Tobacco Use, Heavy Use and Dependence Among Adolescents and Young Adults in the U.S.

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Abstract

Tobacco involvement among U.S. youth was investigated in a national survey conducted in 2005–2007 of 2274 respondents aged 14–21, including those not in school. Logistic regressions predicted tobacco involvement. Males had higher rates of tobacco use than females, but males and females had equal rates of heavy use and dependence. Tobacco involvement increased with age. Whites were more tobacco-involved than minorities. Tobacco involvement declined with increasing socioeconomic status. Reduced tobacco use was associated with being married, and with being a student. Smokeless tobacco use was associated with being male, older, white, and lower SES. The implications of these results are discussed.

Keywords

Adolescence; Youth; Nicotine; Tobacco; Cigarettes; Smokeless

1. Introduction

Tobacco use which is initiated and established during the teenage years may have serious long-term health consequences well into adulthood. Thus, for the development of targeted public health prevention strategies, it is important to have current rates and patterns of tobacco use and tobacco dependence among adolescents and young adults in the U.S. population. Although there are a number of high-quality national surveys including data on tobacco use, the existing surveys of youth are largely based on school samples which by definition exclude young people who are not in school. In this study, we have collected a representative sample of U.S. residents age 14–21, our objective being to describe the entire population in this age range, including those not in school. Furthermore, in addition to providing current prevalence rates of any tobacco use, it is also important to assess points along the continuum toward addiction by measuring heavier use of tobacco and tobacco dependence among young people in the U.S.

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The Monitoring the Future (MTF) trend study of secondary school students shows that rates of smoking among U.S. youth fell in the 1970s, remained relatively stable in the 1980s, then rose in the early 1990s, and the rates have fallen since the late 1990s (Aguilar and Pampel, 2007; University of Michigan News Service, 2008). The Youth Risk Behavior Survey of high school students in grades 9 through 12 (Centers for Disease Control and Prevention [CDC], 2008) also found that the prevalence of teen smoking rose in the early 1990s, but has since fallen considerably. The MTF data show that the prevalence of teen use of smokeless tobacco, similar to the trend in smoked tobacco, peaked in the mid 1990s and has declined since then. Public health advocates were alarmed by the increases in youth tobacco use that occurred in the early 1990s because the prevalence of tobacco use in the general adult population was declining sharply at that time. The increase in youth tobacco use did not portend well for the future (Johnston et al., 2002). Although the decline in youth smoking since the late 1990s is somewhat reassuring, we learned that rates of youth tobacco use can increase while adult rates fall, and the need for surveillance of youth smoking was underscored.

Some fairly consistent demographic trends have emerged from recent surveys of youth tobacco use. The 2006 National Youth Tobacco Survey (CDC, 2006) of high school students found 30 day rates of any tobacco use to be 30.2% for males, 21.3% for females, 28.4% for whites, 15.7% for blacks, 24.7% for Hispanics and 9.2% for Asians. Another recent National Youth Tobacco Survey (Mowery et al., 2004), which included middle and high school students, found the following demographic trends for rates of "established" smoking (smoking on 20 of the previous 30 days). Rates for males (8.3%) and females (7.4%) were similar. Rates increased regularly from age 11 (0.1%) to age 18 (20.9%). Whites had a higher rate (9.8%) than blacks (3.2%), Hispanics (3.5%) or Asians (6.0%).

Other national surveys of youth smoking have also found that white youth are more involved with tobacco than minority youth, with the possible exception of Native Americans (e.g., Hu et al., 2006; Eaton et al., 2006). Results from the National Longitudinal Survey of Adolescent Health have shown that low socio-economic status is positively associated with youth smoking (Hu et al., 2006), and a Massachusetts survey of youth smoking found a very strong inverse relationship between socioeconomic status and rates of smoking (Soteriades and DiFranza, 2003). However, only half of the relevant U.S. surveys reviewed by Soteriades and DiFranza (2003) found this inverse relationship.

Reviewing the literature on the demographics of smokeless tobacco use, Nelson and colleagues (2006) found little available information on adolescent use of smokeless tobacco, but found that adult smokeless tobacco users were disproportionately male, young, white or Native American, rural, of lower socioeconomic status, and residents of southern or western states. Analyzing the Monitoring the Future data on adolescent smokeless tobacco use, Nelson et al. (2006) found males were much more likely to use smokeless tobacco than females, and that being white and being a Southerner were also associated with an elevated probability of using smokeless tobacco.

Increased tobacco involvement may be related to life transitions among adolescents and young adults, such as completing school, living independently from parents, and being

employed. Gfroerer et al. (1997) observed that the increased independence from parental control and the increased access to money associated with these transitions may well lead to more substance use, including increased use of tobacco. In our own earlier work, completing school, living independently from parents, and being employed were associated with increased involvement in gambling (Welte et al., 2008). In their analysis of data from the national U.S. Health Interview Survey, Gfroerer and colleagues (1997) found that college students had a much lower rate of cigarette use (22%) than non-students the same age (39%). They also found that among college students, those who lived independently from parents had higher rates of cigarette use than those who lived at home. Marriage is a life transition that may have the opposite relationship to risky behaviors from the life transitions mentioned above. Umberson (1992) observed that being married is often associated with improved health practices, because spouses monitor each other's health behaviors. Analyzing adult data from the Health Interview Survey, Novotny et al. (1988) found that lower cigarette use was associated with being married and also with being employed. The comparisons made in this life transition literature were generally not controlled for age or socio-economic status.

We recently conducted a national telephone survey of respondents aged 14–21. This survey was primarily aimed at studying gambling, but also provides an excellent opportunity to study youth smoking. Although several other national U.S. studies of youth smoking are based on junior and senior high schools (such as the Add Health survey, Hu et al., 2006), our study included young people who were not in school, and also included young people up to the age of 21. We have included in our analysis a measure of "heavy" tobacco use, which is not included in many studies. And while several other national studies lacked measures of tobacco dependence (for example, the CDC Youth Risk Behavior Surveillance study included only "trying to quit", Eaton et al., 2006), our study included a measure of tobacco dependence.

In the current study, we will examine youth tobacco use, heavy use, and tobacco dependence as they relate to gender, age, race, socioeconomic status and region of the U.S. We will also examine smoking involvement as it relates to major life transitions, controlling for the previously mentioned demographic factors.

It is important to note here that our essentially epidemiologic method gives a specialized "snaphot" view of the phenomenon of tobacco use. We have selected these dependent variables (any smoking, heavy smoking, and tobacco dependence) to give a rounded description of the phenomenon of smoking. Although past year smoking may represent a very low level of smoking, perhaps only a cigarette or two, the rates of any smoking are significant because they represent exposure to the risk of eventual dependence and subsequent heath consequences We do not mean to imply that these "types" of smokers have a permanent existence unchanging with time. It is important to remember that tobacco involvement and/or addiction can be a developmental phenomenon, and the individual smoker may go through several cycles of initiation, growth of the habit, attempts to quit or cut down, etc. Our snapshot can catch a given smoker at any time. It is also important to remember that this "big picture" look ignores the psychological antecedents to tobacco involvement, and gives us a "macro" level look at the phenomenon.

2. Methods

2.1 Design

We conducted a national random-digit-dial telephone survey with a representative sample of 2274 U.S. residents, aged 14–21. Computer-Assisted Telephone Interviewing (CATI) was used. The telephone sample, purchased from Survey Sampling International, was selected randomly from a sampling frame of all working telephone blocks in the U.S. The sample was stratified by county and by telephone block within county, resulting in a sample that was spread across the U.S. according to population density. The interviews were conducted by trained interviewers at the Research Institute on Addictions in Buffalo, NY, from August 2005 through February 2007. Respondents recruited for this survey were told that we were studying gambling among U.S. youth, that we were part of the State University of New York at Buffalo, that we were randomly interviewing persons aged 14–21 in 2500 U.S. households, that the interview would take 30 to 40 minutes, that they would be paid $25, that there would be questions about gambling, alcohol, drugs, and delinquency, that they could decline any question, and that they could quit at any time. Interviews were conducted in all 50 states plus the District of Columbia. A Spanish questionnaire was produced by the International Institute of Buffalo. First, the questionnaire was translated from English to Spanish by a native Spanish speaker. Then it was back-translated to English by a native English speaker fluent in Spanish, and unfamiliar with the original English version. Research staff compared the back-translation with the original, and any errors or confusion in the Spanish version was corrected. Thirty-one interviews were conducted in Spanish. The response rate for this survey was 45.8%, computed by the response rate formula RR4 as designated by the American Association for Public Opinion Research (AAPOR, 2008, page 35). Using this formula, response rate is computed by dividing the number of completed and partial interviews by the number of completed and partial interviews plus the eligible refusals plus the eligible respondents never contacted plus an estimate of the number of eligible respondents among the households for which eligibility was never determined. We made this estimate by making the very conservative assumption that the proportion of eligibles in the unknown households was equal to the proportion in the known households, an assumption that is conservative because of the extensive efforts that we made to determine eligibility. Respondents were paid $25. Results were statistically weighted to compensate for the number of potential respondents in the household and to align the sample with gender, age and race distributions shown in the U.S. census. This was a landline telephone sample which included a relatively small proportion of cell phone numbers. A small number of cell phones users were interviewed because they had switched from landline to wireless, and had taken advantage of "portability" of phone numbers allowing them to keep their old landline number. When we compared the unweighted age distribution of our sample to the census, we discovered that we had underrepresented the 18–21 year age range, probably partly because many of these are cell phone only users. We compensated by weighting to match the age distribution of the census figures. All of the analyses in the current article were weighted. This project was reviewed and approved by the Social and Behavioral Sciences IRB of the State University of New York at Buffalo.

2.2 Measures

Tobacco use was measured as follows. Respondents were asked about their past-year frequency and quantity of use for each of five forms of tobacco: cigarettes, cigars or cigarillos, pipes, chewing tobacco, and snuff. To determine frequency of use, respondents were asked if they (for example) smoked cigarettes every day. If no, they were asked if they smoked cigarettes at least once a week. If yes, they were asked how many days per week. If no, the questions proceeded to "at least once a month", and so on. Quantity was determined by asking how many cigarettes (cigars, pipefuls, plugs or wads, pinches or dips) the respondent used on a typical day when that form of tobacco was used. Average consumption of tobacco in cigarettes per day was computed by multiplying the number of (for example) cigarettes on a typical day by the proportion of days on which cigarettes were used, performing the analogous multiplications for the other types of tobacco, and summing. A cigar or pipeful was counted as three cigarettes, a dose of chew or snuff as one cigarette.

Tobacco dependence was measured by six questions taken from the NIDA National Household Survey on Drug Abuse (Kandel and Chen, 2000). These questions covered: 1) using more tobacco than intended, 2) unsuccessful attempts to cut down, 3) interference by tobacco with work or school, 4) health problems from tobacco, 5) needing more for the same effect (tolerance), and 6) withdrawal symptoms. Each of these questions had a one year window ("… in the past 12 months"). These questions cover 6 of the 7 DSM-IV criteria for substance dependence: tolerance, withdrawal, using more than intended, unsuccessful attempts to cut down, reduction of important activities, and continued use in the face of negative consequences. The only DSM-IV criteria omitted is spending a great deal of time obtaining or using the substance. Because only six DSM criteria were measured, and to provide for enough respondents in the "dependent" category for stable analyses, we chose 2+ criteria as our cutpoint rather than the conventional 3+ criteria. Our measure of socioeconomic status was based on the mean of four equally weighted factors: father's years of education, mother's years of education, father's occupational prestige and mother's occupational prestige. Occupational prestige was coded from census occupation categories using the method described by Hauser and Warren (1997). Knowing that a few respondents would be unable to supply information on their parent's education and occupation, we asked a series of questions (home ownership, number of musical instruments and books in home, receipt of food stamps, etc.) gleaned from other studies that attempted to measure the SES of teens and young adults. We used these as independent variables to impute parental education or occupational prestige when these variables were missing. Imputation was performed by the SPSS Missing Values program.

Data analyses consisted of a series of logistic regressions. The first logistic regression predicted whether the respondent used any tobacco in the past year (column 2 in Tables 3 and 4). The second model was a multinomial logistic regression with the dependent variable having the values: 1) used no tobacco in the past year, 2) used smoked tobacco (cigarettes, cigars, pipe) in the past year, but not smokeless tobacco, and 3) used smokeless tobacco in the past year. No tobacco serves as the reference category, labeled "REF" in the tables. This analysis appears in columns 3 and 4 of Tables 3 and 4. The third model was a logistic regression predicting use of 10 or more "cigarette equivalents" per day (column 5 in Tables

3 and 4). The fourth model was a logistic regression predicting two or more symptoms of tobacco dependence in the past year (column 6 in Tables 3 and 4). All effects in Table 4 were computed with the effects in Table 3 and Table 4 held constant. All effects in Table 3 were computed with the other effects in Table 3 held constant. Tables 1 and 2 demonstrate bivariate relationships between demographic factors and measures of tobacco involvement. Statistical significance with appropriate controls can be seen in Tables 3 and 4.

3. Results

The gender, age, and race distribution of our sample closely matched the U.S. Census for the age range 14–21. The respondents were 50% male and 50% female, and were roughly evenly distributed across the age range 14–21. They were 62% White, 15% Black, 16% Hispanic, 4% Asian, 1% American Indian, and 2% of unknown racial identification. Our sample represented a broad cross section by social class. The distribution of parent's education was: 9% less than high school graduate, 27% high school graduate, 21% beyond high school but less than a bachelor's degree, 25% bachelor's degree, and 18% beyond the bachelor's degree.

Twenty-six percent (26%) of all respondents used some form of tobacco in the year before the interview. Twenty-five percent (25%) smoked some form of tobacco, 6% used smokeless tobacco, 7% used ten or more cigarette equivalents per day, and 7% had 2 or more symptoms of tobacco dependence. Males had higher rates of tobacco use, and much higher rates of smokeless tobacco use, than females. However, male and female rates of using 10+ cigarette equivalents per day, and of having 2+ symptoms of tobacco dependence, were equal. Almost all smokeless tobacco users were male, with Table 3 showing an odds ratio of 15.5 for the contrast between male and female smokeless tobacco users. All measures of tobacco involvement increased markedly with age in the 14–21 range. Each year of age increased the odds of tobacco use by 30% (Table 3, column 2, odds ratio 1.3), increased the odds of heavy tobacco use (10+ cigarettes/day) use by 50%, and increased the odds of 2+ tobacco dependence symptoms by 30%. A striking 42% of respondents in the 20–21 age range used tobacco in the year before the interview. Whites were much more involved with tobacco (31%) than were blacks (16%), Hispanics (22%) or Asians (11%). Whites particularly led in the prevalence of smokeless tobacco use. American Indians seem to have as much tobacco involvement (34%) as whites, although the small number of American Indians interviewed precludes any firm conclusion. Tobacco involvement is lower among respondents with higher socioeconomic status, with the odds ratio for use of 10+ cigarettes/day showing a particularly strong decline. Among U.S. regions, tobacco use in general, and smokeless tobacco use in particular, are most prevalent in New England and the Midwest. These regional results are significant at the .05 level, but not beyond the .01 level, and must be taken accordingly.

The analyses that examine tobacco involvement as it relates to employment status, student status, and living independently from parents are consistent with the notion that young persons may become more tobacco involved as they leave school, get jobs and move away from their parents. Full time employment is clearly associated with greater tobacco involvement, more than doubling the odds of having 2+ symptoms of tobacco dependence,

even with age as well as other demographics and life transitions held constant (Table 4). Student status is clearly associated with less tobacco involvement. In another analysis, not shown in the tables, we compared college students age 18–21 to non-students age 18–21, and college students were notably lower on all measures of tobacco involvement. Living independently of parents is significantly associated only with an increase in the odds of using smokeless tobacco. Let us remind the reader that all these statistical tests are controlled for gender, age, race and socioeconomic status. One life transition that is not associated with increased likelihood of tobacco involvement is marriage. Married young persons are less likely to use tobacco.

We also conducted a limited analysis of interactions with the "any tobacco" dependent variable. We found one interaction, between race and socioeconomic status, significant at the .001 level. The nature of this interaction was that for whites, blacks and Native Americans, the prevalence of tobacco use increased with declining socioeconomic status, but for Hispanics and Asians, the opposite was the case.

4. Discussion

While our results show that males are more likely to use tobacco than females, the "gender gap" for smoked forms of tobacco is not great. In the year before the interview, 28% of males and 22% of females used a smoked form of tobacco, a difference that fails to achieve statistical significance. Furthermore, the males and females have equal rates of using 10+ cigarette equivalents, and equal rates of having 2+ tobacco dependence symptoms. Mermelstein et al. (1999) conducted focus groups to investigate the attitudes of adolescent males and females about smoking. They found that adolescent females who were members of minority groups considered smoking to be "not ladylike" and inappropriate for females, while this was less true of white adolescent females. And indeed, a further examination of our data found that for white respondents, 31% of males used a smoked form of tobacco in the past year, as opposed to 27% for females. For Hispanics and Asians, the "gender gap" was much greater than for whites. As with other researchers, we found that smokeless tobacco users were disproportionately male. All of our measures of tobacco involvement continue to increase throughout the age range 14–21. This suggests that new users are still appearing in early adulthood, so that while the early teens are the most appropriate age for prevention efforts, prevention messages aimed at older youths are not necessarily wasted. We have replicated the results of other researchers who found that minority youths are much less involved with tobacco than white youths (e.g., Mowery et al., 2004). The reasons for this well-documented pattern are not clearly understood. Mermelstein et al. (1999) found that African American, Hispanic and Asian youths all reported stronger anti-tobacco messages from their families than did white youths. Researchers have found that degree of acculturation is positively associated with tobacco use among Hispanic youths (Allen et al., 2008), so it is possible that the high proportion of recent immigrants among U.S. Hispanics is related to their low tobacco involvement. Some researchers have also found a positive association between acculturation and tobacco use among U.S. Asian youths, although Unger et al. (2004) found that when nationality was controlled, the acculturation trend disappeared.

All of our measures of tobacco involvement were significantly inversely related to socioeconomic status. Our results agree with the 50% of the relevant surveys (Soteriades and DiFranza, 2003) which found this relationship. The general result that the prevalence of tobacco use goes inversely with socioeconomic status did not hold for Hispanics or Asians. While whites, blacks, and Native Americans with higher socioeconomic status had lower tobacco use rates, Asian and Hispanic respondents with the highest socioeconomic status had the highest rates of past-year tobacco use. We mentioned above that some studies have shown that among U.S. Asians and Hispanics degree of acculturation is positively associated with tobacco use. If we speculate that the most acculturated Hispanics and Asians also have the highest socioeconomic status, this otherwise confusing result can be explained. These are the two racial groups that contain the most recent arrivals to the U.S.

Our results with respect to U.S. region show the most prevalent tobacco use, including smokeless tobacco, in New England and the Midwest. Although we have a significant odds ratio (with various demographics controlled) for smokeless tobacco associated with the southern states, Table 1 does not support the notion that southerners are unusually heavy users of smokeless tobacco.

Comparison of our results with other national youth tobacco surveys tends to show that our figures are lower by comparison. The National Survey on Drug Use and Health figures for 2007 (Substance Abuse and Mental Health Services Administration, 2008) found past year rates of any tobacco use of 18.6% for respondents aged 14–15, 34.6% for respondents aged 16–17, and 50.8% for respondents aged 18–20. We found rates of 14%, 19%, 33% and 42% for respondents aged 14–15, 16–17, 18–19 and 20–21 respectively. The 2006 National Youth Tobacco Survey (CDC, 2006) interviews of high school students found breakdowns by gender and race for 30 day use of any tobacco are very similar to our rates of any tobacco use for the past year. They found 30 day rates of any tobacco use of 30.2% for males, 21.3% for females, 28.4% for whites, 15.7% for blacks, 24.7% for Hispanics and 9.2% for Asians. We found past year rates of 31% for males, 22% for females, 31% for whites, 16% for blacks, 22% for Hispanics, and 11% for Asians. A national survey of college students measured annual prevalence (Rigotti et al., 2000) and found that 46% of college students had used some form of tobacco in the past year and that 6% had used smokeless tobacco in the past year. This is similar to our findings for 20–21 year olds that 42% had used tobacco in the past year and 8% had used smokeless tobacco.

Our study generally supports the idea that life transitions related to adult status are also associated with increased tobacco involvement. Full time employment and non-student status are definitely associated with an increase in tobacco involvement, and living independently of parents is associated with increased prevalence of the use of smokeless tobacco. These findings are all with gender, age, race and socioeconomic status controlled. Perhaps the strongest support for the notion that tobacco use is associated with adult roles comes from the finding that any tobacco use, any smoking and heavy smoking are all strongly associated with not being a student, and that this effect is not attributable to age, socio-economic status, employment status, or living independently from parents. We might speculate that finishing with school symbolizes a passage to adulthood which makes the

young person feel more free to smoke. Prevention messages aimed at adolescents should attempt to disassociate tobacco use from adulthood.

Unlike other indicators of adulthood, marital status is associated with a lowered prevalence of tobacco use, giving credence to the suggestion that marital partners show concern for each other's health. It is also possible that increased family responsibilities are associated with newly married persons' increased concern about their own health.

Our survey demonstrates the patterns of youth tobacco use that have resulted from the changes of recent times. A few decades ago, rates of tobacco use in the U.S. were similar across social classes (Pierce, 1989) and between white and black youths (Aguilar and Pampel, 2007). Black youths and upper SES white youths have reduced their tobacco use substantially, while lower SES white youths have experienced lesser reductions in tobacco use. As mentioned earlier, African American, Hispanic and Asian youths are more likely to have received anti-tobacco messages from their families than are white youths. Higher SES youths may be more sensitive to anti-smoking messages that originate with public health officials and national opinion leaders.

5. Study Limitations

The current study is subject to the limitations that are inherent in general population surveys. The validity of the self-report data in this study cannot be verified. Non-response bias is also possible; respondents who agreed to an interview may have been systematically different from those who declined. Since our sample included landline numbers only, we did not interview potential respondents who had no landline phone number. The National Health Interview Survey (NHIS) has found higher rates of current smoking among persons with wireless-only phone service than among persons with landline phone numbers (Blumberg and Luke, 2010). As mentioned earlier, we compensated for a shortfall in respondents aged 18–21 by weighting. However, it is definitely possible that cell-only users are systematically different from landline users of the same age. The Blumberg and Luke study did not correct for age when comparing smoking rates, but their data raises a legitimate concern. The NHIS has also found that about 10% of American lived in cell-only household when our survey data was collected. Therefore, it is possible that we are underestimating smoking rates because of the absence of cell-only users among our respondents. A limitation of smoking data is that a respondent who reports smoking, for example, 10 cigarettes, is not necessarily giving an accurate report of the quantity of nicotine that he or she consumed. Some smokers puff constantly, while others let the cigarette burn in an ashtray.

Acknowledgements

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Table 1

National Youth Survey Past Year Tobacco Involvement

	N	Any Tobacco	Smoked	Smoke-less	10 + Cigs Per Day	2+ Dependence Symptoms
All	2253	26%	25%	6%	7%	7%
Female	1135	22%	22%	1%	7%	7%
Male	1118	31%	28%	11%	7%	7%
14–15	587	14%	13%	4%	1%	3%
16–17	582	19%	17%	5%	4%	4%
18–19	559	33%	32%	7%	9%	8%
20–21	524	42%	40%	8%	16%	11%
White	1400	31%	29%	8%	9%	8%
Black	330	16%	16%	1%	2%	3%
Hispanic	364	22%	22%	3%	5%	6%
Asian	83	11%	11%	2%	0%	0%
American Indian	27	34%	34%	12%	5%	5%
Other/Mixed/Unknown	50	19%	19%	3%	8%	5%
SES Low 1/3	748	28%	26%	7%	10%	8%
SES Med 1/3	755	28%	27%	6%	7%	8%
SES High 1/3	750	23%	22%	5%	4%	5%
New England	119	32%	32%	8%	7%	6%
Mid Atlantic	354	25%	24%	4%	7%	6%
Midwest	515	31%	30%	7%	7%	8%
South	662	24%	22%	6%	9%	6%
West	603	24%	23%	6%	6%	8%

Table 2

National Youth Survey Past Year Tobacco Involvement

	N	Any Tobacco	Smoked	Smoke-less	10 + Cigs/Day	2+ Symptoms
Never married	2128	25%	24%	6%	6%	6%
Married	41	19%	19%	8%	14%	9%
Living as if married	77	56%	56%	6%	28%	21%
Employed full-time	306	48%	47%	11%	17%	17%
Employed part-time	574	24%	23%	3%	6%	5%
Not employed	1373	22%	21%	6%	6%	5%
Not student	400	49%	47%	9%	23%	13%
Student	1853	21%	20%	5%	4%	5%
Live with parents	1998	24%	23%	5%	6%	6%
Live on own	255	41%	38%	10%	13%	8%

Table 3

National Youth Survey Past Year Tobacco Involvement Logistic Regressions[*] N=2253

	Any Odds Ratio	Smoked Odds Ratio	Smokeless Odds Ratio	10 + Cigs/Day Odds Ratio	2+ Symptoms Odds Ratio
Female	REF	REF	REF	REF	REF
Male	1.7***	NS	15.5***	NS	NS
Age	1.3***	1.4***	1.3***	1.5***	1.3***
White	REF	REF	REF	REF	REF
Black	.4***	.5***	.04***	.1***	.3*
Hispanic	.5***	.7*	.2***	.3***	.5*
Asian	.2***	.2***	.1**	NS	NS
American Indian	NS	NS	NS	NS	NS
Other/Mixed/Unknown	NS	NS	NS	NS	NS
SES	.9***	.9**	.8***	.7***	.9**
New England	1.7*	NS	3.6**	NS	NS
Mid Atlantic	REF	REF	REF	REF	REF
Midwest	1.4*	NS	NS	NS	NS
South	NS	NS	2.2*	NS	NS
West	NS	NS	NS	NS	NS

[*] All effects in Table 3 controlled for all other effects in Table 3.

Table 4

National Youth Survey Past Year Tobacco Involvement Logistic Regressions[*] N = 2253

	Any Odds Ratio	Smoked Odds Ratio	Smokeless Odds Ratio	10 + Cigs/Day Odds Ratio.	2 + Symptoms Odds Ratio
Never married	REF	REF	REF	REF	REF
Married	.3**	.2**	NS	NS	NS
Living as if married	NS	1.8*	NS	NS	2.6**
Employed full-time	1.5*	1.5*	NS	NS	2.3**
Employed part-time	NS	NS	.43**	NS	NS
Not employed	REF	REF	REF	REF	REF
Not student	REF	REF	REF	REF	REF
Student	.5***	.5***	NS	.3***	NS
Living with parents	REF	REF	REF	REF	REF
Live on own	NS	NS	1.8*	NS	NS

[*] All effects in Table 4 controlled for effects in Table 3 plus all other effects in Table 4.