HHS Public Access

Author manuscript

Soc Sci Med. Author manuscript; available in PMC 2018 May 17.

Published in final edited form as:

Soc Sci Med. 2018 February ; 199: 106–114. doi:10.1016/j.socscimed.2017.05.039.

Structural Racism in the Workplace: Does Perception Matter for Health Inequalities?

Courtney L. McCluney[a,*], **Lauren L. Schmitz**[b,*], **Margaret T. Hicken**[c], and **Amanda Sonnega**[d]

[a]Darden School of Business, University of Virginia, 100 Darden Blvd Charlottesville, VA 22903

[b]Population Studies Center, Institute for Social Research, 426 Thompson Street Ann Arbor, MI 48104

[c]Survey Research Center, Institute for Social Research, 426 Thompson Street Ann Arbor, MI 48104

[d]Health and Retirement Study, Institute for Social Research, University of Michigan, 426 Thompson Street Ann Arbor, MI 48104

Abstract

Structural racism has been linked to racial health inequalities and may operate through an unequal labor market that results in inequalities in psychosocial workplace environments (PWE). Experiences of the PWE may be a critical but understudied source of racial health disparities as most adults spend a large portion of their lives in the workplace, and work-related stress affects health outcomes. Further, it is not clear if the objective characteristics of the workplace are important for health inequalities or if these inequalities are driven by the perception of the workplace. Using data from the 2008 to 2012 waves of the Health and Retirement Study (HRS), a probability-based sample of US adults 50 years of age and older and the Department of Labor's Occupational Information Network (O*NET), we examine the role of both standardized, objective (O*NET) and survey-based, subjective (as in HRS) measures of PWEs on health and Black-White health inequalities. We find that Blacks experience more stressful PWEs and have poorer health as measured by self-rated health, episodic memory function, and mean arterial pressure. Mediation analyses suggest that these objective O*NET ratings, but not the subjective perceptions, partially explain the relationship between race and health. We discuss these results within the extant literature on workplace and health and health inequalities. Furthermore, we discuss the use of standardized objective measures of the PWE to capture racial inequalities in workplace environment.

Keywords

United States; structural racism; perceptions; job stress; psychosocial work environment; Health and Retirement Study; O*NET

Corresponding author: Courtney L. McCluney, University of Virginia, Darden School of Business, 100 Darden Blvd, Charlottesville, VA 22903, mccluneyc@darden.virginia.edu.

*Drs McCluney and Schmitz contributed equally as first authors.

A growing literature points to the importance of structural racism in persistent racial health inequalities (Gee & Ford, 2015; Phelan & Link, 2015). Regarding the workplace as a setting where most American adults spend much of their day over the life course, this racism may manifest itself in racial inequalities in both the physical and psychosocial workplace environment. While the literature has focused on racial inequalities in exposures to physical hazards in the workplace, some are now clarifying the importance of the psychosocial workplace environment (PWE).

Two generally separate literatures indicate the importance of the PWE to racial health inequalities, as we will describe below—the literature which focuses on racial variation in occupational positions known for different PWEs, and then the literature demonstrating racial differences in self-reports of aspects of the PWE. As such, the PWE may be related to health inequalities through stress-related processes that stem from structural/institutional race-related factors that can be described in terms of both the objective characteristics and the subjective perceptions of the workplace. However, by examining the characteristics and perceptions separately, it is not clear whether the structural racism in the workplace operates through the characteristics or whether it is really the perceptions that are important—a distinction with important implications for workplace and population health interventions.

To address this gap in the literature, we link objective, expert ratings of six facets of the PWE from the Department of Labor's Occupational Information Network (O*NET) to the Health and Retirement Study (HRS), which contains subjective, survey-based perceptions of those same six facets of the PWE. With these innovative data, we then aim to clarify the role of work-based structural racism in Black-White health inequalities. We first document racial inequalities in three types of health outcomes and in both the objective characteristics and subjective perceptions of the PWE. Then, using mediation models, we examine whether racial inequalities in the PWE explain racial inequalities in health. In addition, we use a moderation model to assess whether there are racial differences in the association between PWE perception and health.

Structural Racism in the Workplace

Race powerfully shapes occupational opportunities through structural racism, initially through policies and then through de facto practices woven into labor market institutions. Indeed, census reports indicate that Blacks comprise 11.5% of the United States workforce (Toossi, 2009) but only 6.4% of middle and lower management positions (Bureau of Labor Statistics, 2010, Table 5). Prior to the passing of the Title VII amendment to the Civil Rights Acts of 1964 and 1991, workplaces actively discriminated against the recruitment and hiring of individuals based on race and other social identities including sex, religion, and nationality (Belton, 1978). Title VII, along with Affirmative Action policies, helps Black adults gain entry into workplaces, yet this legislation does not support their advancement or placement in high status occupations.

Although it is now illegal for firms to engage in intentional discriminatory hiring practices, several studies suggest that Blacks are disadvantaged through other pernicious forms of mistreatment (Rosette, Akinola, & Ma, 2016). Subtle indicators of one's racial identity may

lead to fewer calls for interviews and lower chances of receiving opportunities for mentorship. Identical resume studies suggests that individuals with “Black” sounding names receive fewer callbacks for interviews and are rated as less qualified than resumes with “White” sounding names (Bertrand & Mullainathan, 2004; Kang, DeCelles, Tilcsik, & Jun, 2016). Additionally, new restrictions on formerly-incarcerated persons also limit opportunities for hiring—a restriction that disproportionality impacts Blacks (Agan & Starr, 2016). Across occupations and industries, Blacks also confront racial stereotypes and biases regarding their intelligence. In corporate workplaces, stereotypes of Blacks’ lacking “professionalism” (Brown-Iannuzzi, Payne, & Trawalter, 2012) and questions regarding their competence may lead to fewer opportunities for advancement in their fields.

These structural- and institutional-derived differences in occupational sorting have implications for exposure to a range of deleterious psychosocial hazards at work (Ruiter, DeCoster, Jacobs, & Lichstein, 2011). Not only are lower employment positions linked to greater stress, but work-related stress combined with other life stressors that may disproportionately impact Blacks (e.g., neighborhood quality, family demands)(Williams & Williams-Morris, 2000; Hicken et al., 2012) may result in their poor health (Cooper & Cartwright, 1994). Given that individuals spend a majority of their day at work over the life course (Gini, 1998), chronic work stress and systematic inequality in the workplace, which may exacerbate that stress, may be important mechanisms linking racism to health inequalities.

The PWE: Objective Characteristics versus Subjective Perceptions

Stemming from the structural racism mechanisms described above, research indicates that there are stark racial inequalities in the PWE and the stress resulting from these environments. Although the decline in traditional manufacturing jobs reduced the physical demands of work in general, the switch to service jobs has increased exposure to psychosocial job stressors in generally blue-collar jobs (Johnson, Mermin, & Resseger, 2007; Robone, Jones, & Rice, 2011; Wilkinson and Pickett, 2009). Psychosocial stress may manifest due to an imbalance of facets of the PWE, such as job demands, job control, and support.

Drawing from the Job Demand-Control-Support model (Karasek & Theorell, 1990), research suggests that PWEs characterized by high workload and time pressure (demands), little decision latitude to control one’s activities and skills usage (control), and lack of social integration (support) predict high levels of job stress (Theorell, 1996: van der Doef & Mays, 1998). On the other hand, workers who perceive both job control and support at work report higher psychological health and satisfaction (Lawson, Noblet, & Rodwell 2009). Research suggests that dimensions of job control (i.e., having opportunities for advancement, recognition for one’s work, decision freedom, and autonomy) strongly predict positive perceptions of one’s work environment (van der Doef & Maes, 1999). Additionally, supportive management may ameliorate stress and stress-related role ambiguity (Danna & Griffin, 2005), and how opportunities for job training maintain worker safety (e.g., Leiter & Robichaud, 1997).

Interestingly, while the literature indicates the importance of both objective workplace characteristics and subjective perceptions of the workplace, there is little that has examined both aspects of the PWE together. Without this information, it is difficult to know whether the perceptions themselves are driving the link between PWE and psychosocial stress. Furthermore, little research examines whether there are racial inequalities in PWEs characterized by high or low demand, control, and support. Schmitz (2016) showed that positive PWEs are related to better health, but do not shape health inequalities between white collar and non-white collar (i.e., blue collar or service workers) among older men. This suggests more persistent forms of inequality across the life course are driving health inequalities between occupational classes. Applied to race specifically, structural barriers to certain occupations may have a deleterious impact on Blacks' health (Forman, 2003). For example, increases in service jobs exposed Black women and men to more interpersonal mistreatment from customers and coworkers and, subsequently, poorer mental health and negative health behaviors (Landrine & Klonoff, 1996).

Present Study

We use both objective ratings and subjective perceptions of the PWE to predict health inequality between Black and White workers. To date, most studies examining the relation between work characteristics and well-being rely on self-reported measures of working conditions. However, these measures may be confounded with other factors like mental or physical health that jointly impact perception of the PWE and selection into occupations. To address potential concerns over confounding between self-reported measures and health (Chan, 2009), researchers are increasingly linking ratings from the Occupational Information Network (O*NET) to population-based studies like the HRS (Fisher et al., 2014; Schmitz, 2016). O*NET is a comprehensive database of job characteristics produced by the U.S. Department of Labor's Employment and Training Administration and is the leading data source on job demand ratings. O*NET surveys a broad range of workers from each occupation to compile its ratings and can therefore be thought of as a population average of work demands in the U.S. labor market. Implementing measures of the PWE using objective O*NET ratings simultaneously with subjective self-reports in the HRS will enable us to capture whether the link between PWE and health inequalities operates through the objective characteristics and/or the subjective perceptions of the workplace.

Methods and Materials

Health and employment information is collected from the HRS, a nationally representative study of Americans over the age of 50 and their spouses that launched biennial data collection in 1992 (Sonnega et al., 2014). The present study utilizes data from the 2008 and 2010 waves, which asked working participants additional questions about job satisfaction and experiences of workplace discrimination.

To incorporate expert or more objective evaluations of the work environment into the analysis, data from the 2008 and 2010 O*NET were linked to HRS data using restricted three digit U.S. Census occupation codes (for detailed information on how the O*NET files were merged and incorporated into the HRS panel see Schmitz, 2016). To account for

industry effects, restricted three digit industry codes in the HRS are used to harmonize 2000 Census industry codes into eight broad categories (see Table 1).

In the HRS, there were 24,220 individuals who responded in 2008 or 2010. Of these, 7,417 were working part time or full time for pay and were between the ages of 50 and 64. Among these workers, 3,327 participated in the Lifestyle Leave-Behind Questionnaire in 2008 or 2010, 3,154 had data on SRHS in the following wave (2010 or 2012), and 3,126 had a three-digit Census occupation code that could be merged with information from the O*NET. Because of low analytic power and in an effort to focus our analysis, we exclude 344 individuals who report being Hispanic. Since we do not have adequate sample size to analyze health disparities in other minority groups, we also exclude individuals who report being Asian, American Indian, Alaskan Native, or Pacific Islander (N=109). A remaining 231 individuals were missing information on household wealth, BMI, or industry. Our final analytical sample for SHRS consists of 2,030 White and 412 Black workers, or a total of 2,442 workers. This is reduced to 2,389 workers for episodic memory (1,984 White and 405 Black workers) and 2,220 for MAP (1,851 White and 369 Black workers).

Psychosocial workplace environment measures

Table 1 contains definitions and descriptive statistics for all variables used in this study. We combined the six measures of the PWE for a composite score in the O*NET and a separate composite for the PWE in the HRS to maximize our statistical power. O*NET assigns a score between one and five for each measure, where one indicates the attribute is not important to job performance and five indicates that it is extremely important. Questions in the HRS are asked on a four-point scale, where one indicates they strongly disagree with the statement and four indicates they strongly agree. If these were originally coded in the opposite direction from the O*NET variable they are recoded to match the direction of the O*NET variable. All O*NET and HRS variables were normalized to take values between zero and one.

Using the same methodology, we create a similar composite indicator for HRS self-reports of workplace discrimination using the components described in Table 1.

Health outcome measures

We focus on three consequential health outcomes in this study. First, we consider self-reported health status (SRHS)—a global measure that is highly correlated with objective measures of health including mortality and functional decline (Idler & Benyamini, 1997). In addition, SRHS is an important outcome because it is not only racially and socioeconomically patterned but also occupationally patterned. For example, workers' SRHS differs by occupational status such that blue-collar workers indicate lower baseline health status than white-collar workers (Gueorguieva et al., 2009). Given that self-reported discrimination is associated with poor health outcomes, we anticipate that negative perceptions or structural ratings of the PWE will predict lower perceived health. SRHS is a self-assessed measure of health using a Likert scale. We created a binary indicator for "excellent" or "very good" health compared to "good," "fair," or "poor" health.

Second, we measure cognitive functioning, as indicated by an episodic memory task (McArdle et al, 2007; Reitz and Mayeux, 2010). Poor performance of episodic memory is an early indicator of Alzheimer's disease and dementia diagnoses (Crimmins et al, 2011; Small et al, 1999). Memory problems are related to stress (Anderson et al. 2014) and may be a sensitive indicator of stressful experiences in the PWE. On the other hand, while baseline racial differences in cognitive functioning have been found, one study found no racial differences in rate of cognitive decline over time in the HRS (Castora-Binkley et al., 2015). To assess episodic memory, respondents are asked to learn a list of ten common words read by the interviewer immediately after hearing them (*immediate recall*) and after approximately five minutes of additional testing (*delayed recall*). The episodic memory score can range from 0 to 20 and is calculated as the sum of the number of words recalled at the immediate recall phase and the number of words recalled at the delayed recall phase.

Third, we capture mean arterial pressure (MAP) to account for disparities in cardiovascular and coronary mortality (Benetos et al., 1997). MAP better captures the underlying health of the cardiovascular system compared to systolic or diastolic blood pressure alone, particularly with regard to aging-related processes such as arterial stiffness. Blood pressure is responsive to acute and chronic stress (Kulkarni et al., 1998), and hypertension is a major unresolved health concern for Blacks (Fuchs, 2011). MAP is the average arterial pressure during a single cardiac cycle. We calculate MAP using measures of SBP and diastolic blood pressure (DBP) as follows: $MAP \simeq \frac{2}{3} \times DBP + \frac{1}{3} \times SBP$. Measures of SBP and DBP were taken during sphygmomanometer (inflated blood enhanced face-to-face interviews with an automated pressure cuff).

Empirical Model

We use a basic mediation framework to assess whether the objective characteristics (i.e. O*NET) and/or subjective perceptions (i.e. HRS) of PWEs partially explain or account for racial inequalities in health. Then, because perceptions may have differential effects on health by race, we use a moderation framework to assess whether there are racial differences in the association between PWE perception and health.

To establish mediation, we estimate the following three regression equations:

$$PWE_{it} = \beta_0 + \beta_1 Black_{it} + X'_{it}\beta_2 + \varepsilon_{it} \quad (1)$$

$$h_{it} = \gamma_0 + \gamma_1 Black_{it} + X'_{it-2}\gamma_2 + \mu_{it} \quad (2)$$

$$h_{it} = \alpha_0 + \alpha_1 Black_{it} + \alpha_2 PWE_{it-2} + X'_{it-2}\alpha_3 + \tau_{it} \quad (3)$$

Equation 1 regresses the mediator variable, PWE_{it} (i.e. the O*NET or HRS composite PWE score for worker i in time period t) on $Black_{it}$, which is equal to "1" for non-Hispanic Black workers in the HRS and "0" for non-Hispanic Whites. Equation 2 regresses h_{it}, or the SRHS, episodic memory, or MAP of worker i in time period t, on $Black_{it}$ and Equation 3 regresses h_{it} on both the independent variable ($Black_{it}$) and the mediator (PWE_{it-2}) For mediation to hold, there must be a significant association between PWE_{it} and $Black_{it}$ in Equation 1, an association between h_{it} and $Black_{it}$ in Equation 2, and an association between h_{it} and PWE_{it-2} in in Equation 3 (Baron & Kenny, 1986). Furthermore, the effect of $Black_{it}$ must be less in Equation 2 than Equation 3 (Ibid).

In all three equations, X_i is a vector of demographic and socioeconomic characteristics that jointly influence health and selection into occupations including gender, marital status, education, age, individual earnings, completion of a college degree, household wealth, smoking status, whether the respondent exercises three or more times per week, and dichotomous variables for cohort, industry, and U.S. census region currently lived in. We also control for certain health conditions and functional limitations, including BMI, whether the respondent has been diagnosed with diabetes, and whether the respondent's health limits the type of work they can do. While these may be mediators, we acknowledge that, in time-lagged models, they may also be confounders. Note that in Equations 2 and 3, PWE_i and any time-varying characteristics in X_i are lagged one wave, or two years, to account for any delays in their effects on health.

To examine whether there are significant racial differences in the association between perceptions of the PWE and health we also estimate the following moderation model:

$$h_{it} = \delta_0 + \delta_1 Black_i + \delta_2 PWE^{HRS}_{it-2} + \delta_3 Black_i \times PWE^{HRS}_{it-2} + X'_{it-2}\delta_4 + \pi_{it} \quad (4)$$

Where PWE^{HRS}_i is the HRS rating of PWE_i and X_i is the same vector of controls used in Equations 1–3. In the moderation model, δ_2 represents the difference in the association between PWE^{HRS}_i and health for Blacks and Whites with an average HRS PWE rating (i.e. $PWE^{HRS}_i = 0$), whereas δ_2 represents the marginal effect of PWE^{HRS}_i on Whites. Their interaction (δ_3) captures whether the difference between the health of Blacks and Whites is dependent on the level of PWE^{HRS}_i Thus, if δ_3 is significant, it means that at any given level of PWE^{HRS}_i, perceptions of the PWE disproportionately affect the health of Black workers compared to White workers. To assess whether the objective assessment of the PWE (PWE^{O*NET}_i) mediates the association between PWE^{HRS}_i and health, we also control for PWE^{O*NET}_i in one version of our model specification.

Furthermore, because perception of workplace discrimination may either mediate the link between race and health or confound the association between subjective PWE reports and health, we also include self-reports of workplace discrimination in our models. We consider perceptions of workplace discrimination that includes having to work harder than one's

peers (James, Hartnett, & Kalsbeck, 1983), being unfairly treated or ignored (Cortina et al., 2013), and feeling bothered by coworkers' making racial jokes or slurs (Rosette et al., 2013). According to a meta-analysis, perceived discrimination is associated with "heightened physiological stress responses, more negative psychological stress responses, increased participation in unhealthy behaviors, and decreased participation in healthy behaviors" (Pascoe & Smart Richman, 2009, p. 20). Heightened bodily reactivity exacerbates cardiovascular functioning and disrupts healthy sleep patterns (Jackson, Redline, & Emmons, 2015; Lewis, Williams, Tamene, & Clark, 2014). Further, Black Americans who experience workplace discrimination may also develop clinically-diagnosed social anxiety, psychosis, and depression (Lewis, et al., 2015).

Results

Descriptive Statistics

Table 1 reports descriptive statistics on the entire sample and Table 2 compares the sample means of all workplace and health measures used in this study by race using two-sample t-tests. Examining the objective characteristics of the PWE, as captured by the expert O*NET ratings, reveal significant differences in the structural work environment of White and Black workers in the years leading up to retirement. On a scale from zero to one, Whites score 0.032 units higher in opportunities for advancement at work, 0.045 units higher for receiving recognition for the work that they do, 0.054 units higher for autonomy or the freedom to plan their work with little supervision, and 0.024 units higher in the freedom to make decisions about their job. On the other hand, there is no difference in supportive management practices by race, and Blacks are situated in jobs that give them a 0.025 higher score on average for better workplace training support.

With regard to the subjective perceptions of the PWE, as captured by the HRS survey measures, both Whites and Blacks report better psychosocial workplace conditions than comparable O*NET ratings for their job, and there are fewer differences in self-perceptions of the work environment between racial groups. One notable difference is in self-reports of work recognition, where the score for Whites is 0.064 units higher than the score for Blacks. In terms of self-reports of workplace discrimination, there are few differences between racial groups; however, Blacks do report being watched more closely by supervisors and having to work harder.

In terms of health, Blacks have significantly worse SRHS, episodic memory, and MAP than Whites. Blacks in our analytic sample are 19.6% less likely to report having "very good" or "excellent" health, score 1.06 points lower on tests of episodic memory, and a MAP that is 5.204 units higher than Whites. These average differences in health outcomes are comparable to other studies that have looked at health differences by race in older adults (CDC, 2013; Kramer et al., 2004; Castora-Binkley et al., 2015; Kulkarni, 1998; CDC, 2013).

Mediation model

Table 3 reports results from the mediation models outlined in Equations 1–3. Results suggest that inequalities in the work environment are explained partially by the objective (i.e.

O*NET) but not by perceptual (i.e. HRS) measures of the PWE. Columns 1–2 (i.e. Equation 1) indicate that Black workers have significantly worse O*NET PWE scores but not significantly worse HRS PWE scores than White workers. Initial health disparities by race (i.e. Equation 2) can be seen in Columns 3, 6, and 9 in Table 3, which show lower SRHS, episodic memory scores, and higher MAP on average for Black workers after controlling for demographics, socioeconomic status, and health behaviors. If the O*NET PWE or HRS PWE mediates the relationship between race and health, we would expect to see a decline in the coefficient for Black workers after we include these variables in the model (i.e. Equation 3). We find evidence that the O*NET PWE may mediate the relationship between race and both SRHS and episodic memory: including controls for the O*NET PWE reduces the disparity in SRHS between Black and White workers by 0.03 percentage points and reduces the disparity in episodic memory by 0.031 words (Columns 4 and 7). On the other hand, we do not find any evidence that perceptions of the PWE mediate health differences between Blacks and Whites (Columns 5, 8, and 11).

Moderation Model

To investigate whether there are racial differences in the association between perceptions of the PWE and health, we turn to our moderation results in Table 4. Although Blacks have poorer health outcomes on all of our measures than Whites on average, the interaction term between HRS PWE and race is not significant. This indicates that the impact of perceptions of the PWE on health does not differ by race.

Based on results from the mediation model showing the mediating effect of the structural environment (O*NET), columns 2, 5, and 8 control for O*NET reports of the PWE, and Columns 3, 6, and 9 also include controls for workplace discrimination. The O*NET PWE is only significant in the episodic memory model. For all outcomes, perceptions of workplace discrimination are not significant; this is consistent with extant literature suggesting that, while perceived interpersonal discrimination may be related to health within and across racial groups, it is structural racism, rather than discrimination that likely contributes to health-related racial *disparities* (Gee & Ford, 2011).

Discussion

Our study points to the need for further work that explores whether racial differences in perception of the workplace environment explain some of the disproportionate health outcomes in cardiovascular functioning and mental health that we observe among Blacks Americans. We contribute objective and subjective measures of PWEs using the O*NET database to further bolster this line of research. Black adults in our sample experience both objectively and subjectively more stressful PWEs compared to White adults. Objective and subjective measures of the PWE are positively associated with episodic memory and SRHS, consistent with research connecting positive work environments with health. Further, mediation analyses suggest that objective O*NET ratings, rather than the subjective HRS perceptions, partially explain the relationship between race and health.

Although we find racial differences in perceptive and objective PWEs, overall Blacks and Whites did not differ in their reporting of interpersonal workplace discrimination based on

our composite measure. Black adults reported poorer health than Whites, on average; however, neither workplace discrimination nor perceived stressful PWEs explained racial disparities in SRHS, episodic memory, or MAP. Workplace discrimination is associated with worse self-reported health, perhaps signaling the relationship between mental health and discriminatory outcomes (Pascoe & Richman, 2009), however this relationship disappears once we control for perceptions of the PWE. We were surprised that physical health outcomes were not associated with instances of workplace discrimination. Rather than assuming no relationship exists, we question the validity of the measure to fully capture race-related stress in the workplace. Several studies find that discrimination is predictive of health outcomes in Whites only instead of Blacks (Hunte & Williams, 2009; Hudson et al., 2013). We speculate that rumination and or anticipation for discrimination more strongly relates to health outcomes for Blacks (e.g., Hicken et al., 2013). Future studies should capture chronic exposure of discrimination to explain its relationship to health.

Limitations of these analyses should be mentioned. Primarily, although we lag the relationship between working conditions and health by one wave or two years, we cannot claim that the relationship between the PWE and health that we observe is causal. In particular, the consistent feedback loop between socioeconomic status and health across the life course makes it difficult to isolate the independent effect of working conditions on health. While we were limited to examining a two-year lag due to data constraints, it may be that the impact of work stress inequalities on health inequalities is detectable after longer time periods. In addition, although we limit our analyses to older workers aged 50-64, it is possible that attrition due to poor health or the retirement decision, whereby only the healthiest workers survive or continue working, is biasing the results we report between the positive PWE and health upwards.

Second, this study can only evaluate the impact of current working conditions on health. In other words, we cannot evaluate the impact of job demands earlier in workers' careers that may have led to persistent health differences between Blacks and Whites at older ages. Thus, it is possible that conditions of the PWE took their toll on health much earlier in the life course. Finally, because the O*NET represents the population average of a given job demand for a particular three-digit US Census occupation, it cannot capture differences between jobs within a given occupation that could matter greatly for racial disparities in health. For example, the degree of autonomy for a worker in US Census occupation 868 (i.e. "Food Service") is the population average for all workers in that field, including workers in high-end, expensive restaurants and workers in low-end, inexpensive fast food restaurants. In part, this stresses the importance of including both structural and perceptual measures in the analysis as we do in this study, but further work is needed to capture differences within occupations that could be impacting health.

In sum, a growing literature implicates experiences at work in a range of deleterious health outcomes. Because adults spend much of their time at work, psychosocial exposures at work may have critical implications for population health inequalities. Our results show that Blacks are more likely to work in stressful PWEs and that elements of the objective characteristics of the PWE partially explain the relationship between race and health, particularly with respect to cognition. Thus, our results suggest that institutional programs

that provide for more worker decision-making and control may provide more health equity benefits than interventions to reduce the stressful perceptions of the PWE. Future research should focus explicitly on the health consequences of altering the characteristics of the PWE versus addressing the stressful perceptions of the PWE.

Although blatant racism is illegal and less common in the workplace, evidence supports the contention that structural racism and subtle, interpersonal racism remains widespread in the U.S. (Pager & Shepherd, 2010; Cortina, 2008). Little research has focused on understanding racial differences in work experiences and their potential to elucidate health disparities. Perceptions of work environments are most often based on self-reported subjective ratings. A major contribution of this study is to also include objective ratings and to begin to sort out the relative contributions of each, as markers of structural racism, to understanding the health effects of work experiences for Blacks in the U.S. Our study underscores the urgency of continued focus on policies that improve not only occupational opportunities for Blacks but also the work climate in general. A variety of worksite interventions aimed at reducing stress at work and improving work climate already exist (e.g., Tsutsumi & Kawakami, 2004). Our findings suggest that they should include a frank focus on racial differences in the work experience as well.

Acknowledgments

We are grateful to the Transdisciplinary Approaches to the Study of Racism and Health Lab at the University of Michigan for their helpful comments in drafting this paper. Schmitz would like to acknowledge funding from the National Science Foundation (Grant No. 1356857), the Center for Retirement Research (project BC14-D3) pursuant to a grant from the U.S. Social Security Administration, and from a National Institute on Aging training grant to the Population Studies Center at the University of Michigan (T32 AG000221). All findings and conclusions are those of the authors and do not represent the views of the National Science Foundation, the Social Security Administration, the Center for Retirement Research, or the National Institute on Aging. The Health and Retirement Study (HRS) is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and the Social Security Administration and conducted by the University of Michigan (UM) under UM Health Sciences IRB Protocols HUM00056464, HUM00061128, and HUM00002562.

References

Agan AY, Starr SB. Ban the box, criminal records, and statistical discrimination: A field experiment. University of Michigan Law & Economics Research Paper. 2016; 16(12) Available at SSRN: https://ssrn.com/abstract=2795795.

Anderson RM, Birnie AK, Koblesky NK, Romig-Martin SA, Radley JJ. Adrenocortical status predicts the degree of age-related deficits in prefrontal structural plasticity and working memory. Journal of Neuroscience. 2014; 34(25):8387–8397. DOI: 10.1523/JNEUROSCI.1385-14.2014 [PubMed: 24948795]

Baron RM, Kenny DA. The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology. 1986; 51(6):1173–1182. DOI: 10.1037/0022-3514.51.6.1173 [PubMed: 3806354]

Belton R. Comparative review of public and private enforcement of Title VII of the Civil Rights Act of 1964, A. Vanderbilt Law Review. 1978; 31:905–961.

Benetos A, Safar M, Rudnichi A, Smulyan H, Richard JL, Ducimetière P, Guize L. Pulse pressure. Hypertension. 1997; 30(6):1410–1415. DOI: 10.1161/01.HYP.30.6.1410 [PubMed: 9403561]

Bertrand M, Mullainathan S. Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination. The American Economic Review. 2004; 94(4):991–1013. DOI: 10.1257/0002828042002561

Brown-Iannuzzi JL, Payne BK, Trawalter S. Narrow imaginations: How imagining ideal employees can increase racial bias. Group Processes & Intergroup Relations. 2013; 16(6):661–670. DOI: 10.1177/1368430212467477

Castora-Binkley M, Peronto CL, Edwards JD, Small BJ. A Longitudinal analysis of the influence of race on cognitive performance. Journals of Gerontology: Series B: Psychological Sciences And Social Sciences. 2015; 70(4):512–518. DOI: 10.1093/geronb/gbt112

Centers for Disease Control. Morbidity and mortality weekly report. Health Disparities & Inequalities Report – United States. 2013; 62(3):1–187.

Chan, D. So why ask me? Are self-report data really that bad?. In: Lance, CE., Vandenberg, RJ., editors. Statistical and methodological myths and urban legends: Doctrine, verity and fable in the organizational and social sciences. New York, NY: Routledge; 2009. p. 311-338.

Cooper CL, Cartwright S. Healthy mind; healthy organization—A proactive approach to occupational stress. Human Relations. 1994; 47(4):455–471. DOI: 10.1177/001872679404700405

Cortina LM. Unseen injustice: Incivility as modern discrimination in organizations. Academy of Management Review. 2008; 33(1):55–75. DOI: 10.5465/AMR.2008.27745097

Cortina LM, Kabat-Farr D, Leskinen EA, Huerta M, Magley VJ. Selective incivility as modern discrimination in organizations: Evidence and impact. Journal of Management. 2013; 39(6):1579–1605. DOI: 10.1177/0149206311418835

Crimmins EM, Kim JK, Langa KM, Weir DR. Assessment of cognition using surveys and neuropsychological assessment: The Health and Retirement Study and the Aging, Demographics, and Memory Study. The Journals of Gerontology: Series B: Psychological Sciences And Social Sciences. 2011; 66(Suppl 1):162–171. DOI: 10.1093/geronb/gbr048

Danna K, Griffin RW. Health and well-being in the workplace: A review and synthesis of the literature. Journal of Management. 1999; 25(3):357–384. DOI: 10.1177/014920639902500305

Fisher GG, Stachowski A, Infurna FJ, Faul JD, Grosch J, Tetrick LE. Mental work demands, retirement, and longitudinal trajectories of cognitive functioning. Journal of Occupational Health Psychology. 2014; 19(2):231–242. DOI: 10.1037/a0035724 [PubMed: 24635733]

Forman TA. The social psychological costs of racial segmentation in the workplace: A study of African Americans' well-being. Journal of Health and Social Behavior. 2003; 44(3):332–352. DOI: 10.2307/1519783 [PubMed: 14582312]

Fuchs F. Why do Black Americans have higher prevalence of hypertension? An enigma still unsolved. Hypertension. 2011; 57:379–380. DOI: 10.1161/HYPERTENSIONAHA.110.163196 [PubMed: 21300666]

Gee GC, Ford CL. Structural racism and health inequities. Du Bois Rev Soc Sci Res Race. 2011; 8(1): 115–132. http://dx.doi.org/10.1017/S1742058X11000130.

Gini AL. Working ourselves to death: Workaholism, stress, and fatigue. Business and Society Review. 1998; 100(1):45–56. DOI: 10.1111/0045-3609.0001

Gueorguieva R, Sindelar JL, Falba TA, Fletcher JM, Keenan P, Wu R, Gallo WT. The impact of occupation on self-rated health: Cross-sectional and longitudinal evidence from the health and retirement survey. The Journals of Gerontology: Series B: Psychological Sciences And Social Sciences. 2009; 64(1):118–124. DOI: 10.1093/geronb/gbn006

Hicken MT, Gee GC, Morenoff J, Connell CM, Snow RC, Hu H. A novel look at racial health disparities: the interaction between social disadvantage and environmental health. American Journal of Public Health. 2012; 102(12):2344–2351. DOI: 10.2105/AJPH.2012.300774 [PubMed: 23078461]

Hicken MT, Lee H, Ailshire J, Burgard SA, Williams DR. "Every shut eye, ain't sleep": The role of racism-related vigilance in racial/ethnic disparities in sleep difficulty. Race and Social Problems. 2013; 5(2):100–112. DOI: 10.1007/s12552-013-9095-9 [PubMed: 23894254]

Hudson DL, Puterman E, Bibbins-Domingo K, Matthews KA, Adler NE. Race, life course socioeconomic position, racial discrimination, depressive symptoms and self-rated health. Social Science & Medicine. 2013; 97:7–14. DOI: 10.1016/j.socscimed.2013.07.031 [PubMed: 24161083]

Hunte HE, Williams DR. The association between perceived discrimination and obesity in a population-based multiracial and multiethnic adult sample. American Journal of Public Health. 2009; 99(7):1285–1292. DOI: 10.2105/AJPH.2007.128090 [PubMed: 18923119]

Idler EL, Benyamini Y. Self-rated health and mortality: A review of twenty-seven community studies. Journal of Health and Social Behavior. 1997; 38(1):21–37. DOI: 10.2307/2955359 [PubMed: 9097506]

Jackson CL, Redline S, Emmons KM. Sleep as a potential fundamental contributor to cardiovascular health disparities. Annual Review of Public Health. 2015; 36:417–440. DOI: 10.1146/annurev-publhealth-031914-122838

James SA, Hartnett SA, Kalsbeek WD. John Henryism and blood pressure differences among Black men. Journal of Behavioral Medicine. 1983; 6(3):259–278. DOI: 10.1007/BF01315113 [PubMed: 6663614]

Johnson, RW., Mermin, GBT., Resseger, M. AARP Public Policy Institute Research Report #2007–20. Washington, DC: AARP; 2007. Employment at older ages and the changing nature of work.

Kang SK, DeCelles KA, Tilcsik A, Jun S. Whitened résumés: Race and self-presentation in the labor market. Administrative Science Quarterly. 2016; 61(3):469–502. DOI: 10.1177/0001839216639577

Karasek, R., Theorell, T. Healthy work: Stress, productivity and the reconstruction of working life. New York, NY: Basic Books; 1990.

Kulkarni S, O'Farrell I, Erasi M, Kochar MS. Stress and hypertension. Wisconsin Medical Journal. 1998; 97(11):34–8. doi:

Landrine H, Klonoff EA. The schedule of racist events: A measure of racial discrimination and a study of its negative physical and mental health consequences. Journal of Black Psychology. 1996; 22(2):144–168. DOI: 10.1177/00957984960222002

Lawson KJ, Noblet AJ, Rodwell JJ. Promoting employee wellbeing: the relevance of work characteristics and organizational justice. Health Promotion International. 2009; 24(3):223–233. heapro/dap025. [PubMed: 19596657]

Leiter MP, Robichaud L. Relationships of occupational hazards with burnout: An assessment of measures and models. Journal of Occupational Health Psychology. 1997; 2(1):35–44. DOI: 10.1037/1076-8998.2.1.35 [PubMed: 9552278]

Lewis TT, Cogburn CD, Williams DR. Self-reported experiences of discrimination and health: Scientific advances, ongoing controversies, and emerging issues. Annual Review of Clinical Psychology. 2015; 11(1):407–440. DOI: 10.1146/annurev-clinpsy-032814-112728

Lewis TT, Williams DR, Tamene M, Clark CR. Self-reported experiences of discrimination and cardiovascular disease. Current Cardiovascular Risk Reports. 2014; 8(1):1–15. DOI: 10.1007/s12170-013-0365-2

McArdle JJ, Fisher GG, Kadlec KM. Latent variable analyses of age trends of cognition in the Health and Retirement Study, 1992-2004. Psychology and Aging. 2007; 22(3):525–545. DOI: 10.1037/0882-7974.22.3.525 [PubMed: 17874952]

Pager D, Shepherd H. The sociology of discrimination: racial discrimination in employment, housing, credit, and consumer markets. Annual Review of Sociology. 2008; 34:181–209. DOI: 10.1146/annurev.soc.33.040406.131740

Pascoe EA, Smart Richman L. Perceived discrimination and health: a meta-analytic review. Psychological Bulletin. 2009; 135(4):531–554. DOI: 10.1037/a0016059 [PubMed: 19586161]

Phelan JC, Link BG. Is racism a fundamental cause of inequalities in health? Annual Review of Sociology. 2015; 41:311–330. DOI: 10.114/annurev-soc-073014-112305

Reitz C, Mayeux R. Use of genetic variation as biomarkers for mild cognitive impairment and progression of mild cognitive impairment to dementia. Journal of Alzheimer's Disease. 2010; 19(1):229–251.

Robone S, Jones AM, Rice N. Contractual conditions, working conditions and their impact on health and well-being. The European Journal of Health Economics. 2011; 12(5):429–444. DOI: 10.1007/s10198-010-0256-0 [PubMed: 20499127]

Rosette, AS., Akinola, M., Ma, A. Subtle discrimination in the workplace. In: Collela, AJ., King's, EB., editors. The Oxford Handbook of Workplace Discrimination. 2016.

Rosette AS, Carton AM, Bowes-Sperry L, Hewlin PF. Why do racial slurs remain prevalent in the workplace? Integrating theory on intergroup behavior. Organization Science. 2013; 24(5):1402–1421. DOI: 10.1287/orsc.1120.0809

Ruiter ME, DeCoster J, Jacobs L, Lichstein KL. Normal sleep in African-Americans and Caucasian-Americans: A meta-analysis. Sleep Medicine. 2011; 12(3):209–214. DOI: 10.1016/j.sleep.2010.12.010 [PubMed: 21317037]

Schmitz. Do working conditions at older ages shape the health gradient? Journal of Health Economics. 2016; 50:183–197. DOI: 10.1016/j.jhealeco.2016.10.002 [PubMed: 27814483]

Small SA, Stern Y, Tang M, Mayeux R. Selective decline in memory function among healthy elderly. Neurology. 1999; 52(7):1392–1392. DOI: 10.1212/WNL.52.7.1392 [PubMed: 10227623]

Sonnega A, Faul JD, Ofstedal MB, Langa KM, Phillips JW, Weir DR. Cohort Profile: the Health and Retirement Study (HRS). International Journal of Epidemiology. 2014; 43(2):576–85. DOI: 10.1093/ije/dyu067 [PubMed: 24671021]

Theorell, T. The demand-control-support model for studying health in relation to the work environment: An interactive model. In: Orth-Gomér, K., Schneiderman, N., editors. Behavioral medicine approaches to cardiovascular disease prevention. Mahwah, New Jersey: Erlbaum; 1996. p. 69-85.

Toossi M. Labor force projections to 2018: Older workers staying more active. Monthly Labor Review. 2009; 132:30–51.

Tsutsumi A, Kawakami N. A review of empirical studies on the model of effort-reward imbalance at work: Reducing occupational stress by implementing a new theory. Social Science & Medicine. 2004; 59:2335–2359. DOI: 10.1016/j.socscimed.2004.03.030 [PubMed: 15450708]

Utsey SO, Ponterotto JG, Reynolds AL, Cancelli AA. Racial discrimination, coping, life satisfaction, and self-esteem among African Americans. Journal of Counseling and Development: JCD. 2000; 78(1):72–80. DOI: 10.1002/j.1556-6676.2000.tb02562.x

Van der Doef M, Maes S. The job demand-control (-support) model and psychological well-being: a review of 20 years of empirical research. Work & Stress. 1999; 13(2):87–114. DOI: 10.1080/026783799296084

Wilkinson RG, Pickett KE. Income inequality and social dysfunction. Annual Review of Sociology. 2009; :35493–511. DOI: 10.1146/annurev-soc-070308-115926

Williams DR, Williams-Morris R. Racism and mental health: the African American experience. Ethnicity and Health. 2000; 5(3–4):243–268. DOI: 10.1080/135578500200009356 [PubMed: 11105267]

Table 1

Variable definitions and descriptive statistics, HRS analytic sample, 2008–2012

Name	Definition	Mean	Std. Dev.	N
O*NET working conditions				
Psychosocial work environment (PWE)	Composite indicator of all six PWE O*NET variables	0.639	0.065	2442
Advancement	Workers have opportunities for advancement	0.574	0.102	2442
Work recognized	Workers receive recognition for the work that they do	0.569	0.126	2442
Autonomy	Workers plan their work with very little supervision	0.657	0.148	2442
Decision freedom	Job offers decision making freedom without supervision	0.828	0.074	2442
Training support	Workers have supervisors who train their workers well	0.557	0.107	2442
Supportive management	Supervisors back up their workers with management	0.652	0.083	2442
HRS self-reported working conditions				
Psychosocial work environment (PWE)	Composite indicator of all six PWE HRS variables	0.747	0.136	2442
Advancement	My job prospects are excellent	0.578	0.234	2146
Work recognized	I receive the recognition I deserve for my work	0.742	0.198	2387
Autonomy	At work, I feel I have control over what happens in most situations	0.762	0.182	2406
Decision freedom	I have a lot of freedom to decide how I do my work	0.801	0.200	2375
Training support	I have the training opportunities I need to perform my job safely and competently	0.810	0.172	2252
Supportive management	My supervisor is willing to extend himself/herself to help me perform my job	0.745	0.206	2028
Self-reports of work discrimination (HRS)				
Workplace discrimination	Composite indicator of all six work discrimination variables	0.340	0.321	2442
Unfair tasks	Unfairly given tasks at work that no one wants to do	0.522	0.500	2439
Watched closely	Watched more closely than others	0.322	0.467	2431
Bothered by supervisor/coworkers	Bothered by supervisor or coworkers making slurs or jokes about women or racial or ethnic groups	0.194	0.395	2435
Have to work harder	Have to work twice as hard as others at work	0.418	0.493	2435
Feel ignored	Feel ignored or not taken seriously by boss	0.380	0.485	2427
Unfairly humiliated	Unfairly humiliated in front of others at work	0.203	0.403	2434
Health outcomes or behaviors (HRS)				
Self-reported health status (SRHS)	1 if reports “excellent” or “very good” health, 0 if reports “good”, “fair”, or “poor” health	0.581	0.494	2442
Episodic memory	Sum of immediate and delayed word recall tasks	11.380	3.170	2389
Mean arterial blood pressure (MAP)	Average arterial pressure during a single cardiac cycle	97.264	13.762	2220
Smoker	1 if currently smoking cigarettes, 0 otherwise	0.151	0.358	2442
Exercise	1 if exercises vigorously 3+ times per week, 0 otherwise	0.322	0.467	2442
Body mass index (BMI)	Body mass index in kg/m2	28.896	5.909	2442
Diabetic	1 if diagnosed with diabetes, 0 otherwise	0.159	0.366	2442
Health limits work	1 if reports a work limiting health condition, 0 otherwise	0.080	0.272	2442
Demographics				
Age	Age in years	57.210	3.861	2442
Black	1 if race is non-Hispanic Black, 0 if non-Hispanic White	0.169	0.375	2442

Name	Definition	Mean	Std. Dev.	N
Married	1 if married or partnered, 0 otherwise	0.763	0.425	2442
College degree	1 if received an associate or bachelor's degree, 0 otherwise	0.454	0.498	2442
Individual earnings	Annual individual earnings (2010 dollars)	47,663	53,978	2442
Household wealth	Household wealth (2010 dollars)	469,501	844,072	2442
Current census region lived in				
Northeast	1 if ME, NH, VT, MA, RI, CT, NY, NJ, PA, 0 otherwise 1 if OH, IN, IL, MI, WI, MN, IA, MO, ND, SD, NE, KS,	0.156	0.363	2442
Midwest	0 otherwise 1 if DE, MD, DC, VA, WV, NC, SC, GA, FL, KY, TN,	0.296	0.457	2442
South	AL, MS, AR, LA, OK, TX, AR, LA, OK, TX, 0 otherwise 1 if MT, ID, WY, CO, NM, AZ, UT, NV, WA, OR, CA,	0.364	0.481	2442
West	AK, HI, 0 otherwise	0.183	0.387	2442
Industry				
Agriculture or mining	1 if industry is agriculture/mining, 0 otherwise	0.014	0.119	2442
Construction	1 if industry is construction, 0 otherwise	0.051	0.220	2442
Public services	1 if industry is public services, 0 otherwise	0.074	0.261	2442
Miscellaneous services	1 if industry is miscellaneous services, 0 otherwise	0.493	0.500	2442
Manufacturing	1 if industry is manufacturing, 0 otherwise	0.129	0.335	2442
Trade	1 if industry is trade, 0 otherwise	0.117	0.321	2442
Finance, Insurance or Real Estate	1 if industry is FIRE, 0 otherwise	0.075	0.264	2442
Public administration	1 if industry is public administration, 0 otherwise	0.053	0.224	2442

Note: O*NET and HRS working condition and work discrimination variables are normalized to take values between 0 and 1.

Table 2

Difference in O*NET and HRS psychosocial working conditions (PWE) and HRS work discrimination and health measures by race

	White	Black	Diff.	t stat
O*NET working conditions				
Psychosocial work environment (PWE) composite score	0.643	0.623	0.020***	(5.78)
Advancement	0.580	0.548	0.032***	(5.79)
Work recognized	0.576	0.531	0.045***	(6.67)
Autonomy	0.667	0.612	0.054***	(6.82)
Decision freedom	0.832	0.808	0.024***	(5.94)
Training support	0.552	0.578	−0.025***	(−4.41)
Supportive management	0.651	0.660	−0.009*	(−2.00)
HRS self-reported working conditions				
Psychosocial work environment (PWE) composite score	0.751	0.729	0.022**	(3.05)
Advancement	0.575	0.594	−0.019	(−1.44)
Work recognized	0.752	0.689	0.064***	(5.87)
Autonomy	0.768	0.736	0.031**	(3.15)
Decision freedom	0.807	0.772	0.036**	(3.25)
Training support	0.810	0.810	0.0004	(0.04)
Supportive management	0.749	0.729	0.019	(1.59)
Self-reports of work discrimination (HRS)				
Workplace discrimination composite score	0.335	0.367	−0.032	(−1.85)
Unfair tasks	0.520	0.532	−0.011	(−0.41)
Watched closely	0.306	0.402	−0.097***	(−3.83)
Bothered by supervisor/coworkers	0.196	0.185	0.011	(0.50)
Have to work harder	0.405	0.484	−0.079**	(−2.97)
Feel ignored	0.381	0.376	0.005	(0.20)
Unfairly humiliated	0.201	0.217	−0.016	(−0.73)
Health (HRS)				
Self-reported health status (SRHS)	0.614	0.417	0.196***	(7.44)
Episodic memory	11.560	10.499	1.061***	(6.19)
Mean arterial pressure (MAP)	96.399	101.603	−5.204***	(−6.70)
BMI	28.498	30.854	−2.356***	(−7.46)
Diabetes	0.151	0.201	−0.051*	(−2.57)
Health limits work	0.079	0.087	−0.009	(−0.58)
N	2,030	412		

Note: Working condition and work discrimination variables are unstandardized. Analytic sample differs by race for episodic memory (Whites=1,984; Blacks=405) and MAP (Whites=1,851; Blacks=369).

*p<0.05,

** p<0.01,

*** p<0.001.

Table 3

Mediation models for the psychosocial work environment (PWE) predicting two year lagged measures of self-reported health status (SRHS), episodic memory, and mean arterial pressure (MAP)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	O*NET PWE	**HRS PWE**		**SRHS**			**Episodic Memory**			**MAP**	
Black	−0.125** (0.056)	0.006 (0.051)	−0.070** (0.028)	−0.067** (0.028)	−0.070** (0.028)	−0.576*** (0.201)	−0.545*** (0.200)	−0.576*** (0.199)	3.837*** (0.947)	3.850*** (0.949)	3.832*** (0.946)
Work environment (t-2)											
O*NET PWE				0.021** (0.010)			0.275*** (0.065)			0.088 (0.315)	
HRS PWE					0.068*** (0.010)			0.353*** (0.074)			−0.180 (0.353)
Work discrimination	−0.020 (0.060)	−1.457*** (0.058)	−0.101*** (0.030)	−0.100*** (0.030)	−0.002 (0.034)	−0.238 (0.206)	−0.235 (0.204)	0.275 (0.227)	−1.050 (0.918)	−1.048 (0.918)	−1.312 (1.053)
Demographics and health (t-2)											
Age	0.000 (0.007)	0.002 (0.006)	−0.002 (0.003)	−0.002 (0.003)	−0.002 (0.003)	−0.100*** (0.022)	−0.100*** (0.022)	−0.100*** (0.022)	0.281*** (0.098)	0.281*** (0.098)	0.282*** (0.098)
Female	−0.088** (0.043)	−0.080** (0.039)	0.047** (0.021)	0.049** (0.021)	0.052** (0.021)	1.051*** (0.139)	1.072*** (0.138)	1.080*** (0.138)	−4.107*** (0.633)	−4.101*** (0.632)	−4.118*** (0.634)
Married	0.045 (0.047)	0.097** (0.045)	−0.020 (0.023)	−0.021 (0.023)	−0.027 (0.023)	−0.030 (0.159)	−0.042 (0.159)	−0.063 (0.158)	−1.894** (0.764)	−1.898** (0.765)	−1.875** (0.765)
College degree	0.351*** (0.042)	0.061 (0.038)	0.084*** (0.020)	0.077*** (0.021)	0.080*** (0.020)	0.806*** (0.138)	0.708*** (0.138)	0.788*** (0.138)	−1.457** (0.620)	−1.488** (0.634)	−1.449** (0.621)
Individual earnings (log)	0.015*** (0.005)	−0.019*** (0.005)	0.004 (0.003)	0.004 (0.003)	0.005** (0.003)	0.000 (0.018)	−0.004 (0.018)	0.007 (0.018)	0.034 (0.078)	0.033 (0.079)	0.031 (0.079)
Household wealth (log)	0.071*** (0.011)	0.034*** (0.010)	0.025*** (0.005)	0.024*** (0.005)	0.023*** (0.005)	0.204*** (0.040)	0.184*** (0.040)	0.191*** (0.040)	−0.243 (0.171)	−0.249 (0.172)	−0.237 (0.172)
Smoker	−0.085 (0.057)	−0.016 (0.052)	−0.117*** (0.028)	−0.115*** (0.028)	−0.116*** (0.028)	0.058 (0.195)	0.084 (0.195)	0.068 (0.194)	1.252 (0.870)	1.259 (0.870)	1.247 (0.871)
Exercise 3+ times/week	0.018 (0.042)	0.073* (0.039)	0.110*** (0.020)	0.110*** (0.020)	0.105*** (0.020)	0.040 (0.134)	0.038 (0.134)	0.013 (0.133)	−0.366 (0.624)	−0.367 (0.624)	−0.352 (0.624)
BMI	0.003 (0.003)	−0.002 (0.003)	−0.013*** (0.002)	−0.013*** (0.002)	−0.013*** (0.002)	0.000 (0.011)	−0.000 (0.011)	0.001 (0.011)	0.418*** (0.055)	0.418*** (0.055)	0.418*** (0.055)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	O*NET PWE	**HRS PWE**	**SRHS**			**Episodic Memory**			**MAP**		
Diabetic	0.086 (0.054)	−0.046 (0.050)	−0.222*** (0.027)	−0.224*** (0.027)	−0.219*** (0.027)	−0.242 (0.183)	−0.267 (0.182)	−0.227 (0.182)	−0.324 (0.811)	−0.330 (0.811)	−0.334 (0.812)
Health limits work	−0.164** (0.075)	−0.211*** (0.063)	−0.218*** (0.035)	−0.215*** (0.035)	−0.204*** (0.035)	−0.374 (0.233)	−0.331 (0.234)	−0.302 (0.232)	−0.510 (1.124)	−0.496 (1.127)	−0.550 (1.120)
N	2442	2442	2442	2442	2442	2389	2389	2389	2220	2220	2220
R^2	0.180	0.289	0.191	0.193	0.205	0.123	0.129	0.132	0.098	0.098	0.099

Notes: Sample includes all non-Hispanic White and Black full-time or part-time workers aged 50–64. Estimates are from OLS regressions with or without controls for the O*NET or HRS psychosocial work environment (PWE). Robust standard errors are in parentheses. Working conditions and work discrimination variables are standardized on the analytic sample. Additional controls: dichotomous variables for cohort, industry, and US census region currently lived in.

*
p<0.10,

**
p<0.05,

***
p<0.01.

Table 4

Moderation models: Differential impact of the HRS psychosocial work environment (PWE) on two year lagged measures of self-reported health status (SRHS), episodic memory, and mean arterial pressure (MAP) by race

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	SRHS			Episodic Memory			MAP		
HRS PWE (t-2)	0.070*** (0.010)	0.069*** (0.010)	0.068*** (0.011)	0.287*** (0.070)	0.267*** (0.070)	0.304*** (0.078)	0.189 (0.321)	0.181 (0.322)	−0.020 (0.369)
Black	−0.071** (0.028)	−0.070** (0.028)	−0.070** (0.028)	−0.556*** (0.201)	−0.530*** (0.201)	−0.530*** (0.201)	3.692*** (0.953)	3.707*** (0.955)	3.700*** (0.953)
Black × HRS PWE (t-2)	−0.012 (0.025)	−0.013 (0.025)	−0.013 (0.025)	0.171 (0.188)	0.158 (0.188)	0.156 (0.188)	−1.181 (0.947)	−1.189 (0.947)	−1.182 (0.948)
O*NET PWE (t-2)		0.015 (0.010)	0.015 (0.010)		0.247*** (0.065)	0.244*** (0.065)		0.101 (0.316)	0.117 (0.316)
Workplace discrimination (t-2)			−0.001 (0.011)			0.076 (0.072)			−0.423 (0.338)
Demographics and health (t-2)									
Age	−0.002 (0.003)	−0.002 (0.003)	−0.002 (0.003)	−0.101*** (0.022)	−0.102*** (0.022)	−0.101*** (0.022)	0.290*** (0.098)	0.290*** (0.098)	0.284*** (0.098)
Female	0.052** (0.021)	0.054*** (0.021)	0.054*** (0.021)	1.074*** (0.138)	1.091*** (0.137)	1.094*** (0.137)	−4.079*** (0.637)	−4.072*** (0.635)	−4.091*** (0.635)
Married	−0.026 (0.023)	−0.027 (0.023)	−0.027 (0.023)	−0.073 (0.158)	−0.080 (0.158)	−0.074 (0.158)	−1.816** (0.766)	−1.819** (0.766)	−1.858** (0.766)
College degree	0.080*** (0.020)	0.075*** (0.020)	0.075*** (0.020)	0.784*** (0.138)	0.698*** (0.138)	0.700*** (0.139)	−1.426** (0.621)	−1.462** (0.633)	−1.481** (0.634)
Individual earnings (log)	0.005** (0.002)	0.005** (0.002)	0.005** (0.003)	0.009 (0.018)	0.005 (0.018)	0.003 (0.018)	0.020 (0.078)	0.018 (0.079)	0.030 (0.079)
Household wealth (log)	0.023*** (0.005)	0.022*** (0.005)	0.022*** (0.005)	0.192*** (0.040)	0.175*** (0.040)	0.175*** (0.040)	−0.239 (0.171)	−0.246 (0.172)	−0.243 (0.172)
Smoker	−0.116*** (0.028)	−0.115*** (0.028)	−0.114*** (0.028)	0.069 (0.194)	0.092 (0.194)	0.090 (0.194)	1.242 (0.872)	1.250 (0.871)	1.257 (0.870)
Exercise 3+ times/week	0.106*** (0.020)	0.105*** (0.020)	0.105*** (0.020)	0.014 (0.133)	0.014 (0.133)	0.011 (0.133)	−0.359 (0.623)	−0.359 (0.623)	−0.339 (0.624)
BMI	−0.013*** (0.002)	−0.013*** (0.002)	−0.013*** (0.002)	0.001 (0.011)	0.001 (0.011)	0.000 (0.011)	0.418*** (0.055)	0.417*** (0.055)	0.421*** (0.055)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	SRHS			Episodic Memory			MAP		
Diabetic	−0.219*** (0.027)	−0.221*** (0.027)	−0.221*** (0.027)	−0.207 (0.182)	−0.233 (0.181)	−0.242 (0.181)	−0.431 (0.814)	−0.439 (0.813)	−0.404 (0.814)
Health limits work	−0.204*** (0.035)	−0.201*** (0.035)	−0.201*** (0.035)	−0.299 (0.232)	−0.266 (0.233)	−0.270 (0.233)	−0.569 (1.115)	−0.555 (1.117)	−0.525 (1.121)
N	2442	2442	2442	2389	2389	2389	2220	2220	2220
R^2	0.205	0.206	0.206	0.132	0.137	0.137	0.099	0.099	0.100

Notes: See Table 3.

* p<0.10,

** p<0.05,

*** p<0.01.