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## Tobacco marketing receptivity and other tobacco product use among young adult bar patrons

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### Abstract

**Purpose**—Use of other tobacco products (smokeless tobacco, hookah, cigarillo, e-cigarettes) is increasing, particularly among young adults, and there are few regulations on marketing for these products. We examined the associations between tobacco marketing receptivity and other tobacco product (OTP) use among young adult bar patrons (aged 18-26 years).

**Methods**—Time-location sampling was used to collect cross-sectional surveys from 7,540 young adult bar patrons from January 2012 through March of 2014. Multivariable logistic regression analyses in 2015 examined if tobacco marketing receptivity was associated (1) with current (past 30 day) OTP use controlling for demographic factors, and (2) with dual/poly use among current cigarette smokers (n=3,045), controlling for demographics and nicotine dependence.

**Results**—Among the entire sample of young adult bar patrons ( $M_{age}=23.7$ ,  $SD=1.8$ ; 48.1% female), marketing receptivity was consistently associated with current use of all OTP including smokeless tobacco (adjusted odds ratio [AOR]= 2.49, 95% confidence interval [CI] 1.90-3.27,  $p<.001$ ), hookah (AOR=1.97, 95% CI 1.58-2.43,  $p<.001$ ), cigarillos/cigars (AOR=3.00, 95% CI 2.21-4.08,  $p<.001$ ), electronic cigarettes (AOR=2.43, 95% CI 1.93-3.04,  $p<.001$ ), and multiple tobacco products (AOR=2.93, 95% CI 2.45-3.51,  $p<.001$ ). Among current smokers, marketing receptivity was significantly associated with use of smokeless tobacco (AOR=1.44, 95% CI 1.05-1.98,  $p<.05$ ), cigarillos/cigars (AOR=1.81, 95% CI 1.22-2.70,  $p<.01$ ), and multiple tobacco products (AOR=1.58, 95% CI 1.27-1.97,  $p<.001$ ).

**Conclusions**—OTP use is common among young adult bar patrons and it is associated with tobacco marketing receptivity. Efforts to limit tobacco marketing should address OTP in addition to cigarettes.

### Keywords

Other tobacco products; tobacco marketing; smoking; young adults

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## Introduction

There is growing concern about the use of other tobacco products (OTP) such as smokeless tobacco (dip, snuff, chewing tobacco, snus), hookah, cigars and cigarillos, and electronic cigarettes (e-cigarettes) among adolescents and young adults in the US.<sup>1,2</sup> According to the 2012-2013 National Adult Tobacco Survey (NATS), among young adults 18-26 years old, 7.5% reported currently using smokeless tobacco, 16.8% hookah, 16.8% cigars, and 8.3% e-cigarettes.<sup>3</sup> Furthermore, high rates of multiple tobacco product use have been reported among both adolescents<sup>1</sup> and young adults.<sup>2</sup>

The increase in OTP use among young people may be driven by a surge in marketing of these products over the past years. Product and advertisement limitations on cigarettes currently do not apply to OTP other than smokeless tobacco.<sup>4,5</sup> The tobacco industry is investing more heavily in the advertisement of non-combustible tobacco products,<sup>6</sup> and young adult exposure to e-cigarette marketing increased by more than 300% from 2011 to 2013.<sup>7</sup> Cigar advertising at the point of sale is more intensive in neighborhoods with a higher proportion of young adults.<sup>8</sup> In addition, online e-cigarette advertisements frequently use messages appealing to young people, or advertise on websites with large youth and young adult audiences.<sup>9,10</sup> Websites representing hookah establishments rarely provide warning messages with regard to the health effects of hookah smoking.<sup>11</sup> Perhaps due to the success of these marketing tactics, more than 60% of young adults report awareness of OTP such as snus and little cigars<sup>12</sup> and between 32 and 50% of adolescents report awareness of e-cigarettes, hookah, and snus.<sup>13</sup>

Tobacco marketing plays a causal role in uptake of cigarette smoking.<sup>14-16</sup> Studies have operationalized tobacco marketing in different ways including recall<sup>17</sup> or objective quantification of exposure<sup>18</sup>, having a favorite tobacco advertisement<sup>19</sup>, or an index of self-reported marketing receptivity<sup>20,21</sup>. The index of marketing receptivity assumes different stages of receptivity from low (brand recognition and recall), to moderate (endorsing a favorite ad), and high (owning or being willing to use a company branded item);<sup>22</sup> and this receptivity to tobacco marketing is a well-established attitudinal predictor of cigarette smoking initiation among adolescents<sup>22</sup> and young adults.<sup>21</sup> The highest receptivity, measured by assessing ownership of or willingness to use a tobacco company promotional item, is a strong predictor of smoking uptake<sup>20,22</sup> and is associated with dual use and multiple product use among youth.<sup>23</sup>

Less is known about the role of tobacco marketing receptivity and OTP use among young people. In youth, the exposure to OTP marketing (snus and e-cigarettes) are associated with experimentation with these products<sup>24</sup> and polytobacco use has also been found to be associated with marketing receptivity.<sup>1</sup> One study using a college student sample used a mediation analysis and found that e-cigarette marketing receptivity was associated with perceptions of low harm of these products, which in turn was associated with higher usage.<sup>25</sup> Another study examining young adult bar patrons in 2009-2011 found that marketing receptivity was positively associated with hookah use and dual use of hookah and cigarettes.<sup>26</sup>

Young adult bar patrons are at particularly high risk for tobacco use<sup>27,28</sup> and have been especially targeted by tobacco industry marketing efforts.<sup>29,30</sup> Yet, little is known about OTP use (smokeless tobacco, hookah, cigarillos, and e-cigarettes) in young adult bar patrons and if OTP use is related to tobacco marketing receptivity. To address this we investigated OTP use and its associations with marketing receptivity, i.e., the willingness to use a tobacco company promotional item, in a sample of young adult bar patrons from 7 large US cities.

## Methods

### Procedure and Participants

Data were collected as part of a larger tobacco use study from January 2012 through March of 2014. Time-location sampling was used to generate a sample of young adult bar and club goers in Albuquerque, Los Angeles, Nashville, Oklahoma City, San Diego, San Francisco and Tucson. Venues, dates, and times were selected randomly from comprehensive lists of young adult-oriented bars and clubs in order to assign similar probabilities of selection to individuals within the sample. Time location sampling methods used in this study were developed to reach underserved populations,<sup>31</sup> and have been described in previous studies collecting surveys from young adult bar patrons.<sup>27,28</sup> When trained study personnel entered the bar, they enumerated the number of patrons present, and approached all young adults present who appeared to be within the age range and invited them to participate in the study. Study personnel explained the study, and participants completed verbal informed consent to maximize participants' convenience. We did not include patrons who appeared to be intoxicated or who were unable or unwilling to complete the informed consent procedure for any reason. For the data in this study, response rate (percentage of eligible young adult bar patrons who completed surveys) was 77%. Valid questionnaires were available from 7,750 participants. Participants reported age when completing the questionnaire, which was later validated using self-reported date of birth. A total of 130 participants (1.7%) were excluded since the age calculated based on date of birth fell outside the range of the current study (18-26 years). An additional 80 participants (1.0%) were excluded since they did not provide information on their gender or race/ethnicity. This resulted in a total sample of N = 7,540 participants recruited from 98 venues and 7 cities for the current analyses. In all cities, between 1,100 and 1,200 participants were included with the only exception of Oklahoma City with 521 participants. Smoking was allowed in bars in Oklahoma City and Nashville; Albuquerque, Tucson, San Diego, Los Angeles, and Francisco had smokefree bars. State wide smokefree bar policies did not change during the study time period. The surveys used a three-form planned missing data design (participants answer one of three randomly selected versions of the survey) in which each form includes a certain number of core questions asked of all participants and another group of items that are asked only to two-thirds of participants.<sup>32</sup> This design allowed us to reduce participant fatigue and response burden by having each individual answer fewer items while still collecting data from a large number of participants. All study procedures were reviewed and approved by the Committee on Human Research of the University of California, San Francisco.

## Measures

**Demographics**—Demographic variables included age (continuous measure, 18-26 years old) and sex (male/female). Race/ethnicity was based on participants' responses to two items: Ethnicity (Hispanic or not) and race (African-American, Asian, White, Hawaiian/Pacific Islander, American Indian/Alaskan Native, or More than one race) and recoded into 4 categories (Hispanic, Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Other). Participants reported their educational status, which was recoded into a dichotomous variable (currently in college/graduated versus no college/dropped out), and self-reported sexual orientation which was recoded into a dichotomous variable (straight versus gay/bisexual/other).

**Tobacco marketing receptivity**—Marketing receptivity was assessed with one item<sup>21-23</sup> (“Some tobacco companies offer promotional items (such as clothing and bags) which have the company brand name or logo on them that the public can buy or get for free. Do you think you would use a tobacco industry promotional item?”) and responses were recorded dichotomously (yes/no).

**Nicotine dependence**—Nicotine dependence was assessed with one item (“How soon after you wake up in the morning do you usually smoke your first cigarette?”) and responses were recorded dichotomously (less than 30 minutes/more than 30 minutes).

**Current tobacco product use**—The current use of tobacco products was assessed with 6 separate questions. Participants were asked on how many days during the past 30 days they used any of the following products: 1) Smoked a cigarette, 2) used spit tobacco, chew, or dip, 3) smoked tobacco using a hookah, 4) used “Snus” tobacco, 5) smoked a “Black & Mild” or other brand cigarillo, and 6) smoked an e-cigarette or electronic cigarette. All items were recoded into dichotomous variables reflecting any use within the past 30 days (current use). Responses to items 2) and 4) were combined into a single “smokeless tobacco” category. An additional variable was constructed to reflect current use of multiple tobacco products (past 30 day use of any 2 or more tobacco products).

## Statistical analyses

Multivariable logistic regression analyses were conducted to examine the associations between tobacco marketing receptivity and OTP use among (1) the entire sample and (2) among current cigarette smokers only. All analyses were adjusted for age, gender, race/ethnicity, education, and sexual orientation. Among current smokers, we additionally controlled for nicotine dependence (smoking within < 30 min after waking). Mplus 7 was used for all analyses in order to utilize Full Information Maximum Likelihood (FIML) estimates for planned missing data, and to adjust for the clustered sampling design (participants, venues, cities).

## Results

### Sample description

A sample description of the entire sample and of current cigarette smokers (any smoking within the past 30 days) is presented in Table 1. Participants were on average 23.7 years old and almost half were female (48.1%). The sample was predominantly non-Hispanic white (47.8%) and almost a third self-identified as Hispanic (32.4%). Most participants were currently enrolled in or had already graduated from college (80.0%) and self-identified their sexual orientation as straight (86.7%). A substantial subgroup of participants reported receptivity to tobacco marketing (21.8%).

### Tobacco use

Respondents reported frequent current (past 30 day) use of tobacco products, ranging from 42.8% for smoking cigarettes to 10.5% for smoking cigarillos, with 18.9% reporting current use of multiple products (Table 1). Observed frequencies of tobacco product use were predominantly non-daily (e.g., 69.4% of current cigarette smokers smoked non-daily) with current users on average smoking on 14.4 of the past 30 days and frequencies for OTP use ranging from 10.4 days (smokeless) to 5.7 days (hookah).

Demographic characteristics of current cigarette smokers are displayed in Table 1. More than a third of current cigarette smokers reported receptivity to tobacco marketing (34.9%) and smokers reported high rates of OTP use ranging from 33.2% (hookah) to 19.0% (cigarillo), as well as high rates of multiple product use (39.4%). Current smokers also reported predominantly non-daily use of OTP.

### Tobacco marketing receptivity and OTP use

Multivariable logistic regression analyses were conducted to investigate the association between tobacco marketing receptivity and OTP use. In the entire sample, tobacco marketing receptivity was consistently associated with OTP use after adjusting for age, gender, race/ethnicity, education, and sexual orientation (Table 2). The adjusted odds ratios (AORs) for marketing receptivity ranged from 1.97 (95% CI 1.58-2.43) for hookah use to 3.00 (95% CI 2.21-4.08) for cigarillo use. Marketing receptivity was also consistently associated with OTP use among the subset of currently non-smoking participants (data not shown).

Male gender and non-straight sexual orientation were consistently associated with an increased risk of use for each OTP. Younger age increased the risk of hookah, cigarillos, e-cigarette use. African Americans were at an increased risk for cigarillo use, and Latinos/Hispanics were at an increased risk for hookah and cigarillo use.

Among current cigarette smokers, we examined tobacco marketing receptivity and OTP use, adjusting for age, gender, race/ethnicity, education, and sexual orientation, also controlling for nicotine dependence (Table 3). The significant associations between marketing receptivity and hookah use and e-cigarette use that we found for the entire sample were attenuated in these subgroup analyses. However, marketing receptivity continued to be significantly associated with smokeless tobacco use (AOR = 1.44; 95% CI 1.05-1.98),

cigarillo use (AOR = 1.81; 95% CI 1.22-2.70), and multiple product use (AOR = 1.58; 95% CI 1.27-1.97).

Among current cigarette smokers, younger age was associated with an increased risk for OTP use (except for smokeless tobacco use), as was male gender (except for hookah use). African American cigarette smokers were at an increased risk for hookah and cigarillo use. Hispanic/Latino ethnicity among smokers increased the risk for use of hookah, cigarillos, e-cigarettes, and multiple products. Non-straight sexual orientation among current cigarette smokers was associated with an increased risk for use of smokeless tobacco, cigarillos, and multiple products. Higher nicotine dependence (smoking <30 min after waking) increased the risk for smokeless tobacco use among current smokers.

## Discussion

High rates of OTP use (smokeless tobacco, hookah, cigarillos, e-cigarettes) were found in our sample of young adult bar patrons, compared to young adults in the general population.<sup>3</sup> Controlling for a number of demographic characteristics, tobacco marketing receptivity was consistently associated with OTP use. Among current cigarette smokers, marketing receptivity continued to be associated with the use of smokeless tobacco, cigarillos, and multiple tobacco products, even after controlling for nicotine dependence.

Our findings are consistent with prior studies showing tobacco marketing receptivity as an important predictor of smoking uptake in young people.<sup>14,22</sup> The present study extends these findings by showing that in addition to cigarette smoking, tobacco marketing receptivity is also associated with OTP among high risk young adults. The high rates of OTP use among young adults may be impacted by increased industry efforts to market these products.<sup>6-8</sup> Cigarette companies have started to market smokeless tobacco products, some of them with cigarette brand names,<sup>33</sup> which may facilitate smokeless tobacco uptake among smokers and those receptive to tobacco marketing. In addition, marketing for cigars and cigarillos<sup>34</sup> and e-cigarettes<sup>10</sup> frequently uses tactics known to appeal to young people, such as utilizing fruit and candy flavors, aspirational imagery utilizing glamour, fashion, celebrities, and messages emphasizing pleasure. Tobacco marketing may also contribute to dual or poly tobacco use. Especially in the case of smokeless tobacco<sup>35</sup> and e-cigarettes,<sup>10</sup> marketing messages promote dual use, such as the use of products to circumvent smokefree air laws.

Among current smokers, we found that the use of hookah and electronic cigarettes was not significantly associated with marketing receptivity when controlling for other demographic factors. A potential explanation may be that dual users of cigarettes and e-cigarettes may be using e-cigarettes to reduce or quit smoking or may be more critical of the tobacco industry and thus less receptive to industry marketing efforts. Previous research suggests that young adult dual users of cigarettes and e-cigarettes have stronger anti-industry attitudes than cigarette smokers,<sup>36</sup> however, another study found no differences in anti-industry attitudes between dual users of cigarettes and hookah and cigarette only users.<sup>26</sup> An alternative explanation might be that young adults using hookah and e-cigarettes are receptive to tobacco marketing, but that they do not perceive hookah and e-cigarettes to be tobacco products and thus tobacco marketing receptivity may not play as big of a role with regard to

the use of these products. However, among the entire sample, marketing receptivity was associated with an increased likelihood of current hookah and e-cigarette use. Future studies are needed to elucidate this issue.

This study suggests that one way to address increased OTP use among young adults would be to limit tobacco marketing. At the point of sale, federal regulations currently only prohibit self-service displays for cigarettes and smokeless tobacco<sup>37</sup> and not for other OTP such as e-cigarettes. Since self-service displays may contribute to youth access of tobacco products,<sup>38</sup> they should be restricted. Lastly, with regard to cigarettes, the sale of packages of fewer than 20 cigarettes is also prohibited by the Family Smoking Prevention and Tobacco Control Act,<sup>4</sup> but these restrictions do not apply to cigarillos, and thus many tobacco outlets sell single cigarillos,<sup>8</sup> giving young people the opportunity to buy cheap combustible tobacco. This is further underlined by previous findings reporting that youth exposure to tobacco point-of-sale advertisements and tobacco industry communications are positively associated with youth curiosity to use cigars and smokeless tobacco.<sup>39</sup> Since our findings show that marketing receptivity is associated with use of all of the OTP, it would seem prudent to extend limits on cigarette advertising to all OTP.

### Limitations

Our study relied on cross-sectional data and can thus not establish causal relationships between marketing receptivity and OTP use. Longitudinal studies are needed to investigate if marketing receptivity predicts OTP use in young adults over time. We used a single item assessing the willingness to use a tobacco company promotional item as measure of marketing receptivity, which may not yield the same results as a marketing receptivity index differentiating different levels of receptivity. Further, this marketing receptivity measure thus far has been predominantly used in studies investigating cigarette smoking. We do not know what our participants associated with the term “tobacco companies”. Future studies using this item could include cognitive testing to ascertain how participants are interpreting this question. In a changing tobacco marketing landscape, tobacco companies are now only spending a fraction of their marketing budget on branded promotional items,<sup>40</sup> thus different measures of marketing receptivity may be needed moving forward. Our question assessing the use of “Black & Mild” and other cigarillos may not have captured the use of little cigars and our question of using hookah to smoke tobacco may result in underestimating use among those who do not think hookahs contain tobacco. Finally, a random time-based location sampling procedure was used to recruit young adult study participants in bars and our sample can thus not be considered representative of the entire population of young adults. Research on general population samples of young adults is needed to confirm the results obtained in the current study. However, as evident from the high rates of tobacco use found in the current study, young adult bar patrons are a group especially vulnerable to tobacco marketing and therefore are deserving attention.

### Conclusions

This paper the first evidence that tobacco marketing receptivity is associated with OTP use among high risk young adults in the US. The high rates of OTP use among young adults may, in part, be explained by the increased tobacco industry marketing of these products.



Our findings suggest that in order to reduce OTP use among young people, cigarette product and marketing regulations should be extended to OTP.

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J. Thrul conceptualized the study, conducted the analysis, and led the writing. N. E. Lisha helped conceptualize the study and contributed to the writing and editing. P. M. Ling oversaw the project, wrote the original grant for the project, helped to conceptualize the study, and contributed to analysis, writing, and editing. All authors approved the final article.

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### **Implications and Contribution**

In a sample of young adult bar patrons, this study found that tobacco marketing receptivity was associated with other tobacco product use (smokeless tobacco, hookah, cigarillos/cigars, electronic cigarettes). Results suggest that restrictions on cigarette advertising should be applied to all tobacco products in order to prevent use by young people.

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**Table 1**

Sample characteristics

	Entire sample (N=7,540)		Current smokers only (N=3,045)	
	N available	M (SD), Number (%)	N available	M (SD), Number (%)
Age	7,540	23.7 (1.8)	3,045	23.7 (1.8)
Gender (female)	7,540	3,623 (48.1)	3,045	1,266 (41.6)
Race	7,540		3,045	
Non-Hispanic white		3,604 (47.8)		1,520 (49.9)
Non-Hispanic black		463 (6.1)		167 (5.5)
Non-Hispanic other		1,033 (13.7)		437 (14.4)
Hispanic		2,440 (32.4)		921 (30.3)
Education	7,516		3,036	
In college or graduated		6,701 (89.2)		2,670 (87.9)
No college or dropped out		815 (10.8)		366 (12.1)
Sexual orientation	7,515		3,034	
Straight		6,513 (86.7)		2,525 (83.2)
Not straight		1,002 (13.3)		509 (16.8)
Receptive to tobacco marketing	5,064	1,106 (21.8)	2,083	726 (34.9)
Current cigarette smoking	7,120	3,045 (42.8)	3,045	3,045 (100)
Current smokeless tobacco use	4,438	625 (14.1)	1,859	446 (24.0)
Current hookah use	4,531	954 (21.1)	1,841	612 (33.2)
Current cigarillo smoking	4,483	469 (10.5)	1,811	344 (19.0)
Current e-cig use	4,501	789 (17.5)	1,832	567 (31.0)
Current multiple product use	7,321	1,383 (18.9)	3,045	1,200 (39.4)

Note:

<sup>f</sup>Number of days used out of the past 30 days among current users

**Table 2**

Multivariable logistic regression results predicting OTP use in entire sample (N=7,540)

Predictor	Smokeless tobacco		Hookah		Cigarillos/cigars		E-cigarettes		Multiple products	
	AOR <sup>J</sup>	95% CI	AOR <sup>J</sup>	95% CI	AOR <sup>J</sup>	95% CI	AOR <sup>J</sup>	95% CI	AOR <sup>J</sup>	95% CI
Receptive to marketing	2.49 <sup>***</sup>	(1.90, 3.27)	1.97 <sup>***</sup>	(1.58, 2.43)	3.00 <sup>***</sup>	(2.21, 4.08)	2.43 <sup>***</sup>	(1.93, 3.04)	2.93 <sup>***</sup>	(2.45, 3.51)
Age	0.96	(0.90, 1.03)	0.89 <sup>***</sup>	(0.85, 0.93)	0.90 <sup>**</sup>	(0.85, 0.95)	0.95 <sup>*</sup>	(0.90, 1.00)	0.94	(0.88, 1.00)
Gender (female)	0.21 <sup>***</sup>	(0.16, 0.28)	0.70 <sup>***</sup>	(0.57, 0.85)	0.49 <sup>***</sup>	(0.37, 0.66)	0.59 <sup>***</sup>	(0.49, 0.71)	0.58 <sup>***</sup>	(0.49, 0.69)
Non-Hisp. black (ref: Non-Hisp. white)	1.21	(0.83, 1.78)	1.42	(0.98, 2.05)	2.19 <sup>**</sup>	(1.40, 3.42)	1.03	(0.72, 1.49)	0.98	(0.69, 1.40)
Non-Hisp. other (ref: Non-Hisp. white)	0.77	(0.55, 1.09)	1.06	(0.80, 1.41)	1.15	(0.77, 1.73)	1.06	(0.80, 1.40)	0.96	(0.78, 1.19)
Hispanic (ref: Non-Hisp. white)	0.94	(0.73, 1.21)	1.36 <sup>*</sup>	(1.07, 1.72)	1.53 <sup>**</sup>	(1.15, 2.02)	1.18	(0.99, 1.41)	1.15	(0.92, 1.43)
No college or dropped out (ref: in college or graduated)	1.13	(0.87, 1.46)	0.96	(0.76, 1.21)	1.25	(0.93, 1.68)	1.23 <sup>*</sup>	(1.03, 1.48)	1.08	(0.89, 1.32)
Sexual orientation not-straight	1.57 <sup>***</sup>	(1.25, 1.98)	1.31 <sup>*</sup>	(1.05, 1.64)	1.64 <sup>**</sup>	(1.19, 2.26)	1.49 <sup>**</sup>	(1.11, 1.99)	1.53 <sup>***</sup>	(1.25, 1.87)

Note:

<sup>J</sup> AOR = adjusted odds ratio, all predictors were included simultaneously in the models

\* p < .05

\*\* p < .01

\*\*\* p < .001

**Table 3**  
Multivariable logistic regression results predicting dual use among current smokers (N=3,045)

Predictor	Smokeless tobacco		Hookah		Cigarillos/cigars		E-cigarettes		Multiple products	
	AOR <sup>1</sup>	95% CI	AOR <sup>1</sup>	95% CI	AOR <sup>1</sup>	95% CI	AOR <sup>1</sup>	95% CI	AOR <sup>1</sup>	95% CI
Receptive to marketing	1.44*	(1.05, 1.98)	1.26	(0.94, 1.68)	1.81**	(1.22, 2.70)	1.18	(0.86, 1.62)	1.58***	(1.27, 1.97)
Age	0.94	(0.86, 1.02)	0.85***	(0.81, 0.89)	0.88***	(0.82, 0.94)	0.94*	(0.88, 1.00)	0.92*	(0.86, 0.99)
Gender (female)	0.28***	(0.21, 0.36)	0.94	(0.77, 1.14)	0.64*	(0.46, 0.90)	0.72*	(0.55, 0.93)	0.75**	(0.61, 0.91)
Non-Hisp. black (ref: Non-Hisp. white)	1.64	(0.99, 2.74)	2.55***	(1.81, 3.59)	2.44**	(1.33, 4.50)	1.26	(0.79, 2.00)	1.27	(0.88, 1.83)
Non-Hisp. other (ref: Non-Hisp. white)	0.93	(0.61, 1.42)	1.23	(0.87, 1.75)	1.19	(0.73, 1.94)	1.10	(0.79, 1.53)	1.02	(0.79, 1.30)
Hispanic (ref: Non-Hisp. white)	1.12	(0.82, 1.53)	1.56***	(1.22, 1.99)	1.71**	(1.24, 2.37)	1.27*	(1.02, 1.56)	1.34*	(1.07, 1.67)
No college or dropped out (ref: in college or graduated)	1.02	(0.75, 1.38)	0.83	(0.60, 1.15)	1.08	(0.77, 1.51)	0.96	(0.77, 1.19)	0.80*	(0.63, 0.99)
Sexual orientation not-straight	1.61***	(1.33, 1.94)	1.18	(0.90, 1.56)	1.57*	(1.10, 2.24)	1.29	(0.97, 1.73)	1.34*	(1.07, 1.69)
Nicotine dependence <sup>2</sup>	1.40*	(1.06, 1.86)	1.08	(0.80, 1.45)	1.32	(0.88, 1.98)	1.16	(0.80, 1.68)	1.09	(0.88, 1.34)

Note:

<sup>1</sup> AOR = adjusted odds ratio, all predictors were included simultaneously in the models

<sup>2</sup> Smoking < 30 min after waking

\* p < .05

\*\* p < .01

\*\*\* p < .001.