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Predictors of quit attempts and successful quit attempts in a nationally representative sample of smokers

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Abstract

Although most current smokers report that they would like to quit, most quit attempts fail suggesting that predictors of quitting attempts may differ from those of successful attempts. We examined sociodemographic and clinical predictors of quit attempts and successful quit attempts in a nationally representative sample of US adults. Data was collected in 2001-2002 (Wave 1) and 2004-2005 (Wave 2). Almost 40% of individuals who had not previously attempted to quit, tried to quit over the next three years; only 4.6% of those who tried had succeeded at the time of the evaluation. Hispanics, Asians, individuals with high income, and those with college education were less likely to attempt to quit, whereas those with daily nicotine use, younger age at first use and most symptoms of dependence were more likely to do so. Having an educational level below high school and older age at first nicotine use were predictors of successful quitting. Despite relatively high rates of quit attempts, rates of success are extremely low, indicating a gap between the public health need of decreasing tobacco use, and existing means to achieve it. Although there is a need to encourage people to quit tobacco, there may be an equally large need to develop more effective interventions that increase the rate of successful quit attempts.

Keywords

tobacco use; quit attempts; national sample

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Contributors

C. Rafful wrote the initial draft and the final version of the article.

O. García-Rodríguez wrote drafts and discussed earlier versions and reviewed the final version of the article.

R. Secades-Villa discussed drafts and reviewed the final version of the article.

J.M. Martínez-Ortega discussed drafts and reviewed the final version of the article.

S. Wang performed program writing and statistical analyses and reviewed the final version of the article.

C. Blanco participated in planning and data analyses, and reviewed the final version of the article.

Conflict of interest

All authors declare that they have no conflicts of interest.

1. Introduction

Converging evidence indicates that tobacco use accounts for 12% of all deaths among adults globally and is the leading preventable cause of premature death worldwide (WHO, 2012). Tobacco use is associated with increased risk of cardiovascular disease, cancer, diseases of the respiratory tract, and other common diseases (US Department of Health and Human Services, 2010). In 2011, the approximate worldwide adult prevalence for daily tobacco smoking was 17% and for current tobacco smoking was 23% (WHO, 2011). In the same year, an estimated 19.3% of adults in the US were current tobacco smokers, out of which 21.8% smoked between 1 to 9 cigarettes per day and 8.3% smoked more than 30 cigarettes per day (King, Dube, Kaufmann, Shaw & Pechacek, 2011). Although there is evidence indicating that the prevalence of daily smoking is decreasing (Secades et al., in Press), the personal and societal costs of tobacco smoking in the US and worldwide are substantial (Hays, Ebbert & Sood, 2009; WHO, 2006).

Most current smokers report that they would like to quit and almost half have tried to quit during the previous 12 months (CDC, 2009). Unfortunately, most quit attempts fail (Malarcher, Dube, Shaw, Babb & Kaufmann, 2011) suggesting that predictors of quitting attempts may differ from those of successful attempts (Borland et al., 2010a; Zhou et al., 2009).

In clinical samples, which include smokers seeking treatment at outpatient and inpatient treatments, unsuccessful attempts have been related to the presence of withdrawal symptoms, higher levels of nicotine dependence (Hurt et al., 2002), female gender (Piper et al., 2010), younger age (Harris et al., 2004), history of past or current psychiatric disorders (Ziedonis et al., 2008), and lack of tobacco-related diseases (Azevedo & Fernandes, 2011). In general population samples, not being married (Derby, Lasater, Vass, Gonzalez & Carleton, 1994) and lower socioeconomic status (SES) (Barbeau, Krieger & Soobader, 2004) have been related to unsuccessful attempts to quit.

Some information on predictors of attempts and successful attempts is available from cross-sectional studies of community-based samples, such as the Minnesota Heart Health Program (Blake et al., 1989) and the Florida Tobacco Callback Survey (Davila et al., 2009), and also from cross-national studies such as the National Health Surveys from the US (Barbeau et al., 2004), the ITC-4 which includes representative samples of four countries (Borland, Partos, Yong, Cummings & Hyland, 2011; Borland et al., 2010a) and the ATTEMP cohort study, which includes samples of five countries (Zhou et al., 2009). These studies have reported that older age and lower SES predict quitting attempts, whereas male gender and lower nicotine dependence are reported predictors of successful attempts. However, these studies have focused on sociodemographic variables and as a result, information on clinical predictors of quit attempts and successful quit attempts is scarce.

We sought to build on previous findings by examining in a nationally representative sample of US adults, sociodemographic and clinical predictors of: 1) quit attempts and, 2) successful quit attempts. This information could help guide the development of interventions and policies focused on smoking cessation.

2. Methods

2.1 Sample and procedures

The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) (Grant et al., 2009; Grant et al., 2004b) was the source of data. The NESARC target population at

Wave 1 was the civilian non-institutionalized population 18 years and older residing in households and group quarters. Interviews were conducted between 2001 and 2002 with 43,093 participants (response rate of 81.0%) by trained interviewers (Grant et al., 2009; Grant et al., 2004b). All procedures, including informed consent, received full human subjects review and approval from the US Census Bureau and the US Office of Management and Budget. The Wave 2 interview was conducted approximately 3 years later (2004-2005) and had a response rate of 86.7%, reflecting 34,653 completed interviews (Grant et al., 2009). As described previously, adjustment for non-response was successful, as the Wave 2 respondents and the original target population did not differ on age, race/ethnicity, gender, SES, or the presence of any substance, mood, anxiety, or personality disorder (Grant et al., 2009). Participants included in the present study were those with Wave 2 data and who were current tobacco users with no attempts to quit prior to Wave 1 ($n = 1,868$).

2.2 Measures

The Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-IV Version (AUDADIS-IV) (Grant, Dawson & Hasin, 2001), a structured diagnostic interview that includes computer algorithms to generate DSM-IV diagnoses.

In order to build a comprehensive predictive model of quit attempts, we examined a broad range of sociodemographic, psychopathological, tobacco use-related variables and medical morbidity as assessed at baseline (i.e., Wave 1). Sociodemographic characteristics included were age, gender, race/ethnicity, past-year individual income, marital status, and level of education.

Past-year self-reported medical conditions included arteriosclerosis or hypertension, hepatic disease, cardiovascular disease, gastritis, arthritis, and stroke. Respondents were asked about these medical conditions and whether the diagnosis had been confirmed by a physician. Axis I psychiatric disorders included substance use, mood, and anxiety disorders. Personality disorders assessed included paranoid, schizoid, antisocial, histrionic, avoidant, dependent and obsessive-compulsive personality disorders. The test-retest reliabilities for AUDADIS-IV diagnoses are fair to good for mood, anxiety, and personality disorders ($\kappa = 0.40-0.62$) and excellent for substance use disorders ($\kappa = 0.70-0.91$) (Grant et al., 2009; Hasin, Stinson, Ogburn & Grant, 2007).

Assessment of tobacco use included daily use, age at first use of cigarettes, number of cigarettes per day, years of dependence, and DSM-IV diagnostic criteria of nicotine dependence (Grant et al., 2001).

2.4 Statistical analysis

First, we compared current smokers at Wave 1 who attempted to quit between Waves 1 and 2 versus those who did not attempt to quit. Second, among the respondents with attempts to quit, we compared those who continued smoking versus those who had successfully quit at Wave 2. For both analyses, unadjusted odds ratios (ORs) as well as 95% confidence intervals (95% CI) were obtained for sociodemographic characteristics, physical health conditions, psychiatric comorbidity and nicotine use variables. T-tests were used to compare continuous variables between groups. All analyses were weighted and estimated using SUDAAN (Research Triangle Institute, 2007) to adjust for the design effects of the NESARC.

3. Results

3.1. Probability of quit attempts and successful quit attempts

Less than half (39.9%; n=746) of smokers with no previous attempts to quit at Wave 1 attempted to quit between Waves 1 and 2. Furthermore, out of the 746 respondents that attempted to quit between Wave 1 and Wave 2, 712 were still smoking at Wave 2 assessment. That is, only approximately 4.6% of respondents who attempted to quit between the two waves were abstinent 3 years after the baseline assessment.

3.2. Predictors of quit attempts and successful quit attempts

Compared to Whites, Hispanics and Asians were significantly less likely to attempt to quit. Similarly, males were less likely than females to attempt to quit. Respondents with incomes higher than \$70,000 were less likely to attempt to quit than those with incomes less than \$20,000, whereas individuals with college education had decreased odds of trying to quit smoking than those who had lower educational attainment.

Several tobacco use-related characteristics predicted attempting to quit. Daily tobacco consumption and younger age at first tobacco use were associated to increased odds of attempting to quit. Odds were also increased if the respondents had developed tolerance, experienced withdrawal, smoked more than intended, spent a great deal of time in activities necessary to obtain nicotine, or had continued to smoke despite its adverse health consequences. Total number of symptoms of dependence also increased the odds of attempting to quit (Table 1). Surprising, by contrast, no medical conditions or psychiatric disorders predicted attempts to quit or successful quitting among those who attempted (data not shown).

The only significant predictors of successful quitting at Wave 2 was having an educational level below high school (ORs= 6.59; CI 95%= 1.25-34.69) and older age at first nicotine use (t= 2.40; p<0.05).

4. Discussion

In a large national sample of US adults, almost 40% of individuals who had not previously attempted to quit, tried to quit over the next three years. However, only 4.6% of those who tried had succeeded at the time of the follow-up evaluation. Individuals with incomes higher than \$70,000, those with college education and Hispanics and Asians were less likely to attempt to quit, whereas individuals with daily nicotine use, younger age at first use and most symptoms of dependence were more likely to attempt to quit. Having an educational level below high school and older age at first nicotine use were the only predictors of successful quitting three years after the baseline assessment.

Consistent with prior studies (Borland et al., 2011; Zhou et al., 2009), we found that a large proportion of smokers made attempts to quit after baseline. The high rates of quit attempts may reflect the success of ongoing public health efforts to reduce smoking prevalence, including extensive antismoking media campaigns and increased public awareness of the negative health consequences of smoking (Emery et al., 2012; Federal Trade Commission, 2003), progressively more stringent laws restricting smoking in the workplace and in public places (CDC, 2011; Pierce, Messer, White, Cowling & Thomas, 2011), and increases in the price of cigarettes (Fichtenberg & Glantz, 2002). In stark contrast, less than 5% of those who attempted to quit had succeeded three years after the baseline assessment. Our results are consistent with the relapse rates reported in clinical trials (Hughes, Keely & Naud, 2004) and our previous analyses documenting a median time to remission of nicotine dependence of 26 years (Lopez-Quintero et al., 2011b). Taken together, these data indicate a large gap

between the public health need of decreasing tobacco use and the individuals' ability to reach that goal, highlighting the limitations of existing approaches to smoking cessation.

In line with previous studies, predictors of quit attempts were different from those of successful attempts (Barbeau et al., 2004; Borland et al., 2010b). Older age at smoking onset and failure to complete high school were the only predictors of success at quitting. The scarcity of predictors of successful quit attempts in this study probably reflects our limited understanding of the psychological, social and biological processes underlying nicotine dependence. The development of more powerful strategies for smoking cessation depends on further research advances about these processes.

Surprisingly, we did not find any relationship between psychiatric disorders and quit attempts or successful quit attempts, despite the documented association between psychopathology and increased prevalence of nicotine dependence (Grant, Hasin, Chou, Stinson & Dawson, 2004a). Psychiatric disorders may be more important in smoking initiation and the development of nicotine dependence (Lopez-Quintero et al., 2011a) than in predicting quit attempts.

This study has several limitations. First, the NESARC did not collect information about treatment-seeking or the reasons for quitting which may be important predictors of success (Zhou et al., 2009). Second, the NESARC did not collect information regarding the number of quit attempts. Hence, we cannot establish a relationship between number of attempts and smoking cessation. Third, despite our prospective design, we cannot rule out that some people may have failed to report their attempts to quit smoking, as it has been found by others (Berg et al., 2010).

5. Conclusions

Despite high rates of quit attempts, rates of success are extremely low, indicating a large gap between the public health need of decreasing tobacco use, and existing means to achieve that goal. Although there is a need to encourage people to quit tobacco, there may be an equally great need to develop more effective interventions that increase the rate of successful quit attempts. Given the large negative personal consequences and societal costs of tobacco use, the long median times to remission, and ongoing increases in health care costs, improving the success rates of tobacco quit attempts appears a high public health and even economic priority.

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References

- Azevedo RCS, Fernandes RF. Factors relating to failure to quit smoking: a prospective cohort study. *Sao Paulo Medical Journal*. 2011; 129:380–386. [PubMed: 22249793]
- Barbeau EM, Krieger N, Soobader MJ. Working class matters: socioeconomic disadvantage, race/ethnicity, gender, and smoking in NHIS 2000. *American Journal of Public Health*. 2004; 94:269–278. [PubMed: 14759942]
- Berg CJ, An LC, Kirch M, Guo H, Thomas JL, Patten CA, Ahluwalia JS, West R. Failure to report attempts to quit smoking. *Addictive Behaviors*. 2010; 35:900–904. [PubMed: 20584571]

- Blake SM, Klepp KI, Pechacek TF, Folsom AR, Luepker RV, Jacobs DR, Mittelmark MB. Differences in smoking cessation strategies between men and women. *Addictive Behaviors*. 1989; 14:409–418. [PubMed: 2789466]
- Borland R, Partos TR, Yong HH, Cummings KM, Hyland A. How much unsuccessful quitting activity is going on among adult smokers? Data from the International Tobacco Control Four Country cohort survey. *Addiction*. 2011; 107:673–682. [PubMed: 21992709]
- Borland R, Yong HH, Balmford J, Cooper J, Cummings KM, O'Connor RJ, McNeill A, Zanna MP, Fong GT. Motivational factors predict quit attempts but not maintenance of smoking cessation: findings from the International Tobacco Control Four country project. *Nicotine & Tobacco Research*. 2010a; 12:S4–S11. [PubMed: 20889479]
- Borland R, Yong HH, Balmford J, Cooper J, Cummings KM, O'Connor RJ, McNeill A, Zanna MP, Fong GT. Motivational factors predict quit attempts but not maintenance of smoking cessation: findings from the International Tobacco Control Four country project. *Nicotine Tob Res*. 2010b; 12(Suppl):S4–11. [PubMed: 20889479]
- CDC, Center for Disease Control and Prevention. State-specific smoking-attributable mortality and years of potential life lost, United States, 2000-2004. *MMWR Morb Mortal Wkly Rep*. 2009; 59:29–33.
- CDC, Center for Disease Control and Prevention. State Smoke-Free Laws for Worksites, Restaurants, and Bars. *MMWR Morb Mortal Wkly Rep*. 2011; 60:472–475. [PubMed: 21508923]
- Davila EP, Zhao W, Byrne M, Webb M, Huang Y, Arheart K, Dietz N, Caban-Martinez A, Parker D, Lee DJ. Correlates of smoking quit attempts: Florida Tobacco Callback Survey, 2007. *Tobacco induced diseases*. 2009; 5:10. [PubMed: 19563642]
- Derby CA, Lasater TM, Vass K, Gonzalez S, Carleton RA. Characteristics of smokers who attempt to quit and of those who recently succeeded. *American Journal of Preventive Medicine*. 1994; 10:327–334. [PubMed: 7880551]
- Emery S, Kim Y, Choi YK, Szczyпка G, Wakefield M, Chaloupka FJ. The Effects of Smoking-Related Television Advertising on Smoking and Intentions to Quit Among Adults in the United States: 1999–2007. *Am J Public Health*. 2012; 102:751–757. [PubMed: 22397350]
- Federal Trade Commission. Federal Trade Commission Cigarette Report for 2003. Vol. 2010. Federal Trade Commission; 2003.
- Fichtenberg CM, Glantz SA. Effect of smoke-free workplaces on smoking behaviour: systematic review. *Bmj*. 2002; 325:188. [PubMed: 12142305]
- Grant, B.; Dawson, DA.; Hasin, D. The alcohol use disorders and associated disabilities interview schedule-version for DSM-IV (AUDADIS IV). National Institute on Alcohol Abuse and Alcoholism; Bethesda, MD: 2001.
- Grant BF, Goldstein RB, Chou SP, Huang B, Stinson FS, Dawson DA, Saha TD, Smith SM, Pulay AJ, Pickering RP. Sociodemographic and psychopathologic predictors of first incidence of DSM-IV substance use, mood and anxiety disorders: results from the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions. *Molecular psychiatry*. 2009; 14:1051–1066. [PubMed: 18427559]
- Grant BF, Hasin DS, Chou SP, Stinson FS, Dawson DA. Nicotine dependence and psychiatric disorders in the United States: results from the national epidemiologic survey on alcohol and related conditions. *Archives of General Psychiatry*. 2004a; 61:1107–1115. [PubMed: 15520358]
- Grant BF, Stinson FS, Dawson DA, Chou SP, Ruan W, Pickering RP. Cooccurrence of 12-month alcohol and drug use disorders and personality disorders in the United States: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Archives of General Psychiatry*. 2004b; 61:361–368. [PubMed: 15066894]
- Harris KJ, Okuyemi KS, Catley D, Mayo MS, Ge B, Ahluwalia JS. Predictors of smoking cessation among African-Americans enrolled in a randomized controlled trial of bupropion. *Prev Med*. 2004; 38:498–502. [PubMed: 15020185]
- Hasin DS, Stinson FS, Ogburn E, Grant BF. Prevalence, correlates, disability, and comorbidity of DSM-IV alcohol abuse and dependence in the United States: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Archives of General Psychiatry*. 2007; 64:830–842. [PubMed: 17606817]

- Hays JT, Ebbert JO, Sood A. Treating tobacco dependence in light of the 2008 US Department of Health and Human Services clinical practice guideline. *Mayo Clinic*. 2009; 84:730–736.
- Hughes JR, Keely J, Naud S. Shape of the relapse curve and long-term abstinence among untreated smokers. *Addiction*. 2004; 99:29–38. [PubMed: 14678060]
- Hurt RD, Wolter TD, Rigotti N, Hays JT, Niaura R, Durcan MJ, Gonzales D, Sachs DP, Johnston JA, Offord KP. Bupropion for pharmacologic relapse prevention to smoking: predictors of outcome. *Addictive Behaviors*. 2002; 27:493–507. [PubMed: 12188588]
- King B, Dube S, Kaufmann R, Shaw L, Pechacek TF. Vital signs: Current cigarette smoking among adults aged 18 years- United States, 2005-2010. *Morbidity and Mortality Weekly Report*. 2011; 60:1207–1211. [PubMed: 21900875]
- Lopez-Quintero C, Cobos JP, Hasin DS, Okuda M, Wang S, Grant BF, Blanco C. Probability and predictors of transition from first use to dependence on nicotine, alcohol, cannabis, and cocaine: Results of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). *Drug and Alcohol Dependence*. 2011a; 115:120–130. [PubMed: 21145178]
- Lopez-Quintero C, Hasin DS, De Los Cobos JP, Pines A, Wang S, Grant BF, Blanco C. Probability and predictors of remission from life-time nicotine, alcohol, cannabis or cocaine dependence: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Addiction*. 2011b; 106:657–669. [PubMed: 21077975]
- Malarcher A, Dube S, Shaw L, Babb S, Kaufmann R. Quitting smoking among adults-United States, 2001-2010. *Morbidity and Mortality Weekly Report*. 2011; 60:1513–1519. [PubMed: 22071589]
- Pierce JP, Messer K, White MM, Cowling DW, Thomas DP. Prevalence of Heavy Smoking in California and the United States, 1965-2007. *JAMA*. 2011; 305
- Piper ME, Cook JW, Schlam TR, Jorenby DE, Smith SS, Bolt DM, Loh WY. Gender, race, and education differences in abstinence rates among participants in two randomized smoking cessation trials. *Nicotine Tob Res*. 2010; 12:647–657. [PubMed: 20439385]
- Research Triangle Park. Software for survey data analysis (SUDAAN) version 9.0.3. North Carolina: 2007.
- Secades R, Olfson M, Okuda M, Velasquez N, Perez-Fuentes G, Liu SM, Blanco C. Trends in the prevalence of tobacco use in the United States. *Psychiatric Services*. (in Press).
- US Department of Health and Human Services. How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease: A Report of the Surgeon General. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.; 2010. How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease: A Report of the Surgeon General..
- WHO. Guindon GE. The cost attributable to tobacco use: a critical review of the literature. World Health Organization. 2006
- WHO. WHO report on the global tobacco epidemic, 2011. Warning about the dangers of tobacco. World Health Organization; 2011. WHO report on the global tobacco epidemic, 2011. Warning about the dangers of tobacco..
- WHO. WHO Global Report. Mortality Attributable to Tobacco. World Health Organization; 2012. WHO Global Report. Mortality Attributable to Tobacco..
- Zhou X, Nonnemaker J, Sherrill B, Gilseman AW, Coste F, West R. Attempts to quit smoking and relapse: factors associated with success or failure from the ATTEMPT cohort study. *Addictive Behaviors*. 2009; 34:365–373. [PubMed: 19097706]
- Ziedonis D, Hitsman B, Beckham JC, Zvolensky M, Adler LE, Audrain-McGovern J, Breslau N, Brown RA, George TP, Williams J. Tobacco use and cessation in psychiatric disorders: National Institute of Mental Health report. *Nicotine & Tobacco Research*. 2008; 10:1691–1715. [PubMed: 19023823]

Highlights

- We studied sociodemographic and clinical predictors of quit attempts and successful quit attempts.
- 40% of individuals with no previous attempts tried to quit over the next three years.
- 4.6% of those who previously tried to quit succeeded at the time of evaluation.
- Despite relatively high rates of quit attempts, rates of success are extremely low.

Table 1

Significant characteristics of smokers with and without attempts to quit in a 3-year period. Wave 1 NESARC 2001-2002 (n=1,868).

	Attempts to quit (n= 746)		No attempts to quit (n= 1,122)		OR	95%CI
	n	%/mean	n	%/mean		
Ethnicity						
Whites	425	72.21	645	68.38	1.00	1.00 1.00
Blacks	170	13.76	205	11.83	1.10	0.80 1.51
Native American	22	3.92	22	2.55	1.46	0.69 3.07
Asian	10	1.24	20	2.94	0.40 ^a	0.16 0.98
Hispanics	119	8.87	230	14.30	0.59 ^a	0.43 0.81
Sex						
Male	416	62.84	733	70.81	0.70 ^a	0.54 0.90
Female	330	37.16	389	29.19	1.00	1.00 1.00
Past-year personal income (\$)						
0-19,999	404	51.50	502	42.32	1.00	1.00 1.00
20,000-34,999	184	24.64	288	27.01	0.75	0.55 1.02
35,000-6,9999	130	19.89	222	18.93	0.86	0.62 1.21
>70,000	28	3.97	110	11.74	0.28 ^a	0.16 0.47
Marital status						
Married/living with someone	308	49.01	522	56.67	1.00	1.00 1.00
Divorced/separated/widowed	223	23.09	304	18.38	1.45 ^a	1.08 1.96
Never married	215	27.90	296	24.95	1.29	0.98 1.71
Education						
> College (>12 years)	276	35.74	540	49.81	1.00	1.00 1.00
High school (12 years)	290	41.28	332	30.01	1.92 ^a	1.47 2.50
< High school (<12 years)	180	22.98	250	20.19	1.59 ^a	1.17 2.15
Tobacco use						
Daily use	630	85.41	667	58.55	4.14	3.13 5.49
Age at first use (mean) ^b	724	16.18	1104	17.49	-3.9	<0.01

	Attempts to quit (n= 746)		No attempts to quit (n= 1,122)		OR	95%CI
	n	%/mean	n	%/mean		
Dependence symptoms						
Tolerance	61	8.40	50	4.03	2.19	1.43 3.34
Withdrawal	368	51.74	345	30.21	2.48	1.96 3.13
Smoking more than intended to	64	8.99	45	3.51	2.71	1.70 4.34
A great deal of time spent in activities necessary to obtain the substance	93	14.22	84	7.15	2.15	1.51 3.08
Continue to use tobacco even though you knew it was causing you a health problem	174	24.53	136	11.25	2.56	1.90 3.46
Number of symptoms of dependence (mean) ^b	746	1.20	1122	0.60	8.42	<0.01
Number of physical conditions (mean) ^b	746	0.43	1122	0.35	1.67	0.10
Number of psychiatric disorders (mean) ^b	746	0.61	1122	0.56	0.51	0.61

Frequencies non-weighted; percentages weighted; ORs= Odds Ratios; CI= Confidence Interval

^a significant at p<0.05.

^b T-test and p-value rather than OR and 95% CI are provided.