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Short Communication

Racial disparities in healthcare provider advice to quit smoking

Hope Landrine[a,*], Irma Corral[b], Kendall M. Campbell[c]

[a] Center for Health Disparities, Brody School of Medicine, East Carolina University, 1800 W 5th Street, Suite 6, Greenville, NC 27834, United States
[b] Department of Psychiatry & Behavioral Medicine, Division of Behavioral Medicine, Brody School of Medicine, East Carolina University, 600 Moye Blvd., Greenville, NC 27834, United States
[c] Office of Diversity and Inclusion and Department of Family Medicine, Brody School of Medicine, East Carolina University, 600 Moye Blvd., Greenville, NC 27834, United States

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ABSTRACT

African-American/Black smokers are less likely than White smokers to be told to quit smoking by healthcare providers. This preliminary study examined the predictors of being told to quit separately by race for the first time to potentially highlight the source of this racial disparity. A random, household sample of 1670 Black and White adults from a southeastern county of the United States completed a brief survey on their demographics, smoking, access to healthcare, health status, and receipt of healthcare provider advice to quit smoking. Analyses are based on the 512 Black and White smokers in that sample. The logistic regression for all smokers revealed that after controlling for demographic, healthcare, and health status variables, White smokers were 2.39 times more likely than Black smokers to have ever been told to quit smoking. The regression for Black smokers revealed that women and older people were more likely to be told to quit, and that healthcare and health status did not contribute. In the regression for White smokers, no predictor was statistically significant. These findings suggest that one possible reason that African-Americans receive cessation advice less often than Whites is that such advice varies with their age and gender, whereas for Whites this is not the case.

1. Introduction

Being advised to quit smoking by healthcare providers (HCPs) is a robust predictor of smoking cessation and hence an important component of efforts to reduce tobacco-related morbidity and mortality (Danesh et al., 2014; Kruger et al., 2012). Such advice is especially needed by African-American smokers because they have lower smoking quit rates than Whites, and suffer disproportionately from tobacco-related diseases (Trinidad et al., 2011; Haiman et al., 2006). Studies have found however that African-American smokers are significantly less likely than White smokers to receive cessation advice from HCPs (Danesh et al., 2014; Kruger et al., 2012; Lopez-Qunitero et al., 2006; Reed and Bums, 2008; Houston et al., 2005; Cokkinides et al., 2008; Keith et al., 2017). Demographic (i.e., age, gender), healthcare (i.e., health insurance, a regular doctor), amount of smoking, and health status (i.e., hypertension, diabetes, obesity) contribute to receiving cessation advice from HCPs, but racial disparities in receipt of that advice remain after controlling for those variables (Danesh et al., 2014; Kruger et al., 2012; Lopez-Qunitero et al., 2006; Reed and Bums, 2008; Houston et al., 2005; Cokkinides et al., 2008; Keith et al., 2017). Many have suggested that additional research is needed to ascertain possible explanations for this racial disparity (Lopez-Qunitero et al., 2006; Reed and Bums, 2008; Houston et al., 2005; Cokkinides et al., 2008; Keith et al., 2017). Prior studies of multi-racial/ethnic samples conducted logistic regressions with race included to reveal racial disparities in the odds of receiving cessation advice. This preliminary study conducted such regressions separately by race for the first time to potentially highlight the sources of this racial disparity.

2. Methods

2.1. Participants

Participants were a random, household sample of 1670 adults who ranged in age from 19 to 97 years (Mean = 42.6, σ = 15.6). The sample consisted of 401 Whites and 1269 African-Americans, and was 56% men, 44% women. The sample included 512 current cigarette smokers upon whom analyses are based.

2.2. Procedure

Participants were sampled from 11 randomly selected census tracts

* Corresponding author.
E-mail address: landrineh@ecu.edu (H. Landrine).

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(CTS) in a southeastern county that consists primarily of African-Americans and Whites. First, 11 CTS (1/3 of all CTS) were randomly selected. Next, 3–4 residential block groups within each CT were randomly chosen. Then, survey teams (consisting of one African-American and one White adult) sampled every household in each block group, door-to-door, on weekends. Surveyors handed those who answered the door an Informed Consent Letter that explained the survey, anonymity, etc., and included contact information for project staff. While potential participants read the Informed Consent document (which they retained), one surveyor simultaneously read it aloud to them to assure comprehension. Surveyors then asked if a White or African-American adult (≥age 18) who resided in the household would like to complete the brief, anonymous, written health survey for $20 cash. A survey was handed to each person who volunteered to participate, and each was instructed to complete it alone, in private. Surveyors returned 20 min later to retrieve surveys, asked participants if they'd completed it alone (the 4 who did not were excluded), and dispensed the $20 incentive. The survey response rate was 73%; of those who answered the door, 73% completed and 27% refused a survey. Household sampling (instead of a telephone survey) was used because it increases participation by racial-ethnic minority and low-income populations (Carroll et al., 2011; Cabral et al., 2003). A self-administered, anonymous, written survey (instead of an in-person interview) was used because this method decreases the socially-desirable denial of smoking and other substance use, and yields higher self-reported smoking rates (Beebe et al., 2005; Christensen et al., 2013). The study had the approval of the Institutional Review Board of East Carolina University.

2.3. Materials

The brief, anonymous survey contained questions on demographics (age, race, gender, income, education); ever (have you smoked at least 100 cigarettes in your entire life) and current (do you smoke cigarettes now) smoking, with those who answered yes to the both questions categorized as smokers; number of cigarettes smoked per day; access to healthcare (i.e., do you have health insurance, a regular doctor); diagnosed diabetes and hypertension (has a doctor or other health professional ever told you that you have); obesity (Body Mass Index [BMI] calculated from self-reported height and weight, with BMI ≥ 30 categorized as obesity); and the outcome variable, “Has a doctor, nurse, or other healthcare provider EVER told you to quit smoking?”

2.4. Data analyses

Univariate comparisons (Chi-squares, ANOVAs) were used to examine racial differences in demographic and health variables. Then, 3 hierarchical logistic regressions were used to examine the predictors of ever receiving HCP cessation advice; income was excluded from these regressions because of missing data, and education was used as a proxy for socioeconomic status (SES). The first regression was based on all smokers, the second on African-American/Black smokers, and the third on White smokers.

3. Results

Univariate analyses of sample characteristics are shown in Table 1. As shown, there were no racial differences in physician-diagnosed hypertension or diabetes, in the percentage who had a regular doctor, in the percentage of women/men, or in smoking prevalence rates. However, a significantly larger percentage of Blacks were obese and smoked menthol cigarettes. A significantly larger percentage of Whites had health insurance. Whites also smoked significantly more cigarettes per day, had higher levels of education, and were younger than Blacks. A significantly larger percentage of White (73.8%) than Black (54.7%) smokers had ever been told to quit smoking by a HCP.

The first hierarchical logistic regression was based on all smokers (Table 2, left column) and used access to healthcare, gender, education, age, diagnosed diabetes and hypertension, obesity, number of cigarettes smoked daily, and race (on the last step) as predictors of being told to quit by HCPs (Yes). Health insurance and education were not significant, but age (older), a regular doctor (Yes), smoking > 10 cigarettes daily, and gender (woman) each significantly increased the odds of being told to quit smoking by a HCP. After controlling for all of those variables, Whites were 2.39 times more likely than African-Americans to have ever been told to quit smoking by HCPs.

Table 1
Characteristics & demographics of a random sample of 512 African American and White adult smokers.

Variable	Blacks %	Whites %	Significance Test (p)
Diagnosed Hypertension	38.3	37.3	$\chi^2 = 0.039$ (0.84)
Diagnosed Diabetes	16.1	19.8	$\chi^2 = 0.939$ (0.33)
Has Health Insurance	49.4	61.3	$\chi^2 = 5.359$ (0.02)
Has a Regular Doctor	48.7	53.2	$\chi^2 = 0.773$ (0.379)
% Women, %Men	43.9, 56.1	42.7, 57.3	$\chi^2 = 0.048$ (0.83)
Age Mean (σ)	40.26 (13.51)	37.57 (12.69)	F = 3.723 (0.05)
18–45 years	62.5	76.7	$\chi^2 = 8.127$ (0.004)
versus ≥46 years	37.5	23.3	
Obese (BMI ≥30)	30.6	17.2	$\chi^2 = 8.346$ (0.004)
Education			
High School Graduate or Less	56.5	40.0	$\chi^2 = 10.337$ (0.001)
versus Some College and Higher	43.5	60.0	
Current Smokers	31.7	32.7	$\chi^2 = 0.130$ (0.72)
Menthol Smokers	88.5	36.5	$\chi^2 = 139.583$ (0.0005)
Cigarettes per day: Mean (σ)	10.39 (7.19)	11.92 (7.74)	F = 3.893 (0.05)
HCP Ever Told to Quit Smoking	54.7	73.8	$\chi^2 = 13.869$ (0.0005)

The second regression was based on Black smokers only and used the same predictors (race excluded). Results (Table 2, center column) were similar to those for the sample as a whole, except that number of cigarettes smoked daily and having a regular doctor were not significant. The third regression was based on White smokers only. As shown in Table 2 (right column), no predictor was statistically significant for Whites.

4. Discussion

Results for the sample were similar to those of nationwide studies (Danesh et al., 2014; Kruger et al., 2012; Lopez-Qunitero et al., 2006; Reed and Bums, 2008; Houston et al., 2005; Cokkinides et al., 2008; Keith et al., 2017): We found that women and older people were significantly more likely than men and younger people (respectively) to have ever been told to quit smoking by a HCP. This might in part reflect greater utilization of healthcare services by women and older populations (Keene and Li, 2005). Education (SES) did not contribute in this or in other studies (Danesh et al., 2014; Kruger et al., 2012; Cokkinides et al., 2008), but smoking > 10 cigarettes daily increased the odds of ever being told to quit smoking in this study and in others (Danesh et al., 2014; Kruger et al., 2012; Cokkinides et al., 2008). Importantly, we found significant racial disparities in ever being told to quit smoking by HCPs, even after controlling for demographic, healthcare, amount of smoking, and health status variables. This finding is consistent with the *Institute of Medicine's* finding that after controlling for healthcare, health status and SES, African-Americans receive significantly lower quality healthcare than Whites (Smedley et al., 2003).

Analyses for African-American smokers revealed that the odds of being told to quit smoking by HCPs varied only by gender and age: Older (25–64 years) and female African-Americans were significantly more likely than male and younger ones to have ever been told to quit.

Table 2
Hierarchical logistic regressions predicting healthcare provider advice to quit smoking.

Variables & Step Entered	All Smokers (n = 512)				African American Smokers (n = 386)				Whites Smokers (n = 126)			
	β	OR	p	95% CI	β	OR	p	95% CI	β	OR	p	95% CI
STEP 1. Access to Healthcare												
Health Insurance: No (Reference)												
Yes	0.287	1.333	0.239	0.826,2.151	0.256	1.292	0.364	0.743,2.248	0.594	1.812	0.287	0.606,5.412
Regular Doctor: No (Reference)												
Yes	0.556	1.743	0.024*	1.075,2.825	0.481	1.618	0.093	0.923,2.836	0.875	2.400	0.122	0.792,7.278
STEP 2. Demographics												
Gender: Men (Reference)												
Women	0.625	1.868	0.006*	1.200,2.910	0.747	2.110	0.004*	1.275,3.492	0.189	1.208	0.714	0.439,3.330
Education: ≤ High School (Reference)												
Some College to Bachelor's	0.296	1.344	0.194	0.860,2.101	0.311	1.365	0.227	0.824,2.261	−0.186	0.830	0.753	0.261,2.643
Graduate degree	0.627	1.871	0.323	0.540,6.482	0.617	1.854	0.485	0.327,10.493	0.294	1.342	0.776	0.177,10.162
Age: 18–24 (Reference)												
25–45	0.930	2.534	0.009*	1.256,5.113	1.205	3.336	0.006*	1.408,7.902	0.374	1.454	0.608	0.347,6.084
46–64	1.147	3.150	0.003*	1.469,6.753	1.384	3.991	0.003*	1.598,9.967	0.685	1.985	0.445	0.342,11.513
≥65	0.649	1.913	0.353	0.487,7.517	0.678	1.969	0.385	0.427,9.083	19.38	None	0.999	0.000,0.000
STEP 3. Health Status												
Hypertension: No (Reference)												
Yes	0.410	1.508	0.109	0.913,2.490	0.520	1.683	0.065	0.969,2.922	−0.120	0.997	0.855	0.245,3.214
Diabetes: No (Reference)												
Yes	0.663	1.941	0.063	0.965,3.905	0.687	1.988	0.083	0.915,4.321	0.756	2.129	0.393	0.377,12.030
Obesity: No (Reference)												
Yes	0.376	1.456	0.134	0.891, 2.379	0.217	1.403	0.217	0.819,2.404	0.824	2.280	0.266	0.533,9.752
STEP 4. Daily Smoking												
≤10 cigarettes (Reference)												
≥11	0.573	1.773	0.017*	1.109,2.836	0.518	1.679	0.059	0.981,2.874	0.723	2.060	0.169	0.736,5.765
STEP 5. Race												
African American (Reference)												
White	0.873	2.393	0.002*	1.382, 4.144								

* Statistically significant.

This raises concern because younger (ages 18–24) and male African-Americans (relative to their older and female counterparts) have a higher prevalence of smoking cigarettes and other tobacco products (e.g., cigarillos) (Corral et al., 2013). Likewise, racial differences in smoking-related cancers are significantly larger for African-American men than women (Haiman et al., 2006; DeSantis et al., 2016). These findings suggest that the African-American smokers who have the greatest need to quit smoking (i.e., young men) may be least likely to ever be told to quit by HCPs.

Analyses for White smokers revealed that none of the usual predictors of HCP cessation advice was significant. This suggests that such advice from HCPs (provided to only 50%–60% of patients (Danesh et al., 2014; Kruger et al., 2012; Cokkinides et al., 2008)) may be given to Whites irrespective of their demographics: Whites may receive such advice in a manner consistent with the federal, *Clinical Guideline* that requires HCPs to ask all patients about smoking and strongly urge all smokers to quit (Fiore et al., 2008).

Comparing the results for African-American smokers to those of White smokers suggests that African-Americans might be told to quit smoking significantly less often than Whites in part because such advice is contingent upon their age and gender, whereas for Whites this is not the case. The reasons for this difference remain unknown and require empirical investigation. This difference might be one possible process underlying the racial disparity in receiving cessation advice. Another possible mechanism is HCP-patient communication. Numerous studies have found that White HCPs give less information to African-American than to White patients, but that African-American HCPs do not (Johnson-Shen et al., 2018). HCP-patient racial concordance is a contributor to HCP information-giving but has not been examined as a contributor to racial disparities in cessation advice. Analyses of unexamined racial concordance and communication variables can enhance understanding of the context in which HCPs provide cessation advice and thereby improve the ability to target interventions to increase adherence to the *Clinical Guideline*.

4.1. Limitations

One limitation of this study is that we asked about advice ever from any HCP, and hence could not assess well-known differences among types of HCPs (physicians, dentists, medical specialties) in providing such advice (Danesh et al., 2014). Likewise, people who had received advice might have received it more than once from different providers, and hence we could not assess the possible role of HCP demographics or of HCP-patient racial concordance in providing advice. In addition, we focused on advice only and did not examine the tobacco assessment, referral and intervention requirements (i.e., the 5As) of the *Clinical Guideline* (Fiore et al., 2008). Moreover, like national studies, we relied on smokers' self-reports and these may be influenced by recall and recall bias. Study strengths are that we did not restrict analyses to past-year advice or to those who had a healthcare encounter in the past year as in prior studies (Danesh et al., 2014; Kruger et al., 2012; Houston et al., 2005; Cokkinides et al., 2008; Keith et al., 2017) and instead focused for the first time on ever being told to quit. Moreover, a self-administered survey that decreases denial of smoking was used for the first time in a study of HCP cessation advice, and yielded a 32.2% self-reported smoking prevalence rate versus the 19% found when using other methods (Danesh et al., 2014).

5. Conclusions

Despite increases in the percentage of smokers who receive cessation advice from HCPs, the prevalence of such advice remains suboptimal, particularly for African-Americans (Danesh et al., 2014; Kruger et al., 2012; Reed and Bums, 2008; Houston et al., 2005) insofar as they receive such advice significantly less often than Whites. HCP adherence to the *Clinical Guideline* can be improved through reminder systems (Lopez-Qunitero et al., 2006; Cokkinides et al., 2008); healthcare system (Lopez-Qunitero et al., 2006; Cokkinides et al., 2008) and professional society (Danesh et al., 2014) policies that require

adherence to the *Guideline*; and mandatory continuing education on tobacco use (Danesh et al., 2014).

Conflict of interests

The authors declare there is no conflict of interest.

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