Racial/Ethnic Workplace Discrimination

Association with Tobacco and Alcohol Use

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Background: Experiences of discrimination are associated with tobacco and alcohol use, and work is a common setting where individuals experience racial/ethnic discrimination. Few studies have evaluated the association between workplace discrimination and these behaviors, and none have described associations across race/ethnicity.

Purpose: To examine the association between workplace discrimination and tobacco and alcohol use in a large, multistate sample of U.S. adult respondents to the Behavioral Risk Factor Surveillance System survey Reactions to Race Module (2004–2010).

Methods: Multivariable logistic regression analyses evaluated cross-sectional associations between self-reported workplace discrimination and tobacco (current and daily smoking) and alcohol use (any and heavy use, and binge drinking) among all participants and stratified by race/ethnicity, adjusting for relevant covariates. Data were analyzed in 2013.

Results: Among respondents, 70,080 completed the workplace discrimination measure. Discrimination was more common among black non-Hispanic (21%), Hispanic (12%), and other race respondents (11%) than white non-Hispanics (4%) ($p < 0.001$). In the total sample, discrimination was associated with current smoking (risk ratio [RR]=1.32, 95% CI=1.19, 1.47), daily smoking (RR=1.41, 95% CI=1.24, 1.61), and heavy drinking (RR=1.11, 95% CI=1.01, 1.22), but not binge or any drinking. Among Hispanics, workplace discrimination was associated with increased heavy and binge drinking, but not any alcohol use or smoking. Workplace discrimination among black non-Hispanics and white Non-Hispanics was associated with increased current and daily smoking, but not alcohol outcomes.

Conclusions: Workplace discrimination is common, associated with smoking and alcohol use, and merits further policy attention, given the impact of these behaviors on morbidity and mortality.
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Introduction

Racial/ethnic discrimination has been linked to numerous poor health outcomes.[1,2] Prior studies primarily relied on global measures of discrimination,[2] and few assessed the effects of discrimination in particular settings, such as the workplace.[3–5] The workplace is among the most common settings where individuals report experiencing discrimination,[6,7] and could be particularly deleterious for health. Individuals who experience workplace discrimination report greater work-related stress,[8,9] which could lead to poorer health outcomes through adoption of unhealthy stress coping mechanisms.[10]

Previous research suggests that lifetime experiences of discrimination or unfair treatment due to race/ethnicity over multiple domains (e.g., at work, at school, receiving medical care) are associated with increased use of tobacco[11–15] and alcohol,[15–18] which represent two of the leading preventable risk factors for morbidity and mortality in the U.S.[19,20] The prevalence of these risk behaviors and outcomes is patterned by race/ethnicity, such that the rates are lower for racial/ethnic minorities compared to white non-Hispanics,[21] but adverse outcomes are greater.[22–26] Experiences of discrimination are also patterned by race/ethnicity, and racial/ethnic minorities report higher rates of discrimination.[12,16] However, the association between workplace discrimination and

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adverse health behaviors remains largely understudied[5,27,28]—especially whether associations differ across racial/ethnic groups. Evidence suggests racial/ethnic minorities may have greater emotional responses to unfair treatment in the workplace, such as racial/ethnic bullying,[29] which could contribute to differential health behavior responses.[10] Only two known studies assessed the relationship between past-year workplace discrimination and problematic alcohol use, yielding mixed results,[5,28] and one study found a positive association with smoking.[27] However, none have evaluated both smoking and alcohol use in the same sample.[5,27,28]

The present study uses data from a large, multistate, multiethnic sample of U.S. adults to examine the association between workplace discrimination and tobacco and alcohol use. This study addresses gaps in the literature by describing and comparing the prevalence of workplace discrimination across racial/ethnic groups and evaluating associations with smoking and alcohol use overall, as well as within racial/ethnic groups.

Methods

Data Source and Sample

This study used pooled survey data from the 2004−2010 Behavioral Risk Factor Surveillance System (BRFSS), a system of annual state surveys with core survey items collecting information on demographics, health behaviors, and health conditions from U.S. adults by telephone.[30] The sample included respondents residing in 1 of 15 states opting to collect the BRFSS module, "Reactions to Race." States included Arkansas (2004), Colorado (2004), Delaware (2004−2005), District of Columbia (2004), Georgia (2010), Kentucky (2010), Indiana (2009), Michigan (2006), Mississippi (2004), Nebraska (2008−2009), Ohio (2005), Rhode Island (2004, 2007, and 2010), South Carolina (2004), Virginia (2008), and Wisconsin (2004−2006). The number of participating states (one to eight) varied each year, and sample sizes varied by state (Appendix Table 1, available online). The BRFSS uses a multistage, stratified sampling design to select households for interview. Adult respondents were eligible for this study if they reported past-year employment and completed survey items regarding workplace discrimination, tobacco use, and alcohol use. This study was considered exempt from review by the University of Washington IRB because data are publicly available and de-identified.

Measures

Two measures of tobacco use (current smoking and daily smoking) were constructed consistent with CDC's definitions for monitoring smoking in the U.S.[31] Respondents were considered current smokers if they reported having smoked ≥100 cigarettes in their lifetime, and reported at the time of survey smoking *every day* or *some days*. Daily smokers reported having smoked ≥100 cigarettes in their lifetime and *every day* at the time of survey.

Alcohol use measures were based on BRFSS survey items, which ask respondents for: (1) number of past-month drinking days; (2) average number of drinks per day on drinking days; and (3) number of past-month binge drinking occasions. In 2006, the binge-drinking question changed from asking respondents to report occasions when they consumed five or more drinks to five or more and four or more drinks for men and women, respectively. This change resulted in a slightly higher prevalence of binge drinking among women, compared to prior years.[32] *Any alcohol use* was defined as self-report of any alcohol use within the past month (Question 1). *Heavy alcohol use* was defined as self-report of exceeding recommended drinking limits (more than 7 drinks per week on average for women, more than 14 drinks per week on average for men)[33] based on either the calculated average drinks per day over the past month (Questions 1 and 2)[34] or past-month binge drinking (Question 3). *Binge drinking* was defined as any past-month occasion of exceeding daily drinking limits (Question 3).

Respondents who reported past-year employment (full-time or part-time) on an earlier survey item were asked about workplace discrimination: *Within the past 12 months at work, do you feel you were treated worse than, the same as, or better than people of other races?* Response options included being treated: (1) *worse than other races*; (2) *the same as other races*; (3) *better than other races*; (4) *worse than some races, better than others*; or (5) *only encountered the same race*. Those reporting treatment *worse than other races* or *worse than some races, better than others* were considered to report workplace racial discrimination, and all other responses were considered not reporting discrimination. Although single-item measures of discrimination may not fully capture lifetime experience of discrimination, workplace discrimination measures similar to that used in this study have identified associations with mental health outcomes[4,5] and behaviors,[5,27] suggesting content validity.

Self-reported race/ethnicity was categorized into four groups: white non-Hispanic, black non-Hispanic, Hispanic, and other. Owing to small sample sizes, respondents identifying themselves as Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native, and any other race were considered "other race."

Demographic covariates included age (18−34, 35−54, 55−99 years), gender, marital status (married/coupled, separated/divorced, widowed, never married), income (<$20,000, $20,000 to <$35,000, $35,000 to <$75,000, ≥$75,000, missing), and education (<high school, high school, some college, ≥college), which have known associations with both experiences of discrimination[6,12,16] and tobacco and alcohol use.[21,35,36] A missing category was included for income, given the relatively larger proportion of missing data (9%), in order to include these individuals in analyses. A categorical variable for state was included to account for geographic differences.

Statistical Analyses

All analyses were weighted with the final survey weights provided by BRFSS and accounted for complex survey design and nonresponse. In order to account for some states contributing multiple years of data in the pooled sample, the final weight for respondents in these states was divided by the number of years of data that state contributed. Both unweighted sample sizes and weighted proportions are reported in tables, and chi-squared tests of independence were used to test for differences in proportions.

Logistic regression models were fit to evaluate the association between perceived discrimination in the workplace and alcohol and smoking, adjusting for covariates. Models included multiplicative interactions between race/ethnicity and workplace discrimination, and post-estimation Wald tests were used to test whether associations

varied across race/ethnicity. Consistent with prior studies, analyses were also stratified by race/ethnicity because it was anticipated that there could be qualitative differences in the experiences of discrimination across race/ethnic groups.[16] Model results are presented as adjusted risk ratios (RRs), comparing the mean adjusted probability of each health behavior for reporting workplace discrimination relative to not reporting discrimination, and were estimated using recycled predictions.[37] All analyses were conducted in Stata, version 12.0 with weighted survey methods in 2013.

Results

Among 136,813 BRFSS respondents from participating states, 78,833 (58%) reported working in the past year and 70,780 (90%) completed the workplace discrimination question. Among those, 69,695 (98%) completed covariate and smoking measures, and 69,857 (99%) completed covariate and alcohol consumption questions. A majority of the sample was white non-Hispanic, middle aged (35–54 years), married or coupled, attended some college, and earned >$35,000 (Table 1).

Workplace discrimination was more common among black non-Hispanic (21%), Hispanic (12%), and other race respondents (11%) than white non-Hispanics (4%) ($p<0.001$) (Table 2). Among white non-Hispanics, those reporting being separated/divorced, having lower education, and having lower income (<$20,000) were more likely to report experiencing discrimination (all p-values <0.001). However, no significant differences in the proportions of those reporting or not reporting discrimination for demographic characteristics were detected among other racial/ethnic groups.

Overall, 60% of respondents reported any alcohol use, 32% reported heavy alcohol use, and 19% reported binge drinking (Table 3). Any alcohol use was highest among white non-Hispanics (62%) and lowest among black non-Hispanics (50%) ($p<0.001$). Binge drinking was higher among both white non-Hispanics and Hispanics (both 21%) compared to black non-Hispanics (13%) and those of other race/ethnicity (16%) ($p<0.001$). For tobacco use, 22% of respondents reported they were current smokers and 17% smoked daily. Current smoking did not vary significantly across racial/ethnic groups (21%–22%) ($p=0.88$), but daily smoking was most common among white non-Hispanics (17%) and lowest among Hispanics (11%) ($p<0.001$).

Based on multivariable logistic regression models, workplace discrimination was significantly associated with increased risk for heavy alcohol use (adjusted RR=1.11, 95% CI=1.01, 1.22), as well as current (RR=1.32, 95% CI=1.19, 1.47) and daily smoking (RR=1.41, 95% CI=1.24, 1.61) in the overall sample (Table 3). No significant association was identified between workplace discrimination and any alcohol use or binge drinking. With the exception of a significant race-by-discrimination effect for binge drinking ($p=0.05$), all other race-by-discrimination interactions with smoking or alcohol use behaviors were nonsignificant. After stratifying by race/ethnicity, Hispanics reporting workplace discrimination were significantly more likely to report heavy drinking (RR=1.45, 95% CI=1.07, 1.97) and binge drinking (RR=1.93, 95% CI=1.30, 2.85) than those not reporting workplace discrimination, but not current or daily smoking. Workplace discrimination was significantly associated with

Table 1. Demographic characteristics of study sample and respondents reporting workplace discrimination

	Total sample (N=70,780), n (weighted %)	Reporting discrimination (n=3,850), n (weighted %)
Male	29,862 (54.4)	1,699 (56.6)
Race		
White, non-Hispanic	59,295 (79.5)	1,921 (49.4)
Black, non-Hispanic	6,328 (10.9)	1,319 (33.9)
Hispanic	2,545 (4.7)	327 (8.5)
Age		
18–34 years	14,353 (33.9)	927 (36.8)
35–54 years	36,626 (50.9)	2,190 (52.2)
55–99 years	19,378 (15.2)	700 (11)
Marital status		
Married/coupled	45,288 (69.3)	1,912 (59.3)
Separated/divorced	11,705 (10.7)	919 (15.5)
Widowed	3,022 (1.7)	123 (1.7)
Never married	10,563 (18.3)	881 (23.5)
Education		
<High school	3,590 (5.8)	348 (8.8)
High school	20,635 (29.0)	1,230 (32.4)
Some college	19,397 (26.4)	1,139 (31.4)
College or more	27,110 (38.8)	1,129 (27.4)
Income		
<$20,000	6,259 (8.4)	645 (14.5)
$20,000 to <$35,000	12,925 (16.4)	892 (23.5)
$35,000 to <$75,000	25,919 (33.9)	1,296 (33.0)
>$75,000	20,018 (32.7)	700 (20.8)
Missing	5,659 (8.5)	317 (8.2)

Note: All percents are weighted to account for complex survey design, but numbers of respondents are unweighted.

Table 2. The prevalence of self-reported workplace discrimination overall and across respondent characteristics, stratified by race/ethnicity

	White, non-Hispanic	Black, non-Hispanic	Hispanic	Other
Overall	1,921 (4.2)	1,319 (21.2)	327 (12.3)	242 (11.4)
Overall group comparison, *p*-value				**<0.001**
Gender				
Female	1,025 (3.9)	816 (19.9)	166 (11.3)	124 (10.6)
Male	896 (4.5)	503 (22.6)	161 (13.0)	118 (11.8)
Within Group Comparison, *p*-value	0.14	0.18	0.47	0.64
Age				
18–34 years	369 (4.5)	363 (21.4)	108 (11.1)	80 (8.9)
35–54 years	1,099 (4.3)	761 (21.7)	183 (13.7)	128 (14.0)
55+ years	446 (3.5)	181 (17.0)	33 (12.7)	32 (10.6)
Within-group comparison, *p*-value	0.18	0.33	0.58	0.19
Marital status				
Married/coupled	1,064 (3.9)	505 (19.9)	199 (12.4)	123 (11.2)
Separated/divorced	471 (6.7)	324 (22.1)	70 (17.1)	46 (16.5)
Widowed	77 (3.9)	36 (20.3)	4 (19.7)	4 (3.3)
Never married	305 (4.3)	447 (22.7)	53 (9.5)	69 (10.6)
Within-group comparison, *p*-value	**<0.001**	0.52	0.34	0.40
Education				
<High school	127 (6.7)	106 (17.9)	92 (14.2)	19 (16.2)
High school	667 (5.1)	392 (21.3)	96 (13.1)	63 (11.5)
Some college	583 (5.1)	413 (23.2)	71 (12.7)	62 (11.9)
College or more	542 (2.8)	407 (19.7)	68 (9.0)	98 (10.4)
Within-group comparison, *p*-value	**<0.001**	0.44	0.52	0.84
Income				
<$20,000	253 (6.5)	252 (21.1)	86 (18.2)	51 (19.5)
$20,000 to <$35,000	415 (6.8)	336 (20.8)	84 (10.2)	53 (14.6)
$35,000 to <$75,000	679 (4.0)	440 (24.2)	91 (11.5)	72 (11.7)
>$75,000	422 (3.0)	195 (18.1)	30 (9.3)	45 (7.7)
Missing	152 (4.2)	96 (18.3)	36 (14.5)	21 (7.7)
Within-group comparison, *p*-value	**<0.001**	0.30	0.21	0.11

Note: Values are *n* (%) unless otherwise noted. All percents are weighted to account for complex survey design, but numbers of respondents are unweighted. Boldface indicates statistical significance ($p<0.05$).

increased current (RR=1.34, 95% CI=1.19, 1.53) and daily smoking (RR=1.41, 95% CI=1.22, 1.65) among white non-Hispanics and black non-Hispanics (RR=1.32, 95% CI=1.08, 1.62 and RR=1.46, 95% CI=1.13, 1.89, respectively). Respondents of other races reporting workplace discrimination were also more likely to report daily smoking (RR=1.79, 95% CI=1.00, 3.19), and there was a trend toward significance for current smoking ($p=0.08$). Sensitivity analyses examining the impact of including a missing category for income found that results did not differ when analyses were repeated among individuals with complete income information.

Table 3. Adjusted risk ratios for association between self-reported workplace discrimination and smoking and alcohol use behaviors

	Unadjusted prevalence, *n* (%)	Unadjusted prevalence by report of discrimination		Adjusted RR (95% CI)
		% No	% Yes	
Any alcohol use				
Overall	68,851 (60.1)	60.2	57.6	1.04 (0.99, 1.09)
White, non-Hispanic	58,118 (62.4)	62.5	61.0	1.02 (0.96, 1.09)
Black, non-Hispanic	6,120 (49.6)	48.4	54.1	1.08 (0.97, 1.20)
Hispanic	2,467 (53.9)	53.9	54.3	1.04 (0.85, 1.26)
Other	2,146 (52.8)	52.6	54.9	1.06 (0.78, 1.43)
Heavy drinking				
Overall	68,851 (31.8)	31.8	33.0	**1.11 (1.01, 1.22)**
White, non-Hispanic	58,118 (33.2)	33.2	35.3	1.07 (0.94, 1.21)
Black, non-Hispanic	6,120 (24.4)	23.7	26.9	1.08 (0.87, 1.33)
Hispanic	2,467 (32.2)	30.7	42.7	**1.45 (1.07, 1.95)**
Other	2,146 (26.2)	25.5	32.4	1.26 (0.83, 1.90)
Binge drinking				
Overall	68,851 (19.1)	19.1	19.4	1.08 (0.94, 1.26)
White, non-Hispanic	58,118 (20.1)	20.1	21.1	1.02 (0.84, 1.24)
Black, non-Hispanic	6,120 (13.0)	12.7	13.9	1.01 (0.72, 1.40)
Hispanic	2,467 (20.1)	18.3	33.2	**1.93 (1.30, 2.85)**
Other	2,146 (16.1)	16.2	15.6	0.99 (0.54, 1.82)
Current smoking				
Overall	69,695 (22.1)	21.4	31.3	**1.32 (1.19, 1.47)**
White, non-Hispanic	58,751 (22.3)	21.7	35.6	**1.34 (1.19, 1.53)**
Black, non-Hispanic	6,235 (21.7)	20.2	27.4	**1.32 (1.08, 1.62)**
Hispanic	2,518 (21.5)	21.5	21.7	0.92 (0.57, 1.49)
Other	2,191 (21.2)	19.5	34.4	1.57 (0.95, 2.60)
Daily smoking				
Overall	69,695 (16.6)	16.0	24.6	**1.41 (1.24, 1.61)**
White, non-Hispanic	58,751 (17.2)	16.7	29.3	**1.41 (1.22, 1.65)**
Black, non-Hispanic	6,235 (15.1)	13.7	20.5	**1.46 (1.13, 1.89)**
Hispanic	2,518 (10.9)	11.0	16.5	0.8 (0.43, 1.50)
Other	2,191 (16.3)	14.6	15.3	**1.79 (1.00, 3.19)**

Note: Adjusted for race/ethnicity, gender, marital status, income, education, and state of residence. Boldface indicates statistical significance ($p < 0.05$).
RR, risk ratio.

Post-hoc analyses stratified by region were conducted to assess potential regional differences in associations. States were categorized into three regions based on U.S. Census Region (South, Northeast, and Midwest/West). Colorado was included with Midwest states because it was the only western state in the sample. Results did not differ from primary analyses, with a few exceptions (Appendix Tables 2–4, available online). For the Northeast, workplace discrimination was no longer significantly associated with smoking behaviors, with the exception of daily smoking among white non-Hispanics. In the Midwest/West, workplace discrimination was no longer significantly associated with heavy drinking in the total sample, but there was a significant association among respondents of other race. Also in the Midwest/West, workplace discrimination was no longer significantly associated with smoking behaviors among black non-Hispanics. The results for the South were essentially identical to primary analyses.

Discussion

In this large sample of U.S. adults representing multiple states and racial/ethnic groups, experiences of discrimination in the workplace were common, particularly among racial/ethnic minority respondents: 11%–21% reported workplace discrimination compared to 4% of white non-Hispanics. Adults who reported racial/ethnic workplace discrimination were significantly more likely than those who did not to report heavy alcohol use, as well as current and daily smoking. Findings suggest that racial/ethnic workplace discrimination could represent an important risk factor associated with tobacco and alcohol use for all racial/ethnic groups.

Rates of workplace discrimination observed in this study are similar to those reported previously in different samples of working adults.[4,5] Consistent with prior studies of global measures of discrimination,[38] evidence of socioeconomic patterning of workplace discrimination among white non-Hispanics was observed, with those of lower SES being more likely to report discrimination than those of higher SES. However, no significant differences in workplace discrimination were observed across socioeconomic characteristics among non-whites, although observed previously for global measures of discrimination.[39,40] One possible explanation for findings in the present study could be that racial/ethnic minorities, unlike white non-Hispanics, experience workplace discrimination regardless of SES. It is also possible that white non-Hispanics of lower SES are vulnerable to unfair treatment in general, including that attributed to race/ethnicity. However, further research is needed to understand the complex associations among race, SES, and perceived discrimination.

Most prior research examining the relationship between experiences of discrimination and smoking or alcohol use behaviors uses lifetime global measures of discrimination, which include workplace discrimination as one domain.[12] These studies consistently find positive associations with smoking behaviors,[7,11–14] as well as increased alcohol use.[16–18] Yet, determining whether these same associations exist for specific domains, such as the workplace, and whether associations differ based on race/ethnicity, could provide more relevant and potentially actionable information for policy makers. Few studies have evaluated the link between workplace discrimination and adverse smoking and alcohol use behaviors.[5,27,28] One previous study using a smaller BRFSS sample evaluated the association between workplace discrimination and smoking,[27] and tested for effect modification by race/ethnicity. The present study confirms the findings from this previous study of increased risk for smoking and no significant effect modification. However, the present study assesses both tobacco and alcohol use behaviors in a larger sample, and additionally describes the associations stratified by race/ethnicity.

Findings from the present study indicate that workplace discrimination may be associated with different unhealthy behaviors in different racial/ethnic groups. Although workplace discrimination was strongly and positively associated with binge drinking among Hispanic adults, it was not associated with binge drinking among other racial/ethnic groups. Conversely, workplace discrimination was associated with current and daily smoking among white non-Hispanic, black Non-Hispanic, and other race respondents, but not Hispanics. Although it is possible that limited statistical power prevented observation of a small to moderate association between discrimination and tobacco use among Hispanics, it appears that the association between workplace discrimination and smoking is not as strong as that for binge drinking within this group. Hispanic adults may be more likely to engage in harmful alcohol use than smoking to cope with stresses related to workplace discrimination.

Alcohol and smoking are two of the leading preventable causes for disease and disability in the U.S., and clinicians are encouraged to routinely assess patient smoking and alcohol use and provide interventions for patients to quit smoking and reduce unhealthy alcohol use.[41,42] The results of this study may offer further insight into the fact that patients' motivations for engaging in smoking and alcohol use behaviors are complex, and individuals may be at risk for unhealthy behaviors based on numerous social and contextual factors patterned by race/ethnicity.[43] Workplace discrimination could represent one of many social risk factors that facilitate unhealthy behaviors. Clinicians who counsel patients about these health risk behaviors may want to consider and discuss with patients the influences of social factors.

In addition to strategies focused at the individual level, broader approaches may also be needed to address upstream determinants[43,44] of workplace discrimination. The racial composition of the workplace is associated with individual's experiences of workplace discrimination, and individuals who work in settings with more same-race colleagues are less likely to report experiencing discrimination.[44] In sectors in which there is less subjectivity allowed for promoting employees, such as governmental positions, there is greater representation of racial/ethnic minorities in positions of power and lower wage differentials relative to other sectors.[45] Policies to increase racial/ethnic diversity and efforts to reduce discrimination in worksites could both reduce workplace inequities[46] and have positive spillover effects on health behaviors. However, more research is needed to identify the most effective strategies for addressing important social determinants of health such as racism,[46] which ultimately determine individuals' exposures to workplace discrimination.

The results of this study should be considered in light of several limitations. First, as this is a cross-sectional study, observed associations cannot be interpreted as causal. Reverse causality is possible, whereby racial/ethnic minorities may experience discrimination due to tobacco/alcohol use. Second, because information on respondents' lifetime experiences of discrimination across all domains was not available for this study, it is not possible to determine whether workplace discrimination is associated with health behaviors over and above that experienced in

other settings. Previous studies have identified associations between discrimination in healthcare settings and smoking,[27] as well as multiple domains of discrimination and smoking[11–15] and alcohol use.[15–18] Third, information was not available on job characteristics that may be important to understanding the association between workplace discrimination and health behaviors. For example, effects of discrimination may be particularly stressful in certain sectors,[47] and there could be other workplace hazards[7,14,44] that exacerbate individual stress responses to workplace discrimination. It will be important for future research to examine potential mechanisms through which workplace discrimination might impact health behaviors, such as psychological distress.[27] Fourth, the measures used in this study relied on self-report of workplace discrimination, health behaviors, and sociodemographics, and these experiences or characteristics may be misclassified. If respondents underreported workplace discrimination[12] or health behaviors owing to social desirability bias, this may have biased associations. Available measures of income and education may not have adequately characterized SES and analyses may not have fully adjusted for its influence on discrimination and health behaviors. Fifth, assessment of temporal trends is not possible in these data because state participation was optional and varied by year. Finally, there are limitations to the interpretation of post-hoc regional analyses due to small sample sizes, statistical issues related to multiple comparisons, and the fact that participating states may not be representative of nonparticipating states within a region. Although these results may be hypothesis-generating, differences from main analyses should be interpreted with caution.

Conclusions

In conclusion, workplace discrimination is significantly associated with smoking and some alcohol use behaviors in a large sample of adults from multiple states and racial/ethnic groups. Hispanics who experience workplace discrimination may be particularly vulnerable to adverse drinking behaviors. Given that these adverse health behaviors are strongly associated with increased risk of morbidity and mortality, efforts may be needed to address workplace discrimination.

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Appendix

Supplementary data

Supplementary data associated with this article can be found at http://dx.doi.org/10.1016/j.amepre.2014.08.013.