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Nicotine Withdrawal in U.S. Smokers with Current Mood, Anxiety, Alcohol Use, and Substance Use Disorders

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Abstract

Background—The current study examined tobacco withdrawal symptoms and withdrawal-related discomfort and relapse in smokers with and without current mood disorders, anxiety disorders, alcohol use disorders (AUD), and substance use disorders (SUD).

Methods—The subsample of current daily smokers (n=8,213) from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC, Wave 1, 2001–2002, full sample n=43,093) were included in these analyses. Cross-sectional data compared smokers with and without current psychiatric disorders on withdrawal symptoms using logistic regression models. The effects of having a co-morbid psychiatric disorder and AUD/SUD compared to a psychiatric disorder alone on nicotine withdrawal were also examined.

Results—Participants with a current mood disorder, anxiety disorder, AUD, or SUD were more likely to report withdrawal symptoms and reported more withdrawal symptoms than those without current disorders. Having a current mood disorder, anxiety disorder, and SUD was also associated with increased likelihood of withdrawal-related discomfort and relapse. There were no significant interactions between psychiatric disorders and AUDs/SUDs on withdrawal symptoms or behavior.

Conclusions—Participants with a current Axis I disorder were more likely to experience tobacco withdrawal symptoms and withdrawal-related discomfort and relapse. Having a co-morbid psychiatric disorder and AUD/SUD did not synergistically increase the experience of withdrawal-related symptoms or relapse. It is important to identify Axis I disorders in smokers and provide these smokers with more intensive and/or longer treatments to help them cope with withdrawal symptoms and prevent relapse.

Keywords

smoking; withdrawal; relapse; mood disorders; substance use disorders

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1. INTRODUCTION

Adults with current psychiatric disorders are much more likely to smoke than other adults (Centers for Disease Control, 2007; Lasser et al., 2000; see Ziedonis et al., 2008 for review). While approximately 22% of adults in the U.S. general population are current smokers, rates of smoking are significantly higher for adults with current mood disorders (38.2–44.7%), anxiety disorders (31.5–54.6%), alcohol use disorders (AUD; 65.1%), and substance use disorders (SUD; 67.9%) (Lasser et al., 2000). Smokers with psychiatric disorder are also less likely than other smokers to quit smoking (Lasser et al., 2000; Ziedonis et al., 2008). Quit rates for smokers with current mood disorders (22.0–26.0%), anxiety disorders (23.2–32.0%), SUD (22.4%), and AUD (16.9%) are approximately half that of U.S. adults with no mental illness (42.5%) (Lasser et al., 2000). It is not clear why smokers with Axis I disorders have a more difficult time with smoking cessation.

Data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC, Wave 1, 2001–2002, full sample n=43,093; Grant et al., 2004) showed that rates of nicotine dependence are 2–4 times higher in adults with current mood disorders (29.2%), anxiety disorders (25.3%), AUD (34.5%), and SUD (52.4%) compared to adults in the general population (12.8%). Nicotine dependence is marked by withdrawal symptoms (American Psychiatric Association, 1994) and it has been hypothesized that smokers with Axis I disorders have more trouble quitting smoking due to greater withdrawal (Covey et al., 1990). While there is evidence for an association between Axis I disorders and more severe withdrawal symptoms (e.g., Breslau et al., 1992; Covey et al., 1990; John et al., 2004a, b; Madden et al., 1997; Marks et al., 1997; Pomerleau et al., 2000; Pomerleau et al., 2005), the majority of these studies examined psychiatric *symptoms* (e.g., symptoms of depression or anxiety) or *a history* of disorders (e.g., depression, anxiety, AUDs). Little is known about the experience of withdrawal symptoms in smokers with a *current* Axis I disorder although two recent studies suggest that smokers with current anxiety disorders endorse a greater number of withdrawal symptoms (Zvolensky et al., 2008) and report more severe withdrawal (Marshall et al., 2008) than non-psychiatric smokers. Additional research using epidemiological datasets such as the NESARC is needed to learn more about the experience of withdrawal in smokers with anxiety and other current Axis I disorders.

Recent analyses of the NESARC data have found high rates of co-morbidity between psychiatric disorders (i.e., mood and anxiety disorders) and AUD/SUDs (e.g., Grant et al., 2005; Hasin et al., 2005, 2007). Most treatment research has focused on the efficacy of interventions for smokers who have either a psychiatric disorder or a AUD/SUD and not smokers with concurrent disorders (see Hall, 2007 for a review). Two studies of smoking cessation outcomes for smokers with co-morbid depression and AUDs found mixed results. Data from Project MATCH (n=1,193) suggested that higher levels of depression symptoms were related to a decreased likelihood of smoking abstinence (Friend and Pagano, 2007) while symptoms of depression were not related to smoking abstinence in the Timing of Alcohol and Smoking Cessation Study (n=462; Kodi et al., 2008). It is not clear whether having both a psychiatric disorder and an AUD/SUD would synergistically increase the experience of withdrawal-related symptoms.

The purpose of this study was to examine the experience of withdrawal in U.S. adult smokers with current depression, anxiety, AUD, and SUD using data from Wave 1 of the NESARC study. The first aim of the study was to compare smokers with and without a current Axis I disorder (e.g., smokers with current depression versus smokers without current depression) on aspects of tobacco withdrawal. It was predicted that smokers with a current psychiatric disorder or AUD/SUD would (1) endorse more symptoms of tobacco withdrawal, (2) be more likely to report discomfort related to withdrawal, and (3) be more likely to smoke to avoid withdrawal

than smokers without a current disorder. The second aim of the study was to compare the experience of withdrawal in smokers with co-morbid psychiatric disorders with AUD/SUD to smokers with a single psychiatric disorder or AUD/SUD (e.g., smokers with depression and an alcohol use disorder compared to smokers with depression alone). It was predicted that smokers with current co-morbid disorders would (1) endorse more symptoms of tobacco withdrawal, (2) be more likely to report withdrawal-related discomfort, and (3) be more likely to report withdrawal-related relapse than smokers with a diagnosis of a psychiatric disorder alone.

2. METHODS

2.1. Participants and Procedures

Data for these analyses were taken from the National Institute on Alcohol Abuse and Alcoholism's NESARC study (Wave 1, 2001–2002). Face-to-face personal interviews were conducted with 43,093 non-institutionalized civilians ages 18 and older. The response rate was 81% and African-Americans, Hispanics, and young adults (ages 18–24) were over-sampled. See Grant et al., 2003a for more details about the sampling, purpose, and weight procedures for the NESARC. The current analyses were conducted for the subsample of NESARC participants who reported that they were current daily smokers (n=8,213).

2.2. Measures

2.2.1. Demographic and Smoking information—Participants provided demographic information including gender, age, race, education, and marital status. Questions about smoking and smoking history included current cigarettes per day (CPD), age of smoking onset, and whether participants had wanted to cut down or quit using tobacco during the past 12 months (Yes/No).

2.2.2. Psychiatric Diagnoses—Psychiatric diagnoses were determined using the Alcohol Use Disorders and Associated Disabilities Interview Schedule-Version for the DSM-IV (AUDADIS-IV, Grant et al., 2001), a structured interview administered by trained lay interviewers. The AUDADIS uses DSM-IV (American Psychiatric Association, 1994) criteria to assess diagnoses of current mood disorders, anxiety disorders, AUDs, and SUDs. Current disorders were assessed by asking participants about symptoms experienced in the 12 months prior to the interview. The AUDADIS has demonstrated adequate reliability for assessment of smoking behavior (ICCs=0.60–0.92), nicotine dependence (κ=0.63) and Axis I disorders (κs=0.40–0.59) (Grant et al., 2003b). Current nicotine dependence was calculated from the AUDADIS-IV using DSM-IV criteria.

2.2.3. Assessment of Tobacco Withdrawal and Withdrawal-Related Behavior

2.2.3.1. Withdrawal Symptoms: Participants were asked to report whether they experienced each of eight tobacco withdrawal symptoms (depression, sleep problems, difficulty concentrating, increased appetite, irritability or frustration, anxiety or nervousness, heart beating more slowly, restlessness) when attempting to quit smoking during the past 12 months (Yes/No). A response of Yes to each item was coded as a "1" while a response of No to each item was coded as a "0." Responses were summed for Total Withdrawal Symptoms score (range 0–8; α=0.93). Participants were also classified into one of two groups: 1) those who reported experiencing no withdrawal symptoms, and 2) those who reported 1 or more withdrawal symptoms.

2.2.3.2. Relapse to Alleviate Withdrawal Symptoms: Participants were asked to report whether tobacco withdrawal symptoms experienced over the past 12 months caused

discomfort, distress, or impairment (Yes/No) and to report whether they used cigarettes to avoid nicotine withdrawal symptoms (Yes/No).

2.3. Statistical Analyses

NESARC participants who reported smoking cigarettes at least once per day at the time of the survey were classified as "current daily smokers" and were included in all analyses described below. Within each of the four diagnostic categories (mood, anxiety, alcohol, drug), participants meeting criteria for the disorder in the past 12 months were classified as having a current diagnosis and were compared to participants who did not have a current diagnosis of the disorder (i.e., did not meet criteria for that disorder in the past 12 months). Participants were classified as having a current AUD or SUD if they met criteria for either dependence or abuse within the past 12 months. Participants with and without each of the four disorders were compared on demographics, smoking characteristics, and current psychiatric diagnoses using chi-square and t-test analyses.

Analyses were performed to examine the main and interactive effects of disorders on nicotine withdrawal symptoms and withdrawal-related smoking relapse. Analyses of variance (ANOVAs) were used to assess the associations of having each of the current disorders (mood, anxiety, alcohol and drug) with total withdrawal symptoms and logistic regression was used to assess the associations of current diagnoses with withdrawal-related discomfort and with relapse. Secondarily, interactions between having a current psychiatric disorder (mood, anxiety) and a current SUD/AUD were examined for all three withdrawal items. Associations between current disorders and withdrawal-related discomfort and relapse were assessed in terms of odds ratios and 95% confidence intervals. Participants who did not have a current diagnosis of a disorder were the reference group against which participants with a current diagnosis of a specific disorder were compared. Age, sex, and marital status were entered as control variables for all analyses. All regression analyses were repeated controlling for level of nicotine dependence. Data was analyzed using SUDAAN (Research Triangle Institute, 2001), a software package that adjusts for characteristics of complex survey sampling designs. NESARC-calculated weights were used to account for nonresponse and oversampling of African-Americans, Hispanics, and young adults.

3. RESULTS

3.1. Demographics, Smoking Characteristics, and Rates of Psychiatric and Substance Use Disorders by Diagnosis (Table 1)

See Table 1 for demographic characteristics of the overall sample (n=8,213 current daily smokers) and by the presence of a current mood disorder, anxiety disorder, AUD, and SUD. The participants in this sample were primarily Caucasian (64%; 52% female). Participants with current disorders tended to be younger and less likely to be married. Women were more likely to report current mood and anxiety disorders and less likely to report current AUDs and SUDs than men. Education was not significantly related to having a current diagnosis of any of the disorders.

Participants with current disorders reported a younger age of smoking onset, and were more likely to report tobacco dependence and to want to cut down or quit smoking than participants without a current disorder. Participants with current mood or anxiety disorders reported smoking a greater number of cigarettes than participants without a current mood or anxiety disorder. Participants who reported having any of the four current disorders were more likely to report the presence of another current disorder.

3.2. Nicotine Withdrawal Symptoms in Smokers with and without a Current Axis I Disorder

See Table 2 for differences in the report of tobacco withdrawal symptoms by current Axis I diagnosis. Smokers with a current diagnosis of a mood disorder, anxiety disorder, AUD, and SUD were more likely to report experiencing at least one tobacco withdrawal symptom. Participants with a current mood or anxiety disorder and a co-morbid AUD or SUD were not more likely to report withdrawal symptoms than smokers without a co-morbid disorder (all ps>0.05). Having a current diagnosis of any of the four disorders was associated with reporting a greater number of tobacco withdrawal symptoms during quit attempts. Smokers with a current Axis I disorder reported approximately 1 additional symptom of withdrawal and there were no significant interactions for smokers with co-morbid psychiatric and substance use disorders (all ps>0.05). The overall pattern of results did not substantively change after controlling for level of nicotine dependence.

3.3. Withdrawal-Related Smoking Discomfort and Relapse in Smokers with and without a Current Axis I Disorder

See Table 3 for associations between tobacco withdrawal-related discomfort and relapse by current psychiatric diagnosis. Having a current mood disorder, anxiety disorder, AUD, or SUD increased the odds of reporting discomfort or distress related to tobacco withdrawal. Having a current AUD did not increase the odds of reporting withdrawal-related discomfort or distress. Similarly, the odds of reporting smoking relapse to avoid withdrawal symptoms was increased by the presence of a current mood disorder, anxiety disorder, or SUD, but not by the presence of a current AUD. There were no significant statistical interactions for smokers with both a mood or anxiety disorder and a co-morbid AUD or SUD in terms of withdrawal-related discomfort or smoking to avoid withdrawal (all ps>0.05). The overall pattern of results did not substantively change after controlling for level of nicotine dependence.

4. DISCUSSION

Consistent with our prediction, smokers with a current diagnosis of a mood disorder, anxiety disorder, SUD, or AUD reported a greater number of tobacco withdrawal symptoms than smokers without a current diagnosis of the respective disorder. This finding is consistent with previous work reporting greater levels of nicotine withdrawal for smokers with psychiatric symptoms or a lifetime Axis I diagnosis (e.g., Breslau et al., 1992; Covey et al., 1990; Madden et al., 1997; Marks et al., 1997; Pomerleau et al., 2000; Pomerleau et al., 2005). Further, smokers with current mood disorders, anxiety disorders, and SUDs were more likely to report withdrawal-related discomfort and smoking relapse. High levels of tobacco withdrawal symptoms and discomfort may lead adults with current Axis I disorders to relapse in greater numbers and after shorter periods of smoking abstinence. A number of withdrawal symptoms (e.g., sleep and appetite changes, anxiety, depression) overlap with symptoms of Axis I disorders so it is unclear whether these smokers experience higher levels of withdrawal symptoms, attribute symptoms of Axis I disorders to smoking abstinence, or have less tolerance for symptoms consistent with their Axis I disorder.

Contrary to expectation, smokers with current AUDs reported a greater number of withdrawal symptoms but were not more likely to report withdrawal-related discomfort or relapse than smokers without a current AUD. Interestingly, studies of smokers in Germany found that some aspects of smoking withdrawal were associated with alcohol dependence while other aspects of withdrawal were not (John et al., 2003a, b). Both alcohol and nicotine demonstrate a number of commonalities in terms of cross-tolerance (Balough et al., 2002; Collins, 1990; Funk et al., 2006), brain systems (e.g., dopamine and GABA; Dani and Harris, 2005; Funk et al., 2006), and pain relief (Dani and Harris, 2005). Based on cross-tolerance, it is possible that consuming alcohol may reduce tobacco withdrawal symptoms (e.g., cravings) or reduce the subjective

discomfort from tobacco withdrawal symptoms. While nicotine deprivation increases alcohol consumption (McKee et al., 2008), alcohol consumption is a risk factor for smoking cessation failure (McKee et al., 2006).

There were no differences in terms of tobacco withdrawal symptoms or withdrawal-related relapse comparing participants with a single substance use or psychiatric disorder and participants with both a psychiatric disorder and an AUD or SUD. These analyses suggest that while a current diagnosis of a mood disorder, anxiety disorder, SUD, and AUD is a risk factor for increased relapse to withdrawal symptoms, there is no significant interactive effect of having co-morbid disorders.

These findings suggest a number of clinical implications. Clinicians working with patients with current Axis I disorders who want to quit smoking may need to provide enhanced treatments that include pharmacotherapy to relieve withdrawal symptoms as well as behavioral treatments that focus on coping with tobacco withdrawal symptoms and relapse prevention skills to improve long-term success at smoking cessation. Clinicians may also need to work with patients to recognize, differentiate, and manage symptoms relating to withdrawal and Axis I disorders. Based on our results, clinicians should not expect patients with an AUD or SUD in addition to a mental health disorder to have more difficulty than patients experiencing a single mood disorder, anxiety disorder, SUD, or AUD. Finally, clinicians working with smokers in primary care settings should assess for mood disorders, anxiety disorders, SUDs, and AUDs to identify smokers who may have a more difficult time quitting and tailor treatments or make refers for additional services as needed.

Several limitations of the current study must be noted. While the AUDADIS has been shown to have adequate reliability and validity for the assessment of Axis I disorders and smoking behavior (Grant et al., 2003b), the data relies on participant self-report and cross-sectional data. Biases exist in the retrospective recall of tobacco withdrawal symptoms and smokers might be biased to recall greater or more severe withdrawal symptoms as a way to explain previous failed attempts to quit (Hughes, 2007). Past research has found gender differences in the retrospective recall of withdrawal symptoms (Pomerleau et al., 1994) and it is possible that other groups of smokers (e.g., smokers with a current Axis I disorders) also have a bias to recall more severe withdrawal symptoms. This bias could increase differences between smokers with and without psychiatric disorder in the retrospective report of withdrawal-related discomfort and relapse. Future studies can examine whether recall bias differentially affects the report withdrawal symptoms by psychiatric status through prospective examinations of smokers with and without psychiatric disorder during smoking cessation attempts. Prospective studies would also allow the assessment of withdrawal-related discomfort, time to relapse, and reasons for relapse (e.g., due to withdrawal symptoms) for smokers with and without Axis I disorders. Second, because the NESARC study surveyed smokers in the United States, these results may not generalize to smokers from other countries. The majority of daily smokers (91%) in the NESARC database were under the age of 65; therefore, these results may also not generalize to older smokers whose rates of current disorders were too low (0.5–8.6%) to allow for subgroup analyses. Third, while the NESARC includes careful assessment of Axis I disorders and smoking behavior, the dataset is limited in other respects. For example, the database does not include an assessment of the severity of withdrawal symptoms, the number of quit attempts, duration of quit attempts, nor the types of pharmacological or behavioral smoking cessation treatments were utilized by participants over the previous year. Assessment of the number and length of quit attempts would provide more detailed information about the differences in the experience of withdrawal for smokers with and without Axis I disorders. In addition, examining the differences in the utilization and efficacy of smoking cessation treatments in relation to withdrawal symptoms and withdrawal-related relapse would be useful to determine how to best treat smokers who are likely to relapse due to withdrawal symptoms.

4.1. Conclusions

Smokers with current Axis I disorders may have a more difficult time quitting smoking due to a greater number of withdrawal symptoms and a greater experience of withdrawal-related discomfort. As a result, smokers with Axis I disorders would benefit from treatments that are more intensive and of longer duration. Intensive pharmacotherapy may aid participants by relieving withdrawal symptoms while behavioral therapies can teach smokers how to manage withdrawal symptoms and discomfort and how to deal with lapses. By emphasizing ways to manage withdrawal symptoms other than smoking or unhealthy coping strategies (e.g., using alcohol), programs may help to increase cessation success with this refractory group of smokers.

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Table 1

Baseline Demographic, Smoking, and Diagnosis Variables for Current, Daily Smokers (n=8,213).

			Current Mood Diagnosis		Current Anxiety Diagnosis		Current Alcohol Diagnosis		Current Drug Diagnosis	
		Full Sample (n=8,213)	Yes n=1,294	No n=6,919	Yes n=1,307	No n=6,906	Yes n=1,286	No n=6,927	Yes n=421	No n=7,792
Sex, % (SE)	Male	**48.1 (.01)**	35.3 (.01) *a*	50.5 (.01)	33.4 (.01) *a*	50.9 (.01)	65.5 (.01)*a*	44.9 (.01)	62.0 (.02)*a*	47.4 (.01)
	Female	**51.9 (.01)**	64.7 (.01) *a*	49.5 (.01)	66.6 (.01) *a*	49.1 (.01)	34.5 (.01) *a*	55.1 (.01)	38.0 (.02) *a*	52.6 (.01)
Age, % (SE)	18–29 years old	**22.7 (.01)**	32.5 (.02) *a*	20.9 (.01)	24.0 (.02)*b*	22.4 (.01)	39.7 (.02)*a*	19.5 (.01)	54.4 (.03)*a*	21.0 (.01)
	30–44 years old	**34.4 (.01)**	34.2 (.02) *a*	34.5 (.01)	37.9 (.02)*b*	33.8 (.01)	36.7 (.02)*a*	34.0 (.01)	33.0 (.03)*a*	34.5 (.01)
	45+ years old	**42.9 (.01)**	33.3 (.02) *a*	44.6 (.01)	38.1 (.02)*b*	43.8 (.01)	23.6 (.02)*a*	46.5 (.01)	12.6 (.03)*a*	44.5 (.01)
Race, % (SE)	White, Non-Hispanic	**63.7 (.01)**	65.5 (.02) *b*	63.4 (.01)	68.0 (.03)*c*	62.9 (.01)	66.6 (.03)*c*	63.2 (.01)	62.7 (.05)	63.8 (.01)
	Black, Non-Hispanic	**18.8 (.01)**	15.6 (.02) *b*	19.3 (.01)	16.8 (.03)*c*	19.1 (.01)	15.6 (.03)*c*	19.3 (.01)	17.3 (.05)	18.8 (.01)
	Other, Non-Hispanic	**4.7 (.01)**	5.6 (.02) *b*	4.6 (.01)	4.3 (.03)*c*	4.8 (.01)	5.3 (.03)*c*	4.6 (.01)	6.4 (.05)	4.6 (.01)
	Hispanic	**12.8 (.01)**	13.3 (.02) *b*	12.7 (.01)	10.9 (.03)*c*	13.2 (.01)	12.5 (.03)*c*	12.9 (.01)	13.6 (.05)	12.8 (.01)
Martial Status, % (SE)	Married	**43.4 (.01)**	34.8 (.01) *a*	45.1 (.01)	41.5 (.01)	43.8 (.01)	29.9 (.01) *a*	46.0 (.01)	23.8 (.02) *a*	44.5 (.01)
	Not Married	**56.6 (.01)**	65.2 (.01) *a*	54.9 (.01)	58.5 (.01)	56.2 (.01)	70.1 (.01) *a*	54.0 (.01)	76.2 (.02) *a*	55.5 (.01)
Education, % (SE)	Less than High School	**21.4 (.01)**	22.3 (.02)	21.2 (.01)	22.9 (.02)	21.1 (.01)	19.5 (.02)*c*	21.7 (.01)	24.2 (.04)	21.2 (.01)
	High School Graduate	**35.7 (.01)**	34.1 (.02)	36.0 (.01)	34.4 (.02)	36.0 (.01)	33.8 (.02)*c*	36.1 (.01)	36.6 (.04)	35.7 (.01)
	Attended/ Completed College	**42.9 (.01)**	43.7 (.02)	42.8 (.01)	42.7 (.02)	42.9 (.01)	46.7 (.02)*c*	42.2 (.01)	39.2 (.04)	43.1 (.01)
Age of smoking onset		**16.7 ± 0.1**	15.5 ± 0.2*b*	16.9 ± 0.2	15.4 ± 0.2) *b*	16.9 ± 0.2	15.2 ± 0.2 *b*	17.0 ± 0.2	14.3 ± 0.2 *b*	16.8 ± 0.2

	Full Sample (n=8,213)	Current Mood Diagnosis		Current Anxiety Diagnosis		Current Alcohol Diagnosis		Current Drug Diagnosis	
		Yes n=1,294	No n=6,919	Yes n=1,307	No n=6,906	Yes n=1,286	No n=6,927	Yes n=421	No n=7,792
(years), M±SD									
Current CPD, M±SD	**15.5 ± 0.2**	16.6 ± 0.4[a]	15.3 ± 0.2	17.3 ± 0.4[b]	15.2 ± 0.2	15.0 ± 0.4	15.6 ± 0.2	15.4 ± 0.5	15.5 ± 0.2
Want to cut down or quit tobacco, % (SE)*	**60.3 (.01)**	68.6 (.01) [a]	57.3 (.01)	69.8 (.01)[a]	58.5 (.01)	67.7 (.02)[a]	58.9 (.01)	73.9 (.02)[a]	59.6 (.01)
Current Nicotine Dependence, % (SE)+	**53.6 (.01)**	77.1 (.01) [a]	49.2 (.01)	74.2 (.01)[a]	50.7 (.01)	71.9 (.01)[a]	50.2 (.01)	82.9 (.02)[a]	52.0 (.01)
Current Mood Disorder Diagnosis, % (SE)	**15.8 (.01)**	--	--	40.0 (.01)[b]	11.2 (.01)	25.9 (.01)[b]	13.9 (.01)	40.1 (.02)[b]	14.5 (.01)
Current Anxiety Disorder Diagnosis, % (SE)	**15.9 (.01)**	40.4 (.01) [b]	11.4 (.01)	--	--	20.3 (.01)[b]	15.2 (.01)	25.7 (.02)[b]	15.4 (.01)
Current Alcohol Use Disorder Diagnosis, % (SE)	**15.7 (.01)**	25.6 (.01) [b]	13.8 (.01)	19.9 (.01)[b]	14.8 (.01)	--	--	60.8 (.02)[b]	13.2 (.01)
Current Drug Use Disorder Diagnosis, % (SE)	**5.1 (.01)**	13.1 (.01) [b]	3.7 (.01)	8.3 (.01)[b]	4.6 (.01)	20.0 (.01)[b]	2.4 (.01)	--	--

Note: NESARC-calculated weights were used to account for nonresponse and oversampling of African-Americans, Hispanics, and young adults.

Key: SE, standard error of the estimate; M, mean; SD, standard deviation; CPD, cigarettes per day

* Responses based on the question: "In the past 12 months did you more than once want to stop or cut down on your tobacco use?"

+ Assessed using DSM-IV criteria

[a] p<0.001 compared to no current diagnosis of that disorder

[b] p<0.01 compared to no current diagnosis of that disorder

[c] p<0.05 compared to no current diagnosis of that disorder

Table 2

Report of Nicotine Withdrawal Symptoms by Current, Daily Smokers with Current Mood, Anxiety, Alcohol, and Drug Disorders.

		n#	≥1 Withdrawal Symptom % Reporting	Total Withdrawal Symptoms M ± SD*
Current Mood	Yes	1,294	59.0[a]	4.0 ± 2.1[a]
Disorder	No	6,919	36.0	3.1 ± 1.8
Current Anxiety	Yes	1,307	54.7[a]	4.0 ± 2.1[a]
Disorder	No	6,906	36.8	3.1 ± 0.9
Current Alcohol	Yes	1,286	49.1[a]	3.5 ± 2.0[b]
Use Disorder	No	6,917	37.9	3.3 ± 1.9
Current Drug	Yes	421	60.6[a]	3.9 ± 2.1[a]
Use Disorder	No	7,792	38.5	3.2 ± 1.9

Note: NESARC-calculated weights were used to account for nonresponse and oversampling of African-Americans, Hispanics, and young adults.

*For participants reporting at least 1 symptom of withdrawal (n=3257)

#Adjusted for nonresponse.
All outcomes adjusted for age, sex, and marital status.
Total Withdrawal Symptoms range = 0–8

[a] p<0.001 compared to no current diagnosis of that disorder

[b] p<0.01 compared to no current diagnosis of that disorder

[c] p<0.05 compared to no current diagnosis of that disorder

Table 3

Associations between Current Mood, Anxiety, Alcohol, and Drug Disorders with Tobacco Withdrawal-Related Discomfort or Distress, and Withdrawal-Related Relapse for Current, Daily Smokers.

			Withdrawal-Related Discomfort		Withdrawal-Related Relapse	
		n[#]	% Reporting	OR (95% CI)[*]	% Reporting	OR (95% CI)[*]
Current Mood Disorder	Yes	679	41.6[a]	1.84 (1.41, 2.40)	58.8[a]	1.36 (1.08, 1.70)
	No	1,878	26.4		43.8	
Current Anxiety Disorder	Yes	631	42.3[a]	1.63 (1.26, 2.10)	58.6[a]	1.70 (1.38, 2.08)
	No	1,925	26.5		44.3	
Current Alcohol Use Disorder	Yes	524	32.9	0.96 (0.72,1.28)	50.1	1.01 (0.79, 1.28)
	No	2,032	29.7		47.1	
Current Drug Use Disorder	Yes	233	47.1[c]	1.73 (1.12, 2.68)	60.6[c]	1.51 (1.03, 2.23)
	No	2,323	28.7		46. 5	

Note: NESARC-calculated weights were used to account for nonresponse and oversampling of African-Americans, Hispanics, and young adults.
All outcomes adjusted for age, sex, and marital status.

[#] Adjusted for nonresponse.

[*] No current diagnosis as reference category

[a] p<0.001 compared to no current diagnosis of that disorder

[b] p<0.01 compared to no current diagnosis of that disorder

[c] p<0.05 compared to no current diagnosis of that disorder