

Does Learning about Race Prevent Substance Abuse? Racial Discrimination, Racial Socialization and Substance Use among African Americans

Azure B. Thompson ^{1,*}, Melody S. Goodman ², Naa Oyo A. Kwate ³

¹ National Center on Addiction and Substance Abuse at Columbia University, 633 3rd Ave, New York, NY 10017, United States

² Division of Public Health Sciences, Department of Surgery, Washington University in St. Louis School of Medicine, 660 S. Euclid Avenue, Campus Box 8100, St. Louis, MO 63110, United States

³ Rutgers, the State University of New Jersey, 55 Dudley Rd, Cook Office Building, New Brunswick, NJ 08901-8520, United States

* Corresponding Author. E-mail: athompson@casacolumbia.org

Abstract. Highlights • On average, respondents reported experiencing racial discrimination in four settings. • Experiencing racial discrimination increased the risk of weekend and problematic alcohol use. • Moderation effects of racial socialization on these increased risks were tested. • Increased risks of weekend and problematic alcohol use were not moderated by racial socialization.

Keywords: Health disparities; African American/Black; Substance use; Tobacco use; Alcohol use; Racial discrimination.

1. Introduction

Substance use is the leading cause of preventable morbidity and mortality in United States. Tobacco and alcohol use in particular accounts for nearly 520,000 deaths annually, or an estimated one in five deaths per year (Mokdad, Marks, Stroup, & Gerberding, 2004). African Americans bear a disproportionate burden of tobacco and alcohol-related problems. African Americans are less likely than Whites to ever use tobacco and alcohol. However, once African Americans start using tobacco and alcohol, they are less likely than Whites to quit cigarette smoking (King, G, et al., 2004 and Thompson, AB, et al., 2011) and more likely to use alcohol and cigarettes at older ages, (Pampel, F., 2008, Keyes, KM, et al., 2015, Kandel, D, et al., 2011 and Geronimus, AT, et al., 1993) to develop alcohol abuse and dependence, (Grant, JD, et al., 2012 and Watt, TT, 2008) and to develop alcohol and tobacco related diseases such as cancer (USDHHS, 1998a).

Racial discrimination is a salient and pervasive experience in the lives of African Americans (Pager, D and Shepherd, H, 2008 and Feagin, J and Bennefield, Z, 2014) and is associated with substance use (Bennett, GG, et al., 2005, Borrell, LN, et al., 2007, Borrell, LN, et al., 2010, Clark, TT, 2014, Landrine, H and Klonoff, EA, 2000, Purnell, JQ, et al., 2012, Boynton, MH, et al., 2014, Kwate, NOA, et al., 2003, Gibbons, FX, et al., 2010 and Latzman, RD, et al., 2013). Racial discrimination is the exclusion of persons on the basis of race and one way dominant racial groups maintain racial hierarchies and privilege (Feagin & Bennefield, 2014). African Americans report racial discrimination in a number of settings including school, work and getting service in stores or restaurants (Pager & Shepherd, 2008). Experiencing racial discrimination can be an uncontrollable and unpredictable stressor, a type of stressor particularly harmful to health (Pascoe & Richman, 2009). Moreover, individuals who face racial discrimination in numerous settings report more fear and anger in anticipation of having to respond to it (Krieger, N., 2016 and Krieger, N, et al., 2005).

For some African Americans, substance use is a coping strategy to relieve stress from experiences of racial discrimination (Gerrard, M, et al., 2012 and Gibbons, FX, et al., 2010), as exemplified by studies that have found an association between those who report experiencing racial discrimination

and lifetime (Clark, TT, 2014 and Purnell, JQ, et al., 2012) and current (Bennett, GG, et al., 2005, Borrell, LN, et al., 2007, Borrell, LN, et al., 2010, Clark, TT, 2014, Landrine, H and Klonoff, EA, 2000 and Purnell, JQ, et al., 2012) tobacco and alcohol use, and severity in use such as drinks consumed per day Kwate et al., 2003 and problematic levels of drinking (Boynton, MH, et al., 2014, Gibbons, FX, et al., 2010 and Lutzman, RD, et al., 2013). However, African Americans learn to cope with racial discrimination in a number of ways (Greer, TM, 2011 and Pascoe, EA and Richman, LS, 2009). One way is racial socialization, the process by which individuals are taught values and beliefs pertaining to their racial group membership (Lesane-Brown, 2006). Racial socialization can include messages on how individuals should interpret and cope with experiences of racial discrimination (Brown, TN and Lesane-Brown, CL, 2006, Lesane-Brown, CL, 2006 and Neblett, EW, et al., 2010). Socialization processes usually occur during early stages of development (i.e., childhood and adolescence) but yield schemas on how to participate in social life that can last throughout the life course (Ardelt, 2000). Racial socialization experiences are generally associated with less negative affect once a racially discriminatory event has occurred (Bynum, MS, et al., 2007 and Lesane-Brown, CL, 2006).

No empirical study to our knowledge has examined the relationship between racial discrimination, racial socialization and behaviors related to substance use. Moreover, few studies examine the effects of early racial socialization processes on substance use later in life. We do so by examining associations between the number of settings in which racial discrimination is experienced and behaviors related to tobacco and alcohol use; and assessing whether racial socialization in early stages of development moderates these relationships. We hypothesized that the relationship between number of settings in which racial discrimination is experienced and behaviors related to tobacco and alcohol use depends on early racial socialization experiences, such that the relationship is stronger among African Americans who experienced racial socialization at low a frequency and weaker among African Americans who experienced racial socialization at a high frequency.

2. Materials and methods

The Black LIFE (Linking Inequality, Feelings, and the Environment) Study took place in two predominantly Black neighborhoods in New York City, the most populous city in the United States, with 8,175,133 residents. The residents of Brooklyn's Bedford-Stuyvesant and Manhattan's Central Harlem have moderate incomes: approximate median household incomes from the 2010 to 2012 American Community Survey 3-year estimates were \$36,535 and \$36,112, respectively (EpiQuery: NYC Interactive Health Data, 2012). Participants completed a baseline, 2-month follow-up and 1-year follow-up computer-assisted face-to-face interview. Data for baseline and follow-ups were collected between December 2011 and June 2013. The present analysis is based on baseline data.

2.1. Sample

Recruited were 144 participants from a probability sample of Black residents in the two neighborhoods. Randomly selected households were screened for adults eligible to participate in the study and then one household member was randomly selected for participation. Eligible adults were at least 18 years old, spoke English, self-identified as Black-African American, and had lived in the United States since at least 5 years of age. We excluded those who did not spend their formative years in the United States because experiences with racism are often different for individuals who grew up outside the United States (Kwate & Goodman, 2015). Overall response rates to initial recruitment across the 2 neighborhoods were 30% to 35%, reflecting difficulty in making household contact for screening; rates for successfully interviewing people were about 60% for eligible households. The sample was 52% female, with a mean age of 44.6 years.

2.2. Measures

2.2.1. Independent variables

We assessed the number of settings in which racial discrimination occurred with the Experiences of Discrimination (EOD) scale (Krieger et al., 2005). The EOD scale asks about ever experiencing discrimination attributable to race or ethnicity in the following 9 settings (e.g., at school, getting hired or getting a job, at work, getting housing, getting medical care, getting service in a store or a

restaurant, getting credit, bank loans or a mortgage, on the street or in a public setting, from the police or in the courts). The EOD scale yields a numerical count of settings in which participants report having experienced racial discrimination.

Racial socialization was assessed using the Childhood Racial Socialization Experiences (RSE) scale, (White-Johnson, Ford, & Sellers, 2010) which asks participants to state how frequently (1 = never to 5 = always) racial socialization messages were received from parents, peers, and other adults during childhood and adolescence. Higher average scores indicate a higher frequency of racial socialization messages in childhood and adolescence.

2.2.2. Dependent variables

Tobacco use behaviors were being a lifetime and current cigarette smoker. Those who reported yes to “Have you ever smoked 100 cigarettes in your lifetime?” were classified as lifetime cigarette smokers. Current cigarette smokers were those who reported having smoked 100 cigarettes in their lifetime and were currently smoking every day or some days.

Alcohol use behaviors were weekday, weekend and problem alcohol use. To account for differences in temporal patterns of alcohol consumption, we assessed alcohol use during the weekday (Monday through Thursday) and weekend (Friday through Sunday). Alcohol consumption in the United States is higher during the weekend than the weekday (Arfken, 1988). Participants reported about how many drinks usually had during the weekend and weekday over the past month and were categorized into nondrinkers, moderate drinkers and heavy drinkers by day of the week. Women who averaged up to 1 drink per day and men who averaged up to 2 drinks per day were classified as moderate drinkers; participants who averaged more than moderate drinking levels were classified as heavy drinkers. Dietary Guidelines for Americans informed these alcohol use classifications (<http://123.233.119.36:80/rwt/119/http/NBTXC5DVNAYGP55X/dietaryguidelines/dga2005/document/html/chapter9.htm>, 2015).

We assessed problem alcohol use using CAGE. The CAGE—a mnemonic for attempts to cut back (C) on drinking, being annoyed (A) at criticisms about drinking, feeling guilty (G) about drinking, and using alcohol as an eye (E) opener—is a four item scale with each item scored 0 or 1. Answering affirmatively to two or more of these items suggests problem alcohol use (Ewing, 1984).

2.2.3. Covariates

We also included sociodemographic variables shown to be associated with alcohol and tobacco use such as age, gender, years of education, employment status and financial strain (Chartier, K and Caetano, R, 2010, Fellner, J., 2009, Grant, JD, et al., 2012, Godette, DC, et al., 2011, Keyes, KM, et al., 2015, USDHHS., 1998b, Vogt Yuan, AS, 2011 and Watt, TT, 2008). Financial strain was assessed by asking participants how comfortably their household lived on the reported income; response choices were “always have enough money for the things you need,” “sometimes don't have enough money,” and “often don't have enough money.”

2.3. Statistical analysis

Analysis were weighted to account for nonresponse and to make post-stratification adjustments on age and gender. Regression analyses for survey data with complex sampling design and weighting were conducted with STATA version 13.1. Predictors of primary interest were the count of settings in which participants report having experienced racial discrimination and frequency of racial socialization experiences (RSE) during childhood and adolescence across sources (i.e., parents, family, and community) and control variables were age, gender, education, unemployment and financial strain.

First, we used weighted regression models to test whether there was an association between number of settings in which participants report ever having experienced racial discrimination and behaviors related to cigarette and alcohol use (Model 1).

View the MathML source $Y = i + aEOD + E$

We then used weighted regression models to test whether the relationship between number of settings ever having experienced racial discrimination and behaviors related to cigarette and alcohol use was moderated by the frequency of racial socialization by including a racial discrimination × racial socialization interaction term (Model 2).

3. Results

As shown in Table 1, half (50%) of study participants were lifetime and one-quarter (25.4%) current cigarette smokers. Forty-two percent (42.0%) of study participants were moderate or heavy drinkers on the weekday and more than half (53.9%) moderate or heavy drinkers on the weekend. Nearly one in seven (15.2%) study participants met the criteria for problem alcohol use (Table 1).

On average, participants reported ($SD = 0.23$) experiencing racial discrimination in four settings. Participants most frequently reported discrimination while getting service in a store or restaurant (69%), on the street or in public settings (63%), getting hired or getting a job (57%) and from the police or in the courts (57%). Participants reported racial socialization experiences in childhood and adolescence ranging from 1 (never) to 5 (always), with an average of 2.8 ($SD = 0.97$) (Table 1).

Years of education ranged from 3 to 23, with a mean of 13.5 ($SD = 3$). Nearly half (46%) of the sample were unemployed and a majority (71%) reported sometimes or often not having enough money for the things they need (Table 1).

Correlations for the study variables are presented in Table 2. Being a lifetime cigarette smoker was significantly correlated with age and years of education; current cigarette smoker with years of education and being unemployed; weekend alcohol use with number of settings in which racial discrimination was experienced, frequency of racial socialization experiences in childhood and adolescence, age and being unemployed; and problem alcohol use with number settings in which racial discrimination was experienced.

Experiences of Racial Discrimination Scale (EOD): number of settings in which racial discrimination is experienced. Racial socialization experiences (RSE): frequency (1 = never to 5 = always) of racial socialization messages received from parents, peers, and other adults during childhood and adolescence.

Findings were considered statistically significant if p values were < 0.05 . Table 3 presents findings from logistic regression models of tobacco use behaviors. The number of settings in which participants reported having experienced racial discrimination had no statistically significant effect on being a lifetime smoker (Table 3a, Model 1). In our moderation model, the number of settings participants reported having experienced racial discrimination had no statistically significant effect on being a lifetime smoker or interaction with racial socialization, such that the relationship between racial discrimination and lifetime smoking was not dependent on the frequency of racial socialization (Table 3a, Model 2). No statistically significant relationship existed between the number of settings in which participants reported having experienced racial discrimination and being a current smoker (Table 3b, Model 1). In our moderation model, the number of settings participants reported having experienced racial discrimination had no statistically significant effect on current smoking or interaction with racial socialization, such that the relationship between racial discrimination and current cigarette smoking was no dependent on frequency of racial socialization (Table 3b, Model 2).

We combined heavy and moderate drinkers into one category due to insufficient sample size of heavy drinkers. Therefore, logistic regression models were used to test our alcohol-related study hypotheses with nondrinkers as the comparison group. Table 4 presents findings from logistic regression models of weekday, weekend and problematic alcohol use. The number of settings in which participants reported having experienced racial discrimination had no statistically significant effect on being a moderate/heavy drinker (Table 4a, Model 1). In our moderation model, the number of settings participants reported having experienced racial discrimination had no statistically significant effect on being a moderate/heavy drinker or interaction with racial socialization (Table 4a, Model 2). For each additional setting in which racial discrimination was reported there was a nearly one-third increased odds of being a moderate/heavy drinker (OR: 1.28, CI: 1.05–1.56, $p = 0.01$) (Table 4b, Model 1). In our moderation model, the number of settings participants reported having experienced racial discrimination had no statistically significant effect on weekend alcohol use or interaction with racial socialization, such that the relationship between racial discrimination and weekend alcohol use was not dependent on frequency of racial socialization (Table 4b, Model 2).

For each additional setting in which racial discrimination was reported there was a nearly one-third increased odds of using alcohol at problematic levels (OR: 1.31, CI: 1.10–1.70, $p = 0.04$) (Table 4c,

Model 1). In our moderation model, the number of settings participants reported having experienced racial discrimination had no statistically significant effect on problem alcohol use or interaction with racial socialization such that the relationship between racial discrimination and problem alcohol use was no dependent on frequency of racial socialization (Table 4c, Model 2).

4. Discussion

In a sample of African American residing in New York City, experiences of racial discrimination increased the risk of alcohol use. Specifically, the risk of weekend and problematic alcohol use increased with the greater number of setting in which racial discrimination was experienced. We did not find support for our hypothesis that the relationship between substance use and racial discrimination depended on levels of racial socialization. In other words, learning about race in childhood and adolescence did not prevent substance use or abuse associated with racial discrimination in adulthood. We also did not find a relationship between racial discrimination, racial socialization and being a lifetime cigarette smoker or using alcohol on the weekday.

Our findings are consistent with studies on the relationship between racial discrimination and problem alcohol use. A number of studies find a relationship between racial discrimination and severity of alcohol use such as heavy drinking and alcohol dependence (Borrell, LN, et al., 2007, Boynton, MH, et al., 2014, Gibbons, FX, et al., 2010 and Latzman, RD, et al., 2013). In these studies racial discrimination is measured in a variety of ways, in different populations and different aspects of racial discrimination tapped into (e.g., number of settings, frequency of racial discriminatory experiences) (Borrell, LN, et al., 2007, Boynton, MH, et al., 2014, Gibbons, FX, et al., 2010 and Latzman, RD, et al., 2013).

Our findings on the association between racial discrimination and weekend but not weekday alcohol use suggest that temporal patterns of alcohol consumption depend on employment status. Studies on motivation for weekday alcohol use find that use is associated with coping, usually with work related stress (Studer et al., 2014). It might be expected that racial discrimination would have an effect on alcohol use during the week to cope with a potentially racially hostile work environment. However, nearly half of our sample reported being unemployed. Moreover, settings in which racial discrimination was most frequently experienced were not work related (e.g., while getting service, on the street or in public settings, from the police or in the courts).

Our findings of no effect of racial discrimination on lifetime cigarette smoking are inconsistent with most studies on racial discrimination and cigarette smoking (Bennett, GG, et al., 2005, Borrell, LN, et al., 2007, Borrell, LN, et al., 2010, Clark, TT, 2014, Landrine, H and Klonoff, EA, 2000 and Purnell, JQ, et al., 2012). Multivariate analyses did suggest a positive association between racial discrimination and being a current cigarette smoker. The lack of any indication of an association with lifetime cigarette smoking, however, might be due to the greater effect of other factors associated with lifetime cigarette smoking such as age. Our sample comprised a mostly middle aged cohort. Lifetime cigarette smoking is higher among older adults, (Burns, DM, et al., 1997 and Holford, TR, et al., 2014) whose use started during a period of time when smoking related stigma was far less than it is today (Stuber, Galea, & Link, 2008). And our findings showed an increased odds being a lifetime cigarette smoker for older participants.

We did not find support for our hypothesis that racial socialization—learning about race—in childhood and adolescence moderates the relationship between discrimination and behaviors related to tobacco and alcohol use. However, our results suggest racial socialization might affect the relationship in a different way. Correlation analysis did show a moderate relationship between racial socialization and discrimination. Learning about race (i.e., racial socialization) might be necessary to attribute an unfair experience to racism in the first place (Bynum, MS, et al., 2007 and Lee, DL and Ahn, S, 2013). Future research should examine other ways that racial socialization affects the relationship between discrimination and substance use such as its indirect effects (i.e., mediation).

4.1. Strengths and limitations

Our findings should be contextualized by a couple limitations. The cross-sectional nature of our study does not allow us to infer causation. For example, we do not know if experiences of

discrimination preceded substance use. Future research should examine the longitudinal relationship between racial socialization, discrimination and substance use. Finally, our measure of racial socialization did not assess message content. We propose that racial socialization messages provide a schema on how to prepare for and cope with racial discrimination. However, racial socialization messages vary (Lesane-Brown, 2006). Future research should examine the relationship between racial discrimination, racial socialization content and substance use.

5. Conclusions

Racial discrimination affects all Americans' health and health behaviors. Experiencing—and even inflicting (Samson, 2015)—a racial discriminatory act is a stressor that increases the risk of substance use (Bennett, GG, et al., 2005, Borrell, LN, et al., 2007, Borrell, LN, et al., 2010, Boynton, MH, et al., 2014, Clark, TT, 2014, Gibbons, FX, et al., 2010, Kwate, NOA, et al., 2003, Landrine, H and Klonoff, EA, 2000, Latzman, RD, et al., 2013 and Purnell, JQ, et al., 2012). Messages about race and racism appear to affect African Americans' ability to process and cope with unfair experiences. How race related messages affect responses to race based exclusion remains to be seen. Future research should examine racial socialization content and its direct effects on perceiving an experience as discriminatory and its indirect effect on substance use. In doing so, we may learn how best to teach race throughout the life course, and ultimately contribute to a reduction in substance related disparities.

Role of funding sources

This work was supported by the Building Interdisciplinary Research Careers in Women's Health (BIRCWH) Program (Carolyn Mazure, PI), National Institute on Drug Abuse (NIDA), Office of Research on Women's Health (ORWH), Office of the Director, National Institutes of Health (OD) and the National Institute on Alcohol Abuse and Alcoholism (NIAAA) (NIH K12DA031050) [ABT] and funded by the Director's New Innovator Award from the National Institutes of Health, National Institute of General Medical Sciences (DP2 OD006513) [NOAK].

NIH had no role in the study design, collection, analysis or interpretation of the data, writing the manuscript, or the decision to submit the paper for publication. The research presented in this paper is that of the authors and does not reflect the opinion of the NIH.

Contributors

A.B. Thompson conceived the study, contributed to the analysis plan, and led the interpretation of results and writing the article. M.S. Goodman developed the analysis plan, conducted the statistical analysis and contributed to the writing. N.O.A. Kwate originated the funding, and contributed to the analysis plan and to the writing.

Conflict of interest

The authors declare no conflicts of interest.

Acknowledgments

Building Interdisciplinary Research Careers in Womens Health, National Institute on Drug Abuse, Office of Research on Women's Health, Office of the Director, National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism (NIH K12DA031050), National Institutes of Health, National Institute of General Medical Sciences (DP2 OD006513). Dr. Thompson would like to acknowledge the many valuable suggestions made by Dr. Robin J. Hayes, Assistant Professor, The New School.

References

1. Ardel, M. (2000). Still stable after all these years? Personality stability theory revisited. *Social Psychology Quarterly*, 63(4), 392–405. <http://dx.doi.org/10.2307/2695848>.
2. Arfken, C. L. (1988). Temporal pattern of alcohol consumption in the United States. *Alcoholism, Clinical and Experimental Research*, 12(1), 137–142. <http://dx.doi.org/10.1111/j.1530-0277.1988.tb00147.x>.
3. Bennett, G. G., Kathleen, W. Y., Robinson, E. L., Fowler, S., & Edwards, C. L. (2005). Perceived racial/ethnic harassment and tobacco use among African American young adults. *American Journal of Public Health*, 95, 238–240.
4. Borrell, L. N., Diez Roux, A. V., Jacobs, D. R., et al. (2010). Perceived racial/ethnic discrimination, smoking and alcohol consumption in the Multi-Ethnic Study of Atherosclerosis (MESA). *Preventive Medicine*, 51(3–4), 307–312. <http://dx.doi.org/10.1016/j.ypmed.2010.05.017>.
5. Borrell, L. N., Jacobs, D. R., Williams, D. R., Pletcher, M. J., Houston, T. K., & Kiefe, C. I. (2007). Self-reported racial discrimination and substance use in the coronary artery risk development in adult study. *American Journal of Epidemiology*.
6. Boynton, M. H., O'Hara, R. E., Covault, J., Scott, D., & Tennen, H. (2014). A mediational model of racial discrimination and alcohol-related problems among African American college students. *Journal of Studies on Alcohol and Drugs*, 75(2), 228–234.

7. Brown, T. N., & Lesane-Brown, C. L. (2006). Race socialization messages across historical time. *Social Psychology Quarterly*, 69(2), 201–213. <http://dx.doi.org/10.1177/019027250606900205>.
8. Burns, D. M., Lee, L., Shen, L. Z., et al. (1997). Cigarette smoking behavior in the United States. Changes in cigarette-related disease risks and their implication for prevention and control (pp. 13–42).
9. Bynum, M. S., Burton, E. T., & Best, C. (2007). Racism experiences and psychological functioning in African American college freshmen: Is racial socialization a buffer? *Cultural Diversity & Ethnic Minority Psychology*, 13(1), 64–71. <http://dx.doi.org/10.1037/1099-9809.13.1.64>.
10. Chapter 9 Alcoholic Beverages. (<http://health.gov/dietaryguidelines/dga2005/document/html/chapter9.htm>. Accessed December 20) (2015).
11. Chartier, K., & Caetano, R. (2010). Ethnicity and health disparities in alcohol research. *Alcohol Research and Health: Journal of the National Institute on Alcohol Abuse and Alcoholism*, 33(1–2), 152–160.