



HEALTHY KIDS COLORADO SURVEY

Brief Report: Adolescent Alcohol, Tobacco & Marijuana Use, 2013

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Introduction

This report describes substance use among Colorado high school students, including use of tobacco, alcohol, marijuana, other illicit drugs, and prescription drugs without a doctor's prescription. The results can be used to inform programming aimed at preventing adolescent substance use.

Background

Data for this report come from the Healthy Kids Colorado Survey (HKCS). The HKCS is a voluntary survey that collects self-reported health information from Colorado middle and high school students, grades 6 - 12. A unified version of the survey was launched in 2013 that addresses multiple needs for youth health data and provides both state- and region-level results. The unified HKCS was administered in fall 2013 and will be repeated in odd-numbered years, with the next administration in fall 2015.

The HKCS is supported by the Colorado Department of Public Health and Environment, Colorado Department of Education, and Colorado Department of Human Services. The University of Colorado Anschutz Medical Campus implements the HKCS. The survey includes the Centers for Disease Control and Prevention's Youth Risk Behavior Surveillance (YRBS) core questions and collects anonymous student information on multiple health topics, as well as student attitudes and perceptions that address prevention and risk and protective behaviors. Topics include weight, nutrition, physical activity, suicide, bullying, mental health, tobacco, alcohol, marijuana, drugs, sexual health (high school only), other health topics and youth engagement in school and their community. Results are weighted to represent Colorado's middle and high school populations statewide and in each of 21 health statistics regions.

Schools, local public health agencies, community partners, researchers, state agencies, foundations and students use the HKCS results to assess the status of youth health and behaviors. The primary use is to identify health priorities in order to better implement school- and community-based strategies to improve and maintain the health of youth across Colorado.

Methods

Surveys were completed by students from a random sample of schools and randomly selected classrooms with those schools. Results are weighted to represent student enrollment in all Colorado public middle and high schools. A total of 224 randomly selected schools and over 40,000 randomly students participated in the 2013 HKCS.

The current report focuses on current use (past month) of three substances – cigarettes, alcohol, and marijuana – among Colorado high school students. Results are weighted to represent the whole population as well categories of sex, grade, and health statistics region. Significant differences were

tested using a Rao-Scott chi-square test and value of $p < .05$. A "polysubstance use" analysis examines relationships between other health-risk factors and the number of substances (0 to 3) that a student used in the past three months. Students who did not answer one or more of the three substance use measures were omitted from this portion of the analysis.

Demographic Differences in Substance Use

High school students in Colorado were most likely to have used alcohol in the past 30 days, followed by marijuana and cigarettes (Table 1). Nearly one-third of students (31.0%) reported past month alcohol use and use did not differ significantly by sex. One in five students (19.7%) used marijuana in the past month, with males more commonly reporting past month use. More than one in nine students (10.7%) smoked cigarettes on one or more of the past 30 days, with males more commonly reporting past month cigarette use. Hispanic high school students were more likely, and Asian students were less likely, to use alcohol and marijuana than White students (Table 1). American Indian/Alaska Native students were more likely to use cigarettes and marijuana than White students and Black/African American students were more likely to use marijuana than White students. Those students reporting multiple races ("other") were more likely to use cigarettes, alcohol, and marijuana than White students (Table 1). Use of each substance was increasingly common as grade level increased.

Table 1. Current use of cigarettes, alcohol, or marijuana, by sex and grade, Colorado high school students 2013

	Cigarettes % (95% CI)	Alcohol % (95% CI)	Marijuana % (95% CI)
TOTAL	10.7 (10.0-11.4)	31.0 (29.6-32.4)	19.7 (18.7-20.6)
Sex			
Male	12.3* (11.2-13.3)	29.9* (28.1-31.6)	21.5* (20.2-22.9)
Female	9.1 (8.3-9.9)	32.1 (30.7-33.6)	17.7 (16.6-18.8)
Race/ethnicity			
White	10.1 (9.2-10.9)	30.5 (28.8-32.3)	17.0 (15.9-18.1)
Hispanic	11.0 (9.7-12.4)	33.9* (32.3-35.5)	23.6* (22.1-25.1)
American Indian/ Alaskan Native	22.8* (17.3-28.4)	33.4 (27.2-39.7)	27.0* (21.2-32.8)
Asian	6.9 (4.9-8.8)	15.2* (12.5-17.9)	10.0* (7.4-12.5)
Black/African American	10.6 (7.0-14.2)	27.1 (22.3-31.9)	25.9* (21.9-29.9)
Native Hawaiian/other Asian Pacific Islander	10.9 (4.8-17.0)	33.8 (22.0-45.6)	19.4 (11.7-27.0)
other	17.9* (15.3-20.5)	35.3* (32.5-28.0)	28.1* (25.7-30.5)
Grade			
9 th	6.6 (5.8-7.4)	19.7 (18.2-21.1)	13.7 (12.3-15.1)
10 th	9.9* (8.8-11.0)	29.2 (27.5-30.9)	19.0* (17.7-20.3)
11 th	11.7* (10.5-12.8)	35.4 (33.1-37.6)	22.1* (20.6-23.6)
12 th	14.9* (13.6-16.2)	41.3 (38.7-43.9)	24.3* (22.5-26.2)

* Indicates a significant difference in sex, race/ethnicity (compared to White), grade (compared to 9th grade)

Access and Attitudes toward Substance Use

A majority of high school students report that it is easy or very easy to get cigarettes, alcohol, or marijuana, with reported ease of access ranging from 54.9% for marijuana to 60.8% for cigarettes (Table 2). Males were more likely than females to say cigarette access and alcohol access is easy/very easy; access perception was not different by sex for marijuana. Perceived ease of access increased by grade for all three substances, most notably for cigarettes, where easy or very easy responses increased from 45.5% in 9th grade to 78.9% in 12th grade.

Table 2. Percent reporting "easy" or "very easy" access to cigarettes, alcohol, or marijuana, by sex and grade, Colorado high school students 2013

	Cigarettes ^a % (95% CI)	Alcohol % (95% CI)	Marijuana % (95% CI)
TOTAL	60.8 (59.3-62.3)	58.6 (57.3-59.8)	54.9 (53.4-56.5)
Sex			
Male	63.8* (61.8-65.8)	57.4* (55.7-59.1)	56.4 (54.2-58.6)
Female	57.7 (55.7-59.6)	59.7 (58.2-61.2)	53.3 (51.5-55.0)
Grade			
9 th	45.1 (42.6-47.6)	49.5 (47.8-51.2)	41.5 (38.9-44.1)
10 th	56.6* (54.4-58.8)	54.8* (52.9-56.6)	51.9* (49.5-54.4)
11 th	63.5* (61.1-66.0)	62.3* (60.2-64.5)	60.3* (57.8-62.9)
12 th	75.2* (72.1-78.3) ^a	68.7* (66.3-71.1)	67.7* (64.6-70.7)

* Indicates a significant difference by sex or by grade (compared to 9th grade)

^a Only includes students 17 years old and younger

Attitudes toward Substance Use

Students were asked about their perception of harm from using cigarettes, alcohol, or marijuana. The questions were, "How much do you think people risk harming themselves (physically or in other ways) if they smoke one or more packs of cigarettes per day?", "How much do you think people risk harming themselves (physically or in other ways) if they have one or two drinks of alcohol nearly every day?", and "How much do you think people risk harming themselves (physically or in other ways) if they use marijuana regularly?" Response options were no risk, slight risk, moderate risk, and great risk.

A majority of students perceive moderate risk or great risk to using any of the substances regularly (Table 3). Endorsement of perceived risk consistently declined by grade level for marijuana use but not alcohol or cigarette use.

Most high school students reported that their parents think it is wrong or very wrong for them to use any of these substances. Cigarette use received the most widespread endorsement of perceived parental disapproval (93.0%); more than 80% of students reported perceived parental disapproval of drinking alcohol regularly or using marijuana. Endorsement of perceived parental disapproval declined with increasing grade level, most dramatically for alcohol use, with perceived disapproval declining from 91.1% in 9th grade to 74.5% in 12th grade.

Table 3. Perceptions of risk and wrongness of use of cigarettes, alcohol, or marijuana, by sex and grade, Colorado high school students 2013

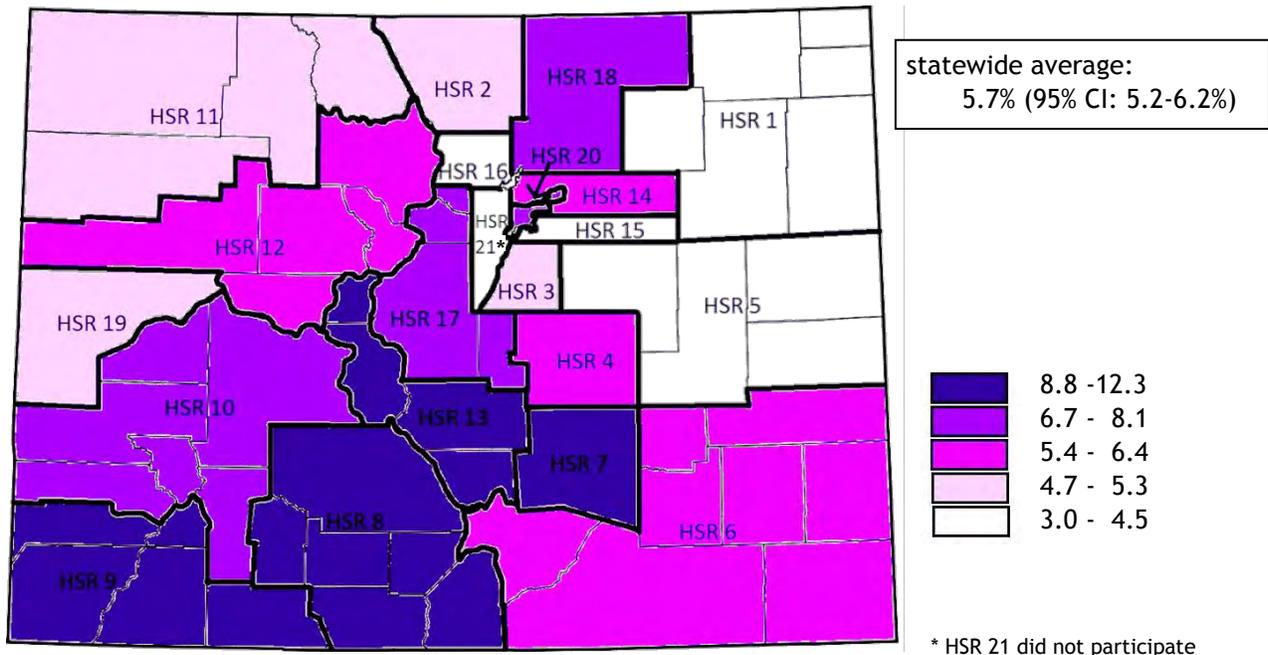
	Percent who perceive moderate or great risk of harm from ...			Percent who believe parents think it is wrong or very wrong to ...		
	smoking a pack or more per day % (95% CI)	drinking one or two drinks a day % (95% CI)	using marijuana regularly % (95% CI)	smoke cigarettes % (95% CI)	drink alcohol regularly (1-2X per month) % (95% CI)	use marijuana % (95% CI)
TOTAL	84.4 (83.1-85.6)	69.9 (68.7-71.0)	54.0 (52.7-55.2)	93.0 (92.4-93.6)	83.7 (82.8-84.7)	86.4 (85.7-87.2)
Grade						
9 th	84.9 (83.1-86.7)	72.2 (70.4-74.0)	63.6 (60.9-66.3)	96.0 (95.3-96.7)	91.1 (90.0-92.2)	91.6 (90.3-92.7)
10 th	83.9 (82.1-86.7)	68.5* (66.7-70.4)	53.5* (51.7-55.4)	93.7* (92.8-94.5)	87.0* (85.7-88.4)	88.6* (87.4-89.7)
11 th	84.9 (82.7-87.1)	69.7 (67.2-72.2)	49.4* (46.9-52.0)	92.7* (91.2-94.2)	81.5* (79.8-83.3)	84.7* (83.2-86.2)
12 th	84.3 (81.9-86.6)	69.2 (67.1-71.3)	48.3* (45.9-50.7)	89.8* (88.4-91.2)	74.5* (71.6-77.3)	80.6* (78.6-82.5)

* Indicates a significant difference compared to 9th grade

Polysubstance Use

Polysubstance use (multiple substance use) is linked to more frequent use of substances¹⁻³ and is associated with mental and physical health problems and other risky behaviors.^{1,4-6} Figure 1 shows regional differences in the proportion of youth who reported using all three substances (alcohol, tobacco, and marijuana) in the past month (see appendix for list of counties in each health statistics regions with regional estimates). Lighter colors indicate estimates below the state average of 5.7% (95% CI: 5.2-6.2), and darker shading indicates point estimates above the state average.

Figure 1. Prevalence (% by quintiles) of current use of tobacco, alcohol and marijuana by Health Statistic Region, Colorado high school students 2013



Polysubstance use ranged among regions from 3.0% (95% CI: 1.2-4.9) in region 1 to 12.3% (95% CI: 10.2-14.3) in region 7. The prevalence of polysubstance use was highest in the southern and southwestern parts of the state.

Risk Behaviors Associated with Polysubstance Use

With increasing numbers of substances used, other risk factors also increase (Table 4). For example, youth who reported recent use of all three substances were nearly five times as likely to have been in a physical fight as compared with those who had recently used one substance. Cross-sectional survey data cannot determine whether one behavior leads to another; there is most likely a bidirectional relationship between substance use and associated risk behaviors.

Table 4. Odds ratio (OR)* of selected risk behaviors with each additional substance used in the past month, compared to no substance use, Colorado high school students 2013

Risk factor	1 substance OR (95% CI)	2 substances OR (95% CI)	3 substances OR (95% CI)
Suicide attempt in past 12 months	2.6 (2.2-3.0)	3.8 (3.1-4.7)	10.3 (8.2-12.8)
Mental health was not good in past 30 days	1.6 (1.4-1.8)	1.8 (1.6-2.1)	2.9 (2.4-3.6)
Physical fight in past 12 months	2.4 (2.1-2.6)	4.1 (3.7-4.5)	10.1 (8.7-11.6)
Bullied at school in past 12 months	1.3 (1.1-1.4)	1.3 (1.2-1.5)	2.2 (1.9-2.6)
Skipped 1+ days of school in past 3 weeks	2.3 (2.1-2.6)	3.8 (3.3-4.4)	8.1 (6.5-10.1)

* Results of polynomial logistic regression. Reference is no substance use. All OR's are statistically significant, $p < .001$.

Current use of alcohol, tobacco, and/or marijuana was strongly related to having ever tried an illicit drug or misused prescription drugs (Table 5).

Table 5. Odds ratio (OR)* of ever having used an illicit drug or misused prescription drugs with each additional substance used in the past month, Colorado high school students 2013

Drug	1 substance OR (95% CI)	2 substances OR (95% CI)	3 substances OR (95% CI)
Cocaine	7.0 (5.1-9.5)	25.5 (19.8-32.8)	115.3 (88.3-150.4)
Sniffed glue	3.3 (2.9-3.8)	5.9 (5.0-6.8)	21.6 (18.1-25.9)
Heroin	6.8 (4.0-11.8)	14.6 (9.3-23.0)	126.9 (78.2-206.0)
Methamphetamine	5.0 (3.1-8.1)	12.9 (8.4-19.8)	90.8 (60.7-136.0)
Ecstasy	8.2 (6.2-10.7)	31.8 (24.5-41.2)	129.9 (97.0-173.8)
Prescription drugs without prescription	3.7 (3.2-4.4)	10.0 (8.6-11.5)	37.5 (31.0-45.3)
Steroids	3.6 (2.4-5.6)	9.5 (6.6-13.8)	49.1 (33.3-72.4)

* results of polynomial logistic regression. Reference is no substance use. All OR's are statistically significant, $p < .001$.

Summary

Current substance use is prevalent among Colorado high school students, with 10.7% smoking cigarettes, 19.7% using marijuana, and 31.0% using alcohol in the past month during 2013. A majority of youth report it is easy or very easy to get any of these substances. A majority also report that these substances present moderate or great risk of harm if used regularly, and a large majority report their

parents disapprove of use. Some youth are currently using two or more substances, and 5.7% are currently using all three substances (tobacco, marijuana, and alcohol). Youth using multiple substances are more likely to be involved in other health risk behaviors and much more likely to have ever tried other illicit drugs or prescription drugs without a prescription.

Acknowledgment

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Appendix

Health Statistic Regions

Proportion of youth with current (past month) use of alcohol, tobacco, and marijuana (polydrug use)

1: Yuma, Washington, Morgan, Logan, Sedgwick, Phillips	3.0	0.0-6.2
2: Larimer	5.1	3.3-6.8
3: Douglas	4.7	3.8-5.6
4: El Paso	5.4	3.3-7.5
5: Elbert, Lincoln, Kit Carson, Cheyenne	4.2	1.2-7.2
6: Crowley, Kiowa, Bent, Prowers, Otero, Huerfano, Las Animas, Baca	6.4	4.9-7.9
7: Pueblo	12.3	10.5-14.0
8: Saguache, Mineral, Rio Grande, Alamosa, Conejos, Costilla	8.8	6.0-11.6
9: Dolores, Montezuma, San Juan, La Plata, Archuleta	8.9	8.5-9.3
10: Montrose, San Miguel, Ouray, Hinsdale, Delta, Gunnison	7.3	5.9-8.6
11: Moffat, Rio Blanco, Routt, Jackson	4.8	2.0-7.5
12: Garfield, Eagle, Pitkin, Summit, Grand	6.1	4.7-7.7
13: Lake, Chaffee, Fremont, Custer	9.7	8.6-10.8
14: Adams	6.1	4.3-8.0
15: Arapahoe	4.3	3.4-5.2
16: Boulder, Broomfield	4.5	3.9-5.1
17: Gilpin, Clear Creek, Park, Teller	8.1	5.7-10.6
18: Weld	7.4	5.8-8.9
19: Mesa	5.3	2.9-7.7
20: Denver	6.7	5.5-7.9
21: Jefferson	No data available	
State estimate	5.7	5.2-6.2



The HKCS is supported by the Colorado Department of Public Health and Environment (CDPHE), Colorado Department of Education (CDE), and Colorado Department of Human Services (CDHS).

The University of Colorado Denver - Anschutz Medical Campus implemented the survey in 2013.