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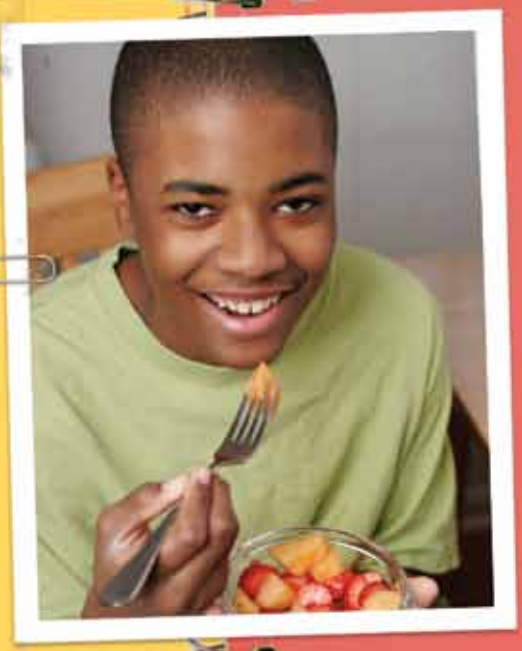
COLORADO CONNECTIONS for Healthy Schools

Healthy Kids Colorado Survey 2009 State Report



Presented by the Colorado Department of Education
And Colorado Connections for Healthy Schools

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF FIGURES

INTRODUCTION AND BACKGROUND

The Healthy Kids Colorado Survey (HKCS) provides a state level picture of the health and well being of Colorado's youth. This survey contains questions about a number of health-related behaviors, as well as the factors known to place students at risk of, and protect them from, the development of serious health and social problems. Since 1991, Colorado state agencies and organizations have collaborated to consolidate survey efforts and to jointly administer the HKCS for the purposes of monitoring progress and informing policies on important adolescent health issues. The primary reason for combining state survey efforts is to minimize the time and resources required of schools to collect student health information. On a biennial basis, the state randomly selects approximately 40 high schools representing urban, suburban, and rural areas of Colorado to administer the HKCS.

In the fall of 2009, the HKCS was administered to 9th-12th graders at randomly selected public schools throughout Colorado. Random sampling allows the state to gather data from a sample of students that are representative of all Colorado public high school students. However, the participation of nearly all selected schools and classrooms is necessary in order to obtain this representative sample. Since the survey only takes place every other year, the burden on schools is minimal, requiring only one 45 minute class period in six to eight classrooms. The HKCS is the only state health survey endorsed by the Colorado Department of Education and is administered to approximately 3,000 students every other year. Its success is reliant on the willingness of schools and districts to work with the state on the basis that "healthy kids really do learn better."

The 2009 HKCS was composed of two modules. Module I was the Youth Risk Behavior Survey (YRBS). The YRBS is one component of the national Youth Risk Behavior Surveillance System (YRBSS), which was developed in 1990 by the United States Centers for Disease Control and Prevention (CDC) to monitor priority health risk behaviors that contribute markedly to the leading causes of death, disability, and social problems among youth in the United States.

This surveillance system:

- Determines the prevalence of health risk behaviors
- Assesses changes in health risk behaviors over time
- Examines the co-occurrence of health risk behaviors
- Provides comparable national, state, and local data
- Provides comparable data among subpopulations of youth
- Monitors progress toward achieving the Healthy People 2010 objectives and other program indicators.[1]

As a part of this system, the YRBS measures the following major categories of behavior:

- Personal safety, unintentional injuries, and violence
- Alcohol, tobacco, and other substance use
- Sexual behaviors
- Mental health
- Physical activity, nutrition, and health

The Colorado State Supplement is referred to as HKCS Module II. Module II is administered in conjunction with Module I, and contains supplemental items based on the "risk and protective factor" framework that was developed by the Social Development Research Group.[2] Additional items were selected and approved by the Colorado State Departments of Education, Public Health and Environment, Human Services (Division of

[1]Centers for Disease Control and Prevention, Healthy Youth. (n.d.). *Youth Risk Behavior Surveillance System*. (n.d.). Retrieved from http://www.cdc.gov/HealthyYouth/yrbs/pdf/system_overview_yrbs.pdf.

[2]Arthur, M.W., Hawkins, J.D., Pollard, J.A., Catalano, R.F., & Baglioni, A. J. (2002). Measuring risk and protective factors for substance use, delinquency, and other adolescent problem behaviors: The Communities That Care Survey. *Evaluation Review, 26,* 575-601.

Behavioral Health, formerly Alcohol and Drug Abuse Division), and Public Safety (Division of Criminal Justice, Office of Adult and Juvenile Justice Assistance).

In addition to the state level administration of HKCS Modules I and II, the Healthy Kids Colorado Survey is

also available for local communities, and local survey administration is offered every fall. The local survey instrument is a modified version of Modules I and II and contains key items from each of the state modules. Schools, districts, and community coalitions may choose to survey, and contract directly with OMNI Institute for administration and reporting. Many schools choose to administer the survey to receive a school or district level report in order to monitor important health behaviors at the local level. In the 2009-2010 school year, a total of 39,523 students in 152 schools chose to participate in the local HKCS survey and were provided with reports from OMNI Institute.

The HKCS provides important opportunities for school districts to obtain important surveillance data at both state and local levels. Collectively, these data help schools assess needs and develop school and district health policies. Survey results may also be used to develop legislation or to support grant writing efforts providing districts with more resources to expand healthy schools. Furthermore, the state level data provides an important comparison point for local school districts to understand how they compare against the state as a whole in risk and protective factors and health behaviors. These comparisons allow schools to use data driven decision making to track their success as well as adjust local priorities when needed.

This report highlights the results of the 2009 HKCS Module I (safety, injury and violence, tobacco, alcohol and other substance use, sexual behaviors, and mental and physical health) and HKCS Module II (risk and protective factors), separately. While a majority of schools that administered Module I also administered Module II, the difference in the number of participating schools and students in these two modules was such that only Module I had a high enough response rate that data could be weighted to reflect a representative, statewide sample. While Module II achieved a large sample, it did not meet the threshold for overall response rate set by the CDC and therefore could not be weighted to represent all Colorado public high school students. Therefore, results from these two samples are presented separately in this report.

Preceding these findings, the report provides an explanation of terms and information about survey participation and demographics. In the first section of the results, the weighted 2009 HKCS Module I data are presented and compared to 2005 HKCS data.[3] Following the comparison with 2005 data, a discussion of any significant differences or similarities with the 2009 national data is included to better understand how Colorado youth compare to the nation in health behaviors. This is followed by a presentation of statistically significant differences between different demographic subpopulations within the state (e.g., gender and race/ethnicity). In addition, statistically significant associations or relationships between selected behaviors measured by Module I also are presented. In the final section of the report, the 2009 HKCS Module II data are presented by risk and protective factor domain: community, school, family, and peer- individual. Comparisons to 2005 state data are not provided, given a representative sample was not achieved in 2009. Also, national comparison data for the State Supplement Survey are not available. Details describing Module I and II survey administration and data analysis can be found in the Appendices.

This report contains a number of key terms related to data analyses and reporting that are described on the following pages.

[3]The HKCS was also administered in 2007; however, a high enough level of participation was not reached to allow for data to be weighted, and is only representative of students who participated in the survey. Therefore, results from the 2007 administration are not presented as a comparison point in this report. The 2005 administration is the only other year that has weighted data available.

Explanation of Terms

The dataset used to report results of the HKCS Module I survey includes **weighted data**. Weighted data analysis is a method by which raw survey data (e.g., collected from Colorado students at selected public high schools) are adjusted to represent the population from which the sample is drawn (e.g., all Colorado public high school students). Adjustments are made according to key demographic characteristics (e.g., ethnicity, sex, and grade), such that participants' responses are weighted with ratios that result in alignment with the demographic characteristics of the larger population that they represent. Weighting data in this way increases the likelihood that the results are generalizable to, and can be considered representative of, the larger population.

In order to weight data so that the results are valid, there needs to be an adequately high survey response rate. For the YRBS, the CDC set the response rate at a minimum of 60%. Therefore, for both modules, an overall response rate of 60% was required in order to weight the data. The overall response rate is calculated by multiplying school participation (the actual number of schools that participated out of the total number that were selected to participate) by student participation (the actual number of students that participated out of the total number of students in selected classrooms).

Colorado achieved an overall participation rate above 60% for Module 1 in 2009, yielding a response rate that was high enough to weight the data. However, the HKCS Module II response rate was not high enough to allow data to be weighted. **Therefore, the results reported in the Module II section of the report represent un-weighted data and can only be generalized to the survey respondents, not Colorado high school students statewide.**

Throughout this report, results from different statistical tests are presented to test for significant differences over time and between groups. All of these analyses test whether differences across compared values are statistically significant. **Statistical significance** simply means that an observed difference is probably not a chance occurrence. That is, for a given item, if one group has a rate of 65.0% and a second group has a rate of 68.0%, this difference of three percentage points could be real or it could simply be an artifact of error in the data. For this reason, researchers report **p-values** or **probability values** along with their results. These values reflect how confident we can be that an observed difference is real and not due to chance error. By convention, researchers use a probability value of .05 or 5%. This means that we are willing to accept a 5% probability or chance (p=.05) that an observed difference is not real. Importantly, if a generated p-value is greater than .05, researchers tend to accept the possibility that the difference could have been due to chance, and therefore do not deem the difference to be statistically significant. Throughout this report, statistical significance is noted when p-values are less than .05 (i.e., less likely to be due to chance or error in the data). In addition, **95% confidence intervals**, indicated by the bracketed lines in each bar in the graphs, are included. The values represent the upper and lower limits of what one could confidently expect to be the true percentage values in the population. That is, if the survey was administered to 100 samples of youth, one would expect that 95% of the time, or 95 samples, would fall between the upper and lower confidence interval values.

A frequently overlooked issue has to do with whether a difference is **meaningful** beyond being simply statistically significant. That is, a difference can be **statistically significant** (is determined to be a real difference) but be so small that it is of little **practical significance**. For example, if there is a statistically significant increase in a reported behavior, but that behavior is only reported by 2% of the total population, addressing that behavior may be less important than

addressing a non-significant change in a behavior that is reported by 60% of the population. Therefore, we first assess whether a difference is statistically significant and, if so, examine how large the difference is to decide whether it reflects a meaningful divergence between groups.

Statistical significance can be tested using different types of analyses. In this report **logistic regression** analysis was used to test for change over time to determine if a difference in the prevalence of a given behavior in 2009 was statistically different from that same behavior in 2005 (for example, if the prevalence of smoking in 2005 was different than the prevalence in 2009). The regression models control for other variables, such as sex, race/ethnicity, and age in the population, making it sensitive to detecting a statistical difference. All regression results were provided by the CDC. To test for differences between reported behaviors in Colorado and those reported nationally, an **independent-samples t-test** was used. This test compares the mean, or average, value of the respondents of one group (Colorado sample) to the mean value of respondents from another group (national sample) for a given item to see if the mean values are significantly different. All t-test analyses were also provided by the CDC, and are available online.[4]

Chi-square tests, in contrast, compare frequencies, or proportions, of variables that are classified into dichotomous categories (e.g., yes/no responses, female vs. male gender) and test for differences between observed frequencies and expected frequencies based on the population as a whole. For example, a chi-square can be used to evaluate whether rates of reported depression differ by gender. The percentages of individuals' reports of depression (those meeting criteria vs. those who do not) by gender (male vs. female) can be displayed in a two-by-two table; chi-squares test whether the percentages of individuals falling in each box of the table are significantly different. In this report, chi-square analyses are presented to test for differences in reported behaviors between males and females, between select race/ethnicities, as well as to test for statistical associations between select behaviors.[5] It is important to note that these analyses cannot tell if a relationship between variables is causal; only if two variables are associated. For example, if chi-square results indicate that there is a relationship between watching three hours of television a day and eating vegetables, this does not mean that watching TV caused students to eat more vegetables, just that students who report frequent TV watching were also more likely to report eating vegetables.

[4]Prevalence rates and results from statistical tests of YRBS data are provided on the CDC website: http://www.cdc.gov/HealthyYouth/yrbs/index.htm.

[5]Chi-square analyses were conducted by OMNI Institute and values may vary by a small percentage (i.e., 0.1%) from values obtained from the CDC due to slight differences in the methods used to test statistical significance.

Colorado and National Survey Participation

Healthy Kids Colorado Survey Participation

In the fall of 2009, 1,511 Colorado students from 36 out of the 38 total schools randomly selected to participate, completed the HKCS Module I, and 1,384 students from 33 out of the 38 schools participated in the HKCS Module II.

HKCS Survey Module	2005		2009	
	N	Weighted	N	Weighted
Module I (YRBS)	1,498	Yes	1,511	Yes
Module II (Colorado supplement)	1,466	Yes	1,384	No

The number of students who completed HKCS Module I was similar in 2005 and 2009. The biggest difference between the 2005 and 2009 survey years was the reduction in the number of students who completed Module II. As noted earlier, participation rates at both the school and student levels impact the overall response rate. Although the difference in student participation seems small, the fact that fewer schools opted to participate in Module II, and that fewer students overall participated in this module, resulted in a response rate too low to meet the threshold to reliably weight the data.

National Youth Risk Behavior Survey Participation

In addition to the Colorado administration of the HKCS (including the Module I YRBS and the Module II state supplement), the YRBS was also conducted nationally in 2009 in 42 different states and 20 large urban school districts. Over 16,000 students participated in the national survey, allowing the national data to be weighted and considered representative of all high school students in the U.S. These data provide a useful comparison to the 2009 Colorado data and help illuminate how Colorado students compare to their national peers in many health related behaviors. Module II, or the Colorado State Supplement, is not administered on a national level, and therefore a national comparison is not available.

	2005		2009	
	N	Weighted	N	Weighted
National YRBS	13,917	Yes	16,410	Yes

HEALTHY KIDS COLORADO SURVEY: MODULE I RESULTS

Module I of the HKCS is the state YRBS and is administered to a sample of schools selected by the CDC. The module measures the prevalence of health risk behaviors that contribute markedly to the leading causes of death, disability, and social problems among youth and adults in the United States, including:

- Personal safety, unintentional injuries, and violence
- Alcohol, tobacco, and other substance use
- Sexual behaviors
- Mental health
- Physical activity, nutrition, and health

A total of 1,511 students from 36 public high schools completed the HKCS Module I survey, achieving an overall response rate of 62% allowing the data to be reliably weighted. This means that Module I results can be generalized to the underlying population, or all public high school students in Colorado. Given that results are weighted, findings for 2009 are able to be compared to the 2005 HKCS Module I, which also achieved weighted data. Results from the 2007 Module I survey did not achieve high enough participation to weight the data, and are therefore not presented as a comparison in this report.

In the following sections, demographic information on the Colorado Module I weighted sample is presented, followed by the 2009 results. Comparisons to 2005 Colorado data as well as the 2009 national sample are presented for select indicators. Additionally, differences in 2009 Colorado student sub-populations by gender (male and female) and by race/ethnicity (Non-Hispanic White and Hispanic/Latino). Finally, statistical associations between select behaviors are presented across Module I behavior domains.

Demographics

Module I results were weighted to be reflective of the statewide enrollment in Colorado public high schools. This yielded a weighted sample that reflected slightly more males than females, a majority of White students (with a sizeable proportion of Hispanic/Latino students), and somewhat more students from junior grades (i.e., 9th and 10th grade) than senior grades. The demographics of Colorado's enrolled student population and the distribution within the sample are examined further below.

The almost even gender distribution of survey respondents (see table below) mirrors the gender distribution of both the overall Colorado school enrollment as well as the 2005 sample. In Colorado, the gender distribution for all public high school students for the 2009 school year was 51.1% male and 48.9% female, very similar to the gender distribution for the weighted 2009 sample.

Participation by Gender

Sex	2005 HKCS Module I Colorado		2009 HKCS Module I Colorado	
	N	Weighted %	N	Weighted %
Male	786	50.9	721	51.3
Female	700	49.1	784	48.7
Missing	12	N/A	6	N/A
Total	1498	100.0	1511	100.0

Statewide, a majority of students identified as White (66.3%) and nearly one-quarter (23.1%) identified as Hispanic/Latino. The 2005 and 2009 weighted data also resulted in a majority (about two-thirds) of students who were White, with Hispanic/Latino students comprising about one-quarter of the sample.

Participation by Race/Ethnicity

Race/ Ethnicity	2005 HKCS Module I		2009 HKCS Module I	
	N	Weighted %	N	Weighted %
White*	1004	68.3	912	66.2
Hispanic/ Latino	308	23.2	189	23.1
Black*	49	5.8	74	6.1
All Other Races*†	81	1.8	79	2.6
Multi-Racial/ Ethnic^	49	1.0	244	2.0
Missing	7	N/A	13	N/A
Total	1498	100.0	1511	100.0

*Not Hispanic;
†Racial/ethnic categories with fewer than 50 respondents including Asian, Native Hawaiian/Pacific Islander and American Indian/Alaska Native;
^Individuals who identified as more than one race or ethnicity.

The number of participating Hispanic/Latino students was large enough to permit statistical comparisons to non-Hispanic White students on self-reported health behaviors. Where statistically significant differences between these two subgroups are observable, this is noted throughout this section on Module I results. However, the number of participants from other racial/ethnic categories was too low (below 100) to facilitate generalizable comparisons.

The grade-level distribution within the sample was skewed somewhat by grade, as there were more 9th grade respondents than any other grade, and the percentage of respondents decreased as grade level increased. This is reflective of statewide public school enrollment, which has a 9th, 10th, 11th, and 12th grade-level distribution of 27.8%, 25.5%, 24.2%, and 22.7%, respectively. Additionally, the overall representation of 9th–12th graders was similar across the two administrations in 2005 and 2009.

Participation by Grade Level

Grade Level	2005 HKCS Module 1 Colorado		2009 HKCS Module I Colorado	
	N	Weighted %	N	Weighted %
9th	521	28.5	452	27.5
10th	479	25.5	381	25.5
11th	303	23.6	406	24.1
12th	183	22.4	264	22.7
Missing*	12	N/A	8	N/A
Total	1498	100.0	1511	100.0

*The Missing category represents students who did not indicate a grade level.

Prevalence Rates

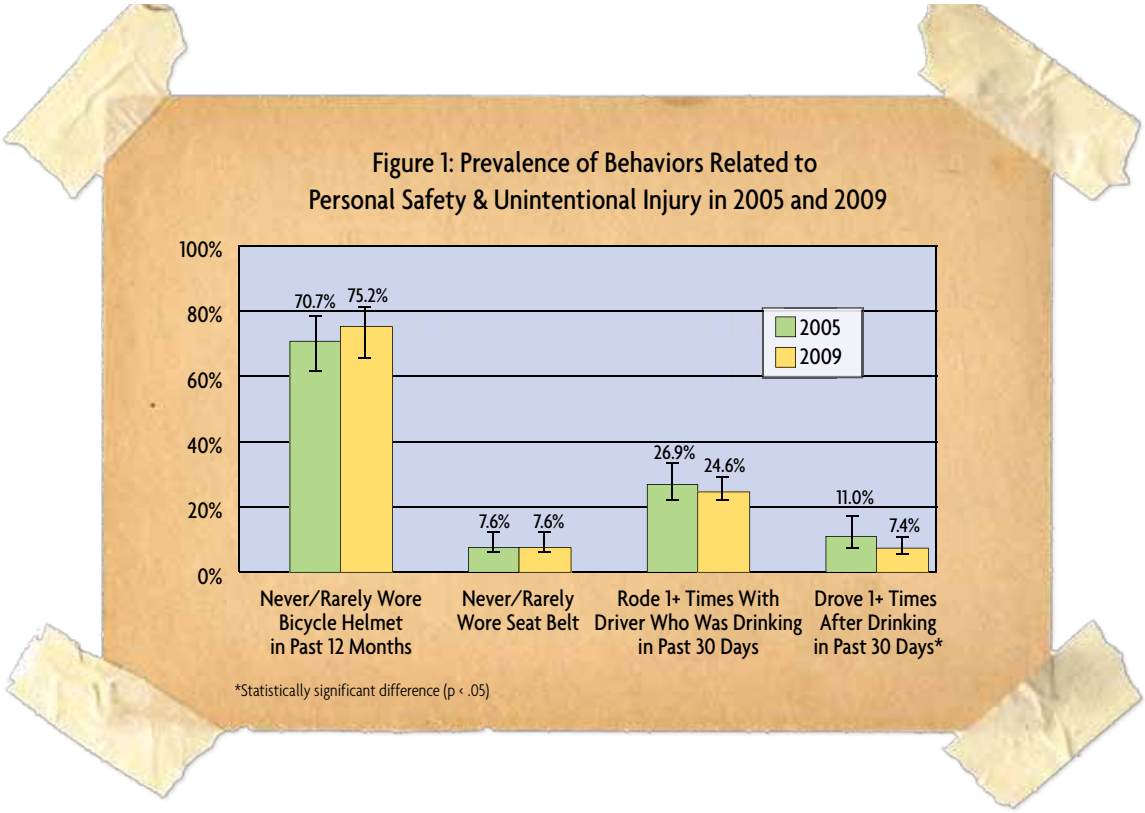
This section of the report displays prevalence rates, or the proportion of students who reported a given behavior, for each of the major behavior domains measured by Module 1.[6]

Personal Safety, Unintentional Injuries, and Violence

Figure 1 displays the percentages of Colorado students in 2005 and 2009 who reported engaging in unsafe behaviors. Unsafe behaviors, such as riding a bicycle without a helmet or riding in a car without a seatbelt, put youth at risk of unintentional injury, a leading cause of death among Colorado youth and adults. Of the students who rode a bicycle in the 12 months prior to the survey, nearly three-quarters of youth in both years reported rarely or never wearing a bicycle helmet. In contrast, less than 10% of students stated that they rarely or never wore a seat belt across both administration years. Colorado students were statistically more likely to report wearing a bicycle helmet compared to the national sample of students; however, there was no significant difference between these two groups in reported seat belt use.

Another major cause of unintentional injury and death among Colorado youth is driving after drinking and riding with another individual who drove after drinking alcohol. In both administration years, results indicate that students were more than twice as likely to ride with someone who had been drinking than to drive themselves after drinking alcohol. Further, Colorado students were significantly less likely to report driving after drinking in 2009 compared to 2005. Additionally, Colorado students were significantly less likely to both ride with a driver who had been drinking as well as drive after drinking compared to the national sample of students.

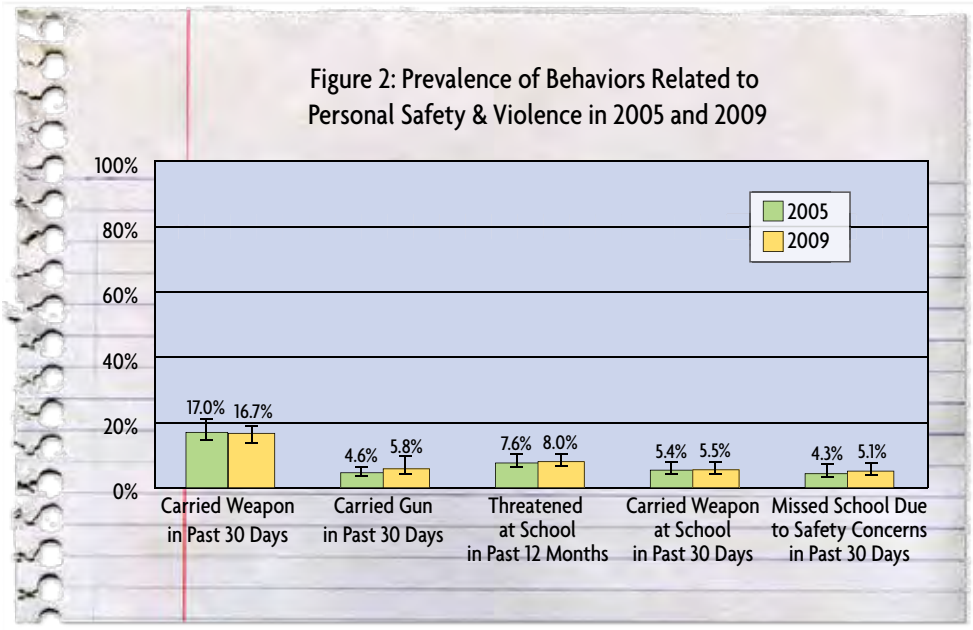
[6]Prevalence estimates for the national YRBS data can be accessed at http://www.cdc.gov/mmwr/pdf/ss/ss5905.pdf.



Module I also includes questions about a number of violence-related behaviors, both on and off school property, including weapon possession and associated threats and injuries, physical fighting and bullying, as well as partner violence and forced sexual intercourse, among other related behaviors.

There were no statistically significant differences for behaviors related to carrying a weapon (including a gun, knife, club, or other weapon) on or off school property from 2005 to 2009. Overall, similar percentages of students reported carrying a weapon in both years, while a smaller percentage specifically reported carrying a gun. Approximately 8% of students reported that they had been threatened or injured with a weapon on school property in the 12 months prior to the survey, and approximately 5% of students reported carrying a weapon on school property in the 30 days prior to the survey. As shown in Figure 2, approximately 5% of Colorado students reported missing school in the 30 days prior to the survey due to safety concerns in both 2005 and 2009.

Colorado's prevalence rates on these items were not significantly different from the nation.



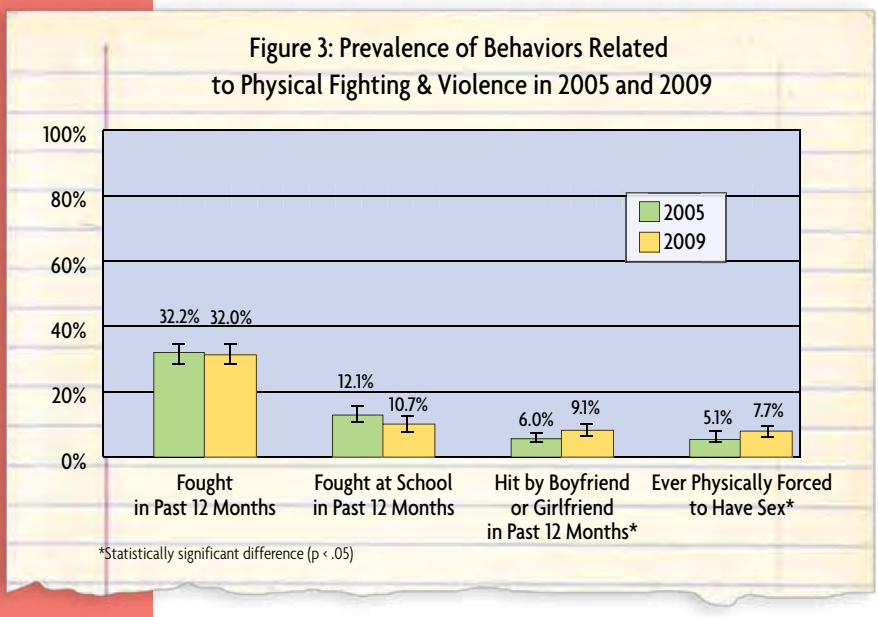


Figure 3 displays information regarding physical violence. Nearly one-third of students reported engaging in a physical fight in the 12 months prior to taking the survey. However, fewer students reported fighting at school. In addition to physical fighting, close to one-fifth (18.8%) of students reported that they had been bullied on school property in the past year.[7]

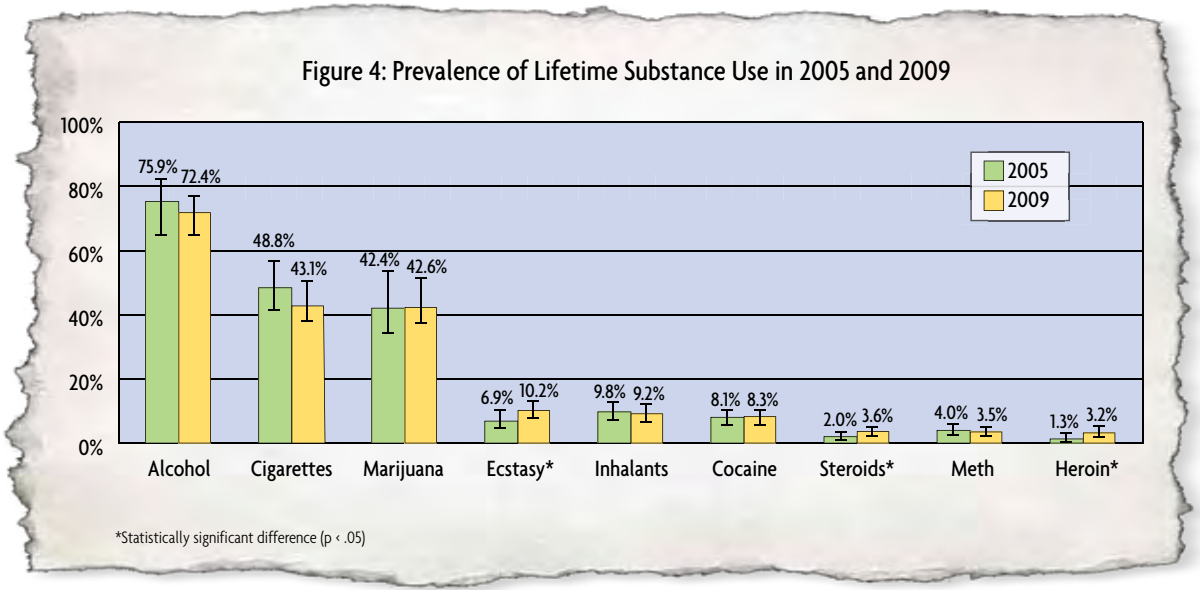
Colorado's 2009 prevalence rates were not significantly different from the rest of the nation in regards to weapon possession, fighting, bullying, inter-partner violence, or forced sex. However, Module I results indicated that Colorado students were more likely to report having experienced relationship violence (i.e., being hit by a boyfriend or a girlfriend) in 2009 compared to 2005. In addition, the prevalence rate of forced sex followed a similar trend, with a significantly higher prevalence in 2009 compared to 2005.

Tobacco, Alcohol, and Other Substance Use

Students were asked to report how many times they have used various illicit substances in their lifetime (ever used) as well as in the 30 days prior to the survey (current use).

Figure 4 shows prevalence of lifetime substance use among Colorado youth in 2005 and 2009. In 2005 and 2009, Colorado youth were more likely to report trying alcohol, cigarettes, or marijuana than any other substance. At a much lower rate, Colorado youth also reported use of ecstasy, inhalants, cocaine, non-prescription steroids, methamphetamine, and heroin at least once in their lifetime. Reported lifetime substance use remained the same between 2005 and 2009 for most substances with three exceptions: students were more likely to report lifetime heroin, ecstasy, and steroid use in 2009 compared to 2005. Although these results were statistically different, it is important to note that a relatively small percentage of students overall reported lifetime use for these substances, compared to a much larger percentage of students who report use of alcohol, tobacco, and marijuana.

Similar prevalence was reported for youth nationally. There were no differences between Colorado students and the rest of the nation, with the exception of ecstasy. In 2009, Colorado students were significantly more likely to report using ecstasy at least one time in their life than students nationally.



[7]Bullying was a new question added to the survey instrument in 2009, therefore comparable data is not available for prior years.

In addition to lifetime use, students were asked to report current use (30 days prior to the survey) for a subset of substances including alcohol, cigarettes and other tobacco products, marijuana, and cocaine. Additionally, more detailed questions related to age of first use, frequency of use, and access were asked for select substances.

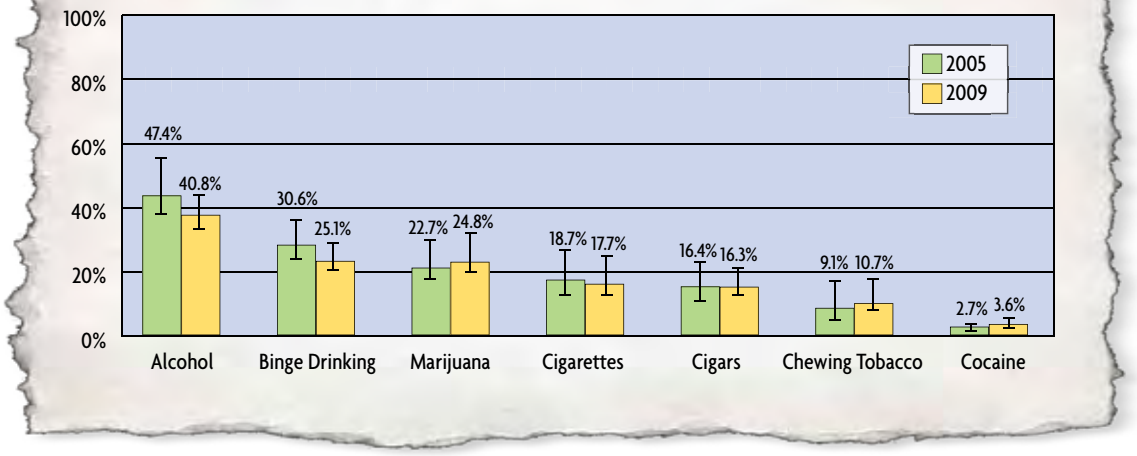
Figure 5 illustrates the percentage of youth who reported current use for these substances in 2005 and 2009. Overall, percentages remained relatively stable with no significant differences between years. Similar to lifetime use, the most common substances that students reported using in the 30 days prior to the survey were alcohol, marijuana, and cigarettes. Nationally, students exhibited similar rates of substance use. There were no differences in 30 day use for any reported substances between students in Colorado and the rest of the nation.

Students were asked additional questions related to age of first use, access to substances, and frequency of use for cigarettes and alcohol. Related to cigarettes, approximately 10% (8.8% in 2009, 12.3% in 2005) reported smoking a whole cigarette before age 13. Additionally, of those that reported ever smoking, over half (53.2% in 2009, 51.8% in 2005) reported that they had tried to quit smoking in the past year. In 2009, the majority of students reported that they obtained cigarettes through someone else buying them (29.2%), followed by borrowing/bumming (25.4%), or buying them in a store or gas station (22.2%).

Students were statistically less likely to report drinking alcohol for the first time before age 13 in 2009 (22.4%) compared to 2005 (27.1%). In 2009, the majority of students who reported current alcohol use reported that they accessed alcohol by someone giving it to them (41.4%), followed by some other way (unspecified, 24.1%), giving someone money to buy it for them (19.3%), or taking it from a store or family member (10.6%). Notably, one-quarter of students reported binge drinking, or having five or more drinks in a row within a couple of hours, in the 30 days prior to the survey.

Finally, over one-fifth (22.7% in 2009, 21.2% in 2005) of students reported that they had been offered, sold, or given an illegal drug by someone on school property in the 12 months prior to the survey.

Figure 5: Prevalence of Past 30 Day Substance Use in 2005 and 2009

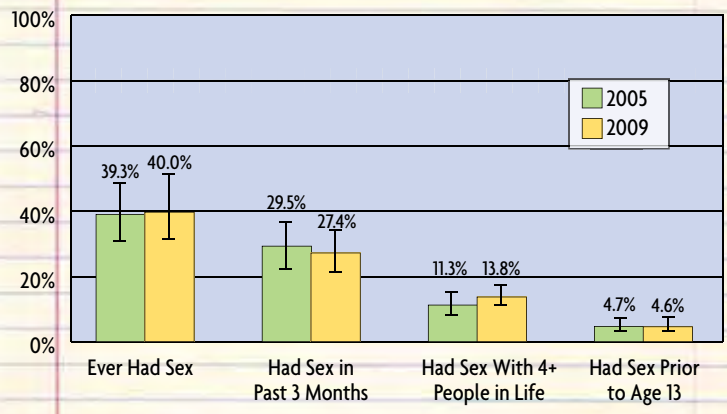


Sexual Behaviors

Students were asked about a variety of sexual behaviors including lifetime sexual activity, age of first sexual intercourse, number of lifetime partners, number of recent partners, sexually transmitted disease prevention and contraception, and substance use prior to the most recent sexual encounter. Results indicated that there were not any significant changes in the prevalence of reported sexual activity in 2009 compared to 2005.

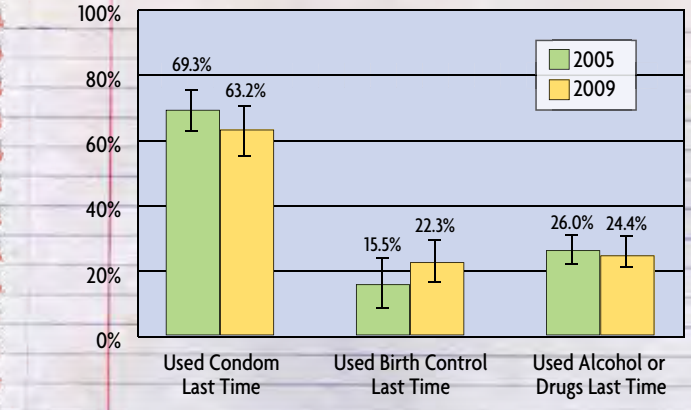
In Colorado, 40% of high school students reported lifetime sexual activity, or having sex at least once in their life, while close to 30% reported current sexual activity, or having sex with at least one person in the three months prior to the survey. When compared to the nation, Colorado students were statistically less likely to report having sexual intercourse during the three months prior to participating in the survey. There were no differences for lifetime sexual activity, number of partners, or having had sex before age 13 when compared with the national sample. In Colorado, less than 15% of students reported having sex with four or more people in their life, and less than 5% reported having sex before age 13.

Figure 6: Prevalence of Sexual Behaviors in 2005 and 2009



Among the 27.4% of students who reported that they were currently sexually active (i.e. reported having sex within the past three months) in 2009, close to two-thirds of these students reported using a condom during their last sexual encounter and slightly over one-fifth reported using a birth control pill to prevent pregnancy. Close to one-quarter of students that were sexually active reported using alcohol or other drugs prior to their last sexual encounter. Prevalence of these behaviors was not statistically different compared to 2005 or compared to the national sample of students.

Figure 7: Prevalence of Contraception and Substance Use Among Sexually Active Students in 2005 and 2009



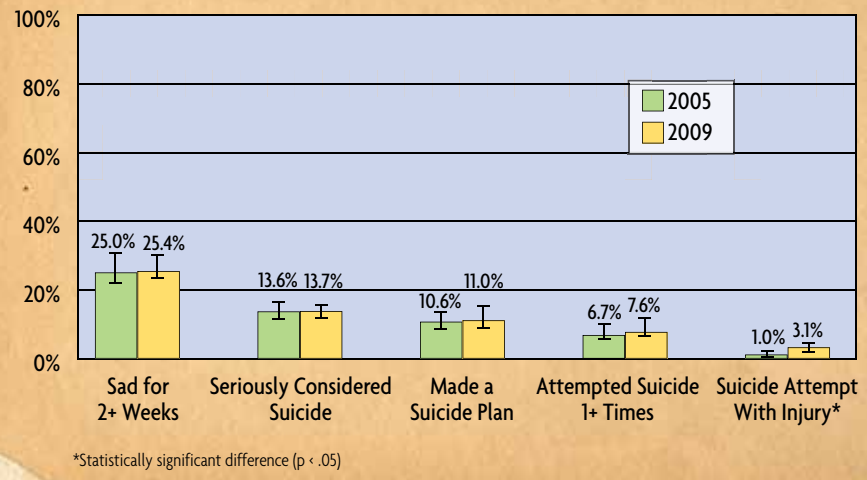
In addition to sexual behavior, students were also asked whether or not they received HIV and AIDS education in school. In 2009, 81.9% of students reported receiving HIV/AIDS education in school. This was not significantly different from 2005 (84.9%); however, it was statistically lower than the rest of the country (87.0%). This means that students in Colorado were significantly less likely to receive HIV/AIDS education in school compared to their national counterparts.

Mental Health

The questions on the HKCS Module I survey that pertain to mental health measure sadness, suicidal ideation (serious contemplation of suicide), attempted suicide, and the severity of those attempts. Overall, reported rates of depressive symptoms (sadness), suicidal ideation, and suicide attempts remained stable from 2005 to 2009. One-quarter of students reported feeling depressed in the 12 months prior to the survey in both 2005 and 2009, and approximately 14% reported that they seriously considered suicide in both years.[8]

There were no significant differences in the percentages of students who considered suicide, made a plan to commit suicide, or attempted suicide. However, students were more likely to report sustaining an injury as a result of a suicide attempt in 2009 compared to 2005. While this is a statistically significant difference, it should be noted that the percentage of students experiencing injuries from a suicide attempt is still very low. When compared to national data, Colorado students were significantly more likely to sustain an injury due to attempting suicide, but were not significantly different on any of the other mental health questions.

Figure 8: Prevalence of Depression and Suicide Risk in 2005 and 2009

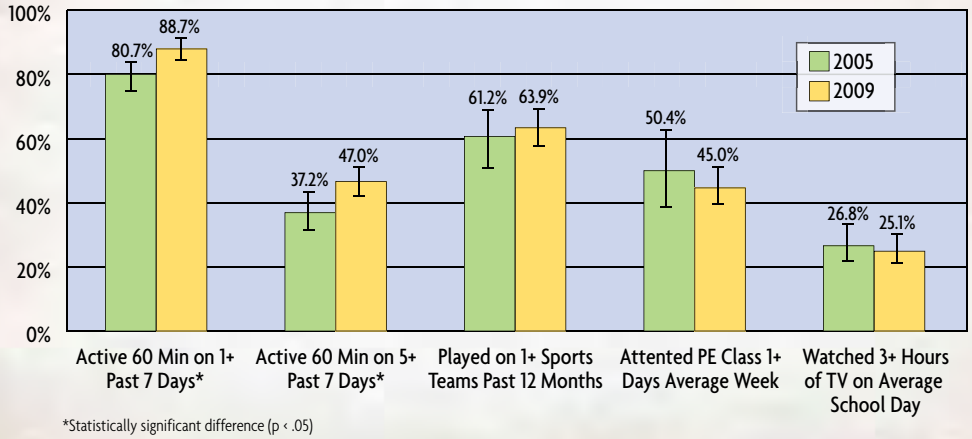


*Statistically significant difference ($p < .05$)

Physical Activity, Nutrition, and Health

Students were asked about a variety of health behaviors including questions that measure physical activity, participation in physical education (PE) classes and sports teams, as well as watching television, and video game/computer use. Module I also asks students about weight control behaviors, including exercising or eating less to lose weight, as well as unhealthy weight loss behaviors such as fasting, taking diet pills or laxatives, or inducing vomiting. Other Module I questions measure dietary behaviors including the consumption of fruits and vegetables, soda, and milk.

Figure 9: Prevalence of Behaviors Related to Physical Activity in 2005 and 2009



*Statistically significant difference ($p < .05$)

[8]Depression is defined as feelings of sadness or hopelessness for two or more weeks in the past 12 months.

Close to 90% of Colorado students reported participating in some physical activity (at least 60 minutes for one or more of the past 7 days) in the week prior to the survey and over 60% reported playing on a sports team in the past year. In 2009, students were significantly more likely to report being active compared to 2005. This was true for any activity (60 minutes for at least 1 day out of the past 7 days), for moderate activity (60 minutes on 5+ days of the past 7 days), and heavy activity (60 minutes on 7 of the past 7 days; 26.9% in 2009, 16.5% in 2005). In addition, the percentage of students who watched three or more hours of television during an average day was slightly lower in 2009 than 2005, although the difference was not statistically significant. In 2009, a total of 18.4% of Colorado students reported playing video or computer games for 3 or more hours on an average school day.[9]

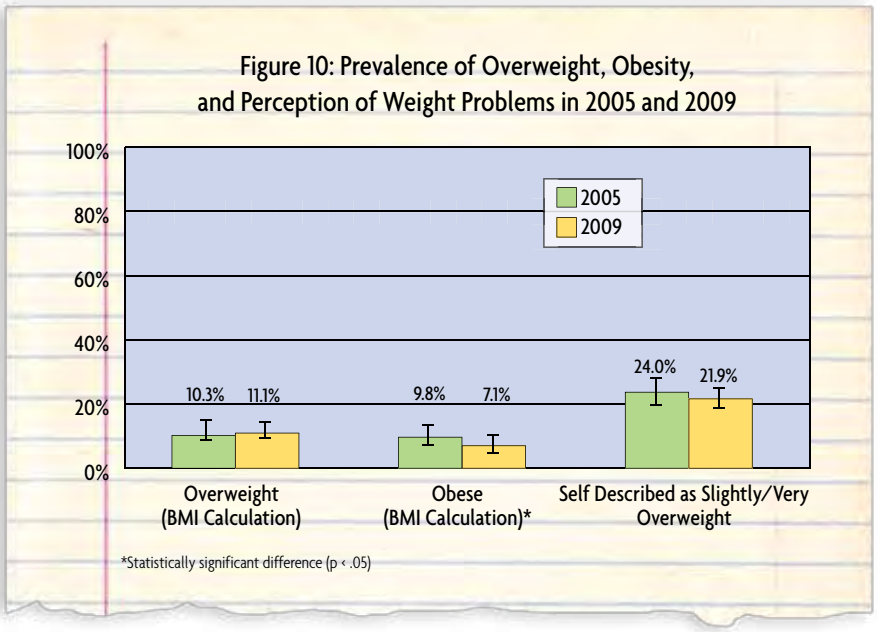
Compared to the nation, Colorado students were statistically more likely to be physically active for any activity, moderate activity, and heavy activity. Additionally, students in Colorado were less likely to report watching TV for three or more hours on an average school day or playing video or computer games for three or more hours on an average school day.

The relationship between students' participation in physical education (PE) classes and these positive changes in physical activity levels, however, is ambiguous. Less than half of students in 2009 reported attending PE one or more times in an average week, and one-fifth (20.7%) reported attending daily. Compared to the national sample, Colorado students were less likely to attend PE classes both daily and in an average week.

Figure 10 shows comparisons of students' current weight classifications. Based on the Body Mass Index (BMI), slightly less than 20% of students were classified as either overweight or obese in 2009.[10] A slightly higher percentage of students reported viewing themselves as slightly or very overweight, compared to the combined percentage indicated by BMI scores. Although there was not a significant difference in the prevalence of overweight in 2009 compared to 2005, students were less likely to be obese in 2009 compared to 2005.

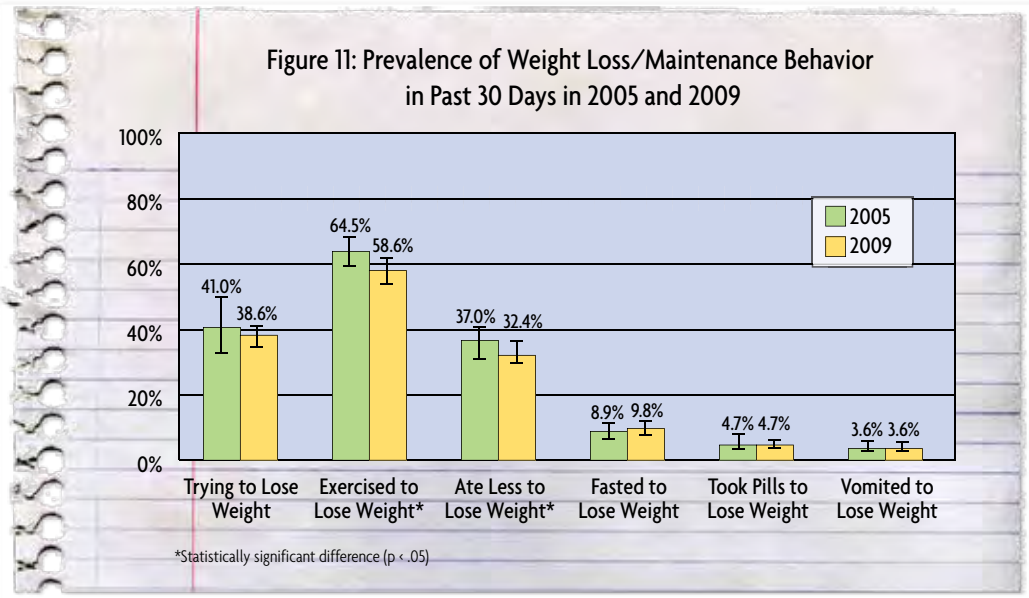
Colorado students were statistically less likely to be overweight or obese based on the BMI compared to the nation (15.8% overweight and 12.0% obese nationally). Additionally, Colorado students also were less likely to perceive themselves as overweight or obese than are students in the rest of the nation (27.7%).

In 2009, 38.6% of Colorado high school students reported that they were currently trying to lose weight. Students were asked to report on a number of healthy



[9]Computer/video game use was a new question added to the survey instrument in 2009, therefore comparable data is not available for prior years.

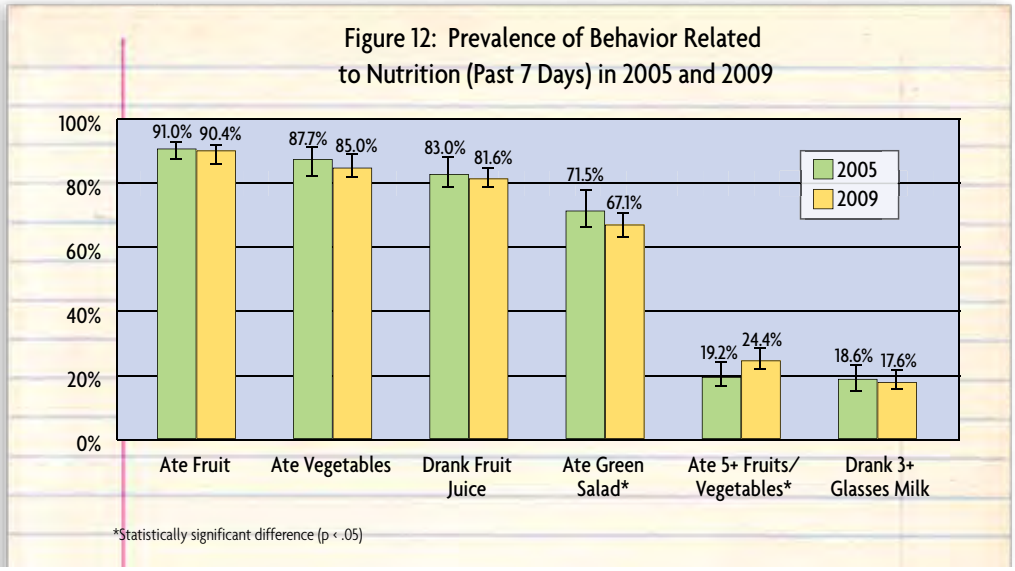
[10]BMI is calculated based on students' self-reported height and weight. For the purposes of this report, overweight refers to students in the 85th-95th percentile for BMI and obese refers to students above the 95th percentile. BMI calculations control for age, race and gender.



and unhealthy behaviors that they engaged in to lose weight or to keep from gaining weight.[11] Overall, rates remained stable for students engaging in unhealthy weight loss behavior such as fasting, taking diet pills, or inducing vomiting. Yet, students were significantly less likely to report that they exercised more or ate less to lose weight in 2009 compared to 2005. Moreover, Colorado students were significantly less likely than their national peers to restrict calories in an attempt to lose weight.

The HKCS also asked students about a variety of dietary habits to assess students' general nutrition. Overall, a vast majority of students report eating fruit, vegetables, and drinking fruit juice in the seven days prior to the survey. There was no change in the prevalence of students who reported that they drank fruit juice, ate fruit, potatoes, carrots, or vegetables in general, or drank three or more glasses of milk in the week prior to taking the survey for 2009 compared to 2005. In 2009, one-quarter (24.6%) of students reported drinking soda at least one time per day.[12]

There were two significant findings related to nutrition. Students were less likely to report eating a green salad in 2009 compared to 2005, although Colorado students remain more likely to eat green salad than students nationally. Further, students were more likely to report eating fruits or vegetables five or more times per day during the past seven days in 2009 compared to 2005. Colorado students exceed peers nationally in the reported consumption of potatoes and carrots (in addition to green salad), as well as in eating three or more vegetables per day; there was no difference between these groups in eating other fruits and vegetables or in drinking milk or soda.

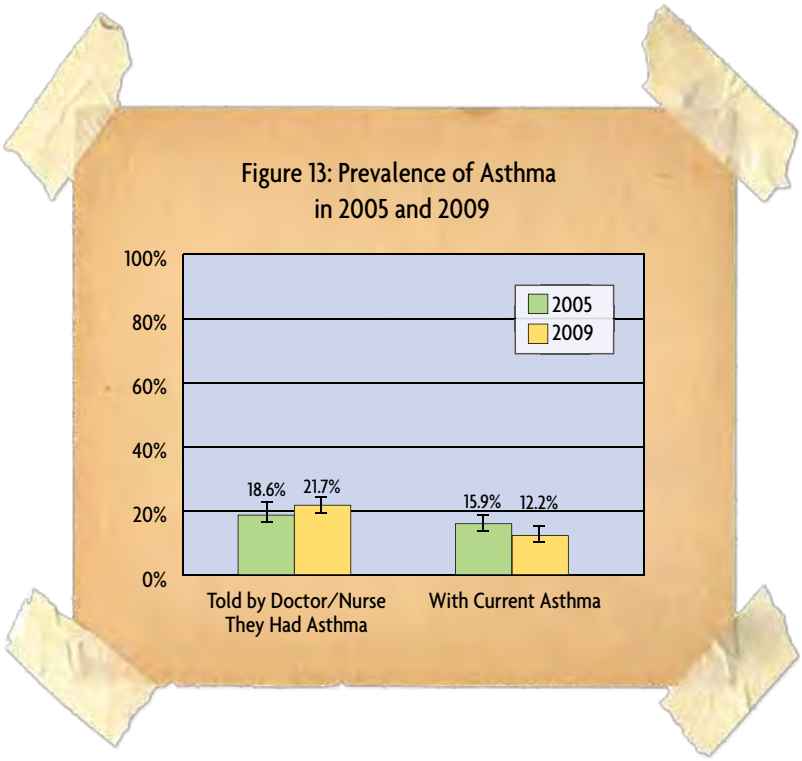


[11]Healthy behaviors related to losing weight or to avoid gaining weight included exercising and eating less food, fewer calories or low-fat food. Unhealthy behaviors included fasting, taking diet pills, powders or liquids without a doctor's advice, and vomiting or taking laxatives.

[12]Drinking soda was a new question added to the survey instrument in 2009; therefore comparable data is not available for prior years.

Asthma

In addition to the health related items previously discussed, students also were asked about experiencing asthma. Approximately 9.6 million (13%) U.S. children under the age of 18 years have been diagnosed with asthma at some time in their lives, and 6.7 million (9%) currently have asthma.[13] Asthma is also a leading cause for doctor and emergency room visits as well as missed school days and therefore, important to monitor. In Colorado, there were no statistically significant differences in the prevalence of being diagnosed with, or currently experiencing, asthma for 2009 compared to 2005. There were also no significant differences compared with the nation.



Demographic Trends

In order to better understand the health behaviors of different student sub-populations in Colorado, additional analyses were conducted to test for significant differences between groups. The following sections outline results by gender (male and female) and by race/ethnicity (Non-Hispanic White and Hispanic/Latino)[14] for each of the behavior domains measured by the YRBS (i.e., unintentional injury, personal safety, violence, and gender, etc.). Differences and similarities between the Colorado student population of males and females, as well as Hispanic/Latino and non-Hispanic White students, are presented first, followed by a comparison of those same sub-groups within the national sample.

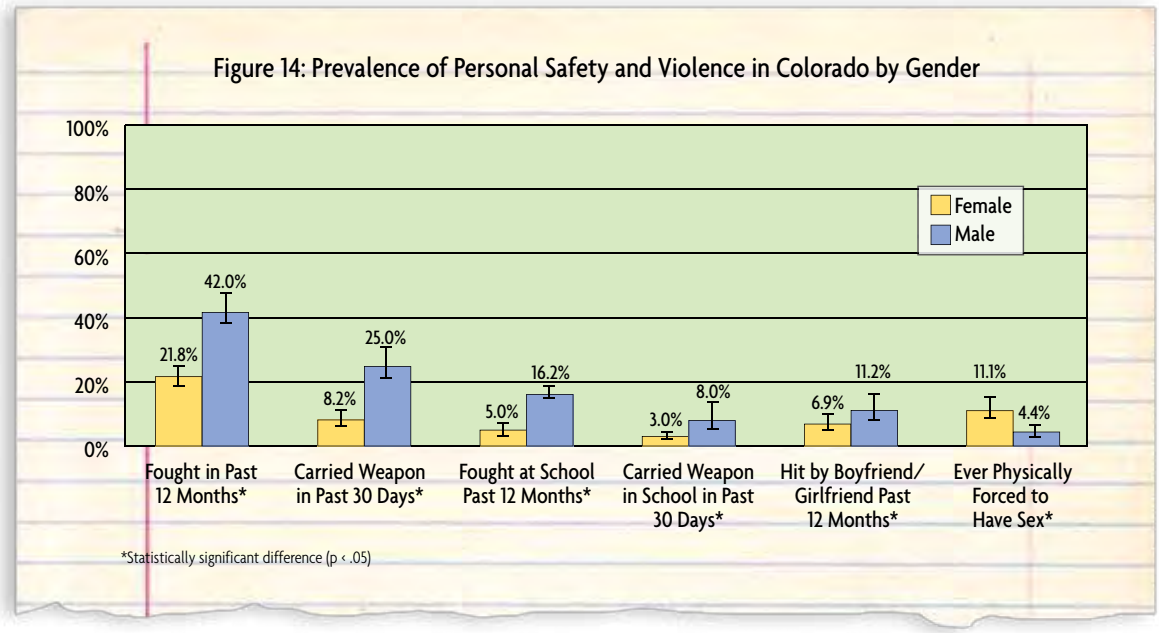
Unintentional Injury, Personal Safety, Violence, and Gender

In 2009, Colorado male and female students differed significantly on several items measuring unintentional injuries and violence. Although over 90% of all students reported that they usually or always wore a seatbelt, males were significantly less likely to wear a seat belt compared to females. In contrast, three-quarters of all students reported that they typically did not wear a bicycle helmet, and this did not differ by gender. There was also no difference by gender for driving after drinking or riding in a car with someone who had been drinking. These state data are generally consistent with those at the national level with the exception that nationally, males are significantly more likely to drive after drinking than females.

Some of the largest differences between males and females were related to physical fighting and carrying a weapon, and are shown in Figure 14. Males were statistically more likely to report carrying a weapon and to engage in a physical fight than females. This difference was true for behavior both on and off school property. Males were also more likely to report that they had been threatened with a weapon. There was not a significant difference between males and females who reported being bullied on school property in the past year.

[13]National Center for Environmental Health. (2010, February 10). *2007 Lifetime and Current Asthma Population Estimates and Prevalence Tables.* Retrieved from http://www.cdc.gov/asthma/nhis/07/data.htm.

[14]Fewer than 100 students identified themselves as Black, American Indian/Alaska Native, Asian, or Native Hawaiian/Pacific Islander, respectively. Therefore, the sample sizes of these groups were too small to support statistical comparisons.



Finally, males were more likely to report that they had experienced inter-partner violence than females, meaning that they had been hit, slapped, or physically hurt on purpose by their partner (girlfriend/boyfriend), while females were almost three times more likely to have been physically forced to have sexual intercourse than males.

Differences in behaviors relating to unintentional injury, safety, and violence between males and females in Colorado largely mirrored differences seen between males and females nationally, with the exceptions of inter-partner violence and being a victim of bullying. Nationally, there was no difference between males and females for inter-partner violence. Females were more likely to experience bullying at school compared to males in the national sample.

Unintentional Injury, Personal Safety, Violence, and Race/Ethnicity

The same variables were analyzed to test for differences between Hispanic/Latino students and non-Hispanic White students. Several items related to unintentional injuries and violence differed by race/ethnicity in 2009, as they did by gender. Hispanic/Latino students were less likely to report using a seatbelt or bicycle helmet compared to non-Hispanic White students. Moreover, while there was no difference in the prevalence of driving after drinking, Hispanic/Latino students were more likely to report riding in a car with someone who had been drinking than non-Hispanic White students.

Similar differences related to race/ethnicity were seen nationally. Hispanic/Latino students in the national sample were also less likely to wear a bicycle helmet, and were more likely to report riding with a driver who had been drinking compared to non-Hispanic White students.

In Colorado, Hispanic/Latino students were more likely to report being involved in a physical fight in the past year both on and off school property compared to non-Hispanic White students, and were more likely to report being threatened with a weapon and missing school because they felt unsafe. There were no significant differences between these two groups for having been bullied in the past year, or carrying a weapon both on and off school property. There also were no differences between the two groups for inter-partner violence or forced sexual intercourse.

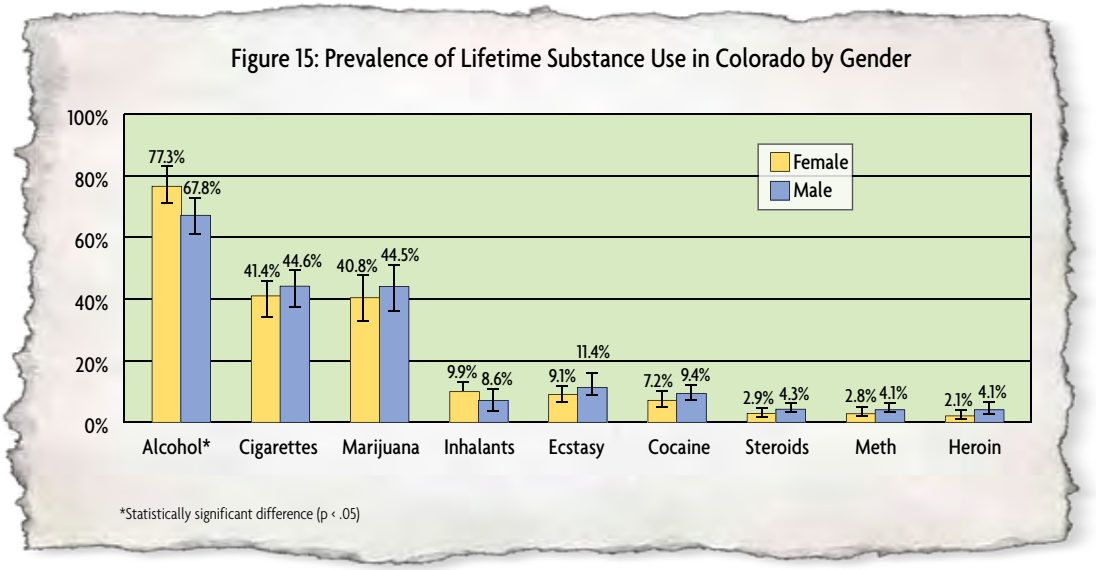
Nationally, slightly different findings emerged between these two groups. In the national sample, Hispanic/Latino students were also more likely to be in a physical fight, to report being threatened with a weapon, and to report missing school because they felt unsafe. Additionally, Hispanic/Latino students were also more likely to report partner violence, and to report forced sexual intercourse compared to non-Hispanic white students. However, White (non-Hispanic) students were more likely to report having been bullied in the past year.

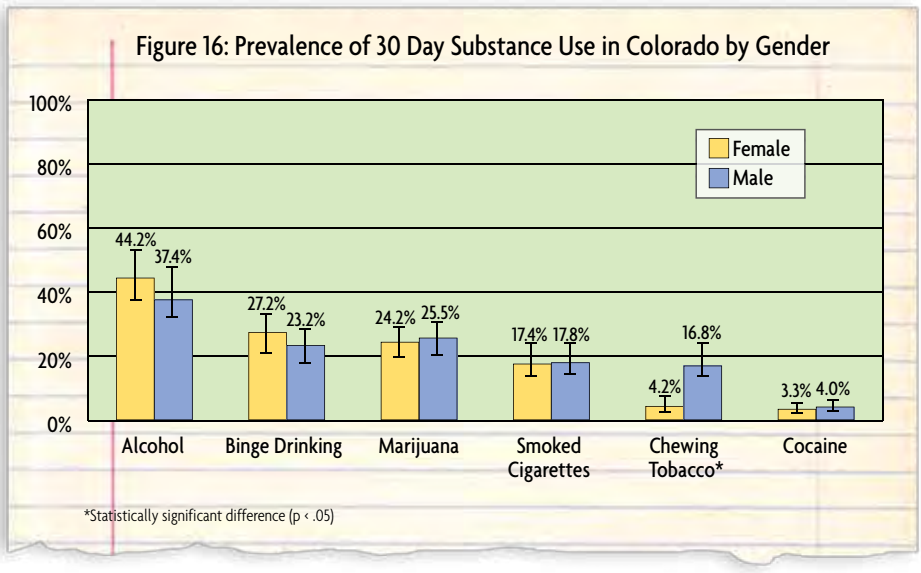
Substance Use and Gender

As shown in Figures 15 and 16, there were few gender differences that emerged relating to substance use. There were no significant differences between males and females for lifetime substance use for any drugs including marijuana, cocaine, inhalants, heroin, methamphetamines, ecstasy, or steroids. However, females were more likely to report lifetime alcohol use (having ever had a drink of alcohol) and were also more likely to report that they obtained alcohol by someone giving it to them. Despite this, males were more likely to report drinking alcohol prior to the age of 13 than females.

Similarly, few differences between males and females were found for current substance use. In general, males were more likely to report using tobacco products (including chewing tobacco, snuff, dip, cigars, and cigarillos) than females; however, there were no differences between males and females in cigarette use. There were no statistically significant differences between males and females for current alcohol use (past 30 days) or binge use (five+ drinks in one sitting). However, males were more likely to report having been offered, sold, or given an illegal drug by someone on school property in the 12 months prior to the survey (25.7% male, 19.7% female).

Nationally, similar differences between males and females were reported for alcohol, cigarette, and tobacco use. However, slightly different patterns were reported between males and females for other drug use. Nationally, males were more likely than females to report using all drugs with the exception of inhalants (females were more likely to report use). Males were also more likely than females to report being offered, sold, or given drugs by someone at school nationally.





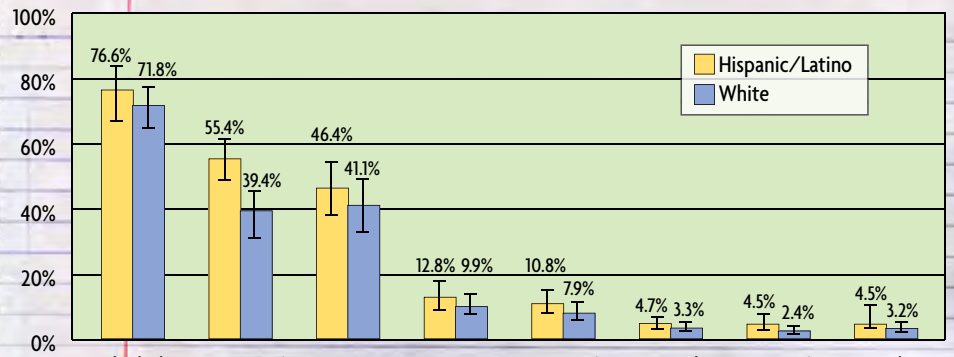
Substance Use and Race/Ethnicity

As shown in Figures 17 and 18, differences in the substance use of racial/ethnic groups also were examined. In Colorado in 2009, there were no differences between groups regarding reported lifetime (ever) substance use, with the exception of cigarettes, cocaine, and heroin. Hispanic/Latino students were more likely to report lifetime (ever) use of these substances compared to non-Hispanic White students. Additionally, Hispanic/Latino students were more likely to report having been offered, sold, or given substances at school (30.3% Hispanic/Latino, 20.2% White).

Although Hispanic/Latino students in Colorado were more likely to report lifetime use (ever using) of cigarettes than non-Hispanic Whites, there were no differences between these groups regarding current cigarette use, other tobacco use, or age of first use. In contrast, Hispanic/Latino students were more likely to have used both alcohol and marijuana prior to age 13 compared to non-Hispanic White students; however, there were no statistical differences for lifetime or current alcohol use, binge drinking, or marijuana use. Finally, Hispanic/Latino students were more likely to report current (past 30 day) cocaine use compared to non-Hispanic White students.

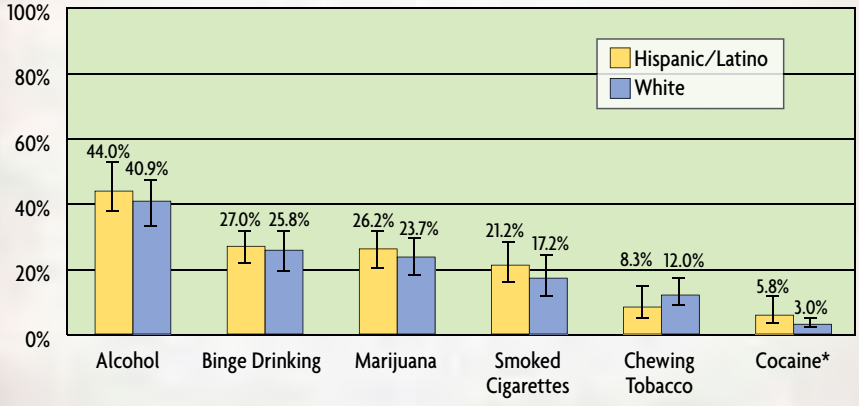
Nationally, differences between Hispanic/Latino and White students were even more pronounced than in Colorado. In the national sample, Hispanic/Latino students were more likely to report lifetime use for most drugs including marijuana, cocaine, inhalants, heroin, methamphetamines, and ecstasy, as well as more likely to report an age of first use before 13 years for alcohol and marijuana compared to White (non-Hispanic) students. Additionally, in the national sample, Hispanic/Latino students were more likely to report current use for cocaine, though there was no difference between groups for current or lifetime alcohol use, or current marijuana use, and White (non-Hispanic) students were more likely to report current cigarette use.

Figure 17: Prevalence of Lifetime Substance Use in Colorado by Race/Ethnicity in 2009



*Statistically significant difference ($p < .05$)

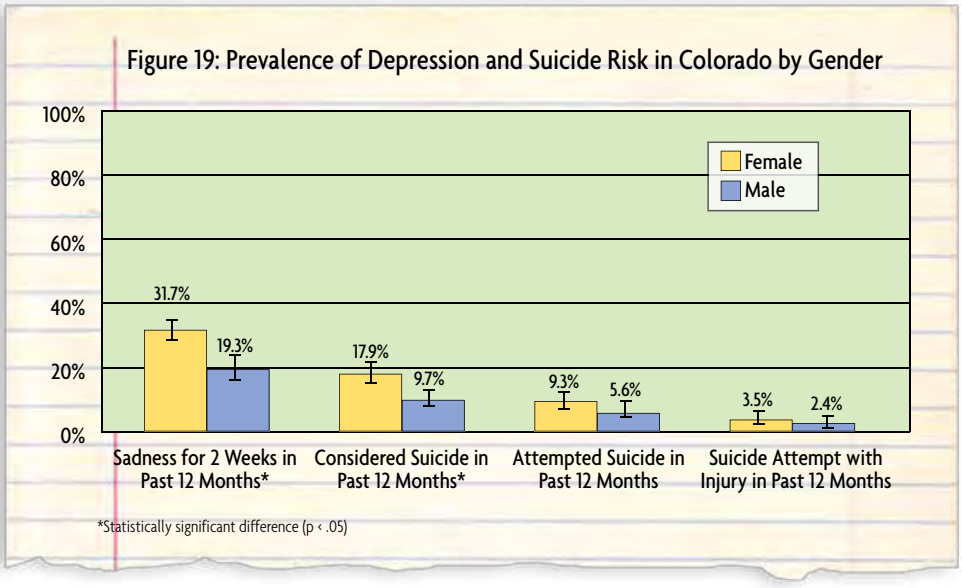
Figure 18: Prevalence of 30 Day Substance Use in Colorado by Race/Ethnicity in 2009



*Statistically significant difference ($p < .05$)

Mental Health and Gender

HKCS Module I yielded significant differences between male and female students on mental health measures of depression and suicide risk. Females were more likely to experience depression in the past year than were males. In addition, females were more likely than males to report that they seriously considered attempting suicide in the past 12 months. However, there was no difference between males and females in the prevalence of suicide attempts in the past year, or in the prevalence of suicide attempts that resulted in injury. Nationally, females were more likely than males to report experiencing all items related to mental health, suicide risk, and suicide attempts.



Mental Health and Race/Ethnicity

There were few differences between Hispanic/Latino students and non-Hispanic White students on measures of mental health. There were no differences regarding reported suicidal behavior including seriously considering suicide, making a plan to attempt suicide, or trying to commit suicide. However, Hispanic/Latino students were significantly more likely than non-Hispanic White students to report feeling depressed within the past 12 months. This differs from the national results, where Hispanic/Latino students were more likely to report depression and all items related to suicidal behavior with the exception of sustaining an injury as a result of a suicide attempt.

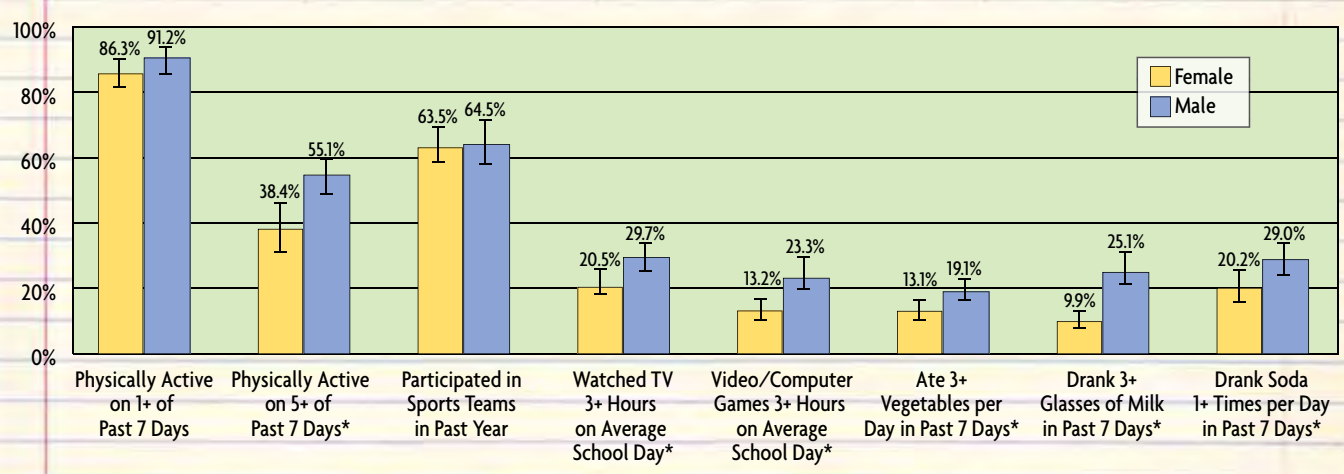
Physical Activity, Nutrition, Health, and Gender

Figure 20 illustrates gender differences in Colorado in 2009 regarding diet and exercise. Overall, approximately 90% of all students, regardless of gender, reported that they engaged in some physical activity[15] in the seven days prior to the survey. There was also no difference between males and females in participation in sports teams. However, males were more likely than females to report engaging in moderate and heavy physical activity (five of the past seven days and seven of the past seven days). Of note, males were also more likely than females to engage in sedentary activities, specifically watching television and playing video games or using the computer. Nationally, males were more likely than females to report some physical activity, as well as moderate and heavy activity, and participation in sports teams. Males were also more likely to report video game and computer use compared to females; however, there was no difference nationally between genders for watching television.

In Colorado, although a majority of all students reported eating some fruits and vegetables in a typical week, males reported eating more frequent servings of vegetables than females. Males were also more likely to

[15]At least 60 minutes of a physical activity that increased their heart rate or made them breathe hard during the 7 days prior to the survey.

Figure 20: Prevalence of Physical Activity and Nutritional Habits in Colorado by Gender



*Statistically significant difference ($p < .05$)

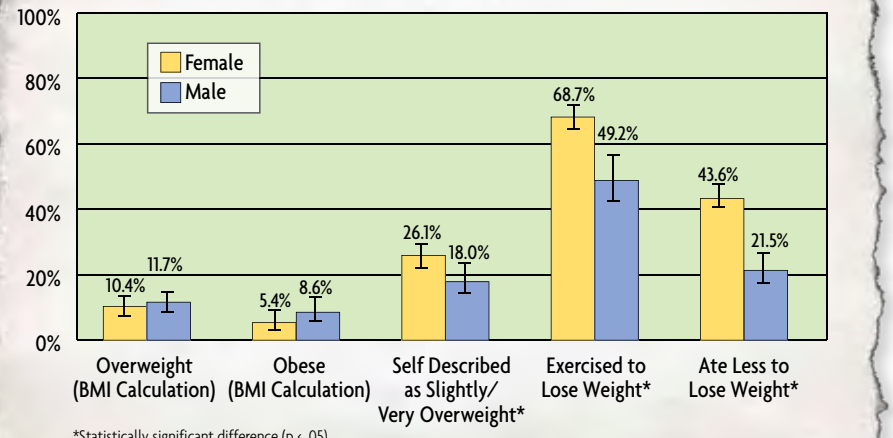
drink three or more glasses of milk per day, and at least one can of soda per day compared to females. These differences were mirrored at the national level.

The data provided in Figure 21 illustrate gender differences regarding body perception and weight loss behavior. Females were significantly more likely than males to view themselves as slightly or very overweight compared to males. This is particularly interesting given that there was not a significant difference between males and females in rates of either overweight or obesity as calculated by the BMI. This indicates that females who are not actually overweight may be more likely to experience negative perceptions of their body. Female students also reported a greater likelihood of engaging in a variety of healthy and unhealthy weight loss behaviors, such as exercising to lose/maintain weight, eating less to lose/maintain weight, and fasting, compared to males. With the exception of obesity, these differences were also seen at the national level. Nationally, males were more likely to be obese than females.

Physical Activity, Nutrition, Health, and Race/Ethnicity

The likelihood of engaging in some physical activity in the seven days prior to the survey did not differ by race/ethnicity. However, non-Hispanic White students were more likely to participate in moderate and heavy exercise (five out of seven days and seven out of seven days) and were more likely than Hispanic/Latino students to play on sports teams. Non-Hispanic White students also were less likely to watch TV, though there were no differences between groups in playing video games or using the computer. Nationally, White (non-Hispanic) students were more likely to report engaging in some physical activity, moderate activity, and heavy activity and were also more likely to play on sports teams. Hispanic/Latino

Figure 21: Prevalence of Overweight, Obese, and Weight Loss/Maintenance Behaviors in Colorado by Gender



*Statistically significant difference ($p < .05$)

students were more likely to report sedentary activities compared to White students nationally including watching television and playing computer/video games.

In Colorado, Hispanic/Latino students were more likely to be obese, as calculated by the BMI, compared to non-Hispanic White students although there was no difference in the prevalence of being overweight between the two race/ethnicities. Further, Hispanic/Latino students were more likely to perceive themselves as overweight, though there were no differences between groups for any reported weight loss behaviors. In addition, non-Hispanic White students were more likely to report eating fruits and vegetables, including green salad, carrots, and other vegetables compared to Hispanic/Latino students. Finally, while there were no differences between the groups in drinking soda, non-Hispanic White students were more likely to report drinking three or more glasses of milk a day than their Hispanic/Latino counterparts.

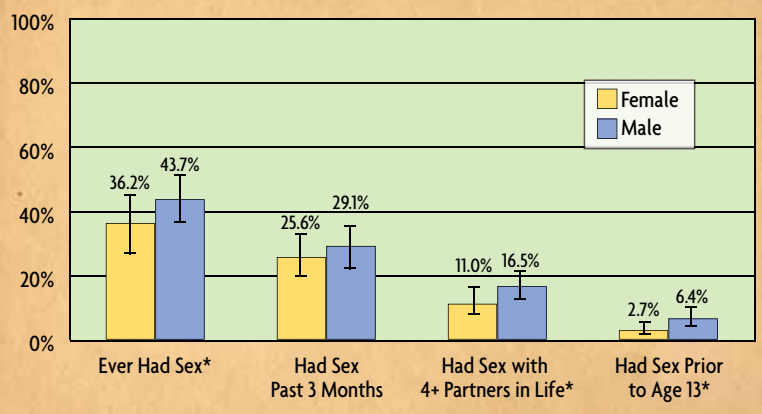
Nationally, Hispanic/Latino students were more likely to be both overweight and obese as calculated by BMI, and were more likely to perceive themselves as overweight. In contrast to Colorado students, Hispanic/Latino students nationally were also more likely than non-Hispanic White students to report trying to lose weight, exercising to lose/control weight, as well as fasting, vomiting, or taking laxatives to lose weight. Nutrition data reported for Colorado mirrored that reported at the national level with the exception of fruit consumption.

Sexual Behavior and Gender

Some differences were found between males and females for reported sexual behaviors, including having ever had sex and number of partners. Males were more likely than females to report having ever had sex, as well as having had sex with four or more partners in their lifetime. There was not a statistically significant difference between males and females regarding current sexual activity, or having had sex within the three months prior to the survey. Of the subset of males and females who reported current sex, there were no differences between genders in using alcohol or drugs prior to having sex, or in condom use; however, females were more likely to report other birth control use than males. Although less than 5% of students overall reported having sex before the age of 13, males were significantly more likely to report this than females.

Nationally, similar differences were found between males and females. Males were more likely to report having sex before age 13, and were more likely to report having four or more partners. There were no differences nationally between males and females for ever having sex or currently reporting sexual activity. In contrast to Colorado, some differences were found between males and females for the subset of students who were sexually active. Nationally, males were more likely to report substance use before having sex and to use condoms but were less likely than females to report other forms of birth control.

Figure 22: Prevalence of Sexual Activity in Colorado by Gender



*Statistically significant difference ($p < .05$)

Sexual Behavior and Race/Ethnicity

There were few differences by race/ethnicity for reported sexual behaviors. Hispanic/Latino students were more likely than non-Hispanic White students to report having had sex with at least one person in the three months prior to the survey (35.9% Hispanic/Latino, 25.3% non-Hispanic White). However, there were no significant differences between groups in reported lifetime sex (ever having had sex), reported sex before the age of 13, or number of partners (having had four or more partners during their life). There were too few sexually active students in each subgroup to test for significant differences in condom use, other birth control use, or using alcohol or drugs prior to having sex.

Nationally, Hispanic/Latino students were more likely to report having ever had sex, having had sex before the age of 13, and having had sex with 4 or more partners compared to White (non-Hispanic) students. Although there was no difference in current sexual activity between these two groups, non-Hispanic White students were more likely to report substance use prior to having sex, but were also more likely to report condom use and use of other birth control.

Finally, in Colorado, Hispanic/Latino students were less likely than non-Hispanic White students to report having been taught about HIV/AIDS in school (27.2% Hispanic/Latino students were not taught compared to 13.8% White students). This difference was also found at the national level.

Associations Between Youth Behaviors

This section of the report examines whether select behaviors and experiences reported by Colorado's high school students were statistically associated, or related, to one another. Research shows that students who engage in risky behaviors in some domains (e.g., fighting, substance use) are frequently at risk of engaging in other risk behaviors (e.g., risky sexual activity) or experiencing other problematic outcomes (e.g., mental health issues). Conversely, research has shown that when students engage in positive behaviors, such as eating healthy foods and higher levels of physical activity, the risk for other problem behaviors may be reduced. By understanding how these behaviors and experiences are related to one another, schools and other youth-serving agencies can identify specific populations of youth that may benefit from particular types of, or more intensive, interventions or programs.

Chi-square tests of independence were used to evaluate whether one behavior was significantly related to another behavior, using the 2009 Module I weighted dataset. As noted earlier in the report, although different behaviors may be statistically associated with each other, this does not reflect causation; that is, you cannot infer that one behavior causes another behavior to occur. Specific relationships of interest were tested among subsets of thirteen behaviors (variables tested are in parenthesis) in the domains of:

- Safety, injury, and violence (involved in a fight in the past 12 months, bullied at school at least once in the past 12 months);
- Substance use (engaged in binge drinking which was defined as having five or more drinks at least one time in the past 30 days, any tobacco use in the past 30 days, any marijuana use in the past 30 days);

- Sexual activity (had sex with at least one partner in the past three months);
- Mental health (feeling sad for two weeks or more in the past 12 months; seriously considered suicide in the past 12 months); and
- Physical activity, nutrition, and health (engaged in at least 60 minutes of physical activity for at least five of the last seven days, played on at least one sports team in the past 12 months, played video games at least three hours on an average school day, ate five or more fruits and vegetables a day in the past seven days, and was overweight or obese according to the Body Mass Index).

These thirteen behaviors were selected because they: a) represent important risk and protective behaviors that are frequently examined in research; b) together provide a comprehensive picture of adolescent behavior and health across a number of key domains; and c) allow investigation of interesting and informative patterns of relationships among sets of risk and health-promoting behaviors. Given the large number of variables, only associations that achieved statistical significance are reported below. However, please note that there may be other statistically significant associations among Module I items that were not tested in these analyses.

In addition, it is important to consider the magnitude of reported differences. While differences may be statistically significant, the magnitudes may be small and, therefore, should be attributed less practical or meaningful significance. Further, some of these behaviors have low prevalence rates, meaning that the group of students experiencing or reporting a particular behavior is small. Thus, even when the reported percentages in these associations are high, it is important to remember that these associations are based on a small number of students. In order to help interpret these situations, the "base rate," or number of students who reported a given behavior, is included for each variable below.

In each graph within this section, two groups were created for the primary behavior of interest (e.g., those who reported fighting and those who did not) that is listed in the subheading for the section: those students who responded "yes," and those students who responded "no." Then, the percentage of each of these two groups who responded "yes" to other behaviors of interest (e.g., being bullied) is listed horizontally under the graph (the x-axis). Because the prevalence rates of each behavior vary, the percentages representing associations between the same variables in different graphs will also vary.

For example, in Figure 23, 32.0% of the total sample of students reported fighting in the past year. Of that 32.0%, 27.4% reported also being bullied in the past year, compared to 14.5% of the students who did not report fighting in the past year (68.0% of the total sample). This difference in having been bullied was significantly different between the two groups of students who did and did not fight. In contrast, when bullying is the primary behavior of interest (as in Figure 24), the two groups being tested consist of those that were bullied (18.8% of students) compared to those that were not (81.2% of students). It is possible that even though fighting was associated with bullying in the prior test, bullying may not be associated with fighting when bullying is the primary behavior. In this case, a significant difference was still found, meaning that students who were bullied in the past year were also more likely to report fighting (47.2% of the 18.8%) compared to those that were not bullied (28.7% of the 72.2%).

Personal Safety, Unintentional Injury, and Violence

Fighting

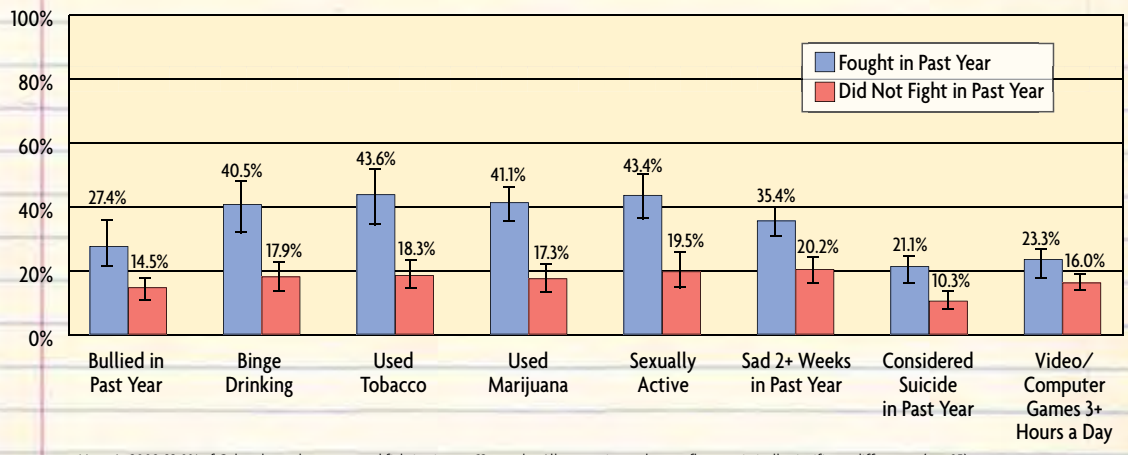
Figure 23 divides Colorado students into two categories, those who reported fighting in the past year and those who did not. It then displays the percentage of students in each of those categories who also reported engaging in select behaviors identified above. Of the twelve behaviors examined, eight items were associated with fighting, meaning that students who fought in the past year were more likely to participate in these behaviors than students who did not report fighting in the past year.

Of note, over a third of Colorado students who fought in the past year also reported current binge drinking, tobacco or marijuana use, having sex, and feeling sad compared to less than one-fifth of students who did not report fighting. Students who reported fighting in the past year also were more likely to report having been bullied, having considered suicide, and playing on the computer or video games for three or more hours per day compared to students who did not report fighting.

Bullying

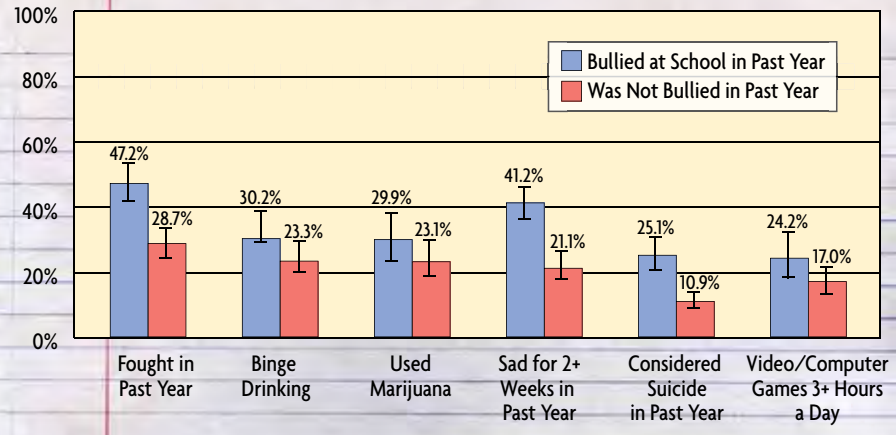
Having been bullied in school in the past year was significantly associated with a number of risky behaviors. Students who were bullied were more likely to report being in a fight, having used alcohol or marijuana, having felt sad and considered suicide, and having spent time playing video games, compared to students who were not bullied. Of note, almost half of the students who were victims of bullying reported engaging in violent behavior.

Figure 23: Significant Associations Between Fighting in the Past Year and Violence, Substance Use, Sexual Activity, Mental Health, and Physical Activity



Note: In 2009, 32.0% of Colorado students reported fighting in past 12 months. All comparisons above reflect statistically significant differences ($p < .05$).

Figure 24: Significant Associations Between Being Bullied and Violence, Substance Use, Mental Health, and Physical Activity



Note: In 2009, 18.8% of Colorado students reported being bullied at school in the past 12 months.
All comparisons above reflect statistically significant differences ($p < .05$).

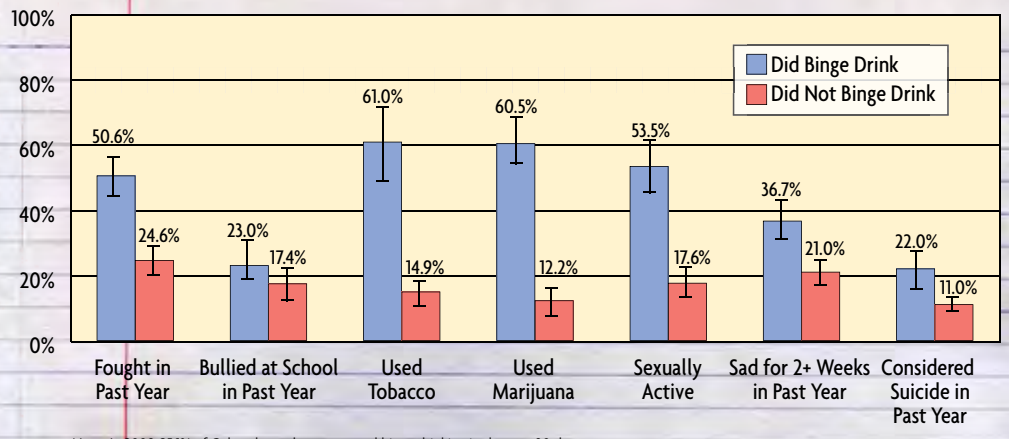
Current Alcohol, Tobacco, or Marijuana Use

Associations between select substance use behaviors and indicators of violence, sexual activity, mental health, and physical activity and health were tested.

Binge Drinking

Students who reported that they engaged in binge drinking (having five or more drinks in one sitting in the past 30 days) were more likely to have fought in the past year compared to those students who did not report binge drinking. Notably, over half of the students who reported binge drinking also used tobacco or marijuana, and said they were currently sexually active, compared to less than 20% of students who did not binge drink. Students who reported binge drinking were also at greater risk for depression as evidenced by significantly higher rates of sadness and suicidal behavior.

Figure 25: Significant Associations Between Binge Drinking and Violence, Other Substance Use, Sexual Activity, and Mental Health

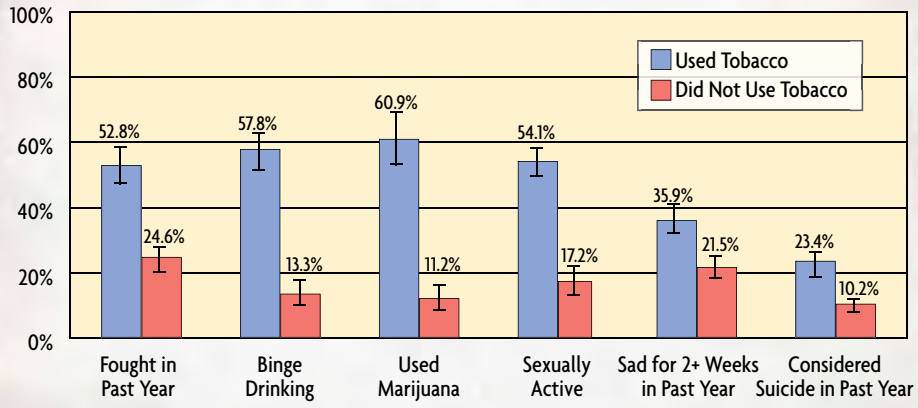


Note: In 2009, 25.1% of Colorado students reported binge drinking in the past 30 days.
All comparisons above reflect statistically significant differences ($p < .05$).

Tobacco Use

Students who reported using cigarettes, cigars, snuff, or other tobacco products in the past 30 days were combined to test the relationships between any tobacco use and other measures of behaviors. Six measures were significantly associated with tobacco use, specifically, students who used tobacco products were more likely to have been in a fight, to have reported binge drinking, marijuana use, current sexual activity, and have experienced mental health problems related to depression and suicide compared to students who did not use tobacco products.

Figure 26: Significant Associations Between Tobacco Use and Violence, Other Substance Use, Sexual Activity, and Mental Health

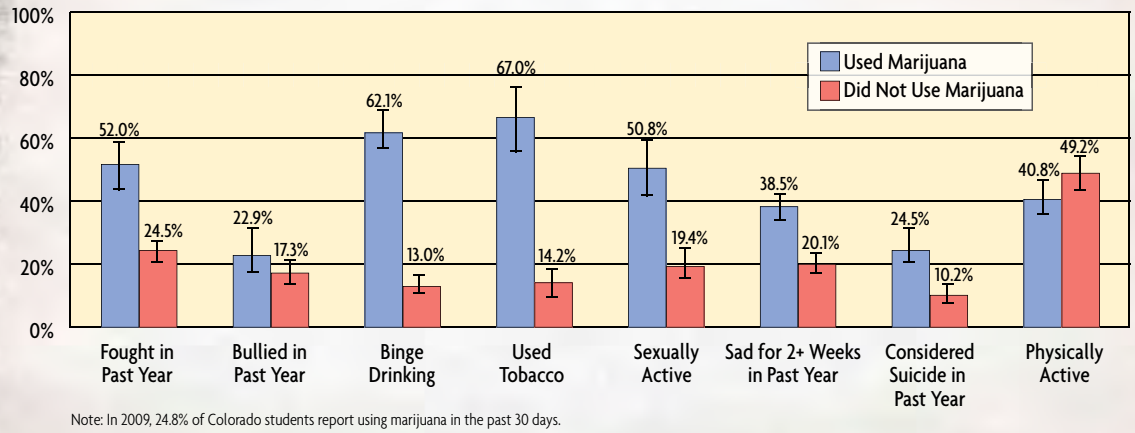


Note: In 2009, 26.7% of Colorado students reported using tobacco products in the past 30 days.
All comparisons above reflect statistically significant differences at the $p < .05$ level.

Marijuana

Almost two thirds of students who used marijuana in the past month also reported binge drinking, compared to approximately 10% of students who did not use marijuana. There were also significant associations between marijuana use and experiencing fighting and bullying, current sexual activity, feeling sad, and considering suicide. The rate of regular physical activity was lower among students who used marijuana compared to those who did not.

Figure 27: Significant Associations Between Marijuana Use and Violence, Other Substance Use, Sexual Activity, Mental Health, and Physical Activity

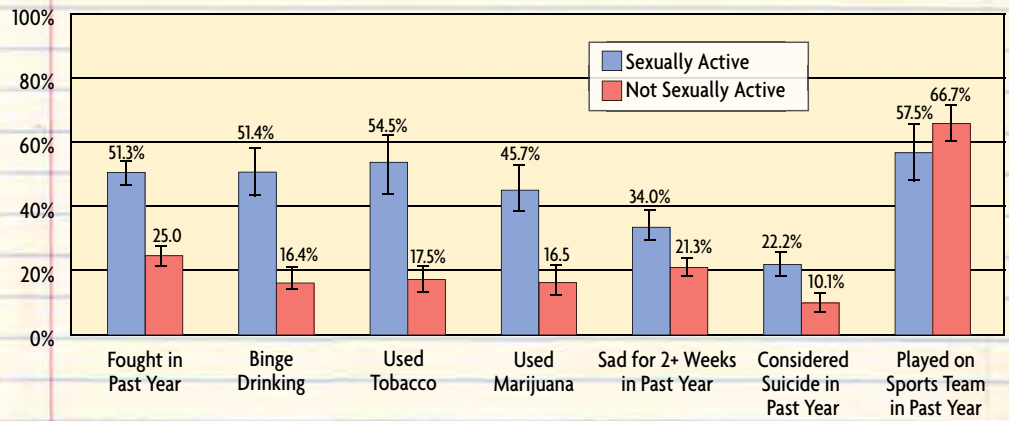


Note: In 2009, 24.8% of Colorado students report using marijuana in the past 30 days.
All comparisons above reflect statistically significant differences ($p < .05$).

Sexual Activity

Seven behaviors were associated with current sexual activity (having at least one partner in the past three months). About half of sexually active students also used alcohol, tobacco, marijuana, and experienced at least one fight in the last year compared to approximately 20% of those not sexually active. Sexually active students were also more likely to have felt sad and considered suicide compared to students not reporting current sexual activity. Sexually active students were less likely to have played on sports teams in the last year than those who were not sexually active.

Figure 28: Significant Associations Between Current Sexual Activity and Violence, Substance Use, Mental Health, and Physical Activity



Note: In 2009, 27.4% of Colorado students reported current sexual activity (having had sex in the past three months).
All comparisons above reflect statistically significant differences ($p < .05$).

HIV Prevention and Sexual Behaviors

Additional analyses were conducted to evaluate the relationship between participating in HIV prevention courses and sexual activity. There was no difference in ever having sex or currently having sex for students who participated in HIV prevention classes. There was also no difference in condom use between sexually active students who did and did not participate in HIV prevention classes. However, sexually active students who did not participate in HIV prevention classes were twice as likely to use alcohol or other drugs during their most recent sexual encounter (43.4%) than sexually active students exposed to HIV prevention classes (20.0%). Additionally, sexually active students who participated in HIV prevention classes were more likely to use birth control pills or Depo-Provera (24.8%) compared to those who did not (9.6%).

Mental Health

Two items reflecting risk for depression were tested with other behaviors: feeling sad for two weeks or more in the past 12 months (which is a symptom criterion for a diagnosis of depression) and seriously considering suicide in the past 12 months (suicidal ideation).

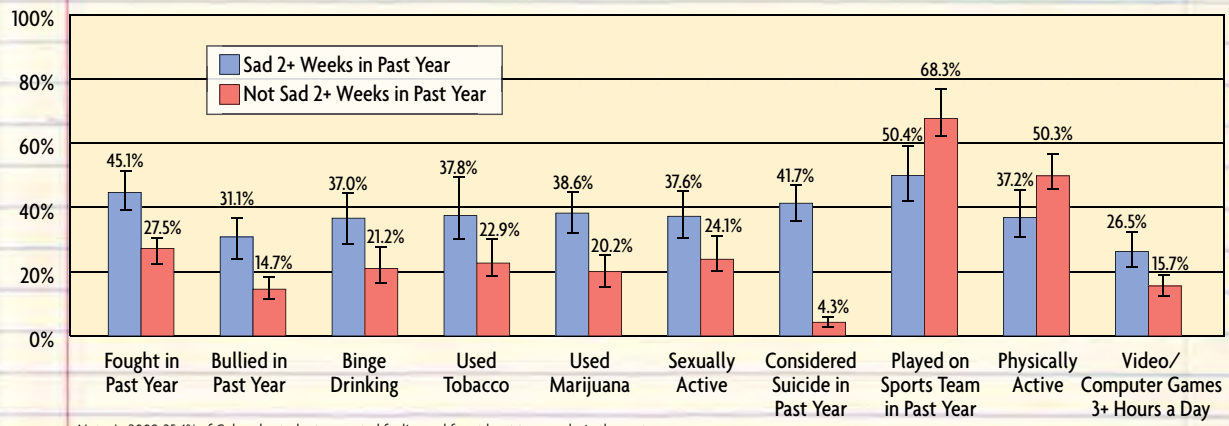
Depression

Colorado students who reported feeling sad for two weeks or more also reported significantly higher rates of considering suicide and higher levels of fighting compared to students who did not feel sad. Over a third of Colorado students who felt sad also engaged in binge drinking, tobacco, marijuana use, and reported being sexually active. Students who were sad were less likely to participate in regular physical activity and in sports teams compared to those who did not experience frequent sadness, and were more likely to play on the computer or play video games.

Suicidal Ideation

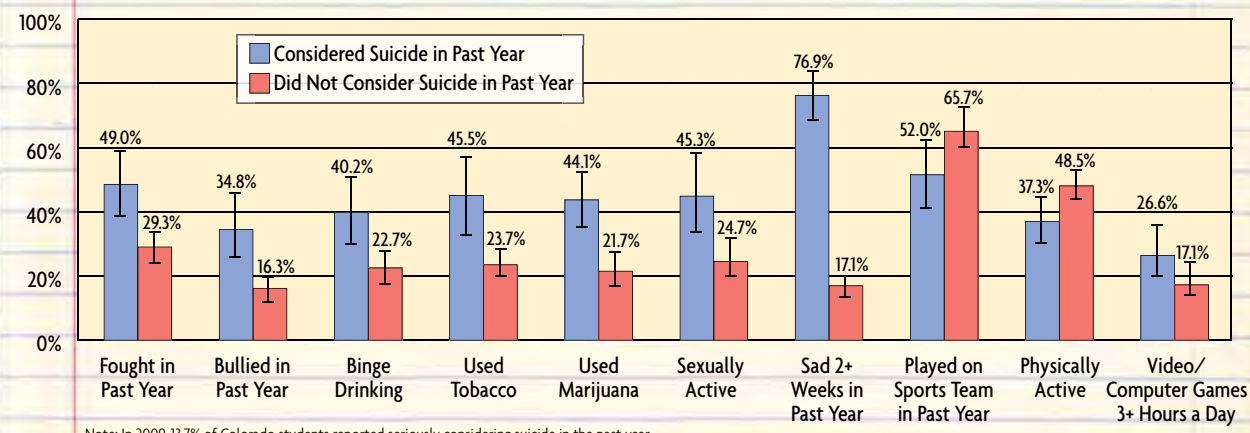
Compared to students who did not contemplate suicide, students who had seriously considered suicide over the last year were more likely to report a number of risks, including fighting and being bullied, alcohol, tobacco, and marijuana use, frequent sadness, and current sexual activity. These students were also less likely to engage in regular physical activity or sports teams, and were more likely to spend time playing video games each day, compared to their peers who did not report suicidal ideation.

Figure 29: Significant Associations Between Sadness and Violence, Substance Use, Mental Health, and Physical Activity



Note: In 2009, 25.4% of Colorado students reported feeling sad for at least two weeks in the past year.
All comparisons above reflect statistically significant differences ($p < .05$).

Figure 30: Significant Associations Between Suicidal Ideation and Violence, Substance Use, Other Mental Health, and Physical Activity



Note: In 2009, 13.7% of Colorado students reported seriously considering suicide in the past year.
All comparisons above reflect statistically significant differences ($p < .05$).

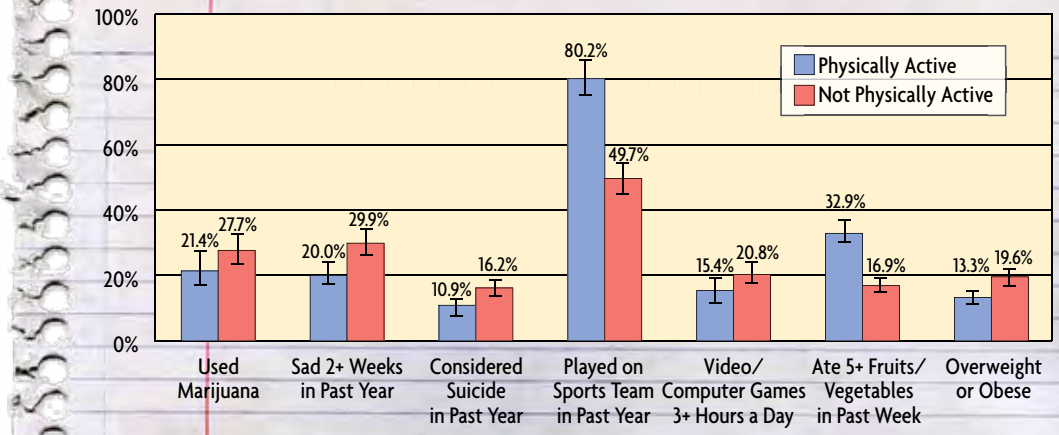
Physical Activity and Nutrition

Behaviors related to physical/sedentary activity (engaging in frequent physical activity, playing team sports, playing video games on a daily basis) and nutrition and physical health (regularly eating fruits and vegetables, being overweight or obese calculated in relation to BMI) were examined in association with measures of violence, substance use, sexual activity, and mental health.

Physical Activity

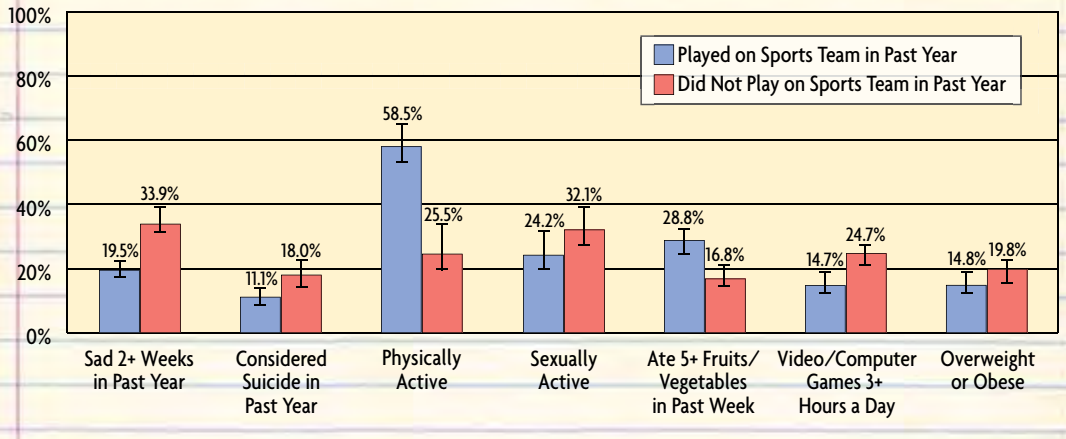
Physically active students were less likely than their inactive peers to experience depressive symptoms and to use marijuana. Perhaps not surprisingly, physically active students reported significantly higher rates of playing on sports teams and eating more healthily than their peers. Relatively low percentages of active students said that they spent time each day playing video games, compared to students that were not active. In addition, significantly fewer active students were overweight or obese compared to inactive students.

Figure 31: Significant Associations Between Regular Physical Activity and Substance Use, Mental Health, Other Physical Activity, and Nutrition



Note: In 2009, 47.0% of Colorado students reported being physically active for 60 minutes or more in 5 of the past 7 days.
All comparisons above reflect statistically significant differences ($p < .05$).

Figure 32: Significant Associations Between Playing on a Sports Team and Substance Use, Mental Health, Other Physical Activity, and Nutrition



Note: In 2009, 63.9% of Colorado students reported playing on a sports team in the past 12 months.
All comparisons above reflect statistically significant differences ($p < .05$).

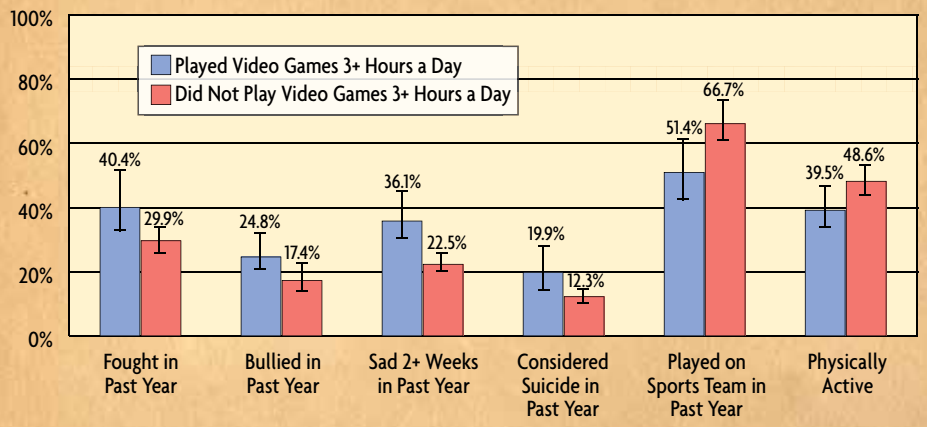
Playing on Sports Teams

Playing on a sports team in the last year was associated with lower risk for depression, sexual activity, poor nutrition, and physical inactivity. Students who were on sports teams were also less likely to be overweight or obese compared to their peers.

Playing Video Games

Perhaps not surprisingly, playing video games for more than three hours a day was associated with less physical activity. Approximately half of those students who reported playing video games more than three hours a day also played sports, compared to two-thirds of students who do not regularly play video games. Moreover, playing video games was associated with a higher rate of being in physical fights, being a victim of bullying behavior, and experiencing mental health problems.

Figure 33: Significant Associations Between Playing Video Games and Violence, Mental Health, and Physical Activity

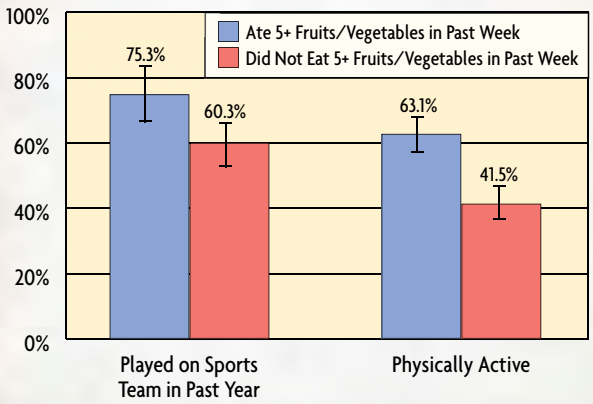


Note: In 2009, 18.4% of students reported playing video games at least 3 hours daily.
All comparisons above reflect statistically significant differences ($p < .05$).

Nutrition

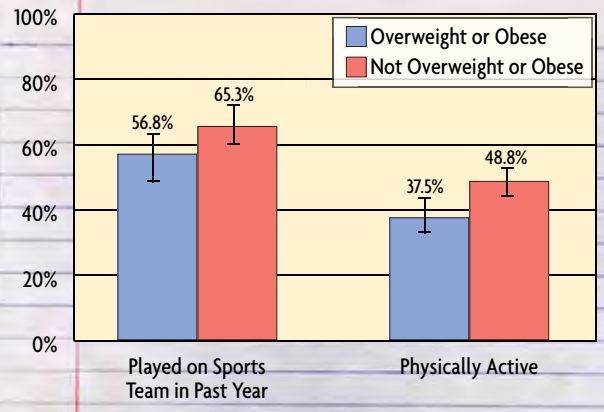
As seen in Figure 34, individuals with better nutrition were more likely to play sports and be physically active than those who did not eat healthy foods on a regular basis.

Figure 34: Significant Associations Between Healthy Eating and Physical Activity



Note: In 2009, 24.4% of Colorado students reported regularly eating fruits and vegetables. All comparisons above reflect statistically significant differences ($p < .05$).

Figure 35: Significant Associations Between Overweight or Obese and Physical Activity



Note: In 2009, 16.6% of Colorado students were overweight or obese according to BMI calculations. All comparisons above reflect statistically significant differences ($p < .05$).

Overweight/Obese

Students who were overweight (defined as being in the 85-95th percentile for BMI) or obese (defined as being in the 95th percentile or greater for BMI) were less likely to engage in physically active behaviors such as playing on a sports team or engaging in regular physical activity.

HEALTHY KIDS COLORADO SURVEY: MODULE II RESULTS

Introduction to Module II

Module II of the HKCS is the Colorado state supplement to the YRBS (Module I) and is administered at the same time within the same sample schools. Module II contains items based on the "risk and protective factor" framework that was developed by the Social Development Research Group, as well as items of interest to key stakeholders of the Colorado Departments of Education, Public Health and Environment, Human Services (Division of Behavioral Health), and Public Safety (Division of Criminal Justice, Office of Adult and Juvenile Justice Assistance).

A total of 1,384 students from 33 public high schools completed the HKCS Module II survey for an overall response rate of 57%. The majority of schools administering Module I also administered Module II. However, response rates for Module II did not achieve the level at which data could be reliably weighted. Therefore, Module II results cannot be generalized to all Colorado students, and results are representative of only the students who completed the survey. Because data are un-weighted, **it is important to note that the results must be interpreted with caution**. Further, given that Module I results are generalizable to Colorado students, summary findings from the 2009 administration of Module II are reported separately from Module I. In addition, comparisons between Module II 2009 (un-weighted), 2007 (un-weighted), and 2005 (weighted) data are not provided, as un-weighted results cannot be compared to weighted results from prior years.

In the following sections, demographic information on the Colorado Module II un-weighted sample is presented, followed by a description and sample results on a diverse set of youth risk and protective factors in community, school, family, and peer-individual domains.

Module II Demographics

In the 2009-2010 school year, there were 1,384 respondents from 33 schools who completed the HKCS Module II survey. Due to incomplete or invalid responses, analyses yielded a final sample of 1,341 students.

The 2009 Module II sample included slightly more male (53.1%) than female students (46.9%). Although this is a similar pattern to Colorado students in general (51.1% and 48.9%, respectively), the Module II dataset is slightly skewed towards male respondents.

Participants by Gender and Grade

HKCS Module II						
	Total Sample		Female		Male	
	N	Unweighted % of Total Sample	N	Unweighted % of Female Sample	N	Unweighted % of Male Sample
9th Grade	457	34.2	228	36.4	229	32.2
10th Grade	330	24.7	149	23.8	181	25.5
11th Grade	264	19.7	126	20.1	138	19.4
12th Grade	287	21.4	124	19.8	163	22.9
Total	1338	100%	627	46.9	711	53.1

Approximately one-third of student participants were in 9th grade, one-quarter in 10th grade, with fewer 11th and 12th graders participating in the survey. Approximately equal numbers of female and male students within each grade completed the survey. Given the larger proportion of 9th and 10th grade participants, the findings presented here may be more reflective of younger grades. Although the demographic composition of Module II respondents is similar to Colorado students in general, results are un-weighted and data presented below may not reflect an accurate picture of all Colorado youth. Instead, results represent only those students that participated in the survey.

Participants by Race and Ethnicity

The following table displays the numbers and percentages of HKCS Module II student participants from diverse racial/ethnic categories. Because the number of participants within certain racial/ethnic categories was small (i.e., the number of American Indian, Native Hawaiian/Pacific Islander, Asian, and Alaskan Native participants were under 50), these categories were combined into a single category, "all other races," in the following table.

A small majority of students participating in Module II were non-Hispanic White (770 students or 57.5%). Approximately a quarter of Module II participants reported being from Hispanic or Latino background (324 students, or 24.2%). The percentage of White student participants was lower than the percentage seen statewide in public high schools in 2009 (66.3%). Percentages within other racial/ethnic categories were similar to those reported for Colorado public high school students in 2009.

Participants by Race/Ethnicity

2009 HKCS Module II		
	N	Unweighted % of Total Sample
White*	770	57.5
Hispanic/Latino	324	24.2
Black*	69	5.2
All Other Races†	80	6.0
Missing	95	7.1
Total of Unweighted Sample	1338	100%

*Not Hispanic;
†Racial/ethnic categories with fewer than 50 respondents including American Indian, Native Hawaiian/Pacific Islander, Asian, and Alaskan Native.

Risk and Protective Factors

The HKCS Module II survey measures fourteen risk and protective factors within the Community, School, Family, and Peer-Individual domains of the Hawkins and Catalano Risk and Protective Factor Model.[16] Risk and protective factors are characteristics that increase or decrease, respectively, the likelihood of substance use, delinquency, and other risky behaviors. Specifically, risk factors are the variables or hazards that, if present, make it more likely that an individual will engage in risky behaviors. Protective factors, on the other hand, buffer against risk, either by reducing the impact of risk factors or by changing the way young people respond to risk.

Multiple items from the survey are combined to calculate scale scores on each risk or protective factor. For example, the risk factor scale "Parental Attitudes Favorable Towards Drug Use," which is part of the Family Domain, is made up of three items from the survey that reflects the degree to which students believe their parents would feel it is wrong if the student drinks liquor, smokes marijuana, or smokes

[16]Hawkins J. D., Catalano R. F., & Miller J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin, 112*(1), 64-105.

cigarettes. The HKCS Module II survey includes items from eleven of the twenty-five risk factor scales and three of the thirteen protective factor scales currently assessed by the Communities That Care survey, which is the comprehensive measure of Hawkins' and Catalano's model. Please see Appendix IV for additional descriptions of the domains, scales, items, and scale construction procedures.

Once each scale score is calculated, it is then examined to determine whether the score falls above a critical cut-point, which indicates whether the student is considered "at-risk" for that scale (if it is a risk factor scale) or experiences "protection from risk" (if it is a protective factor scale). The critical cut-point is calculated through an empirically-supported method involving a statistical adjustment of the median score (see Appendix IV for more information). The following figure displays the percentages of student participants who were "above the cut-point" on risk and protective factor scales assessed by HKCS Module II in 2009, presented by domain.

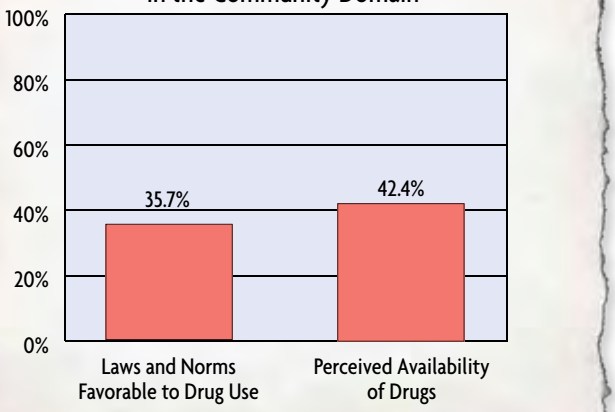
Risk and protective factor profiles (i.e., prevalence patterns based on cut-points) help communities identify areas of concern or potential targets for intervention. Further, it is important to understand that the more risk factors youth are exposed to, the more problem behaviors they are likely to exhibit. Conversely, the more protective factors that are present, the less likely problem behaviors will arise. At the end of the Module II results summary, the percentage of student participants who were at- or above-risk based on self-reported exposure to multiple risk factors are presented.

Community Domain

The HKCS Module II survey includes two risk factor scales assessing students' perceptions of community problems that increase risk for poor health and social outcomes. These measures indicated that over a third of the student participants were above the at-risk cut-point on Laws and Norms Favorable to Drug Use,

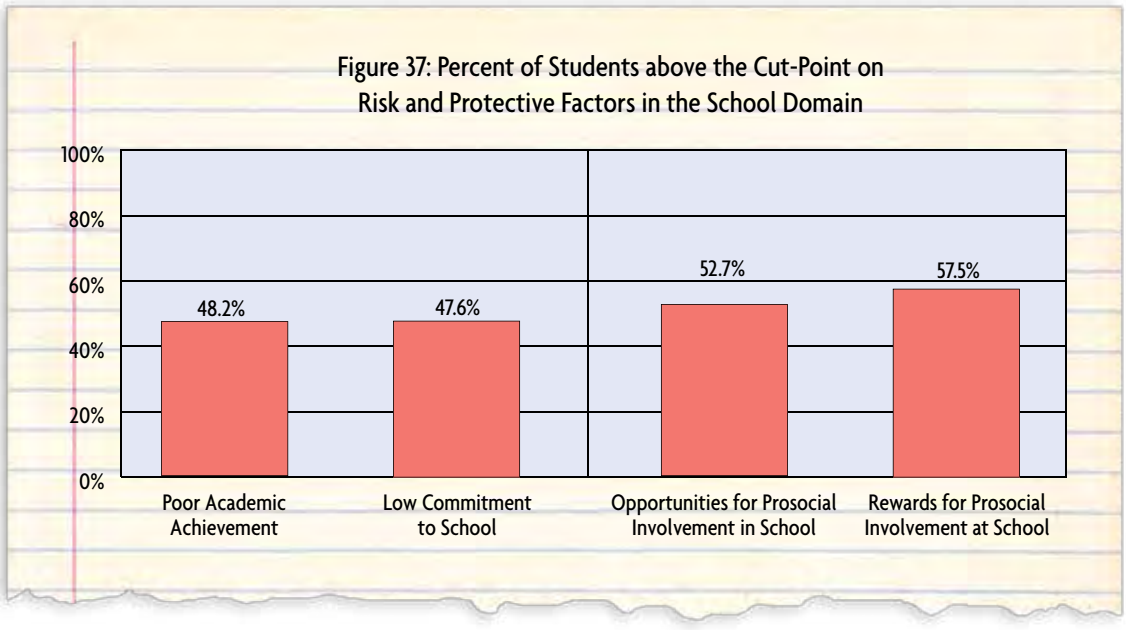
that is, community tolerance of youth using alcohol, tobacco, or other drugs. In addition, more than 40% of student participants reported perceiving alcohol, tobacco, and drugs to be readily available and relatively easy to obtain in their communities.

Figure 36: Percent of Students Above the Cut-Point for Risks in the Community Domain



School Domain

Positive involvement and higher achievement and engagement in school are associated with lower risk of substance use, delinquency, and antisocial behavior. The following chart displays the percentages of student participants who reported high rates (i.e., above the cut-point) of two risk factors (Poor Academic Achievement and Low School Commitment) and two protective factors (Opportunities for Prosocial Involvement in School and Rewards for Prosocial

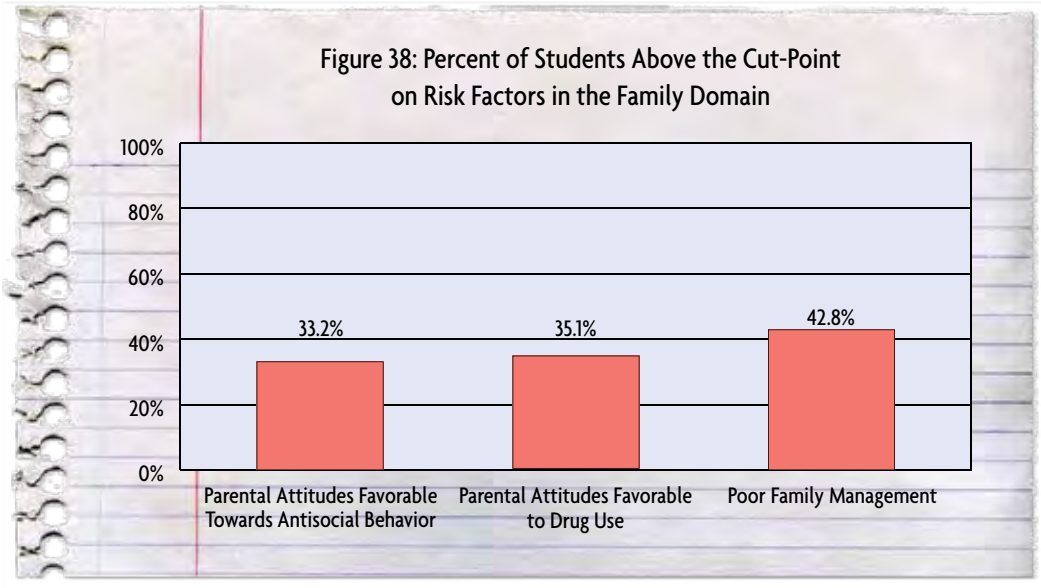


Involvement in School). Almost half of participating students stated that they earned low grades (e.g., D's and F's) in school and that they were not interested or engaged in school activities. Almost half also reported skipping or being absent from school frequently enough to fall above the risk cut-point.

At the same time, slightly more than half of student participants reported that they have a number of opportunities to engage in positive school activities, such as special classroom projects, sports and clubs, and are a part of classroom decision-making. More than half of students also reported experiencing high levels of positive reinforcement for school performance, from their teachers and other school professionals.

Family Domain

Three scales reflecting family risk factors for delinquency, substance abuse, and other social and health problems were included on the Module II survey: Parental Attitudes Favorable Towards Antisocial Behavior; Parental Attitudes Favorable To Drug Use; and Poor Family Management. About a third of students indicated that they were at- or above-risk as a result of parental attitudes towards antisocial behavior and drug use. An even larger percentage, over 40% of students, indicated living in families characterized by parents who use poor discipline practices and have little structure and few rules for their children.



Peer-Individual Domain

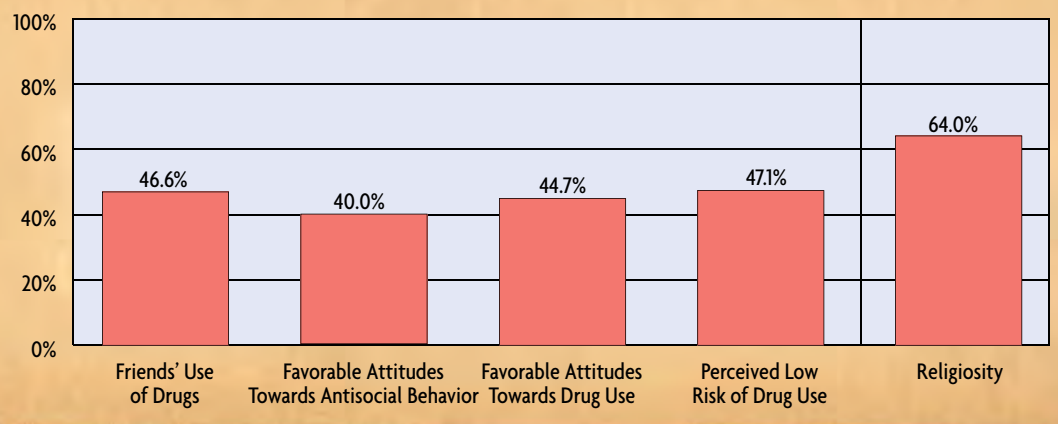
Five risk and protective factor scales that measure students' individual attitudes or behavior, and their perceptions of peers' attitudes or behavior, were included in HKCS Module II (see the figure below). More than 40% of student participants scored above the risk cut-point on Friends' Use of Drugs, Favorable Attitudes Towards Antisocial Behavior (e.g., stealing or fighting), Favorable Attitudes Towards Drug Use, and Low Perceived Risk of Using Drugs. Individual involvement in religious services or activities also was assessed; these data indicate that almost two-thirds of student participants reported protective levels of religious involvement.

Combined Risk

Experiencing multiple risk factors increases the likelihood that students will experience problematic outcomes, such as criminal behavior, substance use, and poor mental health. The risk factor scores can be aggregated to get a sense of the proportion of Module II participants who may be at greatest risk by virtue of experiencing problems in multiple areas and domains.

Following the Social Development Research Group's recommended method (see Appendix IV), the percentage of youth who were above the cut-point on four or more of the eleven risk factors was calculated. Approximately 57% or just over half of student participants report at- or above-risk levels on four of the eleven risk factor scores described above. Because the HKCS Module II survey includes only three of the thirteen protective factors, an aggregate protective factor score was not calculated and is not presented in this report.

Figure 39: Percent of Students Above the Cut-Point on Risk and Protective Factors in the Peer-Individual Domain



CONCLUSIONS AND RECOMMENDATIONS

Risk and Protective Factors

Positive Behaviors

Overall, Colorado compares favorably to the nation in key behaviors related to unintentional injuries, physical activity and nutrition, as well as prevalence rates for overweight and obesity. Of note:

- Colorado students were more likely to report using a bicycle helmet when riding a bicycle, and were less likely to report riding with a driver who was drinking or to drive after drinking than their national peers.
- Colorado students were more likely to be physically active than students nationally and were less likely to report watching television or playing video games. Although students in Colorado reported higher levels of physical activity and lower levels of sedentary activities, Colorado students were less likely to attend PE than students nationally.
- Colorado students were less likely to be overweight or obese, as calculated by BMI, when compared to other students nationally.
- Colorado students were more likely to eat green salad, potatoes, other vegetables, and to eat vegetables three or more times per day compared to the nation in 2009. However, there was no difference between Colorado students and students nationally in eating fruit, in eating fruits and vegetables five or more times per day, or in drinking milk or soda.

In 2009, Colorado students reported fewer health risk behaviors as compared to 2005 on several measures. Colorado students were less likely in 2009 than 2005 to report driving after drinking. Students in 2009 were also more likely to report physical activity, and were less likely to be obese. Furthermore, students were more likely to report eating five or more servings of fruit and vegetables per day compared to 2005.

Risk Behaviors

Colorado data indicates that students have similar health risks as students nationally for other behavior domains such as fighting, violence and bullying, substance use, mental health symptoms, and sexual behaviors. Specifically:

- There were no differences between Colorado students and their national counterparts for carrying a weapon on or off school property, missing school because they felt unsafe, engaging in physical fighting on or off school property, or being bullied. There was also no difference between these groups for partner violence or for forced sexual intercourse. Compared to 2005, Colorado students were no more likely to carry weapons, fight, or miss school due to safety concerns in 2009.
- Although not different from the nation, Colorado students in 2009 were more likely to report partner violence and forced sexual intercourse compared to Colorado students in 2005.
- There were no differences between Colorado and the nation in current substance use (30 days prior to the survey) for any reported substances including alcohol, tobacco, marijuana, or cocaine. There were also no differences in current use for Colorado between 2009 and 2005.
- Colorado students were more likely to report lifetime use (ever use) of heroin, ecstasy, and steroids in 2009 than 2005, and were more likely to report ecstasy use than students nationally. It is also important to note that although these differences exist, use of alcohol, cigarettes/tobacco, and marijuana remain the most prevalent in Colorado and nationally, and impact a much larger percentage of students than do any other illicit drugs.

- Colorado did not differ from the nation in reported symptoms of depression, seriously considering suicide or attempting suicide in the year prior to the survey. Further, these behaviors did not differ in Colorado between 2005 and 2009.
- Colorado students in 2009 were more likely to report sustaining an injury from a suicide attempt compared to 2005 and in comparison to students nationally. It is important to note that although these differences exist, the percentage of students that sustained an injury from a suicide attempt is very small compared to the prevalence of depression and other key mental health behaviors.
- Few differences exist between Colorado and the nation related to sexual behaviors. Of note, students in Colorado were less likely than the nation to report current sex (having sex in the three months prior to the survey) but were no different than the nation for having ever had sex, having had four or more partners, or having had sex before age 13.
- Finally, there were also no differences in reported behaviors related to contraception or substance use prior to having sex. Furthermore, there were no statistically significant differences in Colorado public high school students' sexual behaviors between 2005 and 2009.

II. Recommendations

It is the recommendation of the Colorado Department of Education that schools utilize this data to inform the creation and development of health and wellness programs in their schools and to address the new state standards for Comprehensive Health Education and Physical Education. Additionally, the new Health and Wellness indicators in the School and District Performance reports (SB 163) can assist districts and schools to improve rates in both risk and protective factors.

The data from the state Healthy Kids Colorado Survey can be compared to local data, available through the local version of the HKCS as well as other local data collection efforts, to improve the well-being of its students. Schools should utilize this data to make a case for creating a school health team in every school building, coordinating messages, activities, programs and funding for healthy students and safe schools, enforcing tobacco free and drug-free school policies. It has been shown that comprehensive health education, good nutrition, physical activity and education, health services, counseling and mental health services, healthy school environment, and parental and community involvement all work together to improve both health and educational outcomes. The implementation of such programs has been proven to improve test performance, attendance, and school connectedness. A Coordinated School Health approach will maximize resources and efforts across the school.

III. Future Survey Plans

Conducting the Healthy Kids Colorado Survey on a regular basis will provide valuable information on the health and behavior of Colorado students. The next statewide survey administration will occur in the fall of the 2011-2012 school year and, subsequently, on a biennial basis. Data from the next administration will provide an additional year of statewide data that can be used to assess the variation of certain behaviors over time and analyze changes among subgroups of high school students. In a continuing effort to minimize the burden on schools, the HCKS will be reviewed, modified, and efforts to condense the two modules into one instrument will be made for future administrations. Continuing the successful collaboration between the Healthy Kids Colorado Survey Coordination Team and school administrators will result in a productive survey administration process and yield representative state data. HKCS will continue to offer local administration support to schools in the collection of data that is comparable to state and national results as well.

APPENDICES

1. Survey Administration
2. Sample Selection
3. Weighting Procedures
4. Risk and Protective Factors

Appendix I – Survey Administration

The 2009 administration of the Healthy Kids Colorado Survey (HKCS) was coordinated by OMNI Institute with direction and oversight from the Colorado Departments of Education, Public Health and Environment, and Human Services Division of Behavioral Health. The HKCS is composed of two modules. The first module (HKCS Module I) is the Youth Risk Behavior Survey (YRBS). The YRBS is one component of the Youth Risk Behavior Surveillance System (YRBSS), which was developed in 1990 by the United States Centers for Disease Control and Prevention to monitor priority health risk behaviors that contribute markedly to the leading causes of death, disability, and social problems among youth and adults in the United States. The second module (Module II) of the HKCS is the Colorado State Supplement, and is largely based on the "risk and protective factor" framework that was developed by the Social Development Research Group. Additional items were developed and approved by the Colorado State Departments of Education, Public Health and Environment, Human Services (Alcohol and Drug Abuse Division), and Public Safety (Division of Criminal Justice, Office of Adult and Juvenile Justice Assistance).

Planning and recruitment for the 2009 administration began in the fall of 2008 after the 38 randomly selected schools had been identified (see Appendix II for more information on school sample selection). Ultimately, 36 of the 38 selected schools participated in Module I, yielding a 95% school-level response rate. Out of the 2,295 eligible students across the 38 selected schools, 1,515 took the survey, providing 1,511 usable questionnaires for a student-level response rate of 66%. The school-level response rate multiplied by the student-level response rate yields an overall response rate of 62%. The Centers for Disease Control and Prevention (CDC) sets a minimum response rate of 60% in order to weight the data and say that results are generalizable to all public high school students in Colorado. Therefore, Module I successfully met this criterion and achieved weighted data.

In order to administer Module II, a double sample was pulled, meaning that the same schools as Module I are selected into the sample, but different classrooms (and therefore different students) were selected to participate. Ultimately, 33 of the 38 selected schools participated in Module 2, yielding a school-level response rate of 87%. Out of the 2,115 eligible students across the 38 selected schools, 1,384 took the survey, providing 1,341 usable questionnaires for a student-level response rate of 65%. The overall response rate for Module II was 57%. This did not meet the criterion of 60% set by the CDC, and data were not weighted.

The school recruitment process was a collaborative effort between OMNI Institute and the Colorado Departments of Education, Public Health and Environment, and Human Services, Division of Behavioral Health. Because Colorado is a local control state, selected schools and districts have the option to decline participation, which is a barrier to consistently achieving usable data from year to year.

Once a school agreed to participate, classrooms were selected using an equal probability sampling with a random start method. This means that all classrooms had an equal chance of being selected into the sample. OMNI Institute provided the schools with a template for either active or passive parental consent, dependent on the school district requirements, for which the schools were responsible for distributing and collecting from students' parents. Prior to their administration dates, OMNI Institute sent each school survey booklets and survey summary forms to be completed by survey administrators at each school (typically teachers or other school personnel).

To ensure confidentiality, students were instructed not to put their names or identifying information on the questionnaire, and completed surveys were placed in a sealed envelope. Once all students had submitted their surveys, survey administrators completed a survey summary form for each classroom to indicate the total number of students who participated out of the total number of students enrolled in the class. All the surveys were then mailed to OMNI Institute in Denver, Colorado.

Upon receipt of completed survey materials, OMNI submitted all Module I surveys to Westat, a contractor of the CDC, for cleaning, weighting, and analysis. Westat then provided a data file and results report to OMNI Institute. OMNI Institute conducted additional analyses of these data, which were used in creating this report.

Module II administration followed an identical process with the exception that completed survey materials were not sent to Westat, and were instead cleaned and analyzed by research staff at OMNI Institute. Because Module II did not achieve the minimum response rate of 60%, Module II data were not weighted as has been done in prior years. Un-weighted Module II data was analyzed and presented in this report.

As noted in the introduction, local administration of the Healthy Kids Colorado Survey was also completed in the 2009-2010 school year. A total of 39,523 students in 152 schools chose to participate in the local HKCS survey. Local administration typically utilizes a full census sample method, or surveying all students in a given school rather than drawing a scientific sample. For this reason, data does not need to be weighted in order to be representative of students. However, schools implementing a full census survey should work to achieve high levels of participation from all students in order to feel confident that data is truly representative. All data from the local administration was submitted to OMNI Institute and was cleaned, analyzed, and reported back to the local community.

Appendix II – Sample Selection

Sample Description

School Level : All regular public schools containing grades 9, 10, 11, or 12 were included in the sampling frame. Schools were selected systematically with probability proportional to enrollment in grades 9 through 12 using a random start. This means that larger schools had a higher likelihood of selection into the sample. A total of 39 schools were sampled; however, one school was ineligible and therefore excluded. The remaining 38 schools were included in the final sample frame.

Class Level : All classes in a required subject or all classes meeting during a particular period of the day (i.e. 2nd period), depending on the school, were included in the sampling frame. Systematic equal probability sampling with a random start was used to

select classes from each school that participated in the survey. This means that all classes in the identified subject or period had an equal chance of selection. Although this was the methodology requested of all schools that agreed to participate, some schools were only able to offer partial participation, or classroom selection from a limited number of classes instead of all classes in a given period. With partial participation, classes are selected in the same way as full participation; however, there is a much smaller pool of classes to choose from, and therefore, fewer classes overall are selected to participate. In order to compensate for having fewer classes participate, participation rates from that school are mathematically adjusted to reflect the expected participation rate by adding fake or "dummy" students to the denominator. This adjustment greatly reduces the overall student level response rate for a given school, and can have a detrimental effect on the overall sample response rate if too many schools require partial participation.

Response Rates

Schools: 95% 36 of the 38 sampled eligible schools participated.

Students: 66% 1,515 of the 2,295 sampled students submitted questionnaires. 1,511 questionnaires were usable after data editing.

Overall Response Rate: Overall response rate is calculated by multiplying the school response rate by the student response rate: 95% * 66% = 62%[17]

Weighting

A weight has been associated with each questionnaire to reflect the likelihood of sampling each student and to reduce bias by compensating for differing patterns of nonresponse. The weight used for estimation is given by:

$$W = W1 * W2 * f1 * f2 * f3$$

W1 = the inverse of the probability of selecting the school;

W2 = the inverse of the probability of selecting the classroom within the school;

f1 = a school-level nonresponse adjustment factor calculated by school size category (small, medium, large). The factor was calculated in terms of school enrollment instead of number of schools;

f2 = a student-level nonresponse adjustment factor calculated by school;

f3 = a poststratification adjustment factor calculated by gender within grade and by race/ethnicity.

Use of the Weighted Results

The weighted results can be used to make important inferences concerning the priority health-risk behaviors of all regular public school students in grades 9 through 12.

Appendix III – Weighting Procedures

Module I

The weighting procedures described in this appendix for Module I were provided by the Centers for Disease Control and Prevention (CDC) in conjunction with their final data files. This appendix describes the procedures used to weight the YRBS data for Colorado (file attached below).

Module II

School and student response rates for Module II did not achieve the level at which data could be reliably weighted. All Module II results presented in this report involved analysis of unweighted data. The weighting procedures described in the attached document do not apply to Module II and were only utilized for Module I. Thus, results with Module II cannot be generalized to all Colorado students; results can be interpreted as reflecting risk and protective levels of only the students who completed the survey.

[17]Overall response rate is computed as (number of participating schools/number of eligible sampled schools)
*(number of usable questionnaires/number of eligible students sampled in participating schools), rounded to the nearest integer.

Appendix IV – Risk and Protective Factors

This appendix outlines the risk and protective factor items and scales represented in the Module II survey and is accompanied by the survey items comprising each scale. Information is organized by domain. Scale scores, cut-off points, and combined risk and protective factor scores were calculated using procedures provided to OMNI Institute by analysts at the Social Development Research Group.[18,19] Differences in item wording and scale score construction are noted below.

Community Domain

Risk Factor: Perceived Availability of Drugs

- If you wanted to get some cigarettes, how easy would it be for you to get some?
- If you wanted to get some beer, wine or hard liquor (for example, vodka, whiskey, or gin), how easy would it be for you to get some?
- If you wanted to get some marijuana, how easy would it be for you to get some?
- If you wanted to get a drug like cocaine, psychedelics, ecstasy, ketamine, or GHB, how easy would it be for you to get some? (Note: "amphetamines" was replaced by "psychedelics, ecstasy, ketamine, or GHB" in the HKCS version.)

Risk Factor: Laws and Norms Favorable to Drug Use

- If a kid carried a handgun in your neighborhood, or the area around where you live, would he or she be caught by the police?
- How wrong would most adults in your neighborhood, or the area around where you live, think it is for kids your age to smoke cigarettes?
- If a kid drank some beer, wine, or hard liquor (for example, vodka, whiskey, or gin) in your neighborhood, or the area around where you live, would he or she be caught by the police?
- How wrong would most adults in your neighborhood, or the area around where you live, think it is for kids your age to drink alcohol?
- If a kid smoked marijuana in your neighborhood, or the area around where you live, would he or she be caught by the police?
- How wrong would most adults in your neighborhood, or the area around where you live, think it is for kids your age to use marijuana?

[Note: One item on this scale ("If a kid smoked a cigarette in your neighborhood, would he or she be caught by the police?") is not included in the HKCS. The scale was created with 5 of the original 6 items.]

School Domain

Risk Factor: Poor Academic Performance

- During the past 12 months, how would you describe your grades in school? (Note: This item was re-worded for the HKCS. The original item was "Putting them all together, what were your grades like last year in school?")
- Are your school grades better than the grades of most students in your class?

Risk Factor: Low Commitment to School

- During the last four weeks how many whole days of school have you missed because you skipped or "cut"?
- How often do you feel that the school work you are assigned is meaningful and important?
- How interesting are most of your courses to you?
- How important do you think the things you are learning in school are going to be for you later in life?
- Now thinking back over the past year in school, how often did you enjoy being in school?

[18] *2010 Communities That Care Youth Survey Item Construct Dictionary: July 2010.*

[19] Arthur, M. W., Briney, J S., Hawkins, J. D., Abbott, R. D., Brooke-Weiss, B. L., & Catalano, R. F. (2007). Measuring risk and protection in communities using the Communities That Care Youth Survey. *Evaluation and Program Planning, 30*, 197–211.

- Now thinking back over the past year in school, how often did you hate being in school?
- Now thinking back over the past year in school, how often did you try to do your best work in school?

Protective Factor: Opportunities for Prosocial Involvement

- In my school, students have lots of chances to help decide things like class activities and rules.
- Teachers ask me to work on special classroom projects.
- There are a lot of chances for students in my school to get involved in sports, clubs, and other school activities outside of class.
- There are lots of chances for students in my school to talk with a teacher one-on-one.
- I have lots of chances to be part of class discussions or activities. (Note: This item is slightly re-worded for the HKCS from "There are lots of chances to be part of class discussions and activities.")

Protective Factor: Rewards for Prosocial Involvement

- I feel safe at my school.
- My teacher(s) notices when I am doing a good job and lets me know about it.
- The school lets my parents/guardians know when I have done well.
- My teachers praise me when I work hard in school.

Family Domain

Risk Factor: Parental Attitudes Favorable to Antisocial Behavior

- How wrong do your parents/guardians feel it would be for you to steal something worth more than $5.00 dollars?
- How wrong do your parents/guardians feel it would be for you to draw graffiti, write things, or draw pictures on buildings or other property (without the owner's permission)?
- How wrong do your parents/guardians feel it would be for you to pick a fight with someone?

Risk Factor: Parental Attitudes Favorable Towards Drug Use

- How wrong do your parents/guardians feel it would be for you to smoke cigarettes?
- How wrong do your parents/guardians feel it would be for you to drink beer, wine, or hard liquor (for example, vodka, whiskey, or gin) regularly? [Note: This item was shortened by taking out "(at least once or twice a month)" from the original item.]
- How wrong do your parents/guardians feel it would be for you to smoke marijuana?

Risk Factor: Poor Family Management

- My parents ask if I have gotten my homework done.
- Would your parents know if you did not come home on time?
- When I am not at home, one of my parents knows where I am and who I am with.
- The rules in my family are clear.
- My family has clear rules about drug and alcohol use.
- If you drank some beer, wine, or hard liquor (for example, vodka, whiskey, or gin) without your parents' permission, would you be caught by your parents?
- If you skipped school, would you be caught by your parents?
- If you carried a handgun without your parents' permission would you get caught by your parents?

Peer-Individual Domain

Risk Factor: Friends' Use of Drugs

- Think of your four best friends (the friends you feel closest to). In the past year (12 months), how many of your best friends have smoked cigarettes? [Note: The phrase "(the friends you feel closest to)" was added to the items in this section in the HKCS version.]
- Think of your four best friends (the friends you feel closest to). In the past year (12 months), how many of your best friends have tried beer, wine, or hard liquor (for example, vodka, whiskey, or gin) when their parents didn't know about it?
- Think of your four best friends (the friends you feel closest to). In the past year (12 months), how many of your best friends have used marijuana?
- Think of your four best friends. In the past year, how many of your best friends have used cocaine, psychedelics, ecstasy, ketamine, or GHB or another illegal drug? (Note: "amphetamines" was replaced by "psychedelics, ecstasy, ketamine, or GHB" in the HKCS version.)

Risk Factor: Attitudes Favorable Toward Antisocial Behavior

- How wrong do you think it is for someone your age to take a handgun to school?
- How wrong do you think it is for someone your age to steal anything worth more than $5.00 dollars?
- How wrong do you think it is for someone your age to pick a fight with someone?
- How wrong do you think it is for someone your age to attack someone with the idea of seriously hurting them?
- How wrong do you think it is for someone your age to stay away from school all day when their parents think they are at school?

Risk Factor: Attitudes Favorable to Drug Use

- How wrong do you think it is for someone your age to smoke cigarettes?
- How wrong do you think it is for someone your age to drink beer, wine, or hard liquor (for example, vodka, whiskey or gin) regularly?
- How wrong do you think it is for someone your age to smoke marijuana?
- How wrong do you think it is for someone your age to use cocaine, psychedelics, ecstasy, ketamine, or GHB, or another illegal drug? (Note: "amphetamines" was replaced by "psychedelics, ecstasy, ketamine, or GHB" in the HKCS version.)

Risk Factor: Low Perceived Risks of Drug Use

- 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 take one or two drinks of an alcoholic beverage (beer, wine, liquor) nearly every day?
- How much do you think people risk harming themselves (physically or in other ways) if they try marijuana once or twice?
- How much do you think people risk harming themselves (physically or in other ways) if they smoke marijuana regularly?

Protective Factor: Religiosity

- How often do you attend religious services or activities?

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- Centers for Disease Control and Prevention, Division of Adolescent and School Health
- Colorado Department of Education
- Commissioner of Education, Dwight D. Jones
- Colorado Department of Human Services, Division of Behavioral Health
- Colorado Department of Public Health and Environment, Prevention Services Division
- Creative Media Solutions
- OMNI Institute
- Westat, Inc.

For further Information about this report, contact:

Katie Page, MPH
OMNI Institute
899 Logan, Suite 600
Denver, Colorado 80203
(303) 839-9422, ext. 143

Andrea Sherman-Pulskamp, MPA
OMNI Institute
899 Logan, Suite 600
Denver, Colorado 80203
(303) 839-9422, ext. 154

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