



Disparities in Health Behavior Risks Among Employed and Unemployed Black and White
Older Adults

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Abstract

Objective: Examine health behavior risk rates and disparities in health behavior risks related to race and employment among older adults. **Methods:** A cross-sectional analysis of a representative sample of noninstitutionalized adults aged 65 and older (150,669 in 2015 and 168,011 in 2016) from the Behavioral Risk Factor Surveillance System. Self-reported health behavior risks were measured as well as multiple logistic regression analyses assessing the independent effects of demographic variables on health behavior risks. **Results:** Employed older adults have greater health behavior risks than unemployed older adults. Black employed older adults have greater health behavior risks than Black unemployed older adults for all behaviors. Greater disparities in health behavior risks exist between Black and White employed older adults than between Black and White unemployed older adults (smoking, being overweight or obese, and physical activity). **Discussion:** Employers should design health insurance benefits and workplace health promotion programs to address the needs of all older persons.

Keywords

Health behavior; health disparities; Geriatrics/Gerontology; Behavioral Risk Factor Surveillance System; clinical preventive services; employment



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ABSTRACT

Objective: Examine health behavior risk rates and disparities in health behavior risks related to race and employment among older adults.

Methods: A cross-sectional analysis of a representative sample of noninstitutionalized adults aged 65 and older (150,669 in 2015 and 168,011 in 2016) from the Behavioral Risk Factor Surveillance System. Self-reported health behavior risks were measured as well as multiple logistic regression analyses assessing the independent effects of demographic variables on health behavior risks.

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INTRODUCTION

The percentage of Americans aged 65 and older reporting that they are employed full- or part-time increased from 12.8% in the year 2000 to 18.8% in 2016 (DeSilver, 2016; U.S. Bureau of Labor Statistics, n.d.). It is important to examine such employment trends in relation to health because prior studies show associations between employment and health (Robert Wood Johnson Foundation, 2011; van der Noordt, IJzelenberg, Droomers, & Proper, 2014). The objective of this research is to identify relationships that exist between health behavior risks and race and employment status among adults ages 65 and over. Given that Rooks, Simonsick, Schulz, Rubin,

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and Harris (2017) showed that Black older adults are more likely to work than White older adults, it is important to include race in the examination of employment and health behavior risks among older adults. Furthermore, examining health behavior risks is critical because older adults who minimize health behavior risks such as physical inactivity, smoking, and heavy drinking have better cognitive functioning, lower prevalence of chronic disease, and improved mental health (Ackermann, 2018; Centers for Disease Control and Prevention, 2013; Weuve et al., 2004). Engaging in health behavior risks often causes chronic diseases such as hypertension, stroke, coronary heart disease, cancer, and diabetes among older adults (Ward & Schiller, 2013). For example, the Centers for Disease Control and Prevention states that engaging in physical activity is one of the most important things older adults can do for their health (Centers for Disease Control and Prevention, 2020a) and receiving an influenza vaccine significantly reduces the risk for influenza (Centers for Disease Control and Prevention, 2020b).

Evans and Stoddart's Health Field Model provided a theoretical framework for which this research is based. The Health Field Model considers a multitude of factors that influence health and well-being and presents opportunities in many areas for health improvement intervention. This model emphasizes the social determinants of health that contribute to engaging in health behaviors and helps reinforce their interrelatedness. The social determinants of health Evans and Stoddart included in their model are social environment, physical environment, and genetic environment. Within the Health Field Model, the variables of employment status and race fits within the social environment element (Evans & Stoddart, 1994; Institute of Medicine, 1997).

While several components comprise the social determinants in the Health Field Model, this study focuses on employment and race. Previous research has shown that employment status among older adults is positively associated with better health outcomes (e.g., lower count of prevalent chronic diseases, improved Short Physical Performance Battery (SPPB) scores) (Houston, Stevens, Cai, & Morey, 2005; Houston, Cai, & Stevens, 2009; Kachan et al., 2015; Rooks, Simonsick, Schulz, Rubin, & Harris, 2017). Previous research also shows a positive association between being Black (as opposed to White) and both greater health risks and worse health status among older adults (Committee on Population, National Research Council, 1997; Thorpe et al., 2012). Some studies have examined unemployment, low income, or racial or ethnic minority status in relation to health behavior risks such as inadequate physical activity, being obese, and smoking among U.S. adults under 65 years old and determined that disparities exist in this group (Hughes, Baker, Kim, & Valdes, 2019; Sorlie, Backlund, & Keller, 1995). However, there is a gap in research that examines employment and race together and their associations with health behavior risks among older adults.

Disparities in health behaviors related to socioeconomic status and race exist among employed and insured U.S. adults aged 18 to 65 (Hughes, Hannon, Harris, & Patrick, 2010). Given the increase in the prevalence of employment among older adults (DeSilver, 2016; U.S. Bureau of Labor Statistics, n.d.), evidence that Black older adults are more likely to work than White older adults (Rooks, Simonsick, Schulz, Rubin, & Harris, 2017), and studies showing that job opportunities and types of employment differ between races (Anderson, 2018; Bertrand & Mullainathan, 2004), we also examine the existence of disparities in health behaviors related to race and employment to see if similar disparities in health behaviors to those found in previous research among adults under age 65 persist among an older population. There are numerous studies showing greater health disparities in health care treatment and outcomes for older adults

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who are of lower socioeconomic status and/or racial minorities compared to their counterparts (Centers for Disease Control and Prevention, 2011; Du & Xu, 2016; Pickett, Greenberg, Bazelaïs, & Bruce, 2014; Pinheiro et al., 2015), but a lack of studies examining disparities related to health behavior risks among this population. Based on the Health Field Model that shows social factors like employment and genetic factors like race influence health behavior risks, we hypothesize that Black older adults will have greater health behavior risks than White older adults, and that greater racial disparities in health behavior risks will exist among the unemployed versus the employed. We examine such disparities along with the prevalence rates of underlying health behavior risks among older adults. We aim to better inform employers, insurers, and policymakers who address health behavior risks and disparities by offering benefits and programs for this population.

METHODS

Design and Sample

This study used a cross-sectional design using Behavioral Risk Factor Surveillance System (BRFSS) data from 2015 and 2016. The BRFSS, a nationally represented telephone survey conducted by the Centers for Disease Control and Prevention (CDC), is the largest continuously conducted health survey system in the world. The BRFSS is a continuous, random-digit-dialed landline and cellular telephone survey of the noninstitutionalized U.S. adult population aged 18 years or older that collects State data about U.S. residents in the areas of health status, health risk behaviors, and preventive services utilization. Only one adult is eligible to participate once an eligible household is identified. Mokdad (2009) described details of BRFSS methodology, including its sampling and processing. Data from all 50 U.S. states from 2015 and 2016 were included. The survey, available to respondents in both English and Spanish, had a response rate of 47.7% and 46.4% in 2016 and 48.2% and 47.2% in 2015 (for landlines and cell phones, respectively) (Centers for Disease Control and Prevention, 2015; Centers for Disease Control and Prevention, 2017). Both English and Spanish respondent data were included. BRFSS survey data and documentation is available from the CDC (Centers for Disease Control and Prevention, 2018). The study population included all adults aged 65 and older who self-reported as Black or White from the 2015-2016 BRFSS. Adults aged 64 years and younger were excluded to focus on an older adult population.

Measures

The sample was characterized by race and employment. Our dependent variables were seven self-reported measures of health behavior risks (see Table 1). These risks were chosen based on findings that they increase an individual's risk for chronic disease and earlier death (Mabry-Hernandez et al., 2018; Mokdad, Marks, Stroup, & Gerberding, 2000). Throughout this article, all the rates for dependent variables are framed negatively (e.g., not receiving colon cancer screening or engaging in binge drinking).

Table 1: Definitions of Study Variables Used in the Behavioral Risk Factor Surveillance System Survey

Variable	Definition
Dependent	
Binge drinking	Having ≥ 5 drinks on one occasion among men or having ≥ 4 drinks on one occasion among women
Heavy drinking	Having, on average, > 14 drinks per week among men or having > 7 drinks per week among women
Colon cancer screening	Receipt of either fecal occult blood testing within the past y or blood stool and sigmoidoscopy within the past 5 y or colonoscopy within the past 10 y among adults aged 65-75 y
Influenza vaccination	Receipt of an influenza vaccine by injection or nasal spray within the past year
Inadequate Physical Activity	Not participating in moderate physical activity for ≥ 30 -min total ≥ 5 d/wk and not participating in vigorous physical activity for ≥ 20 -min total ≥ 3 d/wk, based on respondent estimates of physical activity participation
Overweight / obese	Having a body mass index greater than 25
Smoking	Current smokers
Independent	
Race	Racial/ethnic group with which respondent identifies. White does not include Hispanics. Black includes African Americans
Employed	Indicated were employed for wages or self-employed

Statistical Analysis

With an available sample of greater than 150,000 participants, a power analysis was not necessary to ensure statistical significance, given the survey measures and proposed analytic plan. Two types of analyses were performed for each of the dependent variables using STATA version 15.0 (StataCorp LP, College Station, Texas). First, we calculated the proportion of older adults engaging in unhealthy behaviors using means and frequency analyses to determine the health behavior risks of the population. This step was performed to address the gap in the reporting of the prevalence of health behavior risks among older adults of different race and employment status categories. We used 2015 BRFSS data for inadequate physical activity because this health behavior risk was not included in the 2016 survey. For all the other health behavior risks, we used 2016 data. All tests were two-tailed and took into account the survey

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design and sampling probabilities of the data source. Second, we assessed the independent effects of race and employment status on recommended health behaviors using multivariate logistic regression analysis to determine the effects of race and employment status on each recommended health behavior risk. This addressed a purpose of this study to examine whether disparities exist in the health behavior risks of older adults based on employment status and race. All analyses controlled for sex, income, education, and metropolitan status. As with the first analysis, we used 2016 data except for physical activity for which we used 2015 data. All tests were two-tailed and took into account the survey design and sampling probabilities of the data source.

RESULTS

Prevalence of Health Behavior Risks

U.S. adults aged 65 years and older were represented in our study population (150,669 in 2015, which is 34% of the entire BRFSS sample, and 168,011 in 2016, which is 35% of the entire BRFSS sample). The description of participants is given in Table 2, and the prevalence estimates of health behavior risks stratified by race and employment are given in Table 3. Among the sample, the percentages overweight or obese were above 65%, engaging in inadequate physical activity were above 44%, and not receiving recommended influenza vaccination were above 37%. Both binge drinking and heavy drinking percentages were lower, staying under 6.5%. Percentages of smoking and not receiving colon cancer screening ranged from 8.2% to 22.5%.

Table 2. Descriptive Statistics of Sample of Adults Aged 65 Years and Older

	2015 BRFSS	2016 BRFSS
Age		
Mean (SD)	73.2 (5.3)	73.1 (5.3)
Median	73.0	73.0
Gender N (%)		
Male	59,011 (38.7)	67,428 (39.5)
Female	93,607 (61.3)	103,292 (60.5)
Race N (%)		
White	134,125 (89.2)	149,696 (87.7)
Black	10,159 (6.8)	11,398 (6.7)
All	150,423 (100)	168,182 (100)
Job Status N (%)		
Employed	23,160 (16.3)	26,329 (16.4)
Unemployed	119,355 (83.7)	134,592 (83.6)

Disparities Based on Employment and Race Status

In bivariate analysis, employment was associated with greater health behavior risks for all but one behavior (smoking). Not receiving influenza vaccination and binge drinking were especially higher rates when employed than unemployed. There was a greater than 5% difference

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in receipt of influenza vaccination between employed and unemployed older adults, with employed older adults receiving fewer recommended influenza vaccinations. The percentage of employed older adults engaging in binge drinking was more than 50% greater than the percentage of unemployed older adults engaging in binge drinking (see Table 3).

Table 4 gives the odds ratios (ORs) based on logistic regression analyses showing the relationship between health behavior risks, employment and race variables, controlling for sex, income, education, and metropolitan status. In our examination between Black and White older adults, Black older adults were significantly more likely than White older adults to be overweight or obese, engage in inadequate physical activity, and not receive an influenza vaccination ($p < .01$). Black older adults were also more likely than White older adults to smoke ($p < .05$). Black older adults had lower health behavior risks than White older adults regarding heavy drinking and not receiving colon cancer screening ($p < .01$).

For all behaviors examined, Black employed older adults had greater health behavior risks than Black unemployed older adults (see Table 3). Additionally, significantly greater disparities in health behavior risks exist between Black and White employed older adults than between Black and White unemployed older adults for smoking, being overweight or obese, and engaging in inadequate physical activity ($p < 0.01$) (see Table 4).

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Table 3: Proportion of U.S. Older Adults with Health Behavior Risks

Health Behavior Risk	% (95% Confidence Interval) of Respondents					
	All	All	White	Black	White	Black
	Employed	Unemployed	Employed	Employed	Unemployed	Unemployed
Binge Drinking	6.4 (5.8-6.9)	4.2 (3.8-4.5)	6.3 (5.8-6.9)	5.5 (3.9-7.0)	4.2 (3.8-4.6)	4.1 (3.5-4.7)
Heavy Drinking	5.5 (5.0-6.0)	5.1 (4.7-5.6)	5.8 (5.3-6.4)	2.5 (1.4-3.5)	5.5 (5.0-6.1)	2.3 (1.8-2.8)
Inadequate Physical Activity	47.4 (45.6-49.3)	44.4 (42.6-46.3)	46.5 (44.6-48.5)	58.5 (53.9-63.2)	43.2 (41.4-45.0)	57.2 (55.1-59.4)
No Colon Cancer Screening	22.5 (21.1-23.9)	20.1 (19.2-21.1)	21.8 (20.4-23.2)	20.8 (17.1-24.5)	19.5 (18.6-20.4)	19.5 (17.8-21.3)
No Influenza Vaccination	43.3 (42.1-44.5)	37.8 (36.8-38.9)	42.3 (41.3-43.7)	52.5 (49.6-55.3)	36.7 (35.6-37.8)	47.1 (45.3-48.9)
Overweight or Obese	68.3 (66.9-69.8)	65.8 (64.8-66.8)	67.9 (66.4-69.4)	79.0 (75.9-82.2)	65.2 (64.2-66.1)	74.7 (73.5-75.9)
Smoking	8.2 (7.7-8.7)	8.6 (8.1-9.0)	7.9 (7.3-8.4)	12.2 (10.3-14.1)	8.2 (7.8-8.6)	11.0 (10.1-11.9)

^a Age ≥ 65

^b N = 168,011 for all behaviors except Inadequate Physical Activity (2015 data) in which N = 150,669.

Table 4: Comparison Between Health Behavior Risks and Race Among Older Adults

Health Behavior Risk	Odds Ratio (95% Confidence Interval)		
	Black All	Black Employed	Black Unemployed
Binge Drinking	1.06 (0.91-1.24)	0.98 (0.71-1.35)	1.08 (0.91-1.28)
Heavy Drinking	0.47 (0.36-0.61) [†]	0.44 (0.25-0.79) [†]	1.08 (0.91-1.28)
Inadequate Physical Activity	1.41 (1.30-1.52) [†]	1.53 (1.23-1.91) [†]	1.39 (1.27-1.51) [†]
No Colon Cancer Screening	0.72 (0.63-0.82) [†]	0.68 (0.51-0.92) [*]	0.72 (0.64-0.82) [†]
No Influenza Vaccination	1.45 (1.34-1.58) [†]	1.45 (1.21-1.74) [*]	1.45 (1.34-1.57) [†]
Overweight or Obese	1.74 (1.60-1.88) [†]	2.09 (1.63-2.69) [†]	1.70 (1.57-1.84) [†]
Smoking	1.11 (1.00-1.24) [*]	1.42 (1.08-1.87) [*]	1.07 (0.97-1.19)

[†] $p < 0.01$ by two-sided test.

^{*} $p < 0.05$ by two-sided test.

^a White is the reference category.

^b Each row contains three separate regressions.

^c Controlling for sex, income, education, and metropolitan status.

^d Age ≥ 65 ; N = 168,011 for all behaviors except Inadequate Physical Activity (2015 data) in which N = 150,669.

DISCUSSION

The nationally representative estimates of health behavior risks in our study show that employment is associated with greater health behavior risks for older adults. We found disparities in health behavior risks based on race among older adults, with Black older adults

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having greater health behavior risks than White older adults. These disparities were worse between Black and White older adults who were employed versus Black and White older adults who were unemployed.

While Rooks, Simonsick, Schulz, Rubin, and Harris (2017) showed that working older adults may perform better on physical performance battery and Kachan, Fleming, Christ, Muennig, Prado, Tannenbaum et al. (2015) showed that working older adults have better health outcomes, the findings here indicate that same correlation does not extend to having fewer key health behavior risks that contribute to chronic disease. A possible factor for the positive association between employment and greater health behavior risks is the presence of psychosocial stressors that employees often face such as job insecurity and job strain stemming from high demands and a lack of social support (Burgard & Lin, 2013; Karasek & Theorell, 1990). Prior research has shown a positive association between stress and poor health behaviors (Algren et al., 2018; Cheng, Kawachi, Coakley, Schwartz, & Colditz, 2000), and that lower socioeconomic status is associated with a greater vulnerability to stress (American Psychological Association, 2017). However, it is important to acknowledge that Rauschenbach, Krumm, Thielgen, Hertel et al. (Rauschenbach, Krumm, Thielgen, & Hertel, 2013) reported that age might affect the stress process at work, though, at this point, there is no conclusive evidence as to the exact effects of age on stress.

The disparities in health behavior risks between Black employed older adults and White employed older adults is concerning, especially considering Rooks, Simonsick, Schulz, Rubin, and Harris' (2017) findings that older Black adults were more likely to work than their White counterparts. Furthermore, prior research shows that employment is perceived as an important part of successful aging among Black older adults (AARP, 2005; Troutman, Nies, & Mavellia, 2011). One reason for this positive perception of work may be that Black families have passed on the value of hard work and perseverance through generations (Troutman, Nies, & Mavellia, 2011). However, it should be noted that a reason that Black older adults may be working more is that they cannot afford basic expenses unless they are employed (Fletcher, 2013; Zamudio, 2013). A possible factor contributing to the disparities in health behavior risks among employed Black and White older adults may be that the types of jobs available to and held by Black people may come with a lower level of benefits (e.g., health insurance, pension packages). Research shows that disparities in income mobility persist between Black people and White people (Chetty et al., 2017) and Blacks are underrepresented in science, technology, engineering, and math (STEM) jobs—professions that typically offer a high salary and comprehensive benefits (Funk & Parker, 2018; National Science Foundation; 2017). Reasons contributing to the underrepresentation of Blacks in STEM jobs extend beyond the reach of this study, but include economic viability, early life educational opportunities, and job security (Baciu, Negussie, Geller, & Weinstein, 2017; Friedman & Wachs, 1999). Before even entering higher education, Black students often have experienced lower expectations by teachers (Gillborn & Mirza, 2000; Gillborn, 2001; Wright, Standen, & Patel, 2009) and experienced science as a subject for White students and not Black students (Losh, 2010; Malcom, Van Horne, Gaddy, & George, 1998).

To better understand our study results, we must acknowledge the influence social determinants of health have in describing race differences, particularly on areas of stress and health. Defined by five key areas (i.e., economic stability, education, health and health care, neighborhood and built environment, and social and community context) (U.S. Department of

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Health and Human Services, 2020), social determinants of health allow for a broader understanding of disease onset and the circumstances by which they exist. The association with race is shown in our study results, where White older adults were significantly less likely than Black older adults to be overweight or obese, engage in inadequate physical activity, and not receive influenza vaccination. While not surprising, these findings confirm the reality that many non-marginalized individuals are privy to and have access to certain services that may not be as readily accessible to others (Casagrande, Whitt-Glover, Lancaster, Odoms-Young, & Gary, 2009). For example, research shows that low-wage workers, especially those who are part-time or have multiple jobs, have less access to workplace health promotion programs (Harris, Hannon, Beresford, Linnan, & McLellan, 2014). Employers and health promotion programmers can help improve access to health promotion programs to all workers by employing strategies such as offering on-site clinical preventive care services, providing transportation to programs, and using new technologies such as mobile-phone based programs (Price et al., 2013).

It is important to point out that there are differences in levels of trust in the medical establishment between black and white communities (Kennedy, Mathis, & Woods, 2007). Just because a person has access to influenza vaccination or colon cancer screening, for example, does not necessarily mean that person will want to obtain those preventive services. Prior research suggests that an effective way to increase uptake of preventive services among blacks who may be prone to distrust of the health care system is to disseminate health and prevention information through informal means (Musa, Schulz, Harris, Silverman, & Thomas, 2009). An example of such an approach is to provide preventive health services information to churches and community groups with large black populations.

The Robert Wood Johnson Foundation (2011) focused on the economic stability area of social determinants of health in a report where they highlighted that employment can have a positive association with health status and unemployment can have a negative association with health status. The results herein suggest that mechanisms other than engaging in healthy behaviors help explain the positive association often seen between employment and health status among older adults (van der Noordt, IJzelenberg, Droomers, & Proper, 2014). Possible contributors to the correlation between employment and better health status may include increased likeliness to live in healthier and safer neighborhoods and having the income to pay for dependent care services—just two examples of several possible social determinants of health related to employment (Robert Wood Johnson Foundation, 2011). This role of employment is consistent with the Health Field Model, which presents social, physical, and genetic factors as opportunities to intervene. We recommend future research that further explores the ways in which employment and health status correlate with one another.

There are limitations to our study. First, the dataset consists of self-reported data. Studies show that respondents tend to underreport health behavior risks (Klatsky, Gunderson, Kipp, Udaltsova, & Friedman, 2006; Rauscher, Johnson, Cho, & Walk, 2008). In the case of our study, this tendency makes our results more conservative; older adults may likely be engaging in even worse health behaviors than we describe. Second, the findings herein are based on data that is “cross-sectional,” or collected at a point in time, so we cannot prove causality. Rather, we can only show an association between the independent and dependent variables.

A third limitation is that we were limited to a basic question about whether the respondents were employed or not employed. We could not analyze the types of workers (e.g.,

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blue-collar vs. white-collar) or their industries. Future studies should examine the type, quality, and full-time / part-time status of employment, which may impact benefits, accessibility to health screenings and medical care, job hours, distance from one's home, and the general atmosphere of the work environment. We also recommend that such future studies examine gender as this factor may relate to both type of employment and prevalence of health behavior risks. Benach et al. (2014), underscore the idea of 'precarious employment', as a determinant of health that impacts the health of workers, families, and the community. Their scholarly work suggests that employment conditions are influenced by the power of relationships between the employer and employee. Again, this moves beyond the positioning of employment versus unemployment and toward the type and quality of employment.

CONCLUSION

With older adults not meeting recommendations for several health behaviors—behaviors that have been shown to lower the risk for chronic diseases—reaching employees with prevention efforts may be one way to have a positive impact on the health of the older U.S. population. When designing workplace health promotion programs, employers and wellness personnel should consider the disparities that exist in health behaviors and ensure that disadvantaged groups receive prevention interventions. Government-sponsored programs and community public health efforts should target employed older adults along with older adults, in general, and include extra measures such as offering services at a variety of locations and times and marketing programs at places of work. Collaboration between public and private organizations is needed to improve the health behaviors and health status of older adults at the population level.

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