2018–2019

TN TOGETHER

Student Survey Results

Department of Mental Health & Substance Abuse Services

EMT
EVALUATION • MANAGEMENT • TRAINING

Contents

The Tennessee Together Student Survey was funded under a contract with the State of Tennessee Department of Mental Health and Substance Abuse Services.

The report was co-authored by EMT Associates, Inc. staff in collaboration with TDMHSAS, Division of Substance Abuse Services Prevention Team, with graphic design work provided by Brad Walker.

Executive Summary

In June 2018, the state of Tennessee adopted new legislation supporting the Tennessee Together initiative—a comprehensive state plan aimed at addressing the opioid crisis in Tennessee through expanded opioid prevention, treatment, and enforcement strategies. The new law was accompanied by a budget allocation of more than $30 million in state and federal funding to support public outreach and education, increase access to treatment for opioid addiction, and improve monitoring and data system capacity to more effectively address opioid abuse and related consequences.

As part of this effort, the Tennessee Department of Mental Health and Substance Abuse Services (TDMHSAS) Division of Substance Abuse Services (DSAS) partnered with the Tennessee National Guard and community Substance Abuse Prevention Coalitions (SAPCs) across the state to recruit local school districts to participate in a survey of youth alcohol, tobacco, and other drug use. The purpose of the survey is to inform state and local prevention planning efforts and to serve as a tool for evaluating the impact of prevention strategies aimed at reducing opioid and other alcohol and drug misuse. DSAS contracted with a local survey research firm, EMT Associates, Inc., to design the survey measurement tool, formulate the statewide sampling plan and administration process, and analyze and report survey findings.

The 2018-2019 Tennessee Together Student Survey captured data on substance use attitudes and behaviors among Tennessee public eighth-, 10th-, and 12th-grade students. The final survey sample included more than 21,000 respondents from five TDMHSAS Planning and Policy Regions, 28 counties, and more than 150 schools statewide. The Tennessee Together Student Survey represents the largest survey of youth alcohol and other drug use ever undertaken in the state. It fills a critical information gap by providing locally representative data that have been previously unavailable for most Tennessee counties or regions.

This comprehensive state report represents the culmination of this survey effort. The report presents aggregated weighted data on alcohol, tobacco, and other drug use among eighth-, 10th-, and 12th-grade students. The report includes data comparisons across demographic subgroups and TDMHSAS Planning and Policy Regions. The 2018-19 survey is the first in a series of biennial administrations that will be used to monitor trends in substance use behaviors and attitudes over time; identify emerging alcohol, tobacco, and drug use patterns; and inform state and local prevention planning and evaluation efforts to reduce substance use and related consequences throughout the state of Tennessee.

Recent Trends

Because the 2018–19 Tennessee Together Student Survey is the first biannual survey of its kind, it is important to examine recent trends in youth substance use from other surveys, when available, for context. The table included below displays Tennessee-specific results from the National Survey on Drug Use and Health (NSDUH) conducted by the Substance Abuse and Mental Health Services Administration (SAMHSA). Tennessee numbers are shown in comparison to national averages for the same time period.

Ages 12–17	Tennessee 2011–2012	National 2011–2012	Tennessee 2016–2017	National 2016–2017
Pain reliever misuse in past year	6.6%	5.6%	3.3%	3.3%
Alcohol use in past month	10.2%	13.1%	9.0%	9.5%
Binge alcohol use in past month	6.5%	7.3%	4.8%	5.1%
Tobacco use in past month	11.5%	9.3%	7.1%	5.1%
Marijuana use in past year	11.1%	13.9%	11.7%	12.2%
Marijuana use in past month	5.9%	7.6%	5.8%	6.5%

This data shows that Tennessee youth appear to misuse alcohol and marijuana at lower rates than national averages. Rates of misuse of prescription pain relievers are comparable to the national average and tobacco use is about two percent higher than the national average. Comparing state-specific statistics over time, Tennessee youth reported misusing alcohol, tobacco, and pain relievers at lower rates in 2016–2017 than in 2011–2012.

Key Findings

The 2018-2019 Tennessee Together Student Survey report summarizes key findings, including profiles of student lifetime and past 30-day use of tobacco products (including electronic cigarettes), alcohol, prescription drugs, marijuana, and other illicit drugs. The survey also captures information on related risk and protective factors that have been proven to be predictive of substance use behaviors, such as risk perception, social norms, and peer attitudes. Survey measures include:

- Lifetime and past 30-day alcohol, tobacco (including e-cigarettes), illicit drug, and prescription drug misuse;
- Age of onset of alcohol, tobacco, marijuana, and prescription drug misuse;
- Ease of access to alcohol, tobacco, marijuana, and prescription drugs, as well as methods of obtaining alcohol or prescription drugs;
- Peer substance use;
- Riding in a car with someone under the influence of alcohol or prescription drugs;
- Personal, peer, and parental approval of alcohol, tobacco, marijuana, and prescription drug misuse;
- Perceived risk of alcohol, tobacco, marijuana, and prescription drug misuse;
- Family communication about tobacco, alcohol, illicit drug, and prescription drug misuse; and
- Exposure to prevention messaging regarding the dangers of prescription drug misuse.

Prescription Drugs

Prescription drug misuse has become a significant public health problem in Tennessee. The state has the third-highest opioid prescription level per capita in the nation and one of the highest rates of preventable deaths due to opioid-related overdose.1 Students who completed the Tennessee Together survey were asked about prescription drug use behaviors, perceived availability of drugs, and attitudes and social norms concerning use. According to survey findings:

- Nearly 1 in 10 (8.9%) students misused prescription drugs in their lifetimes, and nearly four percent misused prescription drugs in the 30 days prior to survey administration. Over 20 percent of students (22.0%) who reported past 30-day misuse reported using prescription drugs on six or more days, which is classified as high-frequency use. These findings are particularly concerning given the addictive properties and potential long-term consequences of many prescription drug types—particularly opioid medications.
- The average age of initiation was 13.5 years of age. This means that most students begin misusing prescription drugs as early as middle school or early high school.
- Almost half (48.0%) of students reported that it was either "very easy" or "fairly easy" to obtain prescription drugs not prescribed to them. Of the students who reported how they obtained these drugs, the majority indicated that social networks (e.g., family, friends) were their main sources. Only 20 percent of students who reported past 30-day misuse said that they obtained these medications via a legal prescription from a doctor. This finding supports the need for prevention strategies targeting social access as a mechanism to reduce misuse.
- Perceived rates of peer, personal, and parental disapproval of use were highest for prescription drugs relative to other substances examined. Students felt that their peers would be more accepting of their prescription drug use than they or their parents would be. Approximately 12 percent of youth surveyed believed that at least one of their four closest friends had misused prescription drugs in the past year. Research has shown that peer substance use and perceptions regarding social norms and acceptability can strongly influence students' decisions regarding their own use.
- Fifteen percent of students perceived "no risk" or only "slight risk" associated with prescription drug misuse, compared to 85 percent who perceived "moderate" or "great risk." Students were more likely to perceive harm associated with prescription drug misuse than any other substance examined, which may contribute to lower relative use rates for prescription drugs when compared to other substance types.
- Only about one-third of students (36.0%) reported having a conversation about the dangers of nonmedical use of prescription drugs with their parents or guardians in the past 12 months. Parent communication is a known protective factor and may serve as an important point of intervention for encouraging more parents and family members to engage in these critical conversations.
- Approximately 60 percent (61.4%) of students recalled hearing, reading, or watching media advertisements about the dangers of using prescription drugs not prescribed to them. This indicates a moderate level of student exposure to prevention messaging, which may present opportunities for further awareness-raising activities.

Alcohol

Alcohol remains the most commonly used substance among teens in Tennessee despite the known risks to health and safety associated with underage use. Evidence suggests that adolescent onset of alcohol use is associated with greater risk of developing an alcohol use disorder (AUD) later in life.2 Teen alcohol use is also associated with increased risk behaviors, such as driving under the influence, and other related consequences.3 According to survey findings:

- Two out of five Tennessee students (39.9%) consumed alcohol while underage in their lifetime, and one in five students (18.6%) reported lifetime binge drinking, defined as consuming five or more drinks on the same occasion. The average age of initiation for alcohol use was 13.7 years of age. Approximately 17 percent of students reported drinking alcohol in the past 30 days, and about nine percent reported past-month binge drinking. Nearly four percent of students reported drinking on six or more days in the past month, and about two percent reported high-frequency binge drinking. This high-frequency use places students at heightened risk for future alcohol dependence and related consequences.

- The majority (61.7%) of Tennessee students indicated that it is "easy" or "very easy" to access alcohol. Sources of alcohol for students who reported consumption in the past 30 days revealed that most students obtained alcohol via their social networks (e.g., at a party, from a friend or family member) rather than purchasing it directly from a store or restaurant. This suggests that although Tennessee may be limiting direct alcohol sales to minors, youth still have access to alcohol from their family and friends.

- Approximately 83 percent of students felt it was "wrong" or "very wrong" to regularly drink alcohol and 86 percent perceived that their parents would disapprove of regular alcohol use. Only about 70 percent of students felt that their peers would similarly disapprove of regular drinking. This has direct implications for prevention and education planning and programming. Nearly half (45.4%) of students reported that at least one of their friends had tried alcohol in the past 12 months, and one-third (31.0%) reported that at least one friend had engaged in binge drinking in the past 30 days.

- Perception of risk may also influence youth's decisions regarding substance use. Approximately 29 percent of students surveyed perceived "no risk" or only "slight risk" associated with drinking nearly every day. Further, 22 percent of students perceived "no risk" or only "slight risk" associated with binge drinking weekly. This suggests that many Tennessee students feel that drinking, even in large quantities, poses little risk of harm to health or safety.

- An important protective factor related to youth substance use is parental communication about the risks associated with use. Students were asked to report how frequently (i.e., never, once, or more than once) they talked with their parents or guardians about the dangers of alcohol, tobacco, or other drug use (ATOD) in the past year. Only about half of Tennessee students (52.5%) reported having had at least one such conversation. This indicates an opportunity for further prevention efforts providing resources to parents that will encourage them to engage in these meaningful conversations.

Tobacco and Electronic Cigarettes

Nearly one in five deaths in the United States is caused by cigarette smoking, making it the leading cause of preventable death nationally.[4] Although the prevalence of smoking has decreased over time, the recent emergence of vaping or electronic cigarette (e-cigarette) use has contributed greatly to rising rates of tobacco consumption among youth. Whereas the long-term consequences of e-cigarette use are not yet known, research has shown that youth who use e-cigarettes are highly likely to also smoke traditional cigarettes. The health consequences associated with smoking are well established and include lung cancer, cardiovascular and metabolic diseases, and respiratory diseases.[5] According to survey findings:

- Nearly one in five (19.3%) students reported smoking at least once in their lifetimes and nearly nine percent had smoked cigarettes in the past 30 days. Almost half of all current smokers (41.1%) were smoking six or more days per month, meeting the definition for high-frequency use. The average age of initiation for cigarette smoking was 13.2 years of age. Fewer students reported lifetime (11.8%) or past month (5.5%) use of smokeless tobacco, which has also been associated with long-term health consequences, including increased risk of cancer, high blood pressure, and heart disease.

- As many as one in three students (29.8%) reported vaping or using e-cigarettes in their lifetimes—evidence of the growing popularity of e-cigarettes among teens. The average age of initiation for e-cigarettes was 14.4 years of age. Nearly 20 percent (19.1%) percent of students reported using in the past 30 days, more than double the rate of past-month cigarette use. More than half of current e-cigarette users (52.9%) reported smoking on a regular basis (i.e., six or more days in the past month). When including all types of tobacco (i.e., smokeless tobacco, cigarettes, and e-cigarettes or vaping products), tobacco was the second most commonly used substance, after alcohol, among Tennessee students. Additionally, nearly 70 percent of students felt that it was "fairly easy" or "very easy" to obtain tobacco products in their communities, which may contribute to their high use prevalence.

- Students reported that social norms regarding e-cigarettes were favorable toward use, with more than 40 percent of youth perceiving that their peers would not disapprove if they smoked e-cigarettes. More than 40 percent (41.7%) of students believed that at least one of their closest friends had vaped or used e-cigarettes in the past 12 months. Importantly, more than one-third of students (34.0%) perceived "no risk" or only "slight risk" associated with e-cigarette use. This low perception of risk and high level of perceived social acceptability may be important contributing factors to the high rates of e-cigarette use in the Tennessee student population.

Marijuana

Growth in youth marijuana use has outpaced that of conventional tobacco products (i.e., cigarettes and smokeless tobacco) within the past decade.[6] A growing body of evidence suggests that regular or heavy marijuana use during adolescence may impair brain development and increase risk for future addiction and dependence.[7] Student responses on the Tennessee Together Student Survey revealed that:

- Lifetime use of marijuana among Tennessee secondary students was similar to rates of lifetime cigarette use, with one in five students (20.2%) having used marijuana.

- Approximately 11 percent of students (11.2%) reported using marijuana in the past month and about half of those currently using (5.4%) used on six or more occasions in the past 30 days.
- The average age of first use was 14.1 years of age. This was very similar to the age of initiation reported for most other substances examined in the survey.
- Although marijuana use, for any purpose (e.g., medicinal, recreational), remains illegal in Tennessee, more than half (53.9%) of students reported that it was "fairly easy" or "very easy" to obtain. One in three students (33.1%) believed that at least one of their four closest friends used marijuana in the past 12 months, highlighting the perception that youth marijuana use is relatively widespread.
- Students largely agreed that their parents would feel that smoking marijuana would be "wrong" or "very wrong" (89.9%), whereas fewer students felt that it would be "wrong" or "very wrong" to use themselves (75.4%). Only two-thirds (66.3%) felt that their friends would disapprove. Students were also asked to rate the perceived risks associated with experimentation (e.g., "trying marijuana once or twice") as well as with regular or routine use (e.g., "smoking marijuana once or twice per week"). Slightly more than half of students (51.1%) perceived "no risk" or only "slight risk" of trying marijuana once or twice, and 38 percent perceived "no risk" or only "slight risk" with smoking marijuana once or twice per week.
- Despite recent statewide efforts to educate the public on potential health risks, many Tennessee students are actively engaging in marijuana use, with many using the drug on a regular basis. Perceived social acceptability, which may be associated with recent legalization in other states, combined with a low perceived risk of harm, may be contributing to growing rates of marijuana experimentation and use among adolescents throughout Tennessee.

Other Drugs

Measures of illicit drug use on the Tennessee Together Student Survey included lifetime use of methamphetamines and lifetime use of any other illegal drug types excluding marijuana. The survey also contained separate measures of past 30-day use of cocaine, inhalants, hallucinogens, heroin, steroids, ecstasy, and methamphetamines. Due to low overall levels of prevalence, the past 30-day use measures for cocaine, inhalants, hallucinogens, heroin, steroids, ecstasy, or methamphetamines were also combined into a measure of past 30-day use of any illicit drug(s) excluding marijuana. According to survey findings:

- About three percent of Tennessee students have used an illicit drug in their lifetimes.
- Over half of the students who reported lifetime use of illicit drugs, or nearly two percent (1.7%) of the total student population, also reported using these drugs in the past 30 days. One-third (33.5%) of current users engaged in illicit drug use on six or more days in the past month. This high-frequency use pattern accounts for less than one percent (0.6%) of the student population.
- High-frequency use was highest among youth who reported past 30-day use of methamphetamines (60.0% of students who reported past 30-day use), heroin (40.0% of students who reported past 30-day use), and steroids (40.0% of students who reported past 30-day use).

In Summary

The 2018-2019 Tennessee Together Student Survey captured data on substance use attitudes and behaviors among more than 21,000 eighth-, 10th-, and 12th-grade students enrolled in Tennessee public middle and high schools. This survey was the first in a series of biennial survey administrations that will help identify emerging patterns of alcohol and other drug use, as well as help monitor changes in use, attitudes, and behaviors over time. Importantly, in addition to information about state-level patterns of use and related attitudes and behaviors, participating counties were also provided with local-level information on all measures to inform grassroots substance use prevention efforts tailored to local needs.

The survey confirmed many anticipated patterns of use, including high rates of alcohol and tobacco use—the two most commonly used substances among Tennessee adolescents. The survey also uncovered newly emerging patterns of e-cigarette and marijuana use, along with high levels of social acceptability and low perceived risk.

Collectively, student-reported substance use and related attitudes and behaviors revealed many potential opportunities for prevention, intervention, and community education efforts moving forward. For example, targeting the social norms surrounding e-cigarettes and marijuana use should be important foci of future efforts. Data on age of initiation and use patterns also show that the use of all substance types, on average, originates in late childhood and early adolescence and this use increases with age. This finding offers insight into the importance of timing primary prevention strategies to prevent onset before students transition to regular use. It also emphasizes the need for interventions focused on those who have already initiated use, particularly when considering high school students.

NOTES

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Introduction

In June 2018, the state of Tennessee adopted new legislation supporting the Tennessee Together initiative—a comprehensive state plan aimed at addressing the opioid crisis in Tennessee through an expansion of opioid prevention, treatment, and enforcement strategies. The new legislation was accompanied by a budget allocation of more than $30 million in state and federal funding to support public outreach and education, increased access to treatment for opioid addiction, and improved monitoring and data system capacity to more effectively address opioid abuse and related consequences.

As part of this effort, the Tennessee Department of Mental Health and Substance Abuse Services (TDMHSAS) Division of Substance Abuse Services (DSAS) partnered with the Tennessee National Guard and community Substance Abuse Prevention Coalitions (SAPCs) across the state to recruit local school districts to participate in a survey of youth alcohol, tobacco, and other drug use. The purpose of the survey is to inform state and local prevention planning efforts and to serve as a monitoring tool for evaluating the impact of prevention strategies aimed at reducing opioid and other alcohol and drug misuse. DSAS contracted with a local survey research firm, EMT Associates, Inc., to design the survey measurement tool, to formulate the statewide sampling plan and administration process (in collaboration with the National Guard and SAPCs), and to analyze and report survey findings. This comprehensive report represents the culmination of this effort and establishes baseline measurements for monitoring trends in prevalence and patterns of substance misuse among young people across Tennessee.

The 2018-2019 Tennessee Together Student Survey captured data on substance use attitudes and behaviors among eighth-, 10th-, and 12th-grade students enrolled in Tennessee public middle and high schools. The survey sample included more than 21,000 youth respondents and covered five TDMHSAS Planning and Policy Regions, 28 counties, and more than 150 public schools statewide. It represents the largest survey administration addressing youth behavioral health ever undertaken within the state.

This statewide report summarizes key findings from the youth survey, including profiles of student lifetime and 30-day use of tobacco products (including electronic cigarettes), alcohol, prescription drugs, marijuana, and other illicit drug types. The survey also captured information on related risk and protective factors, such as risk perception, social norms, and peer attitudes, which are often predictive of substance use behaviors.

Findings from the report are intended for use by TDMHSAS and other state agencies, SAPCs, local school districts, and other key stakeholders. Findings will help identify emergent needs related to alcohol and drug prevention; monitor changes in alcohol, tobacco, and drug use prevalence and attitudes over time; and assess the impacts of community efforts to prevent and reduce youth alcohol and drug misuse within local schools and communities. The report is organized into three major sections. The first section presents a brief discussion of the survey methodology, including the sampling design, administration procedures, and analytical methods used to generate report findings. The second section describes the respondent sample, including regional and county participation rates, number and types of participating schools, and demographic characteristics of students in the unweighted sample, including gender, grade, and race/ethnicity. The third section summarizes weighted survey findings organized by major substance type. The report concludes with a synthesis of key findings and implications for statewide assessment and planning. This report is also accompanied by a compendium that includes statewide survey results displayed in detailed tables, as well as results disaggregated by TDMHSAS Planning and Policy Region to further inform state and regional planning, monitoring, and evaluation efforts.

Survey Methods

The 2018-2019 Tennessee Together Student Survey administration was launched in August 2018 through a collaborative effort involving DSAS, EMT Associates, Inc., and the Tennessee National Guard. Although the survey administration was open to all counties in the state, the recruitment strategy focused primarily on the 46 counties with funded coalitions, which served as points of access to local school districts. Once coalition participation was confirmed, EMT research staff worked directly with SAPCs to create the survey sampling plan and to coordinate logistical arrangements for the administration process with local school districts.

Survey Instrument

The Tennessee Together Student Survey measurement tool comprises 24 core questions and 70 sub-questions, covering each of the following constructs:

- Lifetime and past 30-day alcohol, tobacco (including e-cigarettes), illicit drug, and prescription drug misuse;
- Age of onset of alcohol, tobacco, marijuana, and prescription drug misuse;
- Ease of access to alcohol, tobacco, marijuana, and prescription drugs, and methods of obtaining alcohol or prescription drugs;
- Peer substance use;
- Riding in a car with someone under the influence of alcohol or prescription drugs;
- Personal, peer, and parental approval of alcohol, tobacco, marijuana, and prescription drug misuse;
- Perceived risk of alcohol, tobacco, marijuana, and prescription drug misuse;
- Family communication about tobacco, alcohol, illicit drug, and prescription drug misuse; and
- Exposure to prevention messaging regarding the dangers of prescription drug misuse.

The survey questionnaire was adapted from the Tennessee Partnerships for Success Rx (PFS-Rx) Student Survey, which was originally developed by EMT Associates, Inc., as part of an evaluation of the Substance Abuse and Mental Health Services Administration (SAMHSA) PFS-Rx discretionary grant program. This survey was designed to support outcome measurement in compliance with federal performance requirements associated with both the PFS-Rx and Drug Free Communities (DFC) federal grant programs. The survey was modified for Tennessee Together to provide additional measurements of electronic cigarette use to reflect emerging trends in youth tobacco use.

Sampling Plan

The Tennessee Together Student Survey sampling plan was designed to ensure that survey results would be representative not only of the state but also the local county student populations in all counties that opted to participate. Schools in the sample were selected using a stratified cluster design to ensure the validity and representativeness of results by county. Schools in participating counties were randomly selected into the sample until the minimum number of students in the sampling pool for the county was met. Any school that declined to participate in the survey administration was replaced with another randomly selected school in the same county, whenever possible. Selected schools were instructed to survey a census of students within each targeted grade level to avoid selection bias at the classroom level. The minimum sample size was determined for each county based on the size of the enrolled student population within each grade level, a 95 percent confidence interval, and a sampling error of plus-or-minus five percent. For each county, the targeted minimum sample was inflated to account for non-participation and to ensure that the minimum number of completed surveys could be achieved. The final survey sample included 28 counties, 152 schools, and 21,766 students.

Survey Administration Procedure

Schools coordinated the survey administration in consultation with SAPCs and with support from EMT survey research staff. Technical assistance was provided to ensure consistency of administration procedures across sites and to assure confidentiality and protection of student privacy rights. Prior to survey administration, EMT shipped all survey materials, including administration instructions, copies of paper surveys, and sample active and passive consent forms, to the SAPCs or directly to participating schools. Schools chose to use either passive or active consent to obtain permission from parents or guardians for student participation. Eighty-four percent of schools relied on passive consent, and the remaining 16 percent used active consent. In addition to parental consent, each student's participation was voluntary and anonymous. No personally identifiable student information was recorded on the survey form. Schools and districts also had the option to administer the survey online or to use scannable paper survey forms. Approximately 50 percent of students in the total sample completed the survey on paper, and the other 50 percent completed the survey online.

Analysis and Reporting

The final sample of 21,766 youth respondents accounted for 61 percent of the student population in targeted grade levels enrolled across participating schools. School participation rates varied based on whether active (30%) or passive (65%) parental consent was used. Of the 28 counties that participated in the survey, 18 met or exceeded the minimum sample size established for their county and 10 fell below target.

Completed surveys were returned to EMT for processing, data cleaning, and analysis. Item responses were reviewed for completeness and accuracy, including checks for internal consistency of survey responses across related variables. Missing values were not replaced as part of the analysis. More detailed discussion of specific data cleaning and analysis steps is contained in the 2018-2019 Tennessee Together Student Survey Codebook, which is available from DSAS upon request.

Post-stratification weighting of survey responses by school and by grade level was used to adjust for school and student nonresponse. School enrollment information from the Tennessee Department of Education 2017-2018 Membership File was used to estimate student populations by school and county. The overall weights were scaled so that the weighted count of students equaled the total statewide enrolled population and the weighted proportions of students in each grade level matched statewide population proportions. Accordingly, weighted estimates were representative of all eighth-, 10th-, and 12th-grade students attending public schools in Tennessee. To account for the complex sampling design, statistical analyses were conducted on

the weighted data using STATA analytic software. Prevalence estimates and confidence intervals (95% CIs) were calculated for all variables.

Analysts generated weighted findings for the state and for each county. The team produced and disseminated county-level reports to each local SAPC, which, in turn, shared results with participating schools and other key stakeholders. The analysis team also produced unweighted school district-level summaries for counties or school districts upon request.

Limitations of the Data

The inaugural administration of the 2018-2019 Tennessee Together Student Survey has provided the largest ever single source of survey information on alcohol, tobacco, prescription drug, and illicit drug use among school-age youth in Tennessee. Although the survey is representative of the Tennessee student population in targeted grade levels, there are important caveats that should be considered when interpreting survey findings. Although the Tennessee Together Student Survey involved statewide outreach and recruitment of Tennessee counties and local school districts, the sample was largely limited to counties with operational SAPCs. Future survey administrations should focus on expanding and refining outreach and recruitment strategies to encompass a broader array of counties, including those with no formal prevention infrastructure for addressing opioid and other substance abuse and related consequences. Similarly, the outreach effort was not as successful in terms of recruiting larger metropolitan counties as it was in recruiting suburban and rural counties and school districts. This is attributable, in part, to competing survey administration efforts that were taking place within these large urban districts within the same time frame. For this reason, survey findings might be less generalizable to large, urban districts. Additionally, subgroup analyses did not examine rural/urban comparisons and instead focused on TDMHSAS Planning and Policy Regions. However, even given these limitations, comparisons to findings on key indicators of substance use from other school-based surveys (e.g., the Youth Risk Behavior Surveillance [YRBS] Survey) do suggest that results for the Tennessee Together Student Survey are reliable at the state level.

At the local level, there were also participating SAPCs that committed to the survey effort, but difficulty was experienced in recruiting targeted school districts or schools into the survey sample. This resulted in some counties having lower than anticipated response rates and survey samples that were not sufficient to represent the county student population.

It is also important to note that the findings presented in this report apply only to Tennessee youth who attend public schools. Youth in private or homeschool settings were not included in the sample. Therefore, survey findings are not representative of all youth in the state. However, according to the 2017 American Community Survey (ACS), 87.8 percent of Tennessee youth ages 10 to 14 years and 86.6 percent of youth ages 15 to 17 years are enrolled in public school settings.

Respondent Sample

The 2018-2019 Tennessee Together Student Survey unweighted sample included responses from 21,766 eighth-, 10th-, and 12th-grade students enrolled in public middle and high schools across East, Middle, and West Tennessee. The following profile describes the survey sample based on regional and county representation, rural and non-rural county designation, school and district participation, and demographic characteristics of participants, including grade, age, gender, and race/ethnicity.

County and School Participation

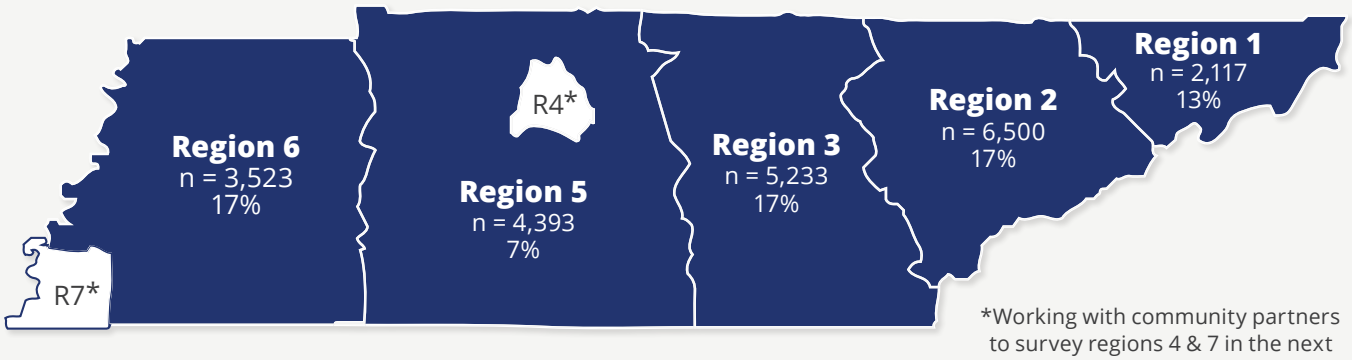
The final survey sample comprised 28 counties including 12 counties in East Tennessee (n = 10,066 students), 11 counties in Middle Tennessee (n = 8,177 students), and five counties in West Tennessee (n = 3,523 students). The size of the potential sampling pool (i.e., the enrolled eighth-, 10th-, and 12th-grade student population) in participating counties ranged from 208 students in Clay County to 9,563 in Williamson County, demonstrating the variation in county and district size across participating communities. Sixteen of the 28 counties are designated as rural and 12 as non-rural, based on definitions outlined by the Federal Office of Rural Health Policy.[1] Fifty-eight percent of survey respondents were from rural counties and 42 percent from non-rural. This represents an overrepresentation of rural counties compared to the state population of eighth-, 10th-, and 12th-grade students, of which 23 percent live in rural communities and 77 percent in non-rural.

Five of seven TDMHSAS Planning and Policy Regions were represented in the survey sample. This excludes Region 4 (Davidson County) and Region 7 (Shelby County), which are each composed of a single, large, urban county that opted not to participate. The student survey sample represents data from students enrolled across 28 counties and 152 middle and high schools statewide. This includes a mix of small, medium, and large schools. The geographic distribution of the survey sample is described in more detail in Exhibit 1 and is shown by TDMHSAS Planning and Policy Region in Exhibit 2.

Exhibit 1. Distribution of the 2018-2019 Tennessee Together Student Survey Sample

	COUNTIES			SCHOOLS			STUDENTS		
Area	Sample	Pop.	%	Sample	Pop.	%	Sample	Pop.	%
Tennessee	28	95	29%	152	890	17%	21,766	217,616	10%
East	12	33	36%	76	319	24%	10,066	74,653	13%
Middle	11	41	27%	51	338	15%	8,177	89,763	9%
West	5	21	24%	25	233	11%	3,523	53,200	7%
Rural	16	53	30%	85	298	29%	9,204	50,892	18%
Non-rural	12	42	29%	67	592	11%	12,562	166,724	8%
Region 1	5	8	63%	23	78	29%	2,117	15,940	13%
Region 2	6	16	38%	43	154	28%	6,500	38,904	17%
Region 3	8	23	35%	39	145	27%	5,233	30,043	17%
Region 4	0	1	0%	0	77	0%	0	16,866	0%
Region 5	4	26	15%	22	203	11%	4,393	62,663	7%
Region 6	4	20	20%	25	109	23%	3,523	21,010	17%
Region 7	0	1	0%	0	124	0%	0	32,190	0%

Exhibit 2. Percent of total regional population represented in the survey sample (n = 21,766)



*Working with community partners to survey regions 4 & 7 in the next administration.

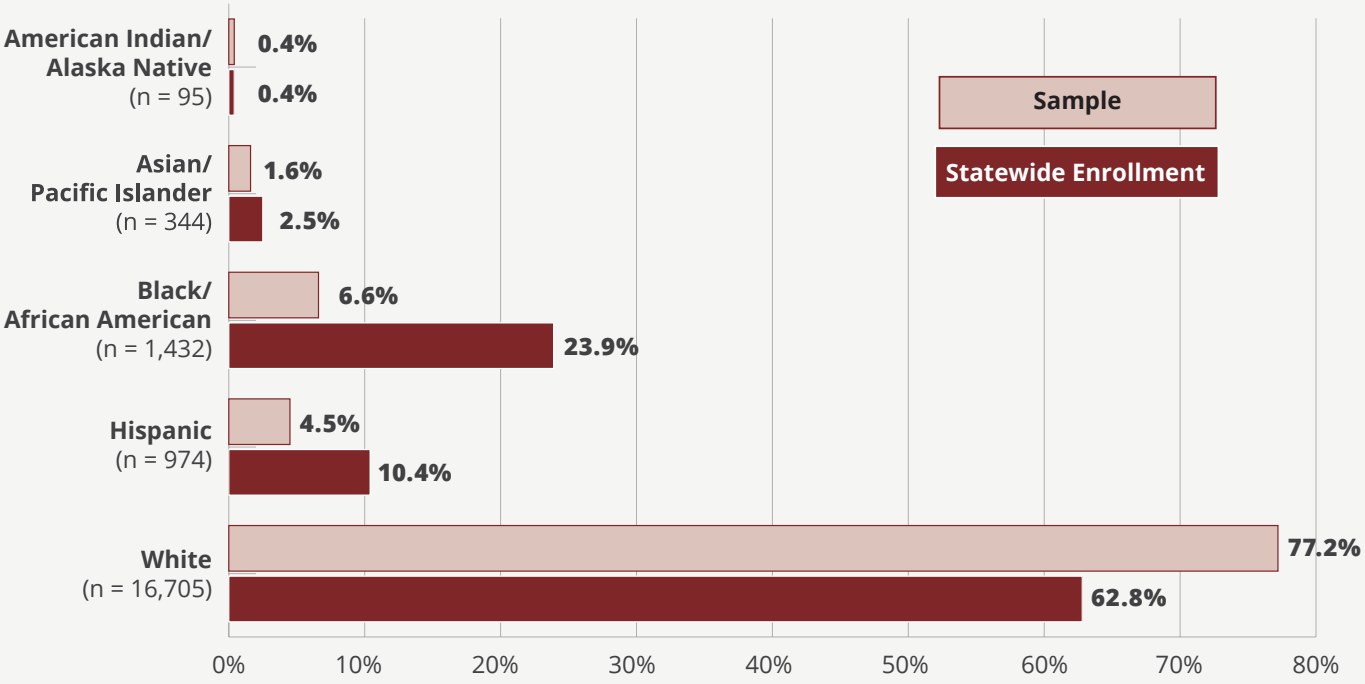
Participant Characteristics

Of the 21,766 participants in the unweighted survey sample about 44 percent were eighth-grade students, 32 percent were 10th-grade students, and 24 percent were 12th-grade students. About 10 percent of survey participants were over the age of 18 upon survey completion. The sample was evenly divided between male (49.4%) and female participants (48.8%), with less than two percent of students (1.8%) identifying as "other."

The race/ethnic composition of the respondent sample was predominantly White, comprising about 77 percent of all students surveyed. This group was overrepresented in the sample relative to their proportion of the statewide student population (62.8%) based on Tennessee Department of Education enrollment data (see Exhibit 3). About seven percent of surveyed students self-identified as Black or African American, compared to 24 percent of the statewide student population. Hispanic students were also underrepresented, comprising nearly five percent of survey respondents relative to 10.4 percent of the enrolled student population statewide. It should be noted that another 10 percent of students self-identified as either "multi-race" or "other" races—categories that are not represented in state enrollment data and that may be accounted for in other non-White racial categories. Overall, the 2018-2019 Tennessee Together Student Survey sample was less diverse than the demographic composition of the state, which most likely reflects the omission of the three largest urban counties—Davidson, Knox, and Shelby. These are among the largest and most racially and ethnically diverse counties in the state. Survey administrators are working with community partners to include these large urban counties in the next survey administration.

The next several sections of the report summarize student responses to Tennessee Together Student Survey items, including measures of lifetime use and age of initiation, past 30-day use, availability and access, peer use, peer and parental approval, perceptions of risk, and exposure to prevention messaging in the community. Results are disaggregated by gender, grade level, and race or ethnicity, as well as by region.

Exhibit 3. Demographic characteristics of the sample compared to statewide characteristics



NOTES

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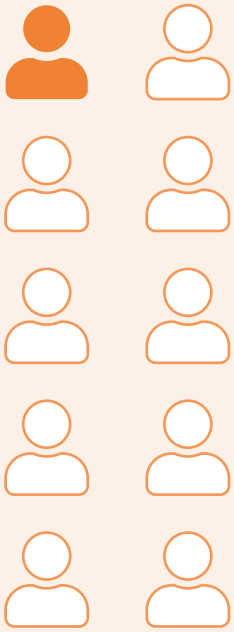
Prescription Drug Misuse



One in ten students in Tennessee reported ever having misused prescription drugs.

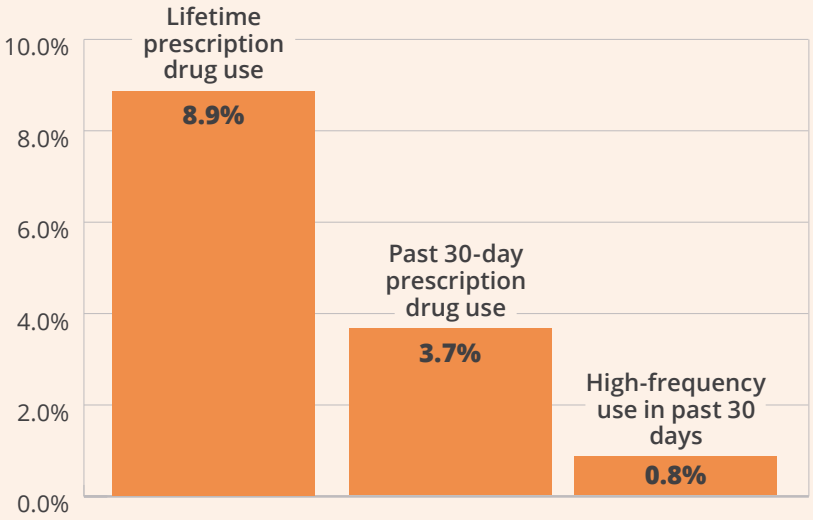
Prescription and over-the-counter drugs are now the most commonly misused substances among teenagers in the United States, after tobacco, marijuana, and alcohol.[1] The increase in prescribing of opioid medications over time has led to widespread misuse, often resulting in physical dependence and addiction. The State of Tennessee now has the third highest opioid prescription level per capita in the nation and one of the highest rates of preventable deaths due to opioid-related overdose.[2] The aim of the Tennessee Together statewide initiative is to address the opioid crisis in Tennessee. To that end, the Tennessee Together Student Survey included an extensive set of measures of youth prescription drug misuse (frequency, prevalence, and age of initiation), potential risk and protective factors contributing to use, and related risk behaviors. Findings are detailed in the following sections.

Lifetime and 30-Day Use Patterns

For the Tennessee Together Student Survey, prescription drug misuse was defined as "using a prescription medication that was not prescribed to you." This is consistent with the measure from SAMHSA's National Survey of Drug Use and Health (NSDUH), allowing for comparison with national data findings. Prescription medications specifically referenced on the Tennessee Together Student Survey include prescription pain relievers, such as OxyContin, Percocet, Vicodin, or Codeine; stimulants, such as Adderall or Ritalin; and tranquilizers, such as Xanax. This group includes measures for three prescription drug types—Adderall, tranquilizers, and prescription opioid medications—that have also been identified on the national Monitoring the Future youth survey as the most commonly misused prescription drugs, allowing for further comparison to national data findings.[3]

The Tennessee Together Student Survey included two core measures of prescription drug misuse prevalence—lifetime and past 30-day use. Lifetime use measures any misuse of prescription medications within the respondent's lifetime. According to survey findings, about one in ten students (8.9%) reported at least one instance of using prescription drugs not prescribed to them. Expanding this finding to the statewide population, this suggests that more than 19,000 middle and high school-age youth across the state of Tennessee have misused prescription medications at some point in their lifetime, placing themselves at risk for harmful consequences. The average age of initiation was 13.5 years of age. Notably, research studies have shown that about a quarter of youth who begin abusing prescription drugs at age 13 or younger will meet clinical criteria for addiction at some point in their lifetime.[4]

Students were also asked about current misuse of prescription drugs, defined as any use in the 30 days prior to the survey administration. Survey findings indicated that about four percent of students in the sample reported current use of prescription medications without a doctor's prescription. Of the students who reported any past 30-day prescription drug misuse, over 20 percent (21.6%) could



AVERAGE AGE OF INITIATION

13.5 years old

HIGH-FREQUENCY USERS

22%

of students who reported any use in the past 30 days reported using on six or more days

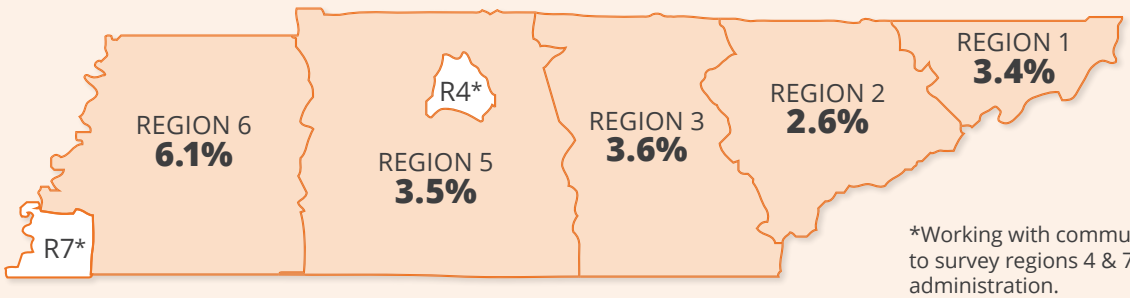
Exhibit 4. Lifetime and past 30-day prevalence of prescription drug misuse

be classified as "high-frequency users," defined as using on six or more days over a 30-day period. There are a number of factors that may increase an individual's risk for high-frequency or problem use, including acute and chronic pain, physical health problems, a history of depression or other mental health disorders, or the use of other licit or illicit substances. Youth who have witnessed a family member overdose, or who have friends who misuse prescription drugs, are also at significantly increased risk.[5] Lifetime use, 30-day use, and high-frequency use rates for youth within the Tennessee Together Student Survey sample are shown in Exhibit 4.

Survey measures were assessed for differences in use rates by gender, race/ethnicity, grade level, and geographic location within the state (i.e., TDMHSAS Planning and Policy Region). For measures of both lifetime and 30-day use, prevalence rates increased between middle school and high school, with an apparent plateau effect around 10th grade. For example, eighth-grade students reported significantly lower rates of past 30-day prescription drug misuse (2.6%) compared to 10th- and 12th-grade students (4.4% and 4.1%, respectively). There were also small but significant gender differences in measures of lifetime use and past 30-day use, in which female students reported slightly higher rates of use than male students (9.5% versus 7.8%, respectively, for lifetime use; 4.0% versus 2.9%, respectively, for past 30-day use). Examining prescription drug use prevalence by racial/ethnic subgroups, Hispanic students were the least likely to report any lifetime misuse (6.2%) compared to White (8.6%) or Black (10.1%) students. Trends were similar for past 30-day use, with Black students (5.0%) reporting the highest rates compared to White (3.3%) or Hispanic (2.8%) students. There were no significant differences related to students' race or gender for age of initiation.

There was some variation in misuse rates when comparing student responses across TDMHSAS Planning and Policy Regions. Specifically, reported lifetime use was significantly higher in Region 6 in West Tennessee (13.3%) than in any other region in the state. Students from Region 6 also reported significantly higher prevalence of past 30-day use, with rates that were nearly double those of any other region represented in the Tennessee Together Student Survey sample (see Exhibit 5).

Exhibit 5. Regional map of past 30-day misuse of prescription drugs



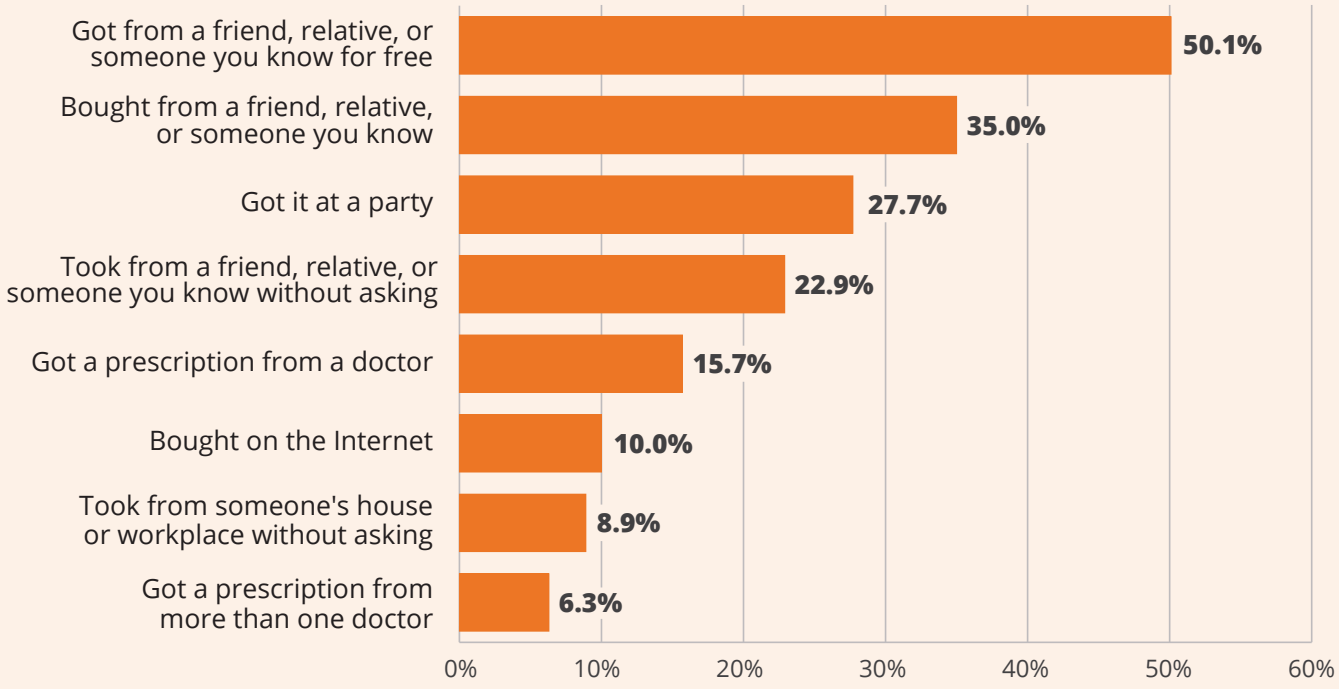
*Working with community partners to survey regions 4 & 7 in the next administration.

Prescription Drug Availability and Access

Prevention strategies to address prescription drug misuse often focus on reducing the excess supply of prescription medications in a community by targeting safe and appropriate prescribing practices and safe storage and disposal of unused medications. The Tennessee Together Student Survey included measures of students' perceived ability to access various substance types, including prescription medications. Specifically, students were asked how "easy" or "difficult" it is in their community to access prescription drugs for the purpose of getting high. Almost half (48.0%) of all students statewide reported that it was either "very easy" or "fairly easy" to obtain drugs not prescribed to them. High school-age students in the 10th (51.3%) and 12th (51.7%) grades reported easier access to medications than students at the middle school level (41.3%). There were also significant differences based on gender, with female students reporting easier access (50.1%) than male students (44.5%). There were no statistically significant differences reported by students' race. Additionally, there was little regional variation on this measure, with Region 1 reporting the lowest ease (48.6%) and Region 6 the highest (51.6%). Collectively, these findings confirm that prescription drugs in most Tennessee communities remain widely available and relatively easy for school-age youth to obtain for nonmedical use.

Students who reported misuse of prescription drugs in the past 30 days were asked to share information about the source(s) of their prescription medications (see Exhibit 6). It should be noted that only four percent of students reported any past 30-day misuse of drugs, and of those, only half provided

Exhibit 6. Sources of prescription drugs among students who reported any past 30-day use



additional information about how they had obtained them. This subgroup of students represents only about two percent of the entire respondent sample. Students most commonly obtained prescription medications for free (50.1%) or bought them from a friend, relative, or someone they knew (35.0%). Students also reported getting drugs from a party (27.7%) or taking them from a friend, relative, or someone they knew without asking (22.9%). Approximately 15 percent (15.7%) of respondents reported misusing prescription drugs that were obtained via a legitimate prescription. Relatively few students reported obtaining prescriptions from multiple doctors (6.3%), a practice commonly referred to as "doctor shopping." Overall, survey findings suggest that students who misused prescription drugs were most commonly accessing them through their family and social networks or obtaining them legally from a doctor.

Related High-Risk Behaviors

The Tennessee Together Student Survey also asked students about the extent to which they engaged in certain risk behaviors related to their prescription drug misuse or misuse by those around them. Specifically, the survey asked students if they had ever ridden in a car with an impaired driver who was under the influence of prescription medications, and if they had done so in the past 30 days. Approximately eight percent of students reported ever having ridden in a car with a driver who was under the influence, and nearly five percent of students reported riding with a drug-impaired driver in the past 30 days. As anticipated, the risk of exposure to impaired driving increased slightly from middle to high school as more students reach the age where they and their peers become licensed drivers. Specifically, 10th- and 12th-grade students reported higher lifetime prevalence of riding in a car with an impaired driver (8.9% and 8.6%, respectively), compared to eighth-grade students (7.1%). There were also significant differences based on respondent race and gender, with Hispanic students (5.0%) significantly less likely than White (8.0%) or Black (8.0%) students, and male students (6.7%) significantly less likely than female students (9.0%), to have ridden with someone who was under the influence of prescription drugs. There was also a significant range of regional prevalence, with Region 6 students reporting the highest engagement in this behavior (11.1%) and Region 1 students reporting the lowest (6.9%). The other three regions' rates fell in between these two, with Regions 2 and 5 both reporting 7.4 percent and Region 3 students reporting the second highest prevalence at 8.5 percent.

Other Risk and Protective Factors

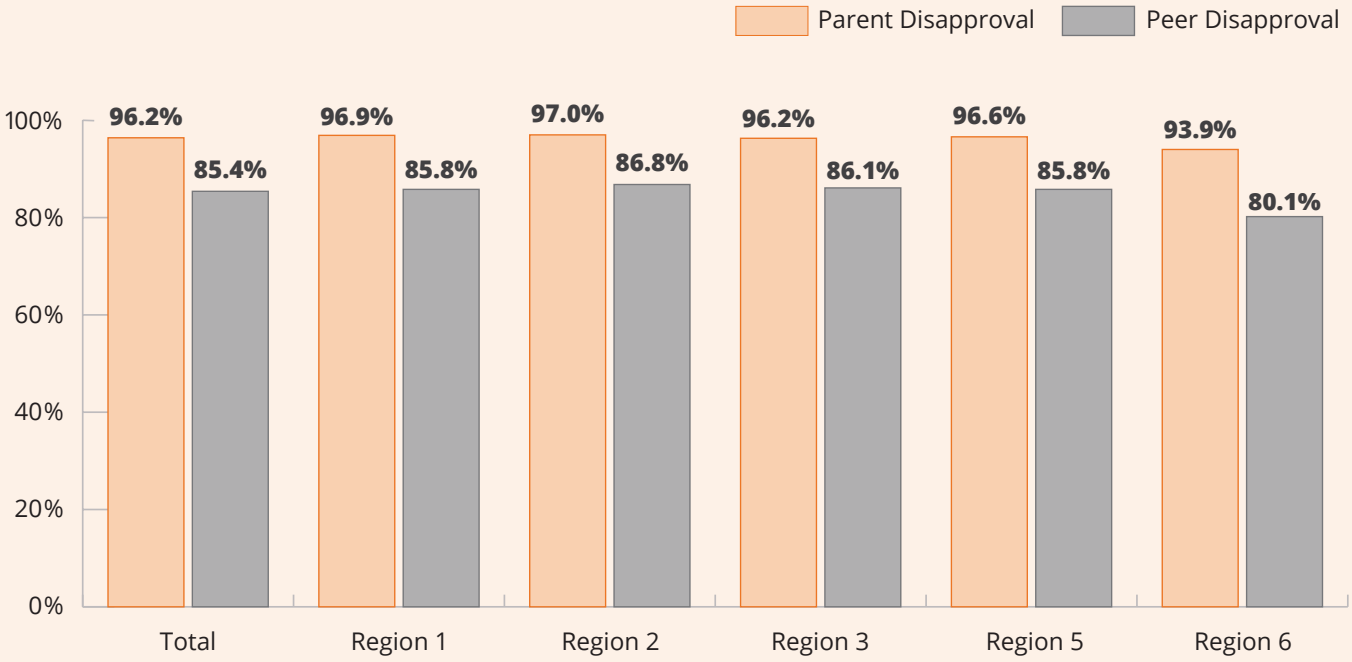
In addition to examining students' prescription drug misuse and related behaviors, the Tennessee Together Student Survey included items measuring attitudes and social norms that can increase a student's risk of engaging in prescription drug misuse or that might have a protective effect, preventing substance use involvement. Risk and protective measures on the Tennessee Together Student Survey included personal, peer, and parental approval of prescription drug misuse; personal perception of risk associated with misuse; and frequency of parent and student communication about the dangers of prescription drug misuse. These factors are often referred to as "intervening variables" because, like measures of prescription drug access and availability, they represent potential points of intervention for prevention service providers to address factors that might contribute to students' patterns and prevalence of use.

Personal, peer, and parental approval

The Tennessee Together Student Survey specifically measured students' attitudes about prescription drugs and how they perceived that people who are closest to them, including friends and family members, would feel about their use (see Exhibit 7). Perceptions of approval or disapproval can have a powerful influence over students' decisions to use substances.[6] Survey respondents were asked, "How wrong do your parents feel it would be for you to use prescription drugs not prescribed to you?" They were asked the same question about their friends. Response options included "not at all," "a little bit wrong," "wrong," and "very wrong." Students were also asked to rate their own approval using the same rating scale. Students almost universally agreed that their parents would feel it was "wrong" or "very wrong" to misuse prescription medications (96.2%). Although 92 percent of students felt it would be "wrong" or "very wrong" to misuse these drugs themselves, they believed that their friends would be more approving, with only 85 percent reporting that friends would disapprove of their use (see Exhibit 7).

Similar to most other prescription drug measures, students' perceptions about personal, peer, and parental approval tended to vary by grade level. The highest rates of disapproval across all measures (personal, peer, and parental) were found for eighth-grade students (94.6%, 88.9%, and 96.2%, respectively) compared to those for 10th- (91.4%, 83.7%, and 96.0%) and 12th-grade students (90.8%, 83.2%, and 95.6%). There was no statistically significant difference between 10th- and 12th-grade students' approval ratings, suggesting a potential shift between middle and high school in the acceptance of drug-use behaviors. Examining the responses by gender, female students were significantly more likely than male students to report that friends would disapprove of their use (87.0% and 84.4%, respectively), with no differences by gender in parental approval (96.3% and 96.8%) or personal approval (93.3% and 92.1%). White students were more likely than Black students to report parental disapproval (96.7% and 94.1%, respectively), personal disapproval (93.2% and 88.6%), and perceived peer disapproval (86.0% and

Exhibit 7. Perceptions that parents and peers would feel it would be "wrong" or "very wrong" to misuse prescription drugs



83.2%, respectively). Hispanic students' disapproval rates fell somewhere in between White and Black students' rates and were not statistically significantly different (91.1% personal, 85.9% peer, and 96.5% parental). An analysis of approval measures by region showed that students from Region 6, where lifetime and past 30-day prevalence rates were highest, also reported the lowest rates of personal, peer, and parental disapproval (89.0%, 80.1%, and 93.9%, respectively).

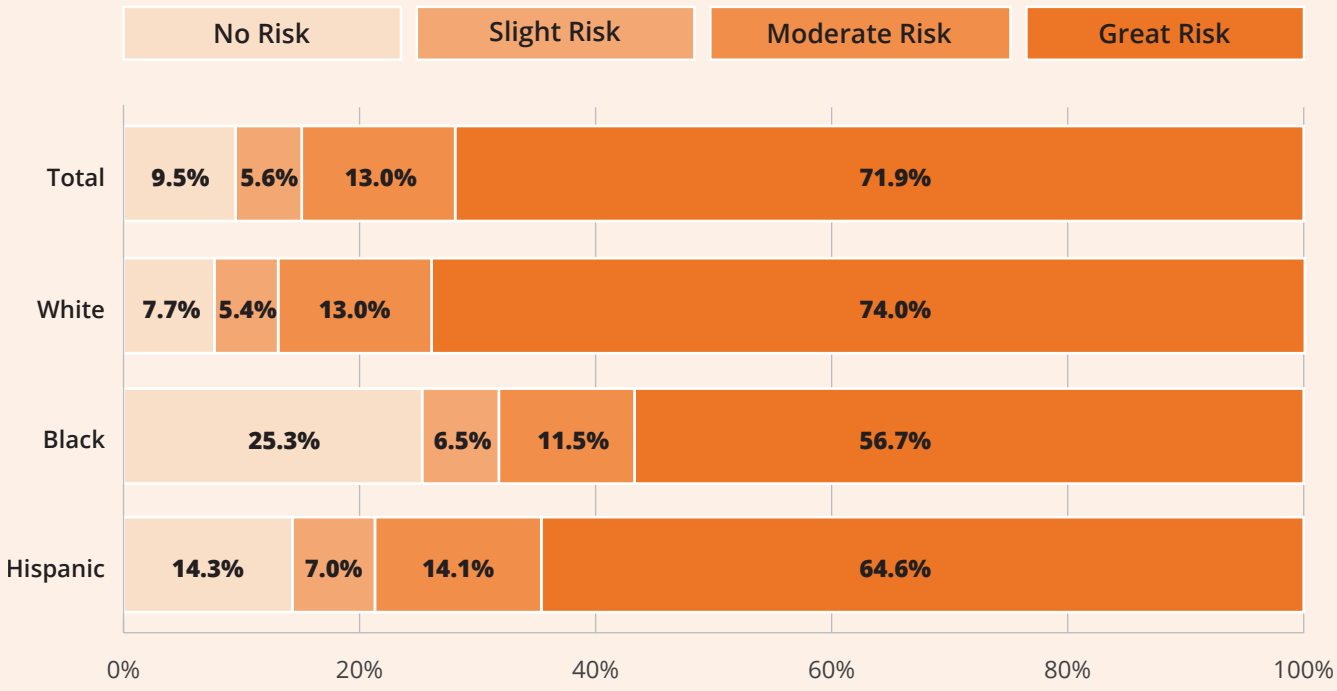
Peer prescription drug misuse

Students were also asked about their closest friends' misuse of prescription drugs in the 12 months prior to the survey administration. Approximately 12 percent of students reported that at least one of their four closest friends had misused prescription drugs in the past year. Reported peer use increased with school level, with 10th- and 12th-grade students being more likely than eighth-grade students to report that at least one of their closest friends had used (14.0%, 13.5%, and 8.2%, respectively). Female students (12.5%) were more likely than male students (10.5%) to report that their close friends were misusing prescription drugs. There were no significant racial differences in measures of peer misuse. Again, students in Region 6 reported significantly higher rates than students in any other region, with about 15 percent reporting at least one friend misusing prescription medications in the past year.

Risk perception

Youth perceptions about the risks associated with drug use often influence their decisions about whether to engage in substance-use behaviors.[7] Additionally, research has demonstrated that adolescents often mistakenly believe that prescription drugs are safer than illegal drugs because they are prescribed by a doctor.[8] In the Tennessee Together Student Survey, approximately 15 percent of youth surveyed perceived "no risk" or only "slight risk" associated with misusing prescription drugs (see Exhibit 8). There were clear

Exhibit 8. Perceived risk associated with prescription drug misuse



gender differences in risk perception, with males (16.7%) being significantly more likely than females (13.0%) to believe that misusing medications posed either "no risk" or "slight risk." There were also significant differences reported by race, with nearly one-third (31.8%) of Black students perceiving "no risk" or only "slight risk," compared to 13 percent of White students, and 21 percent of Hispanic students. Region 6 and Region 3 had the highest proportion of students reporting "no risk" or "slight risk," at approximately 17 percent, and Region 5 and Region 1 had the lowest proportions, at approximately 13 percent each.

Parent communication

In addition to survey measures focused on factors that may increase students' risk for substance use, students were asked about a potential protective factor: parental communication. Communicating with parents about the dangers of alcohol and drug use has been identified as a factor that can prevent or limit substance use initiation and subsequent use.[9] Students were asked how frequently (i.e., never, once, or more than once) in the past 12 months they had talked with their parents[10] about the dangers of using prescription drugs not prescribed to them. Only about one-third of students (36.0%) reported speaking with their parents specifically about the dangers of nonmedical use of prescription medications in the past year. This varied by grade level, with significantly more eighth- (39.3%) than 10th- or 12th-grade students (35.9% and 32.5%, respectively) reporting this communication. There were no significant differences by gender; however, examining the data by race revealed that Hispanic (40.0%) and White students (35.9%) were significantly more likely than Black students (31.8%) to have had these direct conversations. There were also some regional differences, with students in Region 2 reporting the highest likelihood of engaging in these conversations with parents (38.1%) and students in Regions 6 and 3 reporting the lowest (33.1% and 34.7%, respectively). As noted in previous sections, students in Regions 3 and 6 also had the highest reported use rates and the lowest disapproval ratings of all students in the survey sample.

Exposure to Prevention Messaging

Information dissemination and media outreach strategies are commonly used to raise awareness about substance abuse issues and to educate youth about the dangers of prescription drug misuse. For example, the Count It! Lock It! Drop It! initiative in Tennessee has focused on educating citizens about the dangers of prescription drug misuse and the importance of protecting and disposing of prescription drugs properly. On the Tennessee Together Student Survey, students were asked to report if they recalled hearing, reading, or watching any advertisements on the radio or television about the dangers of using prescription drugs not prescribed to them. Nearly two-thirds of students (61.4%) reported that they recalled exposure to this information. Eighth-grade students (65.5%) were significantly more likely to report exposure to prevention messaging than 10th- and 12th-grade students (61.2% and 56.8%, respectively). Female students (64.6%) were also significantly more likely than male students (58.5%) to recall witnessing media messaging of this kind. Examining the data by race revealed that White (62.5%) and Hispanic students (59.1%) were significantly more likely than Black students (49.9%) to recall being exposed to media outreach. There were also differences detected across TDMHSAS Planning and Policy Regions, with the highest exposure rates reported in Regions 5 and 1 (62.6% and 62.1%, respectively) and the lowest rates reported in Regions 3 and 6 (58.4% and 59.5%, respectively).

Summary of Key Findings

This prescription drug misuse crisis in Tennessee has become the focus of major public health initiatives to reduce opioid use and dependence. These efforts include an increased emphasis on prevention strategies targeting Tennessee's youth. Responses to the Tennessee Together Student Survey revealed that students enrolled in Tennessee's public middle and high schools begin misusing prescription medications, including opioids, at a young age (the average age of initiation was 13.5 years), increasing their propensity for developing substance use

disorders. Approximately one in every twenty-five students reported misusing prescription drugs in the 30 days prior to survey administration.

The greatest sources of prescription drugs were students' family and social networks, with youth most often getting prescription drugs from people they knew. This has direct implications for efforts aimed at reducing the excess supply of prescription drugs and promoting safe storage and disposal of unused medications.[11] Although Tennessee has made a concerted effort to prevent drug diversion, through implementation of strategies like the statewide Count It, Lock It, Drop It! initiative, for youth who report misusing prescription drugs, social access remains their main source.

Survey findings also showed that nearly one in ten students had endangered their own safety and the safety of those around them by riding in a car with someone driving under the influence of prescription drugs. This indicates the need to emphasize the dangers of prescription drugs—in addition to the more common alcohol impairment conversation—in public education efforts focusing on preventing impaired driving.

Social norms related to personal, peer, and parental approval did not appear to favor misuse of prescription medications, as most students believed that parents and friends would feel like it was wrong for them to use. Students themselves also largely agreed that it was wrong to use prescription drugs not prescribed to them. Nevertheless, a considerable proportion of students continue to believe that using prescription medications for nonmedical purposes does not pose any serious danger to health or safety. This is despite the fact that Tennessee has one of the highest overdose death rates in the nation.

For many measures of prescription drug use, attitudes, and behaviors, survey findings revealed meaningful differences between participating TDMHSAS Planning and Policy Regions, between racial/ethnic demographic subgroups, or between gender subgroups. These findings underscore the need for targeted and culturally-competent prevention programming that is directed toward high need geographic regions of the state and specific subpopulations of youth who have elevated risk for misuse and later dependence.

NOTES

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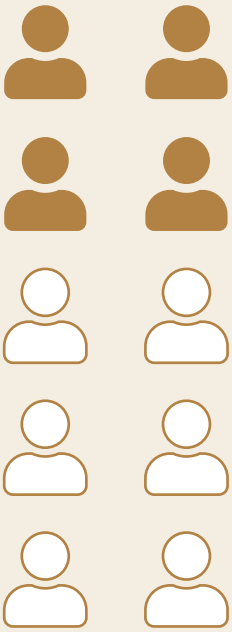
11. Don't be an accidental drug dealer (n.d.). Retrieved from https://countitlockitdropit.org/

Alcohol and Binge Drinking



Four in ten students in Tennessee reported ever having an alcoholic beverage.

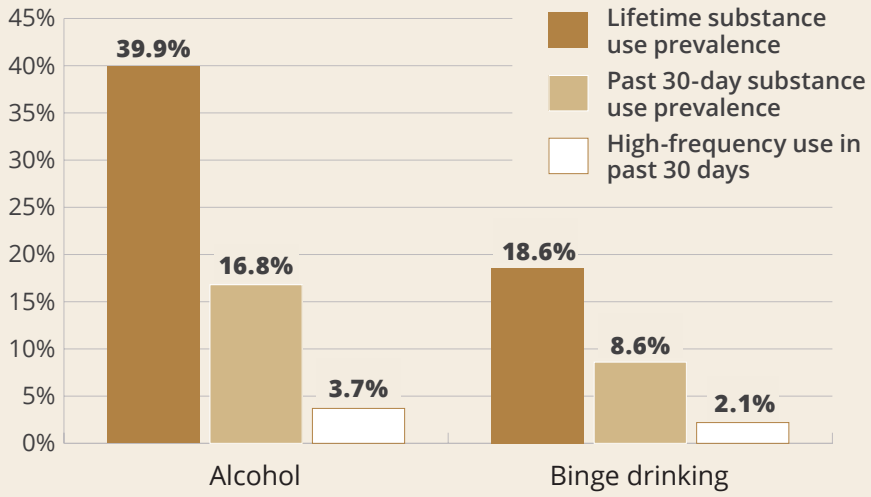
Alcohol continues to be the most commonly used drug by youth and adults. In Tennessee in 2017, 36 percent of state-funded treatment admissions among persons 12 or older living in poverty were for alcohol abuse and dependency. [1] According to the national 2018 Monitoring the Future youth survey, one-third of high school seniors reported drinking in the past month. Additionally, 14 percent of seniors reported heavy episodic—or binge—drinking in the previous two weeks. [2] In other words, over one in ten high school seniors reported drinking five or more drinks in a row on at least one recent occasion. Evidence suggests that adolescent onset of alcohol use is associated with greater risk of developing alcohol use disorder (AUD) in later life. [3] Teen alcohol use is also associated with increased risk behaviors (e.g., driving under the influence) and injuries. In 2017, one in 1,000 Tennessee youth between the ages of 10 and 17 was arrested for alcohol violations, such as driving under the influence or underage drinking. [4]

To build a thorough understanding of youth alcohol use in the state, the Tennessee Together Student Survey included measures of lifetime and 30-day alcohol use patterns, age of initiation, perceived alcohol availability and access, alcohol-related risk behaviors, and other risk and protective factors that may contribute to youth alcohol use. Additionally, given Tennessee's focus on prevention and substance misuse education, the survey included a measure for communication with parents surrounding the dangers of alcohol and other drug use.

Lifetime and 30-Day Use Patterns

On the Tennessee Together Student Survey, students were asked to report their lifetime and past 30-day alcohol use (defined as having "one or more drinks of an alcoholic beverage") as well as lifetime and past 30-day engagement in binge drinking (defined as having "five or more drinks on the same occasion"). Survey measures for binge drinking have been operationalized differently across the three national youth surveys that assess binge drinking (i.e., YRBS, Monitoring the Future, and NSDUH). For example, the NSDUH recently updated its definition of binge drinking to differentiate between number of drinks for men (five or more) versus women (four or more). Research in this area has also indicated that youth-specific measures may be necessary moving forward, as the current "five-plus" and "four-plus" definitions are based on adult blood alcohol concentration (BAC) levels, which may vary from youth BAC levels even after the same number of beverages is consumed. [5] In light of this fact, the estimates from the Tennessee Together Student Survey likely underestimate the student population potentially engaging in and affected by binge drinking behaviors, and this should be considered when one interprets results.

Four out of every ten respondents (39.9%) reported having an alcoholic beverage in their lifetime, with an average age of initiation of 13.7 years of age (see Exhibit 9). Examining data collected from high school seniors, that rate



AVERAGE AGE OF INITIATION

13.7 years old

HIGH-FREQUENCY USERS

22%

of students who reported any alcohol use in the past 30 days reported using on six or more days.

Exhibit 9. Lifetime and past 30-day prevalence of alcohol use and binge drinking

increased to five out of ten (51.5%), a significantly higher rate than that reported for 10th- or eighth-grade students (43.9% and 25.7%, respectively). Therefore, by the time students reach the end of high school, they are very likely to have tried alcohol. Eighteen percent of all students reported lifetime binge drinking, with dramatic increases for each successive grade level surveyed. Of eighth-grade students, six percent reported lifetime binge drinking, and three times more (19.9%) 10th-grade students reported at least one instance of binge drinking. This rate sharply increased again between 10th- and 12th-grade students, with just under one-third (31.2%) of high school seniors reporting at least one lifetime instance of binge drinking.

Examining this data by gender, there were no differences for lifetime alcohol use; however, male students were more likely than female students to report any lifetime binge drinking (19.5% and 17.4%, respectively). Additionally, White students were significantly more likely than Black or Hispanic students to engage in any drinking and in binge drinking. Forty percent of White students reported lifetime alcohol use (compared to 34.6% of Black and 34.3% of Hispanic students) and nearly 20 percent of White students reported lifetime binge drinking (compared to 13.8% for Black and 13.3% for Hispanic students).

Significant differences also emerged in reported alcohol use between participating TDMHSAS Planning and Policy Regions. Students in Region 6 reported the highest prevalence of both lifetime alcohol use and lifetime binge drinking (45.9% and 20.9%, respectively). The lowest use rates were recorded in Region 2, in which 36 percent of students reported ever drinking and 17 percent reported ever binge drinking.

In addition to asking students about their lifetime alcohol use, measures of past 30-day use were also included to provide information about current use. Seventeen percent of students reported drinking at least one alcoholic beverage in the 30 days leading up to survey administration. About half of the students who reported any drinking in the past 30 days reported binge drinking (8.6%). Students were also asked to report the frequency (i.e., number of days) with which they drank alcohol or engaged in binge drinking during the past 30-day period. Using this information, students were classified as engaging in "high-frequency use" if they reported drinking on six or more days in the past 30 days. Among students who reported any alcohol use in the past 30 days, 22 percent reported high-frequency use. Among those who reported binge drinking, 24 percent reported high-frequency use.

Although no significant gender differences emerged in current alcohol use, male students were significantly more likely than female students to report binge drinking (9.5% versus 7.4%, respectively). Similar to the lifetime alcohol-use measures, large and significant increases occurred between each successive grade level. Eighth-grade students reported the lowest prevalence rates of past 30-day drinking (8.5%) and binge drinking (2.6%), followed by 10th-grade students (18.1% and 8.9%), and 12th-grade students (24.6% and 15.1%).

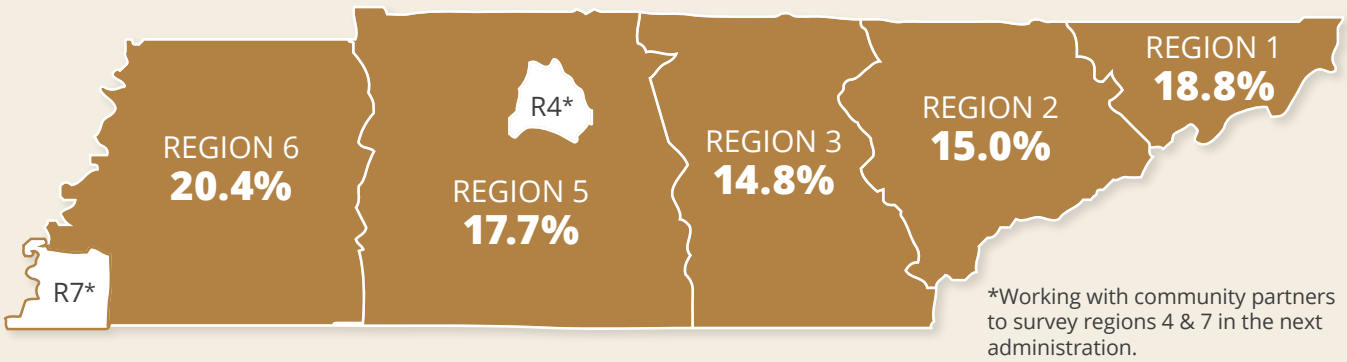


Exhibit 10. Regional map of past 30-day use of alcohol

Regionally, the highest prevalence rates of past 30-day alcohol use were found in Regions 6 (20.4%) and 1 (18.8%), followed closely by Region 5 (17.7%) (see Exhibit 10). These three regions also had the highest reported rates of past 30-day binge drinking; however, for this measure, students in Region 1 reported the highest rates (11.0%), followed by Regions 5 and 6 (both at 9.8%). The lowest rates of past 30-day alcohol use and binge drinking were found in Region 3 (14.8% and 7.3%, respectively).

Alcohol Availability and Access

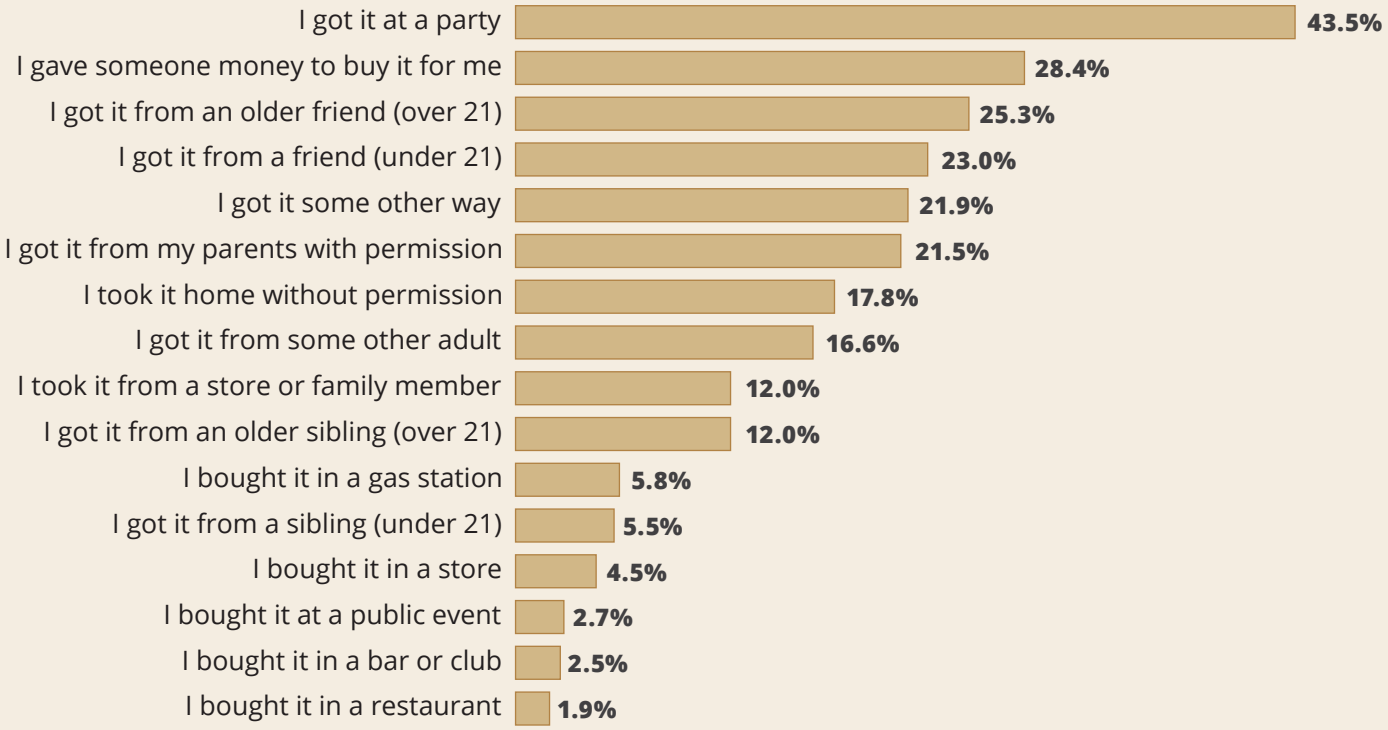
A key contributor to youth substance use is access. Youth completing the Tennessee Together Student Survey were asked to rate how easy it is to get alcohol (e.g., beer, wine coolers, liquor). Sixty-two percent of students indicated that it was "very easy" or "easy" to obtain alcohol. When this data was disaggregated by grade level, 12th-grade students reported significantly greater ease of access (69.7%) than 10th- (63.5%) or eighth-grade students (50.0%). Regionally, students in Region 5 reported significantly greater ease of access, with almost 70 percent of students reporting that it was "very easy" or "easy" to obtain alcohol. The lowest regional rate was found in Region 2, where approximately 58 percent of students reported ease of access. No differences emerged in reported ease of access by gender or racial demographic subgroup.

One of the key efforts The Tennessee Alcohol Beverage Commission (TABC) has employed to prevent youth access to alcohol is increased law enforcement oversight of establishments selling alcohol. This oversight includes random compliance checks to ensure establishments are checking identification appropriately and not selling to minors. Students who reported past 30-day alcohol use on the Tennessee Together Student Survey were asked to report any and all source(s) by which they gained access to alcohol (see Exhibit 11). Overwhelmingly, students reported accessing alcohol via their social networks (e.g., at a party, from a friend or family member) rather than purchasing it directly at a store or restaurant. Collectively, this data suggests that, although Tennessee may be effectively preventing direct alcohol sales to minors, youth still have access to alcohol from family and friends.

The Tennessee Together Student Survey also included questions about students' experiences purchasing alcohol directly. While only three percent of respondents reported trying to buy alcohol in the past 30 days, nearly three-fourths of them indicated that they were not asked to show proof of age when they did so. Of students who tried to buy alcohol, 64 percent indicated that they were able to buy on at least one occasion. Males were significantly more likely than females to report trying to buy alcohol (4.1% and 2.1%, respectively), and this behavior significantly increased with each successive grade level (1.9% of eighth-grade students, 3.3% of 10th-grade students, and 5.2% of 12th-grade students tried to buy alcohol). No significant differences emerged between racial demographic subgroups in these measures.

Regionally, students in Regions 6 and 5 reported the highest prevalence of trying to buy alcohol in the past 30 days (4.4% and 4.0%, respectively). Students in Region 1 reported the lowest prevalence, with only two percent of students reporting this behavior.

Exhibit 11. Source of alcohol among students who reported any past 30-day use



Students in Region 5 reported the greatest success in buying, with almost 80 percent of students reporting that they were able to buy alcohol when they tried.

Related High Risk Behaviors

In addition to measuring respondents' alcohol use behaviors, the Tennessee Together Student Survey also included a measure on frequency of riding in a vehicle with an alcohol- or drug-impaired (AOD) driver. Students were asked to report whether they had ever ridden in a car driven by someone who was intoxicated by alcohol or drugs and whether they had done so in the past 30 days. One in five students (20.6%) reported ever having ridden with an AOD-impaired driver and half of these students reported doing so in the past 30 days (11.1%). Female students were significantly more likely than male students to report riding with an AOD-impaired driver, with 22 percent of females having done so in their lifetime (compared to 18.3% of males) and nearly 12 percent of females having done so in the past 30 days (compared to 9.8% of males). High school students were also significantly more likely than eighth-grade students to report riding with an AOD-impaired driver in their lifetime and in the past 30 days. In fact, one in four high school seniors reported that they had ridden with an AOD-impaired driver at least once in their lifetime. Clearly, as more students reach the age where they and their peers become licensed drivers, they are at a heightened risk of riding with an impaired driver. Examining the data by racial demographic subgroup, Hispanic students were the least likely to have ridden with an AOD-impaired driver (15.0% in their lifetime and 8.9% in the past 30 days), and Black students reported the highest rates (22.7% lifetime and 14.4% past 30 days), with White students falling in between (20.3% in their lifetime and 10.5% in the past 30 days).

The greatest prevalence rates for these alcohol-related risk behavior measures were found in Region 6, with 26 percent of students reporting at least one lifetime incident of riding with an AOD-impaired driver and 15 percent in the past 30 days. This finding was in line with the higher use rates reported by students in Region 6. Students in Region 2 reported the lowest prevalence rates, with 19 percent having ever ridden with an AOD-impaired driver and nine percent having done so in the past 30 days.

Other Risk and Protective Factors

Beyond examining students' reported alcohol use and related risk behaviors, the Tennessee Together Student Survey also included items measuring attitudes and social norms that may increase a student's risk of engaging in substance use or that may protect against substance use involvement. Risk and protective measures on the Tennessee Together Student Survey included personal, peer, and parental approval of alcohol use; personal perception of risk associated with use; and frequency of parent and student communication about the dangers of alcohol, tobacco, and other drug (ATOD) use. These factors represent potential points of intervention for prevention service providers to address factors that likely contribute to students' substance use.

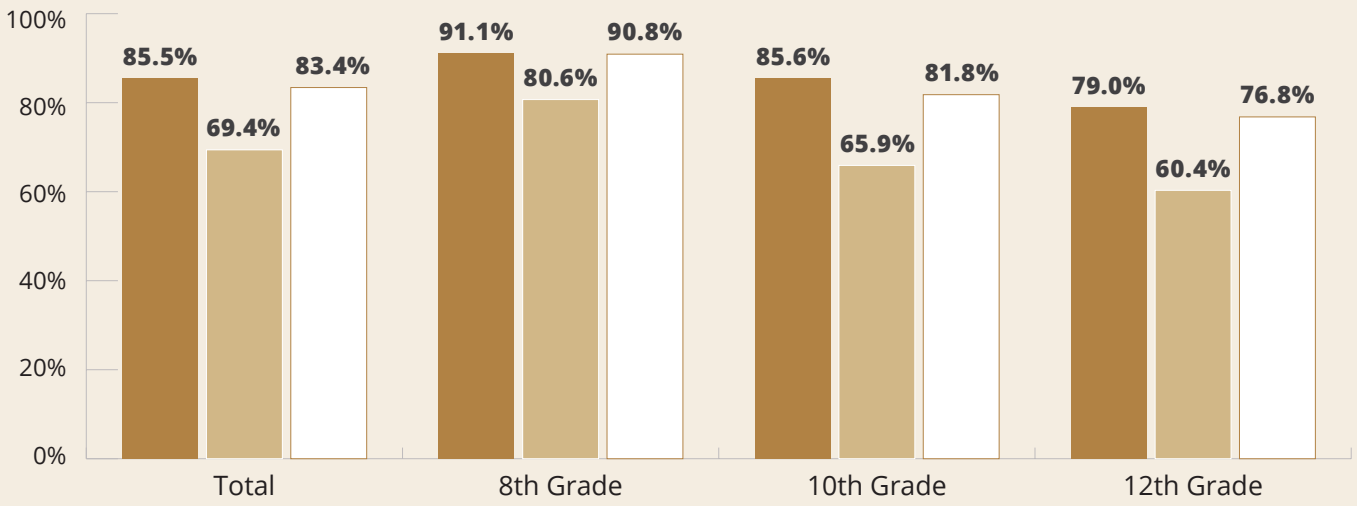
Personal, peer, and parental approval

The Tennessee Together Student Survey asked students about their perceptions of how the people closest to them—friends and parents—would feel about them using alcohol. Research has shown that perceptions of approval or disapproval may play a role in students' decisions to engage in substance use. [6] Respondents were asked, "How wrong do your parents feel it would be for you to drink beer, wine, or hard liquor (for example, vodka, whiskey, or gin), regularly?" They were asked a similar question about their friends: "How wrong do your friends feel it would be for you to have one or two drinks of an alcoholic beverage nearly every day?" Finally, they were asked to rate their own approval of someone their age drinking nearly every day. Response options for each measure were "not at all wrong," "a little bit wrong," "wrong," and "very wrong." Students reported the highest perceived disapproval rates (combined "wrong" and "very wrong" response options) for the measures of parent approval, with approximately 86 percent of students reporting their parents would disapprove of them regularly drinking alcohol (see Exhibit 12). Personal disapproval was slightly lower, with 83 percent of students choosing ratings of "wrong" or "very wrong." Students perceived the lowest disapproval from their peers, with only 69 percent of them reporting that their friends would disapprove of them using alcohol. Females were more likely than males to report peer disapproval (71.2% versus 68.1%) and personal disapproval (85.2% and 82.4%), with no significant gender differences in reported parental disapproval. Little difference emerged between racial demographic subgroups for most of the disapproval measures, except that White students perceived less peer disapproval than Black students (69.3% and 73.2%, respectively).

Across each of the three disapproval measures, disapproval sharply declined with each successive

Exhibit 12. Youth's perceived parental, peer, and personal disapproval of drinking (combined "wrong" or "very wrong" options)

Note: *Measures of peer and personal disapproval of drinking alcohol includes language that references drinking "nearly every day," whereas the measure for parent disapproval references drinking alcohol "regularly."*



grade level. Eighth-grade students reported the highest disapproval rates for personal, peer, and parent disapproval measures (90.8%, 80.6%, and 91.1%, respectively), followed by 10th-grade students (81.8%, 65.9%, and 85.6%), and 12th-grade students (76.8%, 60.4%, and 79%). Perceived disapproval of alcohol use declines as students advance through school, which suggests a need for targeted prevention efforts for high school students, particularly those at the end of their high school careers.

Students in Region 6 reported the lowest prevalence of disapproval across all three measures, whereas students in Region 2 reported the highest. Of Region 6 students, 80 percent felt that it would be "wrong" or "very wrong" to drink nearly every day compared to Region 2, in which nearly 85 percent of students personally disapproved. Only 65 percent of Region 6 students felt their peers would disapprove of their alcohol use, compared to 71 percent of students in Region 2. Finally, 83 percent of Region 6 students felt that their parents would disapprove of them regularly drinking alcohol, while 87 percent of Region 2 students felt their parents would disapprove.

Peer alcohol use

Students were also asked about their closest friends' alcohol use (lifetime and binge drinking) in the 12 months prior to the survey administration. Slightly less than half (45.4%) of students reported that at least one of their friends had tried alcohol, with one-third (31.0%) of students reporting that at least one friend had engaged in binge drinking. Unsurprisingly, reported peer use increased with each successive school level with seniors reporting the highest peer engagement in drinking and binge drinking (56.5% and 45.0%, respectively), followed by 10th-grade students (51.2% and 35.6%), and eighth-grade students (29.8% and 14.0%). Female students were also much more likely than male students to report peer drinking (49.5% versus 40.9%), with smaller—but still significant—differences for peer binge drinking (32.4% for females versus 29.1% for males). White students also reported higher rates of peer drinking and peer binge drinking than Black or Hispanic students. Forty-seven percent of White students reported that at least one peer drank in the past year, with 33 percent of them reporting peer binge drinking. These rates were approximately 10 percentage points higher than for Hispanic (37.5% peer drinking and 21.7% peer binge drinking) and Black students (33.4% peer drinking and 20.4% peer binge drinking).

Again, the highest prevalence rates were found in Region 6, with over half of those students reporting peer drinking (51.5%) and over one-third reporting peer binge drinking (35.3%). For these two peer use measures, the lowest rates were found in Region 3, with 43 percent reporting peer drinking and 28 percent reporting peer binge drinking.

Risk perception

One factor potentially influencing a student's decision to engage or not engage in substance use is perception of the risks associated with this use.[7] The Tennessee Together Student Survey asked youth to rate how much harm they felt drinking one or two drinks nearly every day caused. An additional measure asked them to rate harm they perceived in binge drinking once or twice per week. The rating scale for each question ranged from "no risk" to "great risk." Approximately 29 percent of students surveyed perceived "no risk" or only "slight risk" associated with drinking nearly every day, and about 22 percent of students perceived "no risk" or only "slight risk" associated with binge drinking weekly (see Exhibit 13).

Male students were significantly more likely than female students to report "no risk" or "slight risk" for regular drinking (32.7% and 24.5%, respectively) and binge drinking (25.0% and 17.9%, respectively). These findings are in alignment with male students' higher reported prevalence of binge drinking behavior. As with other measures, differences emerged by grade level, with high-school seniors reporting a significantly higher prevalence of "no risk" or "slight risk" associated with drinking (31.4%) and binge drinking (24.8%), compared to middle-school students (25.9% and 18.4%). Interestingly, although White students were more likely than Black or Hispanic students to have used alcohol in their lifetime, Black students were more likely to report "no risk" or "slight risk" associated with use.

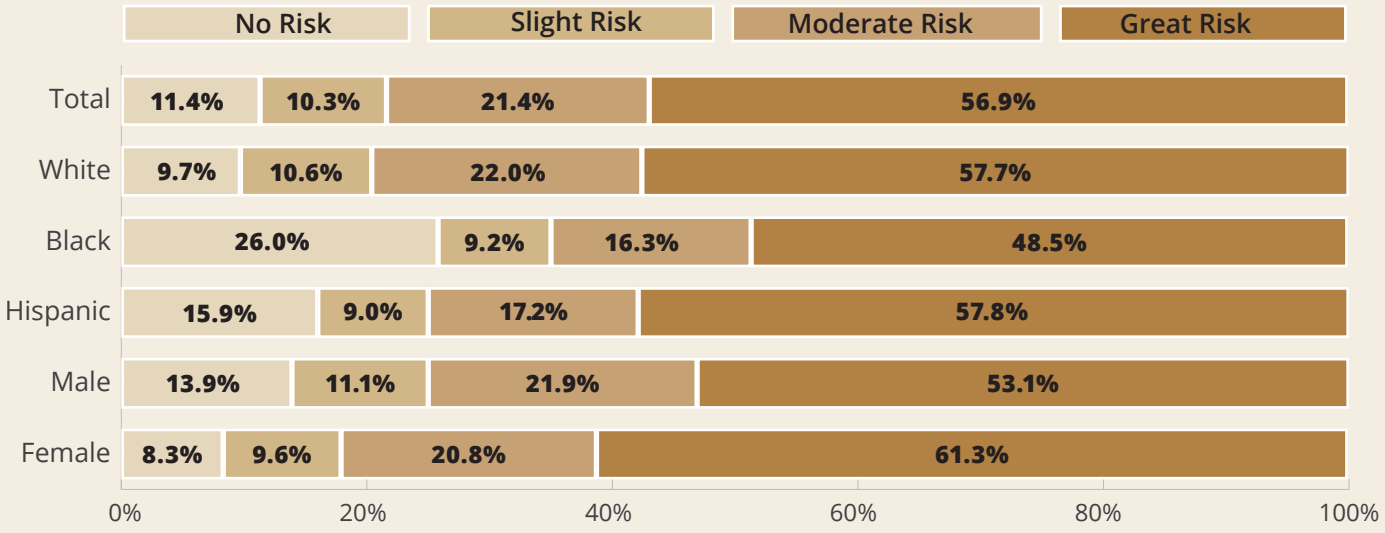


Exhibit 13. Perceived risk associated with binge drinking

About 39 percent of Black students perceived little to no risk associated with regular drinking and 35 percent of Black students perceived little to no risk associated with binge drinking (compared to 28.0% and 20.3% for White students).

Consistent with the majority of the other alcohol measures, students in Region 6 fared worse than students from other regions. Approximately one third of Region 6 students (32.7%) perceived little to no risk associated with regular drinking. Students in Region 5 had the lowest prevalence on this measure at 26 percent. No significant regional differences emerged in perceived risk of binge drinking.

Parent communication

In addition to the measures described above, which focused on factors that may increase students' propensity for alcohol use, students taking the Tennessee Together Student Survey were also asked about their frequency of communication about the dangers of substance use with parents—a potential protective factor.[8] Students were asked to report how frequently (i.e., never, once, or more than once) in the past 12 months they talked with their parents [9] about the dangers of alcohol, tobacco, or drug use (ATOD). Approximately half of Tennessee students (52.5%) reported having had at least one such conversation with their parents in the past year. Female students were more likely than male students to report having had these conversations (55.2% versus 50.1%). The data by grade level revealed that high school seniors were the least likely to have had these conversations (48.0%). Given this group's heightened use and elevated risk factors for every other alcohol measure, education efforts should likely focus on encouraging parental communication with all youth, not only younger children. Additionally, given that older youth's parents may be more approving of alcohol experimentation,[10] parental education and communication efforts should directly address that issue. In addition to these grade-level differences, the data also revealed that Black students reported the lowest prevalence of these parental communications, with only 42 percent of students reporting these interactions, compared to 53 percent of White students and 54 percent of Hispanic students.

Students in Region 5 reported the greatest engagement in parental communications surrounding ATOD at 57 percent. The lowest reported rate, approximately 50 percent, was in Region 3; however, rates in the other three regions were similarly low (Region 1, 51.7%; Region 2, 52.3%; Region 6, 52.3%). Regardless of region or demographic subgroup, only about half of Tennessee youth are communicating with their parents about this important issue. Future prevention and education efforts should emphasize the role parents can play in preventing youth substance use and related consequences

through direct conversations about alcohol use and associated risks.

Summary of Key Findings

The dangers associated with youth alcohol use have been well-established in the literature. Youth alcohol use is associated with increased risk behaviors and a greater propensity for other drug use.[11] Additionally, youth alcohol use may interfere with normal adolescent brain development and increase the risk of developing AUD later in life.[12] In spite of the potential consequences, alcohol continues to be the most commonly used substance by youth and adults.

Measures on the Tennessee Together Student Survey demonstrated that many Tennessee students engage in alcohol use and associated risk behaviors, despite prevention and education efforts aimed at preventing use. By their senior year in high school, more than half of students will have drunk on at least one occasion and one-third of youth will have engaged in binge drinking. Part of this use may be encouraged by social norms surrounding alcohol use, particularly given students' reported peer involvement in drinking and binge drinking. Given that 45 percent of students reported that at least one of their friends has tried alcohol, it is not surprising that so many students reported trying it themselves.

According to this data, and other national survey findings, high school seniors are at the greatest risk of engaging in alcohol use and related risk behaviors. Although many education and prevention efforts focus on youth populations,[13] it is important to target this group in particular as they get ready to transition into their postsecondary lives in college or the workforce. Interrupting the trajectory connecting youth alcohol use to AUD and other consequences later in life should be a key focus for prevention efforts.

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Tobacco and Electronic Cigarettes

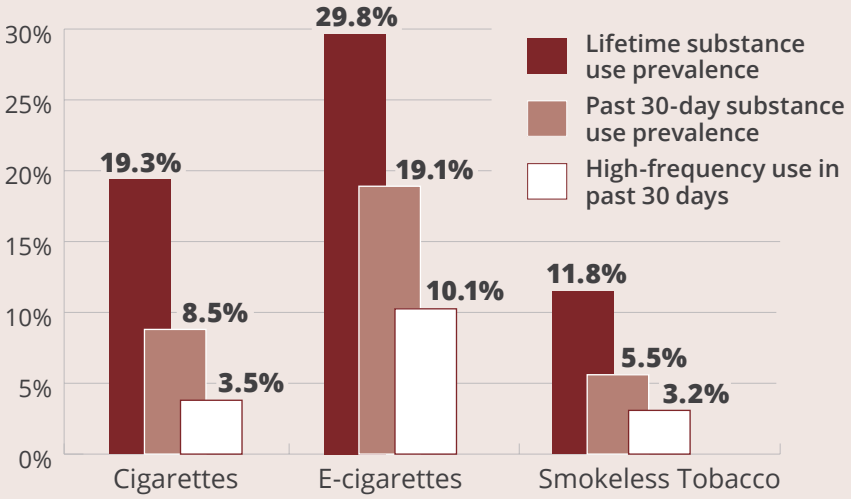
One in three students in Tennessee reported smoking cigarettes, using electronic cigarettes, or using smokeless tobacco in their lifetime.

Nearly one in five deaths in the United States are caused by smoking cigarettes, making it the leading cause of preventable death.[1] Smoking cigarettes is related to several health risks, including lung cancer, cardiovascular and metabolic diseases, and respiratory diseases. The tobacco industry has expanded its marketing techniques by promoting flavored tobacco products and electronic cigarettes, which are driving an increase in tobacco use among youth.[2] Some electronic cigarette companies even use cartoons in marketing the products, a practice that research has shown increases youths' propensity to try e-cigarettes.[3] In February 2016, the Tennessee Governor's office partnered with county health departments and local community partners to reduce tobacco use and promote cessation for a one-week period proclaimed "It's Quittin' Time in Tennessee."[4] The campaign involved a media campaign and promotion of a "quitline" to provide resources and support to Tennessee residents seeking tobacco cessation support. Given the campaign's perceived success—calls to the quitline tripled in the month of February 2016—the state developed a statewide Tobacco Coalition to oversee implementation of an annual "Quit Week" to continue this effort. While the "Quit Week" campaign promotes smoking cessation, SAPCs throughout the state are also implementing prevention education programs targeting youth and young adults to prevent the initiation of tobacco use. The Tennessee Together Student Survey included measures of cigarette, electronic cigarette, and smokeless tobacco use among youth including prevalence, age of initiation, and risk and protective factors. These measures shed light on the varying attitudes and behaviors related to tobacco use by Tennessee youth, particularly between conventional and electronic cigarettes.

Lifetime and 30-Day Use Patterns

For the Tennessee Together Student Survey, tobacco use was defined for three consumption types: (1) cigarettes, such as menthol cigarettes, regular cigarettes, and loose tobacco rolled into cigarettes; (2) e-cigarettes, also known as electronic cigarettes, hookah pens, e-hookahs, vape pens, or Juuls;[5] and (3) smokeless tobacco, also referred to as chewing tobacco, spit tobacco, chew, snuff, pinch, or dip. Although cigarette use has shown a decline over the past several decades, e-cigarette use among youth has grown at an alarming rate. According to the 2016 Surgeon General's report, there was a 900% increase, nationally, in high school students' e-cigarette use between 2011 and 2015. This unprecedented growth has made e-cigarettes the most commonly used tobacco source.[6] Therefore, inclusion of e-cigarette use measures was important to understand the full picture of youth tobacco use in Tennessee. Additionally, the range of tobacco measures included on the Tennessee Together Survey parallel many measures from national surveys, such as the YRBS and Monitoring the Future, allowing for comparison between multiple data sources.

The Tennessee Together Student Survey included lifetime and past 30-day use for each type of tobacco use (i.e., cigarette, electronic cigarette, and



cigarettes

e-cigarettes

AVERAGE AGE OF INITIATION

13.2 years old

14.4 years old

HIGH-FREQUENCY USERS

41%

53%

of students reported past 30-day use of cigarettes and e-cigarettes, respectively, reported using on six or more days.

Exhibit 14. Lifetime and past 30-day prevalence of cigarette use, electronic cigarette use, and smokeless tobacco use

smokeless tobacco). Lifetime use measured any reported use within the respondent's lifetime (see Exhibit 14). According to survey findings, 19 percent of all youth surveyed, or about one in five students, reported smoking cigarettes at least once in their lifetime. Just under 12 percent (11.8%) of youth reported lifetime use of smokeless tobacco. The highest lifetime prevalence by far was for e-cigarette use with almost 30 percent (29.8%) of youth having used an e-cigarette. These findings are consistent with the national findings described above that indicate electronic cigarettes are the most common method of tobacco use among youth. The average age of initiation for tobacco use types ranged from 13.2 years of age for cigarettes to 14.4 years of age for e-cigarettes. In addition to examining each tobacco product separately, survey measures allowed for combining measures across tobacco products. Research has identified that youth who use e-cigarettes, for example, are more likely to use regular cigarettes either concurrently or in the future.[7] To understand the full extent of youth tobacco use in Tennessee, a measure was created to indicate lifetime use of any of the three tobacco products. This measure revealed that more than one-third (34.9%) of Tennessee youth reported using at least one type of tobacco in their lifetime.

Students were also asked about current use of tobacco products, defined as any use in the 30-days prior to survey administration. Survey findings indicated that approximately six percent reported current use of smokeless tobacco, nine percent of students reported current use of cigarettes, and 19 percent reported use of electronic cigarettes. Forty-two percent of the students who reported any past 30-day cigarette use, and 53 percent of students who reported any past 30-day electronic cigarette use were classified as "high-frequency users," defined as using on six or more days during the past 30-day period. When combining the three tobacco use types into a single measure of past 30-day use, approximately 23 percent of youth reported use of at least one tobacco product.

Each of these survey measures were assessed for significant differences by gender, race/ethnicity, grade level, and geographic location within the state (i.e., TDMHSAS Planning and Policy Region). For measures of both lifetime and 30-day cigarette use, prevalence rates increased with each respective increase in grade level. For example, eighth-grade students reported the lowest rates of past 30-day cigarette use (5.3%), followed by 10th- (8.8%), and then 12th-grade students (12.0%) with the same grade-level trends apparent on measures of lifetime use (11.5%, 20.7%, and 26.4%, respectively). E-cigarette use followed the same trend with 18 percent of eighth-grade students reporting any lifetime use, followed by 34 percent of 10th-grade students, and 38 percent of high school seniors. Past 30-day e-cigarette use followed this trend

Exhibit 15. Lifetime and past 30-day cigarette use, electronic cigarette use, and smokeless tobacco use by race and by gender

	White Students	Black Students	Hispanic Students	Male Students	Female Students
Lifetime cigarette use	20.3%*	12.0%	13.0%	19.5%	18.4%
Past 30-day cigarette use	9.0%*	5.5%	5.7%	8.6%	8.0%
Lifetime e-cigarette use	31.5%*	17.6%	18.5%	31.0%*	28.1%
Past 30-day e-cigarette use	20.2%*	11.3%	12.0%	20.0%*	17.8%
Lifetime smokeless tobacco use	12.9%*	6.1%	5.6%	17.2%*	5.9%
Past 30-day smokeless tobacco use	6.0%*	2.4%	2.6%	8.7%*	2.0%

*Asterisks indicate that a demographic subgroup reported statistically significant higher usage rates than the other group(s) for a given measure

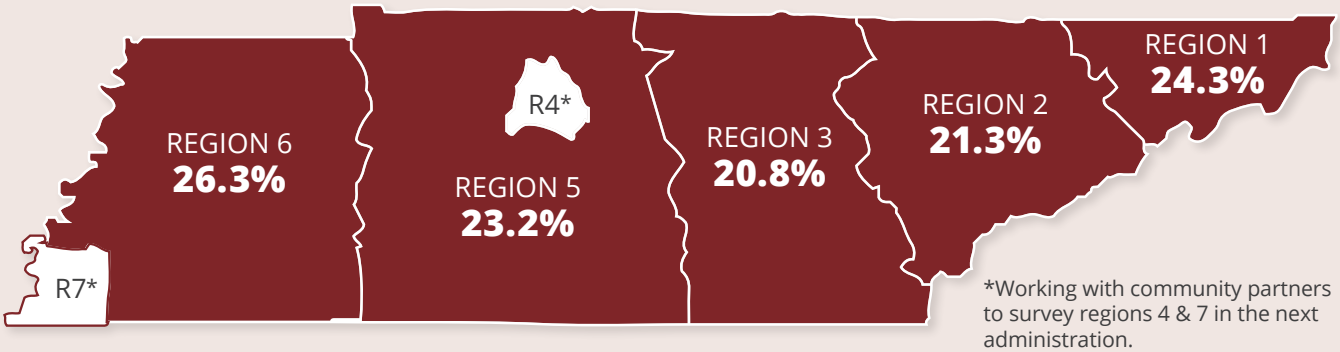
as well (10.7%, 22.3%, and 25.0%, respectively). Finally, smokeless tobacco usage revealed the same pattern with the following lifetime prevalence rates for eighth-, 10th-, and 12th-grade students (6.3%, 12.8%, and 16.8%), and past 30-day prevalence rates (3.0%, 6.2%, and 7.6%).

Examining the data for gender differences, there were no significant differences on traditional cigarette use on either lifetime or past 30-day use. However, for lifetime and past 30-day use of e-cigarettes and smokeless tobacco, males were significantly more likely to report use (see Exhibit 15). The most striking difference was on the two measures of smokeless tobacco use for which males reported approximately three times greater usage than females.

Across all six tobacco use measures, White students were significantly more likely than Black or Hispanic students to have reported use (see Exhibit 15). Approximately one in five White youth reported ever having smoked a cigarette, compared to just over one in ten Black or Hispanic students. And, almost one-third of White youth reported ever having used an e-cigarette, with 20 percent of these youth reporting past 30-day use. These rates were almost double those reported by Black or Hispanic students. The same relationship existed for smokeless tobacco.

Across TDMHSAS Planning and Policy Regions, there was some variation in students' reported use of any tobacco products (i.e., cigarettes, electronic cigarettes, or smokeless tobacco). Overall, students in Region 6 reported the highest lifetime use of any of the three tobacco products (37.7%), and students in Region 2 reported the lowest (33.6%). Similarly, Region 6 students also reported the highest past

Exhibit 16. Regional map of past 30-day use of any tobacco products



*Working with community partners to survey regions 4 & 7 in the next administration.

30-day usage of any tobacco product (26.3%), with Regions 2 and 3 reporting the lowest (21.3% and 20.8%, respectively) (see Exhibit 16).

Tobacco and E-Cigarettes Availability and Access

Prevention strategies to address tobacco use among youth often focus on reducing access by working with merchants to reduce sales to minors. The Tennessee Together Student Survey included measures of students' perceived ability to access various substances, including tobacco products. Specifically, students were asked how "easy" or "difficult" it is in their community to access tobacco products (e.g., cigarettes, cigars, dip, etc.). Two-thirds (67.7%) of students reported that it was either "very easy" or "fairly easy" to obtain tobacco products. Older students were significantly more likely to report ease of access, with almost 80 percent of 12th grade students, 69 percent of 10th grade students, and only about half (50.2%) of eighth grade students reporting ease of access. While there were no significant differences on reported ease of access by gender, findings did reveal that White students reported greater ease of access (68.8%) than Black or Hispanic students (61.9% and 60.6%, respectively). This finding is in line with the higher prevalence found for White students for lifetime and past 30-day tobacco use.

Regional variation in students' ease of access to tobacco products ranged from a high of more than 70 percent of students reporting that it was "very easy" or "fairly easy" to obtain tobacco products in Region 3 (73.9%), to a low of about 63 percent of students in Region 2. This means, even in the region that reported the lowest ease of access, almost two-thirds of students believed it was easy to obtain tobacco products if they wanted them. Regions 5, 6, and 1 also reported ease of access rates of approximately 70 percent (72.7%, 69.5%, and 68.1%, respectively). Overall, these survey findings demonstrate that students in most Tennessee communities perceive tobacco products to be widely available and relatively easy to obtain.

Risk and Protective Factors

In addition to examining students' tobacco use and perceived access, the Tennessee Together Student Survey also included items measuring attitudes and social norms that may increase a student's risk of engaging in tobacco use or may have an influence in protecting students against this substance use involvement. Risk and protective measures on the Tennessee Together Student Survey included personal, peer, and parental approval of tobacco use; and personal perception of risk associated with use. Prevention program providers can use information about access and availability, along with these additional intervening variables, to drive planning and decision-making to assess potential points of intervention to impact students' patterns and prevalence of tobacco use.

Personal, peer, and parental approval

The Tennessee Together Student Survey specifically measured students' attitudes about smoking tobacco and using electronic cigarettes. The survey also asked students about how they perceive people who are closest to them, including friends and family members, would feel about their use of tobacco products. As stated previously, students' decisions to engage in using a substance can be heavily influenced by their perceptions of approval or disapproval.[8] Survey respondents were asked to indicate whether their parents and friends would feel it is "not at all [wrong]," "a little bit wrong," "wrong," or "very wrong" to smoke tobacco. Students were also asked to rate their own approval using the same rating scale. Students almost universally agreed their parents would feel it was "wrong" or "very wrong" to smoke tobacco (93.0%). Although 82 percent of students felt it would be "wrong" or "very wrong" for someone their age to smoke tobacco, they believed their friends would be more approving, with only 73 percent reporting that friends would disapprove of their use. Compared to measures of disapproval for smoking tobacco, the perceived disapproval of using electronic cigarettes was significantly lower for parent, peer,

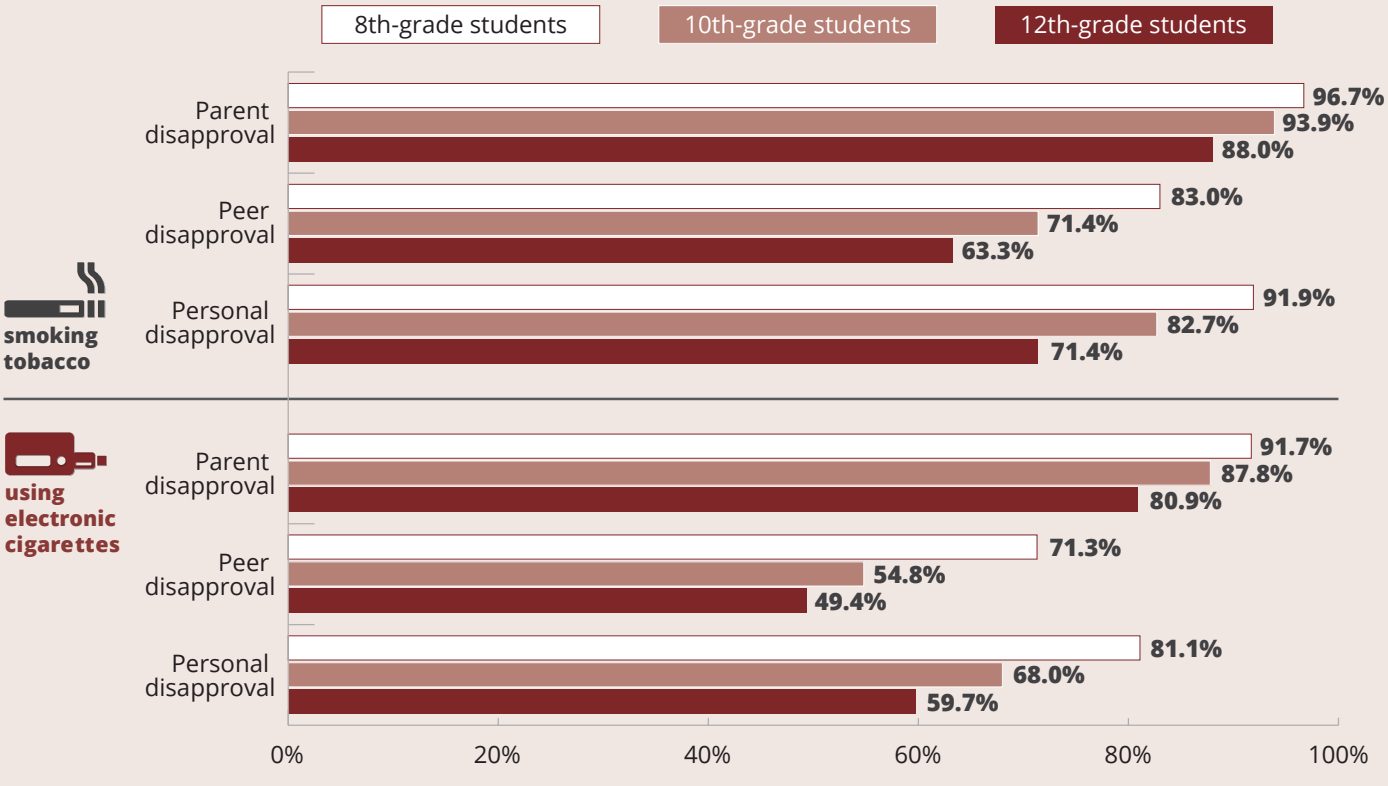
and personal disapproval measures. Approximately 87 percent of students reported their parents would feel it was "wrong" or "very wrong" for them to use electronic cigarettes, 70 percent reported they would disapprove of someone their age using electronic cigarettes, and only 59 percent perceived their friends would disapprove of use.

Similar to most other tobacco product measures, students' perceptions about personal, peer, and parental approval tended to vary by grade level. Eighth-grade students reported the highest rates of disapproval across all measures for smoking tobacco and using electronic cigarettes. Rates of disapproval among eighth grade students were significantly higher than 10th-grade students, and eighth- and 10th-grade students had significantly higher rates of disapproval than 12th-grade students (see Exhibit 17). The largest decrease occurred in perceived peer disapproval of e-cigarette use between eighth and 10th grade. This may have important implications in directing education and prevention efforts at students as they transition from middle to high school.

Examining the responses by gender, female students were significantly more likely than male students to report parental (94.6% of females and 92.0% of males), peer (75.5% of females and 71.1% of males), and personal disapproval (84.5% of females and 81.2% of males) of smoking tobacco. Regarding electronic cigarette use, female students were more likely to report parental disapproval (88.4% of females and 86.2% of males), but there were no significant gender differences on peer (60.0% of females and 58.3% of males) or personal disapproval ratings (71.1% of females and 69.9% of males).

Reported parental disapproval of smoking tobacco revealed no significant differences by racial group. However, White students perceived lower parental disapproval rates for e-cigarette use (86.8%) when compared to Black (90.0%) or Hispanic (92.1%) youth. White students also reported significantly lower peer disapproval of tobacco use (72.2%) compared to 79 percent for Black and 80 percent for Hispanic youth lower peer disapproval of e-cigarette use (57.5% for White students compared to 71.6% for Black and 68.5% for Hispanic students). Reported personal perception of use followed the same trend, with significantly fewer White students reporting personal disapproval of smoking tobacco (82.1%) when compared to Black (86.1%) or Hispanic

Exhibit 17. Parent, peer, and personal disapproval of smoking tobacco and using electronic cigarettes by grade level



(87.2%) students and significantly lower disapproval of e-cigarette use as well (69.2% for White students, compared to 77.3% for Black and 78.3% for Hispanic students). The lower perception of disapproval across the board for White students may be related to their significantly higher tobacco usage rates.

An analysis of the three approval measures by region revealed no significant differences between regions on parental or personal disapproval for either smoking tobacco or using e-cigarettes. For peer use, however, students from Region 6—where lifetime and past-month prevalence rates were highest—reported significantly lower perceived peer disapproval (70.1% for smoking tobacco, 54.0% for e-cigarette use) compared to the other regions. Strikingly, only half of Region 6 students felt that their peers would disapprove of them using e-cigarettes.

Peer use of tobacco products

Students were also asked if any of their closest friends had smoked a cigarette or used an electronic cigarette in the 12 months prior to the survey administration. Approximately 28 percent of students reported at least one of their four closest friends had smoked part or all of a cigarette in the past year, and more than 40 percent reported that their close friends had used electronic cigarettes. Reported peer use showed significant increases with each grade level, with 12th-grade students being most likely to report that at least one of their closest friends had smoked part or all of a cigarette (35.6%) or used an electronic cigarette (48.8%). Females were more likely than males to report having friends who smoked cigarettes (29.5% and 26.4%, respectively), with no significant gender differences on peer e-cigarette use. There were large differences reported by racial subgroup for both peer tobacco and e-cigarette use. Significantly more White than Black or Hispanic students reported peer use of cigarettes (29.8%, 16.6%, and 18.9% respectively) and electronic cigarettes (44.3%, 21.6%, and 28.8%).

Regionally, reported rates of peer use of tobacco were very similar, ranging from a low of 26 percent in Region 5 to a high of about 30 percent in Region 6. However, larger differences were seen in reported peer use of e-cigarettes with a range of 39 percent in Region 3 to 45 percent in Region 6. Again, Region 6 tobacco and e-cigarette peer usage rates continued to be the highest out of any participating region.

Risk perception

Research has demonstrated that youth substance use patterns are influenced by their perceptions about the risks associated with use.[9] The Tennessee Together Student Survey captured students' perceptions of risk associated with smoking one or more packs of cigarettes a day, or by using electronic cigarettes. Approximately 16 percent of students surveyed perceived "no risk" or only "slight risk" associated with smoking one or more packs of cigarettes per day (see Exhibit 18). There were clear gender differences in risk perception with males (18.1%) being significantly more likely than females (13.3%) to believe that smoking one or more pack of cigarettes per day posed either "no risk" or "slight risk." There were also significant differences reported by race with more than one-third (32.3%) of Black students perceiving "no risk" or only "slight risk" associated with smoking one or more packs of cigarettes per day, compared to 14 percent of White students, and 22 percent of Hispanic students. Region 3 had the highest proportion of students reporting "no risk" or "slight risk" associated with smoking one or more packs of cigarettes per day at approximately 19 percent, and Region 5 had the lowest proportion at 13 percent.

Nearly double the number of students perceived "no risk" or "slight risk" associated with using electronic cigarettes (34.0%) compared to smoking one or more packs of cigarettes per day (see Exhibit 19). There were significant gender differences in risk perception with males (38.5%) being more likely than females (28.8%) to believe that using electronic cigarettes posed either "no risk" or "slight risk." There were also significant differences by race. Black students were significantly more likely to perceive "no risk" or "slight risk" associated with using electronic cigarettes (45.5%) when compared with White or Hispanic students (33.0% and 33.3%, respectively). This was somewhat conflicting with usage patterns that clearly showed White students

Exhibit 18. Perceived risk associated with smoking one or more packs of cigarettes a day

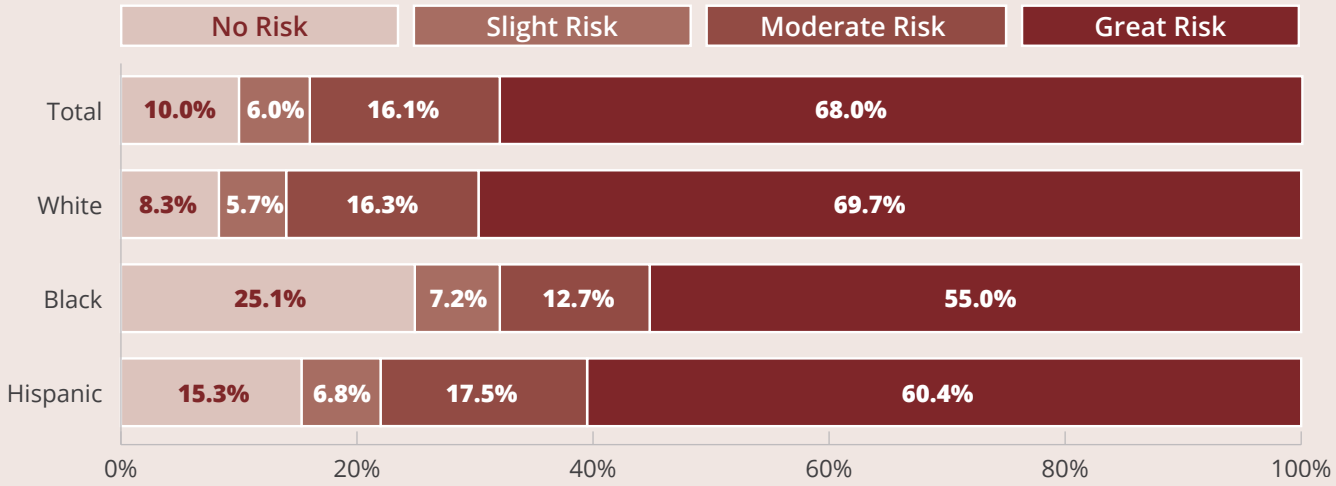
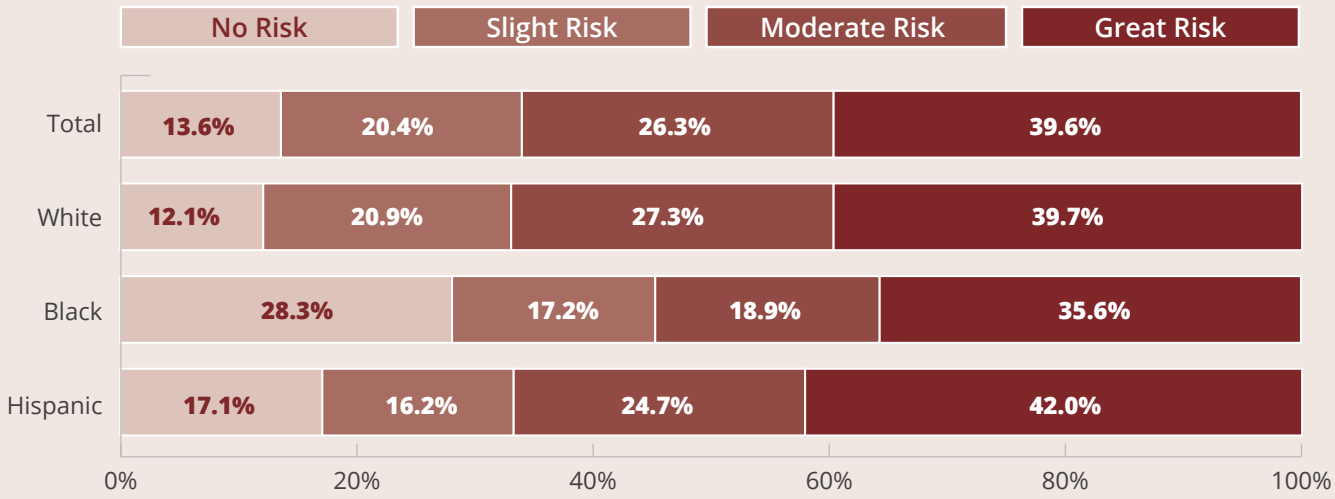


Exhibit 19. Perceived risk associated with using electronic cigarettes



using e-cigarettes significantly more than Black or Hispanic students. Regionally, Regions 6 and 3 had the highest proportions of students reporting "no risk" or "slight risk" associated with electronic cigarette use (37.2% and 36.5%, respectively), and Region 5 had the lowest proportion at 30 percent.

Summary of Key Findings

Tobacco use among youth in the United States has been steadily rising, largely due to the increase in electronic cigarette use, now the most common method of youth tobacco consumption. The U.S. Office of the Surgeon General has described the use of electronic cigarettes by youth as an epidemic. While the specific long-term health risks of electronic cigarette use are still largely unknown, there is evidence that youth who use electronic cigarettes are at risk for developing nicotine addiction and are more likely to use traditional cigarettes in their lifetime. Cigarette use has many known adverse consequences, such as lung cancer, asthma, and emphysema. Additionally, nicotine is known to be highly addictive and dangerous to youth brain development. Further, research suggests that approximately nine out of ten adult smokers initiated smoking behaviors in adolescence, underscoring the importance of prevention efforts aimed at this population.[10]

Tobacco use in Tennessee has become the focus of several initiatives during the past five years. In 2016, the Tennessee Department of Health launched the "It's Quittin' Time in Tennessee" campaign to provide tobacco cessation resources. Due to the success of the campaign, the state funded a statewide Tobacco Coalition tasked with organizing the campaign each year. In addition, substance abuse prevention coalitions across the state are implementing school- and community-based prevention education programs to prevent the onset of tobacco use among youth.

Findings from the Tennessee Together Student Survey revealed that students enrolled in Tennessee's public middle and high school students initiate tobacco use at a young age (13.2 years of age for cigarettes and 14.4 years of age for e-cigarettes). Nearly one in every five students (19.3%) reported smoking cigarettes, and about one in every four students (29.8%) surveyed reported using electronic cigarettes in their lifetime. In the past 30-days prior to the survey administration, about nine percent reported any cigarette use, and about 19 percent reported any electronic cigarette use. About 42 percent of students who reported any use of cigarettes in the past 30 days, and about 53 percent of students who reported any use of electronic cigarettes in the past 30 days were classified as "high-frequency users," meaning that the students had reported use on six or more days during the 30-day period. For all tobacco products, use was more common among White students than Black or Hispanic students. And, for all measures, e-cigarette usage outpaced that of traditional cigarettes.

A majority of students (67.7%) statewide reported that it was either "very easy" or "fairly easy" to obtain tobacco products, with three-fourth of high school seniors (79.8%) and nearly half of middle school students (50.2%) reporting ease of access. This data reveals, while Tennessee has made efforts to reduce sales to minors, this issue persists.

Measures of personal, peer, and parental approval of smoking tobacco and using electronic cigarettes were significantly different, demonstrating higher rates of approval of using electronic cigarettes compared to smoking tobacco. One-third of students believe that using electronic cigarettes poses little to no risk to health or safety. This may be due to the fact that electronic cigarettes are falsely advertised as a safer alternative. While researchers are still determining the long-term health consequences related to using electronic cigarettes, there is a plethora of evidence on the adverse effects of nicotine consumption, particularly in youth.[11] It is clear that educational efforts aimed at youth tobacco use in Tennessee must include corrective messaging about the dangers of all products containing nicotine, not just traditional cigarettes.

NOTES

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Marijuana

One in five students in Tennessee reported using marijuana in their lifetime.

In the United States, marijuana is now the second most commonly used substance among youth, following alcohol. Growth in youth marijuana use has outpaced that of conventional tobacco products (i.e., cigarettes and smokeless tobacco) within the past decade.[1] In the past 10 years, states have increasingly moved toward marijuana legalization, with 33 states legalizing use for medical purposes and 13 states legalizing recreational use for adults over the age of 21.[2] However, both in Tennessee and under federal law, marijuana use remains illegal for both medical and recreational purposes.

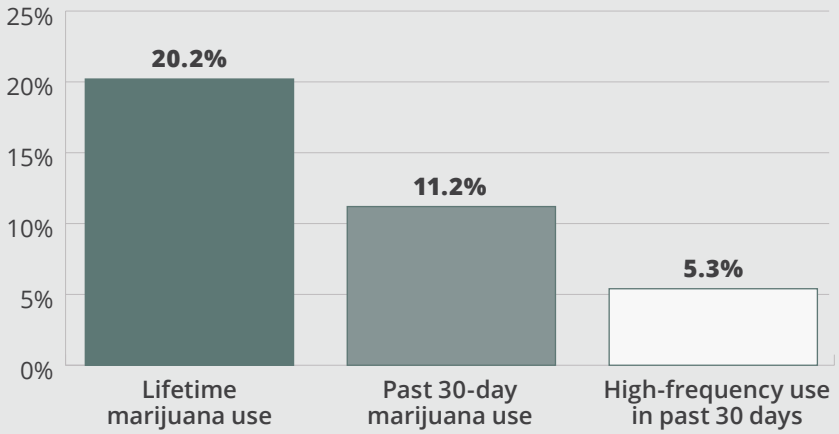
In September 2017, the Tennessee Department of Health issued a public health advisory with warnings about the consequences of marijuana use, including the negative health impacts specific to youth.[3] Notably, growing evidence suggests that regular or heavy marijuana use during adolescence may impair brain development and can increase the risk of future addiction and dependence.[4] In Tennessee in 2017, more than 2,000 patient admissions to state-funded substance use treatment services—or 14 percent of all admissions statewide—involved marijuana as the primary substance of abuse.

The Tennessee Together Student Survey included measures of youth attitudes and behaviors related to marijuana use, including lifetime use, frequency of past 30-day use, age of initiation, perceived accessibility, perceived approval of use, and perceived risk associated with use. The following sections present findings from the statewide survey.

Lifetime and 30-Day Use Patterns

The Tennessee Together Student Survey included two core measures of the prevalence of marijuana use—lifetime and past 30-day use. When asked about their past and current use patterns, students were provided guidance that marijuana or hashish can also be known as "grass, pot, weed, hash, or hash oil." This is consistent with definitions from SAMHSA's National Survey of Drug Use and Health (NSDUH), allowing for comparison to national data findings. About one in five students (20.2%) surveyed indicated that they had used marijuana at least once in their lifetime. Applying this proportion to the statewide population, this suggests that nearly 44,000 middle- and high-school age youth across Tennessee have some history of personal marijuana use. The average age of initiation was 14.1 years old, indicating that many young people begin to experiment with marijuana very early in their high school careers. Research has shown that initiation of marijuana use in early adolescence is related to increased frequency of use and cognitive deficits (e.g., decreased processing speed, attention, and memory).[5]

Unlike national trends in lifetime rates of alcohol and cigarette use, which have declined in recent years, the use of marijuana among high school seniors has remained relatively stable. A substantial increase has also been observed among 12th-grade students in the use of vaping devices, including vaping of marijuana products, which increased from 9.5 percent in 2017 to 13.1 percent in 2018.[6] Although the Tennessee Together survey did not differentiate between



AVERAGE AGE OF INITIATION

14.1 years old

HIGH-FREQUENCY USERS

47%

of students who reported marijuana use in the past 30-day reported using on six or more days.

Exhibit 20. Lifetime and past 30-day prevalence of marijuana use

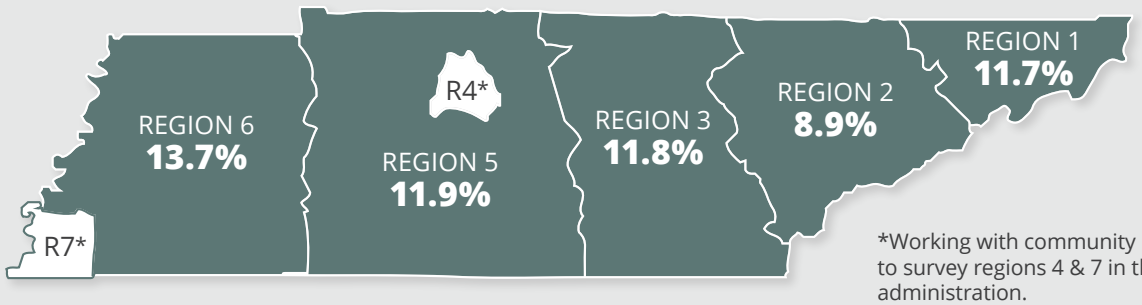
smoking and vaping as a method of consumption, this additional detail will be incorporated into future iterations of the survey in response to growing concerns within the public health field about the widespread use of marijuana via vaping devices.[7]

To measure current marijuana use, students were asked to report how many days they had used marijuana in the 30 days prior to survey administration. Survey findings indicated that about 11 percent of students reported some current use. Of those who were currently using, nearly half (47.3%) were classified as "high-frequency users," defined as using on six or more days in the preceding 30-day period. Lifetime use, 30-day use, and high-frequency use rates for youth within the Tennessee Together Student Survey sample are shown in Exhibit 20.

Differences in prevalence rates for marijuana use were assessed by gender, race/ethnicity, grade level, and TDMHSAS Planning and Policy Region. Prevalence rates increased with each successive grade level for measures of both lifetime and 30-day use. For example, eighth-grade students reported the lowest rate of past 30-day marijuana use (5.0%) compared to 10th- (13.1%) and 12th-grade students (16.3%). No significant gender differences were observed on measures of lifetime or past 30-day use, although on average female students began using at a slightly later age (14.4 years) than male students (14.0 years). Hispanic students (15.2%) reported significantly lower rates of lifetime use than White students (19.2%) or Black students (27.3%). These differences were even greater when examining rates of past 30-day use. More specifically, 18 percent of Black students reported using marijuana in the past 30 days—a rate almost double the prevalence among either White (10.3%) or Hispanic students (8.1%). There were no significant racial/ethnic differences in age of initiation.

There was some variation in prevalence of marijuana use when comparing student responses across TDMHSAS Planning and Policy Regions. Reported lifetime use was significantly higher in Region 6 (24.7%) than all other regions in the state, with the lowest reported prevalence in Region 2 (16.9%). Similar patterns were found for past 30-day use of marijuana, with students in Region 6 reporting the highest rates of current use (13.7%) and students in Region 2 reporting the lowest (8.9%) as shown in Exhibit 21. These findings are

Exhibit 21. Regional map of past 30-day use of marijuana



*Working with community partners to survey regions 4 & 7 in the next administration.

consistent with the regional variation found in rates of prescription drug misuse, tobacco, and alcohol use, with students in Region 6 consistently reporting the highest rates of both lifetime and 30-day use in the state.

Marijuana Availability and Access

The Tennessee Together Student Survey included measures of students' perceived ability to access various substances in their communities, including marijuana. Students were asked how "easy" or "difficult" it would be to access marijuana, which unlike alcohol, tobacco, or prescription drugs, is illegal statewide. More than half (53.9%) of all students reported that it was either "very easy" or "fairly easy" to obtain marijuana. High-school-age students in the 10th (59.2%) and 12th (68.4%) grades reported easier access than middle-school-age students (27.1%). No significant differences were observed based on gender. Black students (68.9%) were significantly more likely to report that they could obtain marijuana easily than either White (51.9%) or Hispanic (53.0%) students. These differences by race were comparable to differences in prevalence rates, with highest rates of both use and ease of access reported by Black students. Research suggests a strong connection between drug availability or ease of access and use and abuse.[8]

Differences in reported availability of marijuana by TDMHSAS Planning and Policy Region were also consistent with regional prevalence data. Significantly fewer students from Region 2 (45.1%) reported that it was easy to obtain marijuana than students from other regions, with the greatest ease of access reported by students in Region 3 (62.3%). For two of the three remaining regions in the sample—Regions 5 (58.9%) and 6 (57.0%)—the percentage of students who felt it was either "very easy" or "fairly easy" to access marijuana was above the statewide average. For the final region in the sample—Region 1—this percentage fell slightly below the average statewide rate (53.5%)

Risk and Protective Factors

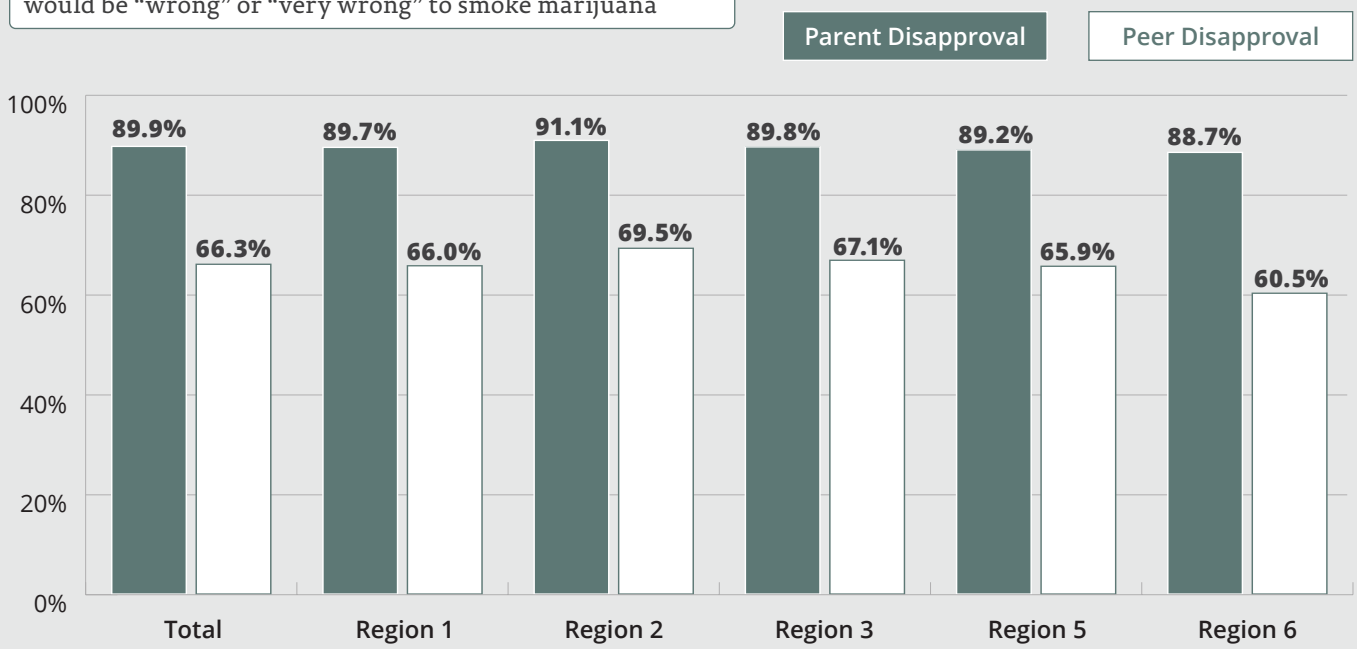
The Tennessee Together Student Survey also included measures of risk and protective factors that may affect students' decisions to use substances. These include measures of social norms, such as personal, peer, and parental approval of marijuana use, and personal perceptions of the risks associated with using. These intervening variables may be used to inform program planning and implementation to prevent the initiation of use among youth.

Personal, peer, and parental approval

On the Tennessee Together Student Survey, respondents were asked to indicate how they thought the people who are closest to them, including friends and family members, might feel about them using marijuana. These perceptions of approval can have a powerful influence over students' decisions to engage in substance use.[9] Survey respondents were first asked how wrong their parents think it would be for them to smoke marijuana. Response options included "not at all," "a little bit wrong," "wrong," or "very wrong." Students largely agreed (89.9%) that their parents believe that smoking marijuana would be "wrong" or "very wrong." Students were next asked how they or their friends would feel about someone their age smoking marijuana. Although three-fourths of students (75.4%) felt it would be "wrong" or "very wrong," they believed that their friends would be more approving, with only two-thirds (66.3%) reporting that friends would disapprove of marijuana use.

Student perceptions about personal, peer, and parental approval of smoking marijuana tended to vary by grade level, with eighth-grade students expressing higher rates of parent disapproval (95.0%) than 10th- (88.7%) or 12th-grade students (85.6%). Similar significant trends were also observed on measures of peer disapproval (81.2%, 61.3%, and 55.0%, respectively) and personal disapproval (88.6%, 71.5%, and 64.8%, respectively). The largest gap in disapproval ratings was between middle and high school students. This gap may be important to consider when developing educational and preventive interventions that may benefit from age- or grade-specific content and approaches.

Exhibit 22. Perceptions that parents and peers would feel it would be "wrong" or "very wrong" to smoke marijuana



There were no significant differences by gender. Examining the approval ratings by race, Hispanic students (93.9%) were more likely than White (90.6%) or Black students (86.9%) to report parental disapproval. Reported group differences for peer approval were smaller, with Hispanic students (72.0%) being slightly more likely than White (67.2%) or Black students (63.2%) to report that their peers would feel it was "wrong" or "very wrong" for them to smoke marijuana. In rating their own approval of someone their age smoking marijuana, Hispanic (80.1%) and White students (76.4%) were significantly more likely than Black students (70.6%) to report disapproval. This disapproval may be linked to the lower prevalence of marijuana use reported by Hispanic students. Differences in perceived social norms were also found between regions (see Exhibit 22). Students in Region 6 were least likely to perceive that peers would be opposed to their marijuana use compared to students in other participating regions. Region 6 students also demonstrated the highest rates of both lifetime and past 30-day use.

Peer use of marijuana

Respondents on the Tennessee Together Student Survey were also asked about the use of marijuana among their closest friends in the 12 months prior to survey administration. About one-third (33.1%) of students reported that at least one of their four closest friends had used marijuana in the past year. As with many other measures, peer use increased by grade level, with eighth-grade students reporting the lowest rates of peer use (18.2%), followed by 10th- (38.8%), and 12th-grade students (43.7%). Female students (34.9%) were more likely than male students (30.7%) to have close friends who were using. Hispanic students (24.0%) were less likely to report peer use than either White (32.8%) or Black students (34.7%). Again, students in Region 6 showed significantly higher rates than students in any other region, with about 38 percent believing that at least one of their close friends had smoked marijuana in the past year.

Risk perception

As with other substances, students' perceptions about the risks associated with smoking marijuana may affect their decisions to use.[10] The Tennessee Together Student Survey asked students to rate the relative risk they associated with using different substances, with response options of "no risk," "slight risk," "moderate risk," or "great risk." For marijuana, students were asked to rate the perceived risks associated with experimentation

(e.g., "trying marijuana once or twice"), as well as more regular or routine use (e.g., "smoking marijuana once or twice per week"). Slightly more than half of students (51.0%) perceived "no risk" or only "slight risk" of trying marijuana once or twice and 38 percent perceived "no risk" or "slight risk" with smoking marijuana once or twice per week, as shown in Exhibit 23. This finding suggests that many students believe marijuana is relatively safe to use and does not pose serious harm to health or safety, conforming to a larger national trend in student perceptions. According to findings from the national Monitoring the Future Youth survey, the percentage of 12th-grade students who perceive "great risk" associated with smoking marijuana regularly has decreased from 52 percent to 27 percent over the past decade.[11] This change in perception has often been linked to the recent legalization of marijuana in many states and changing social norms regarding the acceptability of use.

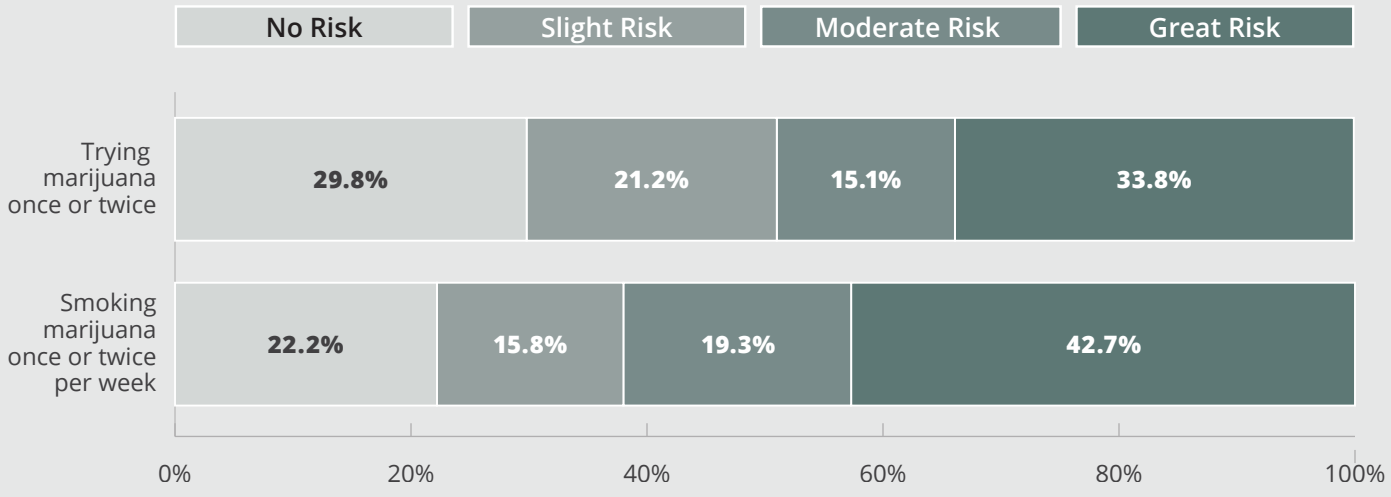
Clear differences were also seen in risk perception based on student gender and race. Males were significantly more likely than females to believe that trying marijuana once or twice (53.2% and 48.3%, respectively), or smoking marijuana once or twice a week (40.9% and 34.3%, respectively) posed either "no risk" or only "slight risk." There were also significant differences reported by race, with the majority (60.2%) of Black students perceiving low risk associated with trying marijuana, compared to 50 percent of White students, and 43 percent of Hispanic students. These differences persisted for measures of perceived risk associated with smoking marijuana once or twice per week, with about 54 percent of Black students reporting "no risk" or "slight risk" compared to 36 percent of White students and 37 percent of Hispanic students.

Regional measures of students' perceived risk of marijuana use were consistent with other risk factor and use measures. Region 6 had the highest proportion of students reporting "no risk" or "slight risk" associated with both trying marijuana (55.4%) and smoking marijuana regularly (41.0%). Region 2 had the lowest proportion of students perceiving either "no risk" or only "slight risk" of harm from trying marijuana (48.5%). Region 2 (36.3%) and Region 5 (36.0%) had the lowest proportion of students reporting "no risk" or "slight risk" associated with smoking marijuana once or twice per week.

Summary of Key Findings

Student responses to the Tennessee Together Student Survey revealed that middle and high school public school students use marijuana at a relatively high rate. According to survey findings, one in five

Exhibit 23. Perceived risk associated with trying marijuana once or twice or with smoking marijuana once or twice per week



students has used marijuana in his/her lifetime, and more than half of lifetime users reported use in the 30 days prior to survey administration. Nearly half of those who reported any past 30-day use were using marijuana frequently (i.e., six or more days in the past 30 days), placing them at greater risk for future addiction and dependence.

More than half of students surveyed indicated that it was "very easy" or "fairly easy" to obtain marijuana in their communities, despite the fact that the use of marijuana remains illegal in Tennessee. Social norms related to personal, peer, and parental approval were mixed, highlighting generational differences in risk perception. There was almost universal agreement among students that their parents would disapprove of their use, whereas only two-thirds of students felt that their peers would similarly disapprove. Measures of personal disapproval fell somewhere in the middle, although half of students believe that they would not risk harming themselves physically or in other ways by trying marijuana once or twice.

Findings in this section highlighting students' marijuana use attitudes and behaviors revealed meaningful differences among student subgroups based on age, geographic location, and race. Students in 10th and 12th grades reported similar patterns of marijuana use, while differing significantly from eighth-grade youth. This discrepancy demonstrates that entry into high school may be an important intervention point for delaying or preventing the onset of marijuana use among adolescents. Black students and students residing in Region 6 had the highest rates of marijuana use and associated risk factors, and they had the lowest rates of protective factors of any student subgroups. These findings have important implications for prevention planning to ensure that prevention and education strategies are both culturally responsive and geographically targeted to reach students at highest risk for problem use.

NOTES

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Other Illegal Drugs

3%
of Tennessee students reported using an illicit drug in their lifetime.

In 2017, the age-adjusted rate of drug overdose deaths (involving heroin, natural semisynthetic opioids, methadone, and synthetic opioids other than methadone) for people over the age of 15 in Tennessee was 36 per 100,000, a significantly higher rate than the national rate of 29 per 100,000.[1] In Tennessee, this amounted to 1,892 drug overdose deaths in those over the age of 15 in 2017. According to the most recent National Vital Statistics System youth data, the most common cause of overdose deaths among youth ages 15 to 19 in 2015 was opioids—specifically heroin.[2] Identifying state prevalence rates for youth illicit drug use is difficult, as few data sources exist. The Tennessee Together Student Survey was used to capture information about illicit drug-use rates (other than marijuana) for heroin, cocaine, inhalants, hallucinogens, steroids, ecstasy, and methamphetamines. Results are presented in the following section.

Lifetime and 30-Day Use Patterns

Measures of illicit drug use—excluding marijuana—on the Tennessee Together Student Survey included lifetime use of methamphetamines and a combined category of "other illegal drugs (cocaine, heroin, inhalants, etc.)" and past 30-day use of cocaine, inhalants, hallucinogens, heroin, steroids, ecstasy, and methamphetamines (each assessed individually). During analysis, the past 30-day use measures for cocaine, inhalants, hallucinogens, heroin, steroids, ecstasy, or methamphetamines were also combined into a measure of past 30-day use of any illicit drug(s). The definitions provided on the Tennessee Together Student Survey do not include marijuana, and therefore, any illicit drug use described in this section excludes marijuana.

Survey findings indicated that approximately 6,500 middle and high school students (3.0%) used an illicit drug in their lifetime. Over half of the students who reported lifetime use (1.7% of the sample) reported using illicit drugs in the past 30 days. Among those who reported any past 30-day use, one-third (35.3%) were "high-frequency users." High-frequency use (defined as using on six or more days in the past 30 days) was relatively high among youth who reported past 30-day use of steroids (40.0% of students who reported any use), heroin (40.0% of students who reported any use), and methamphetamines (60.0% of students who reported any use). Apparently, students using these substances were using them frequently. Lifetime, past 30-day, and high-frequency use rates for youth within the Tennessee Together Student Survey sample are shown in Exhibit 24.

Prevalence rates were assessed by gender, race/ethnicity, grade level, and geographic location within the state (i.e., TDMHSAS Planning and Policy Regions). Lifetime use of any illicit drugs increased significantly between eighth and 10th grade (1.3% to 3.2%) and between 10th and 12th grade (3.2% to 4.6%). High school youth were significantly more likely to report any lifetime use of methamphetamines than middle school youth, with small differences between 10th- and 12th-grade students' reported use. The prevalence of past 30-day use was small, and differences by grade level were not large enough to show significance. There were small but significant differences by gender as males

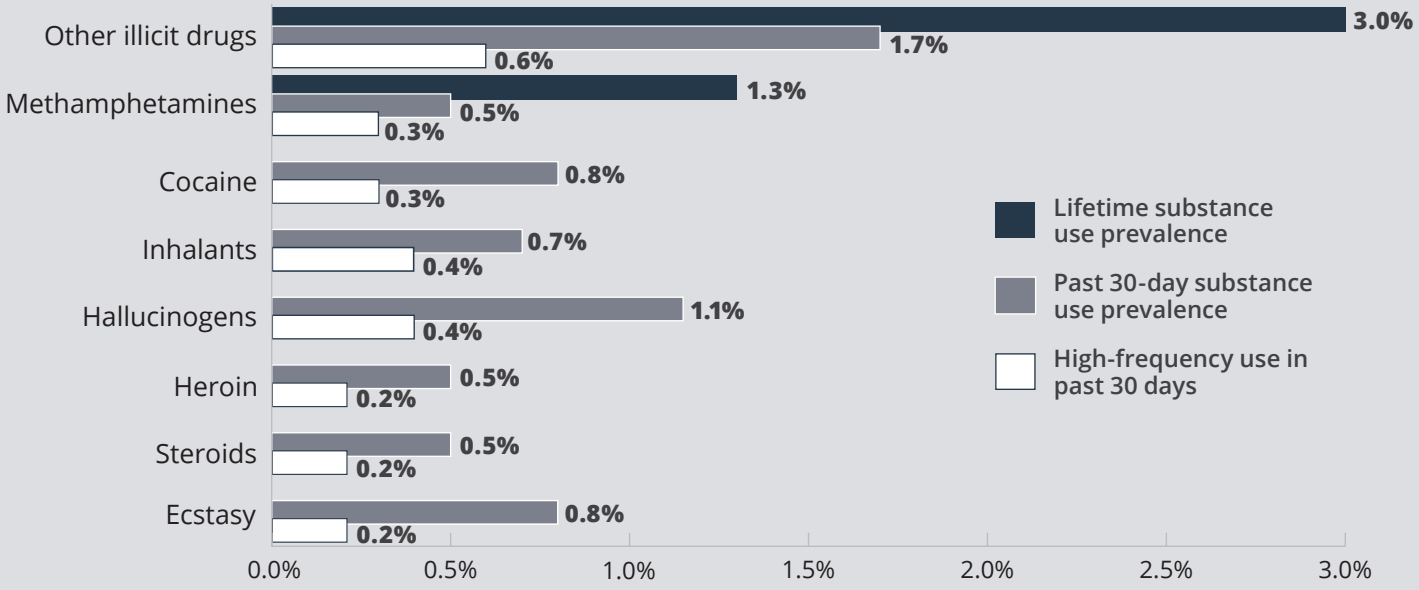

Exhibit 24. Lifetime and past 30-day prevalence of other illicit drugs

(3.3%) were slightly more likely to report any lifetime use of illicit drugs than females (2.2%) and also significantly more likely to report past 30-day use (2.0% and 1.0%, respectively). Male students were also more likely than female students to report past 30-day use of hallucinogens (1.4% compared to 0.4%) and ecstasy (1.0% compared to 0.2%). In addition, Black students (2.3%) were more likely to report any lifetime use of methamphetamines than White (1.1%) students, but these differences were not present for other illicit drug use overall.

Misuse rates varied somewhat when comparing student responses across TDMHSAS Planning and Policy Regions. Specifically, reported lifetime use of methamphetamines was highest in Region 1 (1.6%) and Region 5 (1.6%), followed closely by Region 6 (1.5%) and Region 3 (1.4%), with the lowest prevalence in Region 2 (1.0%). Similarly, for lifetime use of any illicit drugs, students from Region 5 (3.8%) reported the highest rates, followed by Region 6 (3.4%) and Region 1 (3.3%), with students from Region 3 (3.0%) slightly below the statewide average, and Region 2 with the lowest rate (2.4%). These same trends appeared for measures of past 30-day use by geographic region.

Summary of Key Findings

Responses to the Tennessee Together Student Survey revealed that a very low proportion of students reported using illicit drugs, excluding marijuana. However, over half of those who reported lifetime use of illicit drugs also reported current use. High-frequency use (i.e., using on six or more days in the past 30 days) is most common among those who reported using steroids, methamphetamines, or heroin. Given the low proportion of students who ever used illicit drugs, the Tennessee Together Student Survey did not include measures of social norms or risk and protective factors associated with illicit drug use.

This section's findings regarding the prevalence rates of cocaine, inhalants, hallucinogens, heroin, steroids, ecstasy, and methamphetamines reveal meaningful differences in consumption patterns based on student demographics. Students from Region 1, Region 6, and Region 5 reported the highest rates of use, as did male students and students who identify as Black. Differences between middle and high school youth also existed.

NOTES

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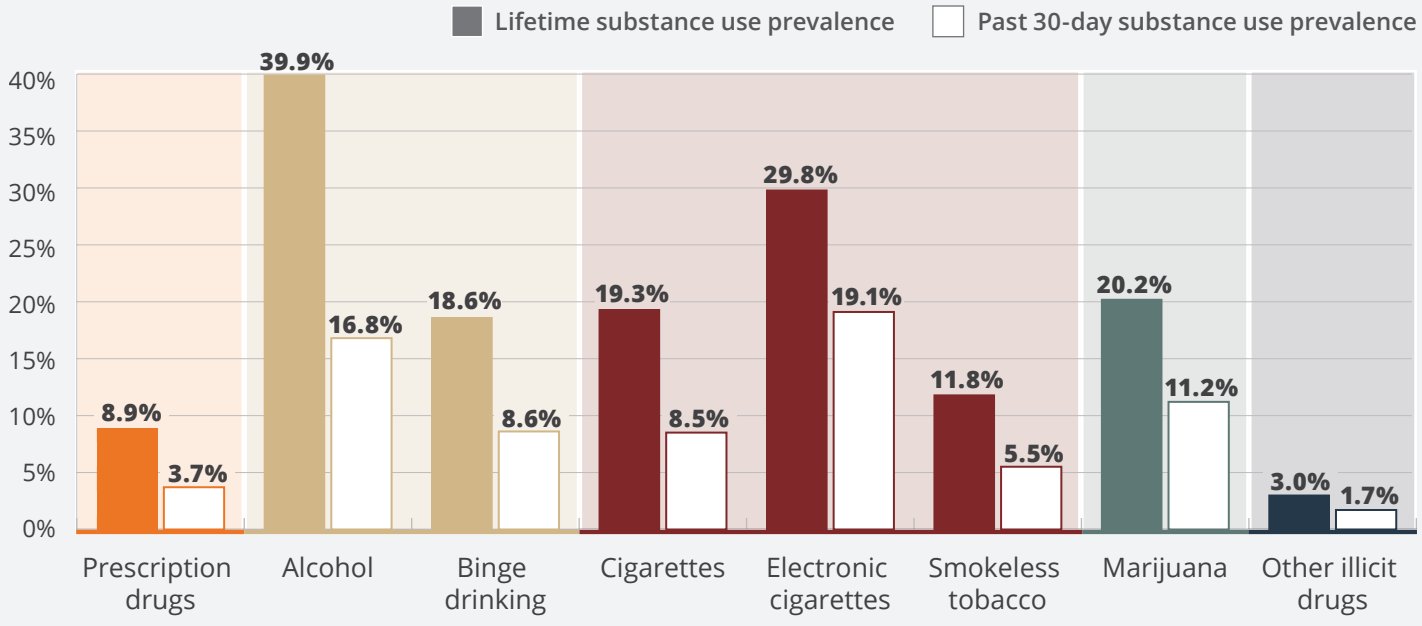
Comparing Substance Use, Attitudes, and Behaviors Across Substances

The Tennessee Together Student Survey captures information on substance use patterns, attitudes, and beliefs regarding some of the most commonly used substances of misuse and abuse among secondary school students in Tennessee. This section compares student responses to various alcohol-, drug-, and tobacco-use measures to understand more about the relative prevalence of various substance types and variations in social norms and attitudes toward use.

Lifetime and 30-Day Use Patterns

Almost half of all Tennessee public school students (48.0%) have engaged in some form of alcohol or other drug misuse in their lifetime, and nearly one-third reported actively using in the 30 days prior to survey administration. As shown in Exhibit 25, the most commonly used substance for reported lifetime use was alcohol (39.9%), followed by electronic cigarettes (29.8%), marijuana (20.2%), cigarettes (19.3%), smokeless tobacco (11.8%), and prescription drugs (8.9%). Although alcohol was the most commonly used substance for reported lifetime use, electronic cigarettes (19.1%) were the mostly commonly used substance in the 30 days prior to survey administration. Past 30-day electronic cigarette use was also twice as common as traditional cigarette use (8.5%) and almost four times more common than smokeless tobacco use (5.5%).

Exhibit 25. Lifetime and past 30-day prevalence of various substances



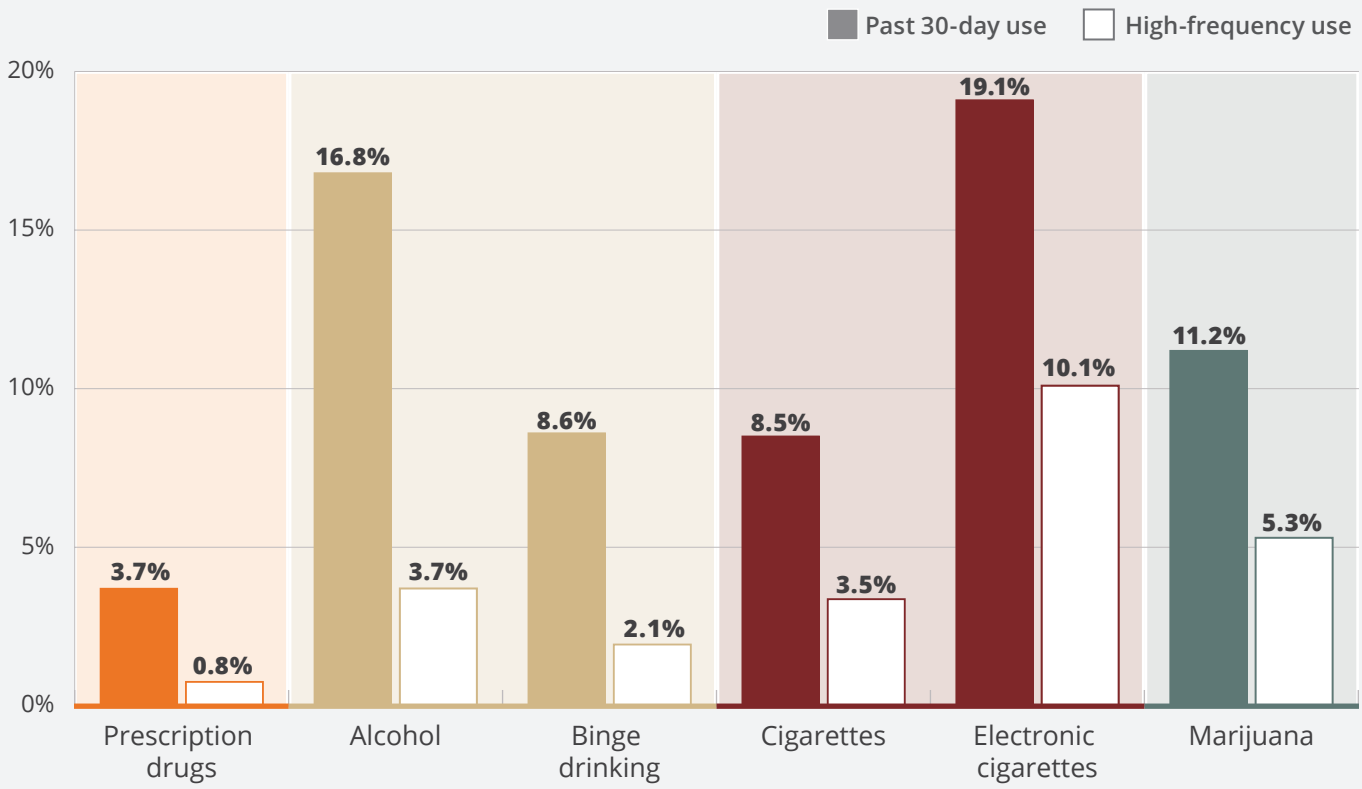


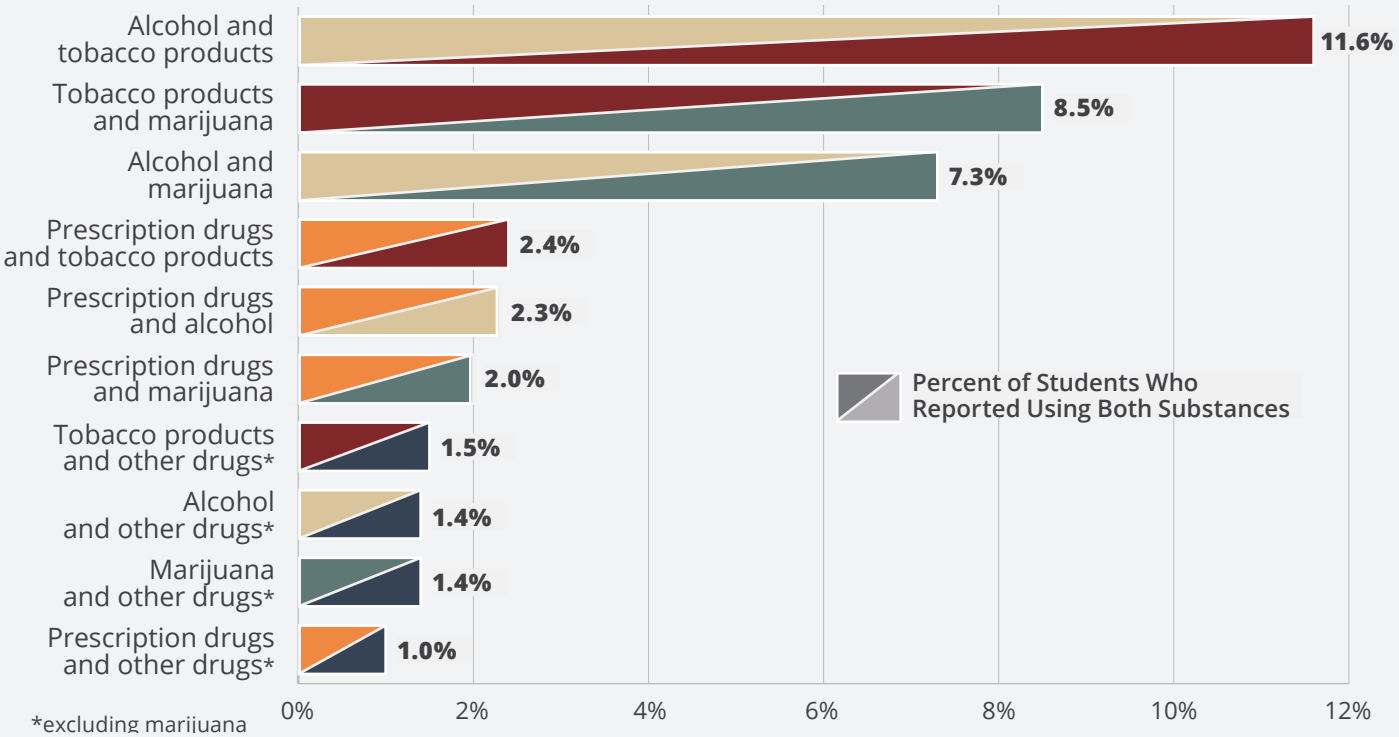
Exhibit 26. High-frequency use (six or more days) among students who reported any past 30-day use

The average age of initiation across substances—an important indicator for the timing of prevention strategies—ranged from 13.2 (cigarettes) to 14.4 (electronic cigarettes) years of age. For most substances, this means that students are beginning to experiment early in adolescence while still in middle school, or very early in their high school careers. For all substances, the percentage of students who reported actively using increased with each subsequent grade level.

High-Frequency Substance Use

Students who reported use of cigarettes, electronic cigarettes, or marijuana had the highest proportion of high-frequency users, defined as individuals who used on at least six or more days in the past 30-day period (see Exhibit 26). Specifically, over half of students who reported any current electronic cigarette use used on six or more occasions in the month prior to the survey administration (i.e., 10.1% reported high-frequency e-cigarette use compared to 19.1% reporting any e-cigarette use). This pattern was similar among students using marijuana and traditional cigarettes. While the proportion of high-frequency users was lower for prescription drugs, alcohol, and binge drinking, rates were still relatively high, with approximately one-quarter of all users engaging in use on a frequent basis. This shows that a large proportion of students who begin experimenting with substances will go on to become regular users. This pattern suggests the need for comprehensive prevention approaches that include universal strategies to prevent or delay onset of use, as well as selective and indicated strategies that target high-risk students or students already using to prevent or reduce heavy or chronic use.

Exhibit 27. Most common combinations of past 30-day-multiple-substance use



Past 30-Day Use of Multiple Substances

Survey findings also revealed that a substantial proportion of active users used multiple substances within the same 30-day time frame. For example, nearly 12 percent of students reported alcohol and tobacco use in the past 30 days (see Exhibit 27). The next most common combination was tobacco and marijuana use within the same 30-day period, with nearly 10 percent of students reporting this behavior. Past 30-day alcohol and marijuana use was also relatively common, with just over seven percent of students reporting past 30-day alcohol and marijuana use. Just over two percent of students reported using both prescription drugs and tobacco products in the past month, with similar rates reported for past 30-day prescription drug and alcohol misuse. Although this group represents a relatively small proportion of the student population, these students are at elevated risk for harmful interactions that result from mixing alcohol and prescription medications. Collectively, these findings suggest that students who have already initiated use are likely experimenting with or actively using multiple substance types.

Risk and Protective Factors

In addition to comparing students' use patterns and ages of initiation, the analysis also compared student attitudes and beliefs related to various substances of abuse. As described in previous sections, for all substance types, students perceived that parents would be the most disapproving of their substance use, compared to students themselves or their peers (see Exhibit 28). Students perceived that parents would be most disapproving of prescription drug misuse (96.2%) and least disapproving of drinking alcohol (92.9%). Students' beliefs that their parents have more accepting attitudes toward alcohol, compared to other substances, may be associated with the high rates of reported lifetime alcohol use. Perceptions regarding peer disapproval were also highest for use of prescription drugs (85.4%) and were lowest for use of electronic cigarettes (58.9%). This low disapproval rating suggests that

more than 40 percent of youth felt that social norms within their own peer groups would be favorable toward vaping or e-cigarette use. The high rates of electronic cigarette use reported by students may be associated with this perceived level of acceptance or approval combined with the perception that e-cigarettes do not present a serious health risk to users (see Exhibit 29).

As shown in Exhibit 29, students were least likely to perceive risk associated with using marijuana, even when asked about regular use (i.e., smoking marijuana once or twice per week). Fifty-one percent of students perceived either "no risk" or only "slight risk" associated with trying marijuana once or twice, and 38 percent perceived "no risk" or only "slight risk" in smoking marijuana regularly. Relative to alcohol or prescription drugs, students were also less likely to perceive moderate or great risk associated with using electronic cigarettes, with 34 percent of students perceiving "no risk" or only "slight risk." By contrast, students were most likely to perceive risk related to prescription drug misuse, with approximately 85 percent of students perceiving "moderate risk" or "great risk" associated with misusing prescription medications. The lower relative prevalence of prescription drug misuse among youth may be associated with these higher levels of risk perception.

Exhibit 28. Perceptions that parents and peers would feel it would be "wrong" or "very wrong" to use various substances

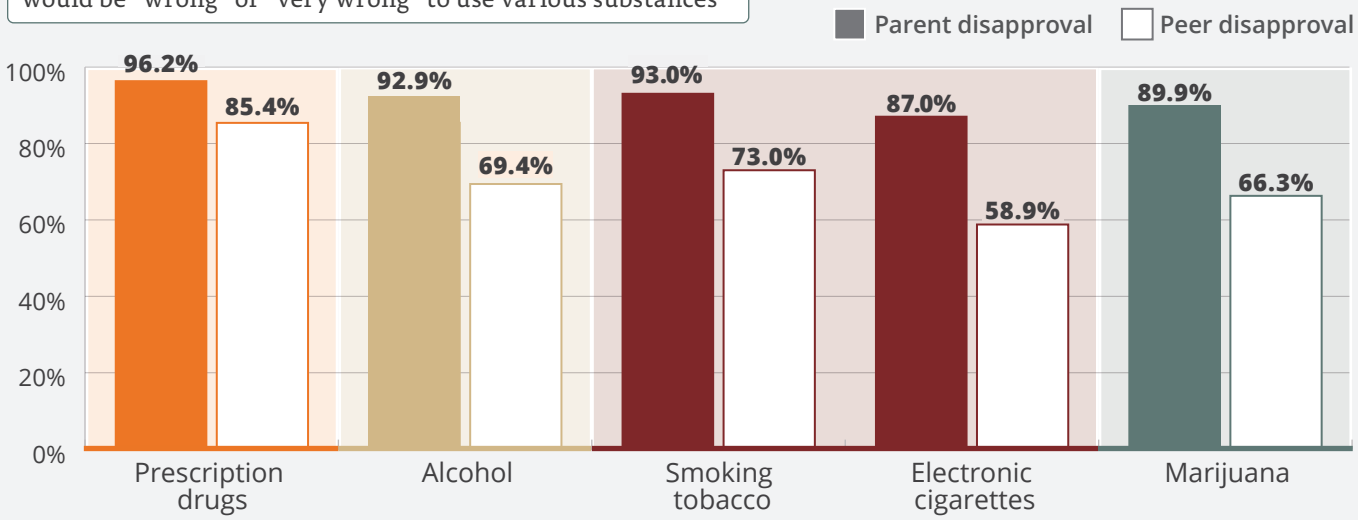
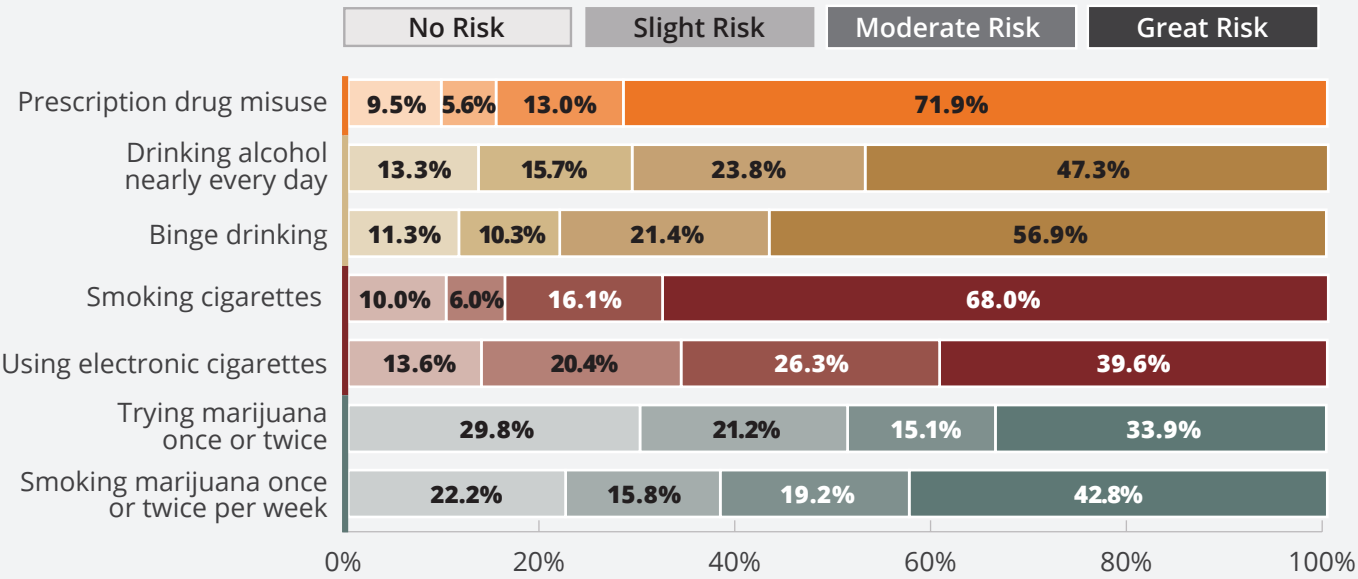


Exhibit 29. Perceived risk associated with using various substances



Summary of Key Findings

Almost half of Tennessee students in public schools reported using at least one substance in their lifetime, and one-third of students reported using a substance in the past 30 days. Students most frequently reported use of alcohol and/or electronic cigarettes, and a large percentage of students in these groups reported engaging in high-frequency use, defined as using on six or more days in the past month. It appears that many students who reported current substance use have transitioned from experimentation to regular use, with usage rates of at least once or twice per week. This is particularly troubling because research has found that frequent alcohol and—to a lesser extent—marijuana use are associated with problems in brain functioning and long-term changes in neurocognition.[1] In addition to preventing youth substance use onset, intervention efforts must address youth who are already using and provide education on the long-term effects of heavy use in adolescence.

Survey findings also revealed that many students who reported past 30-day use reported using more than one substance, with the most common combination being alcohol and tobacco. Students who use more than one substance increase their risk for adverse health outcomes and future dependence. Additionally, some research has suggested that students who use alcohol and tobacco are more likely than their non-using peers to use other illegal substances in the future.[2]

Student responses also show that youth vary on their perception of risk and social acceptability associated with various substances. These perceptions may play a powerful role in students' decisions regarding their own use. Survey findings suggest a potential relationship between perceived parental and peer disapproval and substance use, as the substances for which students perceived the highest disapproval were those they reported using the least. Additionally, students' perceptions of the risks associated with using certain substances may affect their decisions to use given that the substances for which they were least likely to perceive harm were those also associated with the highest reported prevalence of use.

NOTES

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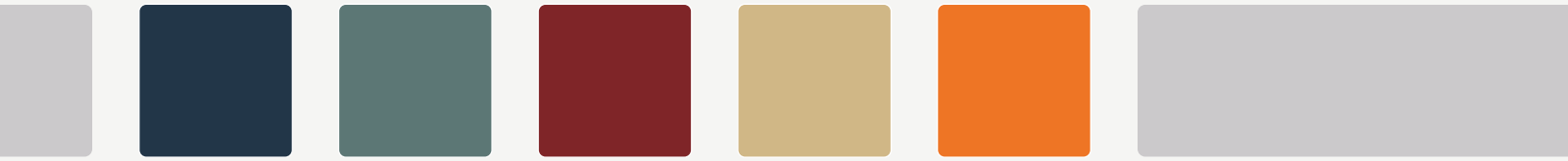
Next Steps

The 2018-2019 Tennessee Together Student Survey is the largest survey to date on Tennessee youth's substance use and related attitudes and behaviors. Including responses from over 21,000 Tennessee public school eighth-, 10th, and 12th-grade students, this survey yielded rich data that will influence state and local prevention, intervention, and education efforts targeting youth substance use. This inaugural administration will also serve as a baseline for future biennial administrations, allowing the state and participating counties to monitor youth substance use, attitudes, and related behaviors over time.

This statewide report summarizes key findings from the student survey, including profiles of students' lifetime and 30-day use of various substances and related risk and protective factors, such as risk perception, social norms (e.g., parent disapproval, ease of access), and peer attitudes—factors that research has shown are often predictive of substance use behaviors. This report also includes data breakdowns by grade level, gender, TDMHSAS Planning and Policy Region, and racial/ethnic category. These breakdowns will also guide the state and local communities in targeting potential health disparities within Tennessee communities.

The survey findings confirmed many anticipated patterns of student substance misuse, including alcohol and tobacco being the two most commonly used substances. Additionally, survey findings revealed emerging patterns of high prevalence of e-cigarette and marijuana use, along with high levels of perceived social acceptability and low levels of perceived risk associated with using these substances. It is clear that targeting the social norms surrounding e-cigarettes and marijuana use will be important foci for prevention, intervention, and community education efforts moving forward.

Although this survey represents the largest administration of a student substance use survey in Tennessee to date, future Tennessee Together Student Survey administrations will seek to include even more counties, TDMHSAS Planning and Policy Regions, and school districts and schools. A six-month planning period beginning in January 2020 and preceding the next administration in the 2020-2021 school year will focus on targeted efforts to reach counties unable to participate in the previous administration. Survey administrators will coordinate the provision of additional support from the state, the National Guard's Counter Drug Task Force, EMT's research and evaluation team, and other community- and state-level partners. County- and district-level results will continue to be shared with all participating counties to guide local efforts tailored to the student needs in each community. These targeted local efforts—in conjunction with statewide efforts and guidance—will help Tennessee prevent additional youth from initiating substance use and intervene in the lives of students who have already initiated use, preventing future repercussions to their health and communities.



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