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Racial/Ethnic Differences in Tobacco Use and Cessation Services Among Individuals in Substance Use Treatment

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Abstract

Few studies explore racial/ethnic disparities in tobacco use and access to cessation services among people with substance use disorders (SUD). We collected data from Hispanics (n = 255), non-Hispanic Whites (n = 195), and non-Hispanic Blacks (n = 126) across 24 Californian residential SUD treatment programs. Data were analyzed via regression models adjusting for demographics, cigarettes per day, past quit attempts, intent to quit in the next 30 days, and physical health status. Non-Hispanic Whites smoked at a higher rate (68.7%) than both Hispanics (54.9%) and non-Hispanic Blacks (55.6%) and smoked more cigarettes per day (M = 11.2, SD = 6.5). Hispanics were more likely than non-Hispanic Whites to receive a referral to a cessation specialist (adjusted odds ratio; AOR = 2.34, 95% CI = 1.15, 4.78) and tobacco-cessation counseling (AOR = 2.68, 95% CI = 1.28, 5.62). Non-Hispanic Blacks were also more likely than non-Hispanic Whites to receive cessation counseling (AOR = 3.61, 95% CI = 1.01, 12.87) and NRT/pharmacotherapy (AOR = 2.65, 95% CI = 1.57, 4.47). Despite their decreased smoking prevalence and severity, REMs were accessing smoking cessation services while in treatment, suggesting that SUD treatment could serve as a place to address tobacco-related racial inequities.

Keywords: health disparity, tobacco cessation, substance use treatment, racial/ethnic minority

Racial/Ethnic Differences in Tobacco Use and Cessation Services Among Individuals in Substance Use Treatment

Although smoking prevalence has declined steadily over the past decade in the United States (CDC 2020b; Cornelius et al. 2020), disparities in tobacco use and smoking cessation remain across racial/ethnic minority (REM) groups. For example, specific sub-groups of Hispanic populations have smoking prevalence rates 4 - 17% higher than the national average (CDC 2019c). African Americans report higher use of menthol cigarettes than Whites and other REM groups such as Native Hawaiian/Pacific Islanders, Asians, Hispanics, and American Indian/Alaskan Natives (Caraballo and Asman 2011). Villanti and colleagues found that 85% of non-Hispanic Black current smokers reported using menthol cigarettes. This surpasses the rates of menthol use among White smokers (28.9%) and smokers from other REM groups (e.g., Hispanics, Asians, and multiracial individuals; Villanti et al. 2016). Menthol cigarettes are a product that has been marketed directly to African American communities (Gardiner 2004) and have been associated with decreased smoking cessation (Delnevo et al. 2011). While there is a tendency towards light or intermittent smoking (Reyes-Guzman et al. 2017; Trinidad et al. 2009), some REM groups, such as African Americans, are less likely than Whites to successfully quit (Bacio et al. 2014; Trinidad et al. 2011). This may be partially attributable to disparities in receipt of smoking cessation services (Sonnenfeld, Schappert, and Lin 2009; Cokkinides et al.

2008) including nicotine replacement therapy (NRT; Fu, Kodl, Joseph, et al. 2008; Trinidad et al. 2011).

Several REM groups also experience increased health risks related to tobacco use. African Americans are more likely than Whites to die from smoking related diseases (CDC 2020a). Several smoking-related cancers are the leading cause of death for Hispanics, Native Americans/Alaskan Natives, Asians, Pacific Islanders, and Native Hawaiians (CDC 2019a; 2019b; 2019c). These health consequences are exacerbated by social determinants of health such as income inequality, housing insecurity, and racial discrimination that disproportionately impact REM communities and often contribute to racial health inequity in the U.S. (Braveman, Egerter, and Williams 2011).

Another population that experiences disproportionate rates of smoking prevalence are people with substance use disorders (SUD; Schroeder and Morris 2010). Smoking prevalence among people with SUD has not followed the same pattern noted in the general population, showing no decline from 2002-2014 (CDC 2020b; Weinberger et al. 2018). The smoking prevalence among individuals who access SUD treatment is estimated at 65% (Guydish et al. 2011). People in SUD treatment experience higher rates of tobacco-related mortality than the general population (Bandiera et al. 2015), and ongoing tobacco use has been associated with poorer SUD treatment outcomes (Baca and Yahne 2009; Weinberger et al. 2017).

While the high smoking prevalence among people in SUD treatment is well-documented, less research has explored tobacco use among REM groups in SUD treatment. A study of smoking and quitting behaviors among a national sample of Latinos in SUD treatment found that Latinos' smoking prevalence was similar to Whites but Latinos had a higher number of past year quit attempts (Pagano, Gubner, Le, and Guydish 2018). In a longitudinal study of Spanish-speaking Latinos in SUD treatment, tobacco use at baseline was associated with a reduced likelihood of abstinence from alcohol and other drugs (de Dios et al. 2016). Other studies focused on individuals seeking alcohol treatment have suggested differences in readiness to quit smoking among REM groups as compared to Whites (Joseph et al. 2004) and worse alcohol outcomes for Whites, but not for African Americans, who quit smoking while in alcohol treatment (Fu, Kodl, Willenbring, et al. 2008).

Two studies have examined racial disparities in the receipt of tobacco cessation services for individuals in SUD treatment. Berman and colleagues (Berman et al. 2019) found that African Americans in SUD treatment were interested in cessation but considered it a lower priority compared to other SUD treatment goals. African American clients also reported cessation services in treatment were inadequate, limited, and often passive (e.g., receipt of a brochure). Another study examined racial differences in receipt of tobacco cessation services among a national sample of SUD treatment clients (Pagano, Gubner, Le, Yip, et al. 2018). Compared to Whites, Hispanics and African Americans were more often intermittent smokers, reported fewer

cigarettes per day (CPD), and were more likely to report a past year quit attempt. Despite lower smoking severity, African Americans were more likely than Whites to endorse receipt of smoking cessation services during SUD treatment after adjusting for interest and intent to quit and for the client's belief that quitting should occur during SUD treatment. The reason for African Americans reporting increased receipt of cessation services in this sample remained unclear (Pagano, Gubner, Le, Yip, et al. 2018).

The two known studies that have examined racial/ethnic disparities in tobacco cessation services in SUD treatment highlight areas for future research. While Pagano and colleagues (Pagano, Gubner, Le, Yip, et al. 2018) found that African Americans receive more smoking cessation services than Whites, these results lack specificity regarding the service type. This is important to consider, as Berman and colleagues found that African Americans in SUD treatment reported that they received smoking cessation services, but that they were passive and unhelpful (e.g., receiving an educational handout; Berman et al. 2019). Gaining a better understanding of racial/ethnic differences for specific cessation services could address this gap.

Tobacco use contributes to multiple health inequities among racial/ethnic groups, and REM persons who access SUD treatment are an understudied population that may face unique smoking-related risks. Despite previous research indicating possible racial/ethnic disparities in receipt (Pagano, Gubner, Le, Yip, et al. 2018) and quality (Berman et al. 2019) of

tobacco cessation services during SUD treatment, these disparities and their causes remain under-explored. To advance research in this area, the current study examined racial/ethnic disparities in smoking prevalence, quitting behaviors, and tobacco cessation services in a sample of 24 Californian SUD treatment programs.

Method

Recruitment of Programs

Data were collected from 24 residential SUD treatment programs in California from January 2019 to September 2020. The programs were recruited as a part of three separate studies described in detail elsewhere (Guydish et al. 2020). The 24 programs were in 11 of California's 58 counties and spanned over 500 miles from northern to southern California. Each program treated clients with substance use disorder, though some programs also provided treatment for mental health disorders, or for some other reason (e.g., preventive services for parolees re-entering the community).

Participants

All clients currently enrolled in each participating treatment program at the time of data collection were eligible for the study. To determine participation rates, program directors reported the number of participants enrolled in their program at the time of data collection.

Procedures

Data collection from January 2019 to February 2020 (including 21 programs) was conducted in person via site visits by study staff members.

Most site visits were completed in one day, but multiple day visits were needed for larger programs. Clients who were interested in participation were gathered in groups of ten at a time. Study staff gave each participant an iPad with a prepopulated survey ID number. Study staff explained and reviewed the study information sheet then allowed participants to consent using a check box. Participants then completed the anonymous 30-minute survey and were provided a $20 gift card. No identifying information (e.g., client name) was collected within the survey, and client participation status and survey data was not shared with program staff.

Due to the COVID-19 pandemic, California issued an Executive Order requiring all residents to shelter in place (State of California 2020). In-person site visits were suspended as of March 2020 and the remaining three programs participated in data collection remotely. Research staff sent an anonymous survey link to the program director of the remaining three programs. The program director then provided the link to clients via computers within the program. Clients reviewed the study information sheet, indicated consent, and completed the survey online. The program director then sent an email to study team member with the number of clients who completed the survey. The team member then mailed the correct number of gift cards to the program for each of the participants who completed a survey. Program directors then distributed the gift cards to the appropriate clients (n = 27). No identifying client information was collected within the survey. Anonymity of client responses was maintained in the modified data

collection procedures as there was no identifying information on client surveys, and client survey data was not shared with participating programs. Program directors did distribute gift card incentives to participating clients, so directors knew which clients had participated but had no information concerning client response. All study procedures, including modified procedures used for remote data collection, were approved by the UCSF Institutional Review Board.

Measures

Demographic characteristics included age, gender, education, and race/ethnicity. For the current paper, individuals who identified as White or Caucasian, but not of Hispanic or Latino descent were classified as non-Hispanic Whites. Individuals who identified as Black or African American but not of Hispanic or Latino descent were classified as non-Hispanic Blacks. Finally, individuals who reported being of Latino or Hispanic ethnicity or race were classified as Hispanic. Given the low representation from the other racial groups in the current sample, as well as diversity across different races/ethnicities that discourages collapsing across groups (Burlew et al. 2019), individuals from the other racial groups (n =63; 9.9% of full sample) were excluded from the current analysis. Participants also reported health insurance status (categorized for the current paper as insured vs. not), reason in treatment (substance use disorder only, mental health disorder only, both substance use and mental health disorder, or other) and primary drug of choice.

All participants were asked about their current or lifetime history of cigarette smoking. Current smokers were individuals who self-identified as a smoker at the time of data collection and reported smoking at least 100 cigarettes in their lifetime (CDC 2017). Current smokers were asked about smoking behaviors, including number of CPD and number of days per week they smoked (categorized as daily smokers vs. non- daily smokers). Current smokers also were asked “Are you seriously thinking of quitting smoking” with response options collapsed into thinking of quitting in the next 30 days (yes/no). Participants also reported whether they had made a serious quit attempt in the past year, defined as having quit for a 24-hour period. Finally, due to the association between health concerns and smoking cessation among smokers in SUD treatment (Campbell et al. 2017), current smokers reported the number of days in the past month when they experienced poor physical health (“How many days during the past 30 days was your physical health not good?”).

Last, participants also reported on receipt of tobacco cessation services while in treatment. Current smokers were asked if they were screened for tobacco use while in treatment (i.e., “Did any staff member ask whether you smoke?”). Additionally, they were asked if they had received any advice about quitting (i.e., “Did you receive advice on how to quit smoking?”). They were also asked if had attended any support groups for people trying to quit, had received any encouragement from a counselor about quitting, or had scheduled a follow up meeting with their counselor to

discuss smoking cessation. Receipt of any of these three services at least occasionally was classified as receiving any smoking cessation counseling. Current smokers were also asked if they had received a referral to a smoking cessation specialist or the California Smokers' Helpline. Finally, they were asked if they had received any Nicotine Replacement Therapy (NRT; gum, lozenges, patches) or other cessation pharmacotherapy (bupropion or varenicline) while in treatment (Guydish et al. 2020).

Analysis

Demographic characteristics, health insurance coverage, reason for treatment, and primary drug of use were compared across the racial/ethnic groups using Pearson's chi-square test/Fisher's Exact test for categorical variables and analysis of variance (ANOVA) for continuous variables. Smoking prevalence, CPD, daily vs. non-daily smoking status, thinking of quitting in the next 30 days, self-report of any past year quit attempt, and days of poor physical health were also compared using Pearson's chi-square test for categorical variables and analysis of variance (ANOVA) for continuous variables.

Using multivariate logistic regression models, we examined racial/ethnic differences on five smoking cessation services: 1) asked whether you smoke, 2) receipt of advice on quitting, 3) receipt of any referral to smoking cessation services, 4) receipt of any smoking cessation counseling, or 5) receipt of any NRT/pharmacotherapy. All models were adjusted for demographic variables that were statistically significant at $p <$

0.05 in univariate comparisons (Table 1). Models also adjusted for CPD, thinking of quitting in the next 30 days, any past year quit attempt, and days of poor physical health. Models applied generalized estimating equations (GEE) accounting for nesting of clients within clinics. SAS version 9.4 was used to conduct all analyses. As the rate of missing data was low (3.2%), the multivariate logistic regression models used complete case analysis.

Results

Characteristics

A total of 576 participants completed the baseline survey (Table 1), representing 83% of all eligible participants. The sample was racially diverse, with 44.3% identifying as Hispanic (n = 255), 33.9% identifying as non-Hispanic White (n = 195), and 21.9% identifying as non-Hispanic Black (n = 126). The average age was 38.3 (SD = 11.7), and 73.4% of the sample identified as male. Approximately 75.7% reported having at least a high school diploma or GED. The majority (81.6%) reported having health insurance. Most (87%) reported being in treatment for a substance use disorder, mental health disorder, or both. The most frequently reported drugs of choice were stimulants (39.3%), followed by alcohol (21%) and opiates (17.3%).

The three racial/ethnic groups differed in age, with non-Hispanic Blacks in the sample being older (M =42.7, SD = 12.5). Differences across race/ethnicity were also present in education, reason for treatment, and primary drug of choice (Table 1). Due to these differences, subsequent

analyses adjusted for age, education, reason in treatment, and primary drug of choice.

Smoking Prevalence, Tobacco Use Behaviors, and Physical Activity

Across all groups, the smoking prevalence rate was 59.7%. There was a significant difference in smoking prevalence across the three racial/ethnic groups (p = 0.009), with non-Hispanic Whites reporting a smoking prevalence of 68.7%. This was higher than the reported rate for Hispanics (54.9%) and non-Hispanic Blacks (55.6%). There was also a significant difference in CPD, with non-Hispanic White smokers reporting more CPD (M =11.2, SD = 6.5) compared to both Hispanics (M = 8.5, SD = 7.9) and non-Hispanic Blacks (M = 8.6, SD = 6.8; p = 0.005). No significant differences were observed across race/ethnicity in daily versus non-daily smoking, thinking of quitting in the next 30 days, past year quit attempts, or days of poor physical health.

Smoking Cessation Services

Multivariate logistic regression models estimated the odds of receiving smoking cessation services, while adjusting for characteristics that differed across the racial/ethnic groups (i.e., age, education, reason in treatment, primary drug of use), CPD and quitting behaviors (thinking of quitting in the next 30 days and past year quit attempts), poor physical health (days of physical health not good in past month), as well as for nesting of participants within programs (Table 3). In adjusted analyses, when compared to non-Hispanic Whites (reference group), Hispanic participants reported higher

odds of a referral to tobacco cessation services (AOR = 2.34, 95% CI = 1.15, 4.78; $p = 0.019$) and receiving smoking cessation counseling (AOR = 2.68, 95% CI = 1.28, 5.62; $p = 0.009$). When compared to non-Hispanic Whites, non-Hispanic Blacks also reported higher odds of receiving smoking cessation counseling (AOR = 3.61, 95% CI = 1.01, 12.87; $p = 0.048$) and higher odds of receiving NRT/pharmacotherapy (AOR = 2.65, 95% CI = 1.57, 4.47; $p < 0.001$).

Discussion

The current study aimed to explore racial/ethnic differences in smoking prevalence, tobacco use behaviors, and cessation services among people accessing SUD treatment. The smoking prevalence among people with SUDs is estimated at 65% (Guydish et al. 2011), well above the 14% smoking prevalence in the general U.S. population (CDC 2020b). Despite higher rates of light/intermediate smoking (Reyes-Guzman et al. 2017), REM groups in the general population are less likely to receive smoking cessation services (Fu, Kodl, Joseph, et al. 2008; Trinidad et al. 2011) and less likely to achieve smoking cessation (Bacio et al. 2014; Levy et al. 2011; Trinidad et al. 2011). Few studies have examined racial/ethnic differences in smoking cessation services among REM persons in SUD treatment (Pagano, Gubner, Le, Yip, et al. 2018; Berman et al. 2019), and the findings are mixed. The current study found that, compared to non-Hispanic Whites, REM persons were less likely to identify as current smokers, and those who did smoke reported lower CPD. Contrary to findings in the general population (Trinidad et al. 2011; Fu, Kodl,

Joseph, et al. 2008), REM groups in the current sample reported receiving more tobacco-related services than non-Hispanic Whites. They reported higher receipt of smoking-related counseling, referral, and NRT/pharmacotherapy as compared to non-Hispanic Whites. These findings were present after adjusting for CPD, quitting behavior (past year quit attempts and intention to quit in the next 30 days) and poor physical health.

Given the racial/ethnic disparities in receipt of smoking cessation services noted in the general population (Trinidad et al. 2011; Fu, Kodl, Joseph, et al. 2008), the finding that REM persons received more cessation services among this sample of SUD treatment clients is unexpected. Only a small subset of individuals with SUDs access treatment (SAMHSA 2020), and there is evidence of racial/ethnic disparities in SUD treatment access (Pinedo 2019). It is possible that the subset of REM groups who manage to access SUD treatment have more positive attitudes/beliefs than the general population regarding smoking cessation, and that these different attitudes/beliefs increase their likelihood of obtaining smoking cessation services. It is also possible that because REM groups experience a lack of access to smoking cessation services in the general population, they readily make use of these much-needed services when offered in SUD treatment.

Recent literature suggests that the disparities in SUD treatment access experienced among African American and Hispanic individuals may be partially driven by lower perceived need for treatment (Pinedo and Villatoro 2020). However, the finding that REM groups reported receiving more

services than non-Hispanic Whites is not explained by differences in perceived need for treatment in the current sample. REM groups reported similar rates of intent to quit and past year quit attempts as non-Hispanic Whites. It is possible that the REM sample in this study reported a higher-than-average need for smoking cessation services and therefore were more likely to access them. It is also possible that perceived need for SUD treatment is different from perceived need for smoking cessation services and that once REM clients are in SUD treatment they show interest in tobacco-services at the same rate as other SUD treatment clients.

The findings were also present when controlling for days of poor physical health, a concern that is associated with smoking cessation among SUD treatment clients (Campbell et al. 2017). As REM groups carry the burden of several tobacco-related diseases (CDC 2019a; 2019b; 2019c; 2020a), it could be expected that if REM individuals experienced poorer health than non-Hispanic Whites, they may be more motivated to advocate for the receipt of cessation services. However, no differences in physical health were noticed across the racial/ethnic groups. The current study used a broad measure of poor physical health (days of poor physical health in the past month), and future studies should consider how more specific health concerns (e.g., presence of smoking related diseases/illnesses) may influence the decision of REM persons to seek out and utilize cessation services while in SUD treatment.

The current study also adjusted for nesting, accounting for similarities in service acquisition for clients within each program. This suggests that the results are not merely due to specific program differences.

It is also possible that SUD treatment, which often includes an intake where physical health and substance use history is obtained, could serve as a catalyst for engagement in smoking cessation services. In the current sample, the rate of tobacco use screening was high, with 64.4% of the entire sample reporting that they were asked about smoking status. This could reflect a touchpoint to engage in smoking cessation services that is not available to REM groups in the general public. SUD treatment could play an important role in addressing the tobacco-related health disparities faced by REM communities.

Previous literature has varied regarding access to smoking cessation services among REM groups in SUD treatment. Results of the current study complement findings reported by Pagano and colleagues (Pagano, Gubner, Le, Yip, et al. 2018) who found that African Americans received more program and clinician level services than non-Hispanic Whites. However, a qualitative analysis conducted by Berman and colleagues (Berman et al. 2019) suggested that African Americans in SUD treatment found the cessation services they received inadequate and passive. While REM persons may access more cessation services than Whites while in SUD treatment, the quality of these services remains unknown. Future research should consider the utilization of mixed methods approaches to better understand not only

the quantity but also the quality of services received by SUD treatment clients of diverse racial/ethnic groups.

The use of a cross-sectional study design precludes causal interpretation. The baseline data collected for this study was from 24 California SUD programs, all of which had expressed some interest in addressing smoking in their client population. Findings may not generalize outside California and may not generalize to programs where leadership show no interest in addressing smoking among clients. Despite the racial diversity of our sample, some REM groups were underrepresented and could not be included in analyses. For example, American Indian/Alaskan Native and Asian populations experience disparities in smoking prevalence (CDC 2020b), but the current study sample had too few participants in these groups which precluded the ability to include them in the analyses. Future research on smoking cessation among REM groups in SUD treatment should focus on larger datasets or on targeted recruitment strategies to increase representation. Given the experience of health inequities by individuals with intersecting identities related to factors such as race, gender, sexuality, and class (Rogers and Kelly 2011), future research should also seek to better understand cessation service access through an intersectional lens.

Due to the COVID-19 pandemic, the data collection method was modified for three programs to accommodate online data collection. This could be seen as a potential limitation; however previous research has suggested that there is no difference in data collected online versus in

person on non-timed survey completion (Topp and Pawloski 2002). Further research is needed on potential impacts of the COVID-19 pandemic on research protocol adherence. This study is one of the few examinations of a group uniquely impacted by smoking and associated health disparities; racial/ethnic minorities accessing SUD treatment. Findings add to existing literature by showing that REM persons in SUD treatment report increased odds of access to counseling, referral, and NRT/pharmacotherapy when compared to non-Hispanic Whites. These findings also suggest that SUD treatment could serve as a place to address tobacco-related health inequities among SUD treatment clients by offering equal access to cessation services.

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Table 1. Characteristics of clients in California residential substance use treatment programs

	Mean (SD) or n (%)			
	Hispanic n =255	**Non-Hispanic White n =195**	**Non-Hispanic Black n =126**	**p value [a]**
Age	35.3 (10.4)	39.5 (11.6)	42.7 (12.5)	**<0.0001**
Gender				0.110
Male	192 (75.6%)	132 (67.7%)	98 (77.8%)	
Female	60 (23.6%)	58 (29.7%)	25 (19.8%)	

	Mean (SD) or n (%)			
	Hispanic n =255	**Non-Hispanic White n =195**	**Non-Hispanic Black n =126**	**p value [a]**
Others	2 (0.8%)	5 (2.6%)	3 (2.4%)	
Education				**<0.001**
<HS	83 (32.6%)	27 (13.9%)	30 (23.8%)	
HS/GED	83 (32.6%)	74 (38.0%)	49 (38.9%)	
>HS	89 (34.9%)	94 (48.2%)	47 (37.3%)	
Has health insurance	201 (78.8%)	169 (86.7%)	100 (79.4%)	0.083
Reason in treatment				**<0.0001**
Substance use disorder	159 (62.6%)	126 (65.3%)	43 (34.4%)	
Both substance use and mental health disorder	63 (24.8%)	55 (28.5%)	52 (41.6%)	
Other	32 (12.6%)	12 (6.2%)	30 (24.0%)	
Primary drug of use				**<0.0001**
Alcohol	60 (23.7%)	46 (23.8%)	14 (11.2%)	
Stimulants	102 (40.3%)	72 (37.3%)	50 (40.0%)	
Marijuana/Cannabis	10 (4.0%)	7 (3.6%)	10 (8.0%)	
Opiates	35 (13.8%)	53 (27.5%)	11 (8.8%)	
Other/polysubstance/mental health only	46 (18.2%)	15 (7.8%)	40 (32.0%)	

[a]From Chi-square/Fisher's Exact tests for categorical variables and the ANOVAs for continuous variables

Table 2. Smoking prevalence, tobacco-use behaviors, and physical health across race/ethnicity groups

	Mean (SD) or n (%)			p value
	Hispanic	**Non-Hispanic White**	**Non-Hispanic Black**	
All clients (n = 576)	**n=255**	**n=195**	**n=126**	
Smoking status				**0.009**
Current smokers	140 (54.9%)	134 (68.7%)	70 (55.6%)	
Former smokers	87 (34.1%)	45 (23.1%)	35 (27.8%)	
Never smokers	28 (11.0%)	16 (8.2%)	21 (16.7%)	
Current smokers (n = 344)	**n=140**	**n=134**	**n=70**	
Tobacco-use behaviors				
CPD	8.5 (7.9)	11.2 (6.5)	8.6 (6.8)	**0.005**
Daily smoker	103 (75.2%)	113 (85.0%)	58 (84.1%)	0.093
Quitting behaviors				
Thinking of quitting in the next 30 days	51 (36.4%)	40 (29.9%)	22 (31.9%)	0.500
Any past year quit attempt	92 (65.7%)	70 (52.2%)	40 (57.1%)	0.074
Physical health				
Days of poor physical health	4.9 (9.2)	4.7 (8.1)	4.3 (8.2)	0.897

[a]From Chi-square tests for categorical variables and the ANOVAs for continuous variables

Table 3. Logistic regression models of racial differences in tobacco cessation service acquisition across among current smokers[1]

Cessation Service	Race/Ethnicity	n (%)	OR (95% CI)	p value
Asked whether you smoke	Non-Hispanic White	83 (62.4%)	ref	
	Hispanic	92 (65.7%)	1.40 (0.73, 2.70)	0.312
	Non-Hispanic Black	41 (58.6%)	1.18 (0.53, 2.64)	0.685
Advice on how to quit	Non-Hispanic White	48 (36.1%)	ref	
	Hispanic	67 (47.9%)	1.31 (0.65, 2.63)	0.454
	Non-Hispanic Black	39 (57.4%)	2.16 (0.95, 4.93)	0.068
Any referral	Non-Hispanic White	33 (24.6%)	ref	
	Hispanic	56 (40.0%)	2.34 (1.15, 4.78)	**0.019**
	Non-Hispanic Black	25 (36.2%)	2.12 (0.91, 4.95)	0.082
Any counseling	Non-Hispanic White	55 (41.0%)	ref	
	Hispanic	87 (62.1%)	2.68 (1.28, 5.62)	**0.009**

	Non-Hispanic Black	44 (64.7%)	3.61 (1.01, 12.87)	**0.048**
Any NRT/Pharmacotherapy	Non-Hispanic White	26 (19.4%)	ref	
	Hispanic	30 (21.4%)	1.69 (0.87, 3.29)	0.120
	Non-Hispanic Black	22 (31.9%)	2.65 (1.57, 4.47)	**<0.001**

[1]Adjusted for demographics (Age, education, reason in treatment, primary drug use), cpd, thinking of quitting in the next 30 days, past year quit attempts, and days of poor physical health. Also adjusted for nesting clients within clinics.