Title: Race/Ethnic Disparities in Exposure to Chronic Stressors Varies by Age among Older Adults

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Abstract

Chronic stress exposure may vary across the older adult life course. Prior research has suggested stress exposure declines with age yet racial/ethnic minorities tend to report more stress exposure than whites. Stress exposure is linked to physical and mental health disparities making it important to investigate age differences in the race/ethnic disparity in chronic stress exposure among older adults. We examine age variation in race/ethnic differences in the number of reported chronic stressors in six key domains: health, financial, residential, employment, relationship, and caregiving. Data come from 6,593 white, black, US and foreign born Hispanic adults age 54+ from the psychosocial subsample of the 2006 Health and Retirement Study. Multivariate results show fewer chronic stressors are reported by adults 70+ compared to adults 54-69 years (β=-0.18, $p<0.001$). Blacks (β=0.23, $p<0.001$) and foreign born Hispanics (β=0.13, $p<0.01$) report higher chronic stress burdens than whites. Age and race interactions show that total stress burden is lower among older whites age 70+ compared to younger white adults. Domain specific results show older whites report less exposure to every domain of stress exposure except for health problems after age 70. Blacks report the similar amounts of stress after age 70 with the exception that they report less employment strain (8.3% CI: 5.5, 11.2) than younger blacks. Results were similar after adjustment for sociodemographic characteristics. Hispanic groups report similar stress burdens as whites after adjusting for SES, despite reporting double the exposure to financial strain after age 70 compared to their same aged white peers. Thus, race/ethnic disparities in stress may reflect differential experiences of age-related declines in chronic stress exposure.

Introduction

Prior research and theory have suggested that older adults are exposed to fewer stressors than younger adults (Turner, Wheaton, & Lloyd, 1995). Most of this research is based on older adults reporting a decrease in stressful life events—for example, the risk of job loss or divorce (Vasunilashorn, Lynch, Glei, Weinstein, & Goldman, 2014). Older adults may no longer experience stress related to the loss or transition out of roles related to work, retirement, and adult children's departure from the home of in later life (Rauschenbach, Krumm, Thielgen, & Hertel, 2013). However, stress in these studies is often measured using a count of acute or event based stress exposures. This approach to conceptualizing stress exposure as event based or episodic in older adulthood ignores a more pervasive form of stress that is likely more consequential for the health of elderly populations. Chronic stressors are ongoing and last for an unforeseen amount of time, posing severe threats for the health and wellbeing of older adults since they may have access to fewer coping resources and may not biologically or psychologically adapt to chronic stress (Herbert & Cohen, 1993; Thoits, 2010). Prior studies of event based stress exposure among older adults are particularly problematic since they primarily evaluate the stress experience of older whites. However, older blacks and Hispanics report higher levels of stress, including exposure to chronic stressors, relative to whites(L. Brown L., Mitchell, & Ailshire, 2018), one major pathway contributing to race/ethnic mental and physical health disparities. Thus, research showing declines in event based stress among older whites may not capture the stress experience for older racial/ethnic minority populations. Chronic stress exposure may vary across the older adult life course for different race/ethnic

subgroups making it important to investigate age differences in the race/ethnic disparity of chronic stress exposure among older adults.

Background

Due to transitions and role changes like retirement and access to old age safety nets like Social Security and Medicare, older adults are thought to be less inclined to experience stressors than young adult, especially those that characterize the work environment (Turner et al., 1995). In parallel, older adults may no longer have parental responsibilities once adult children become independent. Yet, older adults are not just passively exposed to fewer stressors as the result of age related transitions. According to socioemotional selectivity theory, they are thought to strategize to decrease stress burden and to avoid or limit stress exposure due to age-related advantages in emotional intelligence and emotional regulation strategies(Charles & Carstensen, 2010; E. Chen & Matthews, 2001; Y. Chen, Peng, Xu, & Oâ€™Brien, 2018a; Y. Chen, Peng, Xu, & Oâ€™Brien, 2018b; Löckenhoff & Carstensen, 2004; Sliter, Chen, Withrow, & Sliter, 2013). Based on their accumulated life experience, or wisdom, older adults may be able to actively avoid exposure to situations that elicit a stress response (Blanchard-Fields, Chen, & Norris, 1997; Blanchard-Fields, 2007). The life span literature theorizes that as people grow older, they have fewer problems in their close relationships, purposefully reducing contact with acquaintances as a means of decreasing the likelihood of negative encounters. As a result of role transitions and actively avoiding stress exposure, it is commonly held that older adults are exposed to less stress than younger adults.

"Stress" in this context refers to any threat or challenge to homeostasis (Mcewen, 2013), yet these studies examining age differences in stress mostly rely on life events or

checklists when stress really includes a broad range and type of exposures. This conceptualization of stress as acute or event based, while easy to measure, functions as incomplete measures of the spectrum of stress exposures. Chronic and ongoing stressors are critical in conceptualizing the 'stress universe' among older adults. When older adults cannot avoid or circumvent stressful situations (e.g., chronic health problems), they are often shown to suffer from worse physical and mental health consequences than younger adults due to increased physiological vulnerabilities and few resources to buffer the effects of these exposures (Charles & Carstensen, 2010). Investigating chronic stress may offer important insights into the lived experiences of older adult populations since chronic stress can act as background or ambient strain that characterizes or is embedded in living, economic, and family environments (Baum, Garofalo, & Yali, 1999).

Evidence and theory showing that fewer stressors are experienced at older ages is also limited in that it has mostly been shown among white populations. However, this experience of a decline in stress exposure with age may be unique to white populations and may not apply universally to racial/ethnic subgroups. Critiques of the stress literature have also emphasized that the current approaches to the assessment of stress are not comprehensive and do not capture some of the stressful life experiences of poor populations in general and racial minority populations in particular (Aneshensel, 1992). Older minorities are more likely to still be working and have less access to pensions, savings or to resources that might protect from chronic stress exposure in older adulthood. The differential exposure hypothesis posits that racial/ethnic minorities, and blacks in particular, look worse on major health outcomes since they are exposed to greater levels of stress (G. W. Brown & Harris, 1978; Kessler, 1979). Similarly, the stress

process model suggests social and economic stratification, including race/ethnicity and socioeconomic status, result in varying exposure to stressors which explain population differences in health (Pearlin, 1989). Empirical research has demonstrated that the degree to which individuals are exposed to a set of objective life stressors, including chronic strains, is patterned by their race/ethnicity (Sternthal, Slopen, & Williams, 2011; Thoits, 2010; Turner & Avison, 2003). In addition, race/ethnic disparities in social, material and personal resources that may help buffer or avert stress exposure in old age for whites, may contribute to higher stress burdens for minorities in old age.

Folkman and Lazarus (1980) hold a contextual theory of aging and propose that it is not that stress exposure declines in older adulthood, but that different types of stressors are encountered as individuals age which may be more relevant for older minority groups. Some studies have found that, at least for certain types of stressors, older adults generally experience an increase in exposure. In particular, events involving death and illness of spouses, children, and peers occur with increasing frequency, as one might expect because of loss-related events associated with aging (George & Lynch, 2003). Older adults may have lower levels of exposure to work-related stress yet report more health-related stressors. An individual's position and social stratification in the adult life course is an additional intersection that must be considered in examining changes in stress exposure with age. Cumulative disadvantage theory posits that a lifetime of education, income, and wealth differences between blacks and whites produce larger differences in socioeconomic status (SES) at the end of life. Racial residential segregation is a prime example of a societal structure that importantly restricts socioeconomic opportunity and mobility (Massey, 1993) that likely follow racial/ethnic

minorities into older adult, differentially patterning their stress exposure in old age. Thus, while older minorities may report less work-related stress exposure, it does not protect them from the cumulative effects of disadvantage that would expose them to a disproportionate stress burden, especially financial and housing strain, that likely do not disappear at end of life.

Chronic stressors, especially for older minority communities, tend to surface within major social domains such as financial stability, employment and family, all of which are of vital importance to both the larger society and individuals (Pearlin, Schieman, Fazio, & Meersman, 2005). Chronic financial strain may be a particularly pertinent domain of stress for racial/ethnically diverse older adults because most live on fixed incomes that they often find to be insufficient, with less access to personal wealth, pensions or savings (Keister, 2000). Critical and chronically stressful life domains, like financial and housing instability, that cannot be easily remedied, particularly in old age, denote opportunities for intervention, outreach, and social supports. Understanding the race/ethnic patterning of chronic stress across major life domains in older adulthood may be central to prevention and mediation efforts since chronic stress burdens are likely charting how life course trajectories and health of minority groups come to differ in old age (Pearlin, 2010) . Thus, we aim to examine the age patterning of race/ethnic differences in stress exposure and aim to identify the stress domains most salient to minority populations who stress experiences may be unique in older adulthood.

This paper will examine the varying experience of chronic stress with age for white, black, US and foreign born Hispanic older adults. Specifically, we examine age differences in total chronic stress burden among race/ethnic subgroups for older adults

less than 70 years old and those 70+. Importantly, we also investigate race/ethnic and age variation across six different domains of chronic stress: health, financial, residential, employment, relationship, and caregiving. Based on socioemotional selectivity theories of aging, we expect reports of chronic stress exposure to decline with age. However, based on the differential stress exposure hypothesis, we expect racial/ethnic minorities, specifically black and both Hispanic subgroups, will report experiencing more ongoing chronic stressors across all domains in older adulthood relative to their white peers and will also report less decline in chronic stress exposure with age.

Methods

Data come from the nationally representative Health and Retirement Study (HRS), an ongoing biennial study of U.S. adults age 51 and older that began in 1992 with the aim of improving our understanding of the social, economic, environmental, and behavioral factors associated with aging and the health of older adults. In 2006, the HRS began collecting data on chronic stress using a self-administered questionnaire (SAQ) given to a random half-sample of non-institutionalized respondents who were selected for a face-to-face interview. The SAQ had a 90% completion rate, leaving 6,865 cohort eligible SAQ respondents (Smith et al., 2013). We excluded 122 respondents who did not identify as white, black or Hispanic. Finally, 150 respondents were excluded who were missing on all chronic stress questions resulting in a final analytic sample of 6,593 adults with complete data on all measures assessed.

Ongoing Chronic Stress

We measure total chronic stress exposure (Troxel, Matthews, Bromberger, & Sutton-Tyrrell, 2003) using a count of the number of chronic stressors respondents

reported experiencing (range: 0-8) during the last twelve months or longer. We include the following stressors based on respondents self reports (yes/no): ongoing health problems (in yourself), physical or emotional problems (in spouse or child), problems with alcohol or drug use in family member, problems in the workplace, financial strain, housing problems, problems in a close relationship, and helping at least on sick/limited/frail family member or friend on a regular basis.

Sociodemographic variables

Race/ethnicity was self reported and respondents were classified as non-Hispanic white, non-Hispanic black, and Hispanic. We further differentiate between US born and foreign born Hispanics as we expect stress experience may differ among Hispanics according to foreign born status. We include sociodemographic and socioeconomic factors that might be related to race/ethnic differences in stress exposure and appraisal. Age is measured in years and categorized into two groups: 54-69 and 70+. Gender was dichotomized as male or female. Respondents were categorized as either foreign born or US born. Educational attainment was measured using number of years of completed schooling and dichotomized as high school degree or less (less than 12 years) and some college or higher (13 or more years). Employment status was categorized as currently employed either full or part time, unemployed/not in the labor force, and retired. Total household income and wealth (assets minus debts) is categorized into quartiles because these variables were highly skewed. Marital status was categorized as married/partnered, divorced/separated, widowed, and never married.

Analytic Strategy

We first determined the average total chronic stress burden and prevalence of stress exposure within each of the five domains by race/ethnicity and age. Next, we used Poisson regression models to examine age and race/ethnic differences in total chronic stress burden. To examine if age differences in chronic stress burden varied by race/ethnicity we added race/ethnicity and age interactions. We then include, in a subsequent model, social and economic characteristics to determine whether race/ethnic and age differences are attributed to other factors related to chronic stress exposure. Using estimates from fully adjusted model, we graph mean chronic stress burden for each race/ethnic group before and after age 70. We also examined race/ethnic and age differences in stress exposure across chronic stress domains using logistic models. All analyses are weighted using the self-administered questionnaire sample weights, which adjust for differential probability of selection and response rates and produce estimates representative of the older U.S population. We account for the complex sample design using the SVY suite of commands in Stata 13.1.

Results

Table 1 presents weighted demographic and socioeconomic characteristics for the full sample and by race/ethnicity. Around 65% of the sample was 54-69 years of age while 35% were 70+ (range: 54-104). Women make up about 55% of the sample, 84% were white and 53% had the equivalent of a high school diploma or less education. Nearly 55% of the sample were retired and 68% were married or partnered. When looking at the sample characteristics by race/ethnicity, whites on average were older, more educated, and had higher incomes and wealth than their black, foreign born, and US Hispanic counterparts. Whites and US born Hispanics were more likely to be married

than blacks and foreign born Hispanics. Nearly half of Hispanics in the sample were foreign born and reported higher levels of unemployment than their white, black, and US born Hispanic counterparts.

Table 2 shows the average total chronic stress burden and the prevalence of domain specific stress exposure within each stress domain by race/ethnicity and age. There were significant race/ethnic and age differences in total chronic stress burden. On average, younger blacks ages 54-69 had the highest burden of ongoing chronic stress exposure (2.9) and older whites and US born Hispanics ages 70+ had the lowest burden (1.9). Older blacks ages 70+ had a comparatively high stress burden (2.7) relative to their 70+ aged peers and had higher stress burdens than younger whites and US born Hispanics (ages 54-69). When examining the prevalence of domain specific chronic stress exposure by race/ethnicity and age, older blacks ages 70+ report around double the exposure to financial (53.5%), residential (24.7%), and employment strain (8.0%) relative to their older 70+ white peers. Older US and Foreign born Hispanics ages 70+ report less relationship strain relative to both their white and black counterparts. And older US born Hispanics (70+) report less exposure to ongoing health problems than their same aged white, black, and foreign born Hispanic peers.

We next assessed age differences in total chronic stress burden by race/ethnicity. Table 3 shows results from Poisson regression models. Model 1 includes age, race/ethnicity, and model 2 adds interactions between race/ethnicity and age adjusting for gender. To determine if SES or demographic measures account for race/ethnic and age differences in total stress burden, Model 3 adds education, income, wealth, employment and marital status. Results from Model 1 show that fewer stressors are reported by adults

70+ compared to the young-old (β=-0.23, SE=0.02; p<0.001). Blacks (Model 1: β=0.22, SE=0.03; p<0.001) and foreign born Hispanics (Model 1: β=0.12, SE=0.06; p<0.05) are more likely to report higher chronic stress burdens compared to whites. Interactions between race/ethnicity and age suggest there is a black-white disparity in chronic stress burden with age, noting significantly higher burdens for blacks ages 70+ (Model 2: β=0.18, SE=0.06; p<0.01). Race/ethnic and age patterns in total chronic stress burden did not differ between whites and US born Hispanics; the interaction between age and both foreign born and US born Hispanic ethnicity was small and not statistically significant. After adjusting for SES and demographic measures the black-white disparity remained stable and significant (β= 0.17; SE=0.06; p<0.01). The difference between whites and foreign born Hispanics found in Model 1 diminished (Model 2: β= -0.02, SE= 0.07, p>0.05) after adjusting for income and wealth.

To visualize the age patterning in total chronic stress burden by race/ethnicity, we plot the predicted means from Model 3. Figure 1 demonstrates that among whites, there is a significant decline in total chronic stress burden after age 70. This figure clearly shows that this decline in total stress burden after age 70 only applies to whites. Blacks, both younger and older than 70, report a similar chronic stress burden. There is a decline in stress after 70 for both Hispanic subgroups but these differences are not significant. The relationship between race/ethnicity and stress exposure may change with age, thus we did investigate four year change in chronic stress exposure since one more wave of data were available, however, there was not a significant amount of change in chronic stress burden in a four year window.

While we find that, overall, the decline in total chronic stress burdens after age 70 only applies to older whites, we are interested in whether this lower burden after age 70 is due to less likelihood of exposure across every domain or if specific domains are driving these age differences. It is also equally important to examine the domains of stress that are persistent for older minorities after age 70 where older whites are reporting declines in the same domains. Thus, in Table 4, we examined separate models for each stress domain using logistic regression that predicted the probability of reporting any ongoing chronic stress exposure by race/ethnicity and age in health, financial, residential, employment, relationship and caregiving domains adjusting for gender. White older adults report significantly less exposure across every domain of chronic stress (financial, residential, employment, relationship and caregiving) except for ongoing health problems. Conversely, older blacks report similar stress burdens after age 70 as they do before age 70, with the exception that they report less exposure to employment strain (8.3% CI: 5.5, 11.2) than their younger black counterparts (18%, CI: 13.7, 22.3). Older blacks ages 70+ have a higher probability of reporting ongoing financial (53%, CI:45.6, 59.9), residential (25%, CI:18.7, 30.3), employment (8.3%, CI: 5.5, 11.2) and relationship strain (51%, CI: 43.6, 57.4) relative to their same aged 70+ white peers, all of which are likely driving the overall black-white differences in total stress burden found in Table 3 (model 1). Younger blacks ages 54-69 only reported more exposure relative to their aged matched white peers to ongoing health problems.

When considering our Hispanic subgroups, US born Hispanics reported similar total chronic stress burdens relative to whites regardless of age. Yet when broken down by stress domain, US born Hispanics did report significantly higher exposure to financial

strain (41%, CI: 27.6, 53.3) after age 70 relative to their aged matched white peers. US born Hispanics also reported some decline in stress at older ages among two domains including less exposure to residential and employment strain after aged 70 relative to their younger US born Hispanic counterparts. Foreign born Hispanics, however, report an overall higher stress burden relative to whites before controlling for SES measures, primarily driven by more exposure to health problems at ages 54-69 (69%, CI: 60.5, 76.8) and financial strain both before (55%, CI: 43.5, 67.3) and after age 70 (44%, CI: 34.9, 53.9). Similar to blacks, foreign born Hispanics only report less exposure to employment strain after age 70 (4%, CI: 0.3, 6.8) relative to their younger foreign born Hispanic counterparts <70 (18%, CI: 8.4, 27.8).

Discussion

According to prior theory and evidence, older adults are generally thought to be exposed to fewer stressors as they age. This paper investigating the race/ethnic variation in chronic stress with age among older adults finds that lower stress burdens are reported by adults ages 70+ compared to the younger adults ages 54-69. We also find that both blacks and foreign born Hispanics report higher chronic stress burdens than whites. However, age interactions show that age related declines in total chronic stress burden after age 70 are only reported among whites. Older blacks ages 70+ report similar chronic stress burdens as blacks 54-69 years old, while older whites ages 70+ are reporting less chronic stress exposure. Importantly, total stress burden is similar among blacks and whites ages 54-69, suggesting that race/ethnic differences in chronic stress exposure are actually driven by black-white differences at older ages. Consistent with cumulative disadvantage theory, older blacks 70+ are subject to aggregate effects of structural and

societal inequities including segregation, unequal educational attainment, longer periods of unemployment and underemployment, lower wages, pensions, and accumulation of wealth over the life course (Landrine & Corral, 2009; Williams, Mohammed, Leavell, & Collins, 2010). Older blacks are not beneficiaries of the age related declines in chronic stress exposure originally postulated by stress research and shown here among whites. These findings add to our understanding of the importance of persistent stress, especially among older blacks, and their contribution to race/ethnic differences in stress exposure.

Prior stress theory put forward by Folkman and Lazarus (Folkman & Lazarus, 1980) has suggested that older adults might not experience an overall decline in stress exposure but that different types of stressors are encountered with age. In probing the black-white disparities in chronic stress at older ages, we found that investigating domain specific changes in chronic stress paint a more complex story of changes in stress exposure with age. White older adults report significantly less exposure across every domain of chronic stress including financial, residential, employment, relationship and caregiving strain; except they report stable exposure to ongoing health problems. Older blacks, however, report similar stress burdens after age 70 as they do before age 70, with the exception that they report less exposure to employment strain than their younger black counterparts. Compared to their same aged white peers, older blacks ages 70+ have a higher probability of reporting ongoing financial, residential, employment and relationship strain, all of which are driving the overall black-white differences in total stress burden. At a time when social roles are shifting and economic opportunity dwindles, black elders over 70 are still faced with financial and housing instability at similar rates as younger blacks who may be better positioned to work and alleviate these

types of strains. Some researchers have argued that physiological changes in health combined with cultural and social changes in older adulthood (e.g., retirement) may erode existing psychological coping resources (e.g., feelings of self-mastery) as well as financial resources to deal with chronic strains like housing insecurity. As their physical and psychological resources decline, older blacks may become more vulnerable to the effects of chronic life strains that persist well into older adulthood (Geronimus, Hicken, Keene, & Bound, 2006; Turner & Avison, 2003). Race/ethnic differences in chronic stress exposure across different domains in old age may shed light on critical pathways that differentially contribute to race/ethnic physical and mental health disparities, inform intervention efforts aimed at alleviating race/ethnic differences in stress exposure at the end of life, and help inform our theoretical models that link race/ethnicity and age to stress exposure.

In examining Hispanic subgroups, total chronic stress burden appears very similar between foreign born and US born Hispanics. Yet, disaggregating these two groups by age and chronic stress domain reveal intergroup variability that demonstrate these groups have considerably different chronic stress experiences. US born Hispanics, overall, had similar chronic stress burdens relative to whites after adjusting for SES characteristics despite reporting double the exposure to financial strain after age 70 compared to their same aged white peers. US born Hispanics reported some decline in stress at older ages among two domains including less exposure to residential and employment strain after aged 70 relative to their younger US born Hispanic counterparts. Financial hardship among US born Hispanics after age 70 reflect cumulative disadvantage at older ages and

the varying hardships unique to aging minority communities that are often not characteristic of the aging experiences of older whites.

Foreign born Hispanics, however, report an overall higher stress burden relative to whites before controlling for SES measures. Foreign born Hispanics report more exposure to health problems at ages 54-69 and financial strain both before and after age 70, driving overall foreign born Hispanic-white differences. While US born Hispanics report some decline in chronic stress exposure with age, Foreign born Hispanics look more similar to blacks in examining age related declines. They only report less exposure to employment strain after age 70 relative to their 54-69 foreign born Hispanic counterparts. Socioeconomic disadvantage, ethnicity, immigrant status, and English language proficiency may represent compounded disadvantages that, when coexisting, put foreign born Hispanics at greater risk of chronic stress exposure (Myers, 2009) than their US born counterparts. Foreign born and US born Hispanics show some overlap in their experience of chronic stress, reflecting overlap in some social positions, but there are unique differences among foreign born Hispanics that suggest this groups has a distinct stress experiences that would be missed if Hispanics were considered as one race/ethnic group.

Despite having access to social security, a shared stressor among older minority adults ages 70+ uniting the experience of chronic stress across race/ethnic subgroups is financial strain. Grappling with difficult and ongoing circumstances stemming from their locations in the social and economic structures of society, minority older adults are often denied (at double the rates of whites) the financial security we believe to be ubiquitous and necessary in older adulthood. Minority groups, on average, have lower incomes

across the life course, ultimately resulting in lower amounts of social security, savings, pensions, and wealth across in old age (Williams & Sternthal, 2010). Both foreign and US born Hispanic-white differences in financial strain were attenuated after adjusting for SES. However, black-white differences in financial and housing persisted after adjusting for SES. This emphasizes the importance of measuring financial and housing strain as separate indicators, differentiating these experiences from simply reporting low levels of education, income and wealth. Although low income or wealth often generates financial and housing strain, this is not always the case. Financial and housing strain can emerge among those with more considerable assets when financial demands exceed the resources available to meet those demands. This is particularly relevant in capturing financial wellbeing among older adults who may have fixed incomes and assets that do not adequately meet their needs. Additionally, many immigrant groups and blacks live in segregated neighborhoods as a result of historical racism in the housing and financial sectors. Segregation is considered a fundamental cause of differences in health status and likely shapes the environment for chronic stressors related to finical and housing strain to thrive in, giving its residents few resources to buffer or counteract the experience of economic hardship.

This study is the first to examine age differences in chronic stress exposure by race/ethnicity and stress domain, yet this study has some limitations. First, we used cross-sectional data and thus did not study changes in chronic stress with age. Although our findings suggest race/ethnic differences vary across age, we do not know whether there is intra-individual declines in chronic stress exposure with age. Longitudinal data should investigate change in chronic stress exposure over the adult life course in order to

evaluate intra-individual change in chronic stress burden with age. Second, when looking at stress among our subgroups we have smaller sample sizes among racial/ethnic minorities groups and these groups report greater variability in chronic stress exposure than our white subgroup, especially for the Hispanic subgroups. Thus, with larger samples of racial and ethnic minorities we might detect significant stress differences with age among these groups.

Conclusion

Stress theory, predominantly based on white populations, suggests that acute or event based stressors decrease with age. Our findings show age related declines in chronic stress and higher stress burdens for blacks and foreign born Hispanics relative to whites. Yet, upon further probing, we found chronic stress exposure only declined with age for whites. Race/ethnic disparities in stress reflect differential experiences of age-related declines in chronic stress exposure. Black-white differences in chronic stress may be due to high stress burdens among blacks 70+. Future research should investigate older adults capacity to cope with chronic strain. If it is true that physical, material and psychological resources dissipate with age, then social resources such as social support may take on added importance in later life. Structural sources of chronic stress for older minorities (i.e., financial and housing strain) have the potential to influence health disparities by both acting as a source of stress and by truncating the opportunities older adults have to cope with these ongoing strains (Bird, Rieker, & Moyer, 2008; Phelan & Link, 2015).

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Table 1. Weighted descriptive statistics for the full sample and by race/ethnicity, Health and Retirement Study, 2006

	Full Sample (n=6,593)	Whites (n=5,264)	Blacks (n=846)	US born Hispanics (n=228)	Foreign born Hispanics (n=255)	Chi^2	
	%	%	%	%	%		
Age						9.3	***
54-69	65.5	63.7	72.3	82.8	73.1		
70+	34.5	36.3	27.7	17.2	27.0		
Female	54.5	53.9	66.5	50.6	57.1	3.7	*
Education							
High school or less	52.6	49.2	66.5	70.9	79.9	32.4	***
HH Income						24.3	***
1st quartile	23.1	19.1	45.2	34.4	51.3		
2nd quartile	22.3	21.9	23.9	22.7	27.5		
3rd quartile	25.4	26.6	18.2	27.5	13.6		
4th quartile	29.1	32.4	12.7	15.4	7.6		
HH Wealth						39.8	***
1st quartile	24.5	18.9	56.0	45.2	55.9		
2nd quartile	24.9	25.0	26.1	28.0	15.1		
3rd quartile	25.1	27.1	12.0	14.9	21.1		
4th quartile	25.5	28.9	6.0	11.9	7.9		
Employment Status						23.0	***
Currently Employed	34.4	34.4	30.9	40.1	35.9		
Retired	54.6	56.4	54.5	39.9	24.3		
Not in the Labor Force	11.1	9.2	14.6	20.0	39.8		
Marital Status						13.3	***
Married	68.0	70.1	49.2	71.3	62.6		
Divorced/Separated	12.0	10.7	21.7	14.8	14.3		
Widowed	16.6	16.4	22.9	9.5	13.9		
Never Married	3.4	2.8	6.2	4.4	9.1		
Total Chronic Stress Burden	2.3(0.0)	2.2(0.0)	2.8(0.1)	2.5(0.1)	2.6(0.1)	25.3	***

+p<0.10 *p<0.05 **p<0.01 ***p<0.001

Table 2. Descriptive statistics showing the prevalence of stress exposure by race/ethnicity and age, Health and Retirement Study, 2006 (n=6,593)

	Whites	Blacks	US born Hispanics	FB Hispanics	Chi 2 ?
	%	%	%	%	
Total Chronic Stress Burden [mean(SE)]					
54-69	2.4(0.0)	2.9(0.1)	2.6(0.1)	2.8(0.2)	16.2**
70+	1.9(0.0)	2.7(0.1)	1.9(0.2)	2.0(0.1)	5.1
Health					
54-69	57.4	66.9	63.6	68.7	4.2**
70+	69.8	73.9	60.8	70.2	1.2
Financial					
54-69	40.9	62.6	47.9	55.4	18.0***
70+	26.8	53.3	40.7	44.7	27.6***
Residential					
54-69	8.8	22.8	20.5	17.3	27.3***
70+	7.0	24.7	8.5	8.6	24.8***
Employment					
54-69	21.2	17.7	19.8	18.1	0.7
70+	3.6	8.0	6.2	3.6	4.7**
Relationship					
54-69	51.3	54.3	44.2	54.5	1.5
70+	41.4	50.7	33.9	34.6	3.3*
Caregiving					
54-69	37.1	40.8	36.9	41.3	0.8
70+	30.3	38.9	27.4	33.3	2.0

+p<0.10 *p<0.05 **p<0.01 ***p<0.001

Table 3. Poisson regression models of total chronic stress burden, Health and Retirement Study, 2006 (n=6,593)

Independent Variables	Model 1			Model 2 (+raceXage)			Model 3 (+demographics)		
	β	SE		β	SE		β	SE	
Age (ref=54-69)									
70+	-0.23	0.02	***	-0.25	0.02	***	-0.21	0.03	***
Race/Ethnicity (ref=white)									
Black	0.22	0.03	***	0.17	0.04	***	0.04	0.04	
US Born Hispanic	0.08	0.05		0.09	0.05	+	-0.03	0.06	
Foreign Born Hispanic	0.12	0.06	*	0.14	0.07	+	-0.02	0.07	
Female	0.07	0.03	*	0.07	0.02	*	0.06	0.03	*
Race/Ethnicity X age									
Black X 70+				0.18	0.06	**	0.17	0.06	**
US Born Hispanic X 70+				-0.09	0.12		-0.07	0.12	
Foreign Born Hispanic X 70+				-0.09	0.11		-0.09	0.11	
High school or less (ref=college+)							-0.06	0.02	**
Income (ref=1st quartile)									
1st quartile							-0.05	0.04	
2rd quartile							-0.12	0.04	**
4th quartile							-0.17	0.06	**
Wealth (ref=1st quartile)									
1st quartile							-0.22	0.03	***
2rd quartile							-0.31	0.03	***
4th quartile							-0.39	0.03	***
Employment Status (ref=employed)									
Retired							-0.07	0.03	*
Not in labor force							-0.02	0.05	
Marital Status (ref=married)									
Divorced/Separated							-0.07	0.04	+
Widowed							-0.13	0.03	***
Never Married							-0.26	0.05	***
Intercept	0.84	0.02	***	0.85	0.02	***	1.28	0.04	***

+p<0.10 *p<0.05 **p<0.01 ***p<0.001

Figure 1. Predicted mean chronic stress burden by race/ethnicity and age

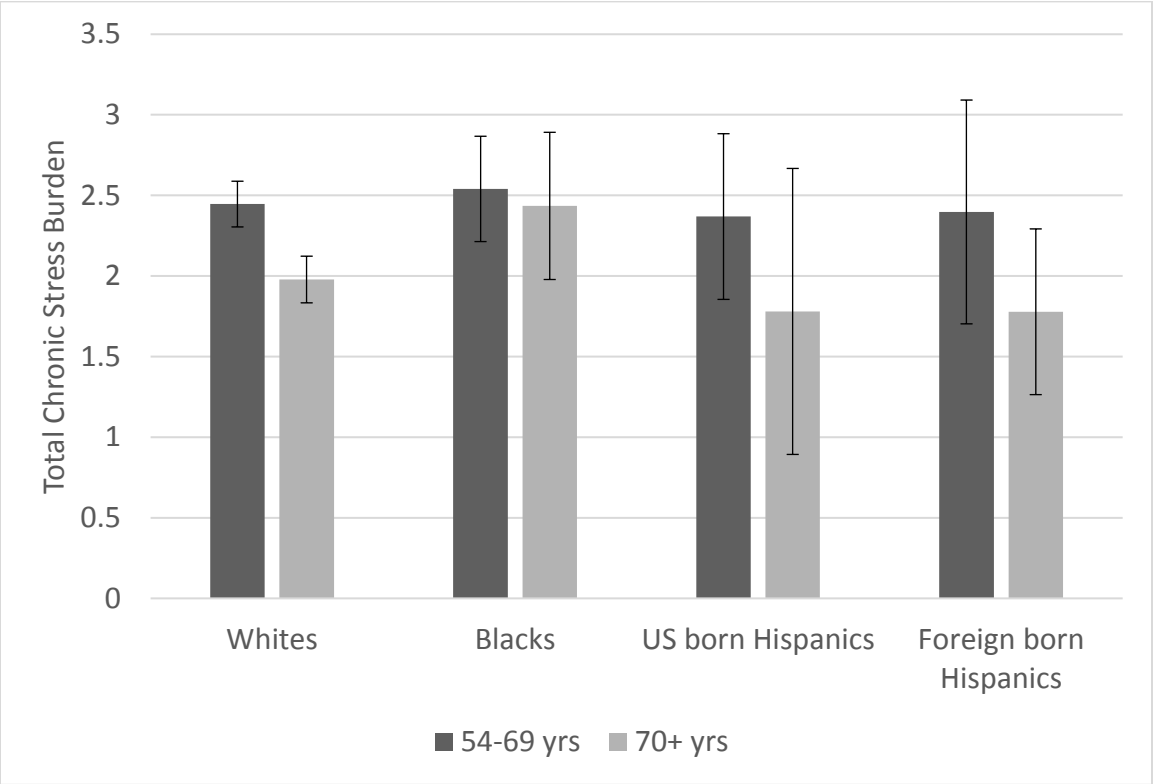

Table 4. Race/ethnic and age differences in the predicted probability of reporting domain specific chronic stress exposure, Health and Retirement Study, 2006 (n= 6,593)

	Whites			Blacks			US born Hispanics			Foreign born Hispanics		
	PP	CI		PP	CI		PP	CI		PP	CI	
Health												
54-69	57.5	(55.1,	59.8)	66.7	(60.9,	72.5)	63.8	(53.3,	74.2)	68.7	(60.5,	76.8)
70+	69.7	(67.7,	71.6)	73.7	(68.2,	79.2)	60.7	(48.9,	72.6)	70.0	(58.9,	81.2)
Financial												
54-69	41.1	(38.8,	43.4)	62.3	(58.3,	66.3)	48.1	(39.9,	56.4)	55.4	(43.5,	67.3)
70+	26.7	(24.1,	29.2)	52.8	(45.6,	59.9)	40.5	(27.6,	53.3)	44.4	(34.9,	53.9)
Residential												
54-69	8.9	(8.0,	9.8)	22.7	(19.0,	26.4)	20.6	(16.3,	24.8)	17.3	(8.2,	26.3)
70+	7.0	(6.0,	8.0)	24.5	(18.7,	30.3)	8.5	(1.1,	15.8)	8.6	(1.7,	15.5)
Employment												
54-69	21.0	(19.7,	22.3)	18.0	(13.7,	22.3)	19.5	(13.4,	25.7)	18.1	(8.4,	27.8)
70+	3.6	(2.8,	4.5)	8.3	(0.1,	11.2)	6.3	(-0.1,	12.7)	3.6	(0.3,	6.8)
Relationship												
54-69	51.4	(49.4,	53.3)	54.2	(49.5,	58.8)	44.3	(36.9,	51.7)	54.5	(43.7,	65.2)
70+	41.3	(39.7,	42.9)	50.5	(43.6,	57.4)	33.8	(21.2,	46.5)	34.5	(23.5,	45.5)
Caregiving												
54-69	37.3	(34.9,	39.6)	40.5	(35.7,	45.3)	37.2	(27.2,	47.2)	41.3	(33.9,	48.7)
70+	30.1	(28.5,	31.8)	38.4	(30.7,	46.1)	27.2	(13.0,	41.5)	33.2	(22.8,	43.6)

Predicted probabilities come from separate logistic models adjusted for gender

+p<0.10 *p<0.05 **p<0.01 ***p<0.001