HEALTHY KIDS COLORADO SURVEY

Data Brief: The Relationship Between Mental Health and Substance Use in Middle and High Schools Students in Colorado

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01 INTRODUCTION

Mental well-being is important for overall student health. Unfortunately, some students experience mental health problems that have negative consequences for their social relationships and academic performance. At the most extreme, mental health problems can lead to suicide, which is a leading cause of adolescent mortality [1].

There is a clear connection between mental health and substance use. Mental health disorders frequently co-occur with substance use disorders and effective treatment requires addressing both the substance use and underlying mental health concern [2].

This brief report describes the relationship between mental health indicators and substance use behaviors among middle and high school students in Colorado using data from the 2015 administration of the Healthy Kids Colorado Survey. The report presents the prevalence of mental health and substance use indicators by grade and by sex (male, female), and highlights the overlap in mental health and substance use behaviors.

02 BACKGROUND

The data for this report comes from the Healthy Kids Colorado Survey (HKCS).The HKCS is a voluntary and anonymous survey that collects self-reported health information from Colorado middle and high school students, grades 6-12. The survey is administered every other year, in odd years.

The HKCS is supported by the Colorado Department of Public Health and Environment, Colorado Department of Education, and Colorado Department of Human Services. The University of Colorado Anschutz Medical Campus administers the HKCS. The survey includes items from the Centers for Disease Control and Prevention's Youth Risk Behavior Surveillance System (YRBSS) and collects anonymous student information on multiple health topics, attitudes related to risk behaviors, and protective factors that influence young people to make healthy decisions.

Topics on the HKCS include nutrition, physical activity, suicide, bullying, mental health, substance use, sexual health (high school only), other health topics and youth engagement in school and their community. The HKCS results represent Colorado's middle and high school populations both statewide and for 21 Health Statistics Regions developed by CDPHE using using statistical and demographic criteria to aggregate counties. Schools, local public health agencies, community partners, and researchers use the HKCS results to assess the status of youth health. The primary use is to identify health priorities in order to better implement school- and community-based strategies to improve and maintain the health of youth across Colorado. For more information about the survey, please visit www.healthykidscolo.org.

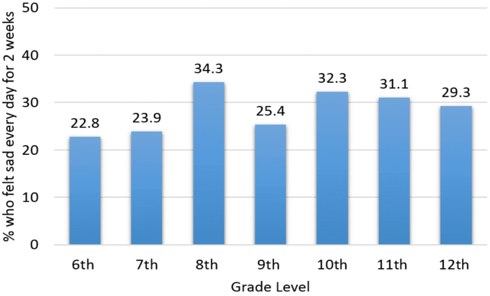
03 METHODS

The data for this report were collected in the fall of 2015 from middle and high school students. Approximately 17,000 randomly selected students from more than 157 middle schools and high schools completed a paper and pencil questionnaire in school during the fall semester of 2015.

The current report focuses on three mental health indicators: feeling so sad or hopeless for two weeks or more in a row that the student stopped doing usual activities in the past 12 months, making a plan for suicide (ever for middle school students, and in the past 12 months for high school students), and making a suicide attempt (ever for middle school students, and in the past 12 months for high school students). Substance use indicators include past month alcohol use, binge drinking, cigarette smoking, marijuana use, and misuse of prescription drugs (ever for middle school students, in the past 30 days for high school students). Also, due to its relevancy to suicide risk, we present results of having carried a weapon (ever for middle school students, in the past 30 days for high school students). Demographic information includes sex, grade in school, and gender identity (for high school students only). Results are weighted to represent the population of public high school and middle school students in Colorado.

04 MENTAL HEALTH INDICATORS BY GRADE LEVEL

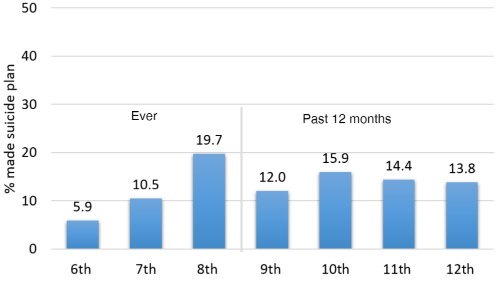
Figure 1. The percent of students who reported they felt sad or hopeless almost everyday for 2 weeks or more, by grade



Students were asked if they felt so sad or hopeless for two weeks or more that they stopped doing regular activities in the past year. Overall, among middle school students (grades 6-8), 27.2% reported feeling sad or hopeless.

Among high school students (grades 9-12) 29.5% reported feeling sad or hopeless, with 10th graders reporting this significantly more than 9th graders (Figure 1).

Figure 2. The percent of students who made a suicide plan, ever among middle school students, in the past 12 months among high school students, by grade

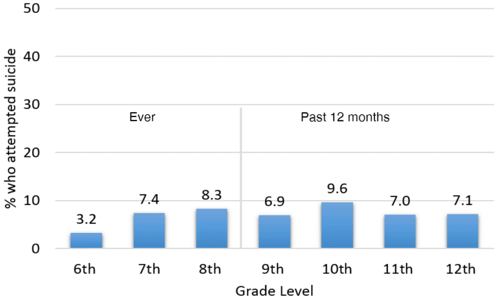


Among middle school students, 12.3% reported they had ever made a plan to attempt suicide, which was significantly higher among 8th graders compared to 6th graders.

Overall 14.1% of high school students reported having made a suicide plan in the past 12 months. This was lowest among 9th grade students and highest among 10th grade students (Figure 2).

Grade Level

Figure 3. Percent of students who attempted suicide, ever among middle school students, in the past 12 months among high school students, by grade



Among middle school students, 6.4% reported they have ever tried to kill themselves.

Among high school students 7.8% reported they attempted suicide in the past 12 months, which is more than double the middle school estimate of having ever attempted suicide.

05 SUBSTANCE USE BY GRADE LEVEL

There is a clear relationship between grade in school and substance use. Across all four substance use indicators there is a dramatic increase in past 30 day substance use from 6th grade to 12th grade. The largest average increase is for alcohol use in the past 30 days which increases from 1.6% of 6th graders to 39.6% of 12th graders (Figure 4). The least prevalent behaviors among these indicators is cigarette use. One percent of 6th graders have smoked cigarettes in the past 30 days which jumps to 10.5% for 12th graders (Figure 6).

Figure 4. Percent of students who drank alcohol in the past 30 days by grade

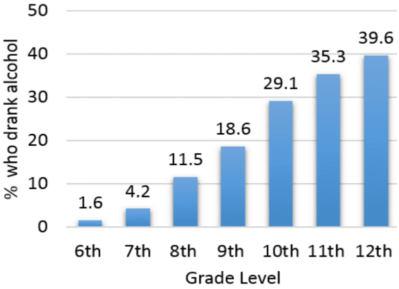


Figure 5. Percent of students who binge drank alcohol in the past 30 days by grade

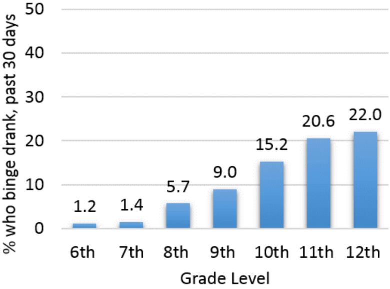
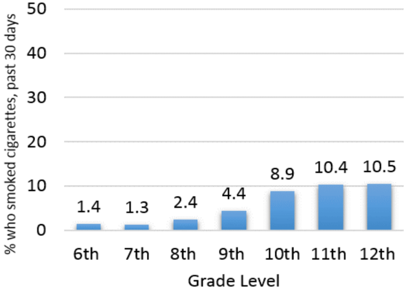
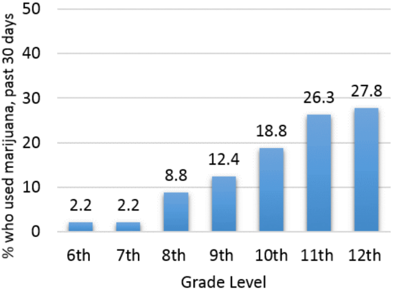


Figure 6. Percent of students who smoked cigarettes in the past 30 days by grade

Figure 7. Percent of students who used marijuana in the past 30 days by grade





06

MENTAL HEALTH AND SUBSTANCE USE BY GENDER AND GENDER IDENTITY

Mental health by sex

Middle and high school female students were more likely to report feeling sad and attempting suicide compared to male students.

FEMALE

33% of middle school females and 40% of high school females reported feeling sad for 2 weeks or more in the past 12 months

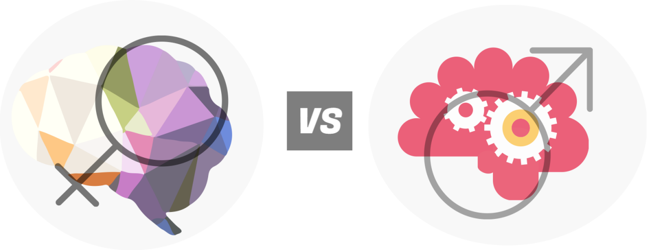
10% of middle school and 11% of high school females reported attempting suicide

VS

MALE

21% of middle school males and 20% of high school males reported feeling sad for 2 weeks or more in the past 12 months

3% of middle school and 4% of high school males reported attempting suicide



Despite female students reporting worse mental health indicators than males, the suicide rate for adolescent males is more than double that among females [3]. One explanation for this disparity is that males are more likely to attempt suicide with a firearm which is the most lethal method [3, 4].

Substance use by sex

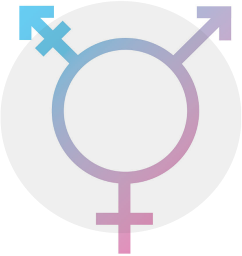
No significant difference in marijuana use between males and females in middle or high school

More females reporting drinking alcohol in the past 30 days than males in high school

No significant difference in cigarette use between males and females in middle or high school

Mental health and substance use by gender identity

The Healthy Kids Colorado Survey asks students about their sex, if they are male or female. A second question asks if students identify as cisgender or transgender. Cisgender refers to a person whose sex assigned at birth is the same as the gender they know themselves to be. Transgender refers to a person whose sex assigned at birth is different than the gender they know themselves to be.



Transgender students and those questioning their gender identity represent 2.2% and 1.7% of the hihg school population respectively. The remaining 96.2% of the population identifies as cisgender.

Transgender high school student report worse mental health outcomes and higher rates of substance use compared to cisgender students.

Being transgender is not the cause of poor mental health, but rather the associated discrimination and stigma a transgender person experiences contribute to worse mental health outcomes.

Healthy Kids Colorado Survey results have shown that when a transgender young person has a trusted adult they are more likely to have better health outcomes.

For more information about health behaviors and health disparities among transgender youth visit www.healthykidscolo.org [5].

07

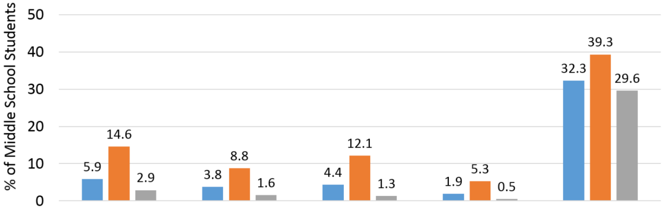
THE RELATIONSHIP BETWEEN MENTAL HEALTH AND SUBSTANCE USE

Students who reported they felt sad or hopeless for two weeks or more in the past 12 months, and those who have attempted suicide, were more likely to report substance use or having carried a weapon as compared to students who did not report feeling sad or hopeless. Figures 8 and 10 show this relationship for middle school students and Figures 9 and 11 show the relationship for high school students.

Among middle school students, 14.6% of those who felt sad reported current alcohol use as compared to 2.9% of students who did not feel sad (Figure 8). Among high school students, 43.0% of students who felt sad also reported current alcohol use compared to 25.6% of students who did not report feeling sad (Figure 9).

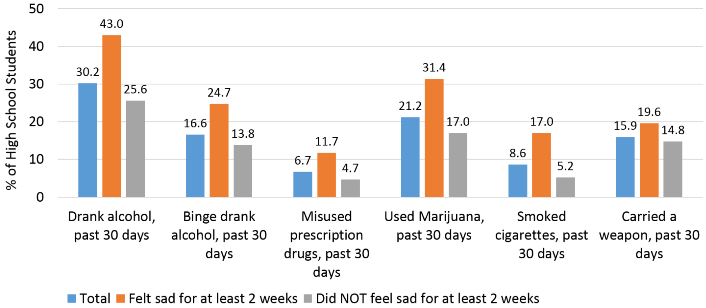
The relationship is even more dramatic for having attempted suicide. Substance use rates are twice as high among high school students who have attempted suicide (Figure 11) and many times higher among middle school students who have attempted suicide (Figure 10). Having carried a weapon is also higher among those who have attempted suicide compared to those that have not.

Figure 8: Relationship between feeling sad or hopeless and substance use and weapon carrying among middle school students



Drank alcohol, past 30 days
Misused prescription drugs, past 30 days
Used Marijuana, past 30 days
Smoked cigarettes, past 30 days
Carried a weapon, ever
Total
Felt sad for at least 2 weeks
Did NOT feel sad for at least 2 weeks

Figure 9: Relationship between feeling sad or hopeless and substance use and weapon carrying among high school students



07 THE RELATIONSHIP BETWEEN MENTAL HEALTH AND SUBSTANCE USE

Figure 10: Relationship between having ever attempted suicide and substance use and weapon carrying among middle school students

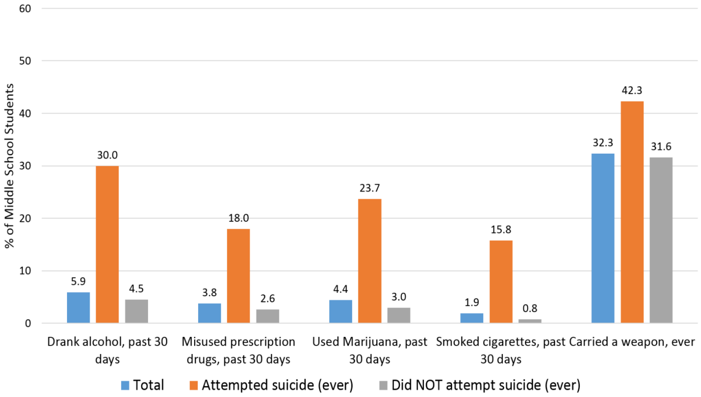
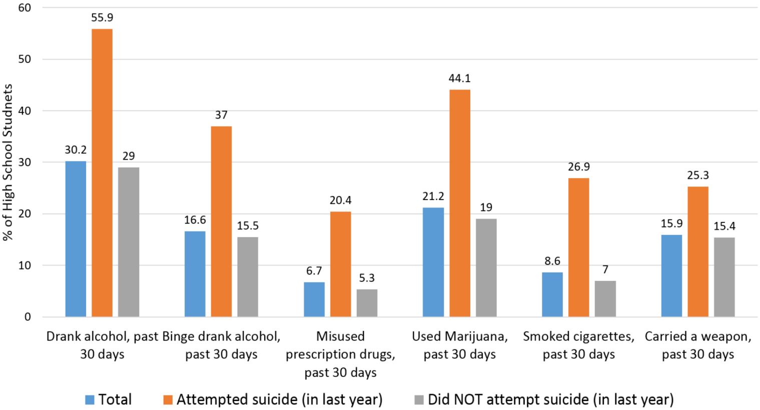


Figure 11: Relationship between having attempted suicide in the past 12 months and substance use and weapon carrying among high school students



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DISCUSSION OF RELATIONSHIP BETWEEN MENTAL HEALTH AND SUBSTANCE USE

There is a clear relationship between mental health and substance use and weapon carrying behaviors. The HKCS collects student responses at one point in time which limits the ability to infer the direction of the relationship between mental health and risk behaviors. Prior research suggests that poor mental health can exacerbate substance use, and vice versa, and that both poor mental health and substance use behaviors may share a common manner of causation [6].

Poor mental health was associated with having carried a weapon. Having carried a weapon is considered an indicator of violence, however, the students intent (aggressive, defensive, or self-harm) is unknown.

Prior HKCS analyses have found that having been in a physical fight, physically hurt by a date, or having carried a weapon were associated with worse mental health [7].

This report highlighted the relationship between mental health and substance use. Prior HKCS analyses have identified other factors associated with poor mental health including having been bullied (including having been bullied due to perceived sexual orientation or one's race or ethnicity), having been in a physical fight, experiencing dating violence, and having skipped school in the past four weeks [7].

09 KNOWN PROTECTIVE FACTORS

Students who have an adult to go to for help and those who feel safe at school are less likely to attempt suicide or feel sad or hopeless [7].

Students who participate in extracurricular activities or sports teams and those who get at least 8 hours of sleep on school nights have improved mental health indicators [7].

Students who get mostly A's and B's or think school work is important for later in life are less likely to feel sad or hopeless or attempt suicide [7].

10 CONCLUSION

A substantial proportion of middle school and high school students report poor mental health, including feeling sad or hopeless for two weeks or more and indicators of suicide risk. Mental health indicators worsen slightly during middle school and become more stable during high school.

There is a clear relationship between grade in school and substance use with an increase in alcohol, tobacco, and marijuana use over middle school and high school.

Females report worse mental health outcomes than males but there are fewer differences between males and females in the prevalence of substance use. Transgender youth report worse mental health and higher substance use than cisgender students.

Poor mental health co-occurs with substance. Students who report feeling sad or having attempted suicide are much more likely to report having used alcohol, tobacco, marijuana, or misused prescription drugs. There is also a relationship between poor mental health and having carried a weapon.

Recognizing the co-occurrence of poor mental health and substance use can be useful for school-based screening or prevention and intervention programs.

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