

**Occupational stressors and hypertension risk during the retirement transition: exploring variation by cohort and race**

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**EXTENDED ABSTRACT**

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The retirement transition is a major life event that has social and economic implications which extend far beyond the individual. Over 56 million U.S. adults are aged 55 or older, and in 2000 the average retirement age for U.S. adults was approximately 62 years. The “baby boomer” generation (born 1946 – 1964) represents the largest cohort to make the retirement transition to date. How health impacts – and is impacted by – this transition is thus an important question for employers, policy makers, and public health officials alike.

It is increasingly common that retirement is a gradual rather than abrupt transition characterized by changes in work patterns, hours, and/or type of work. Trends in employment status, including the transitions to retirement and work-stoppage in later life, vary significantly across racial groups. Due to socio-political structures that have both limited the educational and employment opportunities of cohorts of African Americans and have substantially truncated the amount of wealth that individuals and households possess, it is likely that African Americans experience a qualitatively different form of retirement than non-Hispanic whites. For example, compared to whites, African Americans are more likely to experience involuntary job loss in the years immediately preceding (and likely eventuating in) retirement. Given the instability associated with lower-wage, lower-skill employment that many racial minorities engage in (due in part to lower educational attainment and subsequently more restricted employment opportunities), it has been argued that “retirement” as it is commonly conceived (e.g., a period of consumption and leisure after career employment) is not a salient event for these groups. The experience of retirement also differs by race. For example, racial/ethnic minorities in the U.S. tend to rely on Social Security for retirement benefits more heavily than non-Hispanic whites, with approximately 33% of African Americans using Social Security for 100% of their retirement income compared to 16% of whites.

In addition to adapting to new roles and expectations, retirement and/or work-stoppage in older age may signal a break from work-life stressors. Karasek’s (1979) work on occupational stress, has inspired a large body of literature which suggests that exposure to work-related stressors, particularly job strain characterized by high demands and low decision latitude, is associated with blood pressure and potentially increased risk of hypertension. However, the majority of these studies have been cross-sectional and the evidence from prospective reports is mixed. It has been hypothesized that one source of the inconsistency from prospective reports is the reliance on samples of relatively young adults (generally < 60 years old) which may be more resilient to the influence of job strain on blood pressure. The majority of these studies have not included substantial numbers of African Americans (although notable exceptions exist), and few studies have examined racial/ethnic differences in the relationship between work-life stressors and hypertension, although there are reasons to believe these associations may vary across these groups, as described above. There is also suggestive evidence that work-life stressors may have residual effects on health even after employment has ceased, particularly concerning stress-related conditions and behaviors (i.e., alcohol use). This transition may also reflect an alleviation of income-related stressors (e.g., the very act of retirement may signal an accumulation of wealth) or, alternatively, a period of increased financial concerns due to living on a fixed and possibly reduced income. Financial stressors, particularly the accumulation and/or persistence of such stressors, have also been linked to poor health status in older age.

This paper uses the 2004 and 2006 Health and Retirement (HRS) surveys, a nationally-representative population-based open cohort of U.S. adults aged 50 and up, to investigate the effect of stressors (financial stress, work-life stress and workplace discrimination) and employment status on high blood pressure. The HRS has a relative large sample of African Americans (approximately 15% of the total sample), and thus provides an opportunity to examine whether the association between occupational stressors and hypertension risk is similar across groups that, on average, have dissimilar employment histories. This paper examines two main hypotheses: (1) *What is the relationship between occupational stressors*

*and workplace discrimination on high blood pressure for older adults, and does this relationship vary across racial/ethnic groups and age cohorts? and (2) Do occupational stressors and workplace discrimination continue to affect hypertension risk during the retirement transition, that is, after exposure to these stressors has ceased?*

This investigation utilizes a life course framework for interpreting age-graded patterns in the relationship between occupational characteristics and hypertension risk in the context of historical time, social position, and social roles. While this framework has been utilized by researchers in the study of psychopathology for many decades, its application to the study of health disparities is relatively new. Work-life offers a unique “strategic domain” for life course psychosocial stress research because employment is intrinsically linked to other social spheres across the lifespan, including educational attainment, interactions with friends and family, and socioeconomic position. The transition out of working life (either due to retirement or unemployment eventuating in “retirement”) in older age has numerous potential meanings for both the individual and their social environment. Retirement and work-stoppage in older age may have different implications for health depending on expectedness and voluntariness of the employment status change, but the effects of this change may also vary by age, cohort, race, sex, and employment history. The life course approach specifically interrogates these factors by focusing on time (both intrapersonal and historical), context (economic, social, and personal), and process (trajectories and lagged effects).

## **Methods**

Cohort analysis was used to explore the first hypothesis regarding variation in the relationships between occupational stressors and workplace discrimination with hypertension risk by age and race. Occupational stressors were indexed by a 15-item, 4-point likert-scale derived from Karasek’s (1979) measures of decision latitude and job demands (i.e., *I receive the recognition I deserve for my work; In my work I am free from conflicting demands that others make; I have very little freedom to decide how I do my work; I receive adequate support in difficult situations*). The psychometric properties of these items indicate that they describe two factors that were used for analysis: job strain and job satisfaction, each with a range of 1 to 4, with higher scores indicating “better” outcomes (e.g., lower job strain and higher job satisfaction). Hypertension, control of blood pressure, and use of blood pressure control medication were assessed by self-report and categorized into dichotomous categories. Initial analyses assessed the relationship between prevalent hypertension and current occupational stressors, among those currently employed, by arraying relative odds of hypertension (adjusted for sex, occupation, and education) per standard deviation increase in stressors by 10-year age-cohort intervals and interview year (2004 and 2006). Analysis of variance (ANOVA) and multiple classification analysis (F-test) were used to evaluate the statistical significance of those differences. These analyses were then repeated for tables stratified by race/ethnic group (non-Hispanic White and African American).

## **Results**

In 2004, 35% (N = 6952) of the total HRS sample was currently employed. Initial ANOVA estimates showed a trend for older cohorts (aged 70+) to report lower job satisfaction than younger (50 - 54 years) ( $P < 0.01$ ). Older cohorts also reported higher job stress than younger (3.04 versus 2.68,  $p < 0.001$ ). Bivariate logistic regression analyses indicate that job strain, but not job satisfaction, was associated with prevalent hypertension. A one-point increase in job strain was associated with 34% higher odds of prevalent hypertension ( $P < 0.004$ ). Preliminary results show that the association between job strain and hypertension prevalence varied across the cohorts and was strongest among the 60-65 aged cohort relative to the other age groups. The association between job strain and hypertension also varied

across racial groups, such that the relationship was only significant among non-Hispanic whites ( $p < 0.05$ ).

This analytic strategy was then used to assess the relationship between workplace discrimination and prevalent hypertension. Workplace discrimination was measured using a 6-item 6-point likert scale derived from items from Williams et al.'s (1997) assessment of discrimination (i.e., *How often are you use unfairly given the tasks at work that no one else wants to do? How often do you feel that you have to work twice as hard as others at work?*). Younger cohorts reported more exposure to workplace discrimination than older cohorts, but ANOVA indicated that mean reported workplace discrimination did not vary by race. In contrast to the analyses looking at the relationship with occupational stressors, workplace discrimination was associated with higher relative odds of hypertension among both Whites and African Americans (OR: 1.05,  $p < 0.05$ ).

In order to examine the relationship between occupational stressors in 2004 and risk of hypertension in 2006 among those who had stopped working (including both retirement or job loss), we used time-lagged hierarchical linear modeling and structural equation modeling. We expect that job strain in 2004 will predict hypertension in 2006, albeit the relationship will be attenuated, even among those who have stopped working. We expect that this relationship will be moderated by expectedness and voluntariness of work-stoppage, and that financial strain – which is likely a major motivating force for older adults to remain employed in later life – will mediate this relationship between job strain and hypertension risk. As with the analyses examining prevalent hypertension, this relationship will likely vary by race/ethnic group. Our analyses will explore potential work-life sources of this variation in the context of a lifespan framework.

### **Significance**

The aging “baby boomer” generation represents the largest number of U.S. adults to begin the retirement transition to date, and retirement is more common today than it was 50 years ago. The employment experiences of racial/ethnic minorities have repercussions for the retirement/work-stoppage transition. These two sources of variation – inter-cohort changes and intra-cohort racial/ethnic differences – may have implications for the associations between work-related and financial stressors with health status, as well as service planning. Hypertension is a common – and modifiable – condition affecting approximately 67% of U.S. adults over the age of 60 and is associated with elevated risk of heart disease and premature mortality. In the U.S. hypertension is approximately twice as common among older African Americans relative to non-Hispanic whites, but the reasons for this excess are unknown. Research is needed to develop tailored strategies to prevent functional and health declines associated with aging that reflect the changing needs of the aging population and account for the variation within each cohort in terms of their work-life experiences. This paper moves beyond assessing group differences in prevalence and incidence as a means of understanding health disparities. By examining age cohort patterns of hypertension among racial groups, we simultaneously investigate heterogeneity within and across groups at a developmentally important arc of the life course. The goal of this investigation of the differential effects of stressors and employment transitions across cohort and racial groups on hypertension risk is to identify specific pathways whereby social factors and processes affect biological processes.