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Depression and Substance Abuse and Dependency in Relation to Current Smoking Status and Frequency of Smoking among Nondaily and Daily Smokers

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Abstract

Background and Objectives—Daily smoking rates are decreasing while intermittent or nondaily smoking rates are increasing. Little is known about the association of depression, alcohol abuse and dependence, and illicit drug abuse and dependence with different patterns of smoking, particularly nondaily smoking. Thus, we examined these relationships among current smokers vs. nonsmokers and among those who smoke daily vs. less frequently.

Methods—We conducted a secondary analysis of 37,897 adults who participated in the 2008 National Survey on Drug Use and Health. We developed logistic regression models examining predictors of 1) current smoking and 2) number of days smoking per month (1–10 days, 11–29 days, 30 days) among current smokers, focusing on past-year major depression, alcohol abuse and dependence, and illicit drug abuse and dependence.

Results—Compared to nonsmokers, current smokers more frequently reported a major depressive episode ($p < .001$), alcohol dependence ($p < .001$) and abuse ($p < .001$), and illicit drug dependence ($p < .001$) and abuse ($p < .001$), controlling for sociodemographics. Among current smokers, greater smoking frequency was associated with illicit drug dependence ($p = .004$), but lower likelihood of alcohol dependence ($p = .01$), alcohol abuse ($p = .01$), and illicit drug abuse ($p = .01$).

Conclusions—Although depression and substance use were associated with greater likelihood of smoking, most measures were inversely associated with frequency of smoking. Thus, it is important to examine underlying mechanisms contributing to these counterintuitive findings in order to inform intervention approaches.

Scientific Significance—With increased rates of nondaily smoking, developing a greater understanding about the mental health correlates related to this pattern of smoking is critical.

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Declaration of Interest:

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

INTRODUCTION

Despite recent successes in reducing overall tobacco consumption in the United States, approximately 20.6% of the U.S. population continues to smoke cigarettes.¹ While daily tobacco consumption in the U.S. is declining,² nondaily smoking (smoking on some days but not every day) is increasing.³ In the U.S., up to 33% of smokers smoke nondaily⁴ (i.e., between 1 and 29 days out of every 30⁵). Nondaily smoking may be a transitional phase to heavier smoking⁶ or from daily smoking to quitting;^{7–9} however, nondaily smoking may also be a chronic pattern of cigarette use.^{10–12} Some low-level smokers can abstain from tobacco for days without exhibiting signs of withdrawal,¹³ while others may experience physiological addiction.^{13,14} Additionally, although most intermittent smokers report motivation to quit, they have difficulty quitting^{15,16} and are less likely to receive or seek treatment compared to heavier smokers.^{17–19} Unfortunately, even very low levels of cigarette consumption are associated with significant smoking-related morbidity and mortality,^{20–22} particularly cardiovascular disease, lung and gastrointestinal cancers, lower respiratory tract infections, cataracts, compromised reproductive health, and osteoporosis.²³ Thus, a greater understanding of factors associated with varying levels, particularly low levels, of cigarette consumption is needed to better inform cessation interventions that address the range of smokers.

The relationship between depression and cigarette smoking is well documented.^{24–26} Compared to nonsmokers, smokers have higher lifetime rates of major depressive episodes^{27–29} and more depressive symptoms.^{30,31} Depression is related to smoking initiation,³² nicotine withdrawal during quit attempts,^{33,34} continued smoking,^{26,35,36} and relapse after quit attempts.³⁷ This could be related to using smoking to self-medicate negative affect.^{25,29,32,38–40} There may also be a genetic linkage^{25,41–43} or other common factors that contribute to both smoking and depression. Despite the considerable literature regarding the relationship between depression and smoking, less research has examined the relationship between various levels of smoking, particularly low-level smoking, and level of depressive symptomatology.

While research has documented an association between substance use and smoking,^{44,45} the majority of this research has examined regular or daily smokers.^{44,45} Lower-level or nondaily smoking has been examined in relation to other substance use, but has largely focused on concurrent alcohol use,^{42,43} and the majority has examined these associations in adolescents and young adults.^{44,46–49} Thus, greater research is needed among the general adult population to understand the relationships between varying levels of cigarette use in relation to concomitant use of other substances.

Despite what is known about the association of depression and substance use to current smoking status, less is known about how depression and substance abuse are associated with differing frequency of smoking, particularly among low-level smokers. Breslau and colleagues found that depression predicted not only tobacco use, but also greater intensity of cigarette use among smokers.³² Another study using a national data set documented an association between increasing levels of smoking and depression.⁵⁰ They also found that, among women, the odds of being an occasional or daily smoker was increased for those with an alcohol or drug use disorder.⁵⁰ However, another study of women⁵¹ found no association between depression and various levels of smoking. One study of young adults⁵² documented associations between smoking at various levels and depression and alcohol use. Others studies have also demonstrated mixed findings in terms of for whom these associations hold and if the associations of depressive disorder or substance use disorder to smoking level is linear.^{53–55} Thus, greater examination is needed to document these relationships in order to identify different health risk profiles and more fully disentangle the mechanisms of

addiction or mental health factors that might underlie addictive properties of alcohol, illicit drugs, and nicotine. Moreover, the recent increases in low level or nondaily smoking indicate an emergent and immediate need to begin to understand what factors may contribute to this smoking pattern and how to best address this growing public health problem.

To address these gaps in the literature, the present study used a large population-based survey – the National Survey on Drug Use and Health – to examine (1) the association of having a past-year major depressive episode, past-year alcohol dependence or abuse, or past-year illicit drug dependence or abuse to being a current (past 30-day) smoker, and (2) among current smokers, the association between these factors (i.e., major depressive episode, alcohol dependence or abuse, illicit drug dependence or abuse) and frequency of smoking.

METHODS

Sample

The study used data from the 2008 National Survey on Drug Use and Health (NSDUH; for details, see Substance Abuse and Mental Health Administration, 2009). Conducted by the Federal Government since 1971, the NSDUH employs a state-based design with an independent, multistage area probability sample within each state and the District of Columbia. The design oversampled youths and young adults, so that each state's sample was approximately equally distributed among three age groups: 12 to 17 years, 18 to 25 years, and 26 years or older. Nationally, 55,739 completed interviews were obtained. The survey was conducted from January through December 2008. Weighted response rates for household screening and for interviewing were 89.0% and 74.4%, respectively. Our sample was restricted to 37,897 adults (aged 18 or older) who had complete data.

Measures—For the current set of analysis, we selected assessments of sociodemographics, overall health, mental health, substance dependence and abuse, and smoking-related characteristics.

Demographic Characteristics: Participants were asked to report their age, gender, ethnicity, marital status, household income, level of education, and employment status.

Overall Health: Participants were asked, “Would you say your health in general is: excellent, very good, good, fair, or poor?”

Past-Year Major Depressive Episode: Past-year major depressive episode (MDE) was assessed using a screener adapted from the depression section of the National Comorbidity Survey-Replication (NCS-R)⁵⁶ and from the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV).⁵⁷ As part of an ongoing process to evaluate and improve NSDUH survey questions, experts in the field of mental health have reviewed the questions to determine how well they captured the meaning of the DSM-IV criteria. The questions have been tested to determine how well respondents understood them and to identify any problematic phrases or words. Some individual questions were divided into several less complex questions, and revisions were made to improve question wording. Cognitive testing and expert review have been conducted for these questions. A positive screen for the major depressive episode assessment indicated having at least five or more of the nine symptoms (e.g., depressed mood, anhedonia [diminished interest/pleasure in doing things], fatigue), with at least one symptom being depressed mood or anhedonia, nearly every day in the same 2-week period. Previous research has documented fair to moderate

agreement with other national data sources (e.g., National Epidemiologic Survey on Alcohol and Related Conditions, National Comorbidity Survey Replication).⁵⁸

Past-Year Alcohol and Illicit Drug Dependence and Abuse: The NSDUH includes a series of questions to assess the prevalence of alcohol use disorders (i.e., dependence or abuse) and illicit drug use disorders, including marijuana, cocaine, heroin, hallucinogens, inhalants, and the nonmedical use of prescription-type psychotherapeutic drugs, in the past 12 months based on DSM-IV criteria,⁵⁷ using a similar adaptation process as described above. Questions on substance dependence ask about health, emotional problems, attempts to reduce consumption, tolerance, withdrawal, and other symptoms associated with substances used. Questions designed to assess abuse ask about failure to fulfill major role obligations as a result of substance use, recurrent use in hazardous situations, recurrent legal problems due to substance use, or continued use despite recurrent associated interpersonal or social problems. Other details of the study design and a list of the questions used have been reported elsewhere.⁵⁹ Consistent with the DSM-IV criteria, NSDUH classifies users as being dependent on a substance if they report at least three out of seven dependence symptoms and as abusing the substance if they do not meet the criteria for dependence on that substance but report at least one out of four abuse criteria. Research has found fair to moderate agreement between the NSDUH and the Structured Clinical Interview for DSM-IV (SCID-IV).⁶⁰

Smoking Status and History: Respondents were asked four questions to assess smoking status and smoking history. First they were asked, “During the past 30 days, on how many days did you smoke part or all of a cigarette?” Current smokers were defined as having smoked on any day in the past 30 days and sorted into three categories: “Few-day smokers” who smoked 10 days or less in the past 30 days, “Many-day smokers” who smoked 11–29 days in the past 30 days, and “Daily smokers” who smoked every day of the past 30 days. These categorizations were based on the distribution of the data: 22.0% of current smokers smoked 1 to 10 days, 14.8% smoked 11 to 29 days, and 63.2% smoked every day.

Data Analysis—Bivariate and multivariate analyses were estimated using the “SVY” procedure in Stata to account for complex sampling design elements of NSDUH including the strata, primary sampling unit, and survey weights. Groups (current [past 30-day] smokers versus nonsmokers) were compared on demographic, mental health, substance use, and smoking characteristics using the adjusted chi-square tests. The outcome variable of interest was smoking status (current smokers versus nonsmokers; few-day smokers [1–10 days] versus many-day smokers [11–29 days] versus daily smokers). To examine correlates of being a current smoker versus a nonsmoker, we estimated logistic regression models. To examine correlates associated with the level of smoking among current smokers (few-day smokers, many-day smokers, and daily smokers) we estimated ordered logistic regression models. We also estimated a generalized ordered logit model in which the proportional odds assumption was tested for each covariate; only two covariates in the model (Black, some college) did not pass this test at the 0.05 level. Therefore, we also present the odds ratios for each outcome category for these two covariates using estimates from the generalized ordered odds model. For each analysis, we forced entry of sociodemographic variables, past-year major depressive episode (MDE), past-year alcohol dependence and abuse, and past-year illicit drug dependence and abuse.

RESULTS

Bivariate Analyses—Table 1 presents participant characteristics and bivariate analyses describing the differences between current (past 30-day) smokers and nonsmokers. Comparing smokers to nonsmokers, smokers were younger ($p < .001$), male ($p < .001$), non-

Hispanic white ($p < .001$), unmarried ($p < .001$), less educated ($p < .001$), either employed full-time or not in the labor force ($p < .001$), and from homes with lower household income ($p < .001$). Current smokers were more likely to report poorer overall health ($p < .001$), past-year major depressive episode ($p < .001$), past-year alcohol dependence ($p < .001$) and abuse ($p < .001$), and past-year illicit drug dependence ($p < .001$) and abuse ($p < .001$).

Multivariate Analyses—Table 2 provides the binary logistic regression models predicting current smoker versus nonsmoker status. Current smokers were more likely to screen positive for past-year major depressive episode ($p = .06$), alcohol dependence ($p < .001$), alcohol abuse ($p < .001$), illicit drug dependence ($p < .001$), and illicit drug abuse ($p < .001$). They were also more likely to be older, male, white, unmarried, less educated, from households with less annual income, uninsured, and reporting poorer health.

Among current smokers (Table 3), greater smoking level was associated with a greater likelihood of screening positive for illicit drug dependence ($p = .004$) but lower likelihood of screening positive for past-year alcohol dependence ($p = .01$), alcohol abuse ($p = .01$), and illicit drug abuse ($p = .01$), and not significantly associated with past-year major depressive episode. Greater smoking level was also associated with being older, white, less educated, uninsured, and reporting poorer health. For both sets of multivariate analyses, we also examined interactions between depression and substance use disorders in relation to smoking frequency; however, no significant interactions were found.

DISCUSSION

The current study examined correlates of current smoker versus nonsmoker status among a large sample of individuals participating in a population-based survey, as well as factors associated with more frequent smoking among current smokers. As found previously, screening positive for alcohol abuse or dependence,⁶¹ illicit drug abuse or dependence,⁶¹ and major depressive episode in the past year^{24–26} was related to being a current smoker versus a nonsmoker.

More novel findings were documented between depression and substance use and patterns of cigarette consumption among current smokers. Surprisingly, more frequent smoking was *negatively* associated with screening positive for past-year alcohol abuse or dependence or illicit drug abuse and was not associated with major depression, after adjusting for covariates. While prior work suggests that excessive alcohol use is associated with nondaily smoking,^{46,47} it is difficult to explain these findings. It may be that the mechanisms of addiction to nicotine, alcohol, and illicit drugs are distinct. It seems that those who are more likely to become addicted to nicotine are more likely to be dependent on illicit drugs, whereas less frequent smokers were more likely to abuse illicit drugs. It may be that this subset of individuals may use several substances (nicotine, illicit drugs, and alcohol) in the context of social settings, but may not necessarily develop dependence. A recent review of the association between alcohol and nicotine use⁶² documented that several studies have found additive, synergistic, or contradicting effects of nicotine and/or alcohol on some measures. Specifically, evidence suggests that alcohol and nicotine interact to potentiate the rewarding effects of one another through activation of the dopamine reward pathway. Further exploration of this association and interactions between illicit drug use and smoking is warranted.

As previously documented, significant sociodemographic factors related to smoking in the past 30 days included being younger,⁶³ male,⁶³ white,⁶³ unmarried,⁶⁴ less educated,⁶⁵ and from a household with lower annual income.^{63,65} In the current study, we also found that more frequent smokers, particularly daily smokers, were older, less educated, from homes with lower annual household income, and white. This is in line with prior research

indicating that nondaily smokers tend to be younger, better educated, wealthier, and from minority backgrounds (African American and Hispanic) compared to daily smokers.⁶⁶ Thus, our findings confirm prior research regarding demographic factors related to smoking and smoking frequency.

Implications

This study has important implications for research and practice. In practice, healthcare providers should be cognizant of these relationships. In particular, because low-level or occasional smokers are less likely to self-identify as smokers,⁶⁷ it is important to appropriately assess smoking status (i.e., “How many days in the past 30 days have you smoke?” rather than “Are you a smoker?”). By doing so, healthcare providers will be more likely to identify occasional smokers who may not identify as a smoker and be better equipped to further assess for alcohol or illicit drug use as well as depressive symptoms among this high-risk but often overlooked group. In the context of research, this study highlights the importance of examining other health behaviors, particularly related to mental health, alcohol use, and illicit drug use, that might coincide with smoking status and frequency of smoking. It is also important to study these factors longitudinally in order to understand the potential causal linkages that might exist between developing mental health and substance abuse disorders. Moreover, the progression of the development of polysubstance use disorders should be investigated. Future research should also examine other mental health issues and underlying mechanisms that might account for these relationships.

Limitations

Important limitations to this study exist. First, the cross-sectional nature of this research does not allow for determining causality in the relationship between smoking, alcohol abuse and dependence, illicit drug abuse and dependence, and depression. Second, the study does not contain measures of other psychosocial or contextual factors, such as social support, genetic factors, or family history of mental health or substance use disorders, that might enable us to better understand the mechanisms that link daily or nondaily smoking behavior to mental health and substance abuse or dependence. Third, there is a disjunction between the timeframes for the alcohol use, illicit drug use, and depression measures (past-year) versus the past 30-day smoking measure. Smoking may not have coincided with the timeframe of the other behaviors or symptoms, which limits the conclusions we can draw about these relationships. In addition, our decision to categorize low-level smokers into those that smoked 1 to 10 days and those that smoked 11 to 29 days did not allow for us to account for the variability within these two groups. However, we felt that it was critical to maintain the daily smokers as a distinct category but examine some variability within the lower-level smoking population. In particular, those smoking between 26 and 29 days of the past 30 were difficult to categorize. It is important to note, however, this segment only constituted 3.3% of the current smoker population and thus was not likely to substantially impact our overall findings. Finally, from this cross-sectional survey, we cannot make any conclusions about the stability of the smoking behaviors and levels for this sample. Moreover, very little research has been done to examine changes in smoking levels over time among those individuals who do not smoke on a daily basis. This is likely due to the relatively new nature of nondaily smoking. Additional research is needed in this area. Despite these limitations, these findings provide strong support for continued investigation of differences in health-risk behaviors and mental health in relation to smoking status and frequency.

Conclusions

Screening positive for alcohol abuse or dependence, illicit drug abuse or dependence, and major depressive episode in the past year was related to being a current smoker versus a

nonsmoker. However, greater frequency of smoking was unrelated to screening positive for past-year major depressive episode after adjusting for sociodemographics and health confounders. Screening positive for past-year alcohol dependence or abuse was negatively associated with more frequent smoking, particularly daily smoking, after adjusting for covariates. Screening positive for past-year illicit drug abuse was negatively associated with more frequent smoking, but past-year illicit drug dependence was positively associated with more frequent smoking. Thus, different mechanisms of addiction may impact smoking, alcohol use, and illicit drug use. These findings warrant further research to examine underlying mechanisms (e.g., genetic factors, social support) that were not assessed in this study and longitudinal trajectories of these health-risk factors.

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Table 1

Participant characteristics and bivariate analyses examining current smokers vs. nonsmokers

Variable	Total 37,897 224,922,762	Smokers 12,263 57,282,350 25.47%	Nonsmokers 25,634 167,640,413 74.53%	p-value
Frequency				
Weighted Frequency				
Weighted Percentage				
Age				<.001
18–25 years old	14.64	20.43	12.67	
26–34 years old	15.84	21.02	14.07	
35–49 years old	28.69	31.05	27.88	
50–64 years old	24.32	21.06	25.44	
65 years or older	16.50	6.44	19.94	
Gender				<.001
Male	48.26	53.98	46.31	
Female	51.74	46.02	53.69	
Race/Ethnicity				<.001
White	68.79	71.51	67.87	
Black	11.46	12.24	11.19	
Hispanic	13.49	11.36	14.22	
Asian	4.33	2.13	5.08	
Other	1.93	2.76	1.64	
Marital status				<.001
Never married	26.04	37.00	22.29	
Married	55.05	39.56	60.33	
Divorced/separated	12.87	19.10	10.74	
Widowed	6.05	4.35	6.63	
Educational attainment				<.001
Less than high school	15.38	21.06	13.44	
High school graduate	31.40	36.58	29.63	
Some college	25.51	27.09	24.98	
College graduate	27.70	15.27	31.95	
Employment status				<.001
Employed full time	54.23	57.72	53.03	
Employed part time	13.55	12.71	13.84	
Unemployed	3.94	6.53	3.06	
Not in labor force	28.28	23.03	30.07	
Household income				<.001
Less than \$20,000	16.94	23.00	14.87	
\$20,000 – \$49,999	32.53	36.28	31.24	
\$50,000 – \$74,999	18.59	18.09	18.76	
\$75,000 or more	31.94	22.63	35.13	
Health status				<.001
Excellent	23.10	15.77	25.61	
Very Good	35.83	35.89	35.82	

Variable	Total 37,897 224,922,762	Smokers 12,263 57,282,350 25.47%	Nonsmokers 25,634 167,640,413 74.53%	p-value
Frequency				
Weighted Frequency				
Weighted Percentage				
Good	27.55	31.77	26.10	
Fair/Poor	13.52	16.57	12.48	
Past-year major depressive episode				<.001
No	94.33	89.41	94.33	
Yes	5.67	10.59	5.67	
Past-year alcohol dependency				<.001
No	97.99	91.54	95.34	
Yes	2.01	8.46	4.66	
Past-year alcohol abuse				<.001
No	97.34	91.89	95.34	
Yes	2.66	8.11	4.66	
Past-year illicit drug dependency				<.001
No	99.31	94.78	99.01	
Yes	0.69	5.22	0.99	
Past-year illicit drug abuse				
No	99.71	97.93	99.01	
Yes	0.29	2.07	0.99	
Average number of cigarettes smoked per day on smoking days	--		--	--
Less than 1 cigarette		6.67		
1 cigarette		8.35		
2–5 cigarettes		22.61		
6–15 cigarettes (1/2 pack)		27.34		
16–25 cigarettes (1 pack)		25.09		
26–35 cigarettes (2 pack)		6.92		
More than 35 cigarettes		3.02		
Use menthol cigarettes	--		--	
No		63.51		
Yes		36.49		

Table 2

Binary logistic regression examining current smokers vs. nonsmokers

Variable	OR	95% CI	p-value
Major depressive episode			
No			
Yes	1.17	0.99, 1.37	0.06
Alcohol dependency			
No			
Yes	2.87	2.46, 3.35	< 0.001
Alcohol abuse			
No			
Yes	2.32	1.96, 2.75	< 0.001
Illicit drug dependency			
No			
Yes	3.33	2.60, 4.26	< 0.001
Illicit drug abuse			
No			
Yes	3.06	2.25, 4.16	< 0.001
Age			
18–25 years old			
26–34 years old	1.41	1.26, 1.57	< 0.001
35–49 years old	1.04	0.94, 1.17	0.44
50–64 years old	0.75	0.63, 0.89	0.001
65 years or older	0.23	0.17, 0.31	< 0.001
Gender			
Male			
Female	0.78	0.71, 0.85	< 0.001
Race/Ethnicity			
White			
Hispanic	0.39	0.34, 0.44	< 0.001
Black	0.64	0.57, 0.73	< 0.001
Asian	0.47	0.36, 0.61	< 0.001
Other	1.15	0.86, 1.53	0.34
Marital status			
Married			
Never married	1.58	1.40, 1.78	< 0.001
Divorced	2.16	1.88, 2.48	< 0.001
Widowed	1.81	1.32, 2.49	< 0.001
Educational attainment			
< High school			
High school	0.74	0.64, 0.85	< 0.001
Some college	0.62	0.54, 0.72	< 0.001

Variable	OR	95% CI	p-value
College graduate	0.33	0.29, 0.39	< 0.001
Employment status			
Full time			
Part time	0.89	0.79, 0.99	0.04
Unemployed	0.85	0.74, 0.97	0.02
Not in labor force	0.67	0.58, 0.77	< 0.001
Household income			
Less than \$20,000			
\$20,000–\$49,999	0.86	0.76, 0.97	0.02
\$50,000–\$74,999	1.11	0.93, 1.31	0.23
\$75,000 or more	0.90	0.78, 1.03	0.11
Insurance coverage			
No			
Yes	0.75	0.68, 0.84	< 0.001
Health status			
Excellent			
Very Good	1.55	1.37, 1.74	< 0.001
Good	1.84	1.63, 2.07	< 0.001
Fair/Poor	2.17	1.85, 2.54	< 0.001

Table 3

Ordered logistic regression examining smoking levels (daily vs. many-day vs. few-day) among current smokers

Variable	OR	95% CI	p-value
Major depressive episode			
No			
Yes	1.14	0.92, 1.42	0.23
Alcohol dependence			
No			
Yes	0.76	0.62, 0.92	0.01
Alcohol abuse			
No			
Yes	0.73	0.58, 0.92	0.01
Illicit drug dependence			
No			
Yes	1.39	1.12, 1.72	0.004
Illicit drug abuse			
No			
Yes	0.59	0.40, 0.85	0.01
Age			
18–25 years old			
26–34 years old	1.64	1.41, 1.90	< 0.001
35–49 years old	1.89	1.61, 2.23	< 0.001
50–64 years old	2.34	1.80, 3.04	< 0.001
65 years or older	2.75	1.57, 4.81	0.001
Gender			
Male			
Female	0.96	0.84, 1.09	0.51
Race/Ethnicity			
White			
Hispanic	0.27	0.22, 0.34	< 0.001
Black [†]	0.52	0.41, 0.67	< 0.001
Asian	0.67	0.48, 0.94	0.02
Other	0.70	0.43, 1.15	0.15
Marital status			
Married			
Never married	0.94	0.78, 1.14	0.52
Divorced	1.22	0.98, 1.53	0.07
Widowed	1.51	0.90, 2.53	0.12
Educational attainment			
< High school			
High school	1.10	0.88, 1.38	0.40

Variable	OR	95% CI	p-value
Some college [†]	0.80	0.64, 0.99	0.05
College graduate	0.44	0.34, 0.58	< 0.001
Employment status			
Full time			
Part time	0.93	0.80, 1.08	0.34
Unemployed	1.15	0.93, 1.41	0.19
Not in labor force	0.87	0.69, 1.08	0.21
Household income			
Less than \$20,000			
\$20,000–\$49,999	0.79	0.66, 0.96	0.02
\$50,000–\$74,999	0.96	0.75, 1.23	0.73
\$75,000 or more	0.92	0.78, 1.09	0.34
Insurance coverage			
No			
Yes	0.66	0.56, 0.79	< 0.001
Health status			
Excellent			
Very Good	1.53	1.28, 1.82	< 0.001
Good	1.67	1.41, 1.98	< 0.001
Fair/Poor	1.92	1.51, 2.43	< 0.001

[†]Note: The proportional odds assumption was tested for all covariates in the model. Two covariates (Black and Some college) do not pass this test at the 0.05 level of significance. The odds ratios for each outcome category from a partial proportional odds model are as follows. Daily & Many day vs. Few day smokers: Black (OR=0.63, CI 0.48, 0.82, p<.001), Some college (OR=0.91, CI 0.72, 1.15, p=.43); Daily vs. Nondaily smokers: Black (OR=0.48, CI 0.36, 0.63, p<.001), Some college (OR=0.76, CI 0.60, 0.95, p=.02).