Factors Associated with Youth Smoking in Wisconsin

July 2008

TOBACCO SURVEILLANCE & EVALUATION PROGRAM
UNIVERSITY OF WISCONSIN
PAUL P. CARBONE
COMPREHENSIVE CANCER CENTER
Acknowledgements

This report was prepared by Kimberly J. Brown, M.S., Karen A. Palmersheim, Ph.D. and Randall L. Glysch, M.S. Dr. Palmersheim is the Director of and Ms. Brown is a project assistant in the Tobacco Surveillance and Evaluation Program, University of Wisconsin Paul P. Carbone Comprehensive Cancer Center. Mr. Glysch is a Research Scientist within the Tobacco Prevention Program, Bureau of Community Health Promotion, Division of Public Health, Wisconsin Department of Health and Family Services.

This report was produced as a collaborative effort of the University of Wisconsin Paul P. Carbone Comprehensive Cancer Center and the Wisconsin Tobacco Prevention and Control Program. Support for this report was provided by the Wisconsin Tobacco Prevention and Control Program, Bureau of Community Health Promotion, Division of Public Health, Wisconsin Department of Health and Family Services.

The authors wish to thank David Ahrens, Kathryn Anderson and Patrick Remington for their helpful reviews of the report.


For additional copies of this report, visit our website http://www.medsch.wisc.edu/mep/ or contact:

Karen Palmersheim, Ph.D.
University of Wisconsin
Paul P. Carbone Comprehensive Cancer Center
610 N. Walnut St., Rm. 370C
Madison, WI 53726
608-262-2825
kpalmers@wisc.edu

Table of Contents

Executive Summary ................................................................................................................................1
Introduction..............................................................................................................................................2
Results ....................................................................................................................................................3
Discussion ...............................................................................................................................................9
Policy Recommendations ......................................................................................................................11
Limitations .............................................................................................................................................11
Conclusion.............................................................................................................................................12
Technical Notes.....................................................................................................................................13
Appendix ...............................................................................................................................................15
  Table 1 ...............................................................................................................................................15
References ............................................................................................................................................18
Executive Summary

The purpose of this report is to identify factors associated with smoking among adolescents in Wisconsin. Data presented in this report reveal the following factors are associated with a higher prevalence of smoking among Wisconsin high school youth:

- Parental smoking
- Greater number of close friends that smoke
- Positive attitude toward smoking
- Belief that smoking for only 1 to 2 years is safe
- Higher grade in school
- American Indian or White race/ethnicity
- Lower parental educational attainment
- Living in a home in which smoking is allowed
- Greater frequency of alcohol consumption
- Greater frequency of school absenteeism
- Depressive symptoms
- Belief that smoking is not addictive

Among the factors found to be associated with youth smoking in this report, the first four listed above were particularly strongly associated with youth smoking, and previous evidence suggests they may play a role in smoking initiation. These factors may be especially relevant to the development of effective youth tobacco prevention programs. However, understanding that many factors may be concomitantly influencing young people's smoking behavior is vital to preventing smoking initiation and promoting cessation among Wisconsin's youth.
Introduction

In the 1990s there was a growing concern over the increasing prevalence of smoking among youth. Approximately one-third of high school students reported current cigarette use both nationally and in the state of Wisconsin in 1993, and the prevalence of smoking among high school students continued to climb until 1999.\textsuperscript{1,2} In response to the rising number of youth smokers and the observation that most people start smoking as adolescents\textsuperscript{3}, efforts to reduce youth smoking were initiated at both the state and federal levels. In 1994, the U.S. Surgeon General and the Institute of Medicine published reports on youth smoking and recommended that tobacco prevention programs target youth.\textsuperscript{4,5} In 1999, the Centers for Disease Control and Prevention (CDC) published the “best practices” in tobacco control, recommending states with comprehensive programs incorporate initiatives aimed at preventing youth smoking.\textsuperscript{6} The 2007 revision of this document reinforced the importance of preventing adolescent tobacco use through evidence-based practices that support tobacco-free norms.\textsuperscript{7}

The prevalence of youth smoking in Wisconsin began to decrease after 1999, and this downward trend continued through 2006. Specifically, the proportion of high school students that reported current smoking in Wisconsin decreased from 38\% in 1999 to 20\% in 2006.\textsuperscript{1,8} Clearly, progress has been made in the reduction of youth smoking. Yet, one out of five Wisconsin high school students reported having smoked cigarettes during the past 30 days according to the 2006 Wisconsin Youth Tobacco Survey.

In 1994, the Surgeon General’s report on preventing tobacco use among young people included a review of past studies on psychosocial risk factors for smoking among adolescents.\textsuperscript{4} A fair amount of subsequent research further examined the personal characteristics associated with smoking, with much of this work focusing on adolescents since the vast majority of people start smoking as teenagers. A 1998 review by Tyas and Pederson\textsuperscript{9} outlined results of the many studies on the topic. Given the prevailing importance of monitoring and understanding youth smoking, research on the determinants of youth smoking has since continued.

Using the Tyas and Pederson review, as well as other studies on adolescent smoking as a guide, analyses were conducted using available data from the 2006 Wisconsin Youth Tobacco Survey\textsuperscript{10} (see Technical Notes for a description of these data). This report reveals which factors previously associated with youth smoking have relevance to Wisconsin high school students today. As such, this report may be a useful resource for organizations and individuals that work in the area of youth tobacco prevention and control. Identifying factors associated with youth smoking is key to developing tobacco prevention and cessation efforts that focus on those students most in need of intervention.
Results

Many of the factors examined for this report were significantly associated with current smoking among high school students in Wisconsin. These factors are presented below, following the categorical framework utilized by Tyas and Pederson: sociodemographic, environmental, behavioral and personal. (See Table 1 in the Appendix for a list of all factors analyzed; see Technical Notes for details on the analyses).

Sociodemographic

Within the sociodemographic category, current smoking was associated with the students’ grade, race/ethnicity, and parental socioeconomic status.

Grade

Figure 1. Prevalence of Youth Smoking by Grade, Wisconsin High School Students, 2006

Figure 1 shows the prevalence of smoking among high school students by grade. High school students in higher grades were more likely to smoke than students in lower grades, indicating that older students are more likely to smoke.

Race/Ethnicity

Figure 2. Prevalence of Youth Smoking by Race/Ethnicity, Wisconsin High School Students, 2006

The data in Figure 2 indicate variations in smoking prevalence according to a student’s race or ethnicity. Black students were least likely to report being current smokers, while American Indian/Alaskan Native students were most likely to report current smoking. White students fell midway between the lowest and highest groups.

* Sample sizes less than 100; estimated smoking prevalence may not be reliable
AI/AN= American Indian/Alaskan Native
Parental Education

Figure 3. Prevalence of Youth Smoking by Highest Parental Education, Wisconsin High School Students, 2006

Using the highest level of education achieved by either parent as an indicator of the students’ socioeconomic status, differences are revealed in youth smoking by parental educational background (Figure 3). High school students who had at least one parent with a 4-year college degree were less likely to smoke than those that did not have.

Environmental

Several factors relating to the students’ environments were also associated with current smoking among high school students in Wisconsin, including parental smoking, friend smoking and household smoking rules.

Parental Smoking Status

Figure 4. Prevalence of Youth Smoking by Parental Smoking Status, Wisconsin High School Students, 2006

Figure 4 demonstrates the prevalence of smoking by high school students according to whether or not either parent was a current smoker. High school students who had at least one parent that smoked were more likely to be smokers themselves, compared to students whose parents were non-smokers.
**Friends' Smoking Status**

Figure 5. Prevalence of Youth Smoking by Friends' Smoking Status, Wisconsin High School Students, 2006

The proportion of high school students who reported being current smokers, relative to the number of close friends that were smokers, is presented in Figure 5. High school students who had a greater number of close friends that smoked were more likely to be smokers than those with fewer friends that smoked.

**Home Smoking Rules**

Figure 6. Prevalence of Youth Smoking by Smoking Rules in the Home, Wisconsin High School Students, 2006

Figure 6 displays the prevalence of high school student smoking relative to rules on smoking in the student’s home. High school students who lived in households where smoking was not allowed were least likely to smoke, students who lived in households where smoking was allowed anywhere were most likely to smoke, and students who lived in households where smoking was allowed in some places, or who lived in households with no rules, fell in between.
**Behavioral**

A number of behavioral factors were also associated with current smoking among Wisconsin high school students, including risky behavior such as alcohol use and frequently missing school.

**Alcohol Use**

**Figure 7. Prevalence of Youth Smoking by Recent Alcohol Use, Wisconsin High School Students, 2006**

The data presented in Figure 7 demonstrate the prevalence of high school student smoking according to alcohol use within the past month. High school students who reported drinking alcohol on a greater number of days were more likely to smoke than those who reported drinking alcohol on fewer days or not at all.

**School Absences**

**Figure 8. Prevalence of Youth Smoking by School Absences, Wisconsin High School Students, 2006**

Figure 8 displays the prevalence of high school student smoking by school absences in the past month. Students who reported missing school on a greater number of days were more likely to smoke than those who reported missing school on fewer days.
Personal

A number of variables categorized as personal were associated with higher levels of high school student smoking, including reported depressive symptoms, holding a positive image of smoking, believing tobacco is not addictive and believing smoking for a few years is safe as long as the smoker then quits.

Symptoms of Depression

Figure 9. Prevalence of Youth Smoking by Presence of Depressive Symptoms, Wisconsin High School Students, 2006

Prevalence of high school student smoking relative to symptoms of depression is shown in Figure 9. Students who reported symptoms of depression (feeling sad or hopeless every day for 2 weeks or more in the past year) were more likely to be smokers compared to students who did not report these symptoms.

Positive Attitude Toward Smoking

Figure 10. Prevalence of Youth Smoking by Attitudes Toward Smoking, Wisconsin High School Students, 2006

Figure 10 demonstrates the difference in high school student smoking prevalence according to students’ attitudes toward smoking. Students who held a positive image of smoking (agreeing that smoking makes young people look cool or fit in) were more likely to be smokers compared to students who did not hold that belief.
Knowledge of Tobacco Addiction

Figure 11. Prevalence of Youth Smoking by Knowledge of Tobacco Addiction, Wisconsin High School Students, 2006

As illustrated in Figure 11, high school student smoking is associated with beliefs about the addictiveness of tobacco. Students who acknowledged that tobacco is addictive were less likely to be smokers compared to students who believed that tobacco is not addictive.

Knowledge of Health Effects of Smoking

Figure 12. Prevalence of Youth Smoking by Knowledge of Health Effects of Smoking, Wisconsin High School Students, 2006

Figure 12 shows the prevalence of high school student smoking relative to knowledge of the health effects of smoking. Students who thought smoking for 1 or 2 years is safe, as long as you quit after that time, were much more likely to be smokers compared to students who did not hold that belief.
Discussion

Many of the factors associated with smoking among Wisconsin high school students in this study have been previously reported in the literature (see Tyas and Pederson9). The current findings help validate previous findings, and show more specifically, which factors are most salient to youth tobacco prevention efforts in Wisconsin. It is important to remember that the many risk factors associated with youth smoking often work in conjunction with each other, and can have a synergistic effect on smoking risk. Thus, it is nearly impossible to separate out and label one risk factor as most important.

Sociodemographic factors such as age, race/ethnicity and socioeconomic status have consistently been associated with youth smoking. High school students typically engage in more risk behaviors such as smoking and drinking as they progress through high school.11 Additionally, youth from lower socioeconomic backgrounds usually have a higher smoking prevalence than youth from higher socioeconomic backgrounds.4 Although black youth in this report, on average, were of lower socioeconomic status than white youth (data not shown), black youth had a lower smoking prevalence than white youth. This lower smoking prevalence among black youth has been observed across the country, and may be explained by a different smoking culture among black teens than white teens, along with adolescent smoking being viewed as less acceptable in black families.12 In turn, while teens in Wisconsin had a lower smoking prevalence than American Indian adolescents, who are part of a culture in which smoking is much more prevalent.13-15 In contrast, most studies have revealed no significant association between gender and smoking, a finding that was also demonstrated in this study (see Table 1 in the Appendix).

Associations with youth smoking have been previously reported for parental smoking, peer/friend smoking and sibling smoking.9 Findings in the current study agree with those previous results for parental and friend smoking, but the association for sibling smoking was just outside our pre-determined level of significance (see Table 1 in the Appendix). These relationships are not surprising, as youth typically engage in behaviors they see friends or family engage in on a daily basis—perceiving such behaviors as acceptable. Rules on household smoking have also been previously associated with youth smoking16, but are likely closely related to parental smoking.

Having close friends who smoke is particularly important to youth smoking, as peer selection or peer influence is still one of the strongest determinants of adolescent smoking.9, 17-22 While part of the association of friend smoking with youth smoking is a reflection of smokers befriending other smokers, there is also strong evidence that friend smoking is influential in youth smoking initiation.23, 24 Additional analysis of the data used in this report revealed that twice as many nonsmoking adolescents, who had friends that smoked, said they would possibly smoke if offered a cigarette by their best friend, compared to those that had no friends who smoked (data not shown). This finding, along with other findings reported in the literature, demonstrates that the influence of close friends on adolescents’ decision to smoke is still very powerful and should be a major focus of youth tobacco control programs. In addition, this information is important for parents who wish to prevent their children from smoking.
Discussion, continued

Risk behaviors such as alcohol and drug use have been frequently associated with adolescent smoking, as revealed in the literature. In addition, school performance factors and commitment to school, which are related to frequency of school absences, have also been related to youth smoking. While the literature consistently shows that smokers tend to use alcohol and other drugs more than nonsmokers, it is not known whether these risky behaviors existed before smoking initiation, or if smoking may be a precursor of such behaviors. It is probably more likely that some students’ attitudes toward risky behaviors, or their belonging to a certain peer group, make them more likely to engage in any risk behavior, whether it be smoking, drinking, or missing school.

Our findings on personal factors, such as depressive symptoms, attitudes toward smoking, and knowledge of the health effects of smoking, have been reported in similar studies. Wisconsin high school students who believed smoking makes young people look cool or fit in (positive attitude toward smoking) were much more likely to be smokers. These students may have experimented with smoking in an attempt to make friends or fit in with a peer group that viewed smoking as normal and acceptable, or even “cool”. Additionally, believing that smoking for 1 or 2 years is safe as long as the person then quits was strongly associated with current smoking. Accordingly, this belief may have influenced some adolescents’ decision to experiment with smoking. Adolescents often underestimate how difficult it is to quit smoking. Taken together, these factors constitute a dangerous thought pattern that may promote the progression of smoking from experimentation to regular smoking.

The various factors associated with youth smoking are intricately intertwined, and while some may influence smoking initiation, others may simply co-occur with smoking. It is thus important to understand which of the factors associated with youth smoking are instrumental in youth experimentation and progression to regular smoking. Perhaps the most efficacious approach is to focus tobacco prevention strategies on those factors which current evidence suggests impact both smoking initiation and progression, such as parental smoking, friend smoking and attitudes toward smoking.
**Program Recommendations**

Periodic examination of the factors associated with adolescent smoking is essential to tailoring youth tobacco programs consistent with current behavior. In particular, numerous studies have revealed that smoking by parents and friends has a strong effect on whether youth initiate smoking.\(^{22, 23}\) Attitudes toward smoking have also been identified as powerful predictors of smoking initiation.\(^{22}\) Each of these factors influences an adolescent’s view of whether smoking is a normal or desirable behavior. Programs that are effective in changing social norms about smoking and removing the aura of “cool” from smoking may be very successful in reducing youth smoking. A recent program employing “cool adolescents” to discourage their peers from smoking during ordinary interactions and conversations was effective in reducing smoking initiation by 23% after one year.\(^{29}\) Parents who refrain from smoking, and more importantly, exhibit a negative attitude toward and disapproval of smoking, may also be very successful in preventing youth smoking initiation.\(^{30}\) In turn, youth who perceive smoking as a negative behavior will likely be less prone to seek out smoking friends, avoiding that powerful influence. Perceiving smoking for 1-2 years as safe may also be related to smoking initiation, and continuing education on the health risks and addictiveness of smoking is important, keeping in mind that adolescents often think the health risks do not apply to them and that quitting won’t be as hard for them as it is for others.\(^{22}\)

In addition to using the above strategies to create more effective tobacco prevention programs in schools and communities, reduction of youth tobacco use requires a multi-faceted approach using various proven techniques. The Task Force on Community Preventive Services’ *Guide to Community Preventive Services*\(^{31, 32}\) recommends: increasing the price of tobacco products, restricting minors’ access to tobacco products, and implementing school-based interventions in combination with anti-tobacco mass media campaigns (such as the “truth” or “FACT” campaigns) and additional community efforts. These efforts include creating smoke-free environments to support tobacco-free norms.\(^{7}\) Youth smoking cessation programs are also necessary to target those adolescents who are considering quitting smoking. These approaches to reducing youth tobacco use require a strong, comprehensive tobacco prevention and control program and the dedication of policymakers and community members.

**Limitations**

This study was based on a cross-sectional survey, and the relationships presented in this report were limited to current smokers, as defined in the Technical Notes below. As such, the factors presented here may or may not have contributed to initial experimentation with smoking. If these factors did contribute to experimentation with smoking, they may be equally important to consider in earlier prevention programs. Also, the prevalence of youth smoking overall and by certain subgroups may be underestimated, as students who were not present at school the day the survey was administered were not included in the estimate, nor were adolescents who have dropped out of school (the Wisconsin high school dropout rate for the 2005-2006 school year was 2%). Furthermore, the prevalence of smoking among Asian, Hispanic and American Indian/Alaskan Native adolescents may not be reliable due to small sample sizes.
Conclusion

It is important to note that efforts aimed at reducing tobacco use among youth have had an impact, with the 2006 prevalence of youth smoking being the lowest level on record since 1991. Yet, 20% of Wisconsin high school students reported current cigarette use in 2006. Identifying factors associated with youth smoking is essential to the development of effective tobacco control policies and intervention strategies. A cohesive approach that targets multiple factors associated with youth smoking is necessary to reduce tobacco use among Wisconsin youth. Given that the maximum risk for smoking initiation occurs during the early teen years\textsuperscript{33}, it is necessary to implement these strategies both before and during adolescence. Moreover, this approach must be implemented on multiple levels — in the home, in the school, and in the community. A youth tobacco prevention and control program that creates a negative image of smoking and modifies the adolescents’ environment to support tobacco-free social norms, along with incorporating policy approaches that support these initiatives may be a very successful strategy to reduce youth smoking.
Technical Notes

**Youth Tobacco Survey**

The Youth Tobacco Survey (YTS) is a comprehensive measure of youth awareness, attitudes and behaviors related to tobacco use among students in grades 6 through 12. The YTS questionnaire was developed based on a collaborative effort of the Centers for Disease Control and Prevention and representatives of federal, state and private-sector partners, and is administered by the Wisconsin Department of Health and Family Services. The survey was conducted on an annual basis for public middle school students, and on a biennial basis for public high school students, through the year 2004. Since 2005, it has only been conducted on even years in both middle and high schools. For each survey, random samples of 50 middle and 50 high schools are chosen from all eligible Wisconsin public middle and high schools. All students in the selected classes are eligible to participate in the survey, and participation is voluntary and anonymous. Only data on students in grades 9 through 12 were used for this report. Data were weighted to account for non-response and to be representative of the universe of 9th through 12th grade students from which the sample was selected. All data in this report were from the 2006 YTS. In 2006, 79.6% of the sampled high schools, and 86.7% of the sampled students completed the questionnaire for an overall response rate of 69.0% (N=1,737).

**Analysis**

All analyses were conducted using SPSS, version 15.0. Percentages of current smokers, relative to each factor, were obtained via cross-tabulations, and associations of each factor with smoking were tested using a Chi-square statistic in SPSS Complex Samples. Associations were considered significant if the p-value was less than 0.05. There were a minimum of 100 respondents in each category, with the exception of the Hispanic (n=95), Asian (n= 77) and American Indian/Alaskan Native (n= 29) categories.

**Youth Smoking Definition**

Current smoking was defined as someone who reported having smoked cigarettes on one or more of the past 30 days.

**Adult Smoking Definition (listed only for comparison)**

Current smoking was defined as someone who has “smoked at least 100 cigarettes in a lifetime” and reported current smoking either “every day” or “some days”.

**Survey Questions**

The 2006 YTS factors that were significantly associated with current smoking were assessed using the following questions.

*Grade*: “What grade are you in?” Respondents could answer: 6th, 7th, 8th, 9th, 10th, 11th, or 12th. Since the survey was of high school students, respondents only answered 9th-12th grades.
Technical Notes, continued

Survey Questions, continued

Race/Ethnicity: “Which one of these groups BEST describes you? (CHOOSE ONLY ONE ANSWER)” Respondents could answer: American Indian or Alaskan Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, or White. Since very few respondents answered Native Hawaiian (n=4), these respondents were excluded from the analyses.

Parental college education: Answers from the following questions were combined to create this variable: “How much education did your father (or male guardian) complete?” and “How much education did your mother (or female guardian) complete?” Respondents could answer: less than high school, finished high school, finished technical school or some college, has a college degree, has an advanced degree, or don't know. Responses were combined into two groups: those that had a parent with at least a college degree, and those that did not have a parent with at least a college degree.

Parental smoking: Answers from the following questions were combined to create this variable: “Who in your home smokes? (You can CHOOSE ONE ANSWER, or MORE THAN ONE)” Respondents could answer: no one smokes in my home, I smoke in my home, father (male guardian), mother (female guardian), sibling(s), or other. Responses for only father and mother smoking were analyzed for this variable, combining the responses into two groups: those that had a parent who smoked, and those that did not have a parent who smoked.

Friend smoking: “How many of your four closest friends smoke cigarettes?” Respondents could answer: none, 1, 2, 3, 4 or not sure.

Household smoking rules: “Which statement best describes the rules about smoking inside your home?” Respondents could answer: smoking is not allowed anywhere inside my home, smoking is allowed in some places or at some times, smoking is allowed anywhere in my home, or there are no rules about smoking in my home.

Recent alcohol use: “During the past 30 days, on how many days did you have at least one drink of alcohol?” Respondents could answer: 0 days, 1 or 2 days, 3 to 5 days, 6 to 9 days, 10 to 19 days, 20 to 29 days, or all 30 days.

School absences: “How many days of school have you missed in the past 30 days?” Respondents could answer: I have not missed any days of school in the past 30 days, 1-2 days, 3-4 days, 5-6 days, 7-8 days, or 9 or more days.

Depressive symptoms: “During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?” Respondents could answer: yes or no.
Technical Notes, continued

Survey Questions, continued

Positive attitude toward smoking: “Do you think smoking cigarettes makes young people look cool or fit in?” Respondents could answer: definitely yes, probably yes, probably not, or definitely not. Definitely yes and probably yes responses were combined as a “yes” answer for this variable, and probably not and definitely not responses were combined as a “no” answer for this variable.

Believing tobacco is addictive: “Do you think people can get addicted to using tobacco just like they can get addicted to using cocaine or heroin?” Respondents could answer: definitely yes, probably yes, probably not, or definitely not. Definitely yes and probably yes responses were combined as a “yes” answer for this variable, and probably not and definitely not responses were combined as a “no” answer for this variable.

Believing smoking 1-2 years is safe: “Do you think it is safe to smoke for only a year or two, as long as you quit after that?” Respondents could answer: definitely yes, probably yes, probably not, or definitely not. Definitely yes and probably yes responses were combined as a “yes” answer for this variable, and probably not and definitely not responses were combined as a “no” answer for this variable.

Appendix

The prevalence of youth smoking, relative to each factor examined in this study, is listed in Table 1 below. A chi-square statistic was used to determine if each individual factor was associated with smoking at a significance level less than or equal to 0.05. If there was a significant association between the factor and smoking, it is indicated with a “yes” in the third column in Table 1.

| Table 1. Factors investigated for association with current cigarette use among Wisconsin high school students and prevalence of smoking by each factor (2006) |
|---|---|---|
| **Factor** | **Percent of respondents who were current smokers** | **Univariate Association (p ≤ 0.05)** |
| **Sociodemographic** | | |
| Grade | | Yes |
| 9th | 12.6% | |
| 10th | 19.3% | |
| 11th | 21.3% | |
| 12th | 27.1% | |
| Gender | | No (p=0.16) |
| Male | 21.1% | |
| Female | 18.5% | |
### Factors investigated for association with current cigarette use among Wisconsin high school students and prevalence of smoking by each factor (2006)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Percent of respondents who were current smokers</th>
<th>Univariate Association (p ≤ 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sociodemographic, continued</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>10.5%</td>
<td>Yes</td>
</tr>
<tr>
<td>Hispanic</td>
<td>16.3%‡</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>20.5%</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>21.7%‡</td>
<td></td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td>30.0%‡</td>
<td></td>
</tr>
<tr>
<td>Parental college education</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>No 4-yr college degree</td>
<td>22.8%</td>
<td></td>
</tr>
<tr>
<td>4-yr college degree</td>
<td>17.1%</td>
<td></td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental smoking</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No parental smoking</td>
<td>16.6%</td>
<td></td>
</tr>
<tr>
<td>One or both parents smoke</td>
<td>27.3%</td>
<td></td>
</tr>
<tr>
<td>Sibling smoking</td>
<td>No (p=0.07)</td>
<td></td>
</tr>
<tr>
<td>No sibling smoking</td>
<td>19.0%</td>
<td></td>
</tr>
<tr>
<td>One or more siblings smoke</td>
<td>27.0%</td>
<td></td>
</tr>
<tr>
<td>Friend smoking (how many of 4 closest friends smoke)</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>2.8%</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>20.6%</td>
<td></td>
</tr>
<tr>
<td>2-3</td>
<td>42.6%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>73.3%</td>
<td></td>
</tr>
<tr>
<td>Household smoking</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Not allowed anywhere</td>
<td>16.9%</td>
<td></td>
</tr>
<tr>
<td>Allowed some places</td>
<td>29.2%</td>
<td></td>
</tr>
<tr>
<td>Allowed anywhere</td>
<td>35.0%</td>
<td></td>
</tr>
<tr>
<td>No rules</td>
<td>20.5%</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix, continued

**Table 1, continued.** Factors investigated for association with current cigarette use among Wisconsin high school students and prevalence of smoking by each factor (2006)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Percent of respondents who were current smokers</th>
<th>Univariate Association (p ≤ 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Behavioral</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days used alcohol (in past 30 days)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>6.1%</td>
<td>Yes</td>
</tr>
<tr>
<td>1-2</td>
<td>22.3%</td>
<td></td>
</tr>
<tr>
<td>3-9</td>
<td>45.1%</td>
<td></td>
</tr>
<tr>
<td>10 or more</td>
<td>60.8%</td>
<td></td>
</tr>
<tr>
<td>Days absent from school (in past 30 days)</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>0-2</td>
<td>15.8%</td>
<td></td>
</tr>
<tr>
<td>3-4</td>
<td>27.6%</td>
<td></td>
</tr>
<tr>
<td>5 or more</td>
<td>40.1%</td>
<td></td>
</tr>
<tr>
<td><strong>Personal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence of depressive symptoms (in past 12 mos.)</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>17.1%</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>30.0%</td>
<td></td>
</tr>
<tr>
<td>Positive attitude toward smoking</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>17.7%</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>40.2%</td>
<td></td>
</tr>
<tr>
<td>Tobacco is addictive</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>18.8%</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>31.4%</td>
<td></td>
</tr>
<tr>
<td>Smoking 1-2 yrs is safe</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>16.3%</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>50.0%</td>
<td></td>
</tr>
<tr>
<td><strong>Overall smoking prevalence</strong></td>
<td>19.9%</td>
<td></td>
</tr>
</tbody>
</table>

‡ Sample sizes are less than 100; estimated percentages may not be reliable
References


References, continued


