

Abstract

Using data from the 2008 Behavioral Risk Factor Surveillance System, we examined the relationship between current cigarette smoking and personal experiences of differential race-based treatment among Virginia adults. Based on responses to four items from the Reactions to Race module, ten percent (n=485) of respondents reported in the affirmative to any of the following: 1) personal experiences of negative differential treatment based on race (i.e., treated worse than people of other races) in either an employment or healthcare setting within the past 12 months; 2) presence of emotional symptoms in reaction to differential treatment within the past 30 days; and 3) presence of physical symptoms in the past 30 days. Weighted rates, confidence intervals, and relative risk estimates were computed and chi-square tests were performed using Complex Samples in SPSS 17.0. Results show that adults who report differential race-based treatment were significantly more likely to smoke than adults who did not report differential treatment (24.5% vs. 15.6%). This was the case among non-Hispanic whites, but not among blacks. Young, lower income and less educated adults were more likely to smoke, regardless of experiences with race-based treatment. However, among older (> 44 years) adults, middle-income earners, and college graduates, those who experienced differential race-based treatment were more likely to smoke than adults who did not report differential treatment. These findings suggest that perceived differential race-based treatment, or race discrimination, may be a predictor of tobacco use in certain populations. Due to small sample size, further research and data collection is warranted.

Introduction & Background

Harris et al. (2006) found that experiences of racial discrimination were associated with increased smoking and negative health outcomes among New Zealand natives. A review of several population-based studies (Paradies, 2006) indicated a positive association between racial discrimination and ill health. The strongest associations were in relation to mental health outcomes (e.g., distress) and health behaviors, including smoking. As Paradies points out, one of the limitations of research in this area is the confounding of perceived racism and stress. Landrine and Klonoff (2000) found that racial discrimination was a better predictor of smoking among Blacks than status variables. They also found that smoking rates were highest among Blacks who experienced racial discrimination as extremely stressful.

Using a population-based adult health behavior survey, we explored the association between cigarette smoking and self-reported experiences of race-based differential treatment (including possible stress-related physical and emotional reactions), before and after adjusting for race, age, and socioeconomic status (education and annual income).

Methods

Analyses were performed on data from the 2008 Virginia Behavioral Risk Factor Surveillance System, a state-based, random-digit-dial (RDD) telephone survey of non-institutionalized adults in Virginia. The BRFSS, which is supported and funded by the Centers for Disease Control and Prevention (CDC), is administered annually and designed to capture information about prevalence of chronic disease and injury, health behaviors, and preventive health practices.

Using a similar approach as Crawford et al. (2008), four questions from the optional Reactions to Race module were used to assess for personal negative experiences of differences in treatment based on race in either an employment or healthcare setting in the past 12 months and self-reported experiences of physical or emotional reactions to race-based treatment in the past 30 days. The questions were as follows (response options are listed in parentheses):

- "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?" ("worse than other races", "the same as other races", "better than other races", "worse than some races/better than other races", "only encountered people of the same race") (asked only of those who are "employed for wages", "self-employed", or "out of work for less than one year").
- "Within the past 12 months, when seeking health care, do you feel your experiences were worse than, the same as or better than those for people of other races?" ("worse than other races", "the same as other races", "better than other races", "worse than some races/better than others", "only encountered people of the same race", "no healthcare in past 12 months")
- "Within the past 30 days, have you experienced any physical symptoms, for example, a headache, an upset stomach, tensing of your muscles, or a pounding heart, as a result of how you were treated based on your race?" ("yes", "no")

- "Within the past 30 days, have you felt emotionally upset, for example, angry, sad, or frustrated, as a result of how you were treated based on your race?" ("yes", "no")

The four questions were recoded into binary variables. The response options "worse than other races" or "worse than other races/better than others" for questions 1 & 2, and "yes" for questions 3 & 4 were recoded as one (=1). All other responses, including "don't know", "refused", "only encountered people of the same race", and "no health care in past 12 months", were recoded as zero (=0). The number of affirmative (=1) responses was summed into an index score. Respondents who had a score of one or more (≥ 1) were classified as experiencing differential race-based treatment and/or physical/emotional reactions, or "differential treatment". Respondents who had an index score of zero (=0) were classified as not experiencing race-based treatment or reactions ("no differential treatment").

The outcome variable is current cigarette smoking prevalence rate, which is calculated from two BRFSS core questions: "Have you smoked at least 100 cigarettes or more in your entire life?" and "Do you now smoke cigarettes every day, some days, or not at all?". Current smokers are defined as respondents who answered "yes" to smoking at least 100 cigarettes in their lifetime and responding either "every day" (habitual smoking) or "some days" (occasional smoking) to the second question.

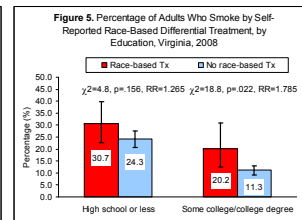
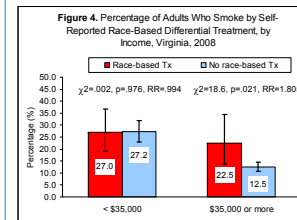
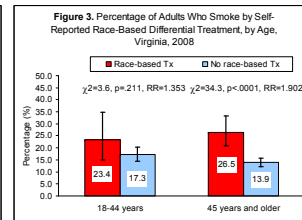
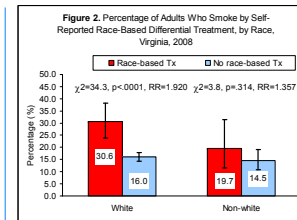
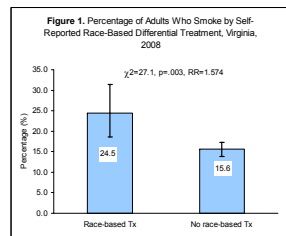
Analyses

Data were population-weighted and analyses were conducted using SPSS 17.0 Complex Samples to account for the BRFSS complex survey design. Chi-square tests of independence were performed comparing smoking rates between adults who reported differential race-based treatment and those who did not. The relationship between smoking and differential treatment was examined controlling for the following confounding factors: race (white, non-white), age (18-44 years, 45 years and older), household income (<\$35,000, \geq \$35,000), and education (high school degree or less, some college/college graduate). Significance level of all statistical tests was set at $p \leq .05$. Weighted rates, unweighted counts, 95% confidence intervals, and relative risk estimates are reported.

Results

Analyses were performed on data from a final sample of 5,281 respondents (29 survey respondents, who did not respond to Reactions to Race or smoking questions, were excluded). Almost ten percent (9.8%; 95% CI: 8.2-11.5%) experienced some form of differential race-based treatment and/or physical/emotional reactions to differential treatment. Blacks (24.6%; 19.3-30.9%) and Hispanics (17.7%; 11.1-26.9%) were significantly more likely to report differential treatment than whites (5.7%; 4.8-6.7%). Due to insufficient numbers of blacks and Hispanics in the sample, we merged all non-white respondents into one group. Non-white adults were four times more likely to report differential treatment based on race than white adults (chi-square=333.0, $p < .0001$, RR=4.1).

In the overall state sample, 16.4% (95% CI: 14.9-18.1%) of Virginia adults reported that they smoked cigarettes either every day or some days. We examined prevalence rates of current cigarette smoking among adults who reported differential treatment compared to the rest of the population. One-in-four (24.5%; 95% CI: 18.6-31.5%) adults who reported differential treatment currently smoke, compared to 15.6% (95% CI: 13.9-17.3%) of adults who did not experience differential treatment (Figure 1).



Summary and Conclusions

Adults who reported being treated differently (or experiencing physical and/or emotional reaction) because of their race were more likely to smoke. This is consistent with findings from other studies. This was observed among non-Hispanic whites only. [The small sample size precluded any further analyses within each racial and ethnic group.] This pattern was also found among adults who were older, had more income, and were better educated. The implication is that self-reported differential race-based treatment, or racial discrimination, is a risk factor for smoking, even among advantaged, low-risk populations. Because of the study's small sample, further research is warranted, especially into how stress related to racism and discrimination plays a role. Personal experiences with racism and discrimination as part of a larger group of environmental risk factors that affect health outcomes (i.e., social determinants of health) should be taken into consideration when designing interventions and policies for reducing tobacco use.

References

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Stratifying by demographic and socioeconomic variables that are confounding factors for both smoking and racism, we observed that adults who experienced differential treatment were significantly more likely to smoke than adults who did not experience differential treatment only if they were white (Figure 2), ages 45 years and older (Figure 3), had an annual income of \$35,000 or more (Figure 4), or was educated beyond a high school degree (Figure 5). Race-based differential treatment did not affect smoking rates among adults who were non-white, younger (<45 years), lower income (<\$35,000), and less educated (high school degree or less).

When all five variables (race, age, income, education, and race-based treatment) were entered in a forward stepwise logistic regression analysis, experiences of race-based treatment was a significant predictor of smoking (adjusted OR=1.576, 95% CI: 1.564-1.588). However, income (adjusted OR=2.087) and education (adjusted OR=1.980) were better predictors. However, only 8% of the variance in smoking was explained using these five variables in our model (Nagelkerke R²=.079).