

Overview of Substance Abuse among Minnesota Youth

Part I: Use of tobacco, alcohol and marijuana

Data from 2013
Minnesota Student Survey
April 2014



Minnesota Department of **Human Services**
Performance Measurement and Quality Improvement Division

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By

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www.dhs.state.mn.us/MSS

Eunkyung Park is solely responsible for all the data analyses and interpretation of the results reported here.

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Overview of Substance Abuse among Minnesota Youth Findings from the 2013 Minnesota Student Survey

Part I: Use of tobacco, alcohol and marijuana

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While substance abuse has been one of the most complex public health issues because of the various social norms and public opinions as well as the political and legal responses to the use of alcohol and illicit drugs, there is now a deeper understanding of substance abuse as a chronic disorder that develops, in many occasions, during adolescence. Substance abuse has serious health and social consequences, including drug-related injury and deaths, HIV/AIDS and other sexually transmitted diseases, co-morbid psychiatric diseases, and loss of productivity. Preventing substance abuse among adolescents is of utmost importance and has been an ongoing goal of the *Healthy People* initiative by the U.S. Department of Health and Human Services¹.

It is well documented that adolescents who use alcohol or drugs at an earlier age are more likely to develop substance use disorders.² An analysis of data from the National Longitudinal Alcohol Epidemiologic Survey shows that the earlier a person begins drinking alcohol, the more likely s/he is to have ever used other drugs illicitly even after controlling for relevant socio-demographic factors.³ Research has also shown that the perception of harm and risk associated with substance use is an important factor in decreasing substance use.⁴

¹ For details on Healthy People initiative, see web page: <http://www.healthypeople.gov>.

² Chen CY, O'Brien MS, Anthony JC. Who becomes cannabis dependent soon after onset of use? Epidemiological evidence from the United States:2000-2001. *Drug Alcohol Depend* 2005;79:11-22.

DeWit DJ, Adlaf EM, Offord DR, Ogborne AC. Age at first alcohol use: a risk factor for the development of alcohol disorders. *Am J Psychiatry* 2000;157: 745-750.

Gil AG, Wagner EF, Tubman JG. Associations between early-adolescent substance use and subsequent young-adult substance use disorders and psychiatric disorders among a multiethnic male sample in south Florida. *American J Pub Health* 2004; 94(9):1603-09.

Anthony JC, Petronis KR. Early-onset drug use and risk of later drug problems. *Drug and Alcohol Dependence* 1995;40: 9-15. Substance Abuse and Mental Health Services Administration, Office of Applied Studies. (December 4, 2008). *The NSDUH Report: Trend in Substance Use, Dependence or Abuse, and Treatment among Adolescents: 2002 to 2007*. Rockville, MD.

³ Hingson RW, Heeren T, Edwards EM. Age at drinking onset, alcohol dependence and their relation to drug use and dependence, driving under the influence of drugs and motor-vehicle crash involvement because of drugs. *Journal of Studies on Alcohol and Drugs* 2008;69(2):192-201.

⁴ Benthin A, Slovic P, Severson H. A psychometric study of adolescent risk perception. *J Adolesc* 1993;16(2):153-68.

Monitoring adolescents' substance use, age at first use, and their risk perception about substance use is critical for planning prevention programs. This series of reports on the 2013 Minnesota Student Survey (MSS) is part of such monitoring effort.

The topics covered by the series are as follows:

Part I: Use of tobacco, alcohol, marijuana and other illicit drugs

Part II: Age of first use, perception of risk and perceived parental disapproval

Part III: Substance use disorders.

Methods

Data

The Minnesota Student Survey (MSS) is a statewide school-based survey conducted every three years by an interagency team consisting of four state agencies (Education, Health, Human Services, and Public Safety). In 2013, the MSS was administered in the first half of 2013 to public school students in grades 5, 8, 9 and 11 in either the paper-and-pencil survey or web-survey mode. In total, 39,854 5th graders, 42,841 8th graders, 42,381 9th graders, and 36,958 11th graders participated in the 2013 MSS. Most of the questions about substance use were not asked to the 5th graders. The analyses presented in this report were conducted with the 2013 MSS data from students in grades 8, 9 and 11.

Mode of Administration

In 2013, for the first time, schools could choose to administer the MSS by using the web-based survey or the traditional paper-and-pencil survey. Each participating school had to choose one mode of administration. Schools with small student body and those located in non-metro, rural area were more likely to select web mode of administration. Overall, 35% of students took the survey by web and 65% used the paper survey.⁵

Response rates

MSS is not a sample-based, but a census-like survey, where all public school districts are invited to participate and student participation is voluntary. In 2013, 280 of the 334 public school districts (84%) agreed to participate. The overall student participation across the four grades was approximately 67% of total enrollment with 62% of fifth graders, 71% of eighth graders, 69% of ninth graders, and 62% of eleventh graders participating.

⁵ The effect of administration mode on data quality in the 2013 MSS was examined in a report, "Web vs. paper administration of a school-based survey: Mode effect analysis for the 2013 MSS, available at www.dhs.state.mn.us/mss.

Socio-demographic description of students participated in the 2013 MSS

Gender is evenly divided. Overall, more than a quarter of students (27.2%) are members of a minority population or of multiple-race background. The proportion of minority students was higher among younger students (30.3% of 5th graders; 27.9% of 8th graders; 27.0% of 9th graders; 23.5% of 11th graders). Just over a quarter of students (27.3%) reported getting a free or reduced-price lunch at school at the time of survey. This was used as a proxy measure for low-income status throughout the analyses (see Table 1 in the Appendix for details).

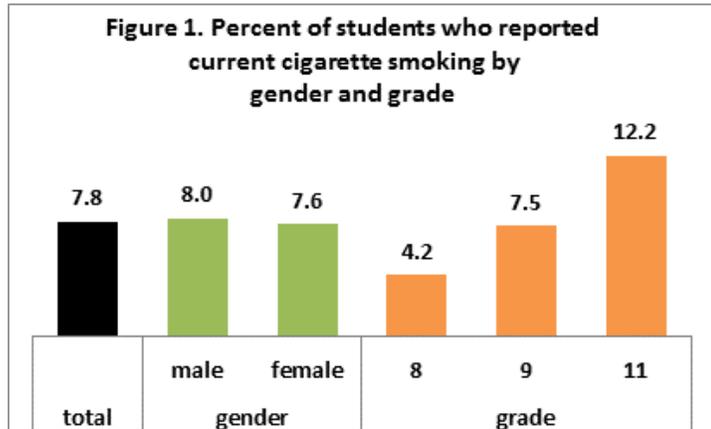
This is the first part of the series. This report provides an overview of smoking cigarettes and other tobacco products, drinking alcoholic beverages and marijuana use among Minnesota students using the data from the 2013 MSS.

Tobacco Use

Current cigarette smoking

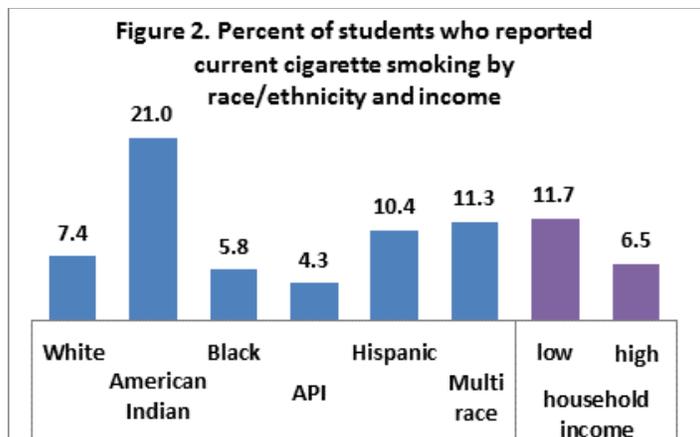
“During the last 30 days, on how many days did you smoke a cigarette?”

Statewide, 7.8% of Minnesota students in grades 8, 9 and 11 smoked cigarettes during the 30 days preceding the 2013 MSS (current cigarette smoking). Overall, male students were slightly more likely than female students to report current cigarette smoking but that was only true among 11th graders (see Table 2 in the Appendix for more details).



About 4.2% of 8th graders reported current cigarette smoking and the prevalence increased among students in higher grades with 7.5% of 9th graders and 12.2% of 11th graders reporting current cigarette smoking (Figure 1).

The prevalence of current cigarette smoking was highest among American Indian students with about two in 10 (21.0%) reporting cigarette smoking during the past 30 days. In addition to American Indian students, Hispanics and those with multiple-race background were more likely than white students to report current cigarette smoking (10.4% and 11.3%,



respectively). Asian/Pacific Islander (API) students, on the other hand, had the lowest prevalence of current cigarette smoking with less than 5% reporting it and 5.8% of black students reported current cigarette smoking.

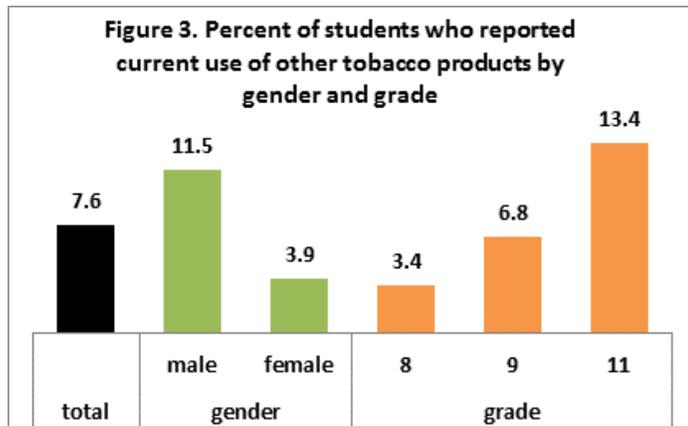
Male students were more likely to report current cigarette smoking than females among white, black and Asian/Pacific Islander (API) students, and it was reversed among American Indian students with 16.2% of males vs. 27.2% of females reporting current cigarette smoking (see Table 2 in the Appendix for more details).

Students from low-income households were more likely than their more affluent counterparts to report current cigarette smoking (11.7% vs. 6.5%; Figure 2).

Current use of other tobacco products

“During the last 30 days, on how many days did you smoke cigars, cigarillos or little cigars?”; “During the last 30 days, on how many days did you use chewing tobacco, snuff or dip?”

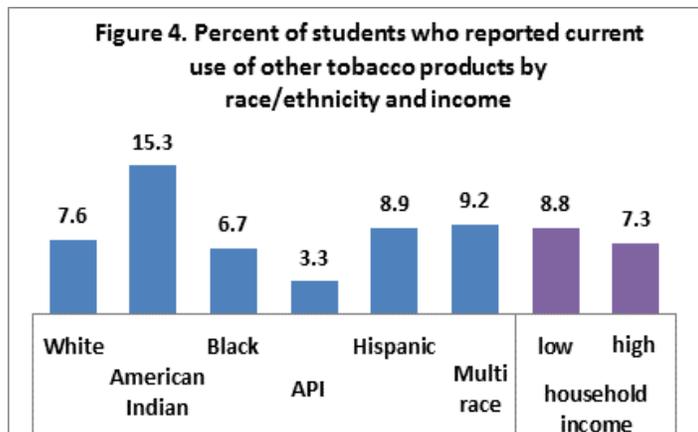
Statewide, 7.6% of students in grades 8, 9 and 11 said that they used other tobacco products during the 30 days preceding the survey. A significantly larger gender difference was found in the use of other tobacco products than in cigarette smoking. Overall, male students were about three times more likely than females to report current use of other tobacco products (11.5%



vs. 3.9%). Male students were consistently more likely than female counterparts to report current use of other tobacco products across all subgroups (see Table 2 in the Appendix).

About 3.4% of 8th graders reported using other tobacco products compared to 6.8% among 9th graders and 13.4% among 11th graders (Figure 3).

As in current cigarette smoking, American Indian students had the highest prevalence of current use of other tobacco products and API students had the lowest prevalence (15.3% and 3.3%, respectively). About 7.6% of white students reported current use of other tobacco products and the prevalence was slightly lower among black students (6.7%) and slightly higher among Hispanics and those with multiple-race background (8.9% and 9.2%, respectively).



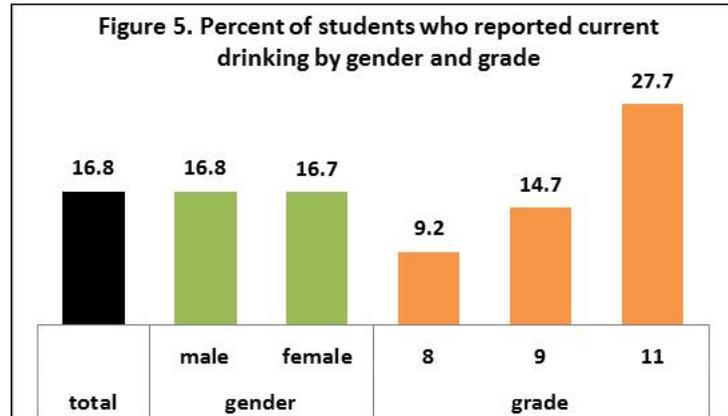
Students from low-income households were more likely than their more affluent counterparts to report using other tobacco products during the past 30 days (Figure 4).

Alcohol Use

Current drinking

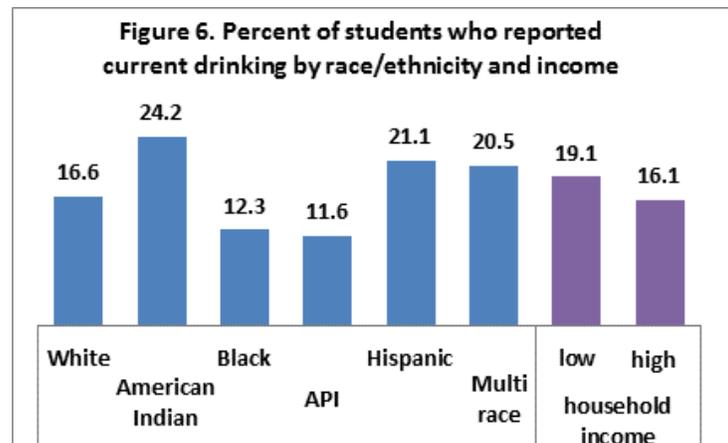
“During the last 30 days, on how many days did you drink one or more drinks of an alcoholic beverage?”

Statewide, about one-in-six students in grades 8, 9 and 11 (16.8%) reported drinking alcoholic beverage on at least one day during the 30 days before the survey (current drinking). The prevalence of current drinking was 9.2% among 8th graders, and it increased to 14.7% among 9th graders and tripled to 27.7% among 11th graders.



While the overall prevalence of current drinking was similar across genders, males in 11th grade were more likely than their female counterparts to report current drinking (28.6% for males; 26.8% for females) but females in 9th grade were slightly more likely than their male counterparts to report it (14.0% for males; 15.4% for females) while no gender difference was found among 8th graders (Table 3 in the Appendix).

Overall, the prevalence of current drinking was highest among American Indians (24.2%), closely followed by Hispanics (21.1%) and students of multiple-race background (20.5%). About 16.6% of white students reported current drinking, and black and API students were less likely than whites to report current drinking (12.3% and 11.6%, respectively). Among the three minority subgroups with higher prevalence than whites (American Indians, Hispanics and multiple race), female students were more likely than males to report current drinking (see Table 3 in the Appendix).

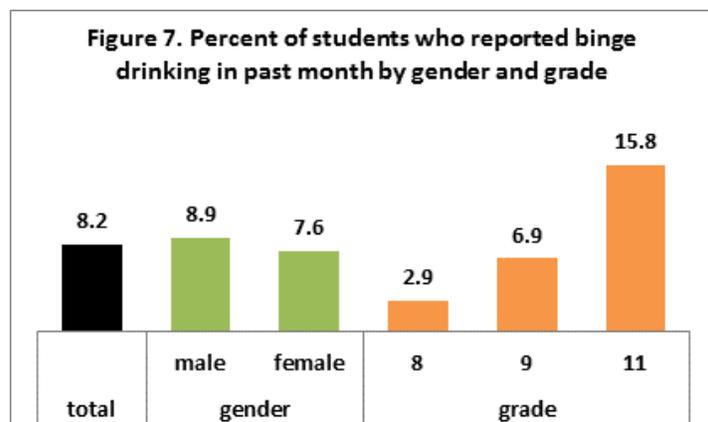


Students from low-income households were less likely than their more affluent counterparts to report current drinking. Among students from low-income households, females were more likely than male counterparts to report current drinking (18.0% for male vs. 20.1% for female; see Table 3 in the Appendix).

Binge drinking

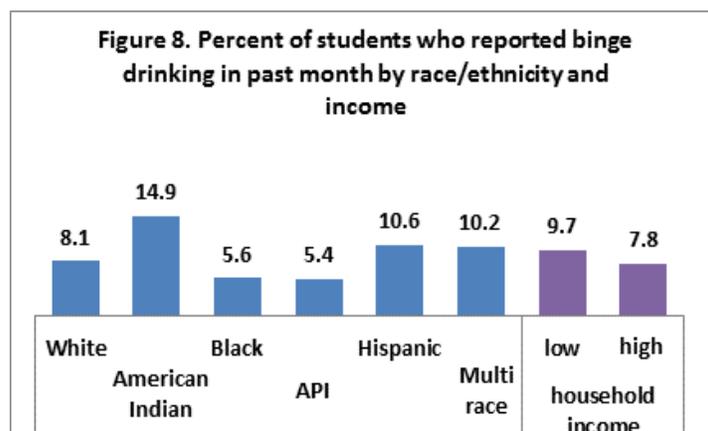
“During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?”

Statewide, 8.2% of students in grades 8, 9 and 11 reported binge drinking at least one day during the past 30 days before the survey. Overall, males had higher prevalence of binge drinking than females, and this gender difference holds only for 11th graders; among 8th and 9th graders no gender difference was found (see Table 3 in the Appendix).



The prevalence of binge drinking was less than 3% among 8th graders, 6.9% among 9th grader and 15.8% among 11th graders (Figure 7).

American Indian students had the highest prevalence (14.9%) of binge drinking, followed by Hispanics (10.6%) and students of multiple-race background (10.2%). As in current drinking, API and black students had the lowest prevalence of binge drinking (5.6% and 5.4%, respectively).



American Indian females were more likely than their male counterparts to report binge drinking (17.3% vs. 13.1%; see Table 3 in the Appendix).

Overall, students from low-income households were more likely to report binge drinking than their more affluent counterparts. While among students from higher-income households, males were more likely to report binge drinking (8.7% vs. 6.8%), this gender

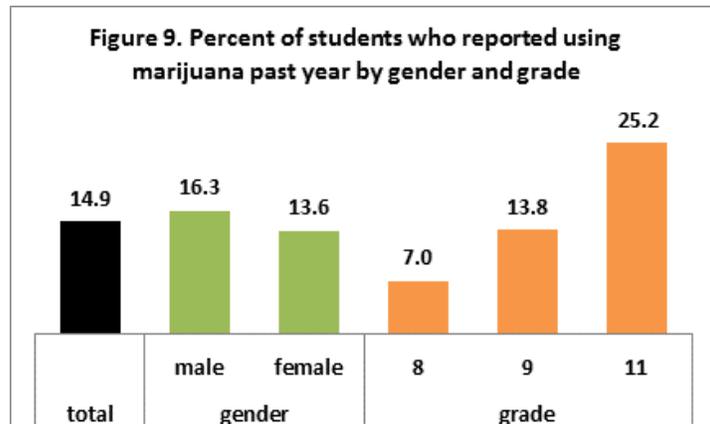
difference disappeared among those from low-income households (9.5% vs. 9.8%; see Table 3 in the Appendix).

Marijuana Use

Past-year marijuana use

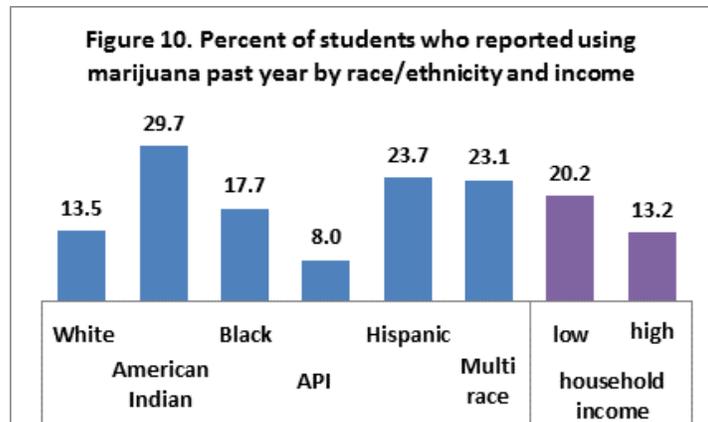
“During the last 12 months, on how many occasions (if any) have you used marijuana or hashish?”

Statewide, 14.9% of students in grades 8, 9 and 11 used marijuana on at least one occasion during the 12 months before the survey. Overall, male students had a higher prevalence than females, and this was consistent across all subgroups except American Indians. American Indian females were more likely than their male counterparts to report past-year marijuana use (29.3% vs. 20.1%; see Table 4 in the Appendix).



The prevalence of past-year marijuana use was lowest among 8th graders (7.0%), 13.8% among 9th graders and 25.2% among 11th graders (Figure 9).

Compared to white students, the prevalence of past-year marijuana use was higher among all minority subgroups, except API students who had the lowest prevalence as in tobacco and alcohol use. The prevalence was highest among American Indians with more than one in four (29.7%) reporting marijuana use during the past year. Different from tobacco and alcohol use, black students were more likely than whites to report marijuana use (Figure 10).

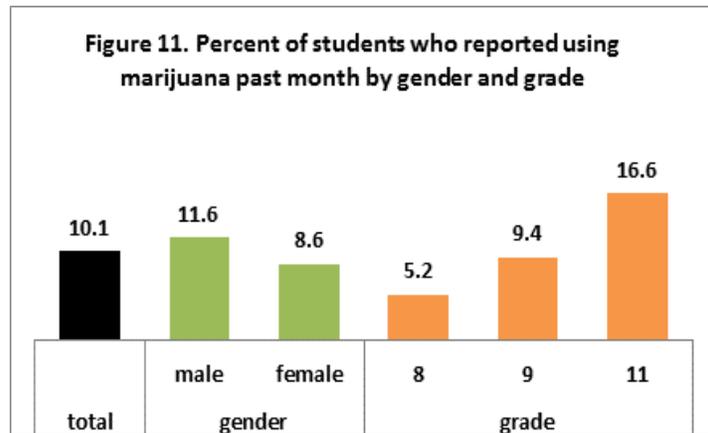


Students from low-income households were more likely than their more affluent counterparts to report past-year marijuana use (20.2% vs. 13.2%).

Current marijuana use

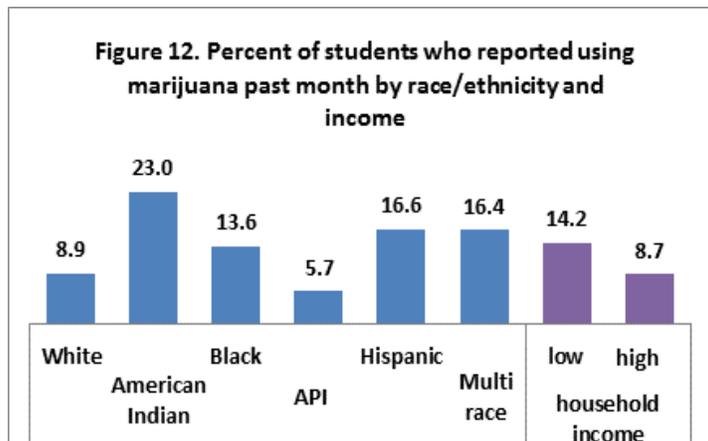
“During the last 30 days, on how many days did you use marijuana or hashish?”

Statewide, 10.1% of students used marijuana on at least one day during the 30 days before the survey (current marijuana use). As with past-year use of marijuana, the prevalence of current use was higher among males than females. This gender difference appeared in all subgroups except American Indians. American Indian females were more likely than their male counterparts to report current marijuana use (20.1% for male; 29.3% for female, see Table 4 in the Appendix).



As shown in Figure 11, 5.2% of 8th graders reported using marijuana during the past 30 days, compared to 9.4% among 9th graders and 16.6% among 11th graders.

Compared to white students, the prevalence of current marijuana use was higher among all minority subgroups except API students who had the lowest prevalence with 5.7% reporting marijuana use during the past 30 days. American Indian students had the highest prevalence of current marijuana use with almost one in four (23.0%) reporting use of marijuana during the past 30 days.



Students from low-income households were more likely than their more affluent counterparts to report current marijuana use.

In Summary

- About one-in-13 students (7.8%) reported smoking cigarettes during the past 30 days and about the same (7.6%) reported using other tobacco products during the past 30 days.
- About one-in-six students (16.8%) reported drinking during the past 30 days and 8.2% reported binge drinking during the past 30 days.
- About one-in-seven students (14.9%) reported smoking marijuana during the past 12 months and about one-in-ten (10.1%) reported smoking marijuana during the past 30 days.
- The prevalence was higher among older students and more than a quarter of 11th graders reported drinking during the past 30 days and smoking marijuana during the past 12 months.
- For all substances examined, minority students were more likely than whites to report using them except API and black students; Compared to white students, black students had lower prevalence of smoking cigarette, using other tobacco products and drinking, but higher prevalence of smoking marijuana.
- For all substances examined, American Indians had the highest prevalence of use and API the lowest.
- Students from low-income households had higher prevalence than their counterparts across all substances examined.
- Male students tend to report using substances more than their female counterparts, but there were some interactions with grade and race variables. For example, American Indian female students were more likely than their male counterparts to report current cigarette smoking, drinking (both current and binge drinking) and smoking marijuana (both current and past year). Also, among 9th graders, females were slightly more likely than their male counterparts to report current drinking.

Appendix

Table 1. Socio-demographic characteristics of survey participants

	Grade 8 (n=42,841) %	Grade 9 (n=42,381) %	Grade 11 (n=36,958) %	Total (n=122,180) %
Gender				
Female	49.7	50.0	49.6	49.8
Race/Ethnicity ¹				
White	72.1	73.0	76.5	73.7
American Indian	1.5	1.2	0.8	1.2
Black	5.7	5.3	4.9	5.3
Asian/Pacific Islander	5.1	5.6	6.1	5.6
Hispanic	8.2	7.4	6.2	7.3
Multiple race	7.4	7.5	5.5	6.9
Household income				
Currently get a free or reduced-price lunch at school	27.9	27.8	24.6	26.8

¹ All the race categories (white, American Indian, black, Asian/Pacific Islander and multiple race) are non-Hispanic.

Table 2. Prevalence of tobacco use by socio-demographic factors

Category	Smoked cigarettes at least 1 day during the 30 days before the survey			Used other tobacco products ¹ at least 1 day during the 30 days before the survey		
	Male %	Female %	Total %	Male %	Female %	Total %
Grade						
8	4.2	4.3	4.2	4.7	2.1	3.4
9	7.3	7.7	7.5	9.9	3.9	6.8
11	13.2	11.2	12.2	21.0	5.9	13.4
Race/Ethnicity						
White	7.7	7.1	7.4	11.9	3.5	7.6
American Indian	16.2	27.2	21.0	17.2	13.1	15.3
Black	6.9	4.6	5.8	9.0	4.3	6.7
Asian/Pacific Islander	5.8	2.9	4.3	5.0	1.7	3.3
Hispanic	10.1	10.7	10.4	10.8	7.1	8.9
Multiple race	10.8	11.7	11.3	13.3	5.5	9.2
Household income ²						
Low	11.1	12.2	11.7	11.9	6.0	8.8
High	7.0	5.9	6.5	11.4	3.2	7.3
Total	8.0	7.6	7.8	11.5	3.9	9.8

¹ Other tobacco products include cigars, cigarillos, little cigars, chewing tobacco, snuff or dip.

² Those who reported getting free or reduced-price lunch at school are coded as low-income household.

Table 3. Prevalence of alcohol use by socio-demographic factors

Category	Drank alcohol on at least 1 day during the 30 days before the survey			Had 5 or more drinks in a row at least one day during the 30 days before the survey		
	Male %	Female %	Total %	Male %	Female %	Total %
Grade						
8	9.2	9.3	9.2	2.9	2.9	2.9
9	14.0	15.4	14.7	6.7	7.0	6.9
11	28.6	26.8	27.7	18.1	13.7	15.8
Race/Ethnicity						
White	16.8	16.4	16.6	8.9	7.4	8.1
American Indian	20.1	29.3	24.2	13.1	17.3	14.9
Black	12.3	12.4	12.3	6.4	4.8	5.6
Asian/Pacific Islander	13.0	10.1	11.6	6.4	4.4	5.4
Hispanic	19.7	22.4	21.1	10.1	11.0	10.6
Multiple race	19.3	21.5	20.5	10.4	10.1	10.2
Household income ¹						
Low	18.0	20.1	19.1	9.5	9.8	9.7
High	16.5	15.6	16.1	8.7	6.8	7.8
Total	16.8	16.7	16.8	8.9	7.6	8.2

¹ Those who reported getting free or reduced-price lunch at school are coded as low-income household.

Table 4. Prevalence of marijuana use by socio-demographic factors — Minnesota Student Survey, 2010

Category	Used marijuana during the 12 months before the survey			Used marijuana on one or more days during the 30 days before the survey		
	Male %	Female %	Total %	Male %	Female %	Total %
Grade						
6	7.6	6.4	7.0	5.7	4.7	5.2
9	14.5	13.1	13.8	10.2	8.6	9.4
12	28.1	22.4	25.2	19.8	13.3	16.6
Race/Ethnicity						
White	15.0	12.0	13.5	10.4	7.3	8.9
American Indian	23.7	37.4	29.7	18.8	28.2	23.0
Black	19.7	15.7	17.7	15.3	11.8	13.6
Asian/Pacific Islander	10.5	5.6	8.0	7.6	3.9	5.7
Hispanic	24.4	23.0	23.7	17.6	15.6	16.6
Multiple race	23.7	22.6	23.1	17.7	15.1	16.4
Household income ¹						
Low	20.6	19.8	20.2	15.1	13.4	14.2
High	14.9	11.4	13.2	10.5	7.0	8.7
Total	16.3	13.6	14.9	11.6	8.6	10.1

¹ Those who reported getting free or reduced-price lunch at school are coded as low-income household.