

**Substance Use,
Delinquent Behavior, &
Risk and Protective Factors**
*Among Students in the
State of Missouri: 2002*

Prepared for
Missouri Department of Mental Health
Division of Alcohol and Drug Abuse
Michael Couty, Director
June 2002

Prepared by

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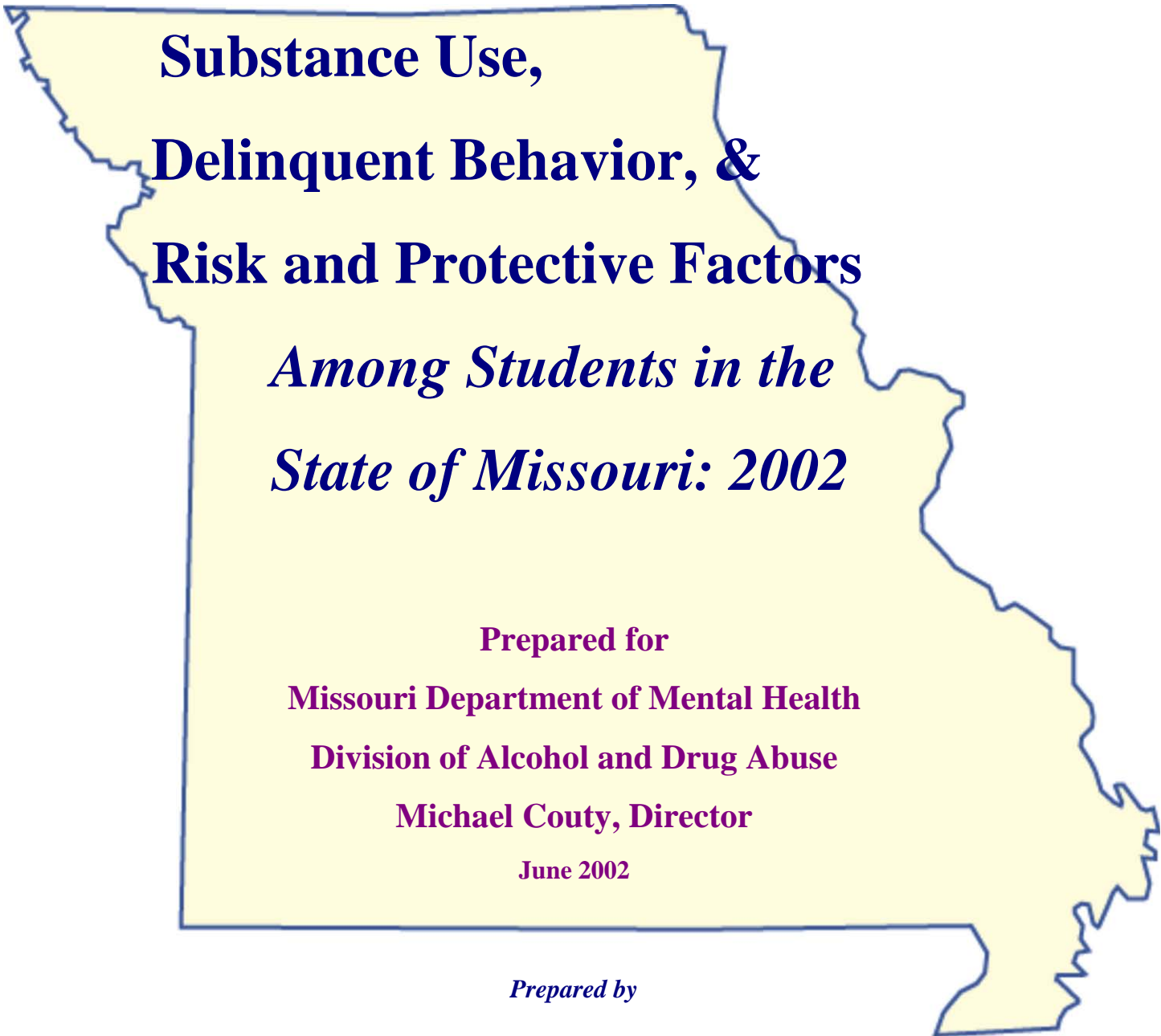
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Executive Summary

The Missouri 2002 Student Survey was conducted by the Missouri Institute of Mental Health for the Missouri Department of Mental Health, Division of Alcohol and Drug Abuse (ADA). The survey was administered in February 2002 to over 12,000 Missouri public school students in grades 6, 8, 10, and 12. Results from the survey will be useful in prevention planning in schools. Descriptions of methodology and procedures, and changes therein, can guide subsequent bi-annual administration of the survey.

The report presents the statewide findings on data obtained from participating students about the prevalence of alcohol, tobacco and other drug use, and identifying risk and protective factors. These results may be useful in planning and implementing prevention programs and services.

Key findings from this year's Missouri 2002 Student Survey are as follows:

Prevalence of Alcohol, Tobacco, and Other Drugs

- Alcohol, tobacco, and marijuana were the most commonly used substances among students in 6, 8, 10 and 12 grades. The majority of students (54.5%) reported using alcohol in their lifetime, and 29.3% reported using it in the 30 days prior (current use) to survey administration. There was little variation among race/ethnicity and gender.
- Students' current use of tobacco and marijuana was somewhat lower than alcohol (17.4% and 10.2%, respectively).
- The rate of binge drinking (5 or more drinks of alcohol in a row) is almost 16% for 30 day prior use, and highest among 12 graders (30.2%), and among males (18.5%).
- Nearly 14% of students reported use of marijuana, cocaine, inhalants, or hallucinogens in the past 30 days, and 28.2% reported lifetime use.
- A small percentage of students reported current (almost 2%) and lifetime use of speed, amphetamines, and methamphetamines (almost 5%).

Prevalence of Violent and Delinquent Behaviors

- A little over a quarter of Missouri students reported engaging in at least one antisocial behavior (delinquent and/or violent) in the past 12 months, and a little more than one in five reported engaging in these behaviors in the past year.

- The most common delinquent behaviors were: being drunk or high at school (11%); being suspended from school (7%); selling illegal drugs (5%), and belonging to a gang (4.5%).
- One tenth of the students reported the violent behavior, attacking someone with intent to harm.

Prevalence of Adolescent Risk and Protective Factors

- In general, as students became older, their risk increased on risk factors and their resiliency on protective factors decreased in all domains. Exceptions to this generality primarily occur in the School and Peer-Individual Domains.
- Females were less likely than males to be at risk for “academic failure” and “little commitment to school”, but were similar on protective factors.
- Rural and urban students reported similar risk/protection profiles, except within the Community domain where rural students reported greater risk for “low neighborhood attachment,” “community disorganization,” and “laws” and “norms favorable toward drug use.”
- Results show a relationship between rural/urban classification and lifetime speed, amphetamines, and methamphetamine use indicating significantly higher usage in rural areas.
- Students in higher grades were at increased risk for “poor family management,” “poor discipline,” “family conflict,” “history of antisocial behavior,” and “parental attitudes favorable toward drug use.”
- The strongest family risk was “parental attitudes favorable toward drug use.”
- Students who reported using speed, amphetamine and methamphetamine had increased risk factors and decreased protective factors in all categories.
- The risk factors most strongly associated with use of speed, amphetamines and methamphetamines relate to permissive attitudes (the student’s own, parents’, friends’, and community norms) across all domains.
- Males were more likely than females to be at risk on all peer-individual factors except “peer rewards for antisocial involvement.” Females were more likely to be resilient on the protective factors: “belief in the moral order” and “social skills.”

Strengths and Limitations

The Missouri 2002 Student Survey provides valuable information on alcohol, tobacco, and other drug use; violent and delinquent behaviors; and risk and protective factors. This enables ADA to:

- Monitor trends in substance use of students across the State
- Compare students statewide with those in each region

- Plan and improve community substance use prevention efforts that target health risk behaviors

The study, however, has several limitations. First, the study concentrates on adolescents in public schools and does not include students absent on the day that data were collected, school dropouts, homeless, students who are institutionalized, and private school students. Second, the survey is self-report; therefore, respondents may underreport or exaggerate surveyed behaviors or have difficulty remembering information such as age of first use of substances. Third, participation in the survey was voluntary, which could create a self-selection bias. Finally, the change from passive to active parental consent procedures probably reduced the number of student participants and may have biased the sample because of the nature of those students who had permission to respond.

I. Introduction

The 2002 Missouri Student Survey was designed to provide epidemiological data on the prevalence of substance use by Missouri public students. The Missouri Institute of Mental Health (MIMH) conducted the survey on behalf of the State of Missouri, Department of Mental Health, Division of Alcohol and Drug Abuse. A total of 276 schools were selected statewide to participate in a study that provides important information to help combat problems such as alcohol and drug use in our schools and communities.

The Missouri 2002 Survey establishes comparative data regarding alcohol, tobacco, and other drug (ATOD) use that can be used to assess differences and similarities at the local, regional, state, and national levels. The study also provides information on the effectiveness of current substance use prevention and intervention efforts. Further analysis of the survey data assesses the risk and protective factors that significantly relate to the prevalence of alcohol, tobacco and other drug use among Missouri youth.

Students in randomly selected (i.e., selected by chance) 6th, 8th, 10th, and 12th grades in Missouri public schools were asked to take part in this study. Approximately 12,000 students statewide completed the 45-minute survey administered by teachers in February of 2002.

A) Organization Of Report

This report is organized into 6 chapters with three appendices.

Chapter 1 presents an executive summary and introduction describing the goals of the Missouri 2002 Student Survey and providing a brief assessment of the purpose and background literature of this study.

Chapter 2 describes the methodology used in the study, including a discussion of the instrumentation, sampling, recruitment, and data collection. The chapter also describes the measurement of variables used in the analysis and the rationale used to analyze sociodemographic characteristics of students participating in the survey. The remaining sections of this chapter discuss the strength and limitations of the data and data comparison issues.

Chapter 3 reports the prevalence rates of ATOD (alcohol, tobacco, and other drugs) use reported by Missouri public school students.

Chapter 4 reports the prevalence rates of violent and delinquent behavior reported by Missouri public school students.

Chapter 5 assesses the impact of school, community, family, and peer-individual risk and protective factors associated with students' ATOD use. This chapter also examines predictors of adolescent ATOD use based on the number of protective and risk factors.

Chapter 6 presents a summary of the results of this analysis and the implications of the results for prevention strategies.

Appendix A includes supplementary tables, **Appendix B** lists the documents used for data collection, and **Appendix C** reproduces the questionnaire used in the survey.

B) Purpose

According to the Department of Health and Human Services (HHS), drug and alcohol abuse contributes to the deaths of more than 120,000 Americans each year. Seventy-three percent of all deaths among school-age youth and young adults result from four causes: motor vehicle crashes, other unintentional injuries, homicide, and suicide (Morbidity & Mortality Weekly Report, 1998). Results from the 1997 Youth Risk Behavior Survey show that these deaths are often linked to health risk behavior, including alcohol and illicit drug use. Likewise, recent studies suggest that youth substance abuse is integrally related to suicidal behavior (Borowsky, Ireland, Resnick, 2001; Lester, 1999); low achievement scores, dropping out of school (Eggert & Herting, 1993; Braggio & Pishkin, 1999), sexual aggression (Borowsky, Hogan, & Ireland, 1997), learning disabilities (Weinberg, 2001), and delinquent behavior (Brenner, Simon, Krug, & Lowry, 1999; Elickson, Saner, McGuigan, 1997; Goldstein, 1985; Saner & Elleckson, 1996).

A number of researchers have investigated the specific characteristics of adolescents that correlate with substance use. These studies have led to identification of factors that seem to put young people at greater risk for substance use and factors that protect against use, also called resilience factors. These factors are multi-dimensional and occur in all of the life domains: individual-peer, family, school, and community (Hawkins, Catalano, & Miller, 1992). These identified risk and protective factors do not show causation, but there is ample evidence that substance use is correlated with higher numbers of risk factors and lower levels of protective. Because the levels of risk and protective factors in adolescent populations aid in defining the level of current and future negative and positive behaviors, planners may use this information to define their strategy for prevention efforts. The 2002 Missouri Student Survey serves to identify those risk and protective factors present within the state's school-aged population.

The focus of the student survey is on health risk behaviors that can result in injury and/or impede positive development among youth. The survey is based on identified risk and protective factors, which are the circumstances, attitudes and beliefs that research has shown to be highly correlated with these health risk behaviors. One of the main purposes of the Missouri 2002 Student Survey is to report on the characteristics and substance use patterns of middle and high school students in Missouri using the protective and risk factor scale. Protective and risk factors are also measured in relation to participants' demographic information, such as race/ethnicity, grade, and gender. By identifying these risk and protective factors, preventive interventions will be grounded in the specific needs of Missouri students. It is important to note that this study monitors health risk behaviors and presents data on the status of in-school students in the Missouri school districts. Thus, generalizations to the larger population or to all youth in Missouri must be avoided. It is anticipated that the study results will assist State and

local prevention program managers in making key decisions about activities such as: resource allocation, services targeting, and strategic planning.

C) Literature Review

A substantial body of research has attempted to determine the causes and trends of substance use among adolescents. Research suggests that substance use exhibited during adulthood usually originates in early adolescence and that preventive interventions are generally more effective when targeted at children at an early age (Pollard & Hawkins, 1999; Kandel, Yamaguchi, & Chen, 1992). For example, a recent study comparing late initiators and early initiators of marijuana found that a significant relationship exists between early initial marijuana use and later substance use. Specifically, running away from home, committing a crime before age 15, and using alcohol before age 15 were more often reported by early initiators than by late initiators of marijuana use (Greenfield & Devine, 2002).

Some authors argue that children are the most vulnerable when they grow from one developmental stage to another. In particular, the stage of normative developmental transition from middle to high school has been described as a period of increased vulnerability (Eccles, Midgley, & Adler, 1984). It has also been suggested that the impact of specific protective factors may change or simply disappear as adolescents develop (Smith, Lizotte, Thornberry, & Krohn, 1995). Consequently, adolescents who may be resistant to drug use at one stage of their lives may not remain resistant during certain transitional periods. Equally important to the discussion of resilience in developmental stages is the distinction between "substance use" and "substance abuse" among teenagers. Donovan & Jessor (1985) note that teenagers may experiment with alcohol, tobacco, and other drugs, but initial use may not always lead to substance abuse. The best criteria for determining a substance abuse problem include attitudes about substance use, age of initiation, dependency levels, and its effects on other areas of functioning (Newcomb & Bentler, 1989).

Monitoring the Future (MTF), a survey conducted by the University of Michigan's Institute for Social Research, is one of the most comprehensive epidemiological surveys providing data on substance use among youth. The main goal of the survey was to track 8th, 10th, and 12th grader's patterns of experimentation and regular use of alcohol, tobacco, and illicit drugs. MTF's findings confirm the widespread use of ATOD among today's teenagers. During 2001, 44,346 students were surveyed from a random sample of 424 public and private schools in the United States. Over half (54%) of the students surveyed had tried an illicit drug by the time they finished high school. According to survey results, four out of every five students (80%) had consumed alcohol (more than just a few sips) by the end of high school; and about half (51%) had done so by 8th grade (Johnston, O'Malley, & Bachman, 2001). Other epidemiological surveys concerned with the prevalence and incidence of drug use during adolescence include the 1999 National Household Survey on Drug Abuse (NHSDA) and the 1997 Youth Risk Behavior Survey (YRBS).

With the rising incidence of substance use among adolescents, identifying the risk factors associated with ATOD use becomes crucial. Cross-site evaluation studies from the Center for Substance Abuse Prevention (CSAP) show that in different demonstration projects, the initiation of substance abuse correlates highly with risk and protective factors in different domains (CSAP, 1997). Other findings from the same report include:

- Students who perform poorly in school or who have a perception of themselves as academic failures are more likely than other youth to engage in early alcohol use.
- Students who believe that substance abuse involves relatively few risks and more benefits are more likely to initiate substance use than peers who perceive substance use as riskier and less beneficial.
- Parental attitudes toward the use of alcohol, tobacco, and illicit drugs tend to correlate with adolescent attitudes toward the use of these substances.
- Lack of close relationships with family members tends to correlate with adolescent substance abuse.

The findings from the literature review for the Missouri 2002 Student Survey also suggest that a high number of protective factors is associated with lower prevalence rates of problem behaviors and substance abuse (see for example, Petraitis, Flay, Miller, Torpy, & Greiner, 1998; Bry, McKeon, & Pandina, 1982; Newcomb, Maddahian, & Skager, 1987; Newcomb & Felix-Ortiz, 1992; Pollard, et al., 1998).

By reviewing studies on risk and protective factors for alcohol and other drug problems in adolescence, Catalano, Hawkins, and Miller (1992) tried to determine whether similar or different factors, such as antisocial behavior, predict the risk of initiation and continued use of these substances by children. The authors concluded that risk and protective factors occur in different domains of the environment and should be examined as they relate to various aspects of adolescent behavior, including delinquent behavior and ATOD use. Risk and protective factors are divided into four basic categories or domains including, community factors (e.g. community laws and norms toward drug use), family factors (e.g. level of family attachment), school factors (e.g. level of commitment to school), and individual and peer risk factors (e.g. age of first use and peer influences). Catalano (2001) writes, "to promote positive youth development and prevent problem behavior before it happens we must address the factors which increase the likelihood of positive behavior and decrease the likelihood of negative behavior".

Many researchers argue that other factors -- such as biological and psychological factors-- must be taken into account when determining the causes for youth substance use (see for example, Cadoret, Yates, Troughton, Woodworth, & Stewart, 1995). According to Plant (1992), biological traits may predispose an individual to experiment and use drugs. However, it is generally understood that such theories need to be considered in relation to other associated factors, both individual and social. In order to understand the dynamics between risk and protective factors, one must consider them within an ecological framework. The ecological model is based on the idea that an individual's capacity to avoid risk is dictated by a complex arrangement of individual, family, community, and environmental contexts (Garbarino, 1985). From this perspective, multiple factors have a role in

shaping behavior over the course of adolescent development, either contributing to substance abuse or creating resilience.

According to Cicchetti & Garmezy (1993), "resilience" originates from the individual's ability to respond actively and positively to life conditions, stress, and trauma. The analysis of risk and protective factors has been employed extensively to assist health and social service providers, planners, and educators in taking action to build resilience in youth. Because of the deterministic nature of biological factors, the design of effective prevention and intervention strategies should focus on potentially modifiable risk factors and the cultivation of resilience in youth.

II. Methodology

The Missouri Student Survey provides the State of Missouri with information about substance use and risk and protective factors among the Missouri public school student population. The results, collected on a biannual basis, are intended to inform state administrators about the status of substance use in youth and identify the importance of various problem behaviors among students at the statewide, regional, and local levels. This information can be used to inform resource allocation and policy decisions that have an influence on prevention planning and implementation. The survey aims to gather information to better understand the impact of risk- and protective-factor prevention planning and whether this approach leads to better prevention outcomes, such as reductions in substance abuse, violence, and delinquency.

The survey was first conducted in 2000 through a contract with the Research Triangle Institute (RTI) and was designed to provide baseline data. A goal for this second biannual administration of the survey was to provide comparison data. Due to changes in informed consent procedures, however, data across the two surveys are not comparable, but rather are separate snapshots in time of two different samples of students. In this section, we describe the methods used to collect data for the survey.

A) Instrumentation

The Missouri Student Survey was adapted from the Student Survey of Risk and Protective Factors and Prevalence of Alcohol, Tobacco, and Other Drug Use, developed by the Social Development Research Group (SDRG) at the University of Washington. The original student questionnaire was developed for use in a Substance Abuse and Mental Health Service Administration (SAMHSA), Center for Substance Abuse Prevention (CSAP) sponsored project. The survey instrument was tested in a six-state consortium substance abuse prevention needs assessment. This instrument has, since its development, been adapted and widely used. The focus of the survey is on health risk behaviors—such as violence and alcohol, tobacco, and other drug use—that can result in injury and/or impede positive development among youth. The survey also includes risk and protective factors, which are attitudes and opinions that research has shown to be highly correlated with these health risk behaviors. The 2002 Missouri Student Survey was printed on an electronically scannable form. A copy of this survey is included in Appendix C.

B) Consent

In the 2000 survey, a passive consent process was used to obtain parental permission for student participation. This process consisted of sending an information letter to the parent of each child included in the sample with instructions to sign and return a denial of permission form only if they did not wish for their child to participate. This method of consent yielded a 97% response rate after parental and student refusals. While this method of consent yields a desirable response rate, it raised concerns because of the inability to ensure that every

parent had received and read the information letter, and had an opportunity to deny permission. For this reason, in the 2002 survey the passive consent procedure was changed to an active consent procedure. This meant that an information letter was sent home to parents with instructions to return a signed permission form only if they wished for their child to participate. This consent process yielded a 36% response rate, and likely changed the characteristics of the sample population. This issue will be addressed further in the section on Limitation of Data.

C) Sampling

The intention of the 2002 study was to resurvey schools and grades that were initially surveyed in 2000 and to include additional schools from areas underrepresented in the previous survey. Thus all schools previously surveyed were included in the initial school selection. Additional schools were randomly selected from districts in which the superintendent had previously indicated a willingness to participate in the current survey. The random sampling was stratified by region (Central, Eastern, Southeast, Southwest, and Northwest). For each grade level (6, 8, 10, & 12) school selections were made by simple random sampling within each geographic region, with sufficient schools being selected to meet the survey target number of 15,000. Additional schools were chosen by first randomly selecting 10% (9 districts) of the districts from eleven counties judged to be underrepresented in the previous survey. From these districts an additional 37 classes (schools) were randomly selected. A list of alternative schools/classes was also generated to serve as replacement candidates for late refusals. Despite the care taken to use sound scientific means to obtain a sample, due to the previously mentioned changes in consent procedures, some schools that agreed to participate using the passive consent, declined to participate when the consent process changed. Two school districts expressed an interest in and were allowed to participate without having been previously approached for participation by MIMH. Table 1 presents total school and student response rates.

Table 1 District, School, and Student Participation

	Number of Districts	Number of Schools	Number of Students
Invited to participate	198	276	34180
Agreed to participate	124	172	12344
Returned data	89	142	11942 (usable surveys)

D) Recruitment Procedures

Recruitment of survey participants was a multi-level process beginning at the district level. Employees of MIMH, hereafter referred to as survey staff, conducted all recruitment procedures with support from the Missouri Department of Mental Health (DMH) and with the endorsement and cooperation of the Missouri Department of Elementary and Secondary Education (DESE).

District Recruitment

The first step in the recruitment process was to obtain permission from the school district superintendent to contact individual schools. This involved sending a mailing to the superintendents of all school districts included in the sample. The mailing included a letter introducing the project and a request for superintendents to allow their district's schools to participate in the survey project (Appendix B). The mailing also included a Fact Sheet (Appendix B), which conveyed the purpose and importance of the project, described the survey instrument and participation issues, and detailed the expectations of participating schools. A copy of the survey and a sample passive parental consent form (Appendix B) were also included in the mailing. One week after the information packets were mailed to the superintendents in the sampled districts, survey staff began making follow-up phone calls to seek verbal permission to contact school principals. Survey staff had been trained to address questions and concerns, and to make every effort to encourage participation.

School Recruitment

After obtaining the approval of the superintendent to contact individual district schools, a recruitment mailing was sent to the sampled schools. The mailing included an introductory letter addressed to the school principal, a Fact Sheet, a copy of the survey, a sample passive parental consent form, and a school agreement form (Appendix B). One week after the information packets were mailed to the schools, survey staff began making follow-up phone calls to principals to solicit their school's participation. During this contact, the principal was also informed which grades within their school were included in the sample.

Principals who agreed to participate were asked to complete the school agreement form and fax or mail the form to the Survey Coordinator at MIMH. The school agreement form contained information necessary for survey administration (survey coordinator within the school, student numbers within selected grades, number of teachers or administrators who would be administering the survey, and a primary and alternate survey date).

Upon receipt of the school agreement form, a verification letter (Appendix B) was sent to the survey coordinator in each participating school. The function of this letter was to confirm the agreement to participate, confirm the number of surveys and survey instructions needed for administration, confirm the date of the survey, and provide an overview of the survey timeline and consent procedures. A sample passive parental consent form and survey administration instructions were also sent with the verification letter. Survey coordinators in the schools were instructed to contact the MIMH survey coordinator for corrections or questions.

Following the distribution of these packets, concerns were expressed about the consent procedures. Because of the degree of concern expressed, it was resolved that passive consent procedures should be changed to active consent. Letters explaining this change (Appendix B) and a sample of the new consent forms were then sent to participating superintendents, school principals, and the survey coordinators within each participating school. The letter sent to superintendents served the additional purpose of notifying the superintendent as to which

school(s) in his/her district had agreed to participate. Superintendents were asked to sign and fax the letter to MIMH to confirm their acknowledgement of the change.

Student Recruitment

MIMH sent to each school enough *active* parental consent letters with the instructions that they should be handed out to students in the class designated for survey administration one week before the scheduled survey date. School administrators and teachers were asked to remind students to return these Permission Forms. Students who returned signed Permission Forms were allowed to participate in the survey. Student assent was obtained on the date of the survey administration. Survey administrators were asked to read a consent form that explained the purpose of the study, its voluntary nature, and the anonymity and confidentiality of their responses (Appendix B). Students who declined to participate were asked to work on another task.

E) Data Collection

Survey materials were prepared, packaged, and shipped by the University of Missouri-Columbia Assessment Resource Center (ARC). Materials were sent directly to the survey coordinator within each school who was then responsible for disseminating the materials to each classroom. The materials were grouped into packets of twenty-five to aid in organization. Each packet of twenty-five included instructions for the survey administrator. One of each of the following materials were included for every student in the sampled grades:

- *Survey booklet*
- *Blank cover sheet*
- *Individual manila envelope*
- *Pencil*

Extensive measures were taken to ensure each student's anonymity. Survey questions contained no identifying data that could link the student to the survey. Each student received a blank cover sheet and was instructed to use this sheet to cover their answers while completing the survey. After finishing the survey, students were instructed to place it into the individual manila envelope provided, and seal the envelope. Students were instructed not to write their name or any other identifying information on the survey or the booklet. The blank cover sheets were discarded. At the end of the survey period, class administrators were instructed to take all the surveys in sealed envelopes (complete or incomplete) to the survey coordinator in the school. The survey coordinators packaged the student surveys still in their sealed envelopes into shipping cartons and returned them to ARC using a postage paid mailing label.

Surveys were administered during the month of February 2002. ARC collected and scanned the surveys from February through May 2002. Altogether, data were collected from 142 of the 172 schools agreeing to participate, giving a school response rate of 83%. The 142 schools represented 89 school districts and 59 counties.

A total of 12,344 students participated in the survey, giving a student response rate of 36%, assuming that all 34,180 surveys mailed to schools were offered to students for completion. Of the returned surveys, 402 were discarded because students admitted to being untruthful in filling out the survey. Criteria for discarding untruthful surveys were the following: students answered that they had used a fake drug called derbisol in *both* their lifetime and in the past 30 days; students reported using four or more drugs 40 or more times in the past 30 days; or students reported to be in any grade other than 6, 8, 10, or 12. This left a total of 11,942 surveys to be used for analysis.

After the surveys were scanned, a dataset was generated. Logic checks were run on the data to exclude careless, invalid, or untruthful responses including those surveys fitting the exclusion criteria outlined above.

F) Data Analysis

ATOD Use

Prevalence rates for each substance were calculated by dividing the number of participants indicating any use by the total number of participants in the given category who responded to the question. Confidence levels of 95% were calculated using these proportions. The proportion of heavy or frequent users was determined as those students who indicated drinking 5 or more drinks in a row of alcohol; smoking more than five cigarettes per day; and using an illicit drug 3 or more times in the past 30 days. Chi-square tests were run to determine if there was a statistically significant relationship ($p < 0.01$) between substance use and gender, grade, or the *U.S. Department of Health and Human Services, Office of Rural Health Policy's Metropolitan Statistical Area Method (MSA)* classification (i.e. rural/urban).

Violent/Delinquent behaviors

Prevalence estimates for violent/delinquent behaviors were calculated by dividing the number of participants indicating the behavior at least once during the past 12 months by the total number of participants in the given category who responded to the question. Chi-square tests were run to determine if there was a statistically significant relationship ($p < 0.01$) between violent/delinquent behavior and gender, grade, or urban/rural MSA classification.

Risk and protective factors

Each risk and protective factor is based on an individual's responses to multiple questions (Table 2). For both the risk and protective factors, the items are scored so that a large value is indicative of having the factor. Some questions are worded such that reverse scoring of items is needed. To determine the presence of the risk or protective factor, the responses to the relevant questions are averaged together, and if the average of those responses exceeds the median score (the median of the values for all possible responses), then presence of the risk or protective factor is indicated. The prevalence estimates for the risk and protective factors represent the proportion of participants having the risk or protective factor.

For each risk factor, logistic regression models were built in order to predict the probability of substance use in the past 30 days using each of the 4 substance categories in the survey. The resulting *odds ratio* is the odds of using the substance for students with the risk factor divided by the odds of using the substance for those students without the risk factor. Therefore, an odds ratio of 1 indicates there is no difference in the odds of using the substance with respect to that risk factor, and an odds ratio > 1 indicates the odds of using are higher for the students with that risk factor. Any interval that contains the value 1 would suggest that the associated risk factor is not a significant predictor of the probability of using the substance.

For each protective factor, logistic regression models were built in order to predict the probability of NOT using the substance in the past 30 days. A resulting odds ratio > 1 would indicate that the odds of NOT using the substance are higher for students with the given protective factor. As with the risk factors, a 95% confidence interval for the odds ratio that does not contain the value 1 would suggest that the given protective factor is a significant predictor of the probability of NOT using the substance.

Table 2 Risk and Protective Factor Scales and Variables

COMMUNITY DOMAIN

<i>Risk Factors</i>		
Name	Description	Questionnaire items
Low neighborhood attachment	This scale describes the extent to which students feel a part of their neighborhood (whether they feel that what they do makes a difference)	85, 87
<input type="checkbox"/> Community disorganization	This scale describes students' perceptions of the extent to which people in the community take part in decisions or processes that affect their lives	89a-d, 95
Personal transitions and mobility.	This scale describes the extent to which students have changed homes or schools	90, 94, 96, 98
Community transitions and mobility	This scale describes the extent to which students feel that people move in and out of their neighborhood	90
Norms favorable toward drug use	This scale describes students' perceptions of community norms regarding substance use	83[a-c], 84[a-d]
<input type="checkbox"/> Laws favorable toward drug use	This scale describes students' perceptions of community norms regarding substance use	76, 78, 82
Perceived availability of drugs	This scale describes students' perceptions of availability or access to alcohol, drugs, or firearms	74, 75, 77, 81
<i>Protective Factors</i>		
Name	Description	Questionnaire items
Opportunities for conventional involvement	This scale describes students' perceptions of the extent of opportunities to participate in community activities.	93[a-e]
Rewards for conventional involvement.	<input type="checkbox"/> This scale describes students' perceptions of the extent of rewards for positive participation in community activities.	86, 92, 99

SCHOOL DOMAIN

<i>Risk Factors</i>		
Name	Description	Questionnaire items
Academic failure	This scale describes students' academic achievement (i.e., grades in school, perception of their own grades compared to those of others)	13, 23
Little commitment to school	This scale describes the extent to which students felt that school was important and meaningful	25, 26, 27, 28[a-c]
School absenteeism	This scale describes the extent to which students reported being absent from school	14[a-c]
<i>Protective Factors</i>		
Name	Description	Questionnaire items
Opportunities for positive involvement	This scale describes students' perceptions of the extent to which they had opportunities to participate in school activities.	15, 16, 18, 19, 24
Rewards for conventional involvement	This scale describes students' perceptions of the extent to which they were rewarded for positive participation in school activities	17, 21, 22

FAMILY DOMAIN

<i>Risk Factors</i>		
Name	Description	Questionnaire items
Poor family management/supervision	This scale describes students' perceptions of the extent of parental oversight and rulemaking	102, 105, 107, 109, 123, 125
Poor Discipline	This scale describes students' perceptions of whether they would be caught by parents if they behaved inappropriately	108, 110, 111
Family Conflict	This scale describes students' perceptions of conflict within the family	103, 106, 124

<u>Risk Factors</u>		
Name	Description	Questionnaire items
History of antisocial behavior	This scale describes students' perceptions of substance use and antisocial behavior among siblings and other family members	101[a-c, e], 103
Parental attitudes favorable toward drug use	This scale describes students' perceptions of the extent to which parents approve of their children's substance use.	100[a-c]
Parental attitudes favorable toward antisocial behavior	This scale describes students' perceptions of the extent to which parents approve of their children's antisocial behaviors.	100[d-f]
<u>Protective Factors</u>		
Name	Description	Questionnaire items
Opportunities for prosocial involvement	This scale describes students' perceptions of the extent to which they have opportunities to participate in family activities	115, 120, 122, 118, 119
Family Attachment	This scale describes students' attachment to family members.	113, 114, 117, 121
Rewards for prosocial involvement	This scale describes students' perceptions of the extent to which they are rewarded by their family for positive activities	112, 116,

PEER - INDIVIDUAL DOMAIN

<u>Risk Factors</u>		
Name	Description	Questionnaire items
Rebelliousness.	This scale describes the extent of rebelliousness (e.g., ignoring rules)	32, 35, 47
Early initiation of substance use	This scale describes the extent to which students began using substances and participating in problem behaviors at an early age	30[a-d]
Early initiation of antisocial behavior	This scale describes the extent to which students began participating in problem behaviors at an early age	30 [e-i]
Impulsiveness.	This scale describes the extent of impulsiveness (e.g., not thinking before acting, switching from one activity to another)	48, 49, 50, 51
Antisocial behavior	This scale describes the extent to which students have been involved in antisocial behaviors, such as being suspended from school, stealing, or fighting	40[a-d, f-h]
Favorable attitudes toward antisocial behavior	This scale describes the extent to which students believed that participating in antisocial behaviors was acceptable	31[b-e]
Attitudes favorable toward drug use	This scale describes the extent to which students believed that using substances was acceptable	31[f-i]
Friends' substance use	This scale describes students' perceptions of the extent to which their friends used alcohol or drugs	29[a-d]
Perceived risks of drug use.	This scale describes students' perceptions of the risks associated with substance use	52[a-d]
Peer rewards for antisocial involvement	This scale describes students' perceptions of the extent to which they were rewarded by their peers for participating in antisocial behaviors	41[a-c]
Interaction with antisocial peers	This scale describes students' perceptions of the extent to which their friends participated in antisocial behaviors.	29[e-k]
<input type="checkbox"/> Sensation seeking	This scale describes the extent to which students did things on a dare or did things that were dangerous	37[a-c]
<u>Protective Factors</u>		
Name	Description	Questionnaire items
<input type="checkbox"/> Social skills	This scale describes the extent to which students displayed social skills (e.g., being able to say "no" to friends, listening to parents)	42, 43, 44, 45
Belief in the moral order	This scale describes the extent to which students believed in moral order (e.g., telling the truth even if it got them in trouble, thinking that cheating is acceptable)	33, 34, 36, 46

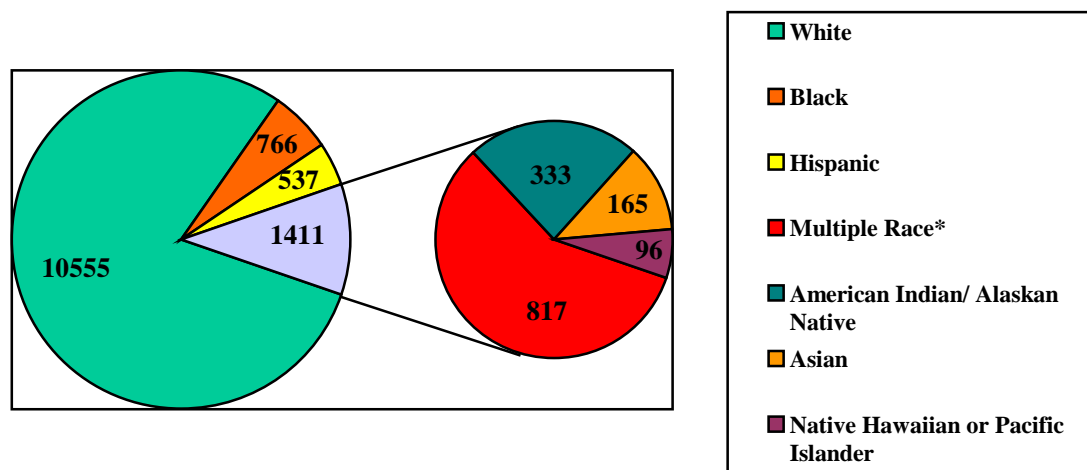
G) Participant Demographics

Table 3 presents the region, race, gender and grade of the survey respondents. As noted above, rural and urban categories are based on categories defined by the MSA classification. Racial groups consisting of less than 4% of the total survey respondents are collapsed into a single category for the remainder of this report due to their small numbers. Students were asked to indicate all applicable racial/ethnic categories which best describes them. Less than 6%, or 817, students indicated that they were more than more than one race. The majority of these students reported to be White and Hispanic or Latino (332), or White and American Indian or Alaskan Native (205). The proportions of each racial/ethnic category are presented in Figure 1.

Table 3 Demographic Characteristics of the 2002 Missouri Student Survey Respondents

	Number	Percentage
Total Respondents	11942	100%
<u>Region</u>		
Central	1726	14.5%
Eastern	1597	13.4%
Northwest	5307	44.4%
Southeast	2038	17.1%
Southwest	1274	10.7%
<u>MSA Classification</u>		
Rural	4776	40.0%
Urban	7166	60.0%
<u>Grade</u>		
6	2643	22.1%
8	3555	29.8%
10	3353	28.1%
12	2183	18.3%
Missing	208	1.7%
<u>Gender</u>		
Female	6442	53.9%
Male	5226	43.8%
Missing	274	2.3%

Figure 1 Racial/Ethnic Characteristics reported by 2002 Missouri Student Survey Respondents



* Students had option of identifying all applicable racial categories. Percentages for race do not include missing responses.

H) Limitations of the data

The data obtained by the survey are useful as a snapshot to identify potential targets for prevention activities and may represent the most comprehensive information available on substance use and risk and protective factors among Missouri students. Caution is necessary, however, when using and interpreting these data. This caution is necessary for the following reasons:

- Sampling procedures—while the survey sample attempted to be representative of public school students in the state as a whole, factors such as the size and geographic location of districts that eventually participated precluded representativeness.
- Possibility of self-selection bias—requiring parental consent for and permitting students to opt out of participation in the survey may have introduced bias in the data based on the characteristics of those students who had permission and participated.
- School population not representative of all Missouri adolescents—certain populations of adolescents will not be represented by these data (i.e. dropouts, homeless and runaway youths, institutionalized youth, youth in private and specialized schools).
- Self report—it should be noted that this survey is a self-report instrument and, while the confidential nature of the survey is explained at length, students may answer questions in a manner that they believe is desirable. Students might also have difficulty recalling specific information (i.e. parental education, age of first substance use).
- Level of Measurement - The Missouri 2002 student survey collects information on initiation of drug use using ordered categories for the variable age. It is important to note that the use of "ordered categories" results in averages that are not as precise as when the exact values are included in the database. For

example, when a student answers 10 or younger for age of first use of marijuana, it is impossible to determine the exact age for initiation for the respective student. Instead, this report accounts for an approximate age the average student would have first engaged in drug use.

- It is important to note that this study made no attempt to report on confounding factors that can help explain observed differences among subgroups (e.g. race, gender, age). For example, the cross-sectional nature of the data limits the capability to infer if differences in race/ethnicity groups are also associated with socioeconomic status. However, the data presented in this report are useful for indicating demographic subgroups with relatively high (or low) rates of antisocial behavior and substance use, regardless of what the underlying reasons for those differences might be.

I) Data comparison issues

Due to the changes in consent procedures, comparisons cannot be made between the 2000 and 2002 school survey data. The type of consent used essentially changes the sampling procedure, and most certainly provides us with information from groups of responding students that can be quite different. For instance, 48% of 2002 survey respondents reported receiving mostly A's in the past year. This is a full 11% higher than the 2000 survey respondents who reported receiving mostly A's in the past year. The 2004 Missouri Student Survey will use the same active parental consent process as the 2002 survey and will provide better opportunities for data comparison.

Data comparison between the Missouri 2002 Student Survey and other national level surveys is problematic due to the differences in populations covered, sampling, and data collection methods. However, keeping in mind these differences, the findings from this study can provide useful insights on the similarities and differences of health risk behaviors at the state and national levels. Currently, the U.S. Department of Health and Human Services sponsors three major surveys that provide data on substance use among youth:

- 1) The Monitoring the Future Survey (MTF), conducted by the University of Michigan's Institute for Social Research and funded by the National Institute on Drug Abuse (NIDA), is designed to measure 8th, 10th, and 12th grade students' behaviors and attitudes toward drug use. The MTF survey and the Missouri 2002 Student Survey use the same measures to determine ATOD use among youth. A limitation of the MTF survey is that it does not provide comparison data for 6th graders. An overview of key findings is available at <http://monitoringthefuture.org/pubs/monographs/overview2001.pdf>
- 2) The National Household Survey on Drug Abuse (NHSDA), sponsored by the Substance Abuse and Mental Health Services Administration, is the primary source of statistical information on illicit drug use in the U.S. population 12 years of age and older. NHSDA findings for 2000 are available at <http://www.drugabusestatistics.samhsa.gov>.

- 3) The Youth Risk Behavior Survey (YRBS), part of the Centers for Disease Control and Prevention's Youth Risk Behavior Surveillance System, tracks 9th, 10th, 11th and 12th graders' illicit drug use and attitudes towards drugs. YRBS is also designed to measure a variety of health risk behaviors, including injury related and sexual behaviors. Findings from the 1999 YRBS are available at <http://www.cdc.gov/nccdphp/dash/yrbs/index.htm>.

III. Prevalence of Alcohol, Tobacco and Illicit Drug Use Among Missouri Students

This chapter presents data about the use of tobacco, alcohol, and illegal substances among, 6th, 8th, 10th and 12th grade students in Missouri's public schools. To determine the characteristics of students who were using alcohol, tobacco, and other drugs, the report looks at each prevalence category separately, by gender, MSA classification, race/ethnicity, age, and grade in school.

A) Age of First Use

Several studies show that early initiation of drug use correlates highly with risk and protective factors in different domains, such as academic failure and history of anti-social behavior (CSAP, 1997). The Missouri 2002 student survey collected information on initiation of drug use by asking students how old they were when they first: smoked marijuana; had more than a sip or two of alcohol; began drinking alcoholic beverages regularly; and smoked a cigarette. The questions were asked using ordered categories thus the resulting averages are not as precise as when the exact values are included in the database (See Limitations of the Data – Section II). Overall, the average student reported smoking their first cigarette when they were 12 years of age and having their first sip of alcohol between ages of 12 and 13. Furthermore, students were relatively older when they first used marijuana (13-14 years old) and began to drink alcohol regularly (14-15 years old). Tables 5 and 6 provide further detail on initiation of drug use by demographic breakdown.

B) Alcohol

Lifetime Alcohol Use

As shown in Table 4, 54.5% of surveyed students reported ever having had a drink of alcohol in their life (lifetime use), beyond just a few sips of alcohol. The highest rates of lifetime alcohol use were reported in the Southeast (60.5%) and Central (59.7%) regions and the lowest in the Northwest region (50.4%). Males (56.3%) were more likely to report lifetime alcohol use than females (53.2%) and Hispanics (59.2%) were more likely to report such use than students in the other racial/ethnic categories. Rates of drinking among rural students were reported as 6.4% higher than their urban counterparts.

As would be expected, prevalence of lifetime alcohol use increased by grade categories. The largest increase in reported use levels was between the 6th and 8th grades (25.3% increase). The rise in reported use levels between 8th and 10th grades (21%) was almost as great. The higher rates of lifetime alcohol use with increased grade may reflect increased opportunities to try alcohol or favorable norms toward drinking alcohol (parental and peer). Nevertheless, these rates by grade level indicate that almost 80% of Missouri students have tried alcohol by the time they complete the 12th grade, despite the fact that the sale of alcohol to minors is illegal.

Past month Alcohol Use

As shown in Table 4, approximately 29% of surveyed students had consumed at least one drink in the past month prior to the survey (i.e. currently used alcohol). Other results show similar trends to the rates of lifetime use with slightly higher rates among males (31%) than females (28.1%), highest rates of past month alcohol use among Hispanics (34%), and highest regional rates of past month alcohol use in the Southeast (33.5%) and Central (33.6%) regions. Rates of past month alcohol use also indicate increased usage with increased grade level. It is worth noting that approximately 44% of students in the 10th and 12th grades reported drinking alcohol in the past month.

Age of 1st Use of Alcohol

Table 5 presents data from on the age students first tried more than a few sips of alcohol. A full 42% of the surveyed student population reported that they had never tried alcohol. The largest age category reported for age of first alcohol use was in the category "10 or younger", meaning that 14% of the surveyed students tried more than a few sips of alcohol before the age of 11. This finding for age of first use is consistent across racial/ethnic groups, regions, and urban and rural areas. Males reported using alcohol at age 10 or younger 6.3% more often than females.

It is interesting to note the change of this trend across grade level categories. There is great variation in reported age of first use when broken out by grade. While 6th (16.9%) and 8th (17.2%) graders did report the highest rate of age of first use at 10 or younger, 10th and 12th graders reported highest in the ages categories "14-16" (14.6-16.0%), closer to their present ages. There are several possible explanations for this variance. One is that students could be initiating alcohol use at a younger age now than they were 2-3 years ago. A more likely explanation is that younger youth define initiation of alcohol use differently than older youth. For instance, a 6th grader may see several sips of alcohol as their first "use" of alcohol while a 10th grader may not deem this same amount of alcohol significant enough to be relevant to answer this survey question (i.e. "more than a few sips"). Additionally, students who are heavy users of alcohol and/or other drugs are more likely to drop out of school. Therefore, the 12th grade students responding to the survey may not be representative of the age group.

Binge drinking

The prevalence of binge drinking, defined as consuming five or more drinks of alcohol in a row, is 15.9% among all surveyed students during the 30 days before the survey. The rate of binge drinking was highest among 12th graders (30.2%) and among males (18.6%) as shown in Figures 2 and 3. As students increased in grade level, so did their rate of reported binge drinking. Two percent of 6th graders, 10.7% of 8th graders, 22.5% of 10th graders and 30.2% of 12th graders reported binge drinking in the past 30 days. Students in rural areas reported higher rates (18.7%) of binge drinking than did urban students (14%). As with lifetime and past month alcohol use, students in the Southeast (19.6%) and Central (19.1%) regions reported the highest rates.

Table 4 Prevalence of Alcohol Users in the Lifetime and Past Month

Demographic Characteristics	Lifetime			Past Month		
	Percentage	95% Confidence Interval		Percentage	95% Confidence Interval	
Total Missouri	54.5	53.5	55.5	29.3	28.4	30.2
Region						
Central	59.7	57.4	62.0	33.6	31.4	35.8
Eastern	55.8	53.4	58.2	29.5	27.3	31.7
Northwest	50.4	49.1	51.7	26.4	25.2	27.6
Southeast	60.5	58.4	62.6	33.5	31.5	35.5
Southwest	53.7	51.0	56.4	28.9	26.4	31.4
Gender						
Female	53.2	52.0	54.4	28.1	27.0	29.2
Male	56.3	55.0	57.6	31.0	29.7	32.3
Grade						
6	23.3	21.7	24.9	7.4	6.4	8.4
8	48.6	47.0	50.2	23.8	22.4	25.2
10	69.6	68.0	71.2	39.0	37.3	40.7
12	77.8	76.1	79.5	49.0	46.9	51.1
Race/Ethnicity						
White	54.6	53.6	55.6	29.7	28.8	30.6
African American	53.5	49.8	57.2	24.5	21.3	27.7
Hispanic	59.2	55.0	63.4	34.0	30.0	38.0
Other	52.6	48.2	57.0	23.6	19.9	27.3
MSA Classification						
Rural	58.4	57.0	59.8	32.1	30.8	33.4
Urban	52.0	50.8	53.2	27.5	26.5	28.5

Table 5 Age of 1st Use of Alcohol

Response	Never Have	10 or younger	11	12	13	14	15	16	17 or older
Total	42.1	14.0	6.6	7.4	8.6	7.7	7.4	4.3	2.0
Race/Ethnicity									
White	42.1	13.6	6.5	7.4	8.8	8.0	7.7	4.3	1.8
African American	40.9	15.7	7.4	6.1	5.9	5.7	5.9	6.5	5.9
Hispanic	38.3	17.7	7.0	10.4	9.8	5.9	6.0	3.6	1.3
Other	45.4	15.5	7.4	6.5	7.8	6.3	6.1	3.1	1.8
MSA Classification									
Rural	38.2	15.5	6.9	7.6	9.0	8.2	8.3	4.6	1.8
Urban	44.6	12.9	6.4	7.3	8.3	7.3	6.8	4.1	2.2
Region									
Central	37.3	15.8	7.2	8.8	9.0	7.9	8.2	4.3	1.4
Eastern	41.6	10.7	7.4	7.2	9.2	8.3	8.6	4.2	2.9
Northwest	45.8	13.6	6.2	6.9	7.7	6.6	6.8	4.4	2.1
Southeast	35.9	15.8	6.7	7.4	9.9	9.2	8.2	4.7	2.2
Southwest	43.4	14.4	6.6	7.6	8.8	8.3	6.2	3.6	1.3
Grade									
6	71.7	16.9	7.9	3.1	0.2	0.1	0.0	0.0	0.0
8	47.2	17.2	8.8	10.8	12.0	3.9	0.1	0.0	0.0
10	27.8	12.3	5.3	7.8	12.1	14.6	15.5	4.5	0.2
12	20.1	7.8	3.4	6.4	7.7	12.2	16.0	16.0	10.4
Gender									
Female	43.7	11.2	6.1	7.4	8.8	8.1	8.0	4.7	1.9
Male	39.8	17.5	7.2	7.4	8.3	7.1	6.8	3.8	2.2

Figure 2 Prevalence Rates of Binge Drinking by Grade

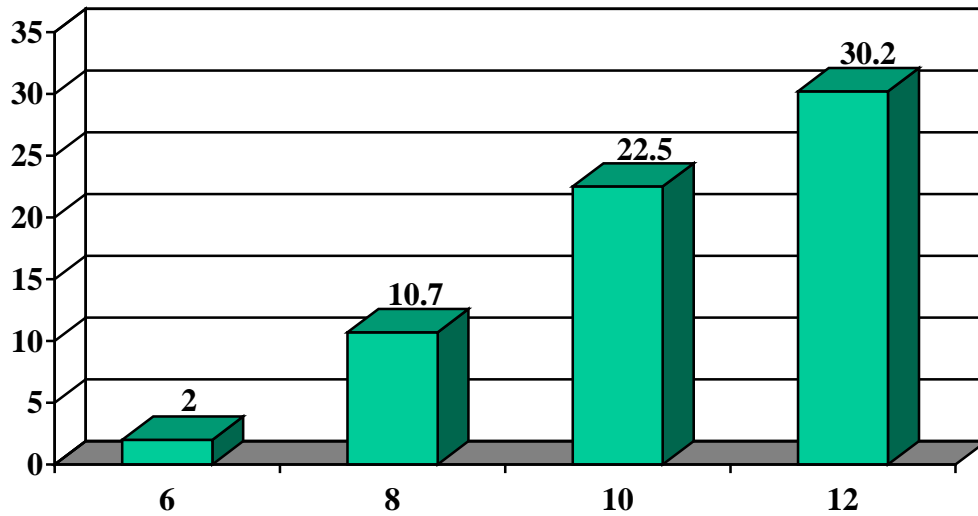
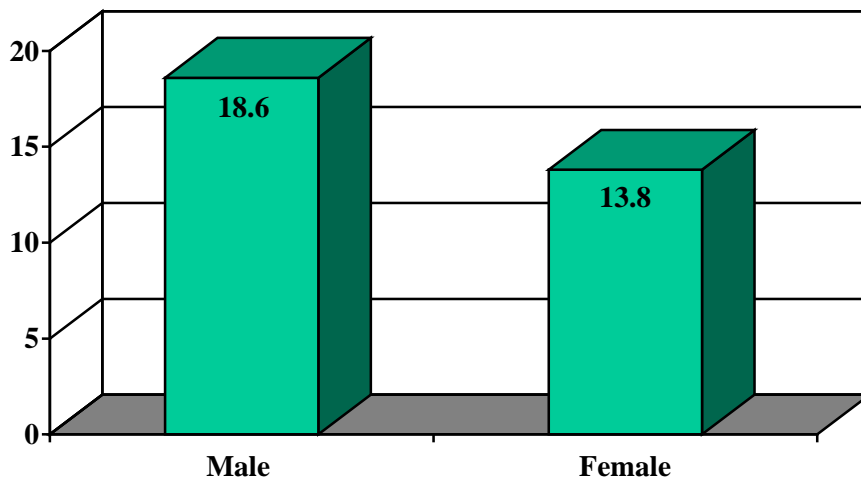


Figure 3 Prevalence Rates of Binge Drinking by Gender



C) Tobacco

Lifetime Tobacco Use

As shown in Table 6, 42% of students surveyed reported ever having used tobacco (i.e. cigarettes, chew, snuff, plug, dipping tobacco, or chewing tobacco) in their life (lifetime use). The highest rates of lifetime tobacco use were reported in the Southeast (55%) and Southwest (47.1%) regions and the lowest in the Northwest region (36.3%). Males (45.1%) were more likely to report lifetime tobacco use than females (39.5%), and Hispanics (48.2%) were more likely to report such use than students in the other racial/ethnic categories. Rates of tobacco use among rural students were reported as 10.5% higher than their urban counterparts.

As expected, prevalence of lifetime tobacco use increased by grade categories. The largest increase was the use levels between the 6th and 8th grades (20.5% increase), which more than doubled. Between 8th and 10th grades, there was a substantial increase of 15.3%, and a 7.4% increase between 10th and 12th. The rates of all surveyed students (42%) who have tried tobacco indicate that tobacco products are easily accessible despite sales being illegal to children and youth under 18 years of age.

Past month Tobacco Use

As shown in Table 6, Approximately 17% of students surveyed used tobacco in the 30 days prior to the survey (i.e. current tobacco users). This constitutes 41% of the lifetime users, meaning that 41% of those who reported ever using tobacco were current users. The highest rates of past month tobacco use were reported in the Southeast (23.6%) and Southwest (20.2%) regions, and the lowest rates were reported in the Eastern (14.4%) and Northwest (14.8%) regions. Again, males (19.5%) were more likely than females (15.8%), and Hispanics (21.5%) were more likely than other ethnicities/races to be current tobacco users. As with lifetime use, past month use increased by grade category with less than 4% of 6th graders, and almost 29% of 12th graders, reported past month tobacco use.

Table 6 Prevalence of Tobacco Users in the Lifetime and Past Month

Demographic Characteristics	Lifetime			Past Month		
	Percentage	95% Confidence Interval		Percentage	95% Confidence Interval	
Total Missouri	42.0	41.0	43.0	17.4	16.7	18.1
Region						
Central	44.1	41.8	46.4	19.1	17.2	21.0
Eastern	38.0	35.6	40.4	14.4	12.7	16.1
Northwest	36.3	35.0	37.6	14.8	13.8	15.8
Southeast	55.0	52.8	57.2	23.6	21.8	25.4
Southwest	47.1	44.4	49.8	20.2	18.0	22.4
Gender						
Female	39.5	38.3	40.7	15.8	14.9	16.7
Male	45.1	43.8	46.4	19.5	18.4	20.6
Grade						
6	17.3	15.9	18.7	3.5	2.8	4.2
8	37.8	36.2	39.4	13.7	12.6	14.8
10	53.1	51.4	54.8	24.5	23.0	26.0
12	60.5	58.4	62.6	28.9	27.0	30.8
Race/Ethnicity						
White	41.7	40.7	42.7	17.8	17.0	18.6
African American	41.3	37.6	45.0	12.0	9.6	14.4
Hispanic	48.2	44.0	52.4	21.5	18.0	25.0
Other	41.6	37.3	45.9	14.1	11.0	17.2
MSA Classification						
Rural	48.3	46.9	49.7	20.6	19.5	21.7
Urban	37.8	36.7	38.9	15.3	14.5	16.1

Age of 1st Use of Tobacco

Table 7 presents data from students on the age they first tried smoking tobacco. A full 57.9% of the surveyed student population reported that they had never tried cigarettes. (It should be noted that cigarette smoking is defined as any use at all even if this means only one puff from a cigarette.) The largest age category reported for age of first tobacco smoking was in the 10 or younger (12.9%) category. This finding for age of first use was consistent across ethnicities/racial groups, regions, and urban and rural areas. Males reported using cigarettes at age 10 or younger 3.4% more than females.

Unlike alcohol this trend remained consistent across all but the 12th grade. Of the percentage of youth who reported first smoking tobacco before age 11, there are 10.7% 6th of graders, 14.7% of 8th graders, and 14.9% of 10th graders. On the other hand, the 12th grade rates of initiation of cigarette use were relatively steady across all age categories. A small 12th grade sample size (2,183), drop out rates, or changes in norms surrounding smoking could account for this difference.

Table 7 Age of 1st Use of Tobacco

Response	Never Have	10 or younger	11	12	13	14	15	16	17 or older
Total	57.9	12.9	6.6	6.7	6.0	4.3	2.9	1.7	1.0
Race/Ethnicity									
White	58.5	12.4	6.3	6.8	5.9	4.4	3.0	1.7	1.0
African American	54.9	14.3	7.0	7.0	6.2	3.9	2.8	2.5	1.6
Hispanic	50.1	15.3	10.2	7.8	7.9	4.9	2.3	1.1	0.4
Other	58.1	18.1	7.4	5.1	5.3	3.7	1.2	0.6	0.4
MSA Classification									
Rural	52.2	15.7	7.8	7.1	5.7	5.1	3.4	1.9	1.0
Urban	61.6	11.1	5.7	6.5	6.2	3.8	2.6	1.5	1.0
Region									
Central	56.1	13.8	7.4	6.7	5.4	5.4	3.0	1.4	0.9
Eastern	60.0	8.4	6.1	7.8	7.8	4.8	2.7	1.6	0.9
Northwest	63.6	11.7	5.4	5.6	5.3	3.2	2.5	1.6	1.1
Southeast	45.4	17.4	8.9	8.4	6.7	5.8	4.1	2.3	1.1
Southwest	53.9	15.2	7.1	7.5	6.6	4.5	2.8	1.7	0.7
Grade									
6	83.3	10.7	4.5	1.5	0.1	0.0	0.0	0.0	0.0
8	62.2	14.7	7.4	7.7	6.3	1.7	0.0	0.0	0.0
10	45.9	14.9	7.6	8.2	8.5	7.3	5.9	1.6	0.1
12	38.7	9.6	6.2	9.3	8.8	9.4	6.5	6.5	5.1
Gender									
Female	59.0	11.4	6.4	6.7	6.3	4.3	3.2	1.6	1.1
Male	56.3	14.8	6.7	6.9	5.8	4.4	2.5	1.8	0.9

Heavy smoking

Figures 4 and 5 display the prevalence of heavy smoking by grade and gender. The prevalence of heavy smoking, defined as smoking more than 5 cigarettes per day, among all surveyed students during the 30 days before the survey was 4%. The rate of heavy smoking was highest among 12th graders (8.9%) and among males (4.6%) as shown in Figures 1 and 2. As student's grade level decreased so did their reported rate of heavy smoking. Students in rural areas reported higher rates (4.9%) of heavy smoking than did urban students (3.5%). As with lifetime and past month tobacco use, students in the Southeast (5.7%) and Southwest (4.1%) regions reported the highest rates of heavy smoking.

Figure 4 Prevalence Rates of Heavy Smoking by Grade

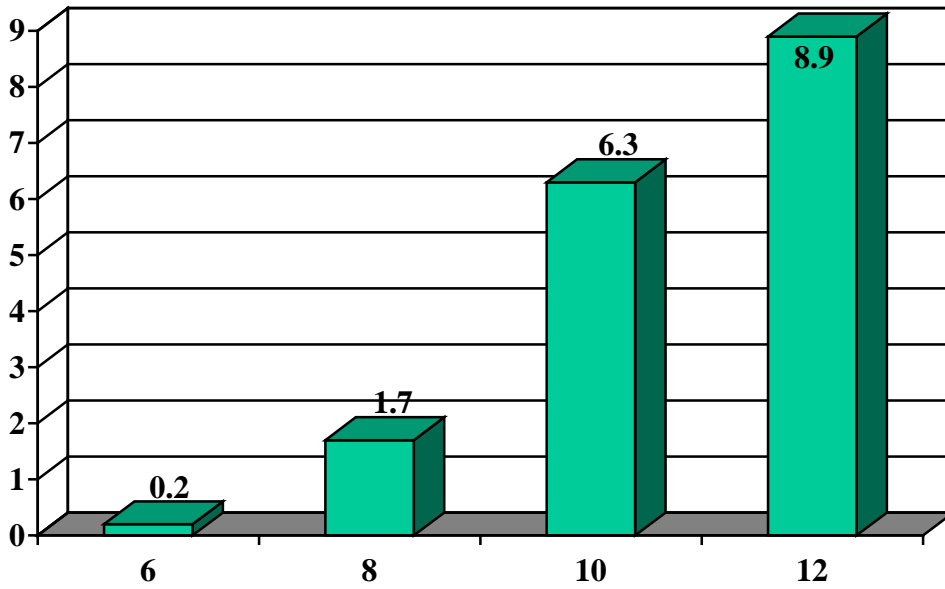
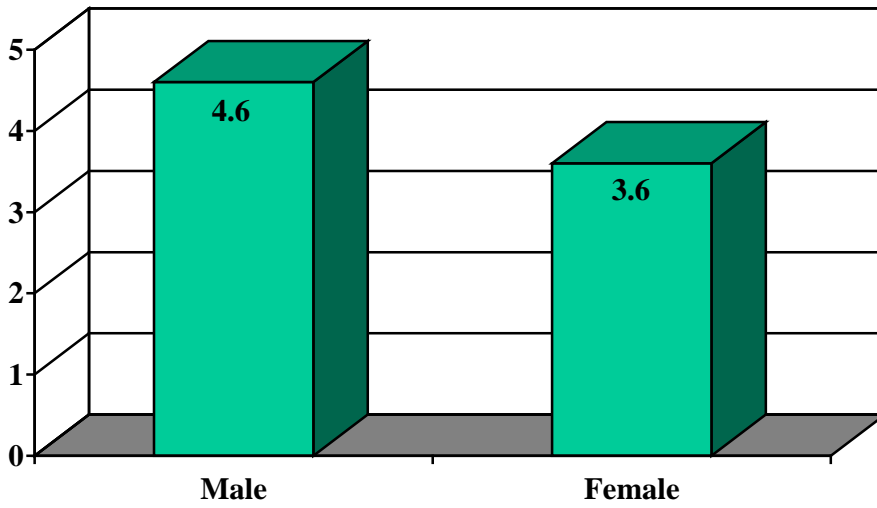


Figure 5 Prevalence Rates of Heavy Smoking by Gender



D) Speed, Amphetamines, Methamphetamines

Lifetime Use

Table 8 shows the prevalence of lifetime and past month speed, amphetamine, and methamphetamine use among surveyed students. Typically, these drugs are grouped with other illicit drugs. However, the increased numbers of clandestine methamphetamine lab seizures and substance abuse treatment admissions due to methamphetamine addiction lead to the conclusion that this illicit drug has become a significant problem in Missouri. For this reason, speed, amphetamine, and methamphetamine are being addressed independent of other illicit drugs.

Approximately 5% of surveyed students reported having used these substances in their lifetime. The highest rates of lifetime speed, amphetamine and methamphetamine use were reported in the Southwest (2.7%) and Southeast (2.2%) regions. Rural (5.6%) areas reported higher lifetime use than did urban (4.5%) areas. Interestingly, unlike all other substances, female (5.2%) students were more likely than male (4.7%) students to report use of speed, amphetamines, and methamphetamines. Also unlike other substances, usage did not increase with grade level but was the highest among 10th graders (7.9%). Hispanics (6.3%) and Whites (5.1%) reported the highest usage, and African Americans (2.6%) the lowest.

Past month Use

A total of 1.8%, approximately 215 of surveyed students reported speed, amphetamines, and methamphetamine use in the past 30 days (current use). The highest rates of current use were reported in the Southeast (6.5%) and Southwest (6.6%) regions and the lowest in the Eastern (4.1%) region. Rural areas reported the same current use as urban areas (1.8%). Unlike lifetime use, female (1.7%) students were less likely than male (1.9%) students to report use of speed, amphetamines, and methamphetamines. Usage was highest among 10th and 12th graders (both 2.7%). Hispanics (2.5%) reported current usage almost 2 times higher than all other racial/ethnic categories.

Table 8 Prevalence of Speed, Amphetamines, Methamphetamines Users - Lifetime and Past Month

Demographic Characteristics	Lifetime			Past Month		
	Percentage	95% Confidence Interval		Percentage	95% Confidence Interval	
Total Missouri	4.9	4.5	5.3	1.8	1.5	2.1
Region						
Central	5.7	4.6	6.8	1.7	1.1	2.3
Eastern	3.8	2.9	4.7	1.6	1.0	2.2
Northwest	4.1	3.6	4.6	1.5	1.2	1.8
Southeast	6.5	5.4	7.6	2.2	1.6	2.8
Southwest	6.6	5.2	8.0	2.7	1.8	3.6
Gender						
Female	5.2	4.7	5.7	1.7	1.4	2.0
Male	4.7	4.1	5.3	1.9	1.5	2.3
Grade						
6	0.7	0.4	1.0	0.3	0.1	0.5
8	3.7	3.1	4.3	1.5	1.1	1.9
10	7.9	7.0	8.8	2.7	2.2	3.2
12	7.3	6.2	8.4	2.7	2.0	3.4
Race/Ethnicity						
White	5.1	4.7	5.5	1.9	1.6	2.2
African American	2.6	1.4	3.8	1.1	0.3	1.9
Hispanic	6.3	4.2	8.4	2.5	1.2	3.8
Other	4.0	2.3	5.7	1.1	0.2	2.0
MSA Classification						
Rural	5.6	4.9	6.3	1.8	1.4	2.2
Urban	4.5	4.0	5.0	1.8	1.5	2.1

Frequent use of Speed, Amphetamines, and Methamphetamines

Frequent use of all illicit drugs is defined as using a specific substance 3 or more times in the past 30 days. Frequent use by all surveyed students is 0.9%. The highest rates of frequent use were reported in the Southeast (1.6%) and Southwest (1.5%) regions. Rural (1%) areas reported similar frequent use as urban (0.9%) areas. Female (0.8%) students were less likely than males (1.1%) to report frequent use of speed, amphetamines, and methamphetamines. Usage was highest among 10th and 12th graders (both 1.5%). Hispanics (1.2%) reported higher rates of frequent usage than other racial/ethnic categories. It should be noted that because of the small numbers of students who reported frequent use of speed, amphetamines, and methamphetamines, strong conclusions could not be drawn.

E) Other illicit drugs

Lifetime Use

Table 9 presents the prevalence of lifetime and past month use of other illicit drugs among surveyed students. The drugs covered by this category are marijuana, cocaine, inhalants, and hallucinogens. Table 10 shows the lifetime and past month use for each illicit drug. Over 3,300 (28.2%) of surveyed students reported having used marijuana, cocaine, inhalants, or hallucinogens in their lifetime. The highest rates of lifetime use of these illicit drugs were reported in the Eastern (34.6%) and Southwest (31.6%) regions. Urban (28.4%) areas reported slightly higher lifetime use than did rural (27.9%) areas. Females (25.8%) were less likely than males (31.4%) to report lifetime illicit drug use. Report of usage increased with grade category, with the greatest increases occurring before 8th and 10th grades (14.3% and 13.1%). Hispanics (36.8%) and African Americans (36.6%) reported the highest usage.

Past month Use

Nearly 14% of students reported use of marijuana, cocaine, inhalants, or hallucinogens in the past 30 days (current use). The highest rates of current use were reported in the Eastern (17.4%) and Southwest (17%) regions and the lowest in the Northwest (11.6%) region. Urban and rural areas reported similar rates of current use, 13.8% and 13.6% respectively. Females (12.4%) were less likely than males (15.5%) to report past month use. Usage was highest, and nearly equal, among 10th and 12th graders (19.1% and 19.2%). Hispanics (20.4%) reported the highest rates of current illicit drug use.

Frequent use of Other Illicit Drugs

Frequent use of illicit drugs, defined as using a specific substance 3 or more times in the past 30 days, was reported as 8% by all students. The highest rates of frequent use were reported in the Eastern (11.5%) and Southwest (9%) regions. Urban (8.3%) rates were slightly higher than rural (7.6%). Figures 6 and 7 illustrate the prevalence of frequent use by grade and gender. Females (6.5%) were less likely than males (10%) to report frequent use. Frequent use was highest, and nearly equal among 10th and 12th graders (12.3% and 12.6%). Hispanics (13.5%) reported the highest rates of frequent illicit drug use.

Table 9 Prevalence of Other Illicit Drug Use in the Lifetime and Past Month

Demographic Characteristics	Lifetime			Past Month		
	Percentage	95% Confidence Interval		Percentage	95% Confidence Interval	
Total Missouri	28.2	27.3	29.1	13.7	13.0	14.4
Region						
Central	28.8	26.7	30.9	14.2	12.6	15.8
Eastern	34.6	32.3	36.9	17.4	15.5	19.3
Northwest	24.7	23.5	25.9	11.6	10.7	12.5
Southeast	29.6	27.6	31.6	13.9	12.4	15.4
Southwest	31.6	29.0	34.2	17.0	14.9	19.1
Gender						
Female	25.8	24.7	26.9	12.4	11.6	13.2
Male	31.4	30.1	32.7	15.5	14.5	16.5
Grade						
6	9.5	8.4	10.6	5.1	4.3	5.9
8	23.8	22.4	25.2	11.3	10.3	12.3
10	36.9	35.3	38.5	19.1	17.8	20.4
12	43.1	41.0	45.2	19.2	17.5	20.9
Race/Ethnicity						
White	27.2	26.3	28.1	13.3	12.6	14.0
African American	36.6	33.0	40.2	16.1	13.4	18.8
Hispanic	36.8	32.7	40.9	20.4	17.0	23.8
Other	27.3	23.4	31.2	12.9	9.9	15.9
MSA Classification						
Rural	27.9	26.6	29.2	13.6	12.6	14.6
Urban	28.4	27.4	29.4	13.8	13.0	14.6

Table 10 Prevalence of Use of Illicit Drugs in Lifetime and Past Month

Substance Used	Lifetime			Past Month		
	Percentage	95% Confidence Interval		Percentage	95% Confidence Interval	
Marijuana	21.8	21.1	22.5	10.2	9.7	10.7
Inhalants	10.8	10.2	11.4	3.8	3.5	4.1
Cocaine	3.8	3.5	4.1	1.3	1.1	1.5
LSD or Other Psychedelics	3.8	3.5	4.1	1.3	1.1	1.5
Speed, Amphetamines, or Meth	4.9	4.5	5.3	1.8	1.6	2.0
Other Illegal Drugs	10.4	9.9	10.9	4.1	3.7	4.5

Figure 6 Prevalence Rates of Frequent Use of Other Illicit Drugs by Grade

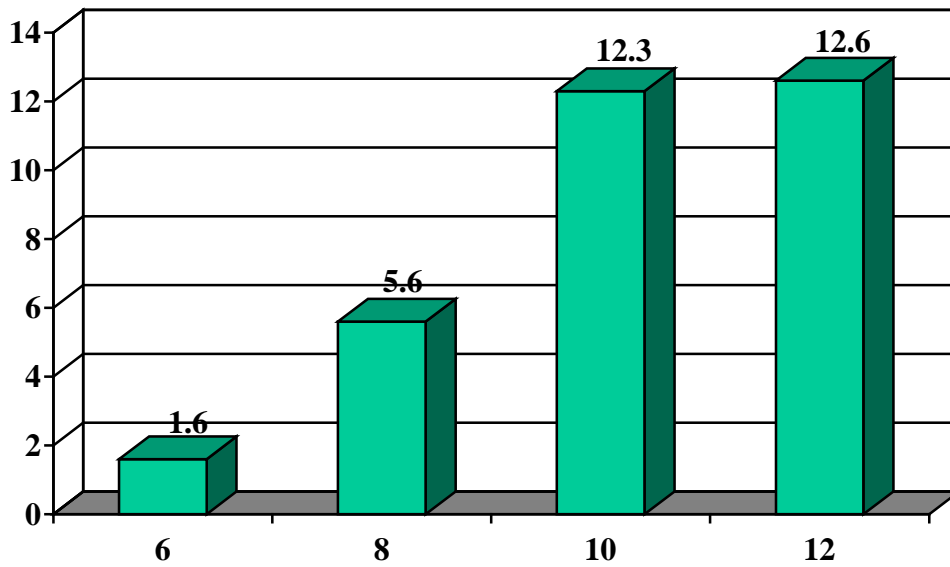
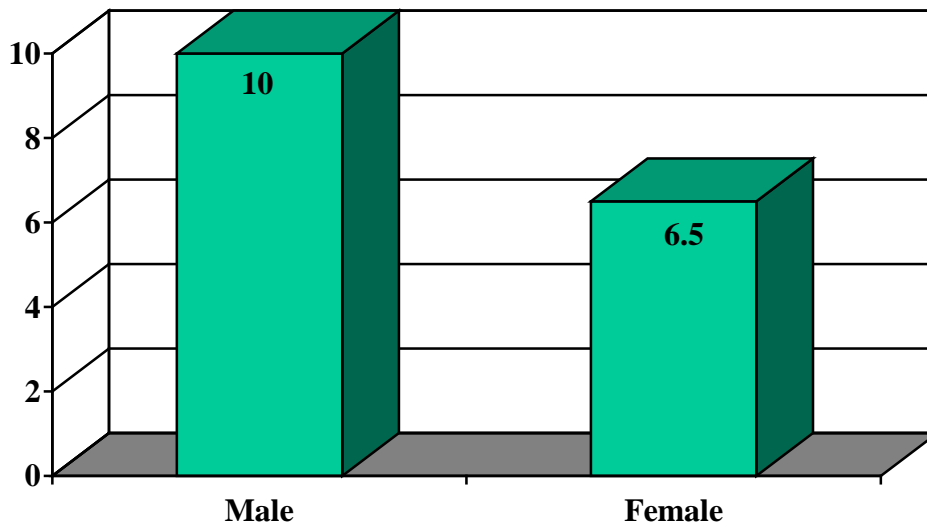


Figure 7 Prevalence Rates of Frequent Use of Other Illicit Drugs by Gender



Summary

Chi-square tests were employed to determine if a relationship existed between these demographic indicators and the prevalence rates of substance use (Appendix A, Table 1). Due to the large sample size, significance was measured with a p value of .01. As would be expected, significant relationships did exist ($p > .01$) for all substances and grade categories in lifetime and past month use, as well as frequent and heavy use. Urban and rural differences were found to be significant ($p > .01$) for lifetime and past month use of tobacco and alcohol, including binge drinking. Results also showed a relationship between rural/urban classification and lifetime speed, amphetamines, and methamphetamine use indicating significantly higher usage in rural areas. Differences between male and female students demonstrated significantly ($p > .01$) higher rates among males for lifetime, past month, and heavy use of all substances, with the exception of speed, amphetamines, and methamphetamine use, where females were slightly higher. Relationships between races were not analyzed due to uneven sample sizes. Because the use of large sample sizes is likely to distort significance levels, caution should be exercised when interpreting these relationships.

Alcohol, tobacco, and marijuana were the most commonly used substances among Missouri students in grades 6, 8, 10, and 12. The use of these substances steadily increased as grade level increased. The majority of students (54.5%) reported using alcohol in their lifetime, and 29.3% reported using it in the 30 days prior to the survey. Additionally, 15.9% of students reported binge drinking behavior in the month before the survey, and the majority of students who had tried alcohol did so before the age of 11 (24.1%). Current use of tobacco was reported by 17.4% of students, and current marijuana use by 10.2%. Relatively large numbers of students reported using “other” illicit drugs. It should be noted that recently popular drugs (i.e. Ecstasy, Rohypnol, GHB, Ketamine) among adolescents would most likely be included in this other illicit drug category.

The data in this chapter presents an overall view of the prevalence of alcohol, tobacco and other drug use among surveyed students. This information can be used to target intervention efforts at students most likely to use substances (10th and 12th graders), and prevention efforts at younger students before they begin experimenting with ATOD use (6th graders). While the information is useful for providing insight into student attitudes and behavior, all youth in this age range may not be equally accessible for intervention and prevention efforts because students with substance abuse problems have often dropped out of school. Likewise, students with substance abuse problems still in school may be less willing to participate in a voluntary survey.

IV. Prevalence Of Antisocial Behaviors Among Missouri Students

This chapter presents data about antisocial (violent and delinquent) behaviors among Missouri's 6th, 8th, 10th, and 12th grade students. *Delinquent behaviors* assessed in this study include belonging to a gang, being drunk or high at school, being suspended from school, stealing or trying to steal a motor vehicle, selling illegal drugs, and having been arrested. *Violent behaviors* include attacking others with the intent to seriously hurt them, carrying a handgun, and taking a handgun to school. Prevalence rates are determined by using the proportion of Missouri youth involved in one or more antisocial behaviors in the past 12 months. Table 4.1 displays prevalence of antisocial behaviors based on gender, grade, race/ethnicity, and urban/rural classifications.

A) Delinquent Behaviors

Been suspended from school

Past research shows that the risk of dropping out and engaging in violent behaviors becomes greater once a student has been suspended or expelled from school (Brumbarger & Brook, 1999; Wagner, 1991). Overall, 7% of Missouri students reported having been suspended from school during the year prior to the survey. African American youth reported the highest frequency of school suspension (21%) as compared with 6% of Whites, and 9% of Hispanic youth. Males also showed higher prevalence rates than females (11% versus 4%).

Sold illegal drugs

Approximately 5% of students reported that they sold illegal drugs in the past year. The prevalence of this behavior varied considerably by grade, gender, and race/ethnicity. Less than 1% of 6th graders reported selling illegal drugs compared to approximately 9% of 12th graders. Self-report rates for selling illegal drugs were twice as common among males as females (7% versus 3%). Of the Missouri students reporting being involved in the sale of illegal drugs, 4% were White, 7% were African American, 8% were Hispanic, and 4% were another race.

Stole or tried to steal motor vehicle

Two percent of Missouri students reported that they either stole or tried to steal a motor vehicle in the past 12 months. This behavior varied little by grade, gender, and urban/rural classification.

Been arrested

Overall, 4% of Missouri students reported that they had been arrested in the year prior to the survey. This behavior varied little by urban/rural classification, but was three times as common among males as females (6% versus 2%). Percentages of students reporting having been arrested in the past 12 months also increased with the grade of the student (1% for 6th graders versus 6% for 12th graders). Self-report rates for being arrested in the past 12 months were more common among African Americans than Whites (7% versus 3%).

Drunk or high at school

Approximately 1 out of 10 Missouri students (11%) reported having been drunk or high at school in the past 12 months. The prevalence rate of those reporting being drunk or high at school was relatively low for 6th graders (1%), but increased dramatically for 12th graders (19%). Again, this behavior was more prevalent among males than females (13 % versus 9%).

Belonged to a gang

Research has found that gang membership intensifies delinquent behavior (Batin-Pearson, Thornberry, Hawkins, & Krohn, 1998). Specifically, associating with delinquent peers and participating in gangs contributes to juvenile delinquency and violent behavior. Overall, 4.5% of Missouri students reported belonging to a gang in the past 12 months. This behavior was more prevalent among African Americans (14.3%) than Whites (3.6%) or Hispanics (9.6%). While 8th graders (6%) were more likely to report participating in a gang than any other grades, it is important to note that the underlying definition of “belonging to a gang” may have different meanings across grades. For example, the definition of gang membership for a 8th grader is probably qualitatively different from that of a 12th grader.

B) Violent Behavior

Attacked someone with the idea of seriously hurting them

Around 10% of Missouri’s youth indicated that they had attacked another person with the intent to harm in the past 12 months. The rate of this behavior increased from 7% in the 6th grade, to almost 12% in the 10th grade, and then declined to 10% in the 12th grade. With regard to ethnicity/race, self-reports of attacking someone with the intention of hurting them were the highest among African Americans and Hispanics (18% and 14%, respectively). The overall prevalence of this behavior was greater for males than for females (14% versus 7%, respectively).

Carried a handgun

Researchers consistently find that the most common weapons used in cases of juvenile homicides are firearms, especially handguns (Sickmund, Snyder, & Poe-Yamagata, 1997). Previous research also indicates that reasons for gun ownership are significantly related to involvement in violent behaviors (Lizotte, Tesoriero, Thornberry, & Krohn, 1994). In Missouri, strict laws prohibit anyone less than 21 years of age from owning a handgun. This may account for the low percentage of Missouri students (2%) who reported carrying a handgun. The prevalence of carrying a handgun in the past year varied little across grade, race/ethnicity, and rural/urban classification. The rates, however, varied by gender; approximately 4% of males reported carrying a handgun in the past year, while less than 1% of females reported engaging in the same behavior.

Taken a handgun to school

Less than 1% of Missouri students reported taking a handgun to school. “Taking a handgun to school” is one of the antisocial behaviors that appears to be unrelated to gender, grade, race/ethnicity, and rural/urban classification. This behavior had a prevalence rate of approximately 1% or less across all cohorts.

Figure 8 Prevalence of Antisocial Behaviors

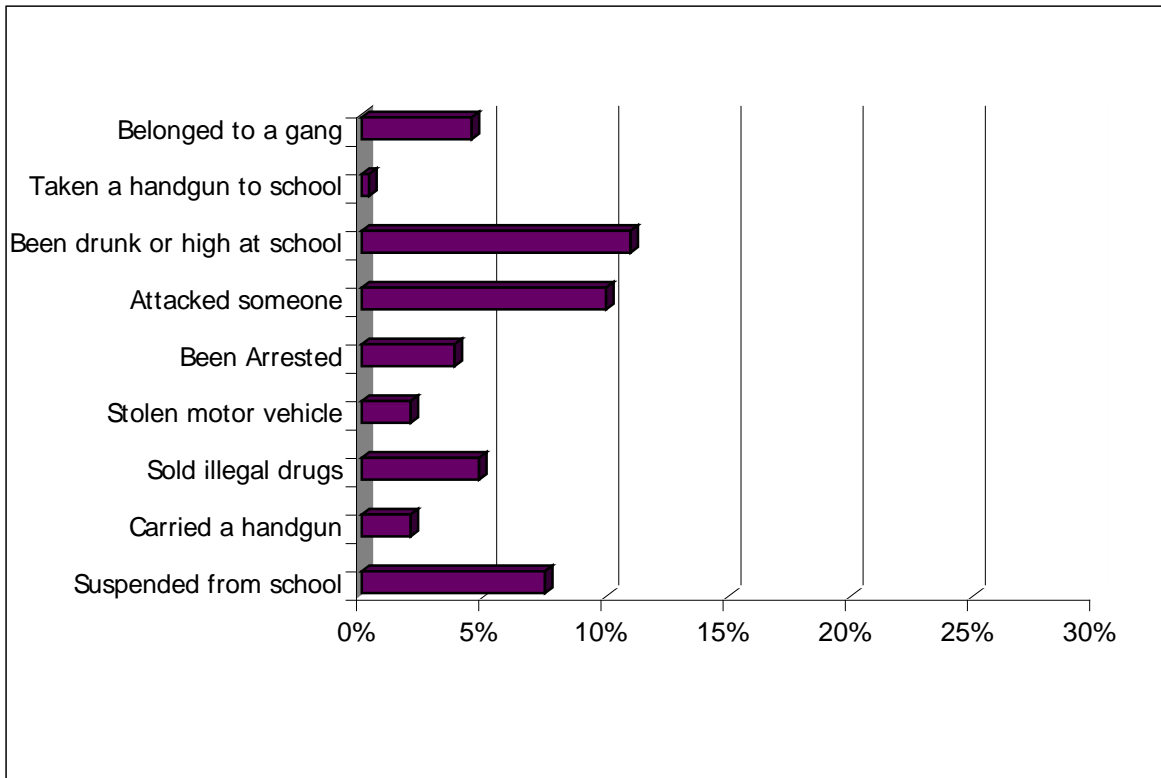


Table 11 Prevalence Of Delinquent And Violent Behavior In The Past Year Among Missouri Students

	TOTAL	Grade				Gender		MSA Classification		Race			
		6th	8th	10th	12th	Male	Female	Urban	Rural	White	African American	Hispanic	Other Races
Suspended from school	7.5	4.6	8.4	8.4	8.0	11.5	4.2	7.5	7.5	6.4	20.8	9.3	8.2
Carried a handgun	2	1.0	2.4	2.1	2.4	3.7	0.7	1.7	2.5	1.7	3.5	4.4	4.9
Sold illegal drugs	4.8	0.3	3.3	7.4	8.8	7.0	3.1	5.4	3.8	4.5	7.5	8.1	4.1
Stolen motor vehicle	2	0.8	2.4	2.4	2.0	2.8	1.3	2.0	1.9	1.8	3.3	4.2	1.4
Been Arrested	3.8	1.0	3.7	4.8	6.1	5.6	2.4	3.9	3.7	3.5	7.2	4.8	5.4
Attacked someone	10	6.6	10.9	11.7	10.3	13.8	7.0	9.5	10.9	9.0	18.5	14.3	14.5
Been drunk or high at school	11.1	1.5	7.9	16.9	18.9	13.1	9.5	10.6	11.7	10.9	11.1	14.9	10.4
Taken a handgun to school	0.3	0.1	0.3	0.3	0.7	0.7	0.1	0.4	0.3	0.2	1.6	0.6	0.6
Belonged to a gang	4.5	4.9	6.0	3.4	4.5	5.7	3.6	4.6	4.4	3.6	14.3	9.6	9.9

Summary

Overall, around 26% of Missouri students surveyed reported engaging in at least one antisocial behavior (delinquent and/or violent behaviors) in the past 12 months. A little more than one in five (22%) of Missouri students reported they had engaged in at least one of the delinquent behaviors in the past year. As would be expected, the rates for violent behavior were lower; approximately 1 in 10 (11%) students reported engaging in at least one violent behavior in the past year.

The most common delinquent behavior reported was being drunk or high at school (11%), followed by being suspended from school (7%), selling illegal drugs (5%), belonging to a gang (4.5%), being arrested (4%), and stealing or trying to steal a motor vehicle (2%). On the other hand, students were less likely to engage in violent behaviors. Ten percent of Missouri students reported attacking someone with intent to harm, 2% reported carrying a handgun other than for hunting, and less than 1% reported taking a handgun to school.

Research has found that prevalence rates of anti-social behavior vary significantly according to gender/age, ethnicity/race, and urban/rural classification (e.g. Chaiken, 1998; Lafree, 1995). For instance, both violent and delinquent behaviors are generally more common among males than females (Steffensmeier & Allan, 1995). Furthermore, studies measuring antisocial behavior consistently demonstrate a positive relationship between age and delinquency throughout adolescence. This relationship seems to be present whether the measurement of delinquency is drawn from official arrest records or self-reports (Zingraff, Leiter, Myers, & Johnsen, 1993; Smith & Thornberry 1995). Although much research has focused on juvenile delinquency and violence in urban areas, youth violence has also been found to be significant in rural areas (Bachus, 1994; Bachman, 1992).

Results from the Missouri 2002 Student Survey demonstrate that males were more likely to report antisocial behaviors, and prevalence rates tended to increase between grades 6 and 12. Furthermore, very few differences were noted between students attending schools in urban areas and those attending schools in rural areas. Chi-square tests were employed to determine if a relationship existed between these demographic indicators and the prevalence rates of antisocial behaviors, as shown in Appendix A, Table 2. The present study found that a significant relationship did exist between grade levels and antisocial behaviors ($p < .01$ for all antisocial behaviors). Results from a second analysis also indicated a significant relationship between gender and antisocial behaviors ($p < .01$ for all antisocial behaviors). In addition, chi-square tests were conducted to test relationships between the antisocial behaviors and the demographic

variable urban/rural classification. Results showed significant relationships ($p < .01$) between urban/rural classifications and the following variables: carried a handgun, attacked someone with the intent to harm, and sold illegal drugs. Chi-square tests utilizing race/ethnicity as a variable were suppressed due to small and unequal group sizes for selected racial categories, such as "other races". Although these significant relationships should be interpreted with caution because of the large sample size, in general, the results from the Missouri 2002 Student Survey confirm findings reported in the literature.

It is important to note that conclusions reached about prevalence of antisocial behaviors using primarily individual-level self-report data may yield incomplete results. A comprehensive analysis, taking into account the community and contextual factors associated with antisocial behaviors, is essential for a better understanding of the meaning of these apparent demographic differences (e.g. Hawkins, Laub, & Lauritsen, 2000). Additionally, an analysis of prevalence rates of antisocial behaviors by demographic characteristics using the Missouri 2002 Student Survey's results must consider the smaller number of surveys completed by non-White students. Finally, further generalizations must take into account the fact that this survey does not include students who have been expelled or dropped out of school.

Figure 9 Prevalence of Selected Antisocial Behaviors in the Past 12 Months By MSA Classification

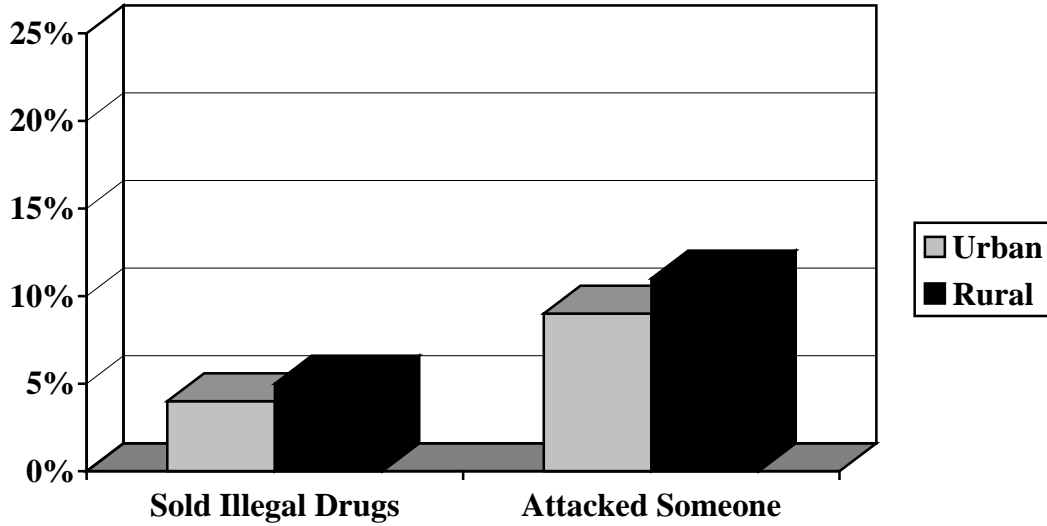


Figure 10 Prevalence of Selected Antisocial Behaviors in the Past 12 Months By Grade

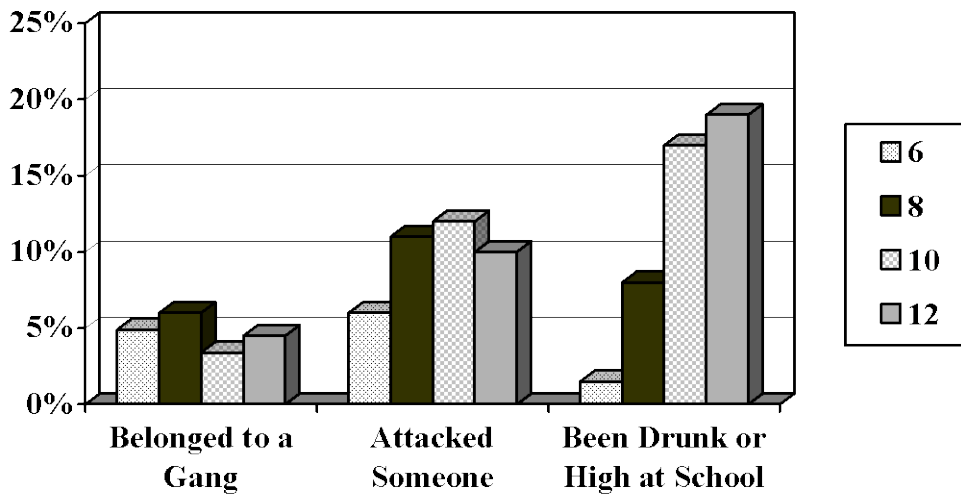


Figure 11 Prevalence of Selected Antisocial Behaviors in the Past 12 Months By Gender

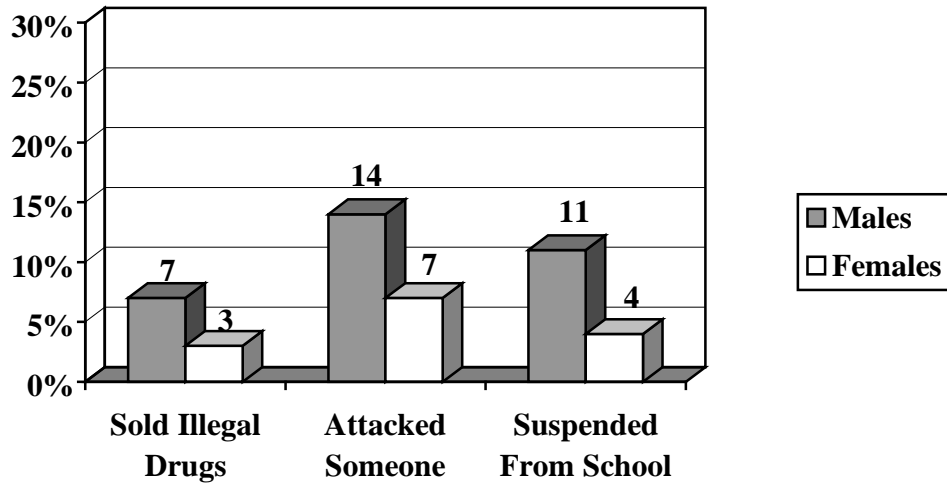
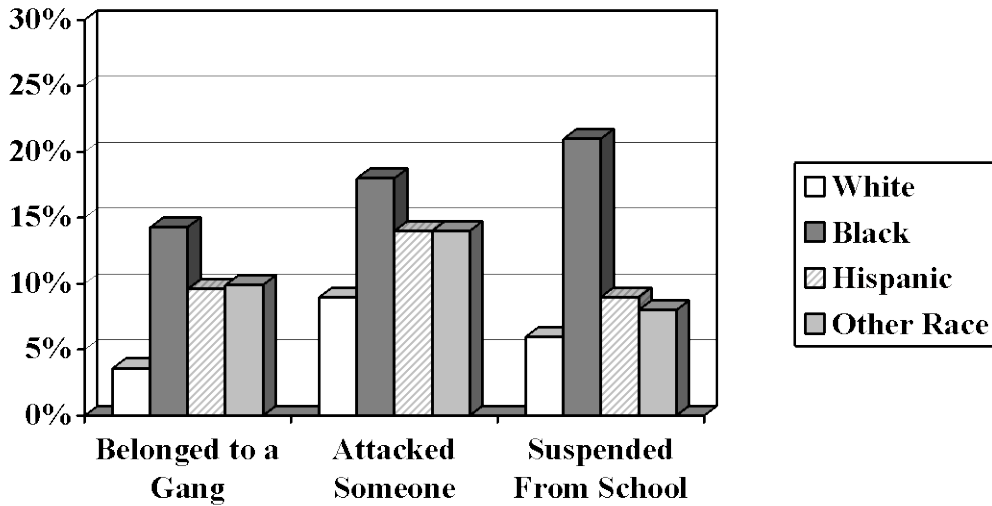


Figure 12 Prevalence of Selected Antisocial Behaviors in the Past 12 Months By Race/Ethnicity



V. Adolescent Risk and Protective Factors

This chapter presents data about risk and protective factors for adolescent health behaviors among students in the state as a whole. Risk and Protective factor scales were constructed using Likert scaling practices. Each risk and protective factor scale is calculated as the average of response(s) to questions in that scale. Students whose scores place them above the numerical midpoint of the scale were considered “at risk” on a given risk factor or “resilient” on a given protective factor. For risk scale items, a high value reflects an undesirable attitude or behavior. For protective scale items, a high value reflects a desirable attitude or behavior.

Data are presented in profile tables that display the percentage of students considered at risk on each risk factor scale and the percentage of students considered resilient on each protective factor scale in each of the domains (i.e., community, school, family, and peer-individual) by demographic characteristics. Odds ratio tables display the likelihood of past month substance use or non-use in relation to risk and protective factors; and graphs display the cumulative effects of risk and protective factors on three types of past month substance use (tobacco, alcohol, and any illicit drug). Analyses to assess the cumulative affects of risk factors on three types of past-month substance use (i.e. alcohol, tobacco, and illicit drug) clearly showed that the greater the number of risk factors, the more likely students were to report substance use. Likewise, the cumulative effects of protective factors on substance use show that the greater the number of protective factors, the less likely students were to report substance use.

As in other parts of the report, it is important to remember that generalizations relating to particular racial or ethnic groups cannot be made due to small sample size.

A) Community Factors

Elements in the community that are associated with risk include seven (7) different factors. The first four (4) are associated with stability in the community and are identified as low neighborhood attachment, community disorganization, personal transitions and mobility, and community transitions and mobility. The last three are associated with the community’s attitudes and norms regarding substance use: norms favorable toward drug use, laws favorable toward drug use, and perceived availability of drugs.

Table 12 shows a profile of the percentage of students considered “at risk” or having some measure of protection for each community risk and protective factor by demographic characteristics: MSA classification of rural/urban, grade level, gender, and race. For the factor “low neighborhood attachment,” a total of 19.2% of the Missouri school youths’ scale scores were above the midpoint of the scale. We would, therefore, consider these 19.2% of youth to be

at risk on this factor. Likewise, we would consider that almost 78% of youth had some resiliency based on the factor “opportunities for conventional involvement” in their communities.

The most important risk factor across all demographic breakdowns was “laws favorable toward drug use,” with almost 76% of youth, overall, reported being at risk. “Perceived availability of drugs” was rated second highest as a risk factor.

Some of the more interesting findings of the community factors were:

- Males and females were similar in risk and resiliency in all factors.
- Across racial/ethnic categories, there were differences in community risk and protective factors with African Americans at higher risk in every category except “laws favorable toward drug use.” The differences between African American and White youth were more than twice as much in two areas, “community disorganization” and “norms favorable toward drug use.” They approached two times as much risk in “low neighborhood attachment” and “personal transitions and mobility.” In addition, in relation to the protective factor, “opportunities for conventional involvement,” African Americans (60%) were less likely to be resilient than Whites (79.5%), Hispanics (70.6%), or other ethnicities/races (73.5%).
- The following risk factors increased as students got older, “low neighborhood attachment,” “norms favorable toward drug use,” “laws favorable toward drug use,” and “perceived availability of drugs.”

In Appendix A, Table 3, the percentage of student risk and protective factors from each region is shown for each of the community factors. Statistically significant differences are marked with an asterisk. The factor that stands out in the community factors is “low neighborhood attachment,” with a low of 14.4% in the Eastern region compared to the 23.0% in the Southeast.

The community risk factors were all positively related to past-month alcohol and drug use (Table 13). This means that students who were at risk on risk factor scales (i.e., above the midpoint) were more likely to have used substances in the past 30 days. The strongest relationships, by far, were between use of speed, amphetamines, and methamphetamines and “norms favorable toward drug use” (15.5 times more likely) and “perceived availability of drugs” (almost 12 times more likely). The association was also strong for the likelihood of past-month use of alcohol (6 times and almost 6, respectively), tobacco (6.5 and 6, respectively), and other illicit drugs (8.5 and almost 8, respectively) on these same two community risk factors.

Table 12 Profile of Community Risk and Protective Factors by Demographic Characteristics

Community Factor	TOTAL	MSA Classification		Grade				Gender		Race			
		Rural	Urban	6th	8th	10th	12th	Female	Male	Black	Hispanic	White	Other Races
Risk Factors													
Low neighborhood attachment	19.2	21.3	17.9	13.0	20.0	21.4	21.7	19.6	18.9	29.3	25.1	17.8	25.4
Community disorganization	6.5	9.3	4.6	4.8	6.7	7.7	6.0	6.8	6.1	14.2	8.2	5.7	8.5
Personal transitions and mobility	25.9	24.3	27.0	20.7	27.0	27.8	26.8	26.3	25.4	40.7	34.7	24.0	35.8
Community transitions and mobility	25.1	25.7	24.7	26.6	27.3	24.3	21.2	24.8	25.4	32.1	30.3	24.1	31.0
Norms favorable toward drug use	12.1	13.9	10.8	2.6	8.7	16.9	20.5	11.8	12.4	25.2	14.4	10.9	15.1
Laws favorable toward drug use	75.5	77.5	73.0	43.3	73.8	87.6	92.6	74.4	75.4	73.1	75.7	75.3	66.2
Perceived availability of drugs	42.2	43.1	41.5	6.1	29.1	59.2	78	41.6	43.2	44.6	42.1	42.2	38.7
Protective Factors													
Opportunities for conventional involvement	77.7	77.9	77.6	76.6	74.9	80.1	79.7	79.3	75.7	60.0	70.6	79.5	73.5
Rewards for conventional involvement	45.6	46.9	44.7	56.9	43.3	42.2	41.9	47.2	43.6	36.9	39.6	46.8	40.5

Table 13 Odds Ratios of Community Risk and Protective Factors with Substance Use

Community Factors	Past Month			
	Alcohol	Tobacco	Speed, Amph, Meth	Other illicit drugs
Risk Factors				
Low neighborhood attachment	1.595	1.77	1.668	1.998
Community disorganization	1.708	2.206	3.237	2.769
Personal transitions and mobility	1.139	1.301	1.547	1.422
Community transitions and mobility	1.038	1.089	1.059	1.228
Norms favorable toward drug use	6.022	6.431	15.58	8.436
Laws favorable toward drug use	5.092	4.811	3.742	4.13
Perceived availability	5.854	6.039	11.67	7.745
Protective Factors				
Opportunities for conventional involvement	1.119	1.382	1.725	1.564
Rewards for conventional involvement	1.664	1.72	1.932	2.149

B) School factors

The percentage of students who are at risk or resilient on each of the school scales is shown on Table 15.

The data show:

- Females were less likely to be at risk on “academic failure” and “little commitment to school” than males, but were approximately the same on protective factors.
- With respect to ethnicity/race, the likelihood was greater that Whites would have less “academic failure” than African Americans and Hispanics. Hispanics, however, were more likely to have “little commitment to school;” and, of all racial/ethnic groups, African Americans were less likely than Whites or Hispanics to be at risk for school absenteeism.
- In terms of protective factors, African Americans were more likely to be resilient on the “rewards for conventional involvement” factor.
- Among the younger students, risk was lower on “little commitment to school,” and higher for protection on perceived “opportunities for positive involvement” and “rewards for conventional involvement.”

Table 14 shows an increase in odds ratios for past month alcohol and other drug use and all of the school risk factors, but there was a particularly high association between speed, amphetamine and methamphetamine use and the risk factors “school absenteeism” (6.29%) and “little commitment to school” (4.49%).

Appendix A, Table 3 shows that, for school factors, while there was variability across the geographic regions, the percentages across risk and resiliency scales were not remarkably different. The Eastern region showed the lowest percentage of risk for academic failure (14.7%) coupled with the highest total protection: “opportunities for positive involvement” (88.8%) and “rewards for conventional involvement” (57.6%). The Southeast region had

the highest percentage of risk for academic failure (21%) and the lowest total protection (81% and 46.4% respectively).

Table 14 Odds Ratios of School Risk and Protective Factors with Substance Use
Past Month

School Factors	Alcohol	Tobacco	Speed, Amph, Meth	Other illicit drugs
Risk Factors				
Academic Failure	2.004	3.408	3.09	3.2
Little commitment to school	3.046	3.466	4.497	3.864
School absenteeism	2.317	3.371	6.293	3.149
Protective Factors				
Opportunities for positive involvement	1.845	2.013	3.494	2.185
Rewards for conventional involvement	2.036	1.973	2.42	2.295

C) Family Factors

The percentage of students “at risk” or “resilient” for each of the family scales is shown in Table 16. “Parental attitudes favorable toward antisocial behavior” was the least common risk factor, while “conflict” and “history of antisocial behavior” were the most, both being close to 30%.

- Males were more likely than females to be at risk of “poor discipline.”
- Whites were least likely to be at risk for “poor discipline” and “history of antisocial behavior;” African Americans were the most likely to be at risk on these two scales. “Opportunities for prosocial involvement” were greater for Whites than for other racial/ethnic groups.
- Students in the higher grades were at increased risk for “poor family management,” “poor discipline,” “family conflict,” “history of antisocial behavior,” and “parental attitudes favorable toward drug use”.

Family risk and protective factors were positively related to substance use (Table 17). “Parental attitudes toward drug use” was the strongest association between risk factor and drugs. Those at risk on this factor were 10 times more likely to have used speed, amphetamines and methamphetamine and other illicit drugs in the past 30 days than students not at risk, and 9 times more likely to have used alcohol. Students who reported “parental attitudes favorable toward antisocial behavior” were 7.4 times more likely to use speed, amphetamines and methamphetamines and nearly 6 times more likely to use alcohol and other illicit drugs in the last month than those students not at risk.

Table 15 Profile of School Risk and Protective Factors by Demographic Characteristics

School Factor	TOTAL	MSA Classification		Grade				Gender		Race			
		Rural	Urban	6th	8th	10th	12th	Female	Male	Black	Hispanic	White	Other Races
Risk Factors													
Academic Failure	17.4	19.1	16.3	13.1	18.7	21.3	14.5	13.9	21.7	25.5	26.3	16.2	20.6
Little commitment to school	24.9	25.8	24.3	10.2	20.9	36.1	32.2	19.3	32.0	21.8	29.5	25.0	22.2
School absenteeism	1.4	1.6	1.4	1.2	1.2	1.4	2.2	1.3	1.7	1.6	2.3	1.3	2.4
Protective Factors													
Opportunities for positive involvement	86.0	83.1	88.0	90.4	86.5	83.4	84.1	87.0	85.0	84.9	82.3	86.4	85.3
Rewards for conventional involvement	51.0	49.4	52.1	67.7	51.6	40.9	45.6	52.8	48.8	57.9	49.9	50.8	46.1

Table 16 Profile of Family Risk and Protective Factors by Demographic Characteristics

Family Factor	TOTAL	MSA Classification		Grade				Gender		Race			
		Rural	Urban	6th	8th	10th	12th	Female	Male	Black	Hispanic	White	Other Races
Risk Factors													
Poor family management	6.5	6.9	6.2	3.8	5.3	7.1	10.3	5.5	7.8	10.0	8.1	6.1	8.9
Poor discipline	24.5	23.9	24.9	8.9	18.3	29.8	42.1	19.7	30.9	38.8	26.3	23.4	27.7
Conflict	28.1	28.3	28.0	15.9	27.4	34.7	31.8	30.2	25.4	34.0	31.1	27.5	28.4
History of antisocial behavior	29.9	31.6	28.8	12.2	26.3	38.4	41.0	31.0	28.7	39.9	32.2	29.2	29.6
Parental attitudes favorable toward drug use	5.2	5.6	4.9	0.8	2.8	7.1	10.7	4.8	5.8	5.2	5.7	5.2	3.8
Parental attitudes favorable toward antisocial behavior	2.7	2.8	2.6	1.7	3.0	3.2	2.3	2.1	3.4	4.3	3.8	2.5	2.3
Protective Factors													
Opportunities for prosocial involvement	81.8	80.9	82.4	91.2	81.9	76.8	79.6	81.0	82.7	75.5	76.9	82.7	77.2
Family attachment	67.7	66.4	68.5	81.8	67.9	62.1	61.5	66.2	69.5	53.4	64.4	69.2	62.0
Rewards for prosocial involvement	65.8	63.9	67.2	79.6	67.4	58.4	61.1	65.8	65.8	62.4	63.9	66.5	60.9

Table 17 shows that students who were resilient on each of the three protective factors were approximately 2 to 3 times more likely not to have used substances than those who were not resilient. “Parental attitudes favorable toward drug use” and “parental attitudes favorable toward antisocial behavior” showed the highest correlation with increased odds of student drug use, especially tobacco and speed, amphetamines, and methamphetamines.

Appendix A, Table 3 shows the regional prevalence rates of family risk and protective factors. There was only a slight variation across regions for most factors. For risk factors, the Eastern Region was higher and the Northwest Region lower on “poor discipline.” The Northwest Region was also lower on “history of anti-social behavior” while the Southeast Region was significantly higher on this factor. In general, there was very little variance across regions for protective factors. However, the Eastern Region rates were significantly ($p > .01$) higher and the Southeast Region was significantly lower for “rewards for prosocial involvement.”

Table 17 Odds Ratios of Family Risk and Protective Factors with Substance Use

Family Factors	Past Month			
	Alcohol	Tobacco	Speed, Amph., Meth	Other illicit drugs
Risk Factors				
Poor family management	2.835	3.298	4.249	3.885
Poor discipline	3.727	3.653	5.831	4.315
Conflict	2.176	2.483	3.585	2.738
History of antisocial behavior	3.522	4.335	5.721	5.079
Parental attitudes favorable toward drug use	8.49	7.814	9.896	9.325
Parental attitudes favorable toward antisocial behavior	5.596	4.027	7.375	5.845
Protective Factors				
Opportunities for prosocial involvement	2.08	2.482	2.866	2.832
Family attachment	1.911	2.106	2.331	2.299
Rewards for prosocial involvement	2.081	2.545	2.479	2.529

D) Peer-Individual Factors

The percentages of students at risk or resilient on the peer-individual domain are contained in Table 18. Overall, the most important risk factors for students were “sensation seeking” (23.7%), “rebelliousness” (19.2%), and “friends substance use” (15.1%).

For demographic indicators:

- Females were less likely than males to be at risk on all factors except “peer rewards for antisocial involvement.” Males were less likely to be resilient on the protective factors: “belief in the moral order” and “social skills.”

- Hispanics were more likely than other racial/ethnic group to be at risk for “early initiation of substance use,” “friends’ substance use,” and “sensation seeking.” African Americans were more likely than other groups to be at risk for “perceived risks of drug use” and less likely for “sensation seeking.” Hispanics were less likely to be protected by “social skills” and African Americans were less likely to be protected by “belief in the moral order.”
- For the most part, risk factors increased and protective factors decreased as youth got older.

All risk factors were shown to be positively associated with substance use (Table 19), but the risk factors showing the greatest correlation with increased odds for past month use of any drug are “early initiation of substance use,” “early initiation of antisocial behavior,” “attitudes favorable toward drug use,” “friends substance use,” and “interaction with antisocial peers.” These factors increased the odds of using alcohol, tobacco, or other illicit drugs from 7 to 22 times. All of these risk factors, plus “sensation seeking” increase the likelihood of using speed, amphetamines, and methamphetamines 11 to 43 times. The protective factor “social skills” was most strongly associated with *decreased* likelihood of using any drug.

The regional prevalence rates of peer-individual risk and protective factors (Appendix A, Table 3) show only slight variation across regions for most factors. In general, percentages for risk factors were slightly lower and percentages for protective factors are higher in the Northwest as compared to other regions. The Southeast showed a higher percentage than other regions on eight of the twelve risk factors and slightly lower percentages on the protective factors.

Table 18 Profile of Peer-Individual Risk and Protective Factors by Demographic Characteristics

Peer-Individual Factor	TOTAL	MSA Classification		Grade				Gender		Race			
		Rural	Urban	6th	8th	10th	12th	Female	Male	Black	Hispanic	White	Other Races
Risk Factors													
Rebelliousness	19.2	20.3	18.4	9.0	20.0	24.0	22.7	16.3	22.8	24.4	23.7	18.5	21.7
Early initiation of substance use	14.0	15.2	13.2	3.0	15.4	20.7	14.6	12.2	16.3	14.3	21.7	13.6	13.5
Early initiation of antisocial behavior	1.3	1.3	1.4	0.6	1.8	1.4	1.2	0.5	2.3	4.2	3.4	0.9	2.7
Impulsiveness	10.7	10.8	10.7	8.0	13.0	10.6	10.5	10.3	11.3	10.5	12.5	10.7	10.8
Antisocial behavior	0.3	0.3	0.2	0.0	0.2	0.3	0.5	0.1	0.5	1.2	0.6	0.2	0.0
Favorable attitudes toward antisocial behavior	9.6	10.1	9.3	2.9	10.4	13.4	10.4	7.2	12.6	10.9	13.1	9.2	12.1
Attitudes favorable toward drug use	12.7	12.8	12.7	1.1	9.0	19.0	23.2	11.2	14.7	12.6	16.2	12.6	10.8
Friends' substance use	15.1	15.2	15.1	1.0	10.6	23.4	26.8	14.1	16.4	14.7	21.1	14.8	15.4
Perceived risks of drug use	14.4	15.4	13.8	7.4	11.1	18.8	22.1	11.2	18.7	22.4	17.9	13.8	12.1
Peer rewards for antisocial involvement	10.5	10.8	10.4	4.4	10.8	14.3	11.7	11.2	9.8	10.2	11.5	10.6	10.8
Interaction with antisocial peers	1.0	1.0	1.0	0.2	1.0	1.3	1.5	0.5	1.6	3.0	3.7	0.7	1.4
Sensation seeking	23.7	24.3	23.3	11.1	23.6	31.2	27.5	17.1	31.9	15.9	27.6	24.0	25.8
Protective Factors													
Belief in the moral order	75.0	74.0	75.6	93.0	75.4	64.8	67.9	81.0	67.5	68.4	72.1	75.7	72.5
Social skills	72.4	71.7	72.9	91.3	74.7	63.4	60.1	78.3	65.1	69.3	66.2	72.8	73.7

Table 19 Odds Ratios of Peer-Individual Risk and Protective Factors with Substance Use

Peer-Individual	Past Month			
	Alcohol	Tobacco	Speed, Amph, Meth	Other illicit drugs
Risk Factors				
Rebelliousness	3.571	3.794	5.623	4.273
Early initiation of substance use	11.913	13.48	20.65	13.92
Early initiation of antisocial behavior	4.229	6.588	16.25	10.94
Impulsiveness	2.271	2.277	4.27	2.895
Antisocial behavior	7.258	22.02	43.3	15.89
Favorable attitudes toward antisocial behavior	5.637	5.384	9.801	6.655
Attitudes favorable toward drug use	12.228	13.01	21.85	17.8
Friends' substance use	10.699	13.28	21.95	17.5
Perceived risks of drug use	5.574	8.072	13.51	11.66
Peer rewards for antisocial involvement	2.364	2.883	4.654	3.234
Interaction with antisocial peers	6.072	7.831	20.22	13.31
Sensation seeking	4.969	5.133	11.44	6.55
Protective Factors				
Belief in the moral order	5.046	4.746	5.725	5.898
Social skills	9.009	8.640	12.10	10.28

E) Effects of the Cumulative Number of Risk and Protective Factors

Approximately 9% of Missouri students reported none of the risk factors identified on the student survey (Figure 13); 27% reported 1-2 risk factors, almost 32% reported 3-5 risk factors, approximately 23% reported 6-10, 7% reported 11-15, and less than 2% reported 15 or more.

Figure 14 shows the cumulative effects of risk factors on past month use of tobacco, alcohol, or any illicit drug. Clearly the level of use of any drug increased with any increase in the number of risk factors. It is interesting to note that of the 9% of students reporting none of the risk factors, 3% used alcohol, but less than one percent used tobacco or other illicit drugs. The effect of two reported risk factors increased the level of alcohol use to 13.5% and tobacco to almost 4%. With each increase of one risk factor, the level of reported use of alcohol rose by almost 7%. Tobacco use rose by approximately 3% for each added factor, but showed an increase of 7% from 4 to 5 risk factors, and a 10% increase from 7 to 8. With 8 reported risk factors, one-third of students reported use of tobacco, over half reported alcohol use, and a quarter reported using of other illicit drugs.

Protective factors as reported are presented in Figures 15 (cumulative numbers) and 16 (cumulative effect). Again there was a clear relationship between protective factors and use of any drugs. Less than 1% of students reported no protective factors, and 50% of these students reported use of tobacco, 67% use of alcohol, and almost 49% reported use of any illicit drugs (13.2% reported use of speed, amphetamines, or methamphetamine—not shown on graph). With each increase in the number of protective factors over two, use of alcohol diminishes by approximately 7%. With nine protective factors, approximately 10% of students reported use of alcohol, 4% tobacco, and less than 2% any illicit drug.

Figure 13 Cumulative Number of Risk Factors (all respondents)

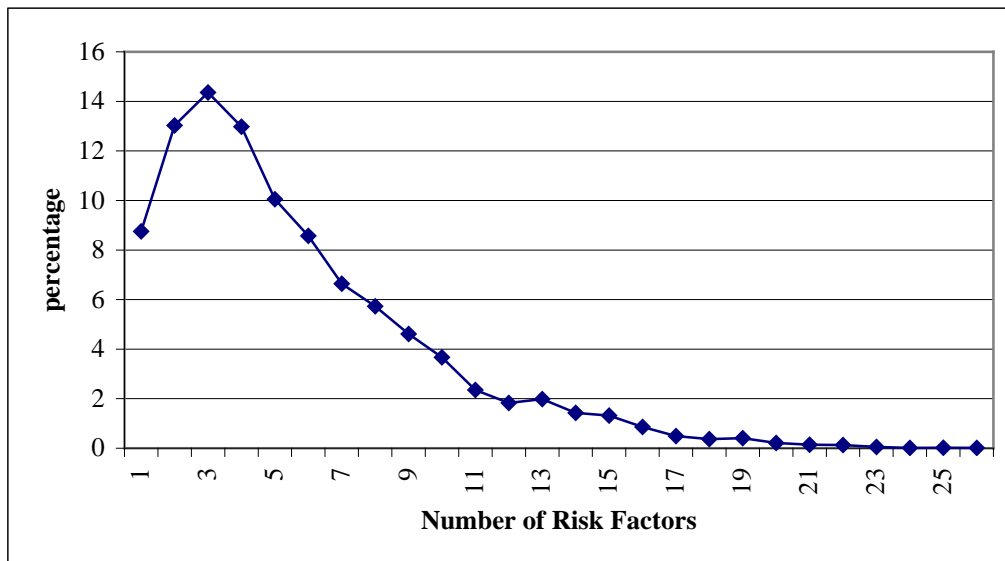


Figure 14 Cumulative Effects of Risk Factors on Past 30 Day Substance Use

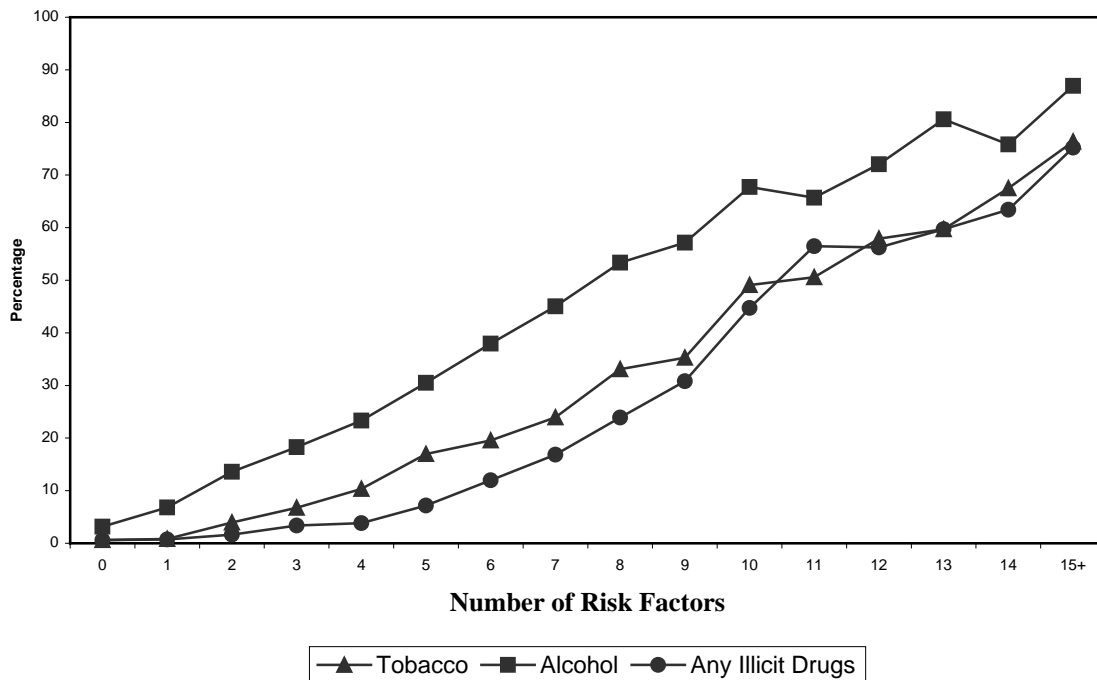


Figure 15 Cumulative Number of Protective Factors (all respondents)

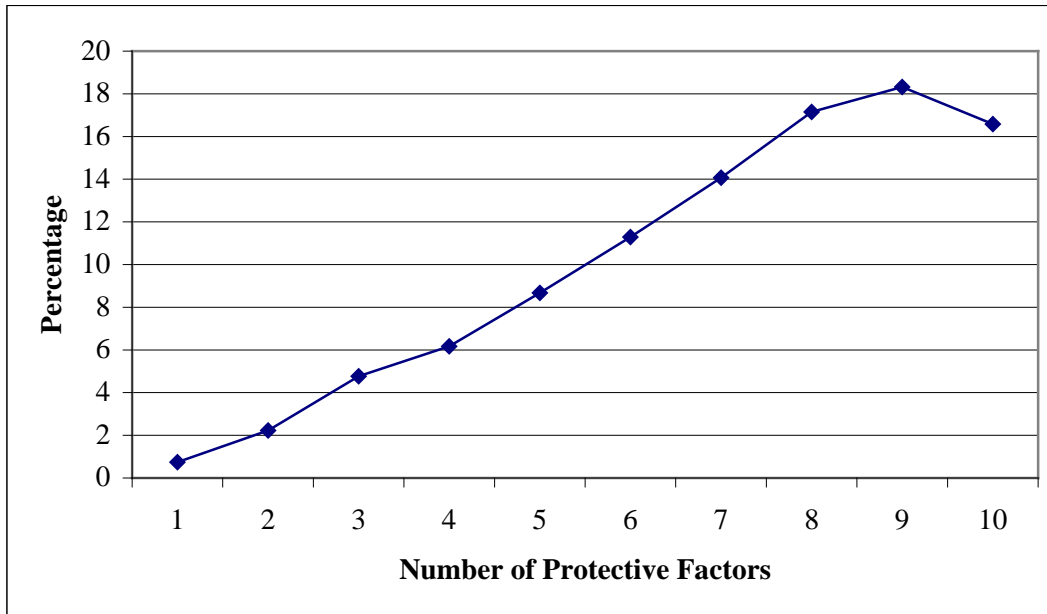
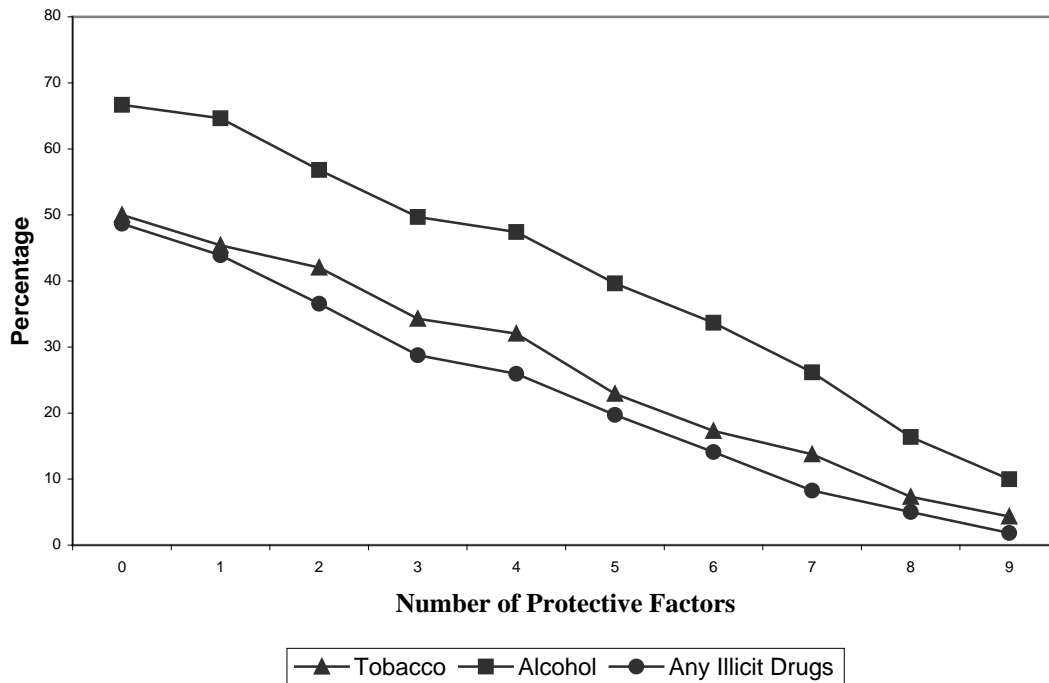


Figure 16 Cumulative Effect of Protective Factors on Past 30-Day Substance Use



Summary

In general, these data show that risk and protective factors in all domains demonstrate a strong relationship to use of alcohol, tobacco and any illicit drug—the higher the number of risk factors, the greater the probability of use, and conversely for protective factors.

The data also show that in the Community and Family domains, as students got older, most risk factors increased and protective factors decreased. In the School and Peer-Individual *risk* domains this trend holds true until 12th grade, when there was a drop in the percentages reporting particular risk factors, such as “academic failure,” “little commitment to school,” “rebelliousness,” “early initiation of substance use,” “favorable attitudes toward antisocial behavior,” “peer rewards for antisocial involvement,” and “sensation seeking.” These risk factors were strongly associated with dropping out of school and with heavy involvement with substance use. Because the survey included only students enrolled and present on a given day, and participation in the survey was voluntary, the data may be biased.

Three-fourths of Missouri students were at risk for “laws favorable toward drug use,” a risk factor that increases the odds of substance use by approximately 5 times. Likewise, “perceived availability of drugs” was a risk factor affecting 42% of Missouri youth, increasing their odds of substance use by 6 times. “Opportunities for conventional involvement,” a protective factor on this same Community scale, was reported by 78% of Missouri youth, but this factor had a negligible protective effect.

The strongest predictors of substance use were shown in the Peer-Individual domain. “Rebelliousness” and “sensation seeking” were reported by the largest number of students (19.2% and 23.7% respectively), and these factors increased the odds of use by 3-11%. “Early initiation of substance use” (14%), “attitudes favorable toward drug use” (12.7%), and “friends’ substance use” (15%) increased the odds of use by 11-20%. Protective factors in this domain appeared to have the greatest impact on substance use, *decreasing* the probability of use by 5 to 12 times.

The cumulative effects of risk and protective factors on the Missouri students surveyed showed that the number of factors related directly to use or non-use of tobacco, alcohol and any illicit drugs. The more “active” protective factors, such as “rewards for prosocial involvement,” “rewards for conventional involvement,” and “social skills” seemed to provide more protection than the “passive” factors relating to beliefs and opportunities.

VI. Summary and Implications

The Missouri 2002 Student Survey was administered in February 2002 to over 12,000 Missouri public school students in grades 6, 8, 10, and 12. The survey was conducted by MIMH and was designed to assist ADA in identifying those adolescents in Missouri schools most in need of substance prevention efforts. The results will assist the Division in planning prevention programs and services in schools that target substance abuse risk and protective factors planning. The report presents the statewide findings on data obtained from participating students about the prevalence of alcohol, tobacco and other drug use, and identifying risk and protective factors.

Key findings from this year's Missouri 2002 Student Survey are as follows.

Use of Alcohol, Tobacco, and Other Drugs

- Alcohol, tobacco, and marijuana were the most commonly used substances among students in 6, 8, 10 and 12 grades. The majority of students (54.5%) reported using alcohol in their lifetime, and 29.3% reported using it in the 30 days prior (current use) to survey administration. There was little variation among race/ethnicity and gender.
- Students' current use of tobacco and marijuana was somewhat lower than alcohol (17.4% and 10.2%, respectively).
- The rate of binge drinking (5 or more drinks of alcohol in a row) was almost 16% for 30 day prior use, and highest among 12 graders (30.2%), and among males (18.5%).
- Nearly 14% of students reported use of marijuana, cocaine, inhalants, or hallucinogens in the past 30 days, and 28.2% reported lifetime use.
- Results show a relationship between rural/urban classification and lifetime speed, amphetamines, and methamphetamine use indicating significantly higher usage in rural areas.
- A small percentage of students reported current (almost 2%) and lifetime use of speed, amphetamines, and methamphetamines (almost 5%).

Violent and Delinquent Behaviors

- A little over a quarter of Missouri students reported engaging in at least one antisocial behavior (delinquent and/or violent) in the past 12 months, and a little more than one in five reported engaging in these behaviors in the past year.
- The most common delinquent behaviors were: being drunk or high at school (11%); being suspended from school (7%); selling illegal drugs (5%); belonging to a gang (4.5%)

- One tenth of students surveyed reported the violent behavior, “attacking someone with intent to harm.”

Adolescent Risk and Protective Factors

- In general, as students became older, their risk increased on risk factors and their resiliency decreased with respect to protective factors in all domains. Exceptions to this generality primarily occur in the School and Peer-Individual Domains.
- Rural and urban students reported similar risk/protection profiles, except within the Community domain where rural students reported greater risk for “low neighborhood attachment,” “community disorganization,” and “laws” and “norms favorable toward drug use.”
- The risk factors most strongly associated with use of speed, amphetamines and methamphetamines related to permissive attitudes (the student’s own, parents’, friends’, and community norms) across all domains.
- Females were less likely than males to be at risk for “academic failure” and “little commitment to school”, but were similar on protective factors.
- Students in high grades were at increased risk for “poor family management,” “poor discipline,” “family conflict,” “history of antisocial behavior,” and “parental attitudes favorable toward drug use.”
- The strongest family risk was “parental attitudes favorable toward drug use.”
- Students who reported using speed, amphetamine and methamphetamine had increased risk factors and decreased protective factors in all categories.
- Males were more likely than females to be at risk on all peer-individual factors except “peer rewards for antisocial involvement.” Females were more likely to be resilient on the protective factors: “belief in the moral order” and “social skills.”

Strengths and Limitations

The Missouri 2002 Student Survey provides valuable information on alcohol, tobacco, and other drug use; violent and prohibited behaviors; and risk and protective factors. This enables ADA to

- Monitor trends in substance use of students across the State
- Compare students statewide with those in each region
- Plan and improve community substance use prevention efforts that target health risk behaviors

The study, however, has several limitations. First, the study included only adolescents in public schools and did not include students absent on the day that data were collected, school dropouts, homeless students, students who are institutionalized, and private school students. Second, the survey was self-report; therefore, respondents may have underreported or exaggerate behaviors, or had difficulty

remembering information such as the age of first substance use. Third, participation in the survey was voluntary, which may have created a self-selection bias. Finally, changes in survey administration in 2002 were necessitated, primarily, by two factors. These were: (1) the relatively short timeframe in which to conduct the survey; and (2) changes in consent procedures from passive consent to active. It is difficult to assess the impact of these two factors, particularly the changes in consent, on the results of the survey. The sample, therefore, may be biased because of the nature of those students who had permission to respond.

Implications and Recommendations

The findings suggest that students in Missouri's public schools can benefit from well-targeted, science-based model prevention programs aimed at addressing the substance use attitudes and behaviors of youth. These programs can impact both risk factors that are found to increase the likelihood that adolescents will use and abuse substances, and protective factors that provide resilience. For example, this survey showed that "social skills" provides a strong protective function, decreasing the odds of student substance use by 8.5-12 times. Most model prevention programs seek to improve social skills. By identifying areas of risk and protection in all domains, the survey also substantiated the need for comprehensive prevention programming that can impact each of these spheres.

The Missouri School-based Intervention Prevention Resources Program (SPIRIT) that will be implemented as a pilot project this coming school year has the potential to address many of the problems and behaviors associated with substance use in adolescents. This first coordinated step toward bring "best practices" to schools in Missouri will be a helpful addition to prevention efforts.

School based interventions, however, should be bolstered by two additional elements. Those are to strengthen existing community efforts at substance abuse prevention and to increase the level of family (parental) education with respect to alcohol, tobacco and other drugs. These two supportive programmatic elements can be achieved by implementing model prevention programs in all areas that impact the health and well being of children and adolescents

While Missouri has solid prevention programming available in many communities throughout the state, many of the programs have not been evaluated for effectiveness. Increasing the evaluative components of these programs can determine the usefulness of the interventions. Implementing programs that are based in science can provide additional success to community efforts to decreasing risk and increase protective factors.

With respect to the survey itself, it would be helpful for the Division to begin preparing schools for the survey well in advance of its administration. With greater lead-time, the number of schools willing to participate may increase. While passive consent procedures yield greater response rates, it is likely that active consent, especially for children and youth, will increasingly become the norm. Strategies, therefore,

that enhance the ability to obtain active parental consent can be developed and tried. For example, information about the survey and permission forms can be sent to parents at the beginning of the school year with the packets schools typically send to parents informing them of events of the coming year. Parents may be more likely to receive and review survey information if it is sent to them at this time.

Despite the limitations of the data, the Missouri 2002 Student Survey establishes a baseline for the “state of the State’s” school youth with respect to substance use health risk behaviors. Bi-annual administration of this survey should give important information that will allow the prevention community to plan and implement programs that directly impact our youth. It also provides support for the continued need to allocate scarce resources to substance abuse prevention and gives decision-makers information that will guide how best to utilize those resources.

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APPENDIX A
Supplemental Tables

Table 1

P-Values for Chi-Squared Tests Alcohol, Tobacco, and Other Drug Use			
	Grade	Gender	Urban and Rural Classifications
Tobacco, Lifetime	0.0001*	0.0001*	0.0001*
Tobacco, 30-days	0.0001*	0.0001*	0.0001*
Tobacco, Heavy Use	0.0001*	0.0108*	0.0002*
Alcohol, Lifetime	0.0001*	0.0011*	0.0001*
Alcohol, 30-days	0.0001*	0.0009*	0.0001*
Alcohol, Heavy Use	0.0001*	0.0001*	0.0001*
Speed, Amphetamines, and Meth, Lifetime	0.0001*	0.2144	0.0057*
Speed, Amphetamines, and Meth 30-days	0.0001*	0.3449	0.8979
Speed, Amphetamines, and Meth, Frequent Use	0.0001*	0.2347	0.6545
Other Illicit Drugs, Lifetime	0.0001*	0.0001*	0.6089
Other Illicit Drugs, 30-days	0.0001*	0.0001*	0.7946
Other Illicit Drugs, Heavy Use	0.0001*	0.0001*	0.1484

* Relationship is significant at the 0.01 level (2-tailed).

Table 2

P-Values for Chi-Squared Tests Anti-Social Behaviors			
	Grade	Gender	Urban and Rural Classifications
Suspended from school	0.0001*	0.0001*	0.9859
Carried a handgun	0.0004*	0.0001*	0.0021*
Sold illegal drugs	0.0001*	0.0001*	0.0001*
Stolen motor vehicle	0.0001*	0.0001*	0.6913
Been Arrested	0.0001*	0.0001*	0.6189
Attacked someone	0.0001*	0.0001*	0.0135*
Been drunk or high at school	0.0001*	0.0001*	0.0601
Taken a handgun to school	0.0078*	0.0001*	0.0405
Belonged to a gang	0.0001*	0.0005*	0.5600

* Relationship is significant at the 0.01 level (2-tailed).

Table 3 Percent of Students Resilient on Various Protective Factors, By Region

		NORTHWEST REGION	SOUTHWEST REGION	CENTRAL REGION	EASTERN REGION	SOUTHEAST REGION	MISSOURI
Community	Opportunities for conventional involvement	79.7*	75.2	78.5	74.3*	76.3	77.7
	Rewards for conventional involvement	45.4*	47.9	45.8	44.6	45.2	45.6
School	Opportunities for positive involvement	88.0*	84.2	85.4	88.8*	81.0*	86.0
	Rewards for conventional involvement	50.6	50.7	51.6	57.6*	46.4*	51.0
Family	Opportunities for prosocial involvement	82.3	82.0	81.9	82.1	79.9	81.8
	Family attachment	68.5	67.4	67.9	67.8	65.3	67.7
	Rewards for prosocial involvement	66.5	65.3	65.0	69.3*	62.5*	65.8
Peer – Individual	Belief in the moral order	77.1*	73.3	74.3	72.9	72.8	75.0
	Social skills	73.9*	73.1	71.1	70.8	70.7	72.4

Note: Percent resilient defined as percent of students scoring above the midpoint scale.
Region estimate is statistically different from state estimate at $p < .01$

Table 4 Percent of Students at Risk on Various Risk Factors, By Region

		NORTHWEST REGION	SOUTHWEST REGION	CENTRAL REGION	EASTERN REGION	SOUTHEAST REGION	MISSOURI
Community	Low neighborhood attachment	19.1	17.3	21.2	14.4*	23.0*	19.2
	Community disorganization	4.4*	7.6	8.2*	6.0	10.1*	6.5
	Personal transitions and mobility	26.9	24.7	25.6	26.2	24.2	25.9
	Community transitions and mobility	25.7	23.2	26.7	23.5	24.8	25.1
	Norms favorable toward drug use	10.1*	13.7	12.4	12.1	15.8*	12.1
	Laws favorable toward drug use	71.7*	78.4*	76.6	73.7	79.7*	75.5
	Perceived availability of drugs	38.4*	45.6*	41.2	47.2*	46.8*	42.2
School	Academic Failure	15.8*	17.5	16.3	14.7*	21.0*	17.4
	Little commitment to school	23.8	26.0	23.8	25.6	27.7*	24.9
	School absenteeism	1.3	1.1	1.6	1.7	1.6	1.4
Family	Poor family management	6.6	5.5	6.3	6.1	7.3	6.5
	Poor discipline	21.8*	25.4	24.1	30.7*	26.4	24.5
	Conflict	27.2	27.4	27.9	29.3	30.2	28.1
	History of antisocial behavior	27.7*	32.9	30.5	29.8	33.1*	29.9
	Parental attitudes favorable toward drug use	4.7	5.0	5.9	5.3	6.0	5.2
	Parental attitudes favorable toward antisocial behavior	2.5	2.5	2.9	2.9	2.9	2.7
Peer – Individual	Rebelliousness	17.6*	20.7	19.3	19.7	21.9*	19.2
	Early initiation of substance use	12.0*	16.8*	14.8	14.5	16.7*	14.0
	Early initiation of antisocial behavior	1.3	1.1	1.2	1.2	1.8	1.3
	Impulsiveness	10.4	10.5	9.6	10.5	13.0*	10.7
	Antisocial behavior	0.3	0.3	0.1	0.1	0.4	0.3
	Favorable attitudes toward antisocial behavior	9.4	10.2	9.7	8.0	10.9	9.6
	Attitudes favorable toward drug use	11.3*	13.8	13.2	15.2*	13.5	12.7
	Friends' substance use	12.7*	18.2	15.9	18.8*	16.1	15.1
	Perceived risks of drug use	12.9*	14.6	15.5	15.4	16.6*	14.4
	Peer rewards for antisocial involvement	8.6*	12.4	11.0	14.2*	11.2	10.5
	Interaction with antisocial peers	1.0	1.0	1.3	1.0	0.9	1.0
Sensation seeking	22.9	23.9	23.3	22.9	26.7*	23.7	

Note: Percent at risk is defined as percent of students scoring above the midpoint scale.

* Region estimate is statistically different from state estimate at $p < .01$

APPENDIX B

Data Collection Materials

2002 Missouri Student Survey Letter to Superintendents

Dear Superintendent:

The Missouri Department of Mental Health, Division of Alcohol and Drug Abuse (DMH/ADA), is once again conducting its Missouri Student Survey. We are pleased to extend an opportunity for your district to administer the **2002 Missouri Student Survey**. As mentioned in a previous memorandum from Dr. Delores Beck to the Federal Program Coordinators, the 2002 Missouri Student Survey will be provided at no cost to the district. The survey instrument, scan sheets, administering instructions, shipping/handling of completed scan sheets, and district summary report will be provided through an in-state contractor, the Missouri Institute of Mental Health (MIMH).

The **Missouri 2002 Student Survey** meets the requirements for Title IV funding. The survey will be conducted during February 2002. The survey includes questions on substance use and questions based on the well-researched set of risk and protective factor framework. This framework, which maps factors that may put children and youth at greater risk for initiating use of alcohol, tobacco and other drugs or provide greater protection against initiating use, results from over 10 years of research by J. David Hawkins and others at the University of Seattle. The U.S. Department of Education, the U.S. Office of Juvenile Justice and Delinquency Prevention, and the U.S. Center for Substance Abuse Prevention also use the risk and protective factors framework.

The **Missouri 2002 Student Survey** consists of the same set of questions used in the 2000 Student Survey. The 2000 Student Survey established statewide and regional baselines; the 2002 Student Survey will provide school districts with the opportunity to set baselines and compare local data with statewide data. DMH/ADA intends to conduct the Student Survey every even-numbered year.

DMH/ADA is coordinating the survey timeframe with the Missouri Department of Elementary and Secondary Education (DESE) SADFSC Survey. The completed surveys will need to be returned to the Missouri Institute of Mental Health by February 28, 2002. A district level report will be returned during the last week of April 2002.

In response to challenges experienced during the 2000 Student Survey, we have made a number of changes concerning the way the survey is administered and results reported. One example is that the 2002 survey may be administered to all students in the selected schools for grades 6, 8, 10, & 12 (with parental denial of consent—see attached). Also, the 2002 Missouri Student Survey report format will provide district level data that can be compared to both the 2002 and the 2000 statewide data.

The cooperation of your school district in conducting this survey will be greatly appreciated. The statewide data provided from the survey is essential in identifying the needs across the state. Once those needs have been identified, future planning of prevention and intervention programs addressing alcohol, tobacco and other drug problems in the state on a district, regional and state level can be done. *A staff person from MIMH staff will be contacting you within the next few days to discuss the survey further.* For more information on the survey please contact Melissa Novak, Missouri Institute of Mental Health, at 314-644-7953 or at novakm@mimh.edu. We look forward to working with you on this project.

Charles E. Williams
Prevention Coordinator
Department of Mental Health
1706 E. Elm St
Jefferson City, MO 65101

Passive Parental Consent Form

Dear Parent(s):

The <insert school name> school is one of over 300 schools selected statewide to participate in a research study designed to develop important information that will help combat such problems as alcohol and other drug use in our schools and communities. The study will also help provide information on the effectiveness of current substance use prevention and intervention efforts. The study, the *2002 Missouri Student Survey*, is being conducted by the State of Missouri with funding from the Federal Center for Substance Abuse Prevention.

Students in randomly selected (i.e., selected by chance) 6th, 8th, 10th, and 12th grades in your child's school are being asked to take part in this study. Approximately 25,000 students statewide have been asked to complete this 45-minute survey. The survey will be coordinated by the Missouri Institute of Mental Health (MIMH), the state's contractor, and administered by the teachers in the next few weeks. The school principal and district superintendent have agreed to the school's participation in this study.

Some important facts about the survey:

- 1. It is anonymous. Students will not put their names or any personal identifying information on the survey booklet. No one will be able to connect any individual student with his or her responses. School staff will not see any student's responses.**
- 2. Participation in the survey is completely voluntary. Your son/daughter may decline to participate at any time or skip any questions they do not wish to answer. You may decline to have your child participate, if you wish. If you or your child declines participation, your son or daughter will be allowed to read or participate in some other alternative activity while his or her classmates are taking the survey. Your child's grades will not be affected by not participating in the survey.**

Questions on the survey cover alcohol, drugs, tobacco, and family and community factors related to substance use and abuse. A copy of the questionnaire is located in the principal's office, if you wish to stop by and review it.

I think that the survey is an important study that will help create better, more effective programming to combat the problem of drug and alcohol use by youth in our community. I hope that you will agree to allow your child to participate in this statewide effort. If you agree, you need do nothing further. However, if for any reason you do not wish your child to participate, please complete and return the attached Denial of Permission Form in the enclosed envelope by and your child will be excused from participation.

Should you have any questions, please contact me at the phone number below, or Ms. Melissa Novak at the Missouri Institute of Mental Health, (314) 644-7953. Should you have any questions or concerns regarding your child's rights as a survey participant, please contact the University of Missouri-Columbia at (573) 882-3181.

Thank you in advance for your cooperation.

Sincerely,

Michael Couty
Missouri Division of Alcohol and Drug Abuse
1706 E. Elm St
Jefferson City, MO, 65 101
(573)751-9414

Missouri 2002 Student Survey Student Fact Sheet

What is the focus of the Missouri 2002 Student Survey?

The focus of the student survey is on health risk behaviors—such as violence and alcohol, tobacco, and other drug use—that can result in injury and/or impede positive development among youth. The survey also includes risk and protective factors, which are attitudes and opinions that research has shown to be highly correlated with these health risk behaviors.

How will the information be used?

Information from the Missouri 2002 Student Survey will be used to meet a variety of needs at the community and state levels. The survey will provide information that will be used to identify the importance of various problem behaviors among students at the statewide, regional, and local level. This information can be used as input for resource and policy decisions, such as targeting interventions.

Is student participation voluntary?

If you return the enclosed Denial of Permission Form, your child will be excused from participation. Teachers will be provided with a list of students whose parents refused participation. These students will be asked to perform some alternative activity (e.g., reading) while the survey is being conducted. Additionally, at the beginning of the class period when the survey will be administered, the teacher will read a prepared statement that informs the students that their participation is voluntary. Students will be given the option to decline to participate, or to skip any questions that they prefer not to answer.

Is student participation anonymous?

Yes, completely. The student will be given a survey booklet that contains the question items and a place to record responses. The survey booklet will not have the student's name or any other identifying information on it. Before they begin, students will be reminded that they should not write such information on the booklet. When completing the survey, students will be arranged so that the teacher administering the survey or the student's peers cannot see their responses, and students will be provided with a blank sheet of paper to cover their answers. At the end of the class period, each student will be asked to place his/her completed questionnaire into an envelope and seal it; these envelopes will then be inserted into a larger envelope and sealed. No one at the school will see students' responses, and no one from the study team will be able to link any individual child to a questionnaire. The aggregate data gathered from the Missouri Student Survey will be provided to school district superintendent and may be shared further at the discretion of the district superintendent.

Why should my child participate?

This research effort is part of an important study being funded by the Missouri Department of Mental Health, Division of Alcohol and Drug Abuse. It aims to gather information to better understand the impact of risk- and protective-factor prevention planning and whether this approach leads to better prevention outcomes, such as reductions in substance abuse, violence, and delinquency.

The students in your child's grade have been randomly selected to participate in this study, and they represent hundreds of students across the state. Thus, it is vitally important that as many of the sampled students as possible complete the survey.

Is this the first survey like this to be done in Missouri schools?

This is the second time that the Missouri Student Survey has been administered in Missouri schools. However, all school districts in Missouri that receive federal funding for substance abuse prevention activities are required to administer a student survey to determine if the districts' activities for the prevention of alcohol, tobacco, and drug use have been successful and to identify needs for the future. This other survey, which has been administered every other year for many years, is called the Safe and Drug Free Schools Survey and is mandated by the Department of Elementary and Secondary Education. The Missouri 2002 Student Survey and the Safe and Drug Free Schools Survey contain similar questions on substance use, but the Missouri 2002 Student Survey includes additional questions focusing on factors that either protect youth from substance use or place them at risk for such use. The additional information gathered by the Missouri Student Survey will allow the state to make the best assessment of the need for prevention efforts in the state, and to target these efforts effectively.

Are sensitive questions asked?

The survey includes questions related to alcohol, tobacco, and other drug use; violent behaviors, and related risk and protective factors that might be considered sensitive by some. Unless questions in these topic areas are asked honestly and straightforwardly, however, we cannot know the degree to which Missouri youth engage in health risk behaviors.

Some examples of the questions:

17. My teacher(s) notices when I am doing a good job and lets me know about it.

NO! no yes YES!

93. Which of the following activities for people your age are available in your community?

sports teams scouting
boys and girls clubs 4-H clubs
service clubs

Examples of questions that may be considered sensitive by some include:

30c. How old were you when you first had more than a sip or two of beer, wine, or hard liquor (for example, vodka, whiskey, or gin)?

Never 10 or younger
11 12
12 14
15 16
17 or older

45. You are at a party at someone's house, and one of your friends offers you a drink containing alcohol. What would you say or do?

Drink it
Tell your friend, "No thanks, I don't drink" and suggest that you and your friend go and do something else.
Just say, "No thanks" and walk away.
Make up a good excuse, tell your friend you had something else to do, and leave.

65. On how many occasions (if any) have you used cocaine or crack during the past 30 days?

0 occasions	10-19 occasions
1-2 occasions	20-39 occasions
3-5 occasions	40 or more occasions
6-9 occasions	

100d. How wrong do your parents feel it would be for you to: steel anything worth more than \$5.00?

Very wrong	A little bit wrong
Wrong	Not wrong at all

104. People in my family often insult or yell at each other.

NO!	no	yes	YES!
-----	----	-----	------

110. If you carried a handgun without your parents' permission, would you be caught by your parents?

NO!	no	yes	YES!
-----	----	-----	------

A draft copy of the student survey is on file in the principal's office for parental review, or you may request a copy of the survey by contacting Missouri's data collection contractor: Dr. Carol Evans (1-314-644-8822).

DENIAL OF PERMISSION FORM
2002 Missouri Student Survey

If you **AGREE** to allow your child to participate in the survey, **DO NOT RETURN** this form.

If you **DO NOT** wish your child to participate in the survey, please **SIGN AND RETURN** this form in the enclosed postage paid envelope by _____.

[] *I have read and understand the attached information concerning the described survey. My child does not have permission to participate.*

Student's Name: _____
(Please print)

Grade: _____

Signature: _____
(Parent/Legal Guardian)

Date: _____

[insert school id#]

2002 Missouri Student Survey School Recruitment Letter

December 5, 2001

Dear Principal/School Contact,

An important study is being conducted this spring in a selected number of schools in our state. The purpose of the study, *the 2002 Missouri Student Survey*, is to gather information needed to plan critical prevention and intervention programs addressing such problems as alcohol and other drug use in our schools and communities. The study is funded by the Missouri Department of Mental Health's Division of Alcohol and Drug Abuse, and is being conducted by the Missouri Institute of Mental Health (MIMH).

We have already been in touch with your district superintendent who has agreed to let us seek your school's participation. To this end, we are providing you with a number of materials that provide information about the study (e.g., a draft questionnaire, the parental consent form, and a Study Fact Sheet).

This study involves a survey effort that will be carried out with approximately 25,000 students in grades 6, 8, 10, and 12 across the state. The study will allow us to gather information to better understand the need for prevention and intervention programs at the school, community, and state level. The Missouri 2002 Student Survey meets the requirements for Title IV (Safe and Drug Free Schools) funding and can be administered instead or in conjunction with the Department of Elementary and Secondary Education's Safe and Drug Free Schools Survey.

The Missouri 2002 School Survey includes questions on substance use and questions based on the well-researched set of risk and protective factor framework as well as a range of other problem behavior such as delinquency and violence. This framework, which maps factors that may put children and youth at greater risk for initiating use of alcohol, tobacco and other drugs or provide greater protection against initiating use, results from over 10 years of research by J. David Hawkins and others at the University of Seattle. The U.S. Department of Education, the U.S. Office of Juvenile Justice and Delinquency Prevention, and the U.S. Center for Substance Abuse Prevention also use the risk and protective factors framework.

Your school is one of over 300 schools that has been randomly selected to participate in this study. Within your school, we will be randomly selecting a sample grade or grades. All of the schools in your district have been selected to participate. Please review this enclosure to see which grade(s) has been selected in your school.

What you should know about the survey:

Completing this pencil and paper survey poses no risk to your students. Survey procedures have been designed to protect your students' privacy and allow for anonymous participation. The student survey is completely anonymous. Students will not be asked to write their name or any other identifying information on their answer booklet.

Participation is completely voluntary. Students may choose not to answer any given question or refuse to participate in the study altogether. In addition, an information letter and Denial of Consent form will be sent to parents to inform them of the survey and provide the option of excluding their child from participating.

The survey administration will take no more than one class period to complete. The survey should be administered during English classes. English classes were selected because almost all students in each grade are enrolled in an English class.

Participating schools will receive a summary of district level results.

The survey will be administered on a selected date during the month of February 2002.

The survey will be conducted with a minimal level of effort from the schools. The tasks that schools will be asked to perform are to:

(1) assist with the distribution of Parental Consent Letters provided by MIMH, (2) maintain a copy of the questionnaire on file for parental review, (3) allow the classroom teachers to administer the survey, (4) assign one school staff person to assist with coordination of delivery of survey materials to classroom teachers.

We have also enclosed a *School Agreement Form*. The School Agreement Form has several purposes:

- To obtain written confirmation that you would like for your school to participate in the study and to obtain up-to-date address information.
- To obtain the name of one individual at your school who will help with the coordination of this study (e.g., assisting with distribution of Parental Consent Letters, assisting with delivery of questionnaires to teachers).
- To select a date for survey administration.
- To gather information needed to select grades. (We ask that, for each sampled grade, you list each English class, the name of the teacher, the # of students in the class, and the class period; if a teacher has multiple classes for the sampled grade, please list each individual class for that teacher.)

Each of these pieces of information is vital to the success of the study.

Study staff will contact you by telephone within the next two weeks to seek the participation of your school, inform you of the grade or grades that have been selected, answer any questions, and complete the School Agreement Form. If you can complete the School Agreement Form before we talk, that would be great! If so, we ask that you fax, email, or mail the completed form to Ms. Melissa Novak at Missouri Institute of Mental Health (314-644-7934). We must have all of this information as early in January as possible. We urge you to complete and return the form via fax or mail, so that we can begin planning the administration in your school as soon as possible.

If you have any further questions, please contact Mr. Scott Gardner, Missouri Division of Alcohol and Drug Abuse, at (573) 522-6182, or the state's contractor, Missouri Institute of Mental Health (attention Ms. Melissa Novak), at (314) 644-7953.

Sincerely,

Charles E. Williams
Prevention Coordinator
Department of Mental Health
1706 E. Elm St
Jefferson City, MO 65101

Enclosures:

School Agreement Form, Study Fact Sheet, Draft Questionnaire, Draft Parental Consent Letter

2002 Missouri Student Survey Study Fact Sheet

What is the focus of the 2002 Missouri Student Survey?

The focus of the student survey is on health risk behaviors-such as violence and alcohol, tobacco, and other drug use-that can result in injury and/or impede positive development among youth. The survey also includes risk and protective factors, which are attitudes and opinions that research has shown to be highly correlated with these health risk behaviors.

Who will be participating in the study?

This study involves a survey effort that will be carried out with approximately 25,000 students in grades 6, 8, 10, and 12 across the state.

Why should my school participate?

This research effort is part of an important study being funded by the Missouri Department of Mental Health's Division of Alcohol and Drug Abuse. It aims to gather information to better understand the impact of risk- and protective-factor prevention planning and whether this approach leads to better prevention outcomes, such as reductions in substance abuse, violence, and delinquency.

Additionally, by participating in this study, your school has the valuable opportunity to learn more about the needs of its students. Your school will be provided with a summary report for your district or region, along with statewide results for comparison. This information, which is provided at no cost, may be very useful in guiding the planning of prevention programs for your students.

Does my school have to participate?

Participation in this study is completely voluntary. Each school has a right to decline participation, just as each student has a right to decline participating in the study. However, to obtain accurate estimates of these behaviors statewide, regionally, and locally, broad participation in the sample is needed.

Are sensitive questions asked?

The survey questions have been designed to measure key behaviors without asking sensitive questions, although it is possible that some questions may be considered sensitive by some schools or school districts. The survey includes questions related to alcohol, tobacco, and other drug use; violent behaviors, and related risk and protective factors. Unless questions in these topic areas are asked honestly and straightforwardly, we cannot know the degree to which Missouri youth engage in these health risk behaviors.

A draft copy of the student survey has been provided in this package. Should you choose to participate, we ask that you maintain a copy of the final questionnaire on file for parental review.

Is student participation voluntary?

Two weeks before the survey is conducted, we will need to mail information letters and denial of consent forms to parents of students in sampled grades to inform them of the study. In the letter, the parents will be told that their child's participation is voluntary; they will also be provided with a Denial of Consent form to return if they wish to decline participation. Our survey coordinator will work with you to determine the best way to mail these letters to the parents of students in the sampled grades. A copy of the Parent Consent Letter is included in this packet.

Teachers will be provided with a list of students whose parents refused participation. These students should be asked to perform some alternate activity (e.g., reading) while the survey is being conducted. Additionally, at the beginning of the class period when the survey will be administered, the teacher will read a prepared statement that informs the students that their participation is voluntary. Students will be given the option to decline to participate, or to skip any questions that they prefer not to answer.

Is student participation anonymous?

Yes, completely. The student will be given a survey booklet that contains the question items and a place for him to record his response. The survey booklet will not have the student's name or any other identifying information on it. Before they begin, students will be reminded that they should not write such information on the booklet. When completing the survey, students will be arranged so that the teacher administering the survey or the student's peers cannot see their responses. At the end of the class period, each student will be asked to place his/her completed questionnaire in into an envelope and seal it; these envelopes will then be inserted into a larger envelope and sealed. No one at the school will see students' responses, and no one from the study team will be able to link any individual child to a questionnaire.

How long does it take to complete the survey?

The self-administered survey will take approximately 45 minutes to complete and will be administered during a single class period.

When will the study be conducted?

The survey will be administered in February 2002. All surveys should be administered during English classes.

What will the school be asked to do?

Tasks that schools will be asked to perform are to:

- work with the study coordinators to assist in distribution of Parental Consent Letter;
- maintain a copy of the questionnaire on file for parental review;
- allow the classroom teachers to administer the survey;
- assign one staff person to work with us on this study (i.e., to assist with distribution of parental consent letter and coordinate receipt and return of survey materials to classroom teachers).

Who will the schools work with to coordinate activities?

The survey is being directed by Missouri Institute of Mental Health (MIMH), the State's Contractor. MIMH will be providing logistical support (i.e., ensuring that materials are delivered and retrieved schools and/or districts, remaining on call to teachers or school staff who have questions about the survey). The staff person you assign to this study will work directly with MIMH staff.

How will this information be used?

Information from the 2002 Missouri Student Survey will be used to meet a variety of needs at the community and state levels. First, the survey will provide information that can be used to identify the importance of various

problem behaviors at the statewide, regional, and local level. This information can be used as input for resource and policy decisions, such as targeting interventions. Second, the state-level data will be used to compare Missouri results with the other states that have conducted similar projects. Finally, results of this survey will be used to provide evidence for the high priority of those issues that are revealed to be important.

**2002 Missouri Student Survey
School Agreement Form**

Thank you for agreeing to participate in the 2002 Missouri Student Survey. Please complete both sides of the following form, and fax, email, or mail to Ms. Melissa Novak at Missouri Institute of Mental Health by January 4 (address information included at the end of this form).

1. Please provide us with the following information about your school:

School Name: _____

Address: _____

City: _____ Zip: _____

Phone: (____) ____-____ FAX: (____) ____-____

2. Please provide the name of one individual at your school that we can work with to coordinate the survey activities:

Name: _____

Position or Title: _____

Phone: (____) ____-____ FAX: (____) ____-____

3. Please select a date during the month of February for administration of the survey in your school; we ask that you also select an alternate date in case we need to reschedule because of inclement weather.

Date: ____/____/____

Alternate Date: ____/____/____

4. On the back side of this agreement, please provide us with a list of each English class for your sampled grade(s), the names of teachers, the number of students in each class, and the class period. This information is needed so that we can deliver an adequate number of classroom packets for each classroom. Please continue on a blank sheet of paper if there is not enough room for all of your classes on this table.

[OVER]

«SCHNAME» Verification Letter

January, 2002

Dear «SCHCONTACT»:

Thank you for agreeing to participate in the *2002 Missouri Student Survey*. This letter is to confirm your agreement to participate in the study and to welcome you to the project. We are looking forward to the opportunity to work with your school on this important study.

To help your school prepare and plan for the upcoming survey effort, I'd like to take this opportunity to review some key information about the project. Please share this information with any teachers or others who may be involved in the implementation of the study survey.

- The date you selected for the survey to be conducted in your school is «DATE_1» with an alternate date of «DATE_2». The grade(s) in your school that have been randomly selected for participation is/are «Grades» with a total of «STUDENT» students.
- The student survey will be administered by the class teachers (unless otherwise agreed upon).
- The survey will take approximately 45 minutes to complete. Teachers will be provided with administration instructions and a written script that should be read to the students at the beginning of the class period. We have enclosed in this packet one set of teacher materials. Additional copies will arrive with the surveys.
- We will seek your assistance in distributing a letter to parents before the student survey is conducted at your school. This letter will inform the parents of the purpose and importance of the study, and should be given to students 1 week before the survey date. It will also inform them that student participation is completely voluntary and instruct them to return a Permission Form if they permit their child to participate. **We will provide copies of the letters to you.** *Please note that this Permission Form is a change from the previously used Denial of Permission Form.* Students will have to return this form in order to participate in the survey. Please encourage your teachers to remind students to return this form.
- We will ask you to maintain a copy of the student survey questionnaire on file for review by interested parents.
- We will arrange for survey materials to be delivered to your school 3-5 days before the survey administration date. We will provide survey packets in groups of 25, which will contain questionnaires, envelopes, pencils, and administration instruction materials.
- During the survey administration, students should be spaced adequately to ensure that students can not see each others' answers. The teacher should remain at the front of the classroom during the survey period.
- An alternative activity (such as reading quietly) will need to be provided for students who do not have permission or decline to participate in the study.
- We will ask you to work with me, your local survey coordinator, in the distribution and retrieval of survey materials.

If you have any further questions, please contact me at (314) 644-7953.

Sincerely,
Melissa A. Novak, M.S.W.,
Survey Coordinator

January 22, 2002

Dear «District_Name» Superintendent:

Thank you for agreeing to participate in the 2002 Student Survey from the Missouri Department of Mental Health. Below is a list of schools in your district that have agreed to participate in the survey:

<Insert schools>

We are altering the parental permission process to be more compatible with that of the survey being given by the Missouri Department of Elementary and Secondary Education. (See attached documents) While we realize that this change is late, we hope that this will ease the administrative burden on school coordinators.

Please sign the bottom of this form to acknowledge your notification of this change and return it, by fax, to **(314) 644-7934** before *January 28, 2002*. If you have any questions, please do not hesitate to call Melissa Novak at (314) 644-7953.

We appreciate your support of prevention efforts in Missouri.

Sincerely,

Carol J. Evans, Ph.D.
Research Assistant Professor

Superintendent signature

Date

BOB HOLDEN
GOVERNOR
PATRICIA S. GRABER
INTERIM DIRECTOR



STATE OF MISSOURI
DEPARTMENT OF MENTAL HEALTH

1706 EAST ELM STREET
P.O. BOX 687
JEFFERSON CITY, MISSOURI 65102
(573) 751-4122
(573) 526-1201 TTY
modmh.state.mo.us

DORN SCHUFFMAN, DIRECTOR
DIVISION OF COMPREHENSIVE
PSYCHIATRIC SERVICES
(573) 751-5212
(573) 751-8017 TTY
(573) 751-7815 FAX

ANNE S. DEATON, DIRECTOR
DIVISION OF MENTAL RETARDATION AND
DEVELOPMENTAL DISABILITIES
(573) 751-4054
(573) 751-8217 TTY
(573) 751-9207 FAX

MICHAEL COUTY, DIRECTOR
DIVISION OF ALCOHOL AND
DRUG ABUSE
(573) 751-4942
(573) 751-7093 TTY
(573) 751-7814 FAX

Dear Parent(s):

The «SCHNAME» school is one of over 300 schools selected statewide to participate in a research study designed to develop important information that will help combat such problems as alcohol and other drug use in our schools and communities. The study will also help provide information on the effectiveness of current substance use prevention and intervention efforts. The study, the *2002 Missouri Student Survey*, is being conducted by the State of Missouri with funding from the Federal Center for Substance Abuse Prevention.

Students in randomly selected (i.e., selected by chance) 6th, 8th, 10th, and 12th grades in your child's school are being asked to take part in this study. Approximately 25,000 students statewide have been asked to complete this 45-minute survey. The survey will be coordinated by the Missouri Institute of Mental Health (MIMH), the state's contractor, and administered by the teachers in the next few weeks. The school principal and district superintendent have agreed to the school's participation in this study.

Some important facts about the survey:

- 1. It is anonymous. Students will not put their names or any personal identifying information on the survey booklet. No one will be able to connect any individual student with his or her responses. School staff will not see any student's responses.**
- 2. Participation in the survey is completely voluntary. Your son/daughter may decline to participate at any time or skip any questions they do not wish to answer. You may decline to have your child participate, if you wish. If you or your child declines participation, your son or daughter will be allowed to read or participate in some other alternative activity while his or her classmates are taking the survey. Your child's grades will not be affected by not participating in the survey.**

Questions on the survey cover alcohol, drugs, tobacco, and family and community factors related to substance use and abuse. A copy of the questionnaire is located in the principal's office, if you wish to stop by and review it.

I think that the survey is an important study that will help create better, more effective programming to combat the problem of drug and alcohol use by youth in our community. I hope that you will agree to allow your child to participate in this statewide effort. If you agree, you need do nothing further. However, if for any reason you do not wish your child to participate, please complete and return the attached Denial of Permission Form in the enclosed envelope within one week and your child will be excused from participation.

Should you have any questions, please contact me at the phone number below, or Ms. Melissa Novak at the Missouri Institute of Mental Health, (314) 644-7953. Should you have any questions or concerns regarding your child's rights as a survey participant, please contact the University of Missouri-Columbia at (573) 882-3181.

Thank you in advance for your cooperation.

Sincerely,

Michael Couty
Missouri Division of Alcohol and Drug Abuse
1706 E. Elm St, Jefferson City, MO, 65101
(573)751-9414

Missouri 2002 Student Survey Student Fact Sheet

What is the focus of the Missouri 2002 Student Survey?

The focus of the student survey is on health risk behaviors—such as violence and alcohol, tobacco, and other drug use—that can result in injury and/or impede positive development among youth. The survey also includes risk and protective factors, which are attitudes and opinions that research has shown to be highly correlated with these health risk behaviors.

How will the information be used?

Information from the Missouri 2002 Student Survey will be used to meet a variety of needs at the community and state levels. The survey will provide information that will be used to identify the importance of various problem behaviors among students at the statewide, regional, and local levels. This information can be used as input for resource and policy decisions, such as targeting interventions.

Is student participation voluntary?

Unless you return the enclosed Permission Form, your child will be excused from participation. Teachers will be provided with a list of students whose parents do not consent. These students will be asked to perform some alternative activity (e.g., reading) while the survey is being conducted. Additionally, at the beginning of the class period when the survey will be administered, the teacher will read a prepared statement that informs the students that their participation is voluntary. Students will be given the option to decline to participate, or to skip any questions that they prefer not to answer.

Is student participation anonymous?

Yes, completely. The student will be given a survey booklet that contains the question items and a place to record responses. The survey booklet will not have the student's name or any other identifying information on it. Before they begin, students will be reminded that they should not write such information on the booklet. When completing the survey, students will be arranged so that the teacher administering the survey or the student's peers cannot see their responses, and students will be provided with a blank sheet of paper to cover their answers. At the end of the class period, each student will be asked to place his/her completed questionnaire into an envelope and seal it; these envelopes will then be inserted into a larger envelope and sealed. No one at the school will see students' responses, and no one from the study team will be able to link any individual child to a questionnaire. The aggregate data gathered from the Missouri Student Survey will be provided to the school district superintendent and may be shared further at the discretion of the district superintendent.

Why should my child participate?

This research effort is part of an important study being funded by the Missouri Department of Mental Health, Division of Alcohol and Drug Abuse. It aims to gather information to better understand the impact of risk- and protective-factor prevention planning and whether this approach leads to better prevention outcomes, such as reductions in substance abuse, violence, and delinquency.

The students in your child's grade have been randomly selected to participate in this study, and they represent hundreds of students across the state. Thus, it is vitally important that as many of the sampled students as possible complete the survey.

Is this the first survey like this to be done in Missouri schools?

This is the second time that the Missouri Student Survey has been administered in Missouri schools. However, all school districts in Missouri that receive federal funding for substance abuse prevention activities are required to administer a student survey to determine if the districts' activities for the prevention of alcohol, tobacco, and drug use have been successful and to identify needs for the future. This other survey, which has been administered every other year for many years, is called the Safe and Drug Free Schools Survey and is mandated by the Department of Elementary and Secondary Education. The Missouri 2002 Student Survey and the Safe and Drug Free Schools Survey contain similar questions on substance use, but the Missouri 2002 Student Survey includes additional questions focusing on factors that either protect youth from substance use or place them at risk for such use. The additional information gathered by the Missouri Student Survey will allow the state to make the best assessment of the need for prevention efforts in the state, and to target these efforts effectively.

Are sensitive questions asked?

The survey includes questions related to alcohol, tobacco, and other drug use; violent behaviors; and related risk and protective factors that might be considered sensitive by some. Unless questions in these topic areas are asked honestly and straightforwardly, however, we cannot know the degree to which Missouri youth engage in health risk behaviors.

Some examples of the questions:

13. My teacher(s) notices when I am doing a good job and lets me know about it.

NO! no yes YES!

94. Which of the following activities for people your age are available in your community?

sports teams	scouting
boys and girls clubs	4-H clubs
service clubs	

Examples of questions that may be considered sensitive by some include:

30c. How old were you when you first had more than a sip or two of beer, wine, or hard liquor (for example, vodka, whiskey, or gin)?

Never	10 or younger
11	12
13	14
15	16
17 or older	

46. You are at a party at someone's house, and one of your friends offers you a drink containing alcohol. What would you say or do?

Drink it
 Tell your friend, "No thanks, I don't drink" and suggest that you and your friend go and do something else.
 Just say, "No thanks" and walk away.
 Make up a good excuse, tell your friend you had something else to do, and leave.

66. On how many occasions (if any) have you used cocaine or crack during the past 30 days?

0 occasions	10-19 occasions
1-2 occasions	20-39 occasions
3-5 occasions	40 or more occasions
6-9 occasions	

100d. How wrong do your parents feel it would be for you to: steal anything worth more than \$5.00?

Very wrong	A little bit wrong
Wrong	Not wrong at all

105. People in my family often insult or yell at each other.

NO!	no	yes	YES!
-----	----	-----	------

111. If you carried a handgun without your parents' permission, would you be caught by your parents?

NO!	no	yes	YES!
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A draft copy of the student survey is on file in the principal's office for parental review, or you may request a copy of the survey by contacting Missouri's data collection contractor: Dr. Carol Evans (314-644-8822).

Class Administration Instructions

[PRIOR TO BEGINNING THE SURVEY, OBTAIN THE LIST OF STUDENTS WHOSE PARENTS/GUARDIANS HAVE SIGNED CONSENT FORMS FOR THEIR CHILDREN. AT THE BEGINNING OF THE SURVEY PERIOD, PLEASE QUIETLY AND DISCREETLY ASK THESE STUDENTS TO PARTICIPATE IN AN ALTERNATE ACTIVITY WHILE THE REMAINDER OF THE CLASS COMPLETES THE SURVEY.]

[READ ALL ITALICIZED INSTRUCTIONS TO THE CLASS]

Today we will be completing the 2002 Missouri Student Survey. This survey is being conducted by the State of Missouri. The purpose of this study is to learn how students in our school feel about their community, family, peers, and school. The survey also asks what students think about different health behaviors.

I'm going to read some information about the survey to you. Please listen carefully.

The survey is anonymous. I will maintain strict procedures to protect your privacy. You will read each question in the survey booklet and fill in the circle for your answer. The survey booklet does not have your name or any other identifying information on it, so no one will know how you answer any of the questions. Please do not write your name or your school name on the question booklet.

The survey is voluntary and your grades will not be affected, whether or not you complete the survey. Your parents have received a letter about the survey and they had an opportunity to consent to your participation. Now we are asking you for your participation.

The survey should take about 45 minutes. You will have the entire class period to complete the questionnaire. If you come to any question in the survey that you do not want to answer, you can leave it blank and move to the next question. The answers you give are very important. I ask that you read each question carefully and answer it based on what you really do or know. At the end of class, I will ask you to seal your questionnaire in the envelope that you have been provided. Then I will pass around a larger envelope and ask you to place your envelope inside. The last person in class will seal this large envelope before returning it to me.

Now I am going to pass out the question booklets. If you do not wish to participate, please do not take a booklet and [INSTRUCT STUDENTS ON ALTERNATE ACTIVITY]. Do not put your name on the question booklet, and do not begin working until I tell you to do so.

[PASS A SURVEY BOOKLET, BLANK SHEET OF PAPER, AND ENVELOPE TO EACH STUDENT]

This is not a test. Your grades will not be affected by your responses. All of the questions should be answered by filling in one of the answer spaces. If you don't always find an answer that fits exactly, use the one that comes closest. If any question does not apply to you, or you are not sure what it means, just leave it blank.

Notice that for each question there are a series of ovals near the answers. For each question that you answer on the survey, choose just one answer which best fits what you know, feel, or do, then fill in the corresponding oval. Only one oval should be filled in for each question on the answer sheet. Use the blank piece of paper you have been given to cover your answers as you work and please do not look at other students' answers.

Now I would like you to look at the cover page of your question booklet. Before you begin, please copy the numbers posted on the board in the spaces labeled "County" & "Building" and color in the appropriate ovals. These numbers will be used to identify your school and county.

When you are finished, please remain at your desk and read or work quietly until the end of class. If, at any time during the survey, you have a question, raise your hand. For those of you who are still working at the end of class, I will let you know when it's time to stop. If you don't finish the entire questionnaire, that's okay.

You may begin.

[AT THE END OF CLASS, SAY:]

The class period is over now. If you have not finished the survey, please stop where you are now and close the survey booklet. Please put your completed survey inside the envelope you have been given and seal it. Then please insert your envelope into the larger envelope that is being passed around the room.

I would like to thank you all for participating in the survey. The information you have provided will be used to develop better health education programs for students like yourselves all around the state.

If answering any of these questions has caused you any concerns or raised any questions, please talk to someone you trust - a parent or guardian, teacher, or any other person you feel comfortable with. If you would like to speak to me, please feel free to do so.

April 29, 2002

Dear *Superintendent*,

This February your school district participated in the Missouri 2002 School Survey sponsored by the Missouri Department of Mental Health, Division of Alcohol and Drug Abuse. Attached is a copy of the results of the survey for your area. The report contains information for any grades in your district that had usable responses from 60 or more students. If your district had fewer than 60 usable responses, you may obtain results for either the county or regional level, depending on the total number per grade. We chose this minimum number of student responses so that we could maintain anonymity and confidentiality.

The survey was given to approximately 11,500 students in grades 6, 8, 10, and 12 across the state and could have been completed in lieu of the DESE survey required for Title IV funding. Information obtained from the survey will allow the Department of Mental Health to better understand the need for prevention and intervention programs at the school, community, and state level. Please note that these results are not representative of students in your area.

If you would like a copy of the regional results, please call or e-mail us at novakm@mimh.edu. If you have questions or comments, please feel to contact Melissa Novak at 314-644-7953 or Dr. Carol Evans at 314-644-8829.

Sincerely,

Carol J. Evans, Ph.D.

Research Assistant Professor

APPENDIX C

2002 Missouri Student Survey