948-1953), Mid-Baby Boomer (1954-1959), and Late Baby Boomer (1960-1965) cohorts were added. Since then, a new cohort has been added every 6 years to account for death and attrition. There are currently 14 waves of complete data available (1992-2018).

The purpose of the HRS is to collect data on the demographic, economic, wealth, health care and health behaviors, employment status, housing, and other factors pertaining to workers 50 years and older as they transition from work to retirement. The HRS also contains comprehensive information on psychosocial factors to analyze life cycle patterns of physical,

psychological, and economic well-being. In addition to demographic, economic, health, and financial status over time, in 2006, the HRS began collecting psychosocial data about participant life circumstances, subjective well-being, and lifestyle as part of a biennial wave from a rotating (random) 50% sample of the core panel participants who completed face-to-face interviews (Smith, Fisher, Ryan, House, Clarke, & Weir, 2017). The psychosocial questions were collected through a Leave Behind Questionnaire (LBQ), which was left with respondents at the end of the core interview; respondents were asked to mail them back to the study office. More detailed information on the HRS and the LBQ has been described elsewhere (Sonnega, Faul, Ofstedal, Lang, Phillips, & Weir, 2014).

Study Sample

The data used for this cross-sectional study is from a subsample of older adults aged 65 years and older from the 2016 wave of the HRS who completed the core and psychosocial LBQ. There was a 79% response rate. The samples included Whites (N=7380) and African Americans (N=1621) for a total sample of N=9001 respondents.

Measurement

The measures for this study consisted of covariates, independent variables, a dependent variable, and mediating variables, all of which are summarized in **Table 1**.

Covariates

Covariates included demographic and socio-demographic variables. Demographic characteristics included race (White and African American), age as a continuous variable (65 years and older), gender (0=male, 1=female), and marital status (0=married, 1=not married). Socioeconomic status measures included education (<12years, 12 years, more than 12 years) and

a categorical variable for annual household income (\$0-\$19,999, \$20,000-\$39,999, \$40,000-\$59,999, \$60,000+).

Dependent Variable: Self-Rated Health

The dependent variable to assess physical health was self-rated health, an indicator of well-being that has been shown to be an independent predictor of mortality, even after controlling for numerous other indicators of health status (Idler & Benyamini, 1997). Self-rated health was assessed by the question: “In general, how would you say your health is: excellent, very good, good, fair, or poor?” This Likert scale of responses ranged from 1=poor health to 5=excellent health and was dichotomized into two categories: excellent/very good/good=0 and fair/poor=1.

Independent Variables: Financial Hardship

The primary independent variables consisted of four individual financial hardship indicators found in both the core HRS data as well as the LBQ. The financial hardship variables were designed to measure the amount of financial difficulty respondents experienced. Financial hardships consisted of the following four individual items: 1) difficulty paying bills, 2) food insecurity, 3) medication underuse due to cost, and 4) out of pocket healthcare expenses as defined below. Each of these variables were recoded dichotomously, indicating whether respondents experienced the hardship or not (see Table 1).

Difficulty paying bills was assessed by asking the question: “How difficult is it for you/your family to meet monthly payments on your/your family’s bills?”

Food insecurity was assessed by asking the questions: “In the last 2 years have you always had enough money to buy the food you need?”

Medication use was assessed by asking the question “At any time in the last two years, have you ended up taking less medication than was prescribed for you because of cost?”

Out-of-pocket healthcare expenses were assessed by asking the question “You said your average payment for prescription drugs has been about \$181/month. Have there been some months when your out-of-pocket payments were much higher than this?”

Mediating Variable: Social Support

The social support measures capture both the perception and amount of support respondents receive from sources, including their spouse/partner, children, other family members, and friends. In the HRS, social support was defined by three concepts: composition of one’s social network, social contact, and positive social support. The three concepts were measured by 11 indicators described below, which previous studies combined quantitatively to form three indexes, one for each concept. For the purpose of this study, an exploratory factor analysis (EFA) of the 11 items was conducted to establish which measures and factors created the best model fit (single or multiple factor) resulting in a final social support variable.

Composition of Social Network

The four questions asked below were treated as 4 separate indicators for the EFA. Scores were 0 or 1.

“Do you have a husband, wife, or partner with whom you live?”

“Do you have any living children?”

“Do you have any other immediate family, for example, any brothers or sisters, parents, cousins, or grandchildren?”

“Do you have any friends?”

Social Contact

Three of the available questions were used to assess the extent to which all three social networks (child[ren], other family, friends) were in contact with the respondent. The following question was asked:

“On average, how often do you do each of the following with your children/family/friends, not counting any who lives with you?”

- Meet up (by chance or planned);
- Speak on the phone;
- Write or email.”

All items were coded in the same manner as that used by Ailshire and Crimmins (2011): 0=once a year or never, 1=once or twice a year, 2=every few months, 3=once or twice a month, 4=once a week, 5=three or more times a week. We created a separate scale for frequency of contact for each respondent (child[ren], family, friends). Scale scores ranged from 0-5 with the highest score indicating more contact.

Positive Social Support

The positive social support index was created based on the following three questions asked separately for each person: a) spouse, b) child(ren), c) family, and d) friends:

“How much do they really understand the way you feel about things?”

“How much can you rely on them if you have a serious problem?”

“How much can you open up to them if you need to talk about your worries?”

Responses were coded (Cohen, 2004) to create four items (spouse, child, family, and friend) that ranged from 0 to 3 with higher values indicating more positive levels of support: 0=Not at all; 1=

A little; 2=Some, 3=A lot. An index scale of positive social support was created for each relationship.

Statistical Analysis

The statistical analyses were performed using a three-step process. The first step screened the HRS data for missing values and outliers, and then the data were recoded and frequencies of the full sample were obtained (mean and standard deviations or percentages). Step-one analyses (descriptive statistics) were conducted using Stata version 15.1.

The second step involved creating a measurement model for the social support variable. This step involved converting the existing Stata dataset into an Mplus dataset (V.8.3), which was used to conduct an EFA and a confirmatory factor analysis (CFA). Eleven social support indicators were selected to establish the dimensionality of the social support latent variable construct. The EFA was performed with 11 of the most common social support variables (**Figure 2** for which each letter is defined as shown in **Table 2**). The EFA loadings on the factor/factors were examined to establish whether a variable consistently loaded below 0.40. All 11 items loaded on to one factor. Consequently, each item was placed back into their respective indices, and three separate EFA models were examined with items from their respective indexes.

Once the EFA factor structure was established, a CFA was conducted to determine model fit. Specifically, the CFA was conducted to determine whether the three-factor model from the EPA or the single-factor model generated by Mplus had the best model fit. Both the root mean square error of approximation (RMSEA) and the comparative fit index (CFI) were used to determine CFA model fit. The RMSEA measured the discrepancy of the degree of freedom per model, and RMSEA values that approached zero indicated better fit (Brown & Cudeck, 1993). Models with RMSEA values greater than 0.1 and CFI's greater than 0.95 had an acceptable

range for fit (Brown & Cudeck, 1993; Muthen, 2007). The RMSEA and the CFI for Model 3 (see **Table 2**) were 0.4 and 0.98 respectively, indicating Model 3 was the best fit. Once the model fit was established, a CFA model for social support was confirmed and used for the final analysis (**Figure 3**, for which the letters are defined in **Table 2**).

Once the social support latent variable was established, the third step involved running the hypothesized model examining the associations between each financial hardship indicator and self-rated health by race (direct effects), and then the structural equation mixture path model from each financial hardship variable to the latent social support variable to self-rated health (indirect effects) using a multiple group analysis approach to examine differences by African Americans and Whites (Lincoln, Chatters, & Taylor, 2003). In the structural equation model for each financial hardship variable, the direct effect between positive social support and self-rated health was fixed across racial groups. Since the data were non-normally distributed, maximum likelihood estimation with robust standard errors methods (MLR) were used. This estimator is well-suited for the skewness observed in the social support data (Shi, DiStefano, Zheng, Liu, & Jian, 2021).

Table 1.
Conceptualization and Operationalization of Measures

<u>MEASURES</u>	<u>OPERATIONALIZED</u>
<i>Socio-Demographic Variables</i>	
Age	Continuous 65 years and older
Race	0=White 1=African American
Gender	0=Male 1=Female
Marital Status	0=Married 1=Not married
Educational Status	1=Less than high school (<12yrs) 2=More than high school (12yrs +) high school (12yrs) reference
Income (Household Income)	1=\$0 - \$19,999 2=20,000 - 39,999 3=40,000 - 59,999 60,000+ reference
<i>Independent Variables</i>	
<u>Difficulty paying bills:</u> How difficult is it for you/your family to meet monthly payments on your/your family's bills?	0=not difficult at all, not very difficult 1= somewhat difficult, very difficult, completely difficult
<u>Food insecurity:</u> In the last two years, have you always had enough money to buy the food you need?	0=Yes 1=No
<u>Medical Cost:</u> In the last 12 months did you take less medications due to cost?	0=No 1=Yes
<u>Out of Pocket Healthcare Expenses:</u> "You said your average payment for prescription drugs has been about \$181/month. Have there been some months when your out-of-pocket payments were much higher than this?"	0=No 1=Yes
<i>Dependent Variable</i>	
Self-Rated Health	0= Good, very good, excellent 1= Poor, fair

<i>Potential Mediators</i>	
<p><u>Social Network</u></p> <p>1) Do you have a husband, wife, or partner with whom you live?</p> <p>2) Do you have any living children?</p> <p>3) Do you have any other immediate family, for example, any brothers or sisters, parents, cousins, or grandchildren?</p> <p>4) Do you have any friends?</p>	<p>0=No 1=Yes</p>
<p><u>Contact with Social Network</u></p> <p>On average, how often do you do each of the following: a) children, b) other family, and c) friends.</p> <p>1) Meet up</p> <p>2) Speak on the phone</p> <p>3) Write or email</p>	<p>0=once a year or never 1=once or twice a year 2=every few months 3=once or twice a month 4=once or twice a week 5=three or more times a week</p>
<p><u>Positive Social Support</u></p> <p>Examines the support respondents receive from the following: a) spouse, b) children, c) other family, and d) friends.</p> <p>1) How much do they really understand the way you feel about things?</p> <p>2) How much can you rely on them if you have a serious problem?</p> <p>3) How much can you open up to them if you need to talk about your worries?</p>	<p>0=not at all 1=a little 2=some 3=a lot</p>

*Note: Food insecurity was reverse coded to match the direction of other financial hardship variables.

Table 2.
Social Support Indicators for Exploratory Factor Analyses

	Social Support Indicators		Questions
Model 1	A		“Do you have a husband, wife, or partner with whom you live?”
Model 1	B		“Do you have any living children?”
Model 1	C		“Do you have any other immediate family, for example, any brothers or sisters, parents, cousins, or grandchildren?”
Model 1	D		“Do you have any friends?”
Model 2	E	Child(ren)	<p>“On average, how often do you do each of the following with your children, not counting any who lives with you?”</p> <ul style="list-style-type: none"> ➤ Meet up (by chance or planned); ➤ Speak on the phone; ➤ Write or email.”
Model 2	F	Other family	<p>“On average, how often do you do each of the following with other family, not counting any who lives with you?”</p> <ul style="list-style-type: none"> ➤ Meet up (by chance or planned); ➤ Speak on the phone; ➤ Write or email.”
Model 2	G	Friends	<p>“On average, how often do you do each of the following with your friends, not counting any who lives with you?”</p> <ul style="list-style-type: none"> ➤ Meet up (by chance or planned); ➤ Speak on the phone; ➤ Write or email.”
Model 3	H	Spouse	<p>“How much do they really understand the way you feel about things?”</p> <p>“How much can you rely on them if you have a serious problem?”</p> <p>“How much can you open up to them if you need to talk about your worries?”</p>

Model 3	I	Child(ren)	<p>“How much do they really understand the way you feel about things?”</p> <p>“How much can you rely on them if you have a serious problem?”</p> <p>“How much can you open up to them if you need to talk about your worries?”</p>
Model 3	J	Other family	<p>“How much do they really understand the way you feel about things?”</p> <p>“How much can you rely on them if you have a serious problem?”</p> <p>“How much can you open up to them if you need to talk about your worries?”</p>
Model 3	K	Friends	<p>“How much do they really understand the way you feel about things?”</p> <p>“How much can you rely on them if you have a serious problem?”</p> <p>“How much can you open up to them if you need to talk about your worries?”</p>

Figure 2. Exploratory Factor Analyses for Social Support

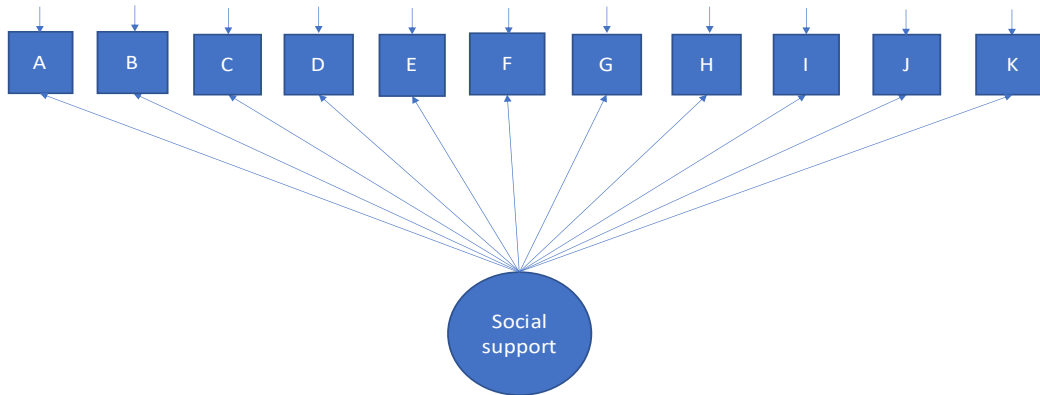
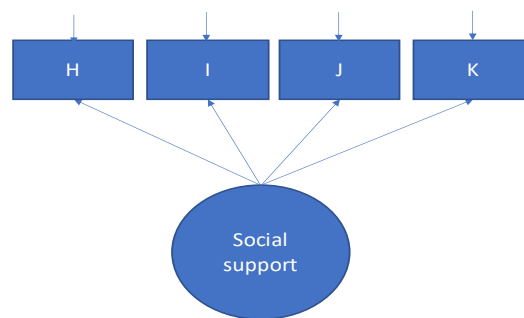


Figure 3. Graphic Presentation of the Hypothesized Confirmatory Factor Analysis Model for Social Support



CHAPTER 3 RESULTS

Table 3A presents the socio-demographic characteristics of this study's sample, which consisted of 9,001 total participants, aged 65 years and older from the HRS. All the characteristics were significantly different between White and African American participants. The mean age of Whites was 76.6 years and African Americans 74.1 years. The majority of participants were female. Forty-eight percent of Whites and 38% of African Americans had more than a high school education. About 73% of Whites reported they had difficulty paying bills, and 21% of African Americans reported difficulty paying bills. About 30% of Whites reported fair/poor health, while 40% of African Americans reported fair/poor health.

Table 3B presents the percentages, means, and standard deviations for all the social support variables included in the analyses by racial group. All of the social support measures are a subset of a subset which is why the sample is smaller than most other variables and were significantly different between African Americans and White participants. Among Whites 86% of respondents lived with their husband/wife/partner, while living with other immediate family members was greater for African Americans (15%).

Table 4 presents the results from the exploratory factor analysis of the social support models in an effort to find the one index with the best model fit. The fit indices of the structural model were found to be robust. Model 1 consisted of indicators of an index about who their social network consisted of. Model 2 consisted of indicators measuring frequency of contact with their social network. Model 3 consisted of indicators for a positive social support index. Based on models one through three, Model 3 was the model with the best fit capturing the social support construct, and thus, Model 3 was used for the SEM. The RMSEA for the social support indicator was 0.030, which is consistent with the "good fit" standard of 0.05 (McCallum,

Browne, & Sugawara, 1996). The CFI and the Tucker Lewis index (TLI) presented in the Table had acceptable levels of goodness of fit. Box index values for the model met the criteria value of 0.90 which is conventional (Kline, 2011). The summary model statistics were as follows: $X^2=174.12$, $p<.001$, $RMSEA=.030$, $CI= .026-.034$, $CFI=.937$, and $TLI=.902$.

Figures 4 and 5 below present a graphical representation of the structural equation model (SEM) for African Americans and Whites respectively. **Tables 4 and 5** present the parameter estimates of the SEM for the corresponding Figures 4 and 5. The figures and tables indicate that financial hardship and social support have a number of direct and indirect (mediating) effects on self-rated health in the two racial groups.

***H₁**: Having hardship is associated with worse self-rated health in later life, even after controlling for demographic and sociodemographic characteristics.*

As hypothesized, the main effects between financial hardship and self-rated health are significantly associated for all hardship variables even after controlling for demographic and sociodemographic characteristics. Among older African Americans and Whites, results indicate there were significant positive relationships between financial hardship and self-rated health variables to the degree to which the impact of each financial hardship variables on self-rated health was different (see **Table 5**). Meaning, increases in financial hardship was associated with increases in poor self-rated health. For example, among African Americans the largest impact came from difficulty paying bills ($\beta=.131$, $p<.001$) while the least impact came from food insecurity ($\beta=.048$, $p<.01$). Reduced medication use due to cost ($\beta=.076$, $p<.001$) and out-of-pocket expenses ($\beta=-.057$, $p<.001$) were both significant. Comparatively older White Americans had a similar ordinality to older African Americans: difficulty paying bills ($\beta=.125$, $p<.001$)

impacted them the most and food insecurity ($\beta=.028$, $P<.01$) impacted this group the least (**Table 6**).

H₂: Higher social support will mediate the effects of hardship and self-rated health.

As hypothesized, among both older African Americans and Whites, social support had significant positive mediating effects (indirect effects) between financial hardship and self-rated health. For instance, among older African Americans (**Table 5**) social support had the largest mediating impact on difficulty paying bills ($\beta=-.073$, $p<.001$) and social support had the least mediating impact on out-of-pocket expense ($\beta=-.011$, $p<.001$). Also in **Table 6**, results indicate that White Americans had similar ordinality to African Americans with social support having the largest mediating impact on difficulty paying bills and self-rated health ($\beta=-.062$, $p<.001$). However, among Whites, social support had the least mediating impact on food insecurity and self-rated health ($\beta=-.011$, $p<.01$). Thus, the association between financial hardship and poor self-rated health can be explained in part by the mediating role of social support.

Table 3A.
Descriptive Statistics of Demographic and Socio-demographic Variables by Racial Group

Variables	Whites (N=7380)		African Americans (N=1621)		p-values
	N	(%)	N	(%)	
Age (N)(SD)	76.6 (7.7)	82	74.1 (7.3)	17	<.001
Gender					.001
Male	3166	41	610	37	
Female	4570	59	1035	63	
Marital Status					<.001
Married/Partner	4193	54	596	36	
Not Married/Partner	3518	45	1040	63	
Education					<.001
<High School	1386	18	511	31	
High School	2608	34	505	31	
More than High School	3742	48	629	38	
Income (HH)					<.001
\$0-\$19,999	1729	22	707	43	
\$20,000-\$39,999	2211	29	437	27	
\$40,000-\$59,999	1366	18	206	12	
\$60,000+	2430	31	295	18	
Hardships					
Difficulty Paying Bills (Y)	585	73	169	21	<.001
Enough money to buy food (N) Food Insecure	332	4	241	15	<.001
Taking Less Medications (Y)	499	6	190	12	<.001
Physical Health (SRH)					<.001
Fair/Poor	2283	30	647	40	
Good/Very Good/Excellent	5442	70	994	60	

Table 3B.
Descriptive Statistics of Social Support Variables by Racial Group

	White		African American		p-value
	N	(%)	N	(%)	
Composition of Social Network (Y)	N	(%)	N	(%)	
Live with husband/wife/partner	1483	86	160	9	<.001
Any living children	2313	82	395	14	<.001
Other immediate family	2353	80	437	15	<.001
Any friends	2381	82	395	14	<.001
Contact with Social Network	(N)	Mean (SD)	(N)	Mean (SD)	
Child(ren)	1977	3.15 (1.38)	288	3.15 (1.6)	.001
Other family	1998	3.81 (1.45)	301	3.65 (1.6)	.001
Friends	2041	1.95 (0.80)	289	1.84 (0.8)	.001
Positive Social Support	(N)	Mean (SD)	(N)	Mean (SD)	
Spouse	1368	1.62 (0.7)	143	1.73 (0.8)	<.001
Child(ren)	2023	1.77 (0.8)	296	1.66 (0.8)	<.001
Other family	2020	2.16 (0.9)	316	1.90 (0.8)	<.001
Friends	2041	1.94 (0.8)	289	1.84 (0.8)	<.001

Table 4.
Factor Loadings for the Exploratory Factor Analyses Testing Three Model Indices

Models	Items	X ²	RMSEA	CI	CFI	TLI
		1	1	1	1	1
Model 1	Person(s) you live with Have child(ren) Other family Friends	166.25	.024	.020, .027	.916	.878
Model 2	Contact Child(ren) Contact Other family Contact Friends	186.76	.025	.022, .029	.928	.896
Model 3	Positive Spouse Positive Child(ren) Positive Other family Positive Friends	174.12	.030	.026, .034	.937	.902

Table 5.

Standardized Maximum Likelihood Parameter Estimates for the Relationships between Financial Hardships, Social Support, and Self-rated Health for Older African Americans

African Americans			
	Effects		
	Direct (A)	Indirect (B)	Total (A+B)
Demographics to Self-rated Health			
Age	.012***	.000	.012***
Gender	-.061**	.000	-.061**
Marital Status	.011	.000	.011
Education	-.057***	.000	-.057***
Income	-.085***	.000	-.085***
Financial Hardship to Social Support			
Difficulty Paying Bills	-.559***	.000	-.559***
Food Insecurity	-.850***	.000	-.850***
Medication Use	-.368***	.000	-.368***
Out-of-pocket expense	-.188***	.000	-.188***
Financial Hardship to Self-rated Health			
Difficulty Paying Bills	.131***	-.073***	.058***
Food Insecurity	.048**	-.041**	.007**
Medication Use	.076***	-.028***	.048**
Out-of-pocket expense	.057***	-.011**	.046**

* p<.05

** p<.01

*** p<.001

Table 6.
Standardized Maximum Likelihood Parameter Estimates for the Relationships between Financial Hardships, Social Support, and Self-rated Health for Older White Americans

White Americans			
	Effects		
	Direct (A)	Indirect (B)	Total (A+B)
Demographics to Self-rated Health			
Age	.012***	.000	.012***
Gender	-.061**	.000	-.061**
Marital Status	.011	.000	.011
Education	-.057***	.000	-.057***
Income	-.086***	.000	-.086***
Financial Hardship to Social Support			
Difficulty Paying Bills	-.491***	.000	-.491***
Food Insecurity	-.407***	.000	-.407***
Medication Use	-.298***	.000	-.298***
Out-of-pocket expense	-.215***	.000	-.215***
Financial Hardship to Self-rated Health			
Difficulty Paying Bills	.125***	-.062***	.063***
Food Insecurity	.028**	-.011**	.017**
Medication Use	.075***	-.022***	.053***
Out-of-pocket expense	.058***	-.012***	.046***

* p<.05

** p<.01

*** p<.001

FIGURE 4.

Direct and Indirect Effect of Social Support in the Association between Financial Hardship and Self-Rated Health among Older African Americans

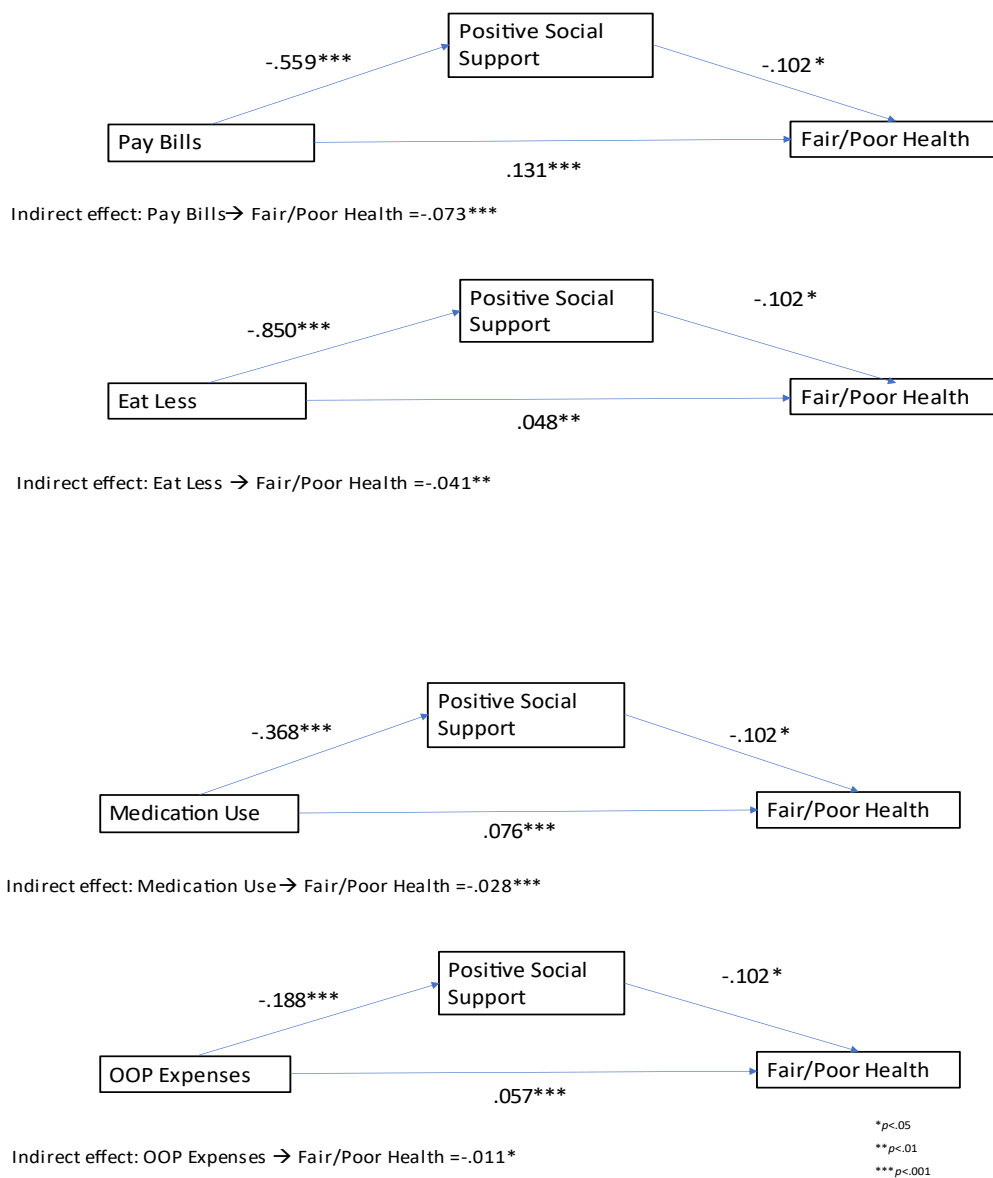
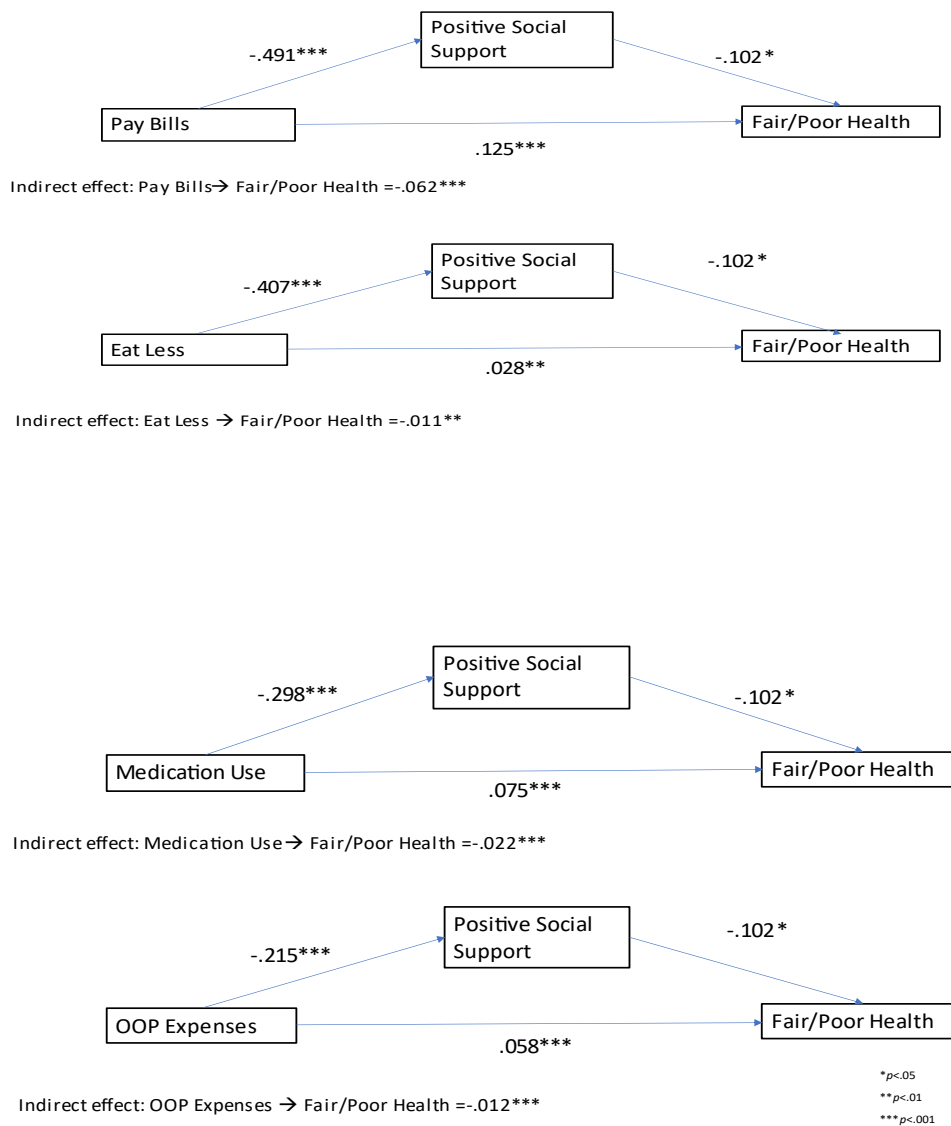


FIGURE 5.

Direct and Indirect Effect of Social Support in the Association between Financial Hardship and Self-Rated Health among Older White Americans



CHAPTER 4

DISCUSSION

An important priority for population health research is to understand and reduce health disparities. As individuals get older, they often experience progressive declines in health and income potential. The financial hardship that is experienced in later-life, especially among marginalized populations (e.g., older African Americans), is a major public health concern. This study builds on previous work in the area of financial hardship (Kahn & Pearlin, 2006; Drentea & Reynolds, 2012; Tucker-Seeley, Marshall, & Yang, 2016) and moves us beyond measures of SES (education, income, occupation) by examining the mediating role of social support in the relationship between financial hardship and self-rated health.

The first aim of this study was to investigate whether specific financial hardship indicators are differentially associated with self-rated health and whether or not the association varies by race. Using data from the Health and Retirement Study, findings indicate a positive and significant association between each financial hardship indicator and fair/poor self-rated health for both African Americans and White Americans. These findings are consistent with similar studies examining the association between financial hardship and self-rated health (Tucker-Seeley, Harley, Stoddard, & Sorensen, 2013; Savoy et al., 2014). One study by Savoy et al., (2014) suggested that among African Americans, financial hardship was associated with poorer health outcomes. Though this current study has similar findings to previous work, the study by Savoy et al. (2014) used an index of financial hardship that makes it difficult to ascertain which financial hardship indicator is most relevant for which racial group. In addition, previous research focusing on financial hardship and health often used race as a control variable. For examples, a study by Levy (2015) also found a significant association between financial hardship and poor self-rated health when controlling for race. Although the Levy (2015) analysis

acknowledged the significant role race plays in the study, it also assumed there are similarities in the magnitude of the association between financial hardship and health across groups. As hypothesized, this current study results show differences in the coefficients between older African Americans and Whites.

While this study's findings are consistent with other previous studies, the magnitude of the association between financial hardship and self-rated health was slightly greater for African Americans, in that the largest and most impactful difference is in difficulty paying bills; when comparing groups this is an important difference and a unique contribution this study makes to the literature.

The second aim was to explore whether existing indices of social support available in the HRS captured the social support construct. Current studies, including those using the HRS, have used a number of different measures of social support in their work (Ha, Kang, & Choi, 2017; Taylor, Chae, Lincoln, & Chatters, 2015; Teo, Choi, Andrea, Valenstein, Newsom, et al., 2015; Wang & Bishop, 2019). Since there is not a single universal social support variable used across studies, the same ones are also often used across racial groups. In addition, there is a dearth of studies in the literature using social support as a mediator while examining the importance of individual indicators of financial hardship on health by race (Taylor, Chatters, Lincoln, & Woodward, 2017; Assari, Moghani, & Lankarani, 2018). In this study, an exploratory factor analysis (EFA) was conducted to establish if the existing HRS indices captured the social support construct, and the findings did support this hypothesis. In fact, of all the social support indices available in the HRS, the positive social support measure was the best construct for this analysis.

The third aim was to examine whether social support mediated the association between individual indicators of financial hardship and self-rated health by race. As hypothesized, results

indicated that as a mediator, positive social support significantly mediates the relationships between all financial hardships and self-rated health for older adults: that is, positive support can offset the harmful effects of financial hardship on self-rated health. This was especially true for older African Americans and food insecurity. Previous research has generally assumed that an index of financial hardship and social support functions similarly across racial groups. This study's results add to findings from previous work in this area suggesting that social support plays a greater role in mediating the relationship between stressors (i.e., financial hardship) and health among older African Americans. This may be due in part to the protective nature of informal social support networks such as the Black church among older African Americans (Chatters, Taylor, Woodward, & Nicklett, 2015; Assari, Moghani, & Lankarani, 2018). While a between-group statistical comparison cannot be made, as hypothesized, the differences in the magnitude of financial hardship and self-reported health coefficients between the groups can be highlighted.

Strengths

This study contributes to the literature in a number of ways. As stated previously, examining the association between stress and health is not new. However, examining specific financial hardship indicators by race (rather than controlling for race) uncovers racially specific patterns in the association between variables that are frequently concealed by using composite financial hardship measures. The results of this study also contribute to the literature by highlighting the measurement differences in indicators of financial hardship and social support by race. More specifically, this study's results suggest that the magnitude of items measuring financial hardship function differently between older African Americans and Whites when mediated by social support. This is helpful in moving the research in this area forward by

incorporating more precise measures of SES and mediators that may potentially buffer this relationship.

Limitations

While this study provides additional insight into the association between financial hardship, social support, and self-rated health, there are naturally some limitations worth mentioning. First, since this study used data from one HRS wave (collected at one point in time), it was difficult to determine temporal ordering or make causal inferences of associations. Future research should include several waves of the HRS for a longitudinal study to examine if changes in financial hardship over time influence physical health as people age. Second, although we used some of the most common measures of financial hardship available in the HRS, there are many others measuring different domains of financial hardship, and to date there is no consensus on the best way to operationalize financial hardship. Without a standard measure used across all studies, it is difficult to compare results and arrive at generalizable conclusions. A third limitation is the challenge that comes with data reduction, which led to the misspecification of the latent structure with this type of model. However, there was enough covariance coverage in the data to make general inferences. And the fourth limitation is that these findings are limited to these two racial groups (African American and White Americans).

Although there were some limitations, the current study adds to this line of inquiry by providing further insights into the way in which we conceptualize and measure financial hardships and social support as an intervening variable among racial groups. Previous research has primarily used financial hardship as an index variable often obscuring the magnitude of each indicator of financial hardship. Parsing out financial hardship into individual indicators allows for a better understanding of which specific indicator is most relevant for which racial group.

Additionally, it also provides researchers, policy makers, and practitioners with more precise information about where to focus their efforts when creating interventions.

Conclusions and Implications for Future Research

This research highlights the important role expanded socioeconomic measures, such as financial hardship, plays in the lives of older adult populations. It also highlights the differences in financial hardship and health and the impact of social support by racial group: older African Americans and White Americans. Previous research has shown that the experience of financial hardship is not a linear one but rather ebbs and flows (Marshall, Bayaz-Ozturk, Kanaha, Gallo, & Seghal, 2021). These findings underscore that, in spite of safety nets such as Medicare that were set up to support older adults as they move through the aging process, they still experience financial hardships impacting their health and well-being. However, with the introduction of the Inflation Reduction Act of 2022 and the prescription drug provisions, there may be some financial hardship relief with regards to medication out of pocket costs. Future research should examine financial hardships before and after the passing of this act and include longitudinal studies by race to better comprehend the changes in financial hardship and social support that occur over time and their impacts on health.

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