2001 Massachusetts Youth Risk Behavior Survey Results

September 2002

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EXECUTIVE SUMMARY

INTRODUCTION AND SURVEY METHODS

The Massachusetts Youth Risk Behavior Survey (MYRBS) is conducted every two years by the Massachusetts Department of Education with funding from the United States Centers for Disease Control and Prevention (CDC). The survey monitors behaviors of high school students that are related to the leading causes of morbidity and mortality among youth and adults in the United States. The 2001 MYRBS was conducted in the spring of 2001 in 64 randomly selected public high schools across the Commonwealth. In total, 4,204 students in grades 9 through 12 participated in this voluntary and anonymous survey. Because of the high student and school response rates, the results of this survey can be generalized to apply to all public high schools across Massachusetts.

RESULTS: TOBACCO USE

Every measure of tobacco use among Massachusetts public high school students has decreased steadily since. Among high school students in 2001,

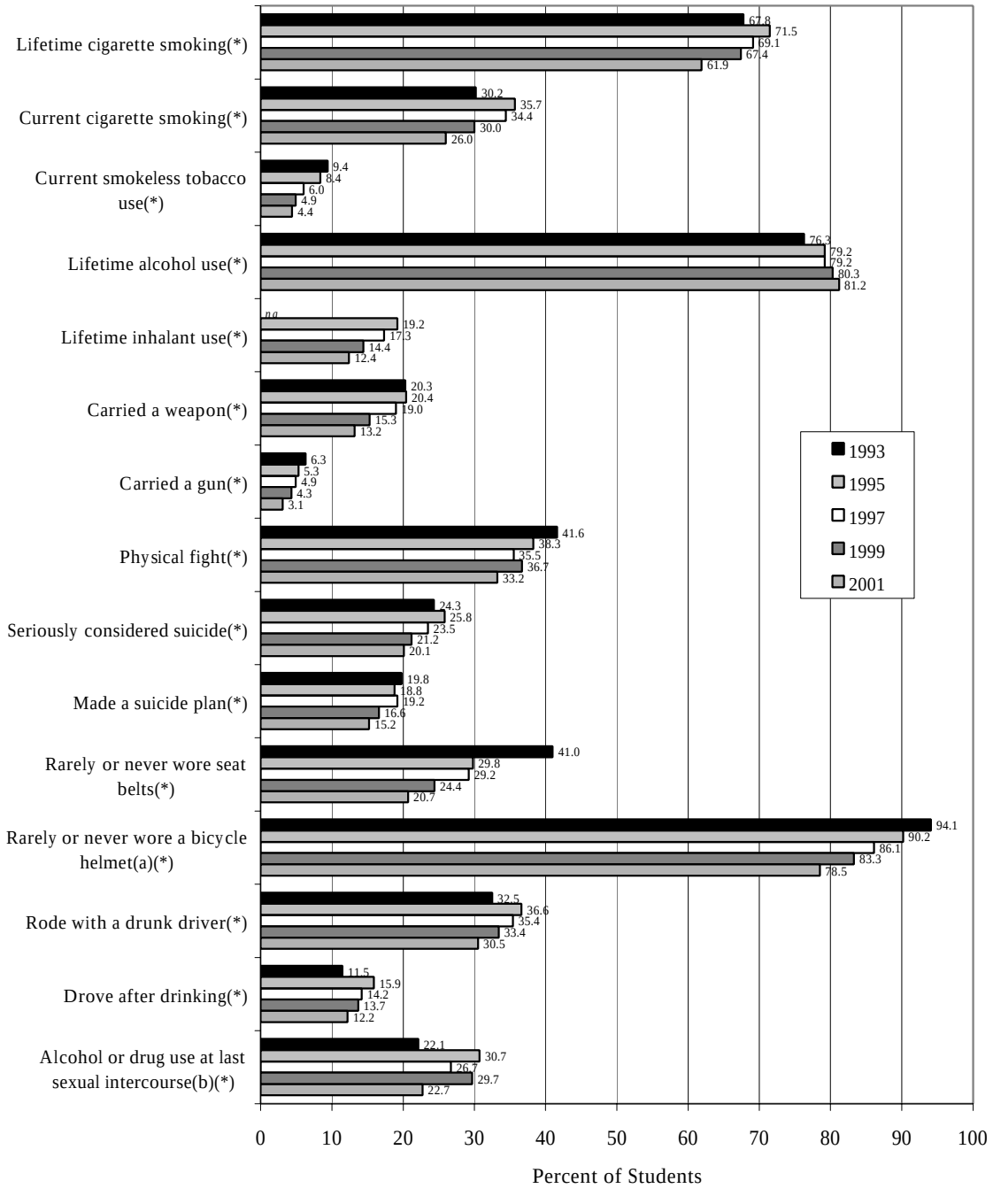
- Sixty-two percent (62%) had tried smoking cigarettes at least once (lifetime cigarette use), a significant decrease from 72% in 1995 (see Figure A, next page).
- Nineteen percent (19%) of all students smoked their first cigarette before age 13, a significant decrease from 24% in 1993.
- Twenty-six percent (26%) of students smoked at least once in the 30 days before the survey (current smoking) and 10% smoked everyday (daily smoking). The rate of current smoking has decreased significantly since 1997.
- Four percent (4%) of students reported smokeless tobacco use, significant decrease since 1993.

ALCOHOL USE

Current alcohol use (in the 30 days before the survey) and binge drinking (5 or more drinks in a row in the 30 days before the survey), which rose significantly from 1993 to 1995, have leveled off in the past four years. However, lifetime alcohol use among Massachusetts high school students has been slowly and significantly increasing since 1993 (see Figure A, next page). Among high school students in 2001,

- Most students (81%) had a drink of alcohol in their lives, and 28% of all students had their first drink prior to age 13.
- Over half (53%) had a drink of alcohol in the 30 days before the survey.
- One-third (33%) engaged in at least one episode of binge drinking in the month prior to the survey, and 7% reported frequent binge drinking.

Figure A. Significant Changes in Risk Behaviors Among Massachusetts High School Students, 1993 to 2001



Notes: (*) Statistically significant difference between the highest and lowest rates of the behavior, $p<.05$; (a) Among students who rode a bicycle in the 12 months before the survey; (b) Among students who has sexual intercourse in the three months before the survey

ILLEGAL DRUG USE

Each year since 1995, at least half of all high school students have reported using an illegal drug in their lifetimes. Among high school students in 2001, 54% had ever used an illegal drug. In their lifetimes,

- Half (50%) used marijuana (30% used marijuana in the 30 days before the survey).
- Thirteen percent (13%) used MDMA (i.e., ecstasy).
- Twelve percent (12%) used inhalants, a significant decrease from 19% in 1995.
- Eight percent (8%) used cocaine.
- Seven percent (7%) used methamphetamines.
- Five percent (5%) used illicit steroids, 3% used heroin and 2% injected illegal drugs.
- Sixteen percent (16%) used other illegal drugs, such as LSD, PCP, mushrooms, Ketamine, Rohypnol, or GHB.

VIOLENCE-RELATED BEHAVIORS

The rate of weapon-carrying has decreased significantly since 1997. Rates of gun carrying and physical fighting have declined significantly since 1995 (see Figure A, previous page). Among high school students in 2001,

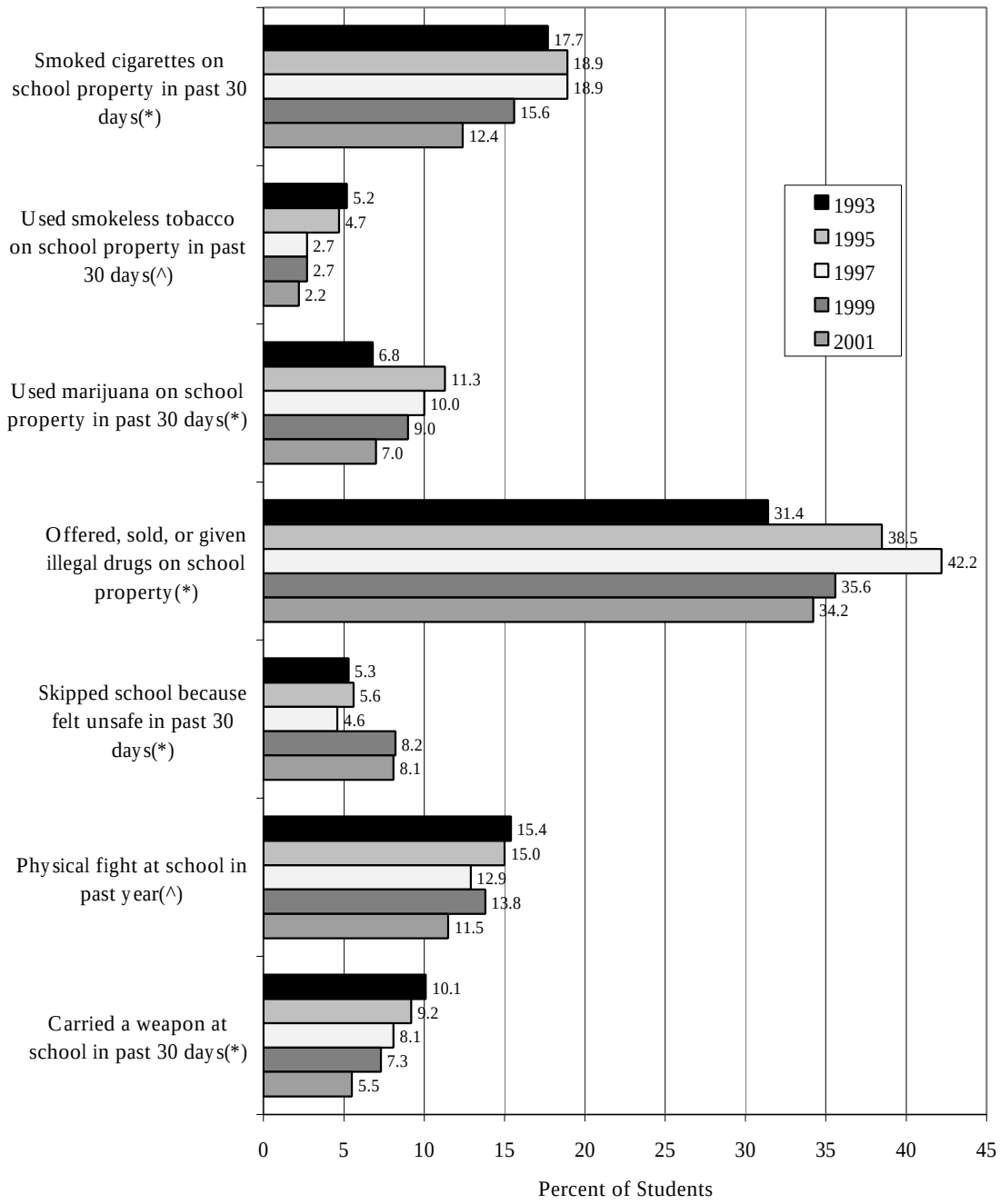
- Thirteen percent (13%) carried a weapon in the 30 days before the survey and 3% carried a gun.
- One-third (33%) were in a physical fight in the 12 months before the survey.
- Eleven percent (11%) of all students had ever been hurt physically or sexually by a date or someone they were going out with, and 10% reported having ever experienced sexual contact against their will.

SUBSTANCE USE AND VIOLENCE ON SCHOOL PROPERTY

Measures of substance use and violence on school property have dropped significantly in the past few years (see Figure B, next page). Among high school students in 2001,

- Twelve percent (12%) had smoked cigarettes on school property in the month prior to the survey, fewer than in previous years
- One-third (34%) were sold, offered, or given an illegal drug on school property in the 12 months before the survey, a significant drop from the 42% rate reported in 1997.
- Twelve percent (12%) were in a fight on school property in the prior year, a significant decrease from 15% in 1995.
- Six percent (6%) carried a weapon on school property in the 30 days before the survey, a significant drop from 8% in 1997.
- Eight percent (8%) had been threatened or injured with a weapon at school in the 12 months before the survey, and 8% had skipped school in the 30 days before the survey because they felt unsafe.

Figure B. Significant Changes in Substance Use and Violence on School Property, 1993 to 2001



Notes: (*) Statistically significant increase or decrease from 1997 to 2001, $p<.05$; (^) Statistically significant decrease from 1995 to 2001, $p<.05$

SUICIDAL BEHAVIOR

Significantly fewer students in 2001 than in 1997 reported seriously considering suicide or making a suicide plan in the 12 months before the survey (see Figure A, page iv). Among high school students in 2001,

- Twenty-nine percent (29%) had felt sad or hopeless for a period of two weeks or more.
- Twenty percent (20%) had seriously considered suicide.
- Fifteen percent (15%) had made a suicide plan.
- Ten percent (10%) had attempted suicide in the 12 months before the survey.

BEHAVIORS RELATED TO UNINTENTIONAL INJURIES

Significantly fewer students in 2001 than in previous years reported rarely or never wearing seat belts and bicycle helmets, riding with a driver who had been drinking, or driving after drinking (see Figure A, page iv). Among students in 2001,

- Twenty-one percent (21%) reported rarely or never wearing a seat belt.
- Twenty percent (20%) of students who rode a motorcycle in the 12 months before the survey reported rarely or never wearing a helmet.
- Seventy-nine percent (79%) of students who rode a bicycle in the previous year reported rarely or never wearing a helmet.
- Thirty-one percent (31%) of students rode with a driver who had been drinking alcohol in the 30 days before the survey, and 12% had driven after drinking alcohol themselves.

SEXUAL BEHAVIORS

Slightly fewer students in 2001 than in 1993 reported having ever had sexual intercourse, recent sexual intercourse, four or more lifetime sexual partners, or sexual intercourse before age 13. Among sexually active students, condom use increased slightly from 1993 to 2001. Among students in 2001,

- Forty-four percent (44%) had ever had sexual intercourse.
- Twelve percent (12%) had sexual intercourse with four or more partners in their lifetime.
- Five percent (5%) had sexual intercourse before age 13, a significant decrease from 8% in 1993.
- One-third (33%) had intercourse in the three months before the survey.
- Five percent (5%) had ever been or gotten someone pregnant.
- Among sexually active students, 58% used a condom the last time they had sex; 23% used birth control pills; and 23% had used alcohol or drugs before their last sexual intercourse, a significant decrease from 30% in 2001 (see Figure A, page iv).

AIDS PREVENTION EDUCATION

Compared to their peers, students who were taught in school about HIV/AIDS reported lower rates of sexual risk behaviors. Among students in 2001,

- Most students (94%) were taught about HIV/AIDS in school.
- Half (51%) were taught in school how to use a condom.
- Forty-five percent (45%) received a presentation in school from a person living with HIV/AIDS.
- Forty-seven percent (47%) talked with their parents about sexuality or ways to prevent HIV/STD infection or pregnancy.

DIETARY and WEIGHT CONTROL BEHAVIORS

The percent of students who were overweight increased significantly from 1999 to 2001. The percent of students who perceive themselves to be overweight and the percent of students attempting weight loss have increased steadily and significantly since 1995. Among high school students in 2001,

- Fifteen percent (15%) of students were at risk of becoming overweight, and 10% were definitely overweight according to their Body Mass Index.
- Thirty-three percent (33%) thought they were overweight.
- Forty-seven percent (47%) were trying to lose weight at the time of the survey.
- In the 30 days before the survey: 71% dieted and/or exercised; 14% fasted for a period of 24 hours or more, 8% took diet pills, liquids, or powders; and 6% took laxatives or vomited to lose weight or to keep from gaining weight.
- Thirteen percent (13%) ate the recommended five or more servings of fruits or vegetables per day, and 18% drank three or more glasses of milk per day in the seven days before the survey.

PHYSICAL ACTIVITY

Rates of physical activity have not changed significantly since 1993. Among students in 2001,

- Sixty-three percent (63%) participated in activities that caused them to sweat or breathe hard (i.e., vigorous physical activity) for at least 20 minutes on at least three of the seven days before the survey.
- Twenty-five percent (25%) participated in activities that did not make them sweat or breathe hard (i.e., moderate physical activity) for at least 30 minutes on at least five of the seven days before the survey.
- Forty-seven percent (47%) of all students did exercises to strengthen or tone their muscles (such as push-ups, sit-ups, or weigh lifting) on at least three of the seven days before the survey.

- Sixty-eight percent (68%) attended a physical education class at least once in an average school week, and 18% attended a physical education class daily in an average school week.

RESILIENCY

Six protective factors were found to be associated with lower rates of risk behaviors: (1) academic achievement, (2) perceived parent or family support, (3) perceived teacher support, (4) perceived support from other adults outside of school, (5) participation in volunteer work or community service, and (6) participation in organized extracurricular activities. Among students in 2001,

- Eighty-six percent (86%) reported receiving mostly A's, B's, and C's for grades in the 12 months before the survey.
- Seventy-six percent (76%) felt there was a parent or other adult family member they could talk to about things they thought were important
- Sixty-five percent (65%) felt there was a teacher or other adult school staff member they could talk to about a problem.
- Fifty percent (50%) felt there was another adult outside of school they could talk to about things that were important
- Forty-one percent (41%) participated in at least one hour of volunteer work or community service in an average month.
- Forty-nine percent (49%) participated in organized extra-curricular activities at least once in the seven days before the survey.

SUMMARY OF KEY FINDINGS

- Many adolescent risk behaviors have decreased within the past few years, including cigarette smoking, inhalant use, weapon-carrying, fighting, and behaviors related to unintentional injuries.
- Substance use and violence on school property have significantly decreased in recent years.
- AIDS education is working: students who were taught in school about HIV/AIDS prevention had lower levels of every sexual risk behavior than those who were not taught about HIV/AIDS prevention.
- Despite the observed decreases in most risk behaviors, it remains that many high school students engage in some risk behaviors that pose serious threats to their health and safety.
- Students who engage in one high-risk or health-compromising behavior are often likely to engage in other risk behaviors as well.
- Certain factors in a student's life have a protective effect on behavior, including academic achievement, perceived adult support in and out of school, and participation in volunteer work or other extra-curricular activities.

CONCLUSIONS

The 2001 MYRBS results highlight continued progress in reducing adolescent risk behaviors in the Commonwealth. Nevertheless, existing levels of some risk behaviors among Massachusetts high school youth still warrant concern. Comprehensive school health education programs, within the context of a safe and healthy school environment, can reinforce positive decision-making and behavior change, and thus help more youth resist or limit their participation in high-risk activities.

1 INTRODUCTION AND SURVEY METHODS

BACKGROUND

This report presents the results of the seventh administration of the Massachusetts Youth Risk Behavior Survey (MYRBS), and the fifth consecutive administration that can be considered fully representative of public high school students across the Commonwealth.[1] The MYRBS is a student health survey that has been conducted every two years since 1990 by the Massachusetts Department of Education HIV/STD Prevention Program with funding and technical assistance provided by the Division of Adolescent and School Health (DASH) of the U.S. Centers for Disease Control and Prevention (CDC). Massachusetts was one of 32 state educational agencies that administered a youth risk behavior survey in 2001 to monitor the prevalence of adolescent risk behaviors that have a potentially negative impact on student learning and may ultimately lead to life-threatening illness and injury.

Data generated by the MYRBS are used to determine statewide changes in the prevalence of adolescent risk behaviors over time. Additionally, the results of the MYRBS contribute to a national database on adolescent risk behaviors. Through careful examination of the MYRBS results, state and local agencies can use the data to set priorities for improving the health of students across the Commonwealth.

SURVEY DEVELOPMENT

The standardized youth risk behavior survey instrument was designed by the CDC in collaboration with other national and local health and education agencies.[2] Specifically, the survey was developed to monitor the prevalence of health risk behaviors among high school students (grades 9 through 12) associated with the major causes of morbidity and mortality among youth and adults in the United States. These behaviors include:

- Tobacco use;
- Alcohol and other drug use;
- Sexual behaviors that may result in HIV infection, other sexually transmitted diseases, and unintended pregnancies;
- Behaviors related to injuries and violence;
- Poor dietary behaviors (including behaviors associated with eating disorders); and
- Lack of physical activity.

In addition, the survey included supplementary items on other topics relevant to student health such as gang involvement, HIV/AIDS prevention education, sexual orientation, dating violence, and forced sexual contact. The 2001 MYRBS also included two new items measuring participation in activities that may positively impact a student's wellbeing, such as volunteer community work and extracurricular activities. These additional items were developed and refined by staff at the Massachusetts Department of Education, with review by the CDC.[3] The final 2001 MYRBS instrument consisted of 99 multiple choice questions with an additional page for student comments. The survey was written at the seventh grade reading level, and was designed to be completed in a forty-minute class period. The survey was available in English and Spanish. The English version is included in Appendix A of this report; the Spanish version is available upon request.

SURVEY METHODS AND ADMINISTRATION

The 2001 MYRBS was administered from February to June 2001 in randomly selected public high schools across the state. In total, 64 of 67 randomly selected high schools across the state participated in the survey, resulting in a school response rate of 96%. In each participating school, three to five classes were randomly selected to participate. All students in grades 9 through 12, including Special Education (SPED) students and students with limited English proficiency, were given an equal probability of being selected.

A trained survey administrator from the Department of Education traveled to each participating school and administered the survey in selected classrooms using a standardized administration protocol. Survey administrators read instructions aloud to participating students, emphasizing that the survey was both anonymous and voluntary. Completion of the survey in some Special Education classes was facilitated by reading the questions and responses aloud.

On average, approximately 66 students participated per school, yielding a statewide sample of 4,204 students. This sample represented 80% of the students enrolled in the classes originally selected. The main factor that determined the 80% student response rate was school attendance on the day of survey administration. The combined school and student response rates yielded an overall response rate of 77% (96% x 80%). **Due to this high response rate, the information in this report provides accurate estimates of the prevalence of the health risk behaviors among Massachusetts high school students.**

CHARACTERISTICS OF THE STUDENT SAMPLE

The demographic characteristics of the student sample are shown in Table 1.1 (next page). To correct for slight variations between the Massachusetts high school population and the MYRBS student sample, cases in the sample were statistically weighted by the CDC. The weighted results presented in this report accurately reflect the gender, grade, and race/ethnicity characteristics of all Massachusetts public high school students in the spring of 2001. Because data were not weighted by other demographic factors, we cannot have the same level of confidence that results concerning other subgroups represent those groups with complete

accuracy. Further information about the sampling and weighting procedures can be found in Appendix B.

Table 1.1 Demographic Characteristics of the 2001 Massachusetts Youth Risk Behavior Survey Student Sample (N=4,204)

		Number	*Percent(a)*
Gender	Female	2043	49.3
	Male	2147	50.7
	Missing	14	---
Grade	9	1336	29.2
	10	1091	25.4
	11	1046	23.7
	12	685	21.3
	Ungraded or Other	17	0.4
	Missing	29	---
Race / Ethnicity (b)	White	2969	77.0
	Black or African American	264	8.5
	Hispanic or Latino	399	10.1
	Asian or Pacific Islander	270	2.3
	Other or Multiple Ethnicity	241	2.1
	Missing	61	---

Notes: (a) "Number" is the raw number of students in each category; "Percent" is the percent of students *as weighted by the CDC.* Missing values are not included in percentage calculations; (b) Students were allowed to indicate multiple ethnic categories. If Hispanic/Latino was indicated as an ethnic identification, whether alone or in combination with other ethnic categories, the student was categorized as Hispanic/Latino. The Other or Multiple Ethnicity category above represents 62 American Indians or Alaskan Natives and 179 students indicating several ethnicities that did not include Hispanic.

ANALYSIS OF THE 2001 MYRBS RESULTS

The CDC conducted initial frequency analyses of the 2001 MYRBS data. Subsequent statistical analyses were conducted by the Massachusetts Department of Education (see Appendix B for a detailed explanation of the data analysis procedures). Analyses of the 2001 MYRBS data were done to:

- examine differences in risk behaviors by demographic variables such as grade, gender, race/ethnicity, kind of community (urban, suburban or rural), sexual orientation, and years lived in the United States;
- determine changes in risk behaviors which have occurred since 1993; and
- explore interrelationships among various risk behaviors and risk factors.

Since 1993, each administration of the MYRBS has achieved a response rate high enough to ensure that the results were representative of adolescents in public high schools across the state at the time of survey administrations. Therefore, results from the past five MYRBS administrations are used to examine changes in rates of adolescent risk behaviors that have occurred in Massachusetts over time. In general, the 2001 MYRBS estimates of health behaviors are accurate to within plus or minus three percentage points.

THE 2001 MYRBS REPORT

The 2001 MYRBS report is separated into chapters by category of risk behavior. The introduction to each chapter provides background information on specific risk behaviors and their health outcomes, as well as relevant statistics from other sources. The key findings and additional results are subsequently presented with illustrative figures and tables. Each chapter concludes with a section that reflects upon the implications of the findings and how they can be used to improve the health and safety of students. The report also includes Appendixes containing (A) the actual 2001 MYRBS survey instrument used, (B) an explanation of sampling, administration, weighting, and data analysis procedures, (C) additional summary tables for several of the chapters, and (D) a comparison of risk behavior prevalence rates for Massachusetts and the U.S. as a whole.

2 TOBACCO USE

INTRODUCTION

Tobacco use is the leading *preventable* cause of death in the United States, yet in 2000 an estimated 66 million Americans (age 12 and older) reported current use of tobacco, including cigarettes, cigars, smokeless tobacco, and pipe tobacco.[4] Tobacco use is responsible for one in every five deaths in the United States.[5] Tobacco-related health problems such as heart disease, cancer, stroke, and chronic respiratory illness are the leading causes of death each year. In 1999, these four causes accounted for 65% of all deaths.[6] Additionally, smokeless tobacco use (chewing tobacco or snuff) causes oral cancer and other health problems.[7]

Tobacco use among young people poses especially serious risks. Research indicates that the earlier young people begin to smoke the greater their permanent lung damage and the more likely they are to become heavily addicted.[8] The prevalence of cigarette smoking among U.S. high school students increased throughout the early 1990's,[9] but has gradually declined since a peak in 1997.[10] Still, more than one-third of U.S. high school students use some form of tobacco and more than 80% of tobacco users initiate use before the age of 18.[11] According to the Centers for Disease Control and Prevention (CDC), if the trend in early initiation of cigarette smoking continues, approximately 5 million children (under 18 years) will die prematurely as adults because they began smoking during adolescence.[5] Adolescent tobacco use not only threatens health, but it is also associated with drinking and illicit drug use, and with poor school performance.[12]

In 1992, Massachusetts voters approved an excise tax on tobacco products. Funds from the tax support tobacco use prevention efforts in the Commonwealth, including the Department of Public Health's Massachusetts Tobacco Control Program and the Health Protection Fund. Until recently, the Department of Education allocated HPF monies to school districts across the Commonwealth to support comprehensive school health education, with a focus on tobacco prevention. Since 1993, Massachusetts middle and high schools have significantly increased attention to tobacco prevention education and other health education topics.[13] Additionally, the Massachusetts Education Reform Law of 1993 made it illegal for students, school staff, and visitors to smoke on school property at any time. School districts are required to submit their local tobacco policies, including consequences for tobacco use on school property, to the Massachusetts Department of Education.

The 2001 MYRBS asked students to report their history and current use of cigarettes and smokeless tobacco both on and off school property. The survey also asked questions about students' attempts to quit smoking, about their customary method of obtaining cigarettes, and about recent cigar smoking.

Specifically, the 2001 survey asked about six tobacco-use behaviors defined in the following ways:

Lifetime cigarette smoking: ever tried cigarette smoking, even just one or two puffs;

Early initiation of cigarette smoking: smoked a whole cigarette before age 13 years;

Current cigarette smoking: smoked cigarettes at least once in the 30 days before the survey;

Daily cigarette smoking: smoked cigarettes each day in the 30 days before the survey;

Cigar smoking: smoked a cigar at least once in the 30 days before the survey; and

Smokeless tobacco use: used smokeless tobacco at least once in the 30 days before the survey.

RESULTS

KEY FINDINGS FROM THE 2001 MYRBS

- Lifetime cigarette use, early initiation of smoking, current smoking, daily smoking, and smoking on school property have steadily declined since 1995. Recent smokeless tobacco use both on and off school property has declined steadily and significantly since 1993.

- Roughly three out of five (62%) Massachusetts high school students tried smoking cigarettes, at least one or two puffs (lifetime smoking). One fifth (20%) smoked a whole cigarette for the first time before they were 13 years old.

- In the 30 days before the survey…

  - One-quarter of all students (26%) smoked cigarettes at least once (current smoking).
  - One in ten students (10%) smoked cigarettes every day (daily smoking).
  - Twelve percent (12%) of students smoked cigarettes on school property.
  - One in eight students (13%) smoked a cigar or cigarillo.
  - Four percent (4%) of students used smokeless tobacco (chewing tobacco or snuff) at least once, and 2% did so on school property.

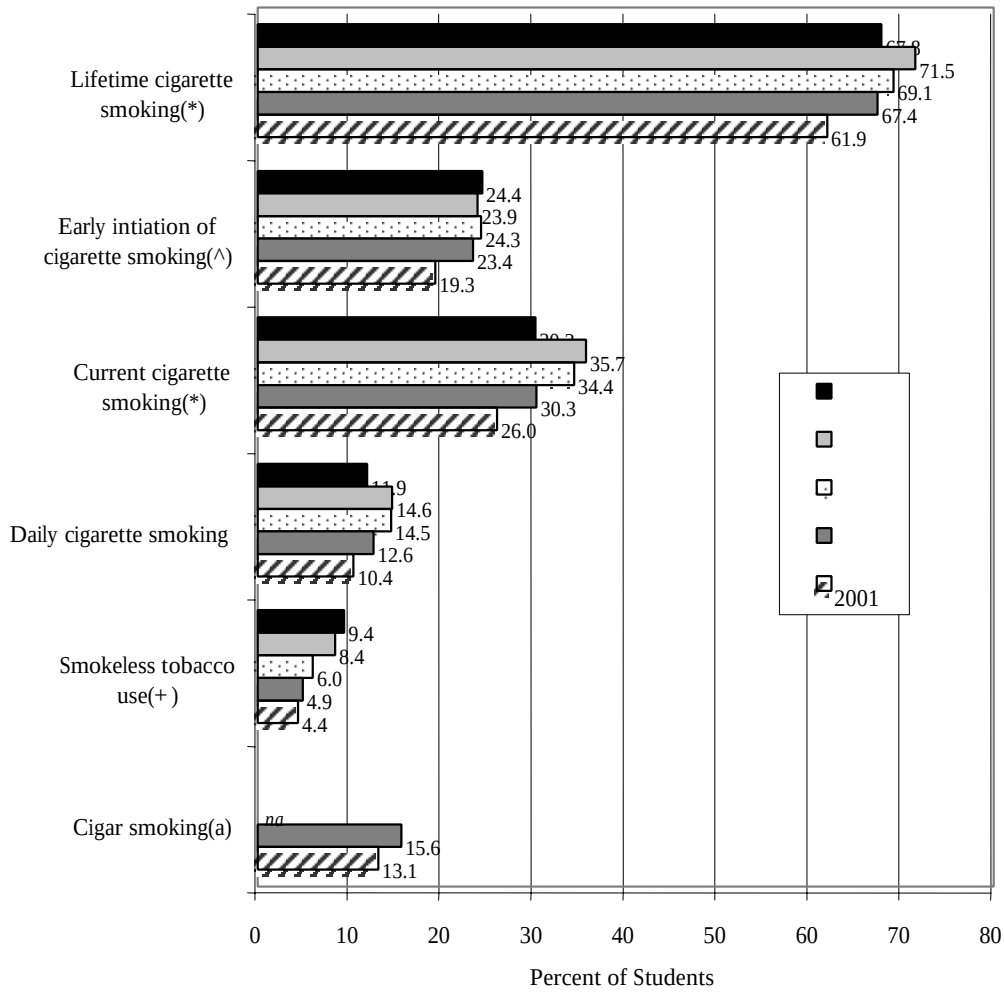
- Of all students who described themselves as ever having been daily smokers, 75% had tried to quit smoking at least once. Most (85%) of these students were still smoking at the time of the survey.

CIGARETTE SMOKING

Lifetime Smoking:

- Roughly 62% of Massachusetts public high school students had ever tried cigarette smoking, even just one or two puffs (i.e., lifetime use). **The rate of lifetime cigarette smoking decreased from 67% in 1999 to 62% in 2001.** Lifetime cigarette smoking has decreased steadily since 1995 (see Figure 2a).

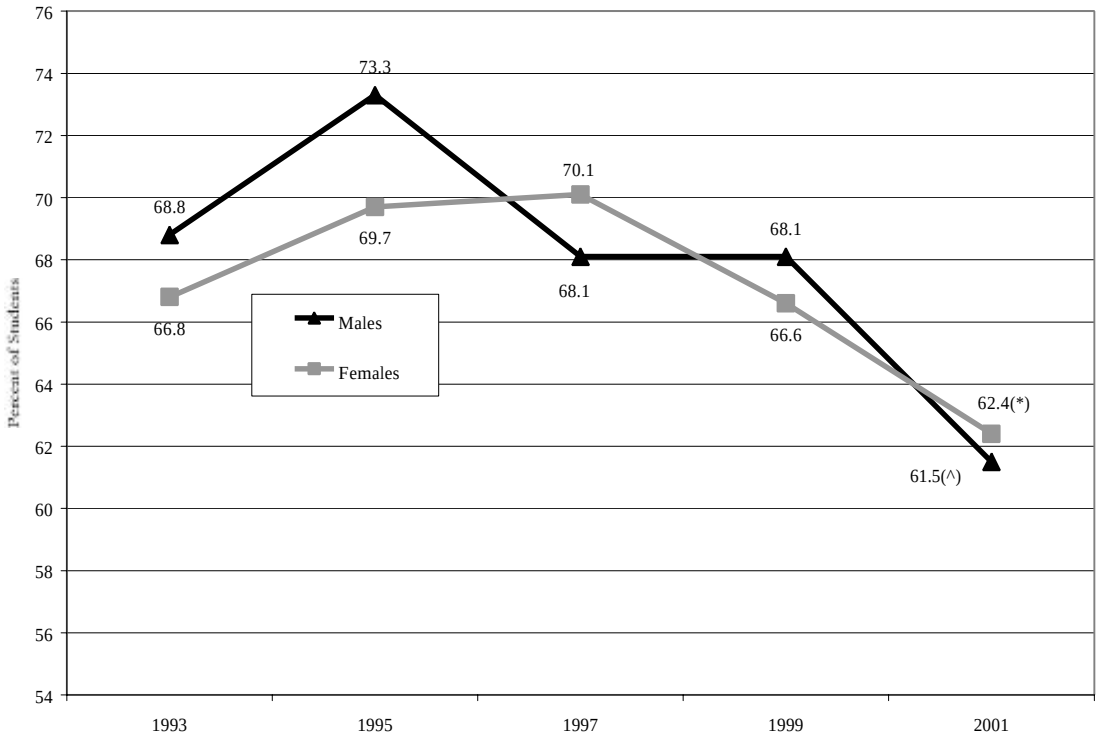
Figure 2a. Tobacco Use Among Massachusetts High School Students, 1993 to 2001



Notes: (*) Statistically significant decline from 1997 to 2001, p.<.05; (^) Statistically significant decline from 1995 to 2001, p<.05; (+) Statistically significant decrease from 1993 to 2001, p<.05; (a) Not included on the survey before 1999

- The lifetime smoking rates of male and female students were equivalent (62% for both genders). The lifetime smoking rate among males, which hadn't changed since 1997, decreased significantly from 68% in 1999. The lifetime smoking rate among females has dropped steadily since 1997 (see Figure 2b).

Figure 2b. Lifetime Smoking Among Massachusetts High School Students by Gender, 1993 to 2001



Notes: (*) Statistically significant decline from 1997 to 2001, $p<.05$; (^) Statistically significant decline from 1999 to 2001, $p<.05$

- The rate of lifetime smoking increased with grade in school: Fewer freshmen (53%) reported lifetime smoking than did sophomores (59%), juniors (67%), and seniors (73%). Since 1999, lifetime smoking rates dropped significantly among students in younger grades: sophomores (69% to 59%) and freshmen (63% to 53%).

- The lifetime smoking rate of White students (63%) was roughly equivalent to that of Black students (60%), and only slightly higher than the rates among Hispanic and Asian students (58% and 52%, respectively). Students who indicated Other or Multiple Ethnicity had somewhat higher lifetime smoking rates than all other students (68%).

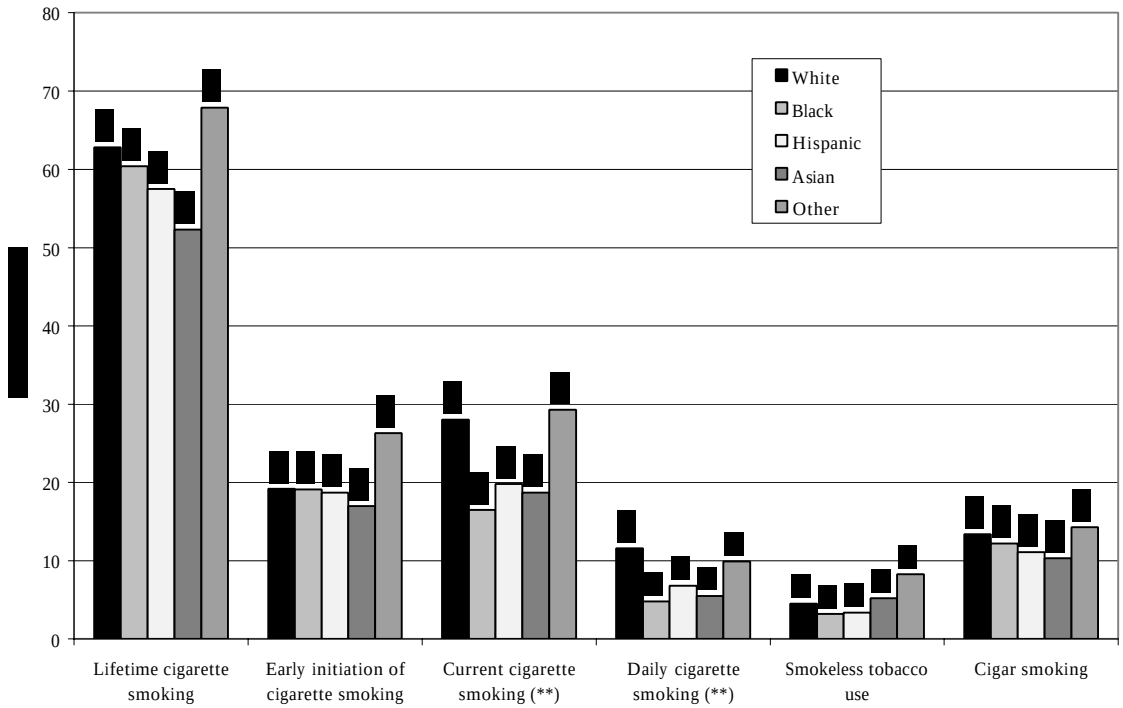
Early Initiation of Smoking:

- **Just under 20% of Massachusetts students reported smoking their first whole cigarette before age 13.** After remaining virtually unchanged since 1993, early initiation of smoking decreased slightly from 23% in 1999.

- Male students were somewhat more likely than female students to have smoked their first cigarette before age 13 (21% vs. 18%, respectively). There were no significant differences across grades: the rate in each grade was within 2 percentage points of the 20% overall rate.

- Early initiation of smoking was more common among students of Other and Multiple Ethnicity (26%) than students of all other ethnic groups. White, Black, and Hispanic students were equally as likely to have smoked before age 13 (19% of each group), and 17% of Asian students smoked before age 13 (see Figure 2c).

Figure 2c. Tobacco Use Among Massachusetts High School Students by Race/Ethnicity(a), 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) See Table 1.1, page 3, for a detailed explanation of racial/ethnic categories

- Of all students who had ever tried smoking, those who first did so before age 13 were significantly more likely than their peers (who started smoking later) to be current smokers (57% vs. 38%), daily smokers (31% vs. 12%), recent cigar smokers (28% vs. 16%), and

smokeless tobacco users (10% vs. 4%). Early smokers were also more likely than their peers to have tried to quit smoking at least once (50% vs. 25%).

Current Smoking:

- Roughly one-quarter of high school students (26%) smoked cigarettes in the 30 days before the survey . **The rate of current smoking has decreased steadily and significantly since 1995.**

- There was no significant gender difference in current smoking. Twenty-seven percent (27%) of females and 25% of males reported current use. Since 1997, current smoking has dropped significantly among both male and female students.

- Significantly more students in older grades (35% of seniors and 28% of juniors) reported current smoking than did students in younger grades (22% of sophomores and 20% of freshmen). The percent of sophomores who reported current smoking (22%) decreased significantly since 1997.

- From 1999 to 2001, current cigarette smoking decreased among all ethnic groups. The rate of current cigarette smoking remained significantly higher among White students (28%) and students of Other or Multiple ethnicity (29%), than among Black (17%), Hispanic (20%), and Asian (19%) students (see Figure 2c, previous page).

- Approximately 16% of current smokers consumed more than half a pack per day (11 or more cigarettes) on the days that they smoked. However, the single largest group of current smokers (32%) consumed an average of 2 to 5 cigarettes per day on the days that they smoked.

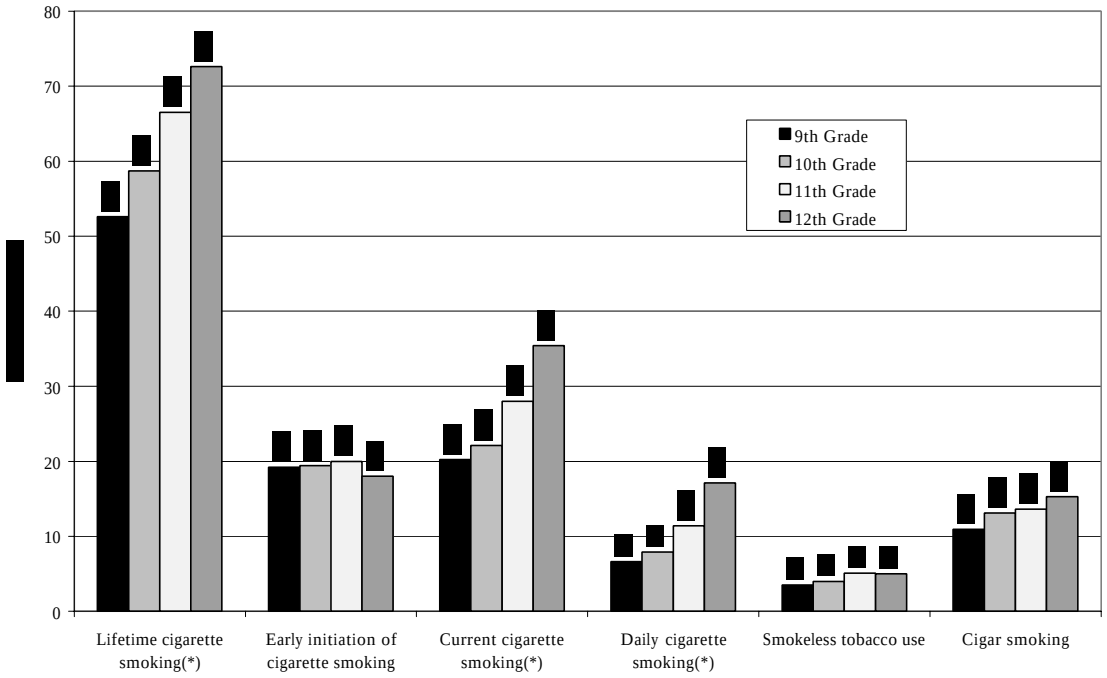
Daily Smoking:

- Thirteen percent of all students smoked cigarettes frequently (on at least 20 of the 30 days before the survey). **One in ten students (10%) smoked cigarettes every day during the 30 days before the survey (i.e., daily smoking).**

- There was no significant difference in the rates of daily smoking among male and female students (10% and 11% respectively). Daily smoking rates have decreased steadily among both genders since 1997.

- Daily smoking increased with grade in school: 7% of 9th grade students, 8% of 10th grade students, 11% of 11th grade students, and 17% of 12th grade students reported daily smoking in the 30 days before the survey (see Figure 2d, next page).

Figure 2d. Tobacco Use Among Massachusetts High School Students by Grade, 2001



Note: (*) Statistically significant difference between grades, p<.05

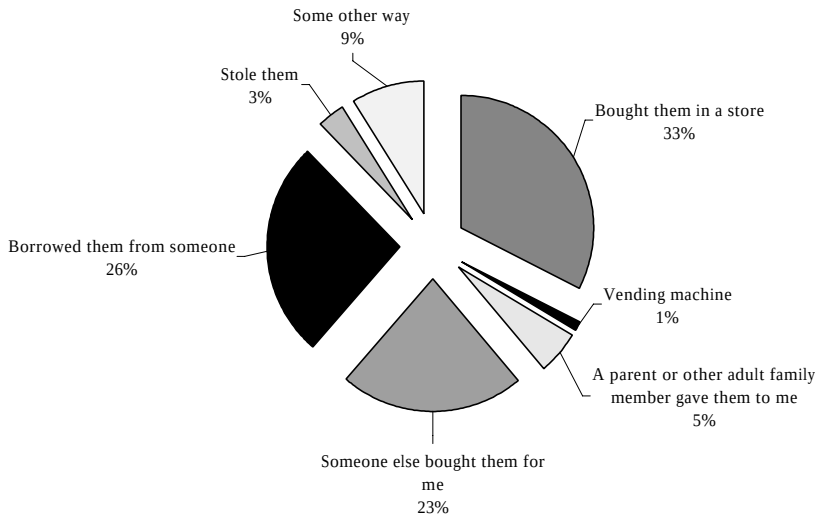
- In 2001,White students had the highest rate of daily smoking (12%), followed by students of Other or Multiple ethnicity (10%), Hispanic students (7%), Asian students (6%), and Black students (5%). Daily smoking rates decreased among all ethnic groups.

- Among students who smoked every day, 38% smoked at least half a pack a day, a slight decline from 42% in 1999.

Obtaining Cigarettes:

- Current smokers were more likely to buy their cigarettes in a store (such as a convenience store, gas station, or supermarket) than to obtain them any other way (see Figure 2e, next page). The percentage of current smokers who bought cigarettes in a store decreased from 36% in 1999 to 32% in 2001. Twenty-six percent (26%) of students borrowed (or bummed) them from someone else. Only 1% of smokers got cigarettes from a vending machine.

Figure 2e. Ways in Which Massachusetts High School Smokers Usually Obtained Their Cigarettes, 2001



- Fifty-eight percent (58%) of smokers who tried to buy cigarettes in a store (in the 30 days before the survey) were asked to show proof of age. This represents an increase from 55% in 1999, and a significant increase from 49% in 1995. Similarly, the percentage of smokers under the age of 18 who bought cigarettes in a store decreased from 27% in 1999 to 20% in 2001.

Smoking Cessation:

- One fifth of all students (20%) reported having ever been "regular smokers," that is, at some time they had smoked daily for at least 30 days.

- Almost three-quarters (74%) of these "ever-regular" smokers had tried to quit smoking at least once. Most of these adolescents (85%) were still smoking at the time of the survey (i.e., they had smoked at least once in the 30 days before the survey) and more than half (54%) were still regular smokers.

- Roughly 30% of the "ever-regular" smokers had tried to quit three or more times. These students had even lower quitting success rates: only 7% had not smoked in the 30 days before the survey. Nearly two-thirds (66%) were still regular smokers.

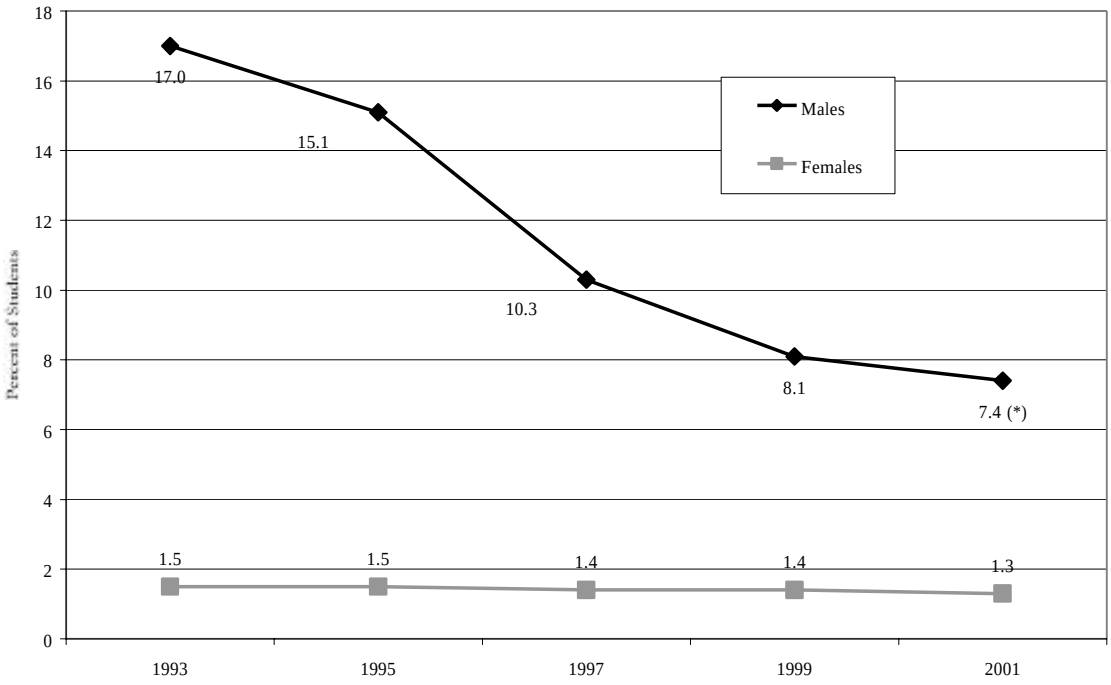
- More than half (57%) of current smokers had tried to quit at least once. One-quarter (24%) of current smokers had tried to quit three or more times.

SMOKELESS TOBACCO USE

- **Smokeless tobacco (chewing tobacco or snuff) was used by 4% of students in the 30 days before the survey.** There has been a steady and significant decline in adolescent smokeless tobacco use from 1993 (9%) to 2001 (4%).

- Male students were significantly more likely than female students to have reported smokeless tobacco use (7% vs. 1%, respectively). However, among males, the rate of smokeless tobacco use has been cut in half since 1993 (17% in 1993 to 7% in 2001). Female rates have remained low and virtually unchanged (see Figure 2f).

Figure 2f. Smokeless Tobacco Use Among Massachusetts High School Students by Gender, 1993 to 2001



Note: (*) Statistically significant decrease from 1995 to 2001, $p<.05$

- Rates of smokeless tobacco use were relatively "flat" across grade levels; 4% of 9th and 10th grade students and 5% of 11th and 12th grade students reported using smokeless tobacco in the 30 days before the survey.

- Students of Other or Multiple Ethnicity reported more smokeless tobacco use (8%) than did White (5%), Asian (5%), Black (3%), and Hispanic (3%) students.

CIGAR SMOKING

- **Thirteen percent (13%) of students reported smoking cigars or cigarillos in the 30 days before the survey.** This represents a slight decrease from 16% in 1999. The MYRBS did not include a question concerning cigar smoking before 1999.

- Males were significantly more likely than females to have smoked cigars or cigarillos recently (20% vs. 6%, respectively).

- Fewer freshmen (11%) report lifetime smoking than do sophomores (13%), juniors (14%), and seniors (15%).

- In 1999, students of Other or Multiple Ethnicity were significantly more likely than students of all other ethnic groups to have reported cigar smoking in the 30 days before the survey. However, between 1999 and 2001, the rate of cigar smoking among students of Other or Multiple Ethnicity dropped substantially (26% to 14%). In 2001, these students were no more likely than White students (13%), Black students (12%), Hispanic students (11%), or Asian students (10%) to have reported cigar use.

- Most adolescents who had smoked cigars (67%) or used smokeless tobacco (63%) in the 30 days before the survey were also current cigarette smokers.

TOBACCO USE ON SCHOOL PROPERTY

- Roughly 12% of all Massachusetts high school students smoked on school property in the 30 days before the survey. This represents a significant decrease since 1997, when 19% of students smoked on school property.

- The percent of *current smokers* who smoked on school property decreased from 59% in 1993 to 49% in 2001. Fourteen percent (14%) of current smokers smoked every day on school property in the 30 days before the survey.

- Of all students, 2% used smokeless tobacco on school property. This number is 48% of the students reporting any smokeless tobacco use.

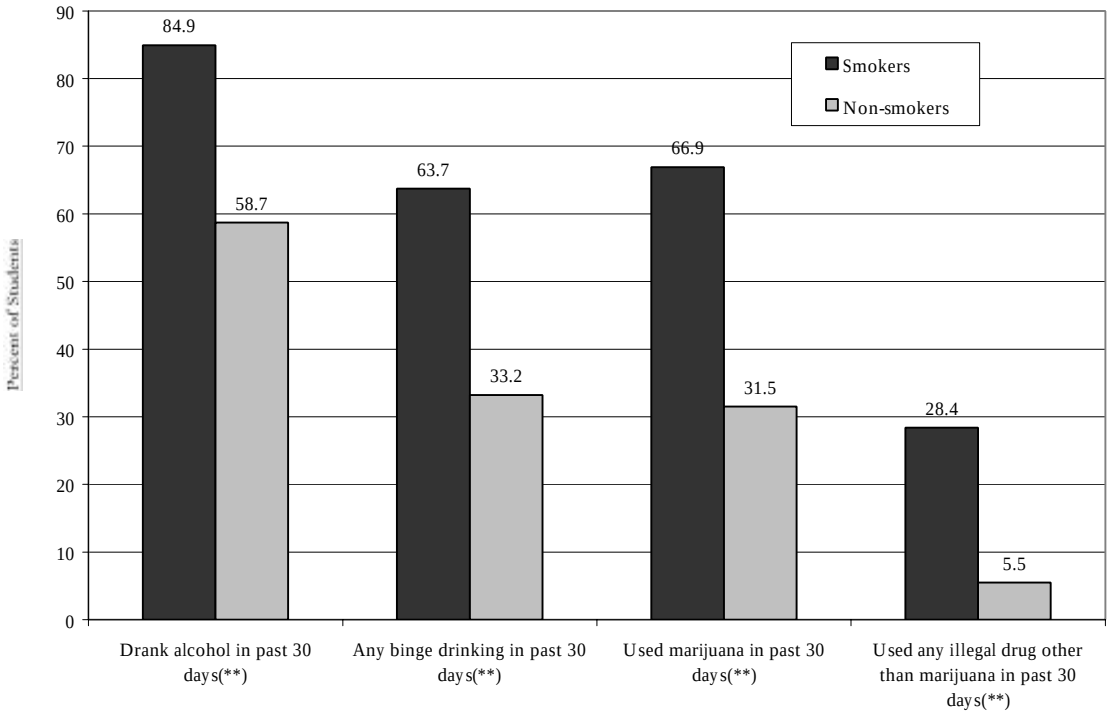
TOBACCO USE AND OTHER RISK BEHAVIORS

- Compared to students who had never tried cigarette smoking, those who had tried smoking in their lifetime were significantly more likely to have reported ever using marijuana (74% vs. 14%) or any other illegal drug (40% vs. 8%) in their lifetime. Students who had tried

cigarette smoking were also more likely than those who had not tried smoking to report having ever consumed alcohol (95% vs. 58%).

- Among all students who had ever tried cigarette smoking, current smokers were more likely than those who had not smoked recently (i.e., non-smokers) to report drinking, binge drinking, marijuana use, and other illegal drug use in the 30 days before the survey (see Figure 2g).

Figure 2g. Other Substance-Related Risk Behaviors of Massachusetts High School Cigarette Smokers and Non-Smokers, 2001



Note: (**) Statistically significant difference between current smokers and non-smokers, $p<.01$

ADDITIONAL FINDINGS

- Compared to their peers in urban and suburban school districts, students in rural districts had the highest rates of current smoking and smoking before age 13. Rural students also had significantly higher rates than suburban students of lifetime cigarette smoking and daily smoking.[14]

- Students were asked how long they have lived in the United States. Responses to this question were collapsed into three categories: (1) less than six years, (2) more than six years, but not whole life, and (3) whole life. The longer a student had lived in the United States, the more likely he or she was to report lifetime, current, and daily cigarette smoking.

SUMMARY OF RESULTS (Also see Appendix C, Table 2)

Every measure of tobacco use among Massachusetts high school students has decreased steadily since 1995. Cigarette smoking among Massachusetts high school students, which had risen in the early 90's, decreased significantly in the past six years. Smokeless tobacco use among adolescents has continued to drop steadily and significantly since 1993. Smoking cigarettes and using smokeless tobacco on school property have also declined.

Male and female students had similar levels of cigarette smoking, but males are much more likely to have reported smoking cigars or using smokeless tobacco. Most measures of tobacco use were higher among White youth and those of Other or Multiple Ethnicity than among Black, Hispanic, or Asian adolescents.

Adolescent cigarette smokers were less likely in 2001 than in 1995 to get their cigarettes by buying them in stores, and more likely to be asked to show proof of age when buying cigarettes. Also, most high school smokers have made one or more attempts to stop, although most of these attempts appear to have not been successful.

IMPLICATIONS AND RECOMMENDATIONS

The 2001 MYRBS results highlight continued progress in reducing tobacco use among Massachusetts youth. National reports suggest that the rates of current smoking nationwide are decreasing,[15] however Massachusetts' rates have been consistently below the national average since 1997.[16, 17] The significant drop in current smoking in Massachusetts is especially notable. Massachusetts can also be encouraged about the decline in adolescent smokeless tobacco use, which has been cut almost in half since 1995. Unfortunately, however, unacceptably high numbers of Massachusetts youth continue to endanger their health by consuming tobacco products.

The findings reported here emphasize the importance of early and repeated tobacco prevention education, beginning well before high school and reinforced at every grade level. Tobacco tax revenues approved by Massachusetts voters in 1992 have supported stronger youth tobacco prevention and comprehensive school health programs across the state. Currently, virtually all districts have required health education courses that include tobacco prevention components. It is encouraging that in 2001, 9th and 10th grade students, whose exposure to school and community anti-smoking messages is likely to have started earliest and been most consistent, reported lower prevalence of lifetime and current smoking than in 1999.

Changing widespread patterns of tobacco use among adolescents is a difficult and complex task, but the 2001 MYRBS results support the view that such changes are taking place. Research evidence suggests that providing information about the harmful effects of tobacco use is rarely enough, by itself, to curb adolescent smoking. Rather, effective tobacco prevention education programs are those that focus on helping students recognize peer and media pressure and on helping them develop the skills to resist such pressure.[18] Additionally, because tobacco use is associated with other risk behaviors, tobacco prevention education should be integrated into comprehensive school health programs. The *Massachusetts Comprehensive Health Curriculum*

Framework[19] and the CDC's *Guidelines for School Health Programs to Prevent Tobacco Use and Addiction*[20] are useful starting places to help districts develop school health education programs that encourage young people to make healthy choices.

In addition to classroom instruction about tobacco, vigorous enforcement of regulations concerning tobacco purchasing and use are also important. The shift downward in the percentage of students who buy their cigarettes in stores is evidence that ordinances outlawing the sale of tobacco products to minors are being enforced with increasing rigor, though not perfectly. There is still an unacceptably high number of youth buying cigarettes without being asked for proof of age. The decrease in the percent of smokers who smoked on school property in 2001, indicating that enforcement efforts have increased, is also encouraging. To further this success, it is critical to maintain strong enforcement of tobacco-free school campuses.

Most students who do smoke have tried to quit at least once. Unfortunately, most of these attempts have not been successful. School- and/or community-based cessation programs aimed at adolescents would offer these students more support and guidance. Although nearly two-thirds of school districts currently offer cessation programs, relatively few adolescent tobacco users take advantage of these programs; they should be encouraged to do so.

3 ALCOHOL USE

INTRODUCTION

Each year in the United States, approximately 100,000 deaths result from the misuse of alcohol.[21] Alcohol is a major contributing factor in motor vehicle crashes, the leading cause of death and disability among young people aged 15-20 years.[6] In 1999, over 2000 youth died in alcohol-related crashes; more than two-thirds of those accidents involved a driver's blood alcohol content of .10 or greater.[22] In Massachusetts, 49% of youth crash fatalities in 1999 were alcohol-related.[23] Nationally, one in ten youth (22.3 million persons) drove under the influence of alcohol in 2000.[4]

Additionally, alcohol abuse has been linked with anxiety and depression, as well as suicidal thinking and behavior.[24] According to the 1999 Massachusetts Youth Risk Behavior Survey, high school students who reported recent alcohol use were more than twice as likely as their peers who had not consumed alcohol to have attempted suicide in the 12 months before the survey.[25] Heavy drinking among youth has also been linked to injury-related deaths, including drowning; violent crime, including assault and forced sexual contact; physical fights; weapons carrying; low academic achievement; early initiation of sexual intercourse; unprotected sexual intercourse; and illicit drug use.[26-33]

Young persons who begin drinking before age 13 are four times more likely to develop alcohol dependence and twice as likely to develop alcohol abuse as those who begin drinking at age 21.[34] Alcohol dependence or alcoholism is estimated to affect one in 13 Americans,[35] and is a major cause of diseases such as cirrhosis of the liver, pancreatitis, hemorrhagic stroke, and certain forms of cancer.[36]

According to youth reports, high school and college students drink alcohol with the goal of getting drunk,[37] and often binge on alcohol, consuming five or more drinks in a row within a couple of hours. Alcohol poisoning is the most serious immediate consequence of binge drinking, and is potentially fatal. Yet, according to the Substance Abuse and Mental Health Services Administration (SAMHSA), 2.6 million young people do not know that a person can die from alcohol poisoning.[38]

In fact, in the past decade, there has been a decline in adolescents' estimates of the risks involved in frequent or heavy alcohol consumption.[39] Almost 40% of high school seniors perceive no great risk in consuming four to five drinks nearly every day.[40] Instead, adolescents believe that the positive benefits of drinking (feeling good, fitting in with peers) are more likely to occur than the negative effects of drinking (feeling sick, causing serious health problems).[41]

National Health Promotion and Disease Prevention Objectives for the Year 2010 include reducing recent and heavy alcohol use among adolescents, and increasing the average age at which adolescents first use alcohol by at least one year.[26]

The 2001 MYRBS asked students to report their history and recent use of alcohol, the age of their first alcoholic drink, and their frequency of binge drinking. Using these measures, five alcohol-use behaviors were defined in the following ways:

Lifetime alcohol use: any consumption of alcohol during one's life, except one or two sips for religious purposes;

Early initiation of alcohol use: consumption of alcoholic drink before age 13;

Current alcohol use: one or more alcoholic drinks on at least one of the 30 days before the survey;

Binge drinking: five or more alcoholic drinks in a row, within a couple of hours, in the 30 days before the survey; and

Frequent binge drinking: six or more episodes of binge drinking in the month prior to the survey. On average, this represents more than one heavy drinking episode per week.

RESULTS

KEY FINDINGS FROM THE 2001 MYRBS

- Lifetime alcohol use among Massachusetts high school students has been slowly increasing since 1993. Current alcohol use rose significantly from 1993 to 1995 and has remained steady since then. Similarly, binge drinking, which increased from 1993 to 1995, has also leveled off in the past four years.

- Most students (81%) had a drink of alcohol in their lives, and 28% of all high school students had a drink of alcohol prior to age 13.

- In the 30 days before the survey…

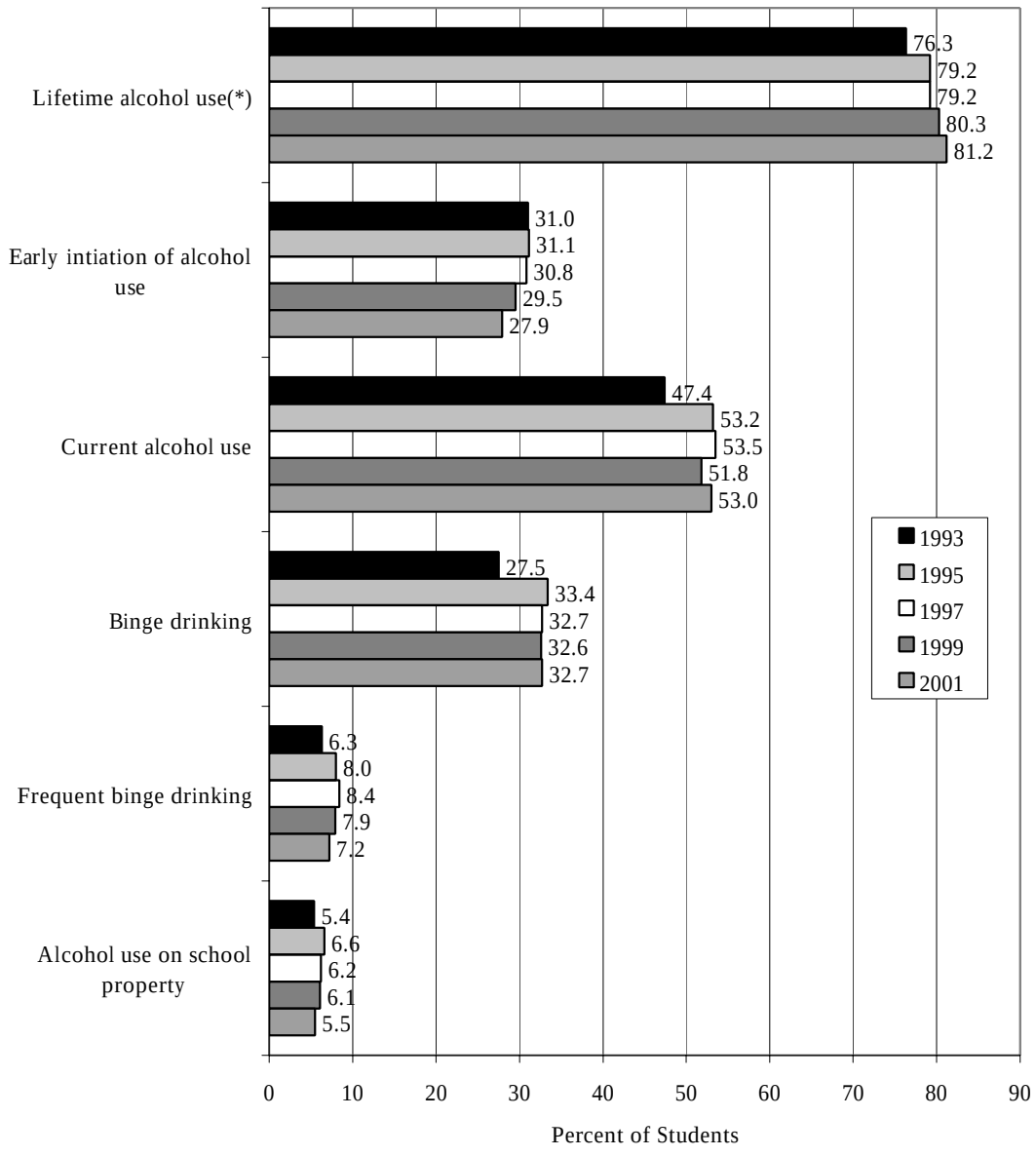
  - Over one half of all high school students (53%) had at least one drink of alcohol.
  - One-third of students (33%) engaged in binge drinking, and 7% reported frequent binge drinking.
  - Six percent (6%) of all students drank alcohol on school property.

- Use of alcohol in the 30 days before the survey was associated with violence and injury-related risk behaviors (including weapon-carrying, drunk driving, and suicide attempts), as well as illegal drug use and sexual risk behaviors.

LIFETIME ALCOHOL USE

- In 2001, **slightly over 81% of students reported having ever consumed alcohol in their lives other than a few sips** (i.e., lifetime alcohol use). This represents a significant increase since 1993, when 76% of students reported lifetime use (see Figure 3a).

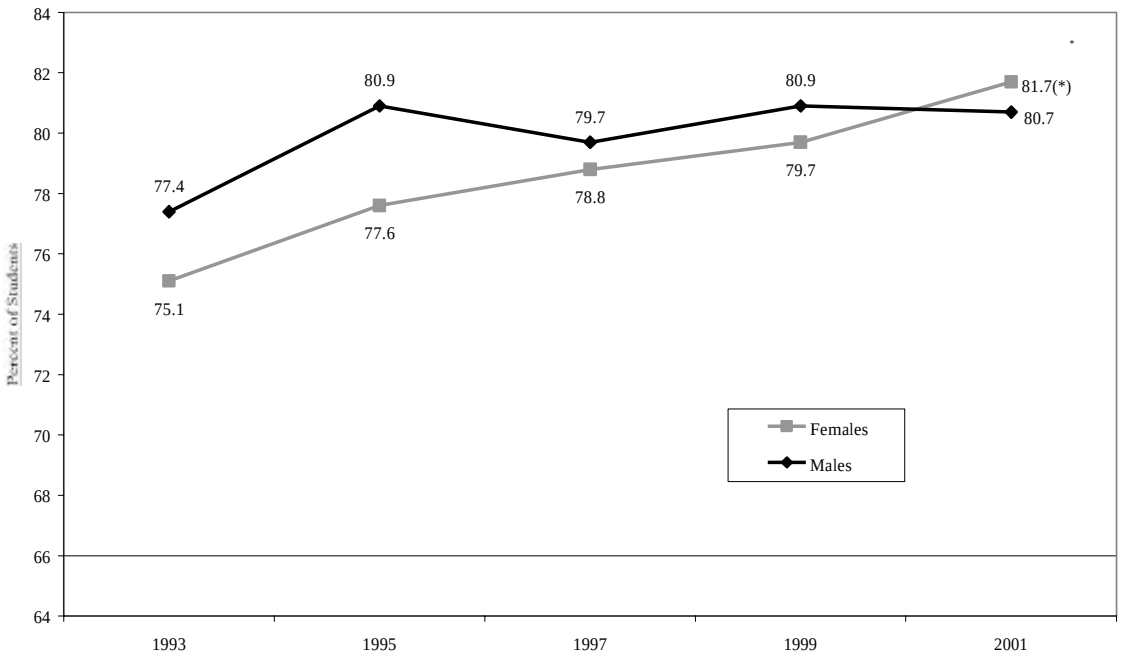
Figure 3a. Alcohol Use Among Massachusetts High School Students, 1993 to 2001



Note: (*) Statistically significant increase from 1993 to 2001, $p<.05$

- Male and female students were equally as likely to have had a drink in their lifetimes. Among female students, the rate of lifetime alcohol use increased significantly from 75% in 1993 to 82% in 2001 (see Figure 3b).

Figure 3b. Lifetime Alcohol Use Among Massachusetts High School Students by Gender, 1993 to 2001



Note: (*) Statistically significant increase from 1993 to 2001, $p<.05$

- Significantly fewer freshman (72%) reported lifetime alcohol use than did sophomores (81%), juniors (87%), and seniors (88%).

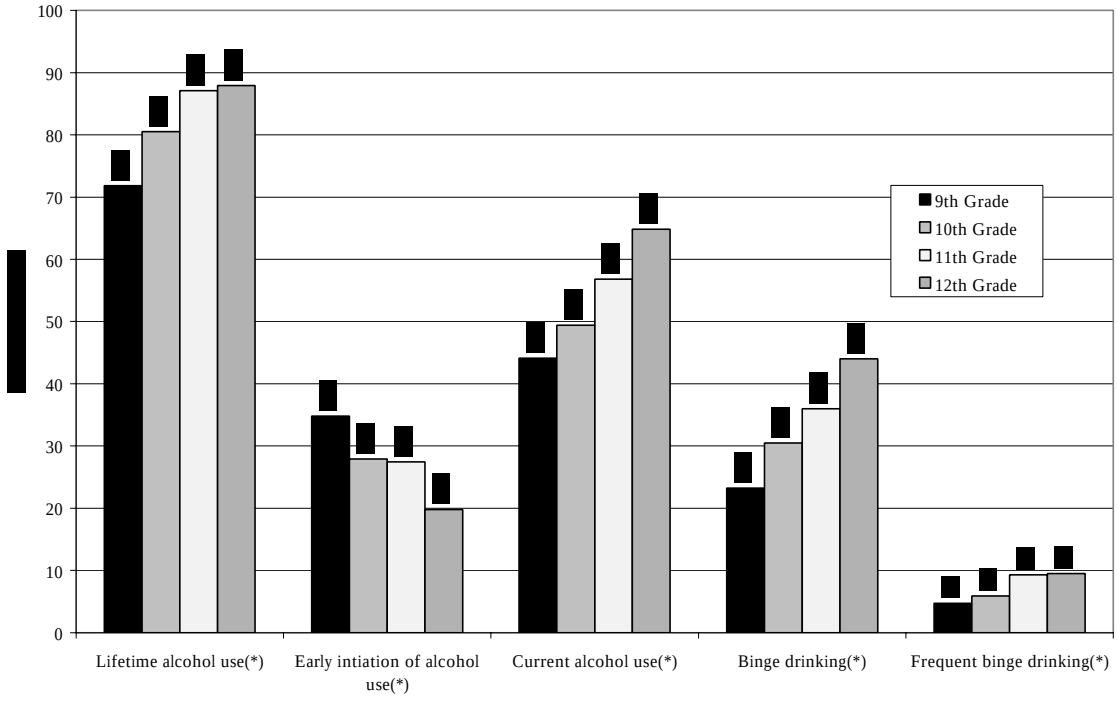
- Asian youth were significantly less likely than all other students to have had a drink of alcohol in their lifetimes; only 63% of Asian students had ever had a drink, compared to 73% of Black students, 79% of Hispanic students, 80% of students of Other or Multiple ethnicity, and 83% of White students.

EARLY INITIATION OF ALCOHOL USE

- **About 28% of all students had a drink of alcohol before age 13 years.** The prevalence of early initiation of alcohol use has not changed significantly since 1993. Male students were significantly more likely than female students to report having had their first alcoholic drink prior to age 13 (32% to 24%).

- Seniors were significantly less likely than freshman, sophomores, and juniors to have had their first alcoholic drink before age 13 (see Figure 3c).

Figure 3c. Alcohol Use Among Massachusetts High School Students by Grade, 2001



Note: (*) Significant difference between grades, $p<.05$

- Drinking before age 13 was significantly more common among Black and Hispanic students (37% of each group) than among White (26%) and Asian (27%) students. About one-third (32%) of students of Other or Multiple ethnicity reported drinking before age 13.

- Of all students who had ever had a drink of alcohol, those who had their first drink before age 13 were significantly more likely than students who started drinking later in life to be current drinkers (75% vs. 66%), binge drinkers (47% vs. 41%), and frequent binge drinkers (13% vs. 8%).

CURRENT ALCOHOL USE

- **Over half (53%) of all students in 2001 had consumed an alcoholic drink on at least one of the 30 days before the survey** (i.e., current alcohol use). Since 1995, the rate of current alcohol use has remained consistent at about 53%; however the rate did increase from 47% in 1993.

- Roughly 54% of male students and 52% of female students reported current drinking. Rates of current alcohol use have increased slightly among both genders since 1993 (49% to 54% among males; 46% to 52% among females).

- More juniors and seniors (57% and 65%, respectively) had recently consumed alcohol than had freshman (44%) and sophomores (49%).

- The rate of current drinking was highest among White students (56%), followed by 51% among students of Other or Multiple ethnicity. Approximately 44% of Black students and Hispanic students, and 35% of Asian students reported current drinking.

- The single largest group of current drinkers (42%) drank alcohol on one or two of the 30 days before the survey. Roughly 34% of current drinkers, however, drank on six or more days during the 30-day period, amounting to more than once per week. Just under 2% reported drinking on all 30 days before the survey.

BINGE DRINKING

- Binge drinking is defined as consuming five or more drinks in a row within a couple of hours. **About 33% of all students reported at least one episode of binge drinking** during the 30 days before the survey, and just over 7% reported six or more episodes, i.e. frequent binge drinking.

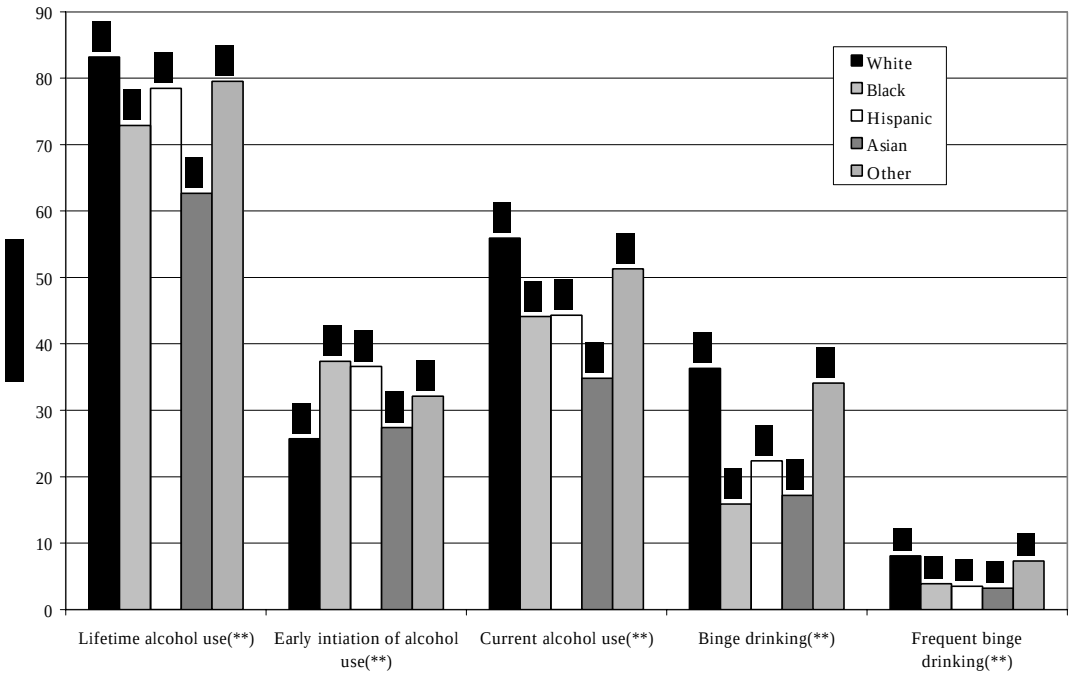
- Binge drinking and frequent binge drinking were more common among males than females: 36% of males and 29% of females reported binge drinking, and 10% of males and 5% of females reported frequent binge drinking.

- Students in older grades were more likely than students in younger grades to report binge drinking and frequent binge drinking (see Figure 3c, previous page).

- There were significant racial/ethnic differences in the rates of binge drinking and frequent binge drinking such that White students were significantly more likely than Black, Hispanic, or Asian youth to report the behaviors (see Figure 3d, next page).

- The majority (63%) of students who reported any current drinking also reported engaging in binge drinking at least once in 30 days before the survey. Fourteen percent (14%) of current drinkers engaged in frequent binge drinking (i.e., six or more times in the month before the survey).

Figure 3d. Alcohol Use Among Massachusetts High School Students by Race/Ethnicity(a), 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) See Table 1.1, page 3, for a detailed explanation of racial/ethnic categories

ALCOHOL USE AND OTHER RISK BEHAVIORS

- Table 3.1 (next page) shows that, compared to students who did not report any recent alcohol use, current drinkers were significantly more likely to report violence and injury-related behaviors including riding with a drunk driver, carrying a weapon or gun, fighting, and attempting suicide. Among females, current drinkers were significantly more likely than non-drinkers to have experienced any dating violence or unwanted sexual contact.

- Current drinkers were significantly more likely than non-drinkers to have reported all other substance use behaviors, including current marijuana use and lifetime use of cocaine, ecstasy, inhalants, heroin, methamphetamines, steroids, and other illegal drugs.

- Current drinkers were more likely than non-drinkers to have had sexual intercourse in their lifetime. Among students who had sex in the three months before the survey, current drinkers were *no* less likely than non-drinkers to have used a condom or birth control method at last intercourse, but they were significantly more likely to have used alcohol or drugs at last sexual intercourse.

Table 3.1 Violence, Substance Use, and Sexual Risk Behaviors Among Current Drinkers and Non-drinkers in Massachusetts, 2001

Other Risk Behaviors:	***Percent (%) of Current drinkers (n=2067)(a)***	***Percent (%) of Non-drinkers (n=1928)(a)***	***Significant difference, p<.01***
Violence & Injury-related behaviors			
Rode with a drunk driver	46.6	10.8	**
Carried a weapon	18.0	6.6	**
Carried a gun	4.9	0.8	**
Was in a physical fight	42.8	21.8	**
Attempted suicide	12.4	5.9	**
Among females:	*(n=980)*	*(n=995)*	
Experienced any dating violence	21.4	9.6	**
Experienced unwanted sexual contact	17.0	10.1	**
Substance use behaviors			
Smoked daily in past month	16.7	2.7	**
Used marijuana in past month	52.0	6.8	**
Used cocaine in lifetime	13.0	1.7	**
Used ecstasy in lifetime	21.9	2.3	**
Used inhalants in lifetime	18.1	5.3	**
Used heroin in lifetime	3.8	0.8	**
Used methamphetamines in lifetime	11.2	1.1	**
Used steroids in lifetime	7.1	0.9	**
Used other drugs in lifetime(b)	26.4	3.9	**
Sexual behaviors			
Sexual intercourse in lifetime	57.2	28.2	**
Four or more lifetime sexual partners	16.6	6.2	**
Among students who had sex in past 3 months:	*(n=767)*	*(n=336)*	
Condom use at last intercourse	56.2	62.2	
Any birth control use at last intercourse	87.3	86.0	
Alcohol or drugs at last intercourse	29.6	6.0	**

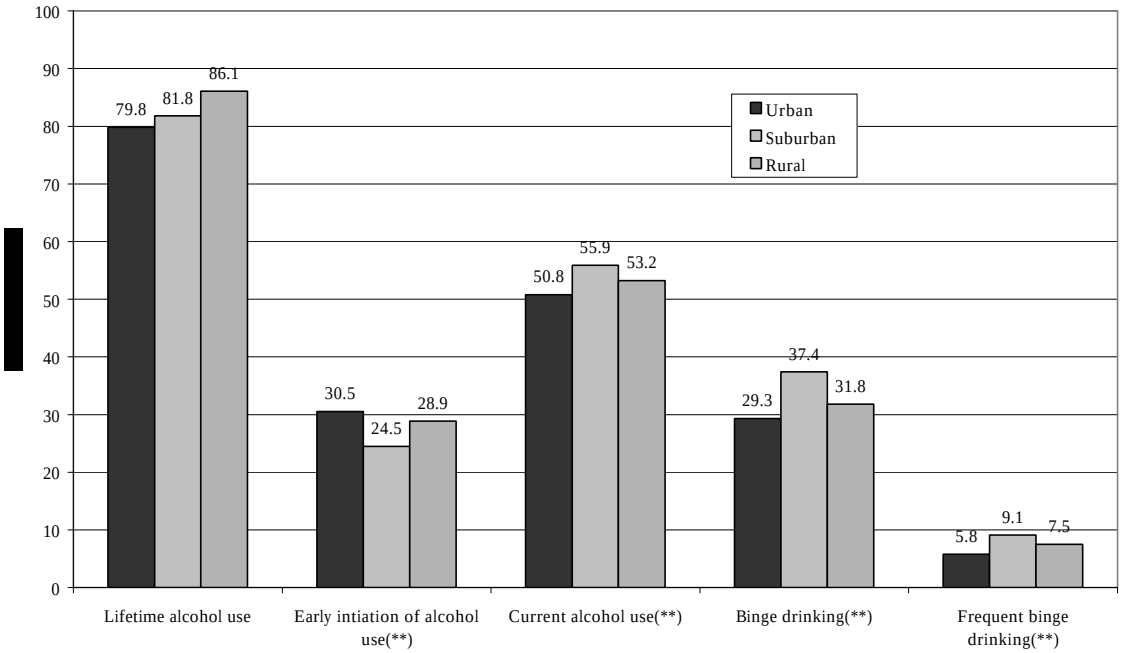
Notes: (**) Statistically significant difference between current drinkers and non-drinkers, p<.01; (a) Unless otherwise noted, all students with a valid answer for current drinking (2,067 current drinkers and 1,928 non-drinkers) were included in the analyses; (b) Such as LSD, PCP, mushrooms, Ketamine, Rohypnol, or GHB

ADDITIONAL FINDINGS

- **Roughly 6% of all students consumed alcohol on school property** at least once in the 30 days before the survey. The majority of students who drank on school property (69%) did so on only one or two occasions in the 30-day period, but about 13% reported drinking on school property on ten or more days.

- Although students in urban communities were slightly more likely to report having had their first alcoholic drink before age 13, their peers in suburban and rural communities were more likely to have ever tried alcohol or to have used alcohol in the 30 days before the survey . Binge drinking and frequent binge drinking were also more common among suburban and rural students than among urban youth (see Figure 3e).

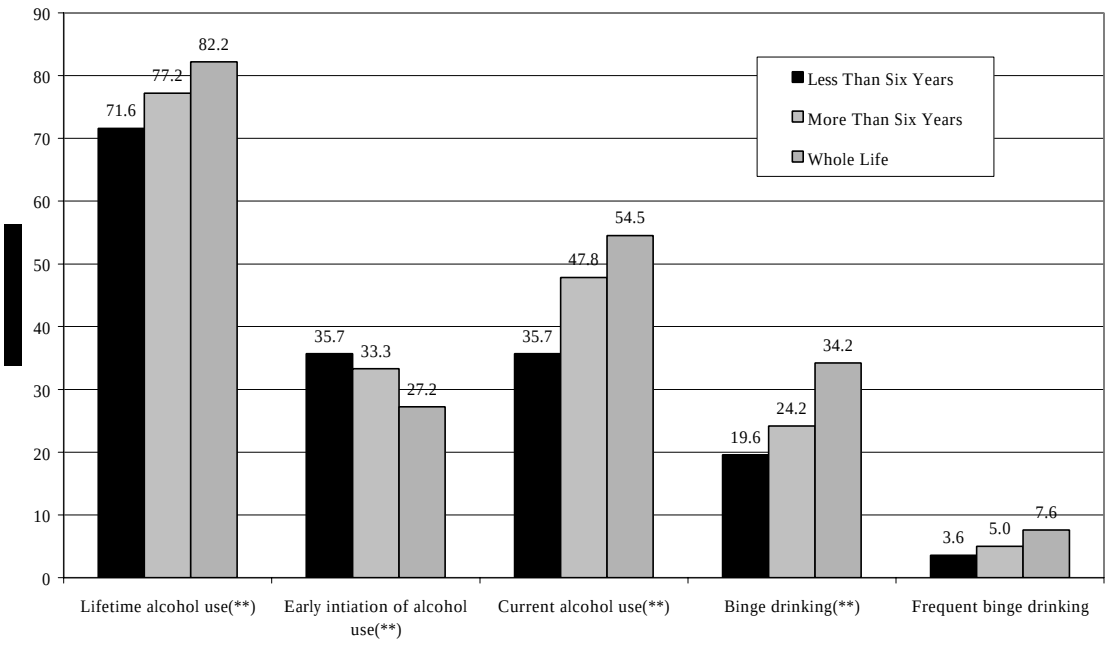
Figure 3e. Alcohol Use Among Massachusetts High School Students in Urban, Suburban, and Rural Communities, 2001



Note: (**) Statistically significant difference between groups, p<.01

- The longer a student had lived in the United States, the more likely he/she was to report alcohol use. Figure 3f (next page) shows that 55% of students who have always lived in the U.S. are current drinkers, compared to only 36% of students who have lived in the U.S. less than six years.

Figure 3f. Alcohol Use Among Massachusetts High School Students by Length of Time Lived in the United States, 2001



Note: (**) Statistically significant difference between groups, p<.01

SUMMARY OF RESULTS (Also see Appendix C, Table 3)

The vast majority of public high school students in Massachusetts have tried alcohol at some point in their lives. Over half drank alcohol in the 30 days before the survey and one-third engaged in at least one episode of binge drinking during that time. Most alcohol use behaviors increased from 1993 to 1995 but have not changed significantly since then. As was found in previous MRBS samples, alcohol use was significantly associated violence, suicide, substance use, and sexual risk behaviors.

IMPLICATIONS AND RECOMMENDATIONS

Despite its illegality, alcohol continues to be the popular substance of choice among Massachusetts high school students; it is more commonly used than tobacco, marijuana, or any illegal drug. In 2001, more than half of all public high school students in Massachusetts drank alcohol at least once in the month before the survey, and most of those current drinkers engaged in binge drinking at least once in the same time period. Alcohol consumption among youth – especially at the levels reported here – poses serious threats to health and safety, with immediate consequences such as alcohol poisoning and motor vehicle accidents, and long term morbidity from alcohol dependence. In addition, alcohol use was shown to be associated with violence, suicide, substance use, and unsafe sexual activity.

These findings suggest the need for programs aimed to prevent the misuse of alcohol and that these programs be integrated in comprehensive school health education. Further, school-based programs to prevent underage drinking and to educate students about the health consequences of alcohol may be most effective when combined with other community efforts aimed at prevention and treatment of alcohol and other substance abuse. Finally, schools, parents, and communities should work together to limit adolescents' access to alcohol.

4 ILLEGAL DRUG USE

INTRODUCTION

Drugs use costs taxpayers about $98 billion annually in preventable health care costs, extra law enforcement, auto crashes, crime, and lost productivity.[42] More importantly, the use of illegal drugs can have a devastating impact on a person's health and safety, leading to death and long-term disability. Illegal drug use has also been associated with injury, violence, unwanted sexual contact, teen pregnancy, school failure, and delinquency.[4]

An estimated 14 million Americans used an illicit drug in 2000.[4] Overall, the use of drugs in the U.S. has declined over the past two decades,[43] however in the past few years, prevalence rates of certain drugs in the *adolescent* population have shown no decline. Nationwide, rates of lifetime and current use of marijuana have remained relatively unchanged since 1997.[44] A similar trend has occurred in Massachusetts; in 1997 and 1999 about 50% of youth reported having ever smoked marijuana, about 31% in each year reported current use of marijuana.[45, 25]

Nationwide and in Massachusetts, marijuana is the most commonly used drug among adolescents, followed by inhalants, cocaine, methamphetamines, steroids, and heroin.[17, 25] In addition, national surveys of high school students have shown an increase in ecstasy use among 8th, 10th, and 12th grade students over the past five years.[44] Preliminary reports from a statewide study of middle and high school students in Massachusetts showed that ecstasy use doubled between 1996 and 1999.[46] For the first time, the 2001 MYRBS included a question about ecstasy use to gain an accurate estimate of the prevalence of the drug's use in Massachusetts.

This chapter will present lifetime rates of a variety of illicit drugs including inhalants, cocaine, methamphetamines, steroids, and heroin, as well as rates of current drug use (marijuana or other). In addition, students were asked to report their use of needles to inject drugs, their use of marijuana on school property, and if they were offered or sold drugs on school property in the 12 months before the survey. Many of the drug questions on the MYRBS questionnaire have changed between administrations making it difficult to report trends in the use of specific drugs. However, prevalence trends are shown of those drugs for which there are multiple years of data.

RESULTS

KEY FINDINGS OF THE 2001 MYRBS

- In 2001, 54% of high school students had used an illegal drug in their lives. Among these students, 49% used marijuana exclusively. Marijuana was the most commonly used illegal drug.

- In their lifetimes...

  - Half (50%) of all students had used marijuana in their lives. Roughly 12% of all students used marijuana for the first time before age 13 years.
  - Roughly one in eight students (13%) used MDMA (i.e., ecstasy) in their lifetime.
  - Twelve percent (12%) had used inhalants. Lifetime inhalant use decreased significantly from 1995 to 2001.
  - Eight percent (8%) of all students used cocaine. After increasing significantly from 1993 to 1999, the rate of lifetime cocaine use decreased slightly in 2001.
  - Seven percent (7%) of all students used methamphetamines.
  - One in twenty students (5%) used illicit steroids.
  - Three percent (3%) used heroin.
  - About 2% injected illegal drugs.
  - Sixteen percent (16%) of all students had ever used other illegal drugs, such as LSD, PCP, mushrooms, Ketamine, Rohypnol, or GHB.

- In the 30 days before the survey...

  - Three in ten students (30%) used marijuana.
  - Roughly 11% used other illegal drugs.

- One-third (34%) of youth reported being sold, offered, or given an illegal drug on school property in the 12 months before the survey, a significant drop from the 42% rate reported in 1997.

- Male students had significantly higher rates than female students of lifetime and current marijuana use, marijuana use before age 13, lifetime use of heroin, steroids, and other illegal drugs, and lifetime injected drug use.

LIFETIME USE OF ILLEGAL DRUGS

- In 2001, **54% of high school students reported lifetime use of illegal drugs**, that is they reported having ever used at least one of the following: marijuana, cocaine, MDMA (i.e., ecstasy), inhalants, heroin, methamphetamines, steroids, or some other illegal drug (such as LSD, PCP, mushrooms, Ketamine, Rohypnol, or GHB.

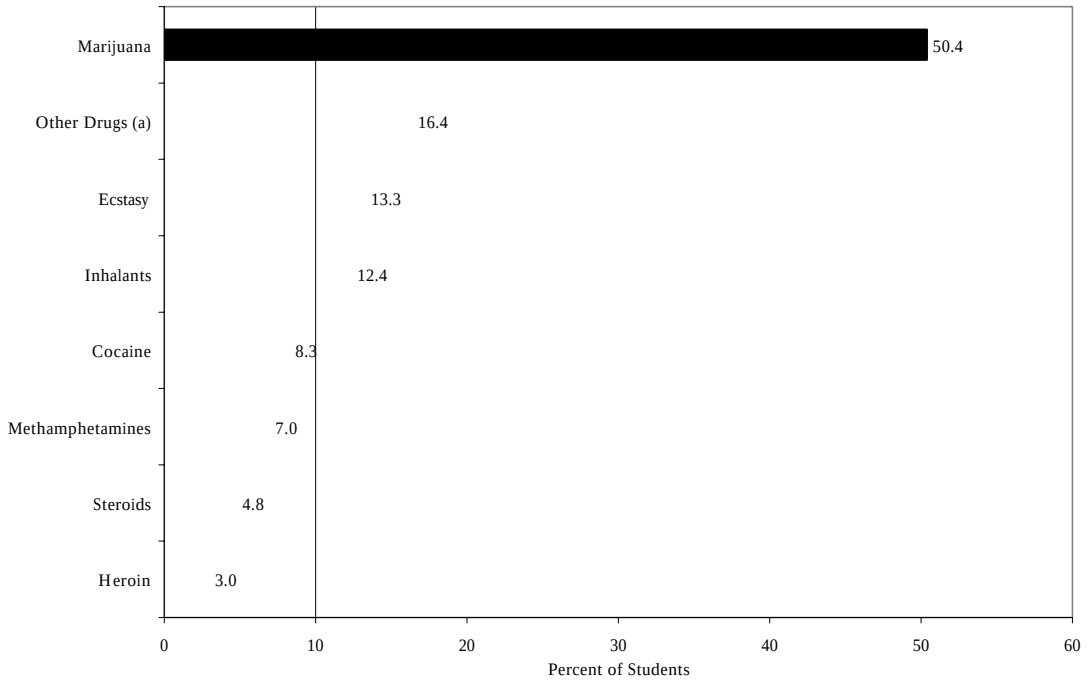
- Male students were significantly more likely than female students to report any lifetime illegal drug use (57% to 51% respectively).

- Forty-two percent (42%) of 9th grade students had used an illegal drug in their lifetime. By the end of senior year, 66% of students had used an illegal drug in their lifetime.

- There were significant racial/ethnic differences in lifetime illegal drug use such that Asian and Hispanic students were less likely than students of any other race/ethnicity to report any lifetime illegal drug use. Sixty-two percent (62%) of students of Other or Multiple ethnicity, 56% of White students, 53% of Black students, 44% of Hispanic students, and 33% of Asian students reported using any illegal drug in their lifetime.

- Among students who reported using any illegal drug use in their lifetime, half (49%) used marijuana exclusively. Among all students, marijuana was the most commonly used drug, followed by the category of Other drugs (16%) and ecstasy (13%; see Figure 4a).

Figure 4a. Lifetime Illegal Drug Use Among Massachusetts High School Students, 2001

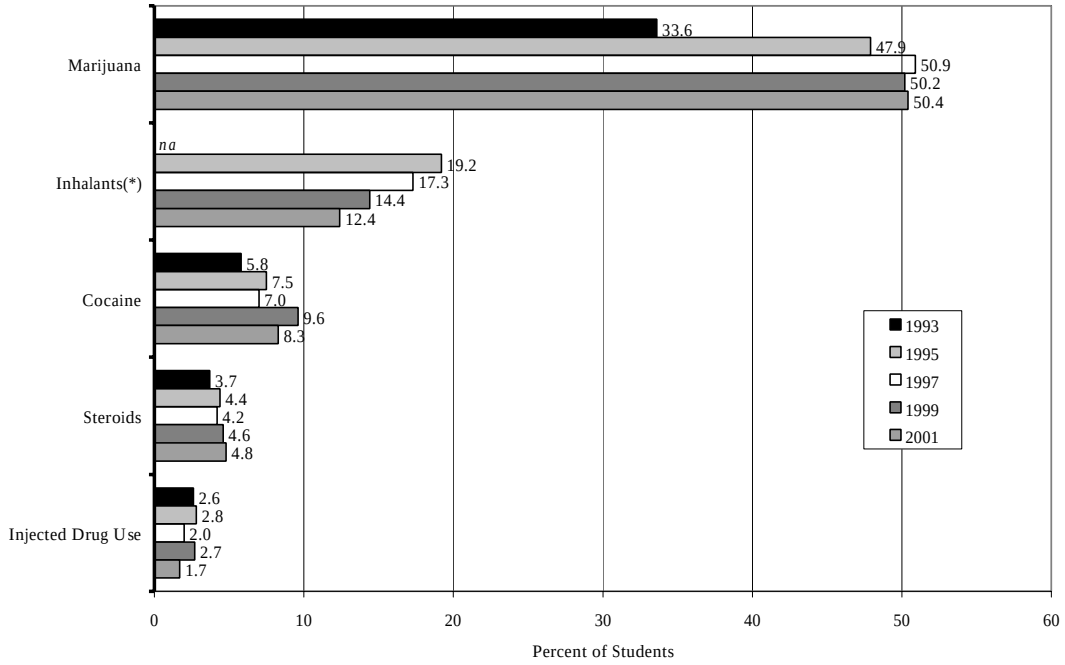


Note: (a) Such as LSD, PCP, mushrooms, Ketamine, Rohypnol, or GHB

Marijuana:

- **Half (50%) of all high school students reported ever using marijuana in their lifetimes**. The rate of lifetime marijuana use increased significantly from 1993 (34%) to 1997 (51%), but has not changed significantly since (see Figure 4b).

Figure 4b. Lifetime Illegal Drug Use Among Massachusetts High School Students, 1993 to 2001(a)



Notes: (*) Statistically significant decrease from 1995 to 2001, $p<.05$; (a) Prevalence trends are only shown for those drugs for which there are multiple years of data

- Significantly more male students (54%) reported lifetime marijuana use than did female students (47%). The rates of lifetime marijuana use among both genders have remained virtually unchanged since 1997.

- Lifetime marijuana use increased significantly with grade in school: 37% of freshman, 50% of sophomores, 56% of juniors, and 63% of seniors reported ever using marijuana in their lifetimes.

- There were significant racial/ethnic differences in the rate of lifetime marijuana use. The rate was highest among students of Other or Multiple ethnicity (61%) and lowest among Asian students (33%). Just over half (52%) of White students, 49% of Black students, and 39% of Hispanic students reported lifetime marijuana use.

- Twenty-three percent (23%) of lifetime marijuana users (12% of all students) smoked marijuana for the first time before age 13 years. Among students who ever used marijuana, those who did so for the first time before age 13 were significantly more likely than their peers (who smoked marijuana for the first time after age 13) to report:

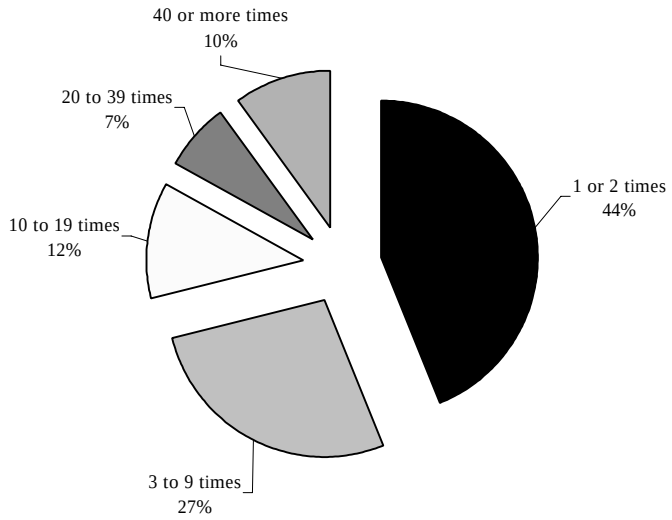
    - Current marijuana use (76% vs. 58%)
    - Ecstasy use in lifetime (39% vs. 20%)
    - Inhalant use in lifetime (31% vs. 15%)
    - Cocaine use in lifetime (31% vs. 10%)
    - Methamphetamine use in lifetime (29% vs. 8%)
    - Steroid use in lifetime (16% vs. 5%)
    - Heroin use in lifetime (13% vs. 2%)
    - Other drug use in lifetime (53% vs. 25%)

Ecstasy:

- **Thirteen percent (13%) of all students reported ever using MDMA (or ecstasy) in their lifetimes**. This is the first year that ecstasy use was measured. Ecstasy was the third most widely used drug, behind marijuana and the category of "other drugs" which includes LSD, PCP, mushrooms, Ketamine, Rohypnol, and GHB.

- More than one-quarter of all lifetime ecstasy users used the drug ten or more times. Roughly 44% used ecstasy only one or two times (see Figure 4c).

Figure 4c. Frequency of Ecstasy Use Among Massachusetts High School Students, 2001

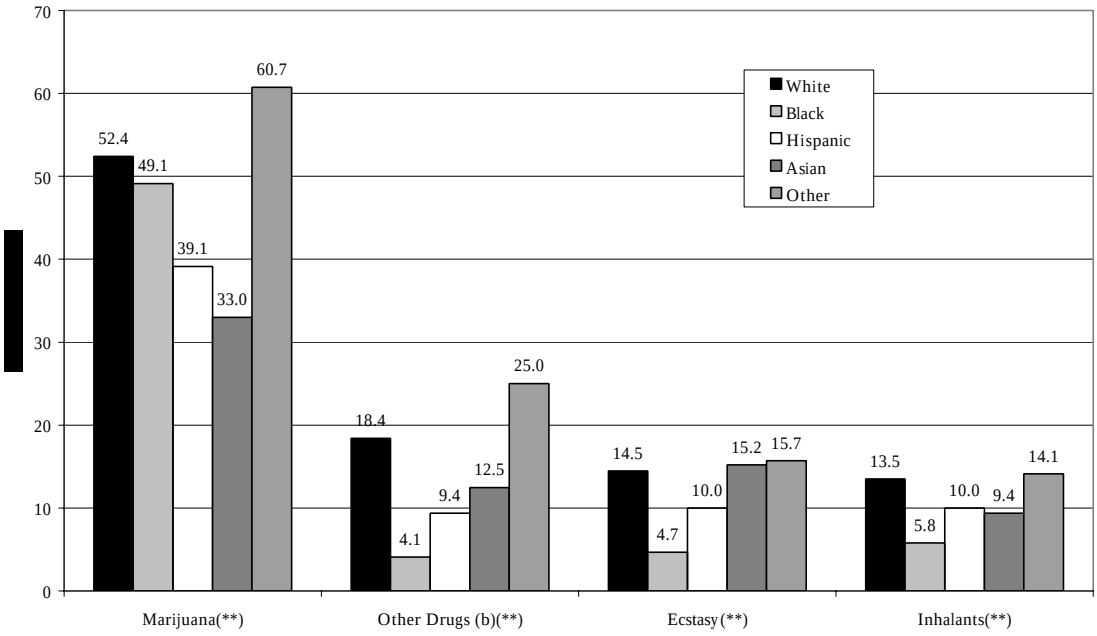


- Males and females were equally as likely to have ever used ecstasy (14% and 13% respectively).

- Lifetime ecstasy use increased significantly with each grade in school from 8% among freshman to 19% among seniors.

- Black students were significantly less likely than their peers to have used ecstasy in their lives. Only 5% of Black students reported ever using ecstasy, compared to 10% of Hispanic students, 15% of White and Asian students, and 16% of students of Other or Multiple ethnicity (see Figure 4d).

Figure 4d. Lifetime Use of Selected Illegal Drugs Among Massachusetts High School Students by Race/Ethnicity(a), 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) See Table 1.1, page 3, for a detailed explanation of racial/ethnic categories; (b) Such as LSD, PCP, mushrooms, Ketamine, Rohypnol, or GHB

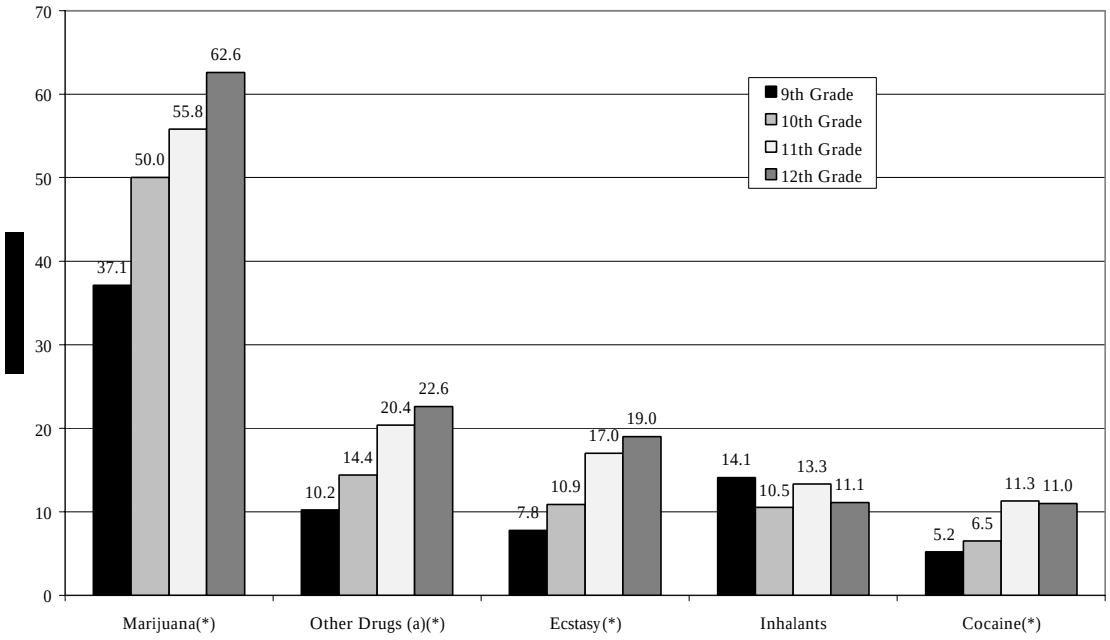
Inhalants:

- **Lifetime inhalant use decreased from 14% in 1999 to 12% in 2001**, and has decreased significantly since 1995, when 19% of all students reported lifetime inhalant use.

- Unlike in previous years, inhalant use was no more common among males (13%) than among females (12%). The rate of lifetime inhalant use decreased among males, from 17% in 1999 to 13% in 2001. The rate did not change among females.

- Lifetime inhalant use, unlike other drugs, was most common among freshman: 14% of 9th graders vs. 11% of 12th graders reported lifetime use (see Figure 4e). Inhalants were the second most commonly used drug among 9th graders.

Figure 4e. Lifetime Illegal Drug Use Among Massachusetts High School Students by Grade, 2001



Notes: (*) Statistically significant difference between grades, p<.05; (a) Such as LSD, PCP, mushrooms, Ketamine, Rohypnol, or GHB

- White students were significantly more likely than Black, Hispanic, or Asian students to report lifetime inhalant use (14% vs. 6%, 10%, and 9% in order). Fourteen percent (14%) of students of Other or Multiple ethnicity reported lifetime inhalant use.

Cocaine:

- **About 8% of all high school students used cocaine in their lifetimes.** The rate of lifetime cocaine use decreased slightly from 10% in 1999.

- Almost half (47%) of students who had ever used cocaine used the drug only once or twice. Twenty percent (20%) used the drug twenty or more times.

- Ten percent (10%) of male students and 7% of female students used cocaine in their lifetimes.

- Juniors and seniors (11% of each grade) were significantly more likely than freshman (5%) and slightly more likely than sophomores (7%) to report lifetime cocaine use.

- Students of Other or Multiple ethnicity were the most likely to report lifetime cocaine use: 13% of students in this category had ever used cocaine. Ten percent (10%) of Asian students, 9% of White students, 8% of Hispanic students, and 4% of Black students used cocaine in their lifetimes.

Methamphetamines:

- **Seven percent (7%) of high school students used methamphetamines** (also called crank, speed, crystal, or ice) at least once in their lifetime. Lifetime use of methamphetamines decreased slightly from 8% in 1999.

- More than half (53%) of all students who had ever used methamphetamines did so only one or two times. Roughly one-quarter (26%) used the drug ten or more times.

- Eight percent (8%) of male students and 6% of female students report ever using methamphetamines. These rates represent only slight decreases from 1999, when 10% of males and 7% of females reported lifetime methamphetamine use.

- There were no significant grade differences in lifetime methamphetamine use: the rate in each grade was within one percent of the 7% average rate.

- Students of Other or Multiple ethnicity and Asian students had the highest rates of lifetime methamphetamine use (11% and 10% respectively). White students (8%) had a significantly higher rate of lifetime methamphetamine use than Black (2%) or Hispanic (4%) students.

Steroids:

- The rate of lifetime illicit steroid use did not change from 5% in 1999. The rate has remained consistent at about 4 to 5% of all students since 1993. Among students who had ever used steroids, 42% did so only one or two times; 38% used steroids ten or more times.

- Significantly more males than females reported lifetime illicit steroid use (6% vs. 3%, respectively).

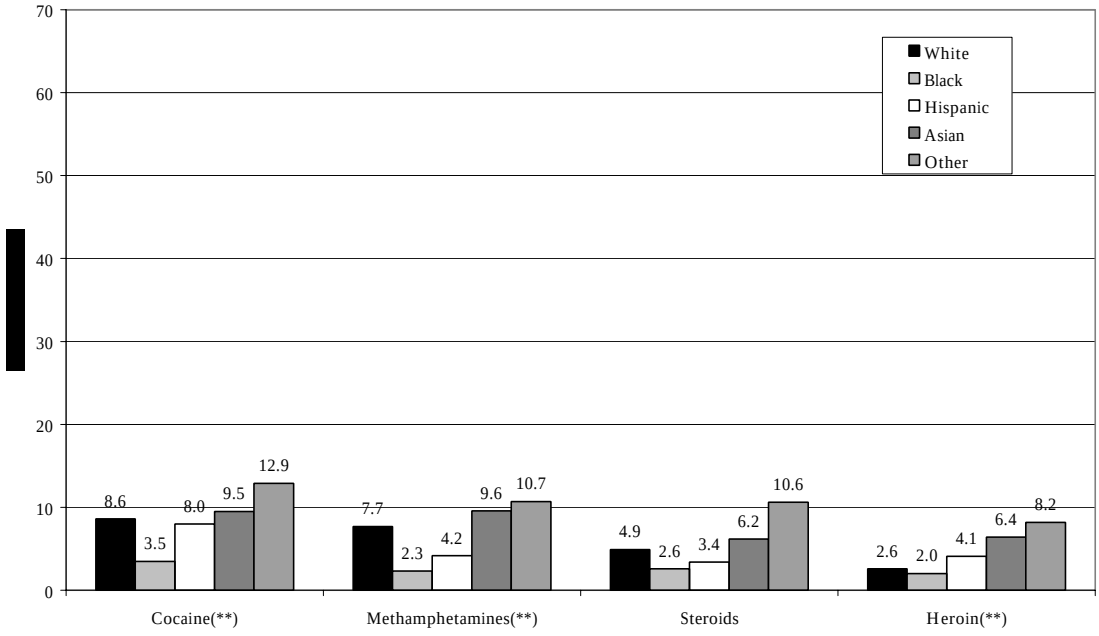
- The rates of lifetime steroid use were similar in all four grades, with about 4 to 5% of each grade reporting lifetime illicit steroid use.

- Black and Hispanic students had the lowest rates of illicit steroid use (3% of each group). Five percent (5%) of Whites students, 6% of Asian students, and 11% of students of Other or Multiple ethnicity also reported using steroids in their lifetimes.

Heroin:

- **Only 3% of all students reported ever using heroin,** representing a slight decrease from 4% reported in 1999. Lifetime heroin use was not measured before 1999.
- Roughly 40% of students who had used heroin in their lifetimes used the drug only one or two times. About 35% have used the drug ten or more times.
- Males were significantly more likely than females to have reported heroin use (4% vs. 2% respectively).
- Lifetime heroin use rates did not differ significantly by grade. All four grades had rates between 2% and 3%.
- Rates of lifetime heroin use varied significantly across racial/ethnic categories: 2% of Black students, 3% of White students, 4% of Hispanic students, 6% of Asian students and 8% of students of Other or Multiple ethnicity reported ever using heroin in their lifetimes (see Figure 4f).

Figure 4f. Lifetime Use of Selected Illegal Drugs Among Massachusetts High School Students by Race/Ethnicity(a), 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) See Table 1.1, page 3, for a detailed explanation of racial/ethnic categories; (b) Such as LSD, PCP, mushrooms, Ketamine, Rohypnol, or GHB

Other Drugs:

- **Roughly 16% of high school students reported ever using other drugs** such as LSD, PCP, mushrooms, Ketamine, Rohypnol, or GHB. Changes in question wording over time prohibit comparisons between years.

- Male students had a slightly higher rate of other drug use than females (19% vs. 14% respectively).

- There were significant grade differences in the rates of other drug use. Other drug use was highest among seniors (23%) and lowest among freshman (10%).

- The highest rate of other drug use was found among students of Other or Multiple ethnicity (25%). Roughly 18% of White students, 13% of Asian students, 9% of Hispanic students, and 4% of Black students reported other drug use in their lifetimes.

Injected Drug Use:

- **Just under 2% of high school students reported ever using a needle to inject illegal drugs.** This represents a slight decrease from the 3% reported in 1999, however the decline is not significant. As in 1999, injected drug use was more common among males (2.4%) than among females (0.9%), but did not vary substantially by grade or by race/ethnicity.

- Heroin appears to be the drug most likely to be injected: 50% of students who had ever used heroin reported injected drug use. Twenty-six percent (26%) of students who had used steroids and 20% of students who had used methamphetamines also reported injected drug use.

- Just under 3% of all students reported sharing a needle for any purpose (such as tattooing, piercing, injecting drugs, etc.).

CURRENT DRUG USE

- Three out of five (60%) students who had ever used an illegal drug in their lifetime, used a drug in the 30 days before the survey (i.e. current drug use). **In all, about one-third (33%) of Massachusetts high school students were current drug users in 2001**; that is, they reported using marijuana or any other illegal drug in the 30 days before the survey.

- Among current drug users, 69% used marijuana exclusively, 5% used a drug other than marijuana only, and 27% used both marijuana and some other drug.

- Any current drug use was significantly more common among male students (36%) than among female students (29%), and among students in older grades (39% of seniors, 36% of juniors, and 32% of sophomores) compared to freshman (25%).

- The highest rate of any current drug use was found among students of Other or Multiple ethnicity (41%). Additionally, White and Black students (34% and 31% respectively) were significantly more likely than Hispanic or Asian students to report any current illegal drug use (23% and 16% respectively).

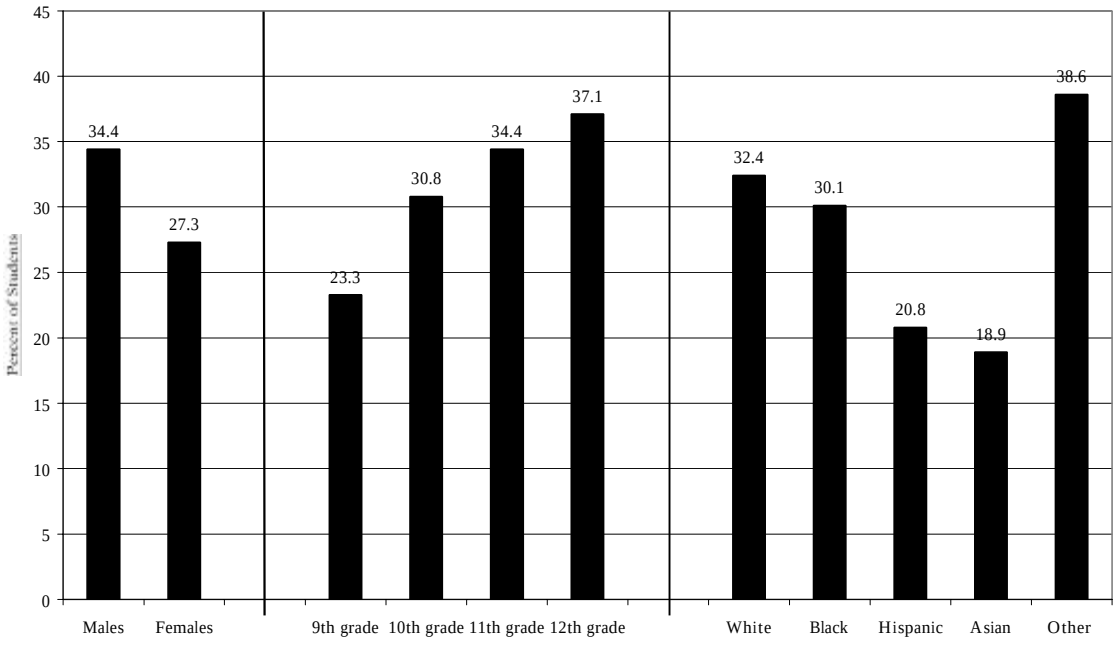
Marijuana:

- **Approximately 31% of high school students used marijuana in the 30 days before the survey.** The rate of current marijuana use, which increased significantly from 1993 to 1995, has not changed significantly since 1995.

- Current marijuana use was significantly more common among male students (34%) than among female students (27%), and increased with grade in school (see Figure 4g).

- There were also significant racial/ethnic differences in the rate of current marijuana use. The highest rate (39%) was found among students of Other or Multiple ethnicity. Hispanic and Asian students (21% and 19% respectively) had slightly lower rates of current marijuana use than Black students (30%), and significantly lower rates than White students (32%; see Figure 4g).

Figure 4g. Current Marijuana Use Among Massachusetts High School Students by Gender(*), Grade(*), and Race/Ethnicity(a)(**), 2001



Notes: (*) Statistically significant difference between genders and between grades, $p<.05$; (**) Statistically significant difference between racial/ethnic categories, $p<.01$; (a) See Table 1.1, page 3, for a detailed explanation of racial/ethnic categories

- Among students who reported current marijuana use, 31% used the drug one or two times in the 30 days before the survey. Forty-two percent (42%) used marijuana ten or more times during the 30-day period, an average of more than twice per week.

- Approximately 18% of current marijuana users used the drug more than once a day (i.e., 40 or more times in the 30-day period).

- Most (62%) students who had ever used marijuana also reported current marijuana use, suggesting that one-time experimentation with marijuana was rare.

Other Drugs:

- Students were asked to report their use of any illegal drug other than marijuana in the 30 days before the survey. This includes any drug such as cocaine, heroin, methamphetamines, inhalants, ecstasy, or other illegal drugs. **Eleven percent (11%) of students reported current use of other drugs.**

- Twelve percent (12%) of males and 9% of females reported current use of other drugs.

- Juniors and seniors were equally as likely to report current use of other drugs (13% of each grade). Lower rates were found among younger students: 8% of freshman and 9% of sophomores reported current use of other drugs.

- White and Asian students were more likely to report current use of other drugs (11% of each group) than were Black (4%) or Hispanic students (8%). Sixteen percent (16%) of students of Other or Multiple ethnicity reported current use of other drugs.

ADDITIONAL FINDINGS

Illegal Drugs on School Property:

- Fewer students used marijuana on school property in 2001 than was reported in 1999 (7% vs. 9%, respectively). This continues a slow downward trend begun in 1995 when 11% of students used marijuana on school property.

- Over one-third (34%) of all students were offered, sold, or given illegal drugs on school property in the year before the survey. This represents a slight decrease from 36% reported in 1999, and a significant decrease from 42% reported in 1997.

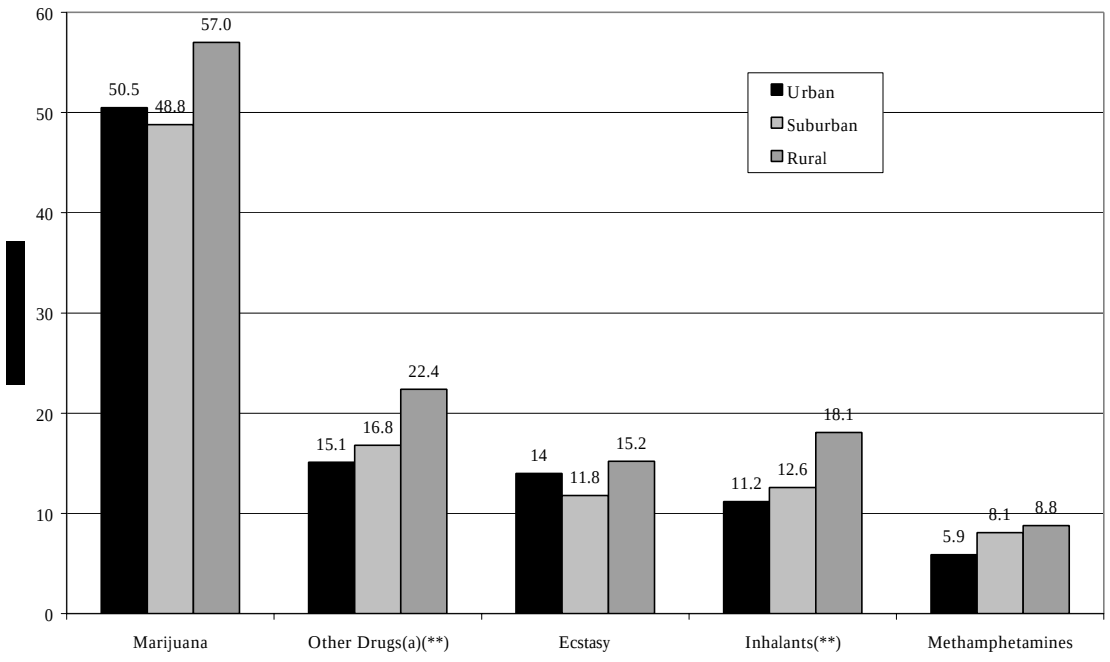
- Students in all four grades were equally as likely to be offered, sold, or given drugs on school property, and rates also did not vary across racial/ethnic groups. Males were significantly more likely than females to be offered, sold, or given drugs on school property (39% vs. 30%).

Illegal Drugs in Urban, Suburban, and Rural Communities:

- Students in rural communities were slightly more likely than their peers in urban and suburban communities to report lifetime and current use of *any* illegal drug; however, the differences were not statistically significant.

- Compared to urban and suburban communities, rural communities had the highest lifetime rates of marijuana use, ecstasy use, inhalant use, methamphetamine use, and use other drugs. In some cases, the rates in rural communities were significantly higher than those in urban and suburban communities (see Figure 4h).

Figure 4h. Lifetime Use of Selected Illegal Drugs Among Massachusetts High School Students in Urban, Suburban, and Rural Communities, 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) Such as LSD, PCP, mushrooms, Ketamine, Rohypnol, or GHB

Illegal Drug Use and Other Risk Behaviors:

- Illegal drug use was significantly associated with many other risk behaviors. For example, compared to students who did not report any lifetime illegal drug use, students who had used an illegal drug in their lifetime were:

- Three times as likely to have consumed alcohol in the 30 days before the survey (76% vs. 26%) and more than five times as likely to have engaged in binge drinking (53% vs. 10%);
- Ten times as likely to have driven after driving (20% vs. 2%);
- More than three times as likely to have had sexual intercourse in the past three months (47% vs. 15%);
- Three times as likely to have carried a weapon (18% vs. 6%);
- More than three times as likely to have experienced dating violence (16% vs. 5%); and
- More than twice as likely to have attempted suicide (13% vs. 5%).

♦ Marijuana appeared to act as a "gateway" drug. The majority (87%) of students who had used other illegal drugs had also used marijuana in their lifetimes. About half (48%) of students who had ever used marijuana also reported other illegal drug use.

SUMMARY OF RESULTS (Also see Appendix C, Table 4)

The 2001 MYRBS results document a steady and significant decrease in inhalant use since 1995. Additionally, significantly fewer students in 2001 than in 1997 reported being offered, sold, or given drugs on school property in the year before the survey. Further, since 1999 non-significant declines were also observed in the lifetime rates of cocaine, methamphetamines, heroin, and injected drug use. Still, over half of all Massachusetts high school students have used an illegal drug in their lifetimes, and one-third can be considered current illegal drug users (having used an illegal drug in the 30 days before the survey). Lifetime and current rates of marijuana use have not shown any decline since 1995, and many current marijuana users in 2001 were using the drug as often as twice per week. Finally, females had lower rates of illegal drug use than males, and with the exception of marijuana, Black and Hispanic youth had lower rates of lifetime illegal drug use than students of other racial/ethnic groups.

IMPLICATIONS AND RECOMMENDATIONS

Massachusetts can be encouraged by the slight decreases in the lifetime rates of many drugs in recent years. The steady and significant decline in inhalant use since 1995 is especially notable. Successes in preventing inhalant use may be in part due to a strong statewide educational campaign, launched by the Massachusetts Department of Public Health, to increase public awareness of inhalant abuse among youth.

Although the 2001 MYRBS results highlight improvements in the rates of illegal drug use, the use and availability of illegal drugs remain serious problems in Massachusetts. At present, more Massachusetts high school students have tried illegal drugs than have not. Marijuana, the most commonly used illegal drug among adolescents, has been tried by over half of students and appears to act as a "gateway" to use of other illicit drugs. Lifetime and current rates of marijuana use in Massachusetts have been consistently above the national average since 1993.[16, 17, 47, 48]

In recent years, certain drugs have become popular among youth, particularly at dance clubs, parties, and raves. Collectively known as "club drugs", these drugs are often used by youth for their euphoric, hallucinogenic, and intoxicating effects, and because they allow the user stay awake and active for long periods of time. The Office of National Drug Control Policy identifies MDMA (ecstasy), Rohypnol, Ketamine, and GHB as the common "club drugs"[49], but the category has sometimes been expanded to include methamphetamines, LSD, PCP, and mushrooms.[50] Although the 2001 MYRBS did not include exact measures of all club drugs, students were asked to report their lifetime use of MDMA, methamphetamines, and other illegal drugs such as LSD, PCP, mushrooms, Ketamine, Rohypnol, or GHB. When taken together, these measures suggest that an estimated one-fifth of all students have used a club drug in their lifetime. This, in combination with the finding that one in eight students have used MDMA, suggests that club drugs represent a new and immediate concern in Massachusetts. Drug prevention efforts in schools should educate students about the real dangers of club drugs, and dispel the myths that club drugs are not as harmful or addictive as other drugs.[50] For teachers, knowing the "street" names of common club drugs, as well as the ways in which the drugs are normally consumed (i.e., Ketamine and GHB are commonly dissolved in ordinary bottles of spring water) can help to recognize the presence of club drugs at school events.

National data indicate that adolescents perceive less harm in illegal drug use than they did a decade ago and greater availability of drugs than in previous years.[51] A recent survey found that over 80% of students said they thought marijuana was easy to get,[52] and Massachusetts youth have reported that marijuana is as easy to get as alcohol.[53] Even though there has been a significant decline in the percent of students who are offered, sold, or given drugs on school property, the 2001 MYRBS data indicate the ease with which illegal drugs can still be obtained at school. Because both perceived risk and perceived availability are key correlates of drug use,[54] this information suggests that schools and communities should work together to educate young people about the negative physical, cognitive, emotional, and social consequences of drug use, while ensuring stronger and more vigilant enforcement of drug policies and laws. In addition, it is probable that drugs obtained on school property come from other students. Therefore, it is imperative that students be taught the legal consequences of drug trafficking.

Although drug use is prevalent across all kinds of communities and is seen in every racial/ethnic group, certain groups appear to be at greater risk. The 2001 MYRBS results show consistently higher rates of illegal drug use among students of Other or Multiple ethnicity, White students, and students in rural communities. These findings suggest a need for targeted prevention education programs designed to reduce illegal drug use among those students who are most at risk and most likely to be using drugs.

MYRBS results concerning tobacco and alcohol use demonstrated the association between these substances and the use of illegal drugs. This chapter has also provided evidence that students who use illegal drugs are at greater risk than their drug-free peers for violence, suicide attempts, and unsafe sexual behavior. Schools should address the issue of drug abuse in the context of comprehensive school health education that shows the relationships among risk behaviors. It is also important for schools to choose drug prevention curricula and programs that have been carefully evaluated and found to be effective.[55] Finally, substance abuse education needs to cross all grade levels, especially reaching students in early grades in order to prevent illegal drug use before it begins.

5 VIOLENCE-RELATED BEHAVIORS AND EXPERIENCES

INTRODUCTION

Violence poses many risks to the health and safety of our youth. In Massachusetts, homicide is the third leading cause of death of young people aged 15 to 24.[56] In the United States in 1997, there were, on average, 17 youth homicide victims per day; nearly 90% of these young people were killed by a firearm.[57] Nationally, over half of teen deaths by suicide involve the use of a gun,[58, 59] and more teens die each year from gunshot wounds than from disease.[60] Physical fighting can cause immediate injuries, and often precedes fatal violence among youth.[61] Adolescent dating violence can have serious long-term consequences, both in itself and as a possible precursor to adult domestic violence. Sexual coercion and assault, can also have a devastating impact on healthy psychological development.[62]

In recent years, issues of school safety have been moved to the forefront of public attention because of high-profile incidents of fatal school violence. Even among young people who are not directly involved or physically hurt by school violence, the threat or possibility of violence can make academic learning and achievement difficult if not impossible. Past risk behavior surveys have found that many high school students report being threatened at school; a minority sometimes avoid attending school because of fears for their own safety.[25, 45, 63]

At present, nearly every Massachusetts school district receives funds through the Safe and Drug-Free Schools and Communities Act. These funds support programs to reduce school violence and to promote a safe school environment for all students. Local districts use a variety of methods to address and prevent school violence, from environmental approaches such as metal detectors and book-bag inspections, to more broad-based prevention programs aimed at shaping a non-violent school culture and ensuring that students develop skills in peaceful conflict resolution. Additionally, two other programs that have been supported by the Massachusetts Department of Education have promoted efforts to reduce violence. The first, the Safe Schools for Gay and Lesbian Students Program, has sponsored faculty trainings, the development of student support groups, and other activities aimed at reducing threats and intimidation of students who are (or are perceived to be) gay, lesbian, or bisexual. The second, the Teen Dating Violence program, has awarded small grants to districts developing programs and policies aimed at reducing dating violence.

The 2001 MYRBS included questions about weapon-carrying and physical fighting both on and off school property, threats and perceived safety at school, gang-involvement, dating violence, and sexual abuse. As a measure of perceived school support, students were also asked whether there was a teacher or other school staff member they thought they could talk to if they had a problem.

RESULTS

KEY FINDINGS FROM THE 2001 MYRBS

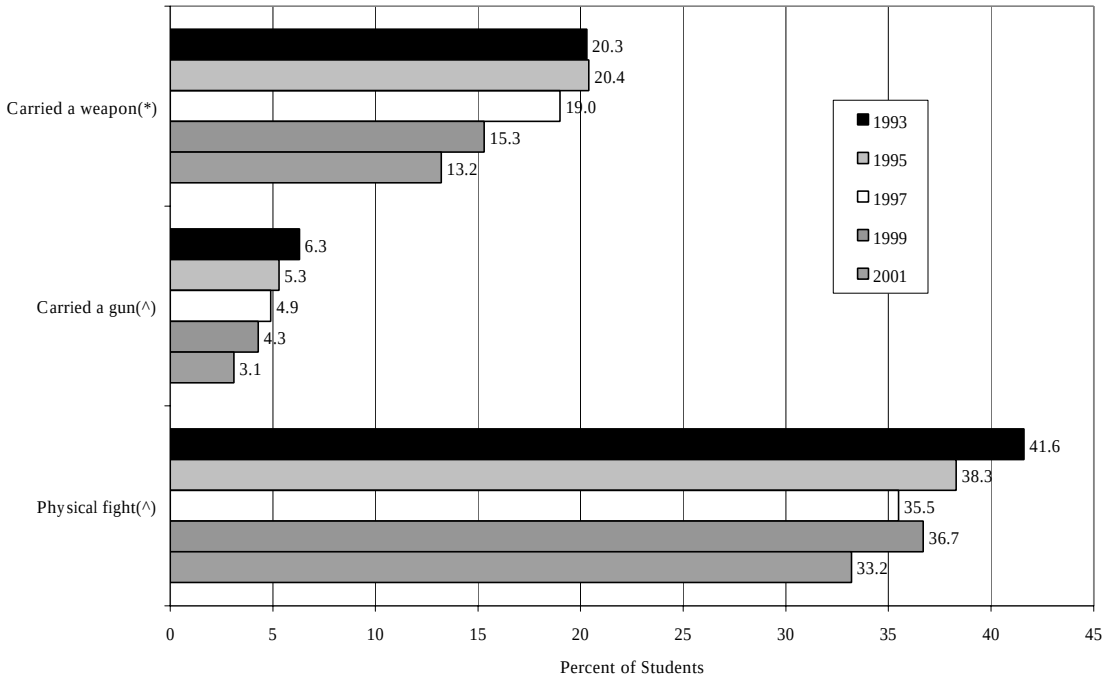
- Several measures of violence-related behavior have decreased significantly in recent years.
- In the 12 months before the survey…
  - One-third (33%) of all students were in a physical fight, a significant decrease from 38% in 1995.
  - Four percent (4%) of all students were injured in a physical fight.
  - Twelve percent (12%) of all students were in a physical fight on school property, a significant decrease from 15% in 1995.
- In the 30 days before the survey…
  - One in eight students (13%) carried a weapon such as a gun, knife, or club; this is a significant decrease from 19% in 1997.
  - Three percent (3%) of all students carried a gun, a significant decrease from 5% in 1995.
  - Six percent (6%) of all students carried a weapon on school property, a significant decrease from 8% in 1997.
  - Eight percent (8%) of all students were threatened or injured with a weapon on school property.
  - Eight percent (8%) of all students skipped school at least once because they felt they would be unsafe at school or on their way to or from school.
- One in nine students (11%) reported ever being hurt physically or sexually by a date or someone they were going out with, and one in ten students (10%) reported having ever experienced sexual contact against their will.

WEAPON-CARRYING AND PHYSICAL FIGHTING

Carrying Weapons:

- **Thirteen percent (13%) of all students carried a weapon in the 30 days before the survey**. The rate of weapon-carrying has decreased steadily and significantly since 1995, when 20% of students reported carrying a weapon in the 30 days before the survey (see Figure 5a, next page).

Figure 5a. Weapon Carrying and Physical Fighting Among Massachusetts High School Students, 1993 to 2001



Notes: (*) Statistically significant decline from 1997, p<.05; (^) Statistically significant decline from 1995, p<.05

- Among students who reported carrying a weapon in the 30 days before the survey, 45% carried a weapon on 6 or more of the 30 days.

- As in the past, significantly more male students than female students reported carrying a weapon in the 30 days before the survey (22% vs. 4%, respectively). Between 1999 and 2001, the rate of weapon-carrying decreased slightly among both genders: from 24% to 22% among male students and from 6% to 4% among female students.

- Younger students were somewhat more likely to have carried a weapon in the 30 days before the survey. Fifteen percent (15%) of freshmen reported carrying a weapon, as compared with 11% of seniors.

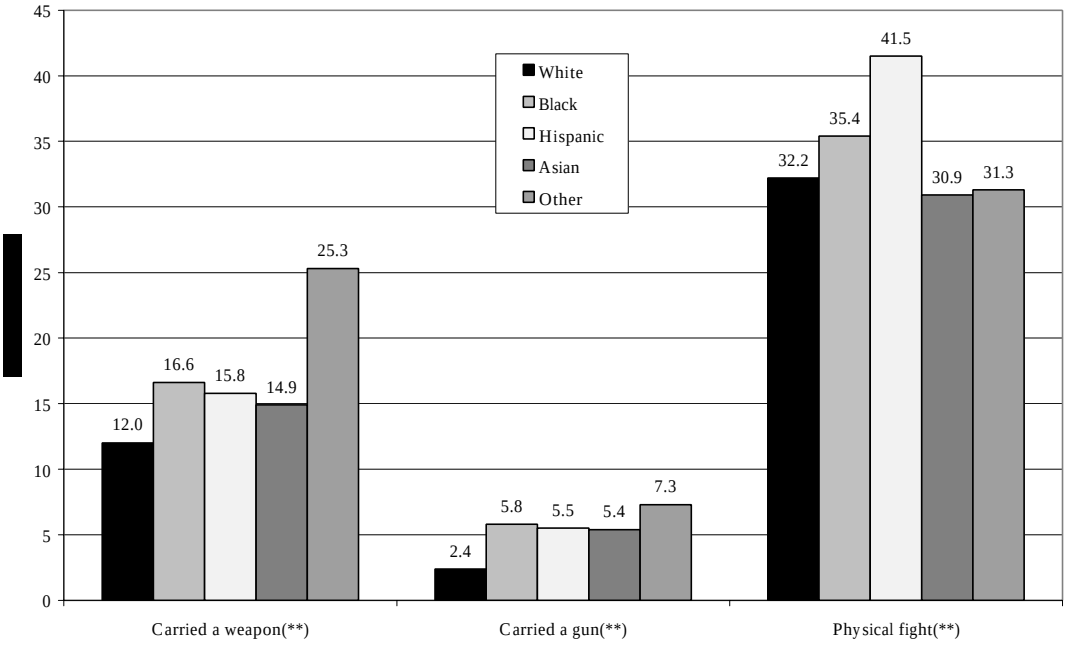
- The highest rate of weapon-carrying was found among students of Other or Multiple ethnicity (25%), followed by Black students (17%), Hispanic students (16%), Asian students (15%), and White students (12%).

- **Three percent (3%) of all students (23% of students who carried a weapon) reported carrying a gun** in the 30 days before the survey. In 1999, 4% of students had carried a gun.

- Male students were more likely than female students to have carried a gun in the 30 days before the survey (6% vs. 1%, respectively).

- Gun-carrying did not vary significantly across grades, but some significant racial/ethnic differences were found. Students of Other or Multiple ethnicity had the highest rate of gun carrying (7%). Black and Hispanic students (6% of each group) were significantly more likely than White students (2%) to have carried a gun in the 30 days before the survey. Five percent (5%) of Asian students carried a gun (see Figure 5b).

Figure 5b. Weapon Carrying and Physical Fighting Among Massachusetts High School Students by Race/Ethnicity(a), 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) See Table 1.1, page 3, for a detailed explanation of racial/ethnic categories

Physical Fighting:

- **One-third (33%) of all students were in a physical fight** in the 12 months before the survey. After increasing slightly between 1997 and 1999, the rate of physical fighting decreased somewhat in 2001 (36% to 33%).

- Among students who were in a physical fight, 43% were in only one fight in the 12 months before the survey; 9% fought ten or more times. Roughly 10% of students who fought (4% of all students) were injured in a physical fight in the 12 months before the survey.

- Fighting was significantly more common among male students (42%) than among female students (24%).

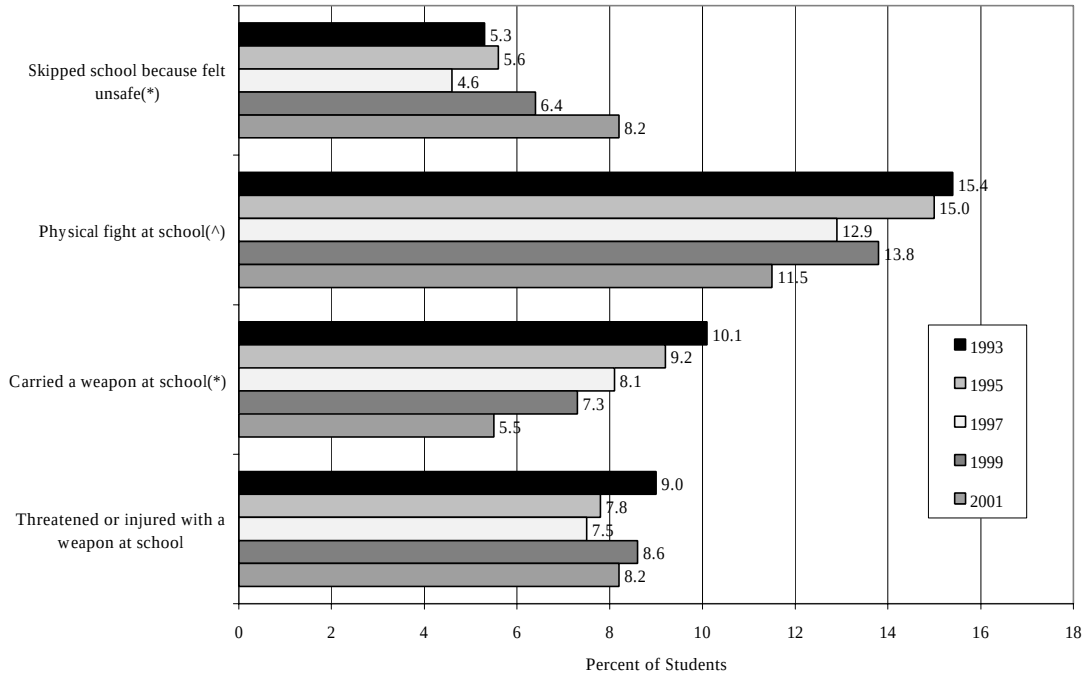
- Ninth grade students were significantly more likely than students in all other grades to report physical fighting in the 12 months before the survey (41% vs. 32% of sophomores, 29% of juniors, and 29% of seniors).

- Hispanic students had the highest rate of physical fighting (42%). Thirty-five percent (35%) of Black students, 32% of White students, and 31% of Asian students and students of Other or Multiple ethnicity fought in the 12 months before the survey.

SCHOOL SAFETY

- In 2001, **8% of students skipped school at least once in the 30 days before the survey because they felt unsafe** either at school or on their way to or from school. This represents a slight increase from the 6% of all students in 1999, and a significant increase from 5% in 1997 (see Figure 5c).

Figure 5c. Violence-Related Behaviors and Experiences on School Property Among Massachusetts High School Students, 1993 to 2001



Notes: (*) Statistically significant increase or decrease from 1997 to 2001, $p<.05$; (^) Statistically significant decrease from 1995 to 2001, $p<.05$

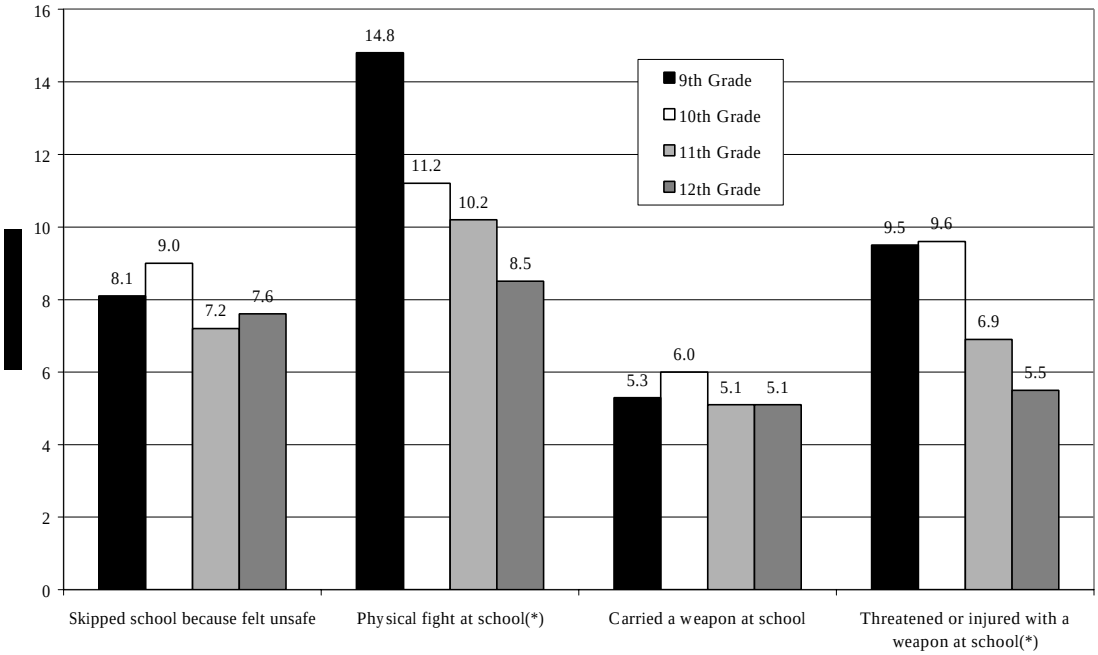
- For the first time in 2001, female students were slightly more likely than male students to report skipping school because of safety concerns (9% vs. 7%).

- Students of all grades were equally as likely to skip school because they felt unsafe. More Hispanic students and students of Other or Multiple ethnicity (15% of each group) skipped school for safety reasons than did Black students (13%), Asian students (9%) or White students (7%).

- Students who had lived in the United States for less than six years were significantly more likely to report skipping school for safety reasons than were students who lived in the U.S. longer than 6 years and native-born students (16% vs. 9% and 8% respectively).

- Just under **12% of all students were in a physical fight on school property** in the 12 months before the survey, a significant decrease from 15% in 1995. Fighting on school property was more common among male students (16%, compared to 7% of females) and among 9th grade students (15%, compared to 11% of sophomores, 10% of juniors, and 9% of seniors; see Figure 5d).

Figure 5d. Violence-Related Behaviors and Experiences on School Property Among Massachusetts High School Students by Grade, 2001



Note: (*) Statistically significant difference between grades, $p<.05$

- Eighteen percent (18%) of students of Other or Multiple ethnicity, 14% of Black students, 13% of Asian students, 13% of Hispanic students, and 11% of White students were in a fight on school property in the 12 months before the survey.

- **Six percent (6%) of students carried a weapon on school property** in the 30 days before the survey , a significant decrease from 8% in 1997. Significantly more males than females (9% to 2%) carried a weapon on school property. There were no significant grade differences.

- Black students and Asian students (10% of each group) were more likely than Hispanic (7%) or White students (4%) to report having carried a weapon on school property. Sixteen percent (16%) of students of Other or Multiple ethnicity carried a weapon on school property.

- **Eight percent (8%) of students were threatened or injured with a weapon on school property** in the 12 months before the survey. Among these students, 17% reported being threatened or injured with a weapon on school property ten or more times in the one-year period.

- **Male** students were significantly more likely than female students (11% vs. 6%, respectively) to have reported being threatened or injured with a weapon on school property in the 12 months before the survey.

- Freshmen and sophomores (10% of each grade) were significantly more likely than seniors (6%) to be threatened or injured with a weapon at school.

- There were significant racial/ethnic differences in the percent of students who reported having been threatened or injured with a weapon at school: 15% of students of Other or Multiple ethnicity, 13% of Asian students, 11% of Black students, 8% of Hispanic students, and 7% of White students reported being threatened or injured at school.

- Students who felt there was a teacher or other adult school staff member they could talk to if they had a problem were significantly less likely to have been in a fight at school, to have been threatened or injured with a weapon in school, or to have carried a weapon on school property. (See Chapter 11 for more measures of resiliency.)

VIOLENCE-RELATED EXPERIENCES

- In 2001, **eleven percent (11%) of all high school students (16% of females and 6% of males) had experienced violence in a dating relationship.** Students were asked to report if they had ever been hurt physically or sexually by a date or someone they were going out with. Five percent (5%) of all students reported being hurt physically, 2% were hurt sexually, and an additional 3% were hurt both physically and sexually.

- **Ten percent (10%) of students reported having ever experienced sexual contact against their will.** Higher rates of unwanted sexual contact occurred among females (14%) than among males (5%).

- There were no significant grade or racial/ethnic differences in the percent of students who reported experiencing dating violence or unwanted sexual contact.

- Compared to their peers who had not experienced violence, students who had ever experienced any dating violence or any unwanted sexual contact exhibited higher rates of many risk behaviors. They were significantly more likely than other youth to report feeling sad or hopeless (52% vs. 24%), attempting suicide (26% vs. 6%), and skipping school because they felt unsafe (17% vs. 6%). In addition, these students were significantly more likely to have engaged in binge drinking (48% vs. 30%) or to have used any illegal drug in their lifetime (15% vs. 6%), including cocaine (23% vs. 5%), ecstasy (30% vs. 10%), heroin (11% vs. 1%), and methamphetamines (20% vs. 5%).

ADDITIONAL FINDINGS

- In 2001, **8% of youth reported being involved in a gang** in the 12 months before the survey. This represents a decrease from 10% reported in 1999. As in the past, male students were more than twice as likely as female students to report gang involvement (11% vs. 5%).

- Students of Other or Multiple ethnicity (17%), Black students (15%), and Asian students (14%) were somewhat more likely to report gang involvement than Hispanic students (9%) and White students (6%).

- Students involved in gangs were significantly more likely than those students not involved in gangs to report a variety of other risk behaviors including:

    - Having been in a physical fight (61% vs. 31%);
    - Carrying a weapon (48% vs. 10%);
    - Carrying a gun (19% vs. 2%);
    - Having been threatened or injured with a weapon at school (26% vs. 7%);
    - Any lifetime illegal drug use (80% vs. 52%);
    - Lifetime cocaine use (19% vs. 7%);
    - Binge drinking (52% vs. 31%);
    - Having ever been or gotten someone pregnant (12% vs. 4%); and
    - Attempting suicide (24% vs. 8%).

- Violence-related behaviors occurred equally in urban, suburban, and rural communities. However, students in rural communities were significantly less likely to skip school because of safety concerns (3% vs. 7% of suburban students and 10% of urban students).

- Sexual minority youth (i.e., students who identified themselves as gay, lesbian, or bisexual and/or had a history of same-sex sexual contact, see Chapter 8) reported higher rates of violence-related behaviors and experiences (see Table 5.1, next page).

Table 5.1 Violence-Related Behaviors and Experiences Among Massachusetts High School Students by Sexual Orientation, 2001

	Percent (%) of Sexual Minority Youth	*Percent (%) of All Other Students*	*p<.01*
Carried a weapon	23.7	12.6	**
Carried a gun	6.7	3.0	**
Physical fight	45.7	32.5	**
Gang involvement	14.5	7.5	**
Skipped school for safety reasons	16.4	7.6	**
Physical fight at school	18.9	11.1	**
Carried a weapon at school	9.6	5.2	**
Threatened with weapon at school	18.6	7.6	**
Experienced dating violence	29.6	9.6	**
Experienced forced sexual contact	31.5	8.3	**

Note: (**) Statistically significant difference between sexual minority youth and other students, p<.01

SUMMARY OF RESULTS (Also see Appendix C, Table 5)

Since 1993, measures of violent behaviors, such as weapon-carrying and physical fighting, have decreased significantly. The MYRBS results presented here also indicate that less violence is occurring on school property as compared to previous years, but in 2001 more students skipped school because they felt unsafe either at school or on their way to or from school. Recent immigrants and students in urban communities were more likely than their peers to skip school because of safety concerns. Male students, students in younger grades, gang-involved youth, and sexual minority youth were more likely than their peers to engage in certain violence-related risk behaviors. The MYRBS also provides evidence of the extent and seriousness of teen dating violence, sexual coercion and assault, and violence against gay, lesbian, and bisexual students.

IMPLICATIONS AND RECOMMENDATIONS

Adolescent violence has emerged in recent years as both a threat to school safety and order, and as a more general public health issue. Violence-related behavior poses widespread problems, both in and out of schools, across all demographic groups and in all kinds of communities. More positively, despite tragic school shootings in recent years that have attracted national attention, there are clear indications that levels of youth violence in general are decreasing. Rates of physical fighting and weapon-carrying have declined significantly among Massachusetts high school students. Physical fighting and weapon-carrying on school property were both significantly less common in 2001 than in 1995.

Even so, fighting, weapons use, gang involvement, and threats continue to endanger the health and safety of young people both on and off school property. Weapons possession and assaults on staff or other students are among the main causes of school exclusion. The 2001 MYRBS results show that the percent of students who report being threatened or injured with a weapon

on school property has not changed significantly since 1993. It remains that about one in twelve Massachusetts high school students has been threatened or injured with a weapon on school property. There has also been a significant increase in recent years in the percent of students who skipped school because they felt unsafe.[64]

Schools, because they are the places where adolescents spend much of their time, can sometimes be the site of the problem. They can also, at least partially, be one source of solutions. Schools should apply comprehensive approaches to violence prevention that begin early in elementary school. A number of violence-prevention educational programs have been developed and carefully evaluated for effectiveness.[65-68] Many focus on teaching conflict resolution, mediation, and stress management skills to all students. Others focus on building the sense of school as a functional community, that is, "an environment characterized by supportive interpersonal relationships, opportunities to participate in school activities and decision-making, and shared norms, goals, and values."[69] Effective programs also work with communities and families to prevent violence and promote pro-social development both inside and outside of schools. Additionally, environmental approaches such as ensuring that no weapons are brought to school are also important. In some instances, limiting access to school grounds or inspecting bags or lockers may be useful mechanisms for ensuring basic school safety.

School administrators and teachers need to also be aware of adolescents who are singled out for bullying or victimization, as well as students with a history of impulsiveness, disruptiveness, and violent behavior. These students should be identified, counseled, and channeled into appropriate intervention programs. For some students or groups of students, more specific interventions may be needed. Gay, lesbian, and bisexual students, for example, may be targets of harassment and threats; school support groups and school-wide awareness training may be helpful. To address the problems of dating violence and unwanted sexual contact among youth, schools should collaborate with community agencies such as battered women's programs, rape crisis centers, and batterer intervention programs to conduct education and awareness programs for students, staff, and parents. Prevention efforts should also be accompanied by school-based intervention services for students who have been identified as being a victim or perpetrator of dating violence. Finally, schools should work with communities to address the issue of gang membership, and provide targeted programs developed for special subgroups who may be more likely to become involved in gang activity.

6 SUICIDAL THINKING AND BEHAVIOR

INTRODUCTION

Nationally, youth suicide rates have tripled since 1950.[21] In the United States, suicide is the third leading cause of death among young people aged 15 to 24; in Massachusetts it is the second.[56] One major cause of suicide is untreated depression, yet only a small percentage of Americans who suffer from depression are accurately diagnosed and treated.[70]

National Health Objectives for the Year 2010 include reducing the incidence of suicide attempts and completed suicides among adolescents.[26] The 2001 MYRBS asked students several questions about suicidal thoughts and behaviors during the previous year, including questions concerning (1) feeling sad or hopeless, (2) serious considerations of suicide, (3) plans to commit suicide, (4) actual suicide attempts, and (5) medical treatment required as the result of a suicide attempt.

RESULTS

KEY FINDINGS FROM 2001 MYRBS

- In the 12 months before the survey…
  - Over one-quarter of adolescents (29%) had felt so sad or hopeless for two weeks that they stopped their normal activities.
  - One fifth (20%) had seriously considered suicide.
  - Fifteen percent (15%) made a plan about how they would attempt suicide.
  - One in ten (10%) made an actual suicide attempt, and 4% made an attempt that resulted in an injury or overdose serious enough to require medical attention.
- Suicidal thinking and behavior were more common among females than males.
- Gay, lesbian, and bisexual youth reported significantly higher rates of suicidal thinking and behavior than their peers.
- Youth who had been victimized at school, or experienced dating violence or unwanted sexual contact, were far more likely than their peers to have made a suicide attempt.

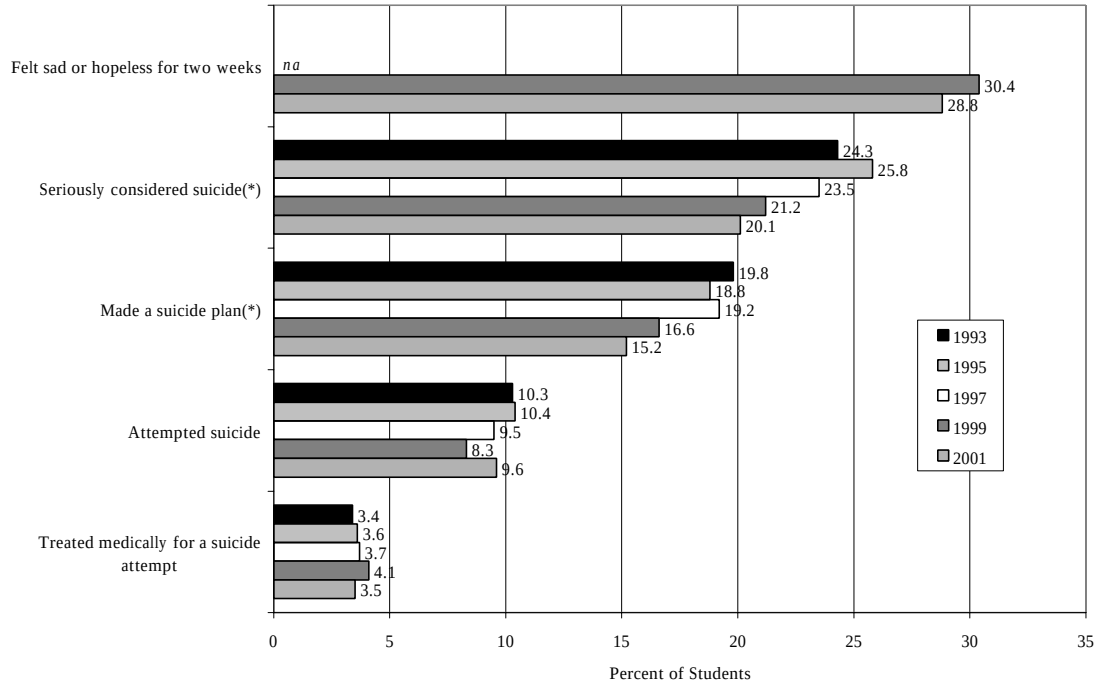
SUICIDAL THINKING

- **In 2001, 29% of all students reported feeling so sad or hopeless that they stopped doing some usual activities** for a period of two weeks or more in the 12 months before the survey. This question was first added to the survey in 1999; Thirty percent (30%) of students reported feeling sad or hopeless for two weeks in 1999.

- **One fifth (20%) of all students in 2001 seriously considered attempting suicide** in the 12 months before the survey. This represents a significant decrease from 1997, when 24% of students reported considering suicide.

- **Fifteen percent (15%) of students made a plan about how they would attempt suicide** in the 12 months before the survey. Suicidal planning has also decreased significantly from 1997, when 19% of students planned a suicide attempt (see Figure 6a).

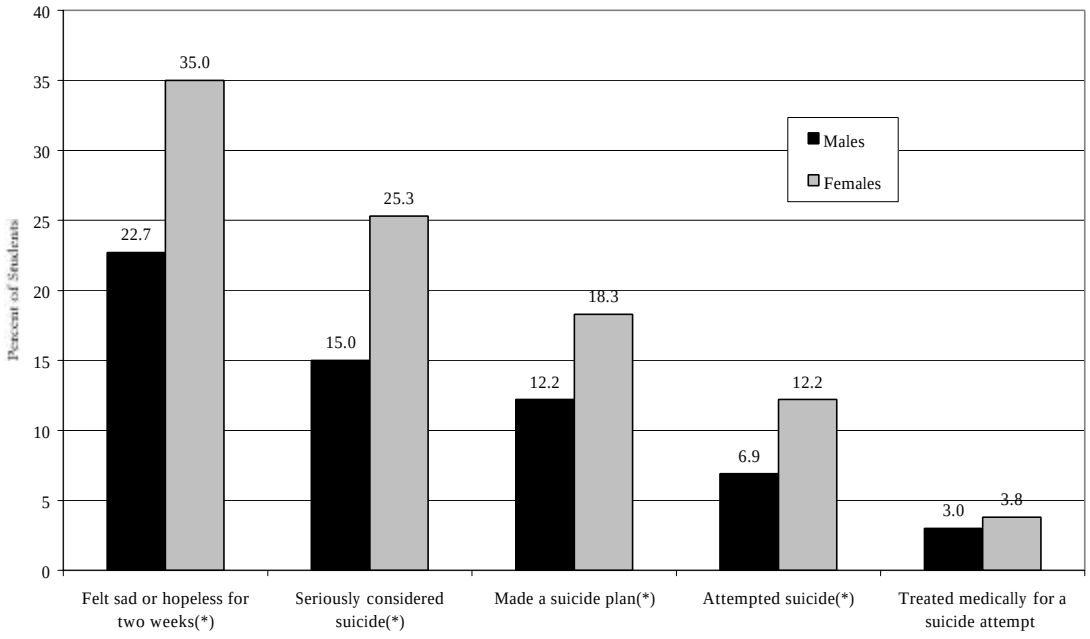
Figure 6a. Suicidal Thinking and Behavior Among Massachusetts High School Students, 1993 to 2001



Note: (*) Statistically significant decrease from 1997 to 2001, $p<.05$

- Suicidal thinking and planning were significantly more common among females than among males. More than one-third of females (35%) felt sad or hopeless; one-quarter (25%) seriously considered attempting suicide; and one in ten (10%) made a plan about how they would attempt suicide (see Figure 6b, next page)

Figure 6b. Suicidal Thinking and Behavior Among Massachusetts High School Students by Gender, 2001



Note: (*) Statistically significant difference between male and female students, $p<.05$

- Students in all four grades were equally as likely to report feeling sad or hopeless, considering suicide, and making a suicide plan.

- Suicidal thinking varied across racial/ethnic categories. Students of Other or Multiple ethnicity and Hispanic students were somewhat more likely than their peers to report feeling sad or hopeless, considering suicide, or making a suicide plan (see Figure 6d, page 58).

SUICIDAL BEHAVIOR

- **Ten percent (10%) of youth reported actually attempting suicide** in the 12 months before the survey. Despite a slight drop in 1999 (8%) the rate of attempting suicide has remained virtually unchanged since 1993.

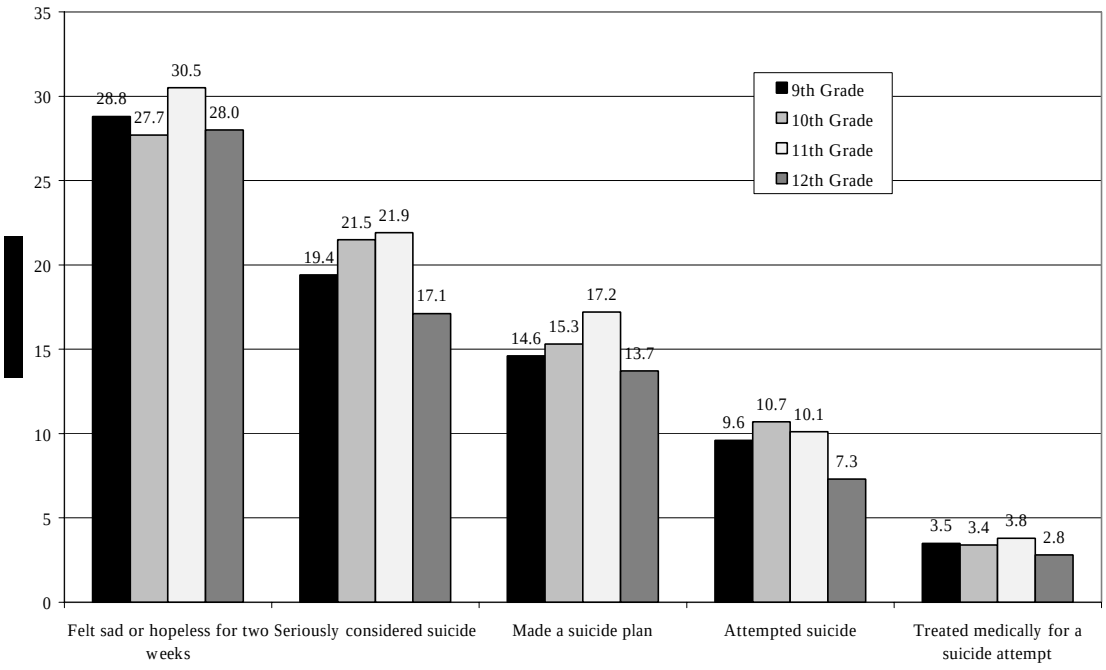
- Among students who attempted suicide, about 45% have attempted suicide more than once. Eleven percent (11%) attempted suicide six or more times.

- Approximately 36% of students who attempted suicide also reported receiving medical treatment for an injury, poisoning, or overdose resulting from a suicide attempt. This represents about 4% of the total student population, the same as was seen in 1999, 1997, and 1995.

- Female adolescents were significantly more likely than male adolescents to have attempted suicide (12% vs. 7% respectively); however, students of both genders were equally as likely to have received medical treatment for a suicide attempt (4% of females, 3% of males).

- Students of all grades were equally as likely to have attempted suicide or to have received medical treatment for a suicide attempt (see Figure 6c).

Figure 6c. Suicidal Thinking and Behavior Among Massachusetts High School Students by Grade, 2001



- Students of Other or Multiple ethnicity were most likely to have attempted suicide or to have received medical treatment for a suicide attempt. There were no significant differences between any of the racial/ethnic groups for either measure of suicidal behavior (see Figure 6d, next page).

- Students in urban communities were significantly more likely than suburban youth to have attempted suicide (11% vs. 8% respectively.) Rural students were significantly less likely than urban and suburban youth to have received medical treatment for a suicide attempt (see Figure 6e, next page).

Figure 6d. Suicidal Thinking and Behavior Among Massachusetts High School Students by Race/Ethnicity(a), 2001

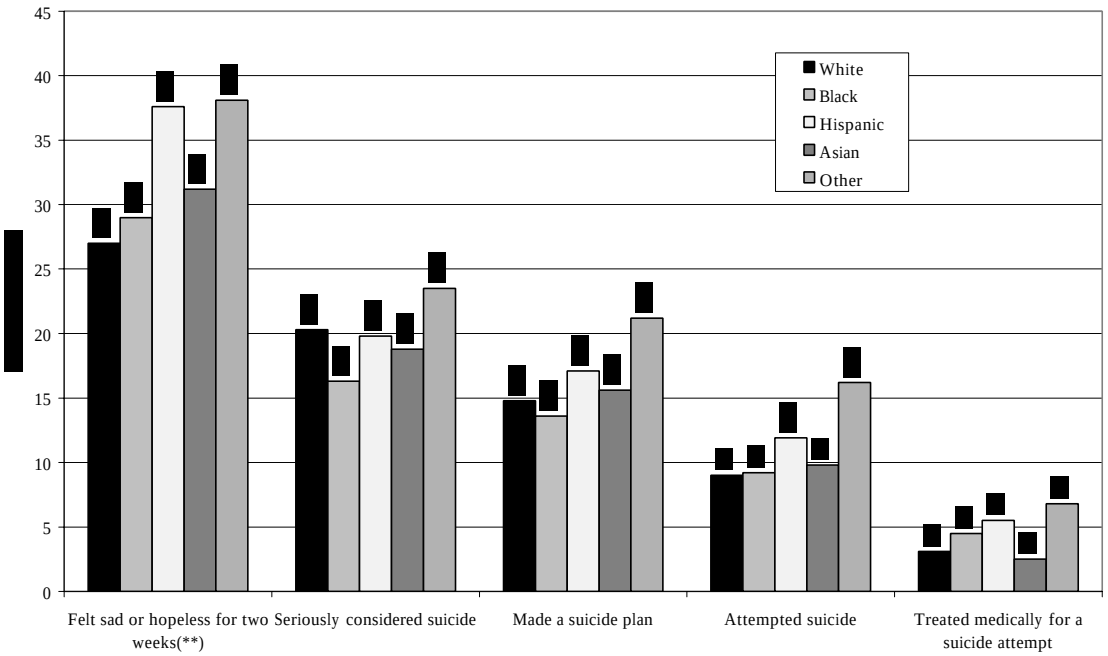
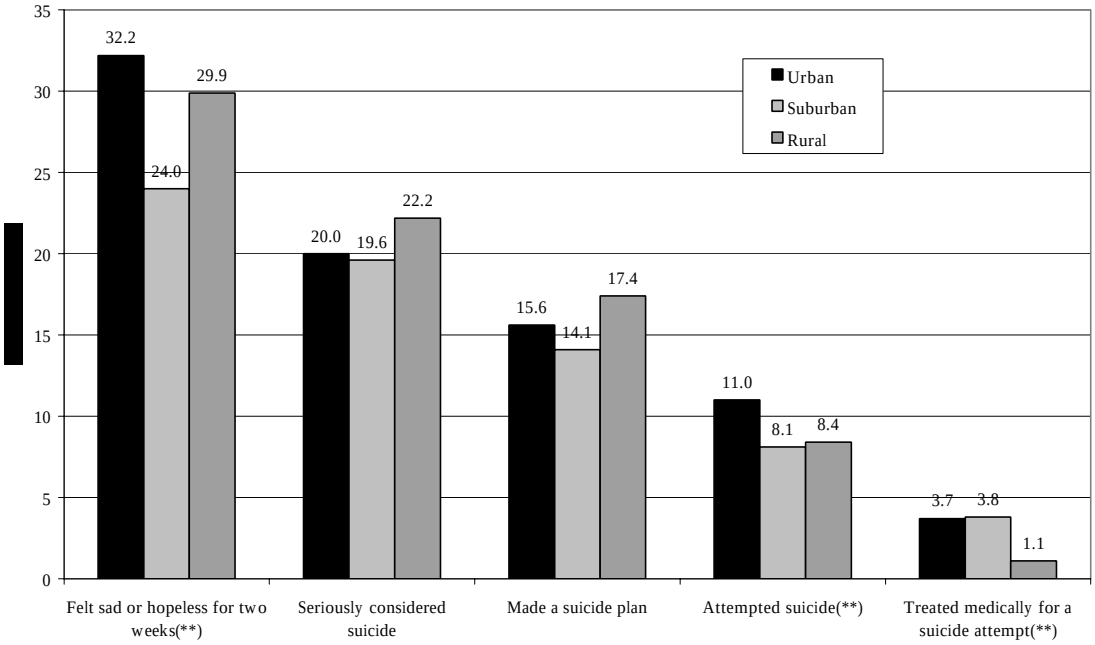


Figure 6e. Suicidal Behavior and Thinking Among Massachusetts High School Students in Urban, Suburban, and Rural Communities, 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) See Table 1.1, page 3, for a detailed explanation of racial/ethnic categories

ADDITIONAL FINDINGS

Sexual Minority Youth:

- Students who identified themselves as gay, lesbian, or bisexual and/or reported a history of any same-sex sexual contact (i.e., sexual minority youth, see Chapter 8) were significantly more likely than their peers to report suicidal thinking and behavior in the 12 months before the survey. Specifically, sexual minority youth were:

    - Almost twice as likely to have felt sad or hopeless (49% vs. 28%);
    - Two and a half times as likely to have seriously considered suicide (47% vs. 19%) or to have made a suicide plan (37% vs. 14%);
    - Almost four times as likely to have attempted suicide (31% vs. 8%); and
    - More than five times as likely to have received medical treatment for a suicide attempt (16% vs. 3%).

Victimization and Perceived Support:

- Students who had skipped school because they felt unsafe either at school or on their way to or from school were significantly more likely to have attempted suicide in the 12 months before the survey. Similarly, students who had been threatened or injured with a weapon at school were more likely to report at least one suicide attempt (see Table 6.1, next page).

- Compared to their peers, adolescents who had ever experienced dating violence were significantly more likely than their peers to have felt sad or hopeless for a two-week period (56% vs. 25%). Additionally, they were almost three times as likely to have considered or planned a suicide attempt, and more than four times as likely to have attempted suicide (see Table 6.1, next page).

- Similarly, students who had ever experienced sexual contact against their will were significantly more likely than their peers to report having felt sad or hopeless (56% vs. 26%), as well as having considered suicide (50% vs. 17%), planned suicide (41% vs. 13%), or attempted suicide (see Table 6.1, next page).

- Students who felt there was an adult outside of school that they could talk to if they had a problem were significantly less likely than their peers to have reported feeling sad or hopeless (26% vs. 43%), or to have considered or planned a suicide attempt (18% vs. 34% and 13% vs. 28%, respectively). These students were also significantly less likely to have actually attempted suicide (8% vs. 19%. See Table 6.1, next page, and Chapter 11).

Table 6.1 Suicidal Behavior Among Massachusetts High School Students by Selected Risk and Protective Factors, 2001

Risk Factor	***Suicide Attempt in Past Year (%)***	***p<.01***
Skipped school because felt unsafe		
yes	28.0	**
no	8.0	
Threatened or injured with a weapon at school		
yes	28.8	**
no	7.9	
Ever experienced dating violence		
yes	28.7	**
no	7.2	
Ever experienced sexual contact against will		
yes	34.0	**
no	6.9	
Protective Factor		
Had an adult outside of school to talk to about things that are important		
Yes	7.9	
No/not sure	18.6	**

Note: (**) Statistically significant difference between students with and without the risk or protective factor, p<.01

SUMMARY OF RESULTS (Also see Appendix C, Table 6)

Suicidal thinking among Massachusetts youth appears to be declining. Significantly fewer students in 2001 than in 1997 reported seriously considering suicide in the 12 months before the survey, and significantly fewer students had made a suicide plan. Still one-fifth of all high school students seriously considered suicide in 2001, and rates of actual suicide attempts have not changed significantly since 1993: about one in ten students in 2001 reported attempting suicide in the 12 months before the survey. Suicidal thinking and behavior were significantly more common among female than male students, but did not vary across grade in school. Adolescents who have experienced school victimization, dating violence, and unwanted sexual contact are especially vulnerable to suicidality, as are gay, lesbian, and bisexual adolescents. On the other hand, having an adult outside of school to talk to about things that are important appears to have a protective effect against suicidal thinking and behavior.

IMPLICATIONS AND RECOMMENDATIONS

Each year nearly one fifth of all Massachusetts high school students feel so much distress and despair that they seriously consider killing themselves; many actually make suicide attempts. All schools and communities need to address the seriousness of adolescent suicide. The *National Strategy for Suicide Prevention* includes an objective to increase the proportion of school districts and private school associations with evidence-based programs designed to address serious childhood distress and prevent suicide.[71] Across Massachusetts, the percent of health classes that dealt with suicide prevention increased sharply from 1994 to 1998.[13] Unfortunately, it was also the topic on which health teachers were least likely to feel adequately trained.[13] Effective and carefully evaluated approaches to teaching about mental health, emotional well-being, and suicide prevention need to be developed and incorporated into educator preparation and professional development programs.

Schools can address the problem of youth suicide directly using effective prevention programs that help students learn to recognize and manage the feelings of stress and depression that may lead to suicidal thinking and behavior. However, research has shown that suicidal adolescents are not likely to seek help on their own.[71] Therefore, it is important that school staff be trained to recognize early signs of depression and serious emotional disturbances among young people (particularly among high-risk subgroups such as females, sexual minority youth, and students who have been victims of violence), and be able to direct at-risk students to appropriate mental health services.

Many influences may contribute to an adolescent's intention to commit suicide, but some promising protective factors have also been identified. Recent research from National Longitudinal Study on Adolescent Health found suicidality to be significantly lower among high school students who felt emotionally connected to parents/family and to school.[72] The 2001 MYRBS results support that view. Massachusetts students who felt there was a parent or other adult outside of school (i.e., family member, neighbor, religious leader, etc.) they could talk to were far less likely to have considered, planned, or attempted suicide. Conversely, adolescents who were threatened, bullied, or intimidated at school or who felt so unsafe that they sometimes skipped school altogether had far higher rates than their peers of suicidality. Schools should work to foster an environment in which all students feel safe, accepted, and supported, and where all have the opportunity for social recognition and for responsible involvement in school activities.

7 BEHAVIORS RELATED TO UNINTENTIONAL INJURIES

INTRODUCTION

Each year, nearly 1,000 persons die from injuries, primarily head injuries, caused by bicycle accidents. Over half a million people are treated in emergency rooms for injuries related to bicycle riding.[73] Use of a bicycle helmet has been found to reduce the risk of bicycle-related head injury by up to 85%.[74] Among motorcycle riders, the head injury rate of helmet users is two-thirds less than that of riders who do not wear helmets.[75]

Motor vehicle accidents were the leading cause of death among young people aged 15 to 24 in 2001, both in Massachusetts[56] and across the country.[6] Seat belt use is estimated to reduce motor vehicle fatalities by 40 to 50 percent and serious injuries by 45 to 55 percent.[76] In Massachusetts all passengers aged 16 years and older are required by law to wear a seat belt when riding in a motor vehicle. Still in 1999, less than one-third of all Massachusetts adolescents always wore a seatbelt when riding in a motor vehicle. Research has shown that the risk of being involved in a motor vehicle crash is greater for young people than it is for older individuals.[77] Nationally, during a typical weekend, on average one teenager dies each hour in an automobile accident, and nearly half of those crashes involve alcohol.[78] In Massachusetts, 49% of youth crash fatalities in 1999 were alcohol-related.[23]

The 2001 MYRBS asked students to report on seatbelt use, as well as on helmet use for motorcycle and bicycle riding. Additionally, students answered questions about riding with a driver who had been drinking alcohol and driving after they had consumed alcohol themselves.

RESULTS

KEY FINDINGS FROM THE 2001 MYRBS

- One fifth of adolescents (21%) reported that they rarely or never wore a seatbelt when they rode in a car. This is a significant decrease from 41% in 1993.
- Four out of five of motorcycle riders (80%) wore a helmet at least some of the time. Only one out of five bike riders (21%) wore a helmet at least some of the time. Low as this bicycle helmet rate is, it still represents a significant improvement over the 1993 rate of 6%.
- In the month before the survey, 31% of students had ridden with a driver who had been drinking and 12% had driven after drinking themselves. Both rates have significantly declined since 1995.

SEAT BELT AND HELMET USE

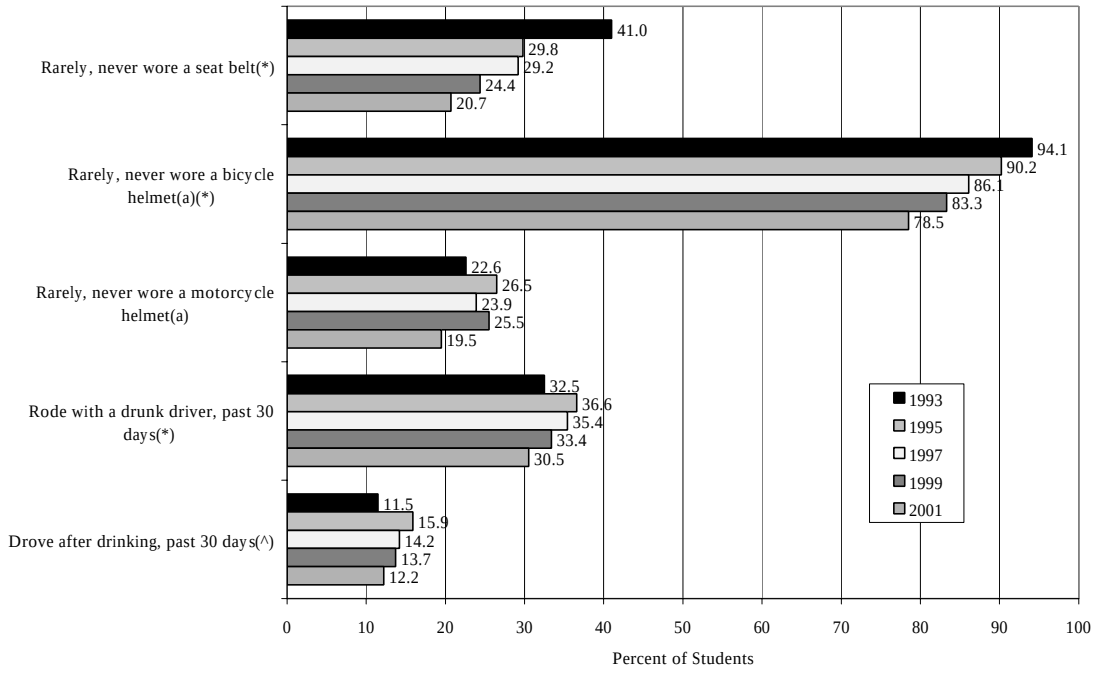
- **The percentage of youth who reported that they never or rarely wore a seatbelt in a car driven by someone else decreased significantly from 1997 (29%) to 2001 (21%).** One-quarter of adolescents (26%) reported wearing a seatbelt most of the time and an additional one-third (34%) reported always wearing a seatbelt.

- Male students were significantly more likely than female students to never or rarely wear a seat belt (26% vs. 16%, respectively). There were no significant grade differences in the percent of students who never or rarely wore a seatbelt.

- Black students and Hispanic students were significantly more likely than White students to report never or rarely wearing a seat belt (29% and 27% vs. 19%). Asian students and students of Other or Multiple ethnicity were equally as likely to report never or rarely wearing a seatbelt (25% of each group).

- Of students who rode a bicycle in the 12 months before the survey, **79% never or rarely wore a helmet when they rode a bike**. The percent of students who don't wear bike helmets has been decreasing since 1993, when 94% of students reported never or rarely wearing a bike helmet (see Figure 7a).

Figure 7a. Behaviors Associated with Unintentional Injury Among Massachusetts High School Students, 1993 to 2001



Notes: (*) Statistically significant decrease from 1997 to 2001, $p<.05$; (^) Statistically significant decrease from 1995 to 2001, $p<.05$; (a) Among students who rode a bicycle/motorcycle in the 12 months before the survey

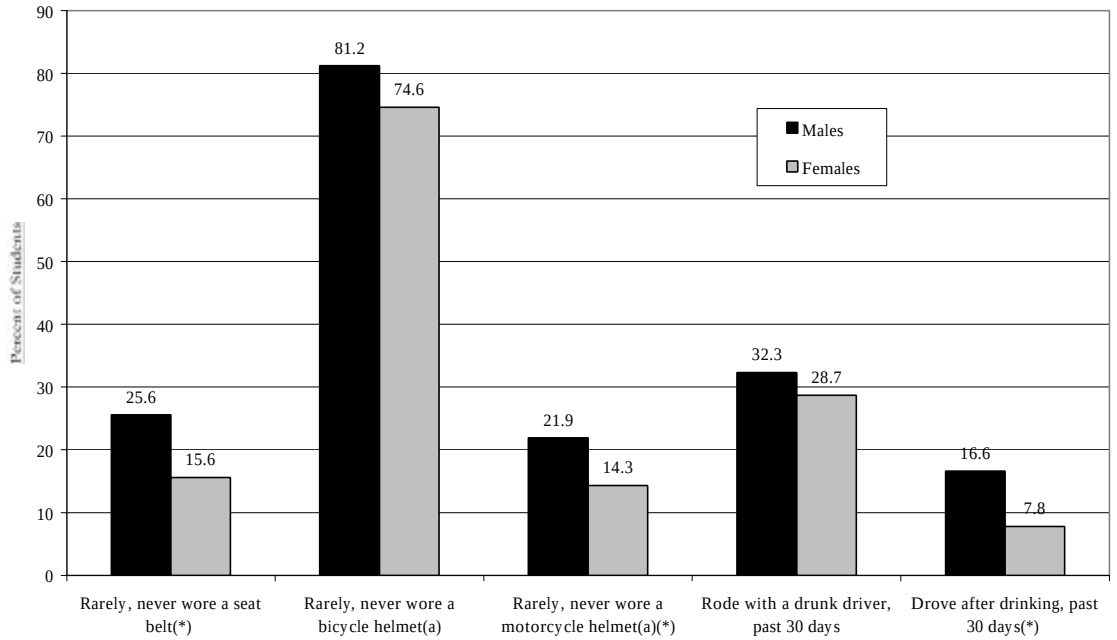
- Approximately 75% of females and 80% of males never or rarely wore a bike helmet when they rode a bike in the 12 months before the survey. Bike helmet use did not vary significantly across grades.

- White students were less likely to report never or rarely wearing a bike helmet (76%) than were Black students (90%), Hispanic students (87%), Asian students (81%), and students of Other or Multiple ethnicity (83%).

- Among students who rode a motorcycle in the 12 months before the survey, **20% never or rarely wore a helmet when they rode a motorcycle**. This is a decrease from 1999, when 25% of students never or rarely wore a motorcycle helmet.

- Male students were significantly more likely than female students to never or rarely wear a motorcycle helmet (22% vs. 14% respectively; see Figure 7b). There were no significant differences in motorcycle helmet use by grade or race/ethnicity.[79]

Figure 7b. Behaviors Associated with Unintentional Injury Among Massachusetts High School Students by Gender, 2001



Notes: (*) Statistically significant difference between male and female students, $p<.05$; (a) Among students who rode a bicycle/motorcycle in the year before the survey

DRINKING AND DRIVING

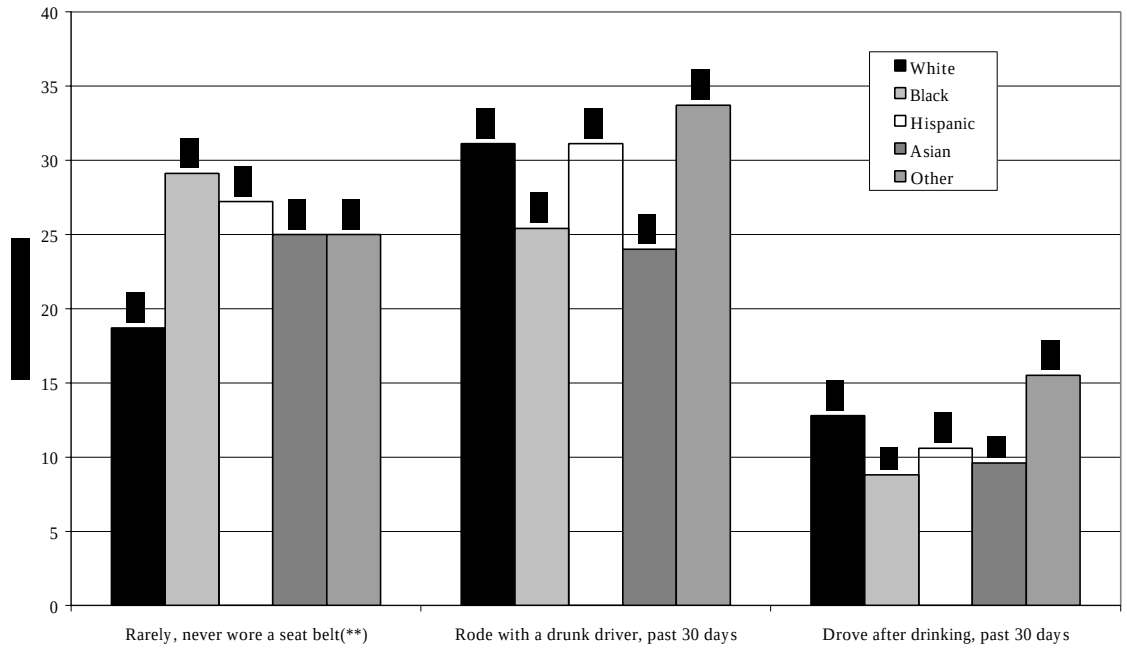
- **Thirty-one percent (31%) of all students reported riding in a car in the 30 days before the survey with a driver who had been drinking alcohol;** this rate is down significantly from 35% in 1997. Among students who reported riding with a driver who had been drinking, nearly 18% did so on six or more occasions.

- Approximately 32% of male students and 29% of female students reported riding with a driver who had been drinking.

- The rate increased with grade in school, from 26% of 9th graders to 36% of 12th graders, but this difference may likely be due to the increased number of licensed drivers in older grades.

- The highest rate of riding in a car with a drunk driver was found among students of Other or Multiple ethnicity (34%), while 31% each of White and Hispanic students, 25% of Black students, and 24% of Asian students also reported the behavior (see Figure 7c).

Figure 7c. Behaviors Associated with Unintentional Injury Among Massachusetts High School Students by Race/Ethnicity(a), 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) See Table 1.1, page 3, for a detailed explanation of racial/ethnic categories

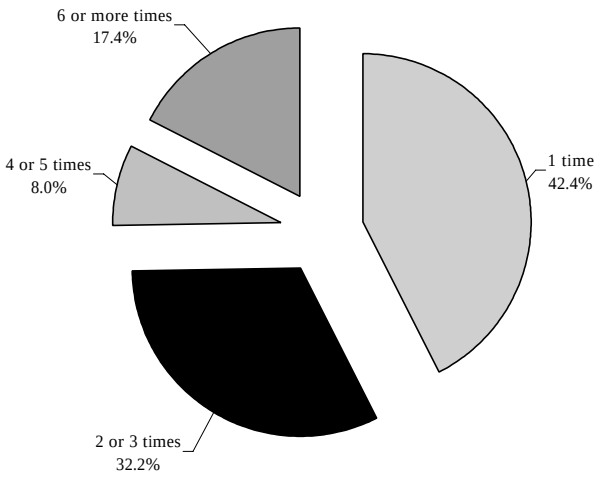
- **The percent of students who reported driving when they had been drinking decreased significantly from 16% in 1995 to 12% in 2001.** Since 1999, the rate of drinking and driving has not changed among males (17% both years) but has decreased slightly among females from 10% to 8%.

- Drinking and driving is significantly more common among 11th and 12th graders (15% and 21% respectively) than among 9th and 10th graders (7% and 8% respectively). Again, this difference may likely be due to the increased number of licensed drivers in older grades.

- Students of Other or Multiple ethnicity had the highest rate of drinking and driving (16%). Thirteen percent (13%) of White students, 9% of Black students, 11% of Hispanic students, and 10% of Asian students also reported the behavior.

- Among students who reported drinking and driving in the 30 days before the survey, 42% reporting doing so on only one occasion (see Figure 7d).

Figure 7d. Frequency of Drinking and Driving Among Massachusetts High School Students who Reported the Behavior, 2001



SUMMARY OF RESULTS

Since 1997, significant improvements have occurred in seat belt use and in bicycle helmet use among Massachusetts high school students. Also, compared to 1995, significantly fewer adolescents report drinking and driving or riding with a driver who had been drinking.

Compared to female students, male students had higher rates of injury-related risk behaviors, including never or rarely wearing a seat belt or motorcycle helmet, and driving after drinking alcohol.

IMPLICATIONS AND RECOMMENDATIONS

Traffic accidents are the major cause of premature death for adolescents; even when not fatal, they can lead to serious injury or permanent disability. The significant improvements that have occurred in seat belt use and in bicycle helmet use, as well as small improvements in motorcycle helmet use, indicate that some safety messages are being heeded. Even so, over one-quarter of adolescents rarely wear seat belts, three-quarters do not wear bicycle helmets, and one-fifth do not wear motorcycle helmets. The importance of safety measures aimed at reducing injuries and fatalities should be included in comprehensive school health education programs.

Driving under the influence of alcohol continues to be a serious problem. In 2001, one in eight adolescents drove after drinking alcohol and three in ten adolescents rode with a driver who had been drinking alcohol. Further, though the MYRBS did not ask about driving and use of other drugs, another recent survey of Massachusetts students indicates that driving after smoking marijuana was actually slightly more common than driving after drinking.[52] Schools and communities need to reduce adolescent access to alcohol and illegal drugs, and provide students with prevention education that both stresses the dangers of driving while intoxicated and builds skills needed to avoid riding with an impaired driver.

8 SEXUAL BEHAVIORS

INTRODUCTION

Healthy sexuality is a valued part of life. Unfortunately, some adolescents engage in sexual activity that may pose serious threats both to their health and to their plans for the future. Early sexual activity, multiple sexual partners, and the lack of condom or other contraceptive use are associated with unintended pregnancy and with sexually transmitted diseases (STDs), including HIV infection.

Each year in the United States, over one million adolescent females become pregnant, nearly 470,000 give birth, and 400,000 terminate pregnancies.[80] One-third of all unintended pregnancies occur among teenagers, and three-quarters of teenage pregnancies occur among adolescents who are not using any form of contraception.[81] The United States has one of the highest rates of adolescent pregnancy, abortion, and childbearing in the Western industrialized world.[82] Even though Massachusetts has one of the lowest teen birth rates in the country, in 2000, more than 5,000 infants were born to teenage mothers in the state.[83]

Sexually transmitted diseases contribute to illness and death among adolescents, young adults, and newborns. Two-thirds of the twelve million new STD infections each year occur among young persons under age 25, and every year approximately 3 million American teenagers acquire a sexually transmitted disease.[84] For physiological reasons, adolescent females are more susceptible than are older women to STDs[85] and may suffer severe consequences from STDs, including pelvic inflammatory disease, ectopic pregnancy, infertility, and cervical cancer. Additionally, someone with an active sexually transmitted disease is more likely than a person without STDs to become infected with HIV if exposed to the virus.

In Massachusetts, over 15,000 people have been diagnosed with AIDS; nearly one-fifth of these are people in their twenties or younger and most were infected through unsafe sexual activity.[86] Because it takes eight to eleven years on average for HIV infection to result in an AIDS diagnosis, it is likely that many of these young people became infected with HIV when they were teenagers.

The 2001 MYRBS asked students to report lifetime and recent sexual intercourse, including number and gender of sexual partners. It also asked about age at first intercourse, use of condoms for pregnancy and STD prevention, use of other forms of contraception, and use of alcohol or other drugs before sexual intercourse.

RESULTS

KEY FINDINGS FROM THE 2001 MYRBS

- Slightly fewer students in 2001 than in 1993 reported lifetime sexual intercourse, recent sexual intercourse, four or more lifetime sexual partners, or sexual intercourse before age 13; however, these rates appear to be stabilizing.

During their lifetimes…

- Forty-four percent (44%) of Massachusetts high school students have ever had sexual intercourse.
- One in eight students (12%) has had four or more sexual partners.
- One in twenty students (5%) had sexual intercourse before age 13.
- Five percent (5%) have been pregnant or gotten someone pregnant.
- Three percent (3%) have been diagnosed with a sexually transmitted disease.

Among students who were sexually active in the three months before the survey…

- Roughly one-quarter (23%) used alcohol or drugs before sexual intercourse last time. This is a significant decrease from 30% reported in 1999.
- Over half (58%) used a condom during their last sexual intercourse – a slight increase over 52% in 1993.
- Thirteen percent (13%) did not use any form of birth control or were not sure if any birth control method had been used when they had sex the last time.

- Male students were significantly more likely than female students to report sexual intercourse before age 13, four or more lifetime sexual partners, and substance use at last intercourse. Urban students were significantly more likely than non-urban youth to report sexual behaviors.

- Five percent (5%) of the sample were sexual minority youth (those who identified as gay, lesbian, or bisexual and/or reported any same-sex sexual contact). Sexual minority youth were significantly more likely to report some sexual behaviors and consequences.

LIFETIME SEXUAL INTERCOURSE

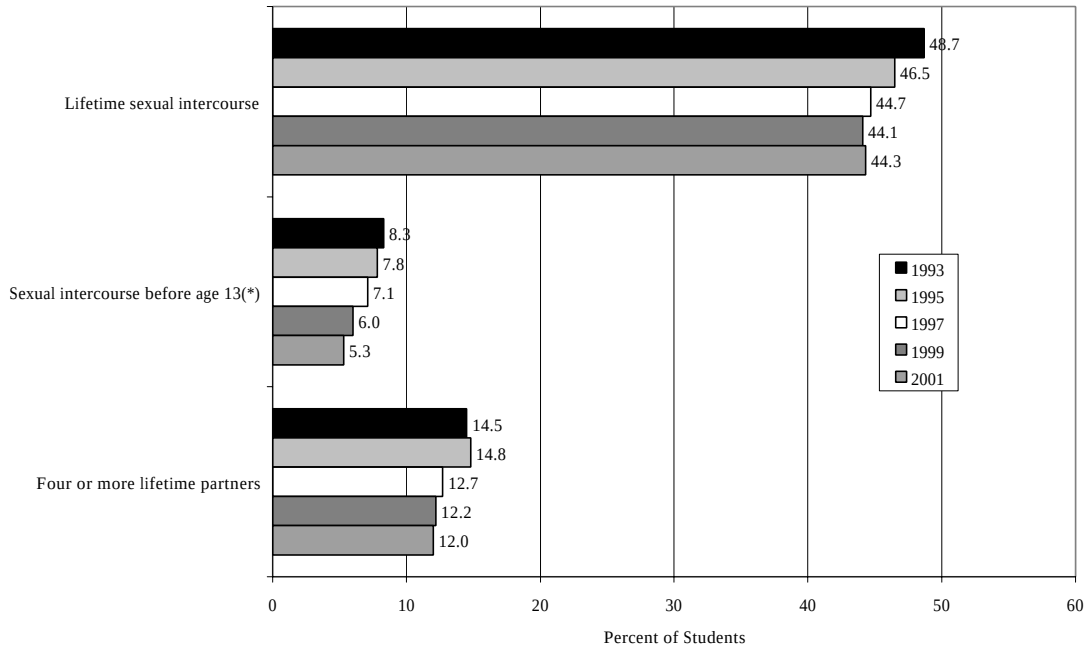
- **Approximately 44% of all high school students had ever had sexual intercourse in their lifetime.** The rate of lifetime sexual intercourse has not changed significantly since 1993, when 49% of students reported lifetime sexual intercourse, and has not changed at all since 1997 (see Figure 8a, next page).

- Forty-six percent (46%) of males and 42% of females had ever had sexual intercourse in their lifetime. These rates are identical to the 1999 rates of lifetime sexual intercourse among males and females.

- The rate of lifetime sexual activity increased significantly with grade in school. By the end of 9th grade, 28% of students had become sexually active. By the end of 12th grade, the rate more than doubled to 65%.

- Black students (58%), Hispanic students (57%), and students of Other or Multiple ethnicity (49%) had higher rates of lifetime sexual intercourse than White students (42%) and Asian students (35%).

Figure 8a. Lifetime Sexual Behaviors Among Massachusetts High School Students, 1993 to 2001



Note: (*) Statistically significant decrease from 1993 to 2001, p<.05

Early Initiation of Sexual Intercourse:

- **The percent of students who had sexual intercourse before age 13 years decreased significantly from 8% in 1993 to 5% in 2001.**

- Male students were significantly more likely than female students to have had sexual intercourse before age 13 (8% vs. 3%, respectively).

- Sexual intercourse before age 13 was slightly more common among students in younger grades (7% of freshman and 6% of sophomores vs. 4% of juniors and of seniors).

- Black students had the highest rate of sexual intercourse before age 13 (17%), and were significantly more likely than Hispanic (9%), Asian (6%), and White students (3%) to report the behavior. Roughly 10% of students of Other or Multiple ethnicity had sexual intercourse before age 13 years.

Number of Sexual Partners:

- Among students who had ever had sexual intercourse, well over half (61%) had sexual intercourse with only one or two sexual partners in their lifetime. **Among all students, one in eight (12%) had had sexual intercourse with four or more partners in their lifetime.** This rate is down slightly from 15% in 1993.

- Male students were significantly more likely than female students to have had sexual intercourse with four or more partners in their lifetimes (see Table 8.1).

Table 8.1 Sexual Behaviors and Consequences Among Massachusetts High School Students by Gender, 2001

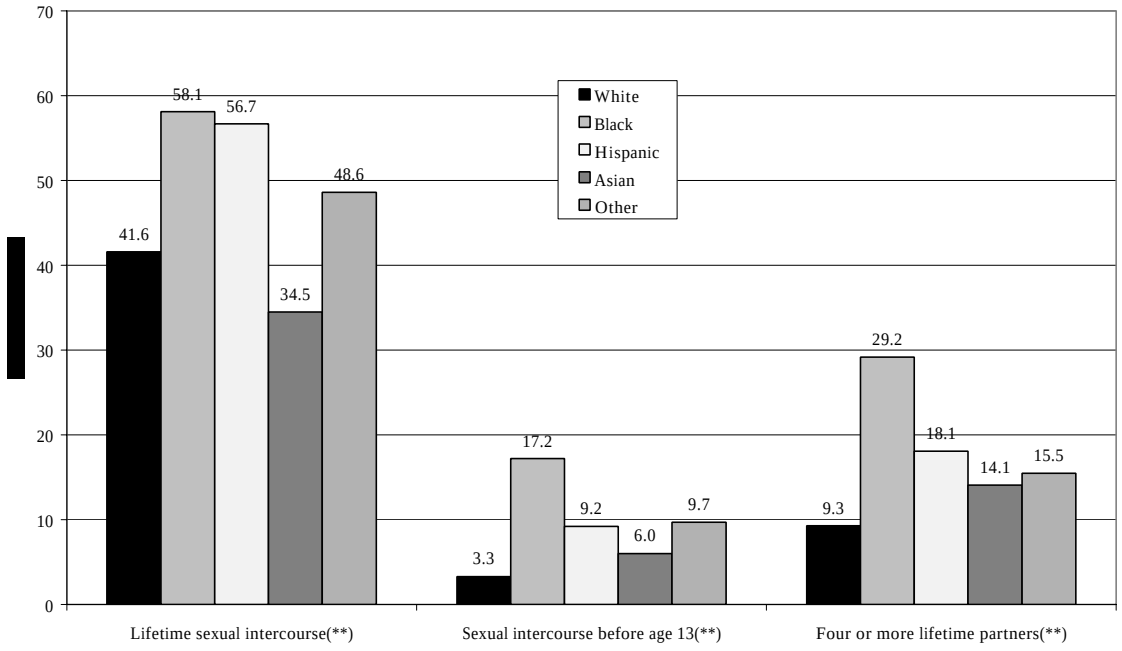
	Percent (%) of Males	*Percent (%) of Females*	*p<.05*
Lifetime sexual intercourse	46.3	42.3	
Sexual intercourse before age 13	8.0	2.5	*
Four or more lifetime sexual partners	14.6	9.4	*
Recent sexual intercourse	31.8	33.0	
Condom use at last sexual intercourse(a)	61.7	54.9	
Substance use at last sexual intercourse(a)	28.7	16.8	*
Ever been or gotten someone pregnant(b)	8.6	15.0	*
Ever been tested for HIV or STD(b)	18.2	33.6	*
Ever been diagnosed with HIV or STD(b)	5.0	4.7	

Notes: (*) Statistically significant difference between male and female students, p<.05; (a) Among students who had sexual intercourse in the three months before the survey; (b) Among students who had sexual intercourse in their lifetime

- Roughly one in five (19%) 12th graders had sexual intercourse with four or more partners in their lifetime. This was slightly more than 11th graders (12%), 10th graders (10%) and 9th graders (8%).

- Black students (29%) were significantly more likely than White students (9%) or Asian students (14%) to report having had sexual intercourse with four or more partners in their lifetime. Hispanic students (18%) also had a significantly higher rate than White students (see Figure 8b).

Figure 8b. Lifetime Sexual Behaviors Among Massachusetts High School Students by Race/Ethnicity(a), 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) See Table 1.1, page 3, for a detailed explanation of racial/ethnic categories

- Among students who had ever had sexual intercourse, those who had sexual intercourse for the first time before age 13 were significantly more likely to have had four or more lifetime partners than were those students whose first sexual intercourse was later in life (67% vs. 22%).

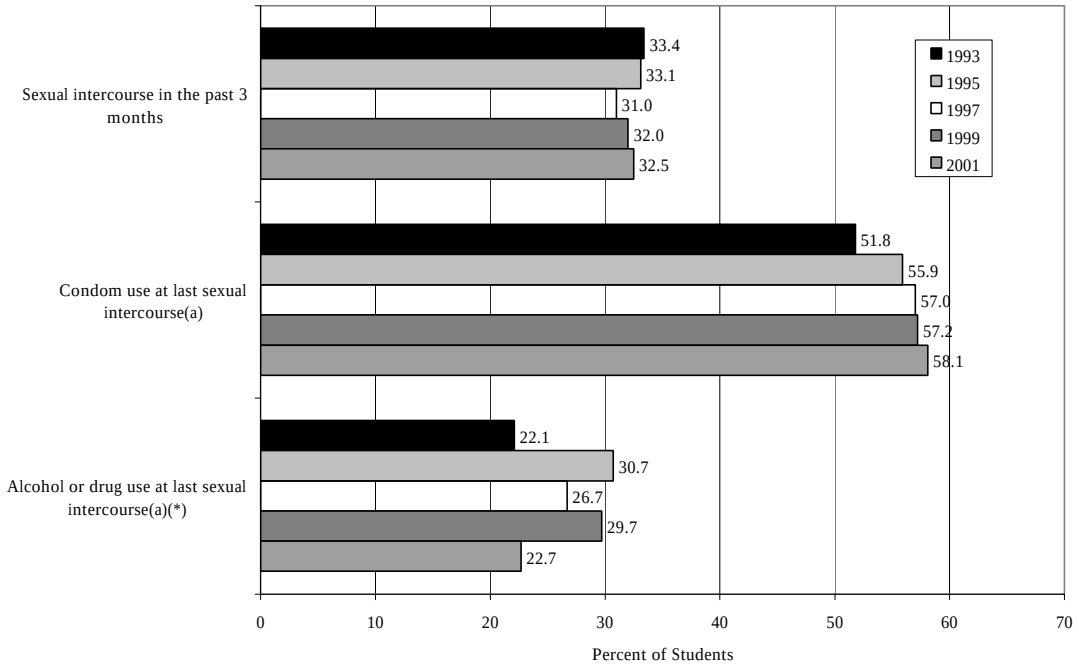
RECENT SEXUAL INTERCOURSE

- **About one-third of all students (33%) had sexual intercourse in the three months before the survey (i.e., recent sexual intercourse).** The rate of recent sexual intercourse has remained at about 31% - 33% since 1993 (see Figure 8c, next page).

- The majority of students who had ever had sexual intercourse (73%) also reported recent sexual intercourse.

- Male and female students were equally as likely to have had sexual intercourse in the three months before the survey (32% and 33%, respectively).

Figure 8c. Recent Sexual Behaviors Among Massachusetts High School Students, 1993 to 2001



Notes: (*) Statistically significant decrease from 1999 to 2001, p<.05; (a) Among students who had sexual intercourse in the three months before the survey

- The rate of recent sexual intercourse did not vary across racial/ethnic groups, but it did increase significantly with each grade in school: 18% of 9th graders, 26% of 10th graders, 38% of 11th graders, and 52% of 12th graders reported recent sexual intercourse.

- Among students who had sexual intercourse in the three months before the survey, the vast majority (77%) had sexual intercourse with only one partner. Seven percent (7%) had sexual intercourse with four or more partners.

CONDOM USE, BIRTH CONTROL METHODS, AND SUBSTANCE USE ASSOCIATED WITH SEXUAL INTERCOURSE[87]

- **More than half (58%) of students who had recent sexual intercourse used a condom during their last sexual intercourse** (see figure 8c, above). This continues a slight, but steady, increase in the rate of condom use among Massachusetts students.

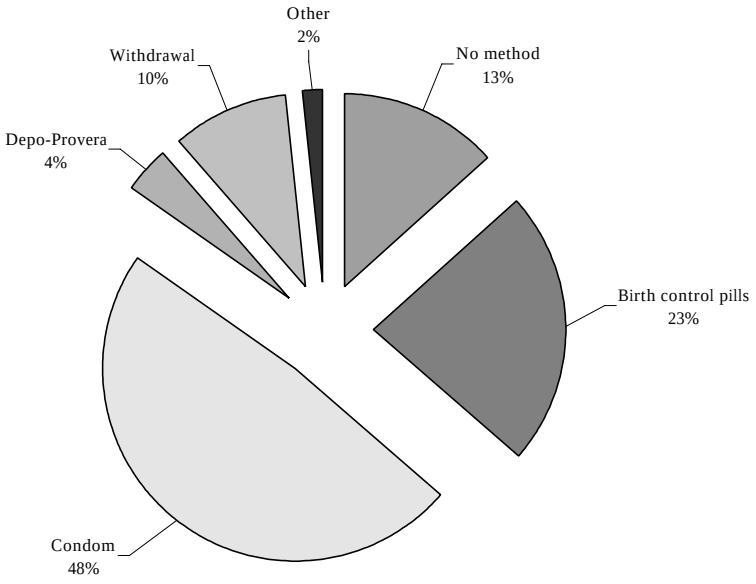
- Males were slightly more likely than females to report condom use at last intercourse (62% vs. 55%), but the difference is not statistically significant.

- Students in older grades were less likely than students in younger grades to have used a condom at last intercourse (49% of seniors, 60% of juniors, 66% of sophomores, and 65% of freshman).

- The vast majority (87%) of students who had recent sexual intercourse used a method of birth control the last time they had sex. Females were somewhat more likely than males to report any birth control use (90% vs. 84%).

- Condoms were the most commonly used form of birth control among students who had sexual intercourse in the three months before the survey. Birth control pills were the second most commonly used form of birth control. Approximately 13% did not use any method of birth control (see Figure 8d).

Figure 8d. Methods of Birth Control Used by Massachusetts High School Students(a), 2001



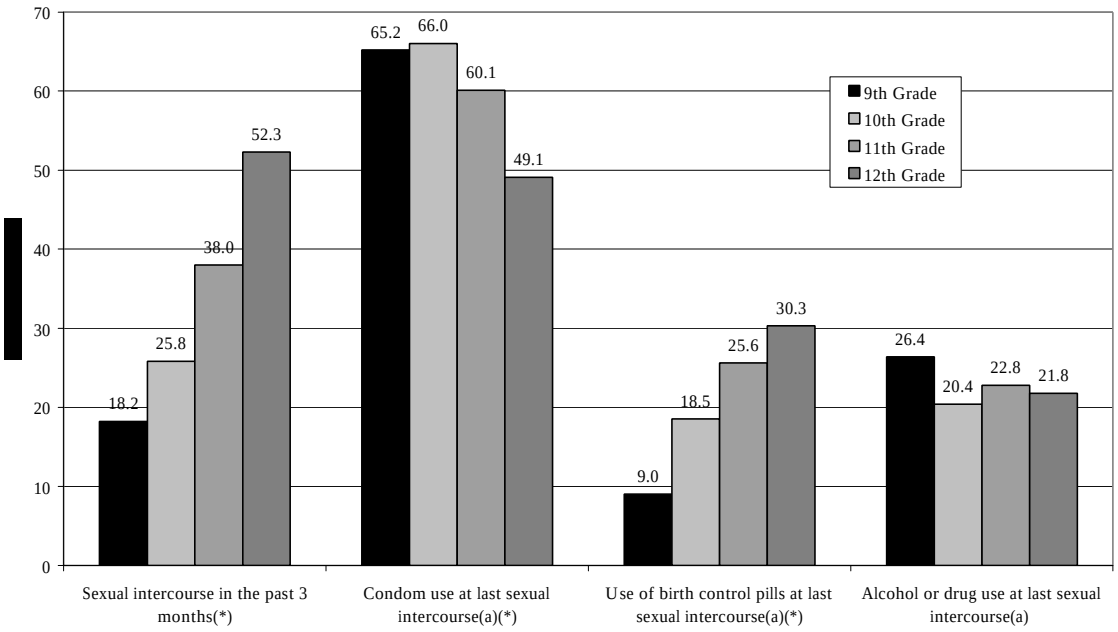
Note: (a) Among students who had sexual intercourse in the three months before the survey

- While students in younger grades were more likely than students older grades to have used a condom at last intercourse, the use of birth control pills or Depo-Provera was more common among seniors than among freshman (see Figure 8e, next page).

- **Compared to 1999, significantly fewer students in 2001 used alcohol or drugs before their last sexual intercourse (30% to 23%).** The rate of substance use at last intercourse decreased among both genders from 1999 to 2001 (37% to 29% among males and 23% to 17% among females).

- There were no significant differences across grades in the percent of students who used alcohol or drugs before their last intercourse.

Figure 8e. Recent Sexual Behaviors Among Massachusetts High School Students by Grade, 2001



Notes: (*) Statistically significant difference between grades, $p<.05$; (a) Among students who had sexual intercourse in the three months before the survey

- Students who used alcohol or drugs before their last intercourse were significantly less likely to have used any method of birth control at last intercourse (78% vs. 89%), and, specifically, less likely to have use a condom at last intercourse (49% vs. 61%).

PREGNANCY AND SEXUALLY TRANSMITTED DISEASES

- **Five percent (5%) of all students (6% of females, 4% of males) reported having ever been or gotten someone pregnant.** This rate is the same as was seen in 1999, and has not changed significantly since 1993.

- Among students who had ever had sexual intercourse (i.e., sexually experienced youth), 15% of females had been pregnant and 9% of males reported having gotten someone pregnant.

- Sexually experienced freshman, juniors, and seniors were equally as likely to have been or gotten someone pregnant (13%) while only 8% of sexually experienced sophomores had ever been or gotten someone pregnant.

- Having ever been or gotten someone pregnant was significantly more common among sexually experienced Black students (25%) than among Hispanic (14%), Asian (11%), and White students (10%), and students of Other or Multiple ethnicity (12%).

- **Approximately 13% of all students had ever been tested for HIV infection or other sexually transmitted diseases (STDs).** Among students who had ever had sexual intercourse (i.e., sexually experienced youth), 21% had been tested for HIV and 22% had been tested for other STDs.

- Among sexually experienced youth, HIV or STD testing was more common among female students than males (34% vs. 18%). Testing was also more common among students in older grades (32% of seniors and 26% of juniors) compared to students in younger grades (20% of sophomores and of freshman), but there were no significant racial/ethnic differences.

- **Three percent (3%) of all students and 5% of sexually experienced youth had been told by a doctor or other health care professional that they had a sexually transmitted disease or were HIV positive.** There were no significant gender, grade, or racial/ethnic differences in the percent of students who were diagnosed with HIV or other STDs.

- Among sexually experienced youth, those students who used a condom the last time they had sexual intercourse were significantly less to have been diagnosed with HIV infection or other STDs than were students who did not use a condom (4% vs. 7%).

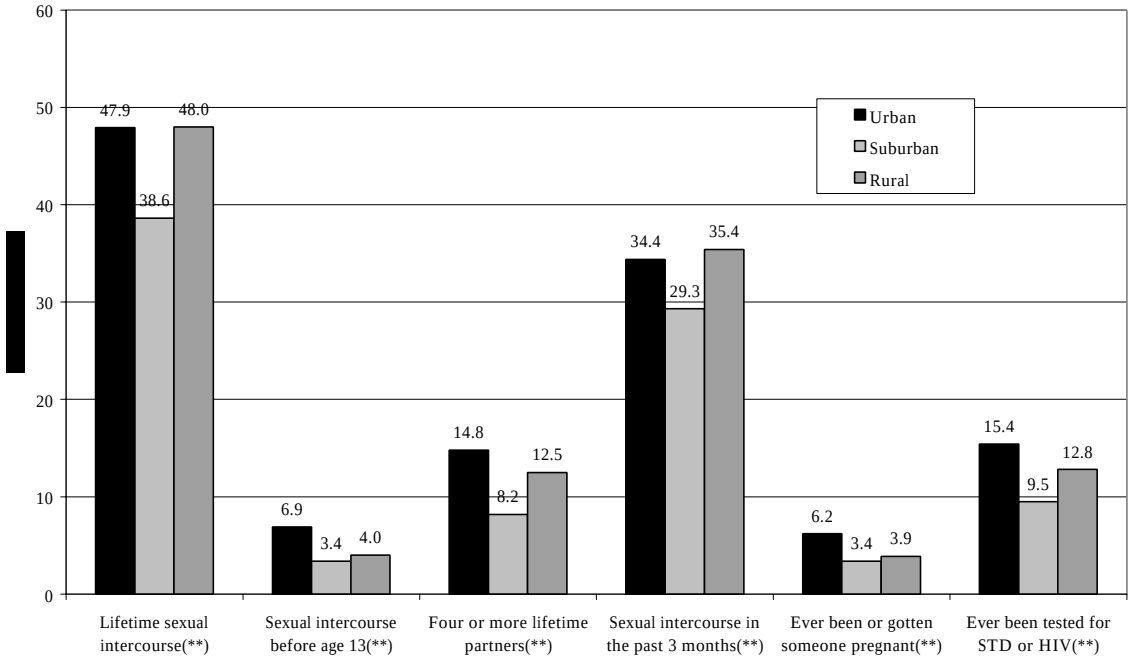
ADDITIONAL FINDINGS

Sexual Behaviors in Urban, Suburban, and Rural Communities:

- The prevalence rates of certain sexual behaviors varied significantly across communities such that students in urban populations were significantly more likely than suburban youth to report all sexual risk behaviors (see Figure 8h, next page).

- In addition, students in rural communities were significantly more likely than suburban youth to report lifetime sexual intercourse, and *somewhat* more likely to report four or more lifetime sexual partners and sexual intercourse in the past three months (see Figure 8h, next page).

Figure 8f. Sexual Behaviors Among Massachusetts High School Students in Urban, Suburban, and Rural Communities, 2001



Note: (**) Statistically significant difference between groups, $p<.01$

- Among youth who had recent sexual intercourse (i.e., sexually active youth), condom use was somewhat more common among urban youth (60%) than among suburban (57%) and rural youth (53%).

- Sexually active urban youth were slightly less likely to have used alcohol or drugs at last intercourse (21%) than sexually active suburban and rural youth (25% of each group).

Sexual Minority Youth:

- Three percent (3%) of all students (2% of males, 4% of females) described themselves as gay, lesbian, or bisexual.

- Four percent (4%) of all students had same-sex sexual contact[88] in their lifetime.

- Self-defined sexual orientation and sexual behavior did not always match. More than half (53%) of students who identified as gay, lesbian, or bisexual had never had any same-sex sexual contact. More than half (55%) of students who had same-sex sexual contact identified as heterosexual, and an additional 8% identified themselves as "not sure" of their sexual orientation.

- In all, five percent (5%) of students (8% of students who ever had sexual intercourse in their lifetime) could be considered sexual minority youth; that is, they either identified as gay, lesbian, or bisexual and/or reported any same-sex sexual contact.

- Sexual minority students were significantly more likely than their peers to report:

    - Lifetime sexual intercourse (73% vs. 43%)
    - Sexual intercourse before age 13 (13% vs. 5%);
    - Four or more lifetime sexual partners (36% vs. 11%);
    - Recent sexual intercourse (52% vs. 32%);
    - Having ever been or gotten someone pregnant (27% vs. 11%, among students who ever had sexual intercourse)[89]; and
    - Having ever been tested for HIV or STDs (42% vs. 24%, among students who ever had sexual intercourse).

SUMMARY OF RESULTS (Also see Appendix C, Table 8)

Slightly fewer students in 2001 than in 1993 reported having ever engaged in sexual intercourse; at the time of the 2001 survey, less than half of all students were sexually experienced. Also, compared to 1993, fewer students in 2001 reported having had sexual intercourse before age 13, multiple sexual partners, and recent sexual intercourse. Unfortunately none of the changes since 1993 have been significant and the rates of lifetime sexual intercourse, multiple sexual partners, and recent sexual intercourse appear to be stabilizing at unacceptably high levels. Male students, sexual minority students, and urban youth are more likely than their peers to report some sexual behaviors.

Since 1999, there has been a significant decrease in the use of alcohol and drugs before sexual intercourse among sexually active students. Since 1993, rates of condom use have increased among sexually active students, but rates continue to be much lower among 12th grade students than among younger students. Students in older grades are more likely than students in younger grades to use hormonal contraceptives (such as birth control pills and Depo-Provera). One in eight sexually active students did not use a condom or any other form of birth control at last intercourse.

IMPLICATIONS AND RECOMMENDATIONS

It is encouraging that fewer Massachusetts high school students are engaging in sexual risk behaviors than in the past; however, the MYRBS results show that many rates of sexual behaviors have not changed significantly since 1993 and have not changed at all since 1997. A significant number of students enter high school already sexually experienced. One in four adolescents is sexually active by the end of 9th grade, and this rate more than doubles by the end of high school. The results suggest that age-appropriate sexuality education should start well before high school to address responsible decision-making and improve communication and refusal skills before young people become sexually active. Comprehensive and experience-

appropriate sexuality education should continue throughout high school both to encourage the delay of sexual initiation among students who are not sexually active and to stress the importance of condom use and contraception among sexually active youth.

Although there has been an encouraging increase in condom use since 1993, an unacceptably high percentage of sexually active high school students are still leaving themselves vulnerable to sexually transmitted diseases (STDs), including HIV infection, by not using condoms. In addition, MYRBS results show a sharp drop-off in condom use among 12th grade students, who are more likely than younger students to use hormonal contraception (such as birth control pills or Depo-Provera). Hormonal contraceptive methods are highly effective at preventing pregnancy but offer no protection against HIV or other sexually transmitted diseases. Therefore it is disconcerting that condom use declines in older grades. Notably, one-quarter of sexually experienced youth have been tested for sexually transmitted disease, and one in twenty has been diagnosed with an STD. This indicates the need to provide continuing education about STD and HIV prevention throughout the high school years, and to encourage the continued use of condoms to prevent STDs and HIV infection, even if other methods of contraception are used as well. It also suggests the need to provide youth with information about STD testing and treatment resources.

Different patterns of sexual risk-taking among different groups indicate that "targeted" prevention efforts may be important. The earlier onset of sexual activity among boys and among Black students, for example, suggests that it is critical to ensure that these young people in particular receive prevention education before they reach high school. In addition, while it is encouraging that in 2001 young female students were equally as likely as male students to have used a condom at last intercourse, previous MYRBS results have shown that this is not always true.[25, 45, 63] Because young women must rely on the cooperation of their male partners to use a condom, it is important that they be taught how to initiate discussion of condoms, negotiate condom use, and refuse sex without a condom.

The risks faced by sexual minority adolescents are of special concern. Sexual minority youth have significantly higher rates than their peers of sexual risk behaviors and may be at particularly high risk of STDs and HIV infection.[90] Though these students may constitute a "hidden" and unacknowledged population in many schools, it is important that comprehensive school health education programs develop ways of addressing the particular health education and sexuality education needs of these young people.

Finally, the association between substance use and the absence of birth control measures suggests that sexuality education may be most effective as part of comprehensive health education which also discusses the dangers of drug and heavy alcohol use. Comprehensive school health programs that emphasize responsibility and healthy life choices can help young people move toward becoming sexually healthy adults. Schools and communities should work together to ensure that all students receive appropriate and effective sexuality education encouraging them to engage in healthier, more responsible sexual decision-making.

9 HIV/AIDS PREVENTION EDUCATION

INTRODUCTION

In the United States, over 700,000 cases of AIDS have been diagnosed and 420,000 Americans have lost their lives to the disease.[91] More than 15,000 AIDS cases have been diagnosed in Massachusetts alone.[86] Although the highest percentage of AIDS cases occur in people in their 20s and 30s, it is highly probable that many young adults with AIDS were infected with HIV, the virus that causes AIDS, during adolescence. The most common modes of HIV transmission remain injected drug use and unprotected sexual intercourse with an infected partner.

Since 1989, the Massachusetts Board of Education has recommended that all schools provide HIV/AIDS prevention education to all students in all grades within the context of comprehensive school health education. Curriculum and instruction should be presented in a developmentally, linguistically, and culturally sensitive manner, and special efforts should be made to reach students at increased risk for HIV/AIDS infection, such as drug-involved youth, sexual minority youth, or members of communities disproportionately affected by the HIV/AIDS epidemic. The Board also recommends that schools address the value of both sexual abstinence and the use of condoms to prevent HIV/STD infection and pregnancy, and that schools consider making condoms available to secondary school students. Further the Board recommends that, when possible, persons living with HIV/AIDS should be utilized in the classroom to impress upon students the reality of the epidemic.

Research has shown that comprehensive sexuality education programs that instruct students both on the value of postponing sexual activity and on the correct use of condoms are successful in delaying the onset of sexual activity and in increasing condom use among youth who choose to become sexually active.[92-97] The Massachusetts Department of Education HIV/STD Prevention Program supports the Board's recommendations for school-based AIDS prevention education that includes instruction on how to prevent HIV infection, instruction on the correct use of condoms, and presentations by persons living with HIV infection or AIDS.

Clear parent-adolescent communication can also be a strong deterrent to risky sexual behavior among youth. It is important that families communicate their values and expectations regarding sexual behavior to adolescents. Several recent studies have demonstrated that parent-teenager discussions about sexuality and sexual risk were associated with lower rates of adolescent risk behavior.[98-100]

The 2001 MYRBS asked students whether they had ever been taught in school about AIDS or HIV infection, been taught how to use condoms, or received a presentation from someone with HIV or AIDS. The survey also included a question on the frequency of adolescents' conversations with their parents or other family adults about sexuality and the prevention of HIV, other STDs, and pregnancy.

RESULTS

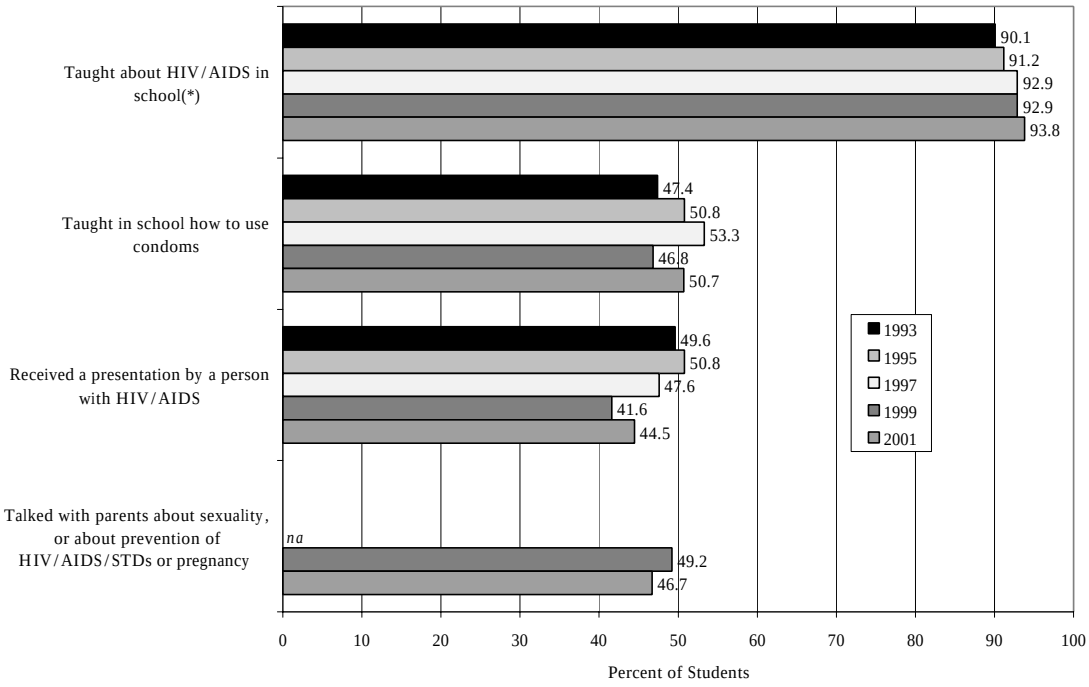
KEY FINDINGS FROM THE 2001 MYRBS

- Most Massachusetts high school students (94%) had been taught in school about AIDS or HIV infection. This represents a significant increase since 1993, when 90% of students had ever received AIDS education.
- Half of Massachusetts students (51%) had been taught in school how to use a condom and 45% had seen a school presentation by a person with AIDS or HIV infection. After dropping from 1997 to 1999, these figures increased slightly in 2001.
- Slightly less than half (47%) of all students had had a conversation with their parents in the 12 months before the survey about sexuality or preventing HIV, STDs, or pregnancy.
- Having ever been taught in school about AIDS or HIV infection was significantly associated with lower rates of: lifetime sexual intercourse; sexual intercourse before age 13; four or more lifetime sexual partners; sexual intercourse within the previous three months; alcohol or drug use at last intercourse; having ever been pregnant; and having ever been diagnosed with an STD or HIV infection.

HIV/AIDS PREVENTION EDUCATION IN SCHOOL

- **Nearly all (94%) Massachusetts high school students have ever been taught about AIDS or HIV infection in school.** This represents a significant increase since 1993, when 90% of students reported having ever been taught in school about AIDS or HIV infection (see Figure 9a, next page).
- More female students reported having ever been taught about AIDS or HIV infection than did males (95% vs. 93%, respectively). Although small, the difference was significant.
- Students in all grades were equally as likely to have reported being taught about AIDS or HIV infection.
- Ninety-five percent (95%) of White students, 93% of Black students, 90% of Hispanic students and students of Other or Multiple ethnicity, and 88% of Asian students reported having been taught in school about AIDS or HIV infection.

Figure 9a. AIDS Education Among Massachusetts High School Students, 1993 to 2001



Note: (*) Statistically significant increase from 1993 to 2001, p<.05

- **After dropping from 53% in 1997 to 47% in 1999, the percent of students who reported having ever been taught (in school) how to use condoms increased in 2001 to 51%.**

- Fifty-four percent (54%) of male students and 48% of female students reported ever being taught in school how to use condoms.

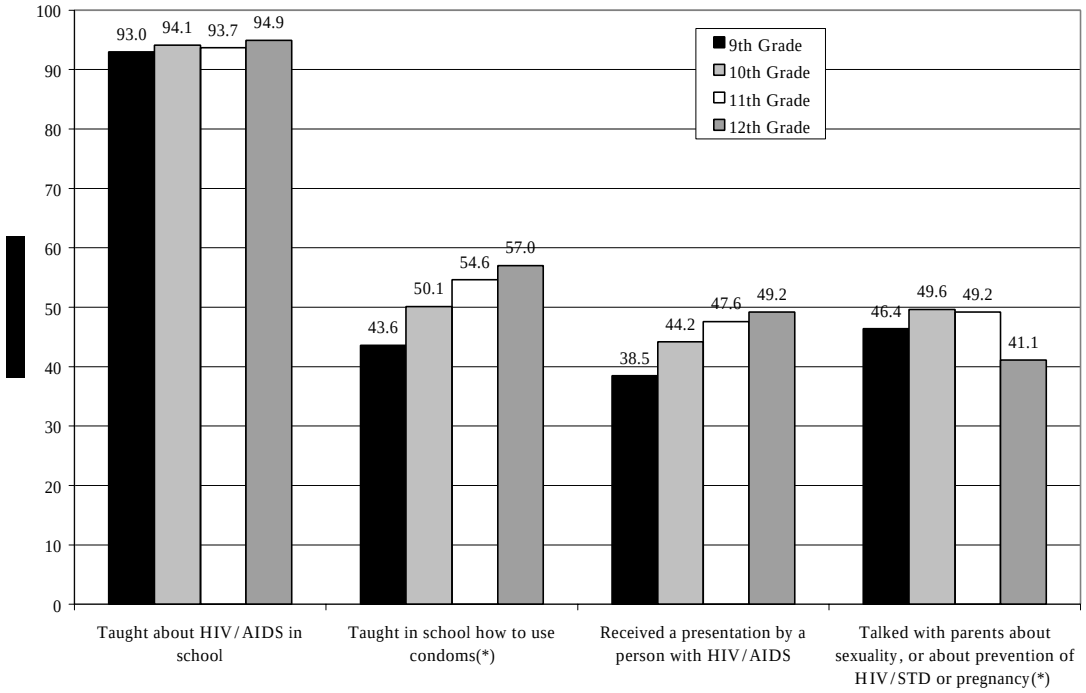
- Significantly more 12th grade students than 9th grade students reported ever being taught in school how to use a condom (see Figure 9b, next page).

- Black students (61%) were significantly more likely than White students (50%) to have reported being taught in school how to use a condom. Roughly 53% of Hispanic students, 48% of Asian students, and 49% of students of Other or Multiple ethnicity also reported having ever been taught how to use a condom.

- **Just under half (45%) of all high school students in Massachusetts reported ever receiving a presentation in school by someone with AID or HIV infection.** After decreasing from 48% in 1997 to 42% in 1999, the rate increased slightly in 2001.

- There were no significant gender or grade differences in the percent of students who reported receiving a presentation by someone with AIDS or HIV infection.

Figure 9b. AIDS Education Among Massachusetts High School Students by Grade, 2001



Note: (*) Statistically significant difference between grades, $p<.05$

- There were also no racial/ethnic differences in the percent of students who reported receiving a presentation by someone with AIDS or HIV: 45% of White students, 43% of Black students, 42% of Asian students, 41% of Hispanic students, and 39% of students of Other or Multiple ethnicity reported receiving a presentation.

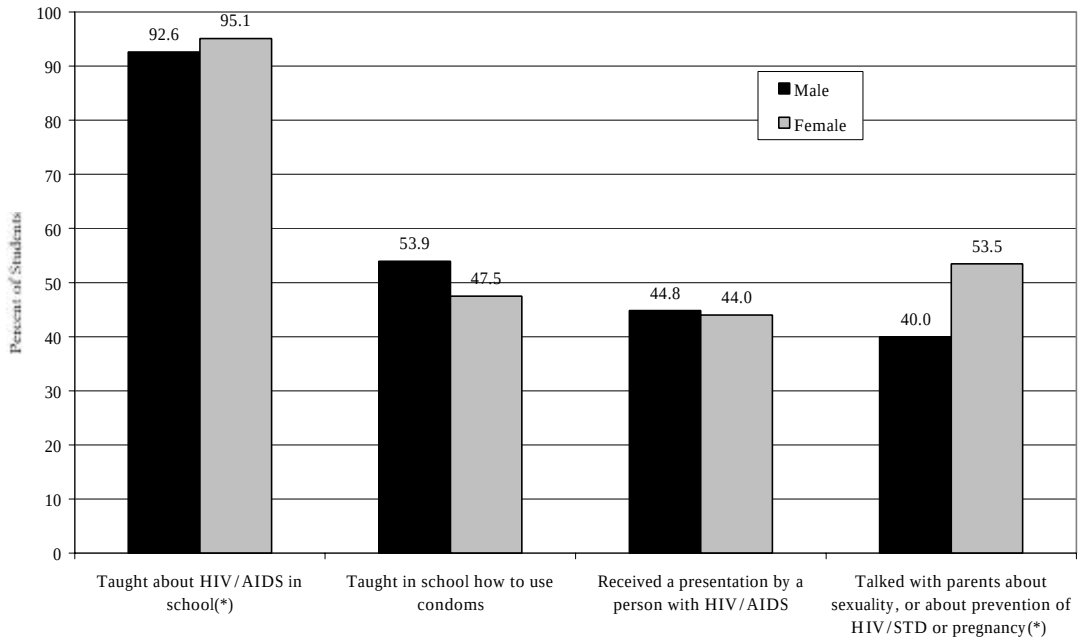
PARENTAL COMMUNICATION ABOUT SEXUALITY AND PREVENTING HIV/AIDS & PREGNANCY

- **Forty-seven (47%) of all high school students reported having at least one conversation in the 12 months before the survey with their parents or other adult family members about sexuality** or ways to prevent HIV infection, other sexually transmitted diseases (STDs) or pregnancy. This represents a slight decrease from 49% in 1999, the first year the question was asked.

- Among students who talked with their parents at least once in the 12 months before the survey, half (49%) talked with their parents just once during the year, 31% talked with their parents every few months, and 21% talked with their parents once a month or more.

- Female students were significantly more likely than male students (54% vs. 40% respectively) to have reported talking with their parents about sexuality or ways to prevent HIV infection, other STDs, or pregnancy (see Figure 9c).

Figure 9c. AIDS Education Among Massachusetts High School Students by Gender, 2001

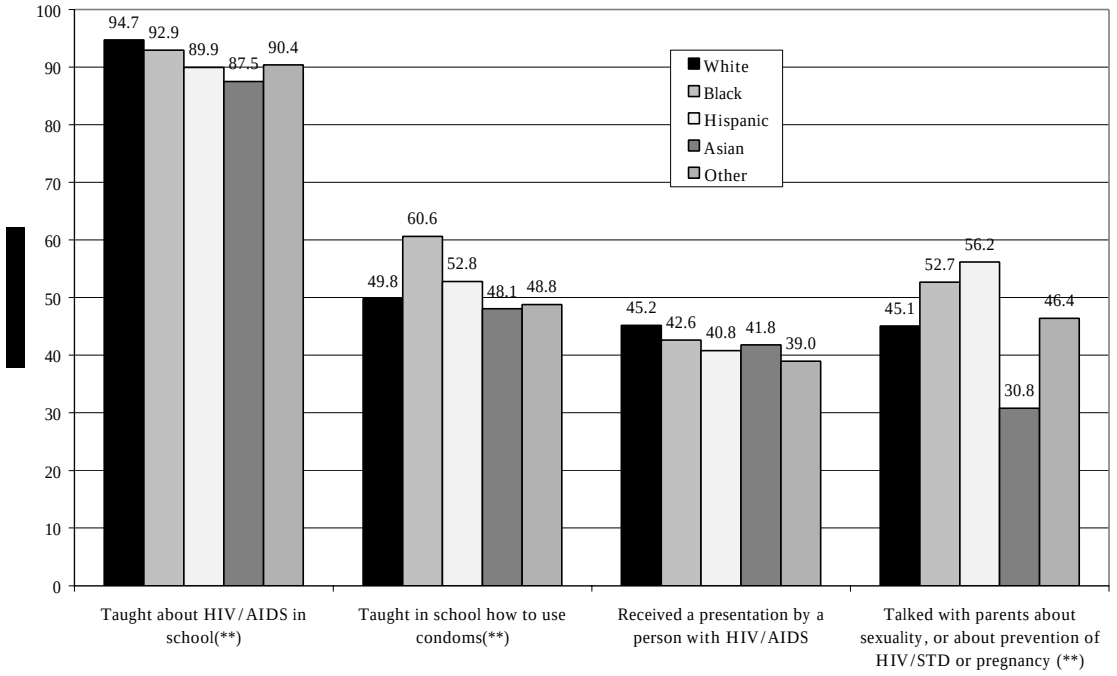


Note: (*) Statistically significant difference between male and female students, $p<.05$

- Seniors (41%) were significantly less likely than sophomores (50%) or juniors (49%) to have talked with their parents about sexuality or ways to prevent HIV infection, other STDs, or pregnancy.

- Asian students were significantly less likely than all other students to have talked with their parents at least once in the 12 months before the survey about sexuality or ways to prevent HIV infection, other STDs, or pregnancy (31% compared to 56% of Hispanic students, 53% of Black students, 46% of students of Other or Multiple ethnicity, and 45% of White students; see Figure 9d, next page).

Figure 9d. AIDS Education Among Massachusetts High School Students by Race/Ethnicity(a), 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) See Table 1.1, page 3, for a detailed explanation of racial/ethnic categories

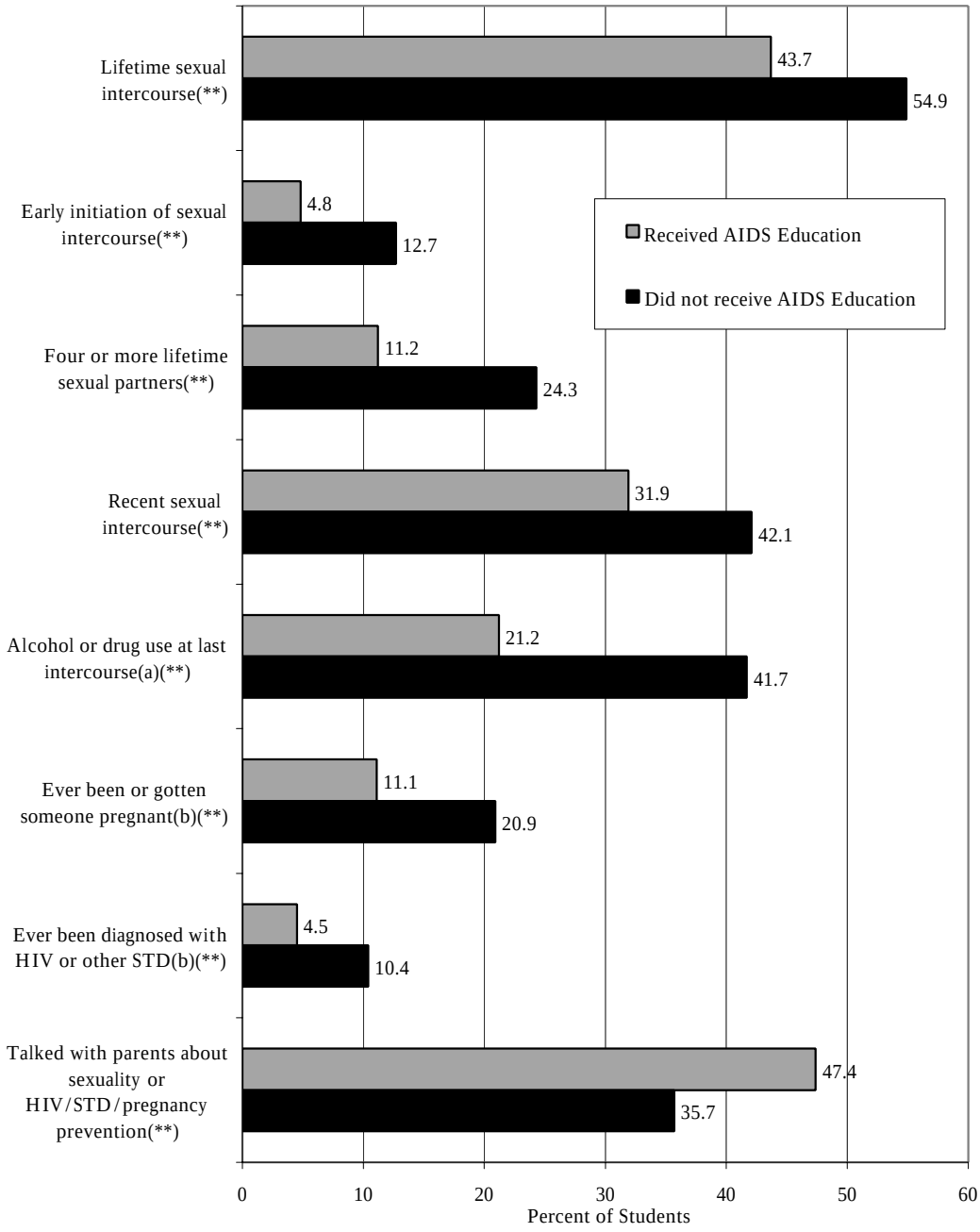
HIV/AIDS EDUCATION AND OTHER SEXUAL RISK BEHAVIORS

- Students who had been taught in school about AIDS or HIV infection were significantly more likely than their peers to report having been taught in school how to use condoms (52% vs. 29%), having received a presentation by a person with HIV/AIDS (46% vs. 17%), or having had at least one conversation with their parents about sexuality or ways to prevent HIV/STD infection or pregnancy (47% vs. 36%).

- Compared to their peers, students who said they had been taught in school about AIDS or HIV infection were significantly less likely to have reported sexual intercourse in their lifetime, four or more sexual partners, sexual intercourse before age 13, and sexual intercourse in the three months before the survey (see Figure 9e, next page).

- Among students who ever had sexual intercourse (i.e., sexually experienced students), those who had been taught about AIDS or HIV infection in school were significantly less likely than their peers to have ever been or gotten someone pregnant, or to have been diagnosed with a sexually transmitted disease (see Figure 9e, next page).

Figure 9e. The Association Between School AIDS Education and Sexual Risk Behaviors and Experiences, 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) Among students who had sexual intercourse in the three months before the survey; (b) Among students who had sexual intercourse in their lifetime

- Among sexually experienced students, those who talked with their parents in the 12 months before the survey about sexuality or ways to prevent HIV infection, other STDs, or pregnancy were more likely than their peers to have been tested for HIV or other STDs (29% vs. 22%).

- Among sexually active students, those who talked with their parents in the 12 months before the survey about sexuality or ways to prevent HIV infection, other STDs, or pregnancy were significantly less likely to have used alcohol or drugs the last time they had sex (19% vs. 26%).

ADDITIONAL FINDINGS

- Sexual minority youth were significantly less likely than other students to have been taught about AIDS or HIV infection in school (87% vs. 94%), but equally as likely to have been taught how to use condoms, to have received a presentation by someone with AIDS or HIV infection, and to have discussed sexuality with their parents.

- Students in urban communities were significantly more likely than their peers in suburban or rural communities to have been taught in school how to use condoms (56% vs. 46% of suburban students and 42% of rural students).

- Students in rural communities were significantly less likely than their peers to have received a presentation by someone with AIDS or HIV infection (35% vs. 47% of suburban students and 44% of urban students).

- Students who had lived in the United States less than six years were significantly less likely than their peers to have been taught about AIDS or HIV infection in school or to have received a presentation in school by someone with AIDS or HIV infection. However they were more likely to have talked with their parents about sexuality or ways to prevent HIV infection, other STDs, or pregnancy.

SUMMARY OF RESULTS

Since 1993, there has been a significant increase in the percent of students who have been taught about AIDS or HIV infection in school. In 2001, almost all students reported receiving some education about AIDS or HIV in school, and about half had received a presentation from a person with HIV/AIDS or were taught in school how to use condoms. Compared to their peers, students who received education about AIDS or HIV had significantly lower rates of most sexual risk behaviors, including lifetime and recent sexual intercourse, sexual intercourse before age 13, and four or more lifetime sexual partners. Also they were more likely to have had at least one conversation with their parents in the 12 months before the survey about sexuality or ways to prevent HIV/STD infection or pregnancy. In all, about half of all students reported discussing sexuality or sexual risk taking with their parents in the 12 months before the survey.

Discussing sexuality or sexual-risk taking with parents was significantly associated with higher rates of HIV/STD testing and lower rates of substance use during intercourse.

IMPLICATIONS AND RECOMMENDATIONS

The significant increase in the percent of students receiving AIDS education in school since 1993 points to the success of multiple efforts by health teachers, schools, state and community agencies, and others to expand instruction about AIDS/HIV. Education remains the strongest weapon available to fight against HIV/AIDS. The Massachusetts Board of Education Policy regarding HIV/AIDS education recommends that students in every grade should receive such instruction, particularly students at increased risk. Indeed more than 93% of students in each of grades 9 through 12 reported receiving education about AIDS or HIV infection. Unfortunately students who might be considered to be at high risk due to their sexual behaviors – including students in older grades, students in urban communities, sexual minority students, and non-White students – were somewhat less likely to have received HIV/AIDS education in school. These results indicate that increased efforts should be made to reach *all* students and to do so in a culturally- and age-appropriate manner.

It is also important to ensure that students get *effective* AIDS education, using approaches and programs that have been found to reduce adolescent sexual activity that might result in pregnancy or sexually transmitted disease. The U.S. Centers for Disease Control and Prevention, for example, sponsor dissemination of a number of AIDS prevention programs that have been carefully evaluated and found to result in lower rates of risky sexual behavior.[101] Common to all of these effective programs is their emphasis on reinforcing clear and appropriate values and avoiding sexual risk-taking, discussing media and social influences on sexual behavior, helping students personalize information about risks, and providing practice in communication, interpersonal negotiation, and refusal skills.[92] The Massachusetts Department of Education HIV/STD Prevention Program provides technical assistance to districts in developing and updating their HIV/AIDS prevention curricula.

Many young people are abstaining from sexual intercourse, and education programs should foster and encourage the attitudes and skills needed to maintain this behavior; however, young people also need varied and experience-appropriate approaches to AIDS prevention. For students who have already chosen to be sexually active, programs should promote responsible sexual decision-making and behavior. In this context, science-based education about condoms and their correct use ought to be included in HIV prevention programs. Notably, less than three-fifths of seniors had received any instruction about condom use, despite the fact that only half of sexually active seniors reported any condom use (See Chapter 8, Sexual Behaviors).

Finally, survey findings presented here, as well as those from previous administrations of the MYRBS,[25, 45, 63] suggest that the receipt of AIDS/HIV education is associated with significantly *lower* levels of sexual activity and with *higher* levels of communication with parents and other family adults. Because the majority of youth are enrolled in schools, the classroom provides a natural opportunity to reach large numbers of students with clear and consistent prevention messages; however, both families and schools play a major role in reinforcing responsible and safe behavior in young people.

10 DIETARY BEHAVIORS, WEIGHT CONTROL, AND PHYSICAL ACTIVITY

INTRODUCTION

Physical fitness and healthy weight should be priorities for Americans of all ages. Each year, roughly 300, 000 people die from diseases and health conditions related to overweight and obesity.[102] Nationally, 60% of American adults and 11% of adolescents are overweight.[103] Obesity in adolescence may persist into adulthood, increasing later risk for chronic conditions such as diabetes, heart disease, high blood pressure, stroke, and certain cancers.[104] Obesity during adolescence is also related to psychological stress, depression, problems with family relations, and poor school performance.[105, 106]

Conversely, an overemphasis on thinness during adolescence may contribute to eating disorders such as anorexia nervosa, a disease in which people severely limit their food intake, or bulimia nervosa, which involves compulsive overeating followed by "purging" through vomiting, taking laxatives, or excessive exercising.[107] About one in ten cases of eating disorders lead to death from cardiac arrest, starvation, or suicide.[107]

Because lifetime dietary patterns are established in youth, it is important for adolescents to choose nutritious foods and to develop healthy eating habits, such as eating five or more servings of fruits and vegetables per day and consuming adequate amounts of calcium. Calcium is essential to building strong bones and preventing late-life osteoporosis; it may also be important in the prevention of certain cancers and other chronic health problems. Adolescents should consume at least 1200mg of calcium per day, the amount found in about three glasses of milk. [108]

In addition to proper nutrition and healthy eating habits, regular physical activity can help maintain a healthy body weight, muscle strength, and bone health.[109] Millions of Americans suffer from chronic illnesses that can be prevented or improved through regular physical activity, including coronary heart disease, diabetes, osteoporosis, certain cancers, and high blood pressure.[110-114] Regular physical activity increases life expectancy, [115] and is associated with good mental health and self-esteem.[109, 116] Yet almost one-third of adolescents do not engage in sufficient amounts of physical activity.[103]

School physical education programs promote higher levels of physical activity and have been found to have a positive effect on the health and fitness of young people.[117] In addition, there is at least some evidence that participation in a health-related physical education program can have a positive effect on student achievement.[118] Further, students who participate on sports teams are less likely than their peers to smoke tobacco or use drugs,[119] and more likely to stay in school and have high academic achievement.[120]

The Healthy People 2010 National Health Objectives include many objectives for improving the nutritional health and physical fitness of adolescents.[26] These include:

(a) reducing the prevalence of overweight among adolescents;
(b) increasing the proportion of overweight adolescents who have adopted sound dietary practices and regular physical activity to reach appropriate body weight;
(c) increasing to five or more the average daily servings of fruits and vegetables;
(d) increasing the proportion of adolescents who attend a daily physical education class; and
(e) increasing the proportion of adolescents who engage in vigorous physical activity at least three times a week and moderate physical activity at least five times per week.

The 2001 MYRBS asked students about their perception of their body weight, their efforts to change or maintain body weight, behaviors that might indicate eating disorders, and some of their food choices. Also, the MYRBS asked students to report their height and weight, thus permitting the calculation of Body Mass Index (BMI), a measure used to assess overweight and underweight.

The MYRBS also asked students about their participation in vigorous and moderate physical activity, in physical education classes, and in team sports. Finally, because television viewing is considered a sign of a sedentary lifestyle, the survey asked about the number of hours students watched television on an average school day.

RESULTS

KEY FINDINGS OF THE 2001 MYRBS

- According to their Body Mass Index, 15% of students were at risk of becoming overweight, and 10% were definitely overweight.
- One-third (33%) thought they were overweight and almost half (47%) were trying to lose weight at the time of the survey.
- In order to lose weight or to keep from gaining weight, in the 30 days before the survey…
  - Most students (71%) dieted and/or exercised
  - One in seven students (14%) fasted for a period of 24 hours or more
  - Eight percent (8%) took diet pills, liquids, or powders
  - Six percent (6%) took laxatives or vomited
- Although male students were significantly more likely than female students to have been overweight at the time of the survey, significantly more females than males *considered* themselves overweight, were attempting weight loss, and were using unhealthy methods of weight loss such as fasting, diet pills, laxatives or vomiting.

Key Findings (continued)…

- In the week before the survey…
  - Only 13% of students ate the recommended five or more servings of fruits or vegetables per day, and 18% drank three or more glasses of milk per day in the seven days before the survey.
  - Most students (63%) participated in regular vigorous physical activity.
  - One-quarter of all students (25%) participated in regular moderate physical activity.
  - Nearly half (47%) of all students did exercises to strengthen or tone their muscles.
- Most students (68%) attended a physical education class at least once in an average school week.
- Male students were significantly more likely than female students to report regular vigorous and moderate physical activity, and strengthening and toning exercise.

DIETARY BEHAVIORS

- On average, Massachusetts high school students ate 2.6 servings of fruits and vegetables per day in the seven days before the survey. This includes servings of fruit, fruit juice, potatoes, green salad, and other cooked or raw vegetables.
- **Only 13% of students ate five or more servings of fruits or vegetables per day** as recommended by nutritional guidelines.
- The percent of students who consumed five or more servings of fruits and vegetables per day did not vary significantly by gender (13% of males and 12% of females) or race/ethnicity (13% of White and Black students, 12% of Hispanic students, 14% of students of Other or Multiple ethnicity, and 17% of Asian students).
- There were significant grade differences such that seniors (10%) were less likely than freshman (15%) to have consumed recommended amounts of fruits and vegetables per day.
- On average, Massachusetts high school students drank 1.2 glasses of milk per day in the seven days before the survey. **Eighteen percent (18%) of students drank three or more glasses of milk,** the amount of milk that would supply the recommended levels of calcium.
- Significantly more male students than female students drank three or more glasses of milk per day (23% vs. 13%, respectively).

- Milk consumption declined significantly with grade in school: 22% of freshman drank three or more glasses per day compared to just 14% of seniors.

- Milk consumption also varied significantly by race/ethnicity. Twenty percent (20%) of White students, 19% of students of Other or Multiple ethnicity, 15% of Asian students, 14% of Black students, and 10% of Hispanic students reported drinking three or more glasses of milk per day.[121]

WEIGHT CONTROL

Overweight and Weight Perception:

- According to their Body Mass Index,[122] **15% of Massachusetts high school students were at risk for becoming overweight and 10% were overweight at the time of the survey.** The percent of students who were overweight increased significantly from 7% in 1999 to 10% in 2001 (see Figure 10a, next page).

- The percent of students who were at risk of becoming overweight did not vary significantly by gender (17% of males and 13% of females) or grade (16% of freshman, 15% of sophomores and juniors, and 14% of seniors).

- Hispanic students were most at risk of becoming overweight: 20% of Hispanic students, 17% of Black students, 15% of students of Other or Multiple ethnicity, 14% of White students, and 12% of Asian students were at risk of becoming overweight.

- Male students were significantly more likely than female students to have been overweight at the time of the survey (14% vs. 6%, respectively).

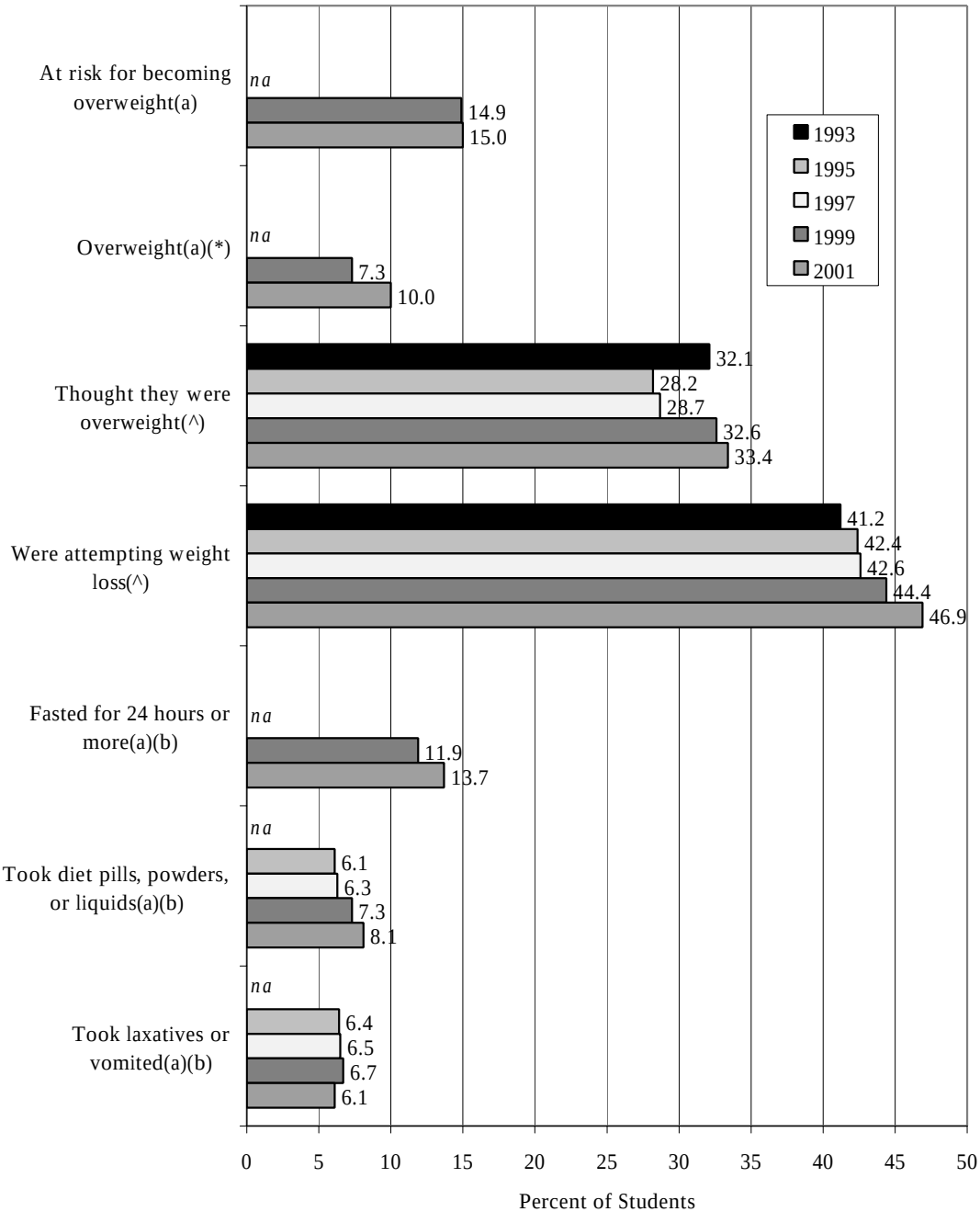
- The percent of students who were overweight did not vary by grade in school: the percent in each grade fell within 1 percent of the overall rate of 10%.

- There were significant racial/ethnic differences in the percent of students who were overweight. Seventeen percent (17%) of Black students, 14% of Hispanic students, 11% of students of Other or Multiple ethnicity, 9% of White students, and 8% of Asian students were overweight.

- Half (51%) of all students believed they were about the right weight, and 16% considered themselves to be slightly or very underweight.

- As noted, only 10% of all students were overweight at the time of the survey. However, **one-third (33%) of all students believed that they were slightly or very overweight**, a significant increase over the 28% reported in 1995.

Figure 10a. Overweight and Weight Control Behaviors Among Massachusetts High School Students, 1993 to 2001

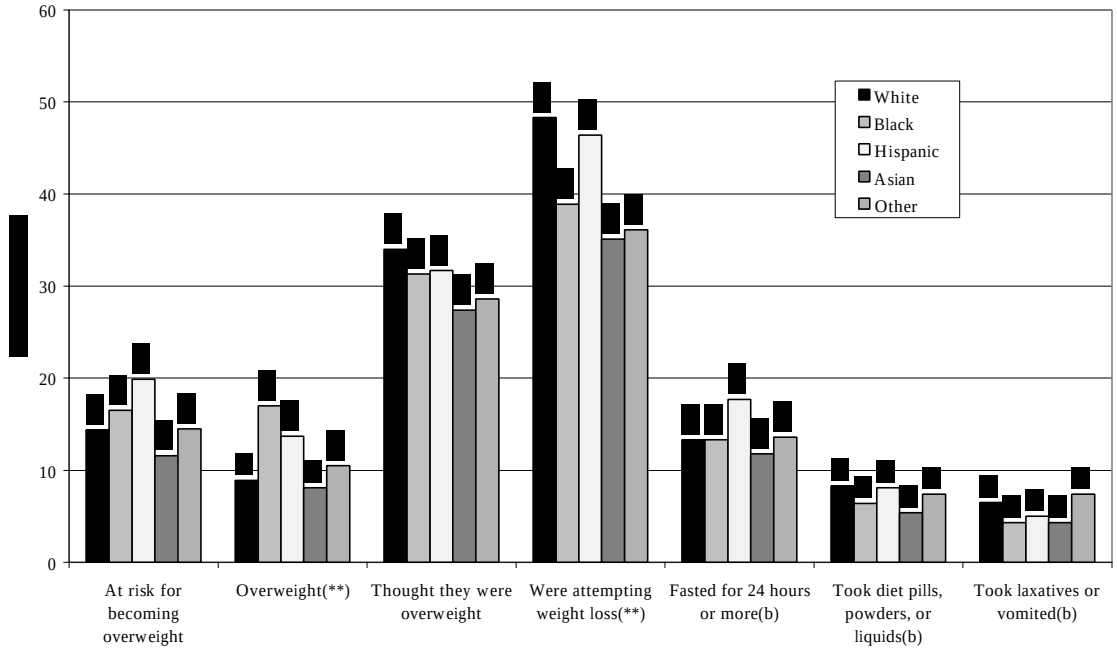


Notes: (*) Statistically significant increase from 1999 to 2001, p<.05; (^) Statistically significant increase from 1995 to 2001, p<.05; (a) Not available in all years; (b) In order to lose weight or to keep from gaining weight

- Males were more likely than females to consider themselves slightly or very underweight (21% vs. 11%, respectively), and females were more likely than males to consider themselves slightly or very overweight (40% vs. 27%, respectively)

- The percent of students who considered themselves to be slightly or very overweight did not vary significantly by grade or race/ethnicity. Thirty-four percent (34%) of White students, 32% of Hispanic students, 31% of Black students, 29% of students of Other or Multiple ethnicity, and 27% of Asian students thought they were overweight (see Figure 10b).

Figure 10b. Overweight and Weight Control Behaviors Among Massachusetts High School Students by Race/Ethnicity(a), 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) See Table 1.1, page 3, for a detailed explanation of racial/ethnic categories; (b) In order to lose weight or to keep from gaining weight

- Among students who perceived themselves to be slightly or very overweight, almost half (47%) had healthy body weights (that is, they were not overweight nor at risk of becoming overweight). Females were more likely than males to view themselves as overweight when they actually had healthy body weights (24% vs. 8%, respectively).

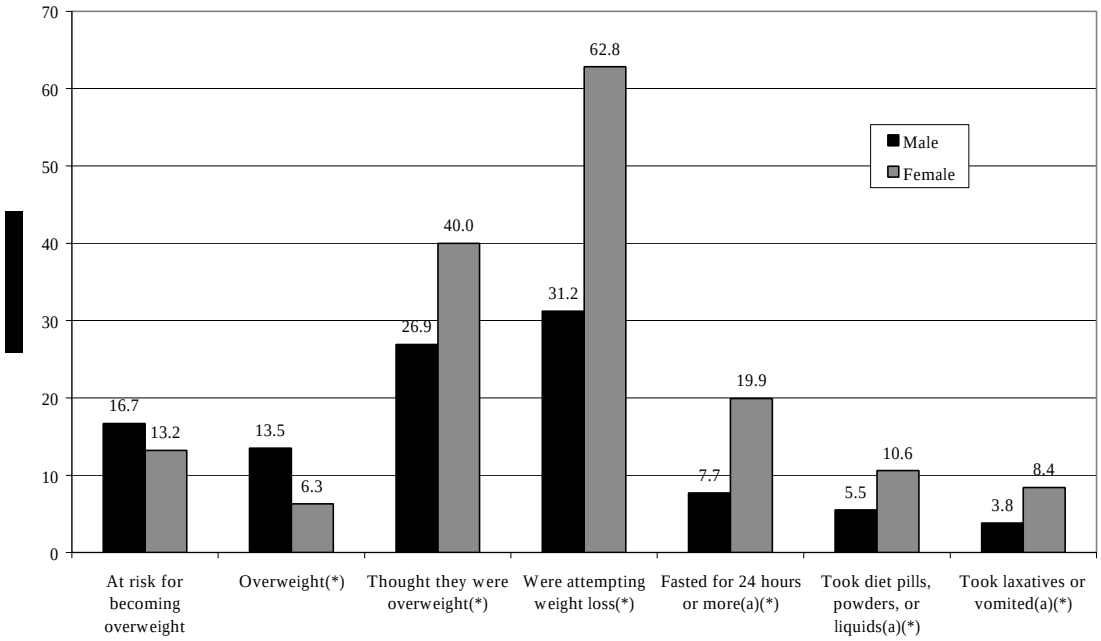
- Students who perceived themselves to be overweight were significantly more likely than their peers to have reported considering or attempting suicide (29% vs. 16%, and 12% vs. 8%), or to have experienced dating violence or any sexual contact against their will (14% vs. 9%, and 13% vs. 8%).

Attempts to Control Weight:

- **Almost half (47%) of all students were trying to lose weight at the time of the survey**. This is a significant increase from 1995, when 42% reported trying to lose weight.

- Significantly more female students (63%) than male students (31%) were trying to lose weight (see Figure 10c). There were no significant differences across grade.

Figure 10c. Overweight and Weight Control Behaviors Among Massachusetts High School Students by Gender, 2001



Notes: (*) Statistically significant difference between male and female students, $p<.05$; (a) In order to lose weight or to keep from gaining weight

- White students (48%) were significantly more likely to be trying to lose weight than Black students (39%), Asian students (35%), or students of Other or Multiple ethnicity (36%). Forty-six percent (46%) of Hispanic students were trying to lose weight.

- The majority (62%) of students who were trying to lose weight were not overweight or at risk of becoming overweight. Forty-seven percent (47%) of female students and 12% of male students who had *healthy* body weights were trying to lose weight.

- Most (70%) students tried to lose weight through exercise and dieting. In the 30 days before the survey, one-third (32%) of all students exercised, 9% dieted, and 29% both exercised and dieted in order to lose weight or to keep from gaining weight.

- Some students used unhealthy methods of weight loss such as:

    - taking diet pills, powders, or liquids (8%);
    - fasting (or going without food for 24 hours or more) (14%); and
    - vomiting or taking laxatives (6%).

- All strategies of weight loss were more common among females than among males (see Figure 10c, previous page), but none varied significantly by grade or race/ethnicity.

PHYSICAL ACTIVITY

Vigorous and Moderate Physical Activity:

Vigorous physical activity was defined as participating in physical activities that make you sweat or breathe hard for at least twenty minutes. These activities can include basketball, soccer, running, swimming laps, fast bicycling, fast dancing, or other similar aerobic activities.

- **Most (63%) students participated in vigorous physical activity three or more times in the week before the survey.** The percent of students who participate in regular vigorous physical activity has not changed significantly since 1993 (see Figure 10d, next page).

- Significantly more males (69%) than females (57%) participated in regular vigorous physical activity in the week before the survey.

- Participation in regular vigorous physical activity decreased with grade in school: 68% of freshman, 64% of sophomores, 61% of juniors, and 57% of seniors reported participating in regular vigorous physical activity in the week before the survey.

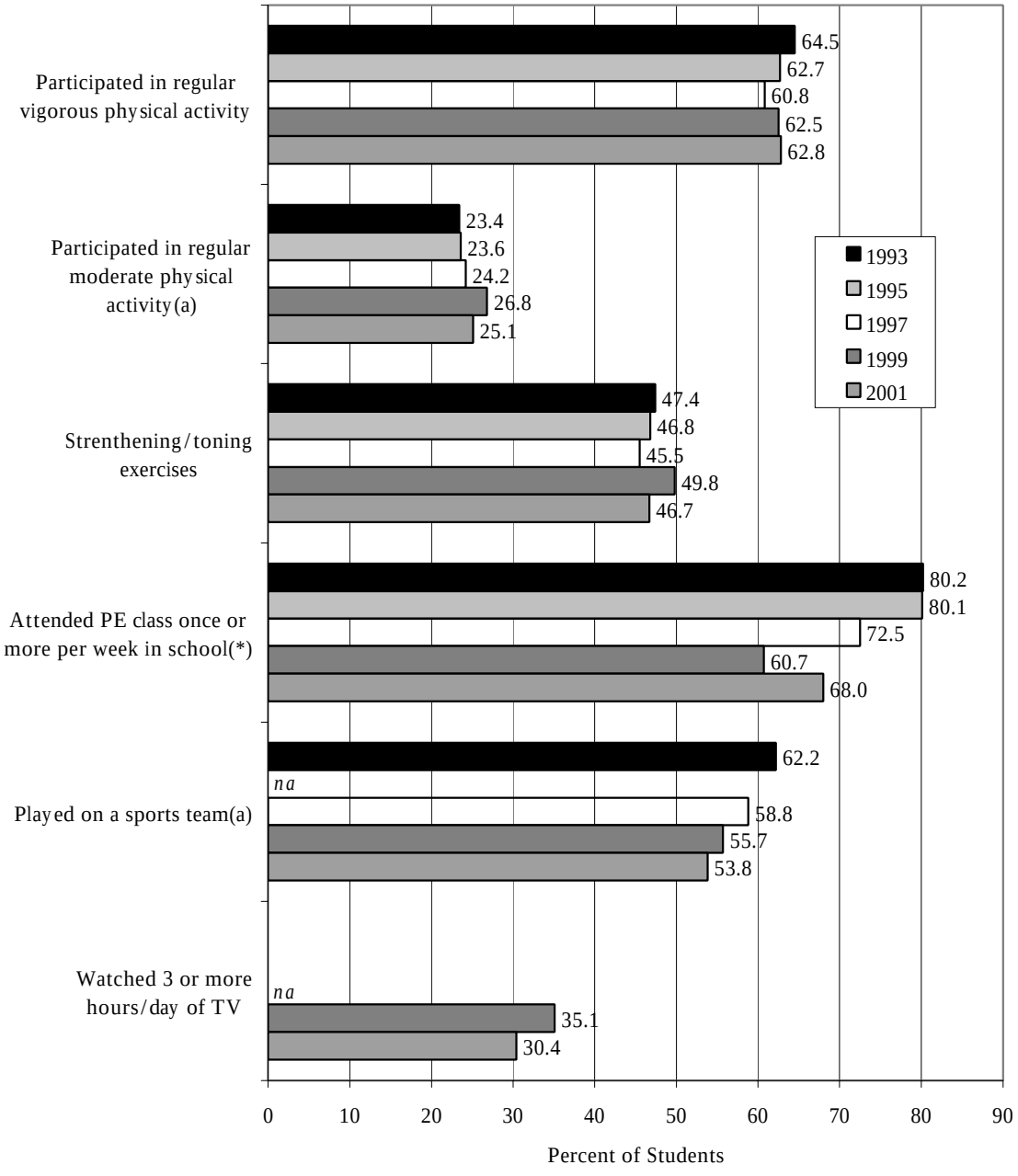
- Significantly more White students (65%) participated in regular vigorous physical activity than did Black, Hispanic, or Asian students (56%, 54%, and 50% respectively). Sixty-three percent (63%) of students of Other or Multiple ethnicity reported regular vigorous physical activity.

Moderate physical activity was defined as participating in physical activities that do not make you sweat or breathe hard for at least thirty minutes. These activities can include fast walking, slow bicycling, skating, pushing a lawn mower, or mopping floors.

- **One-quarter (25%) of students participated in moderate physical activity five or more times in the week before the survey.**

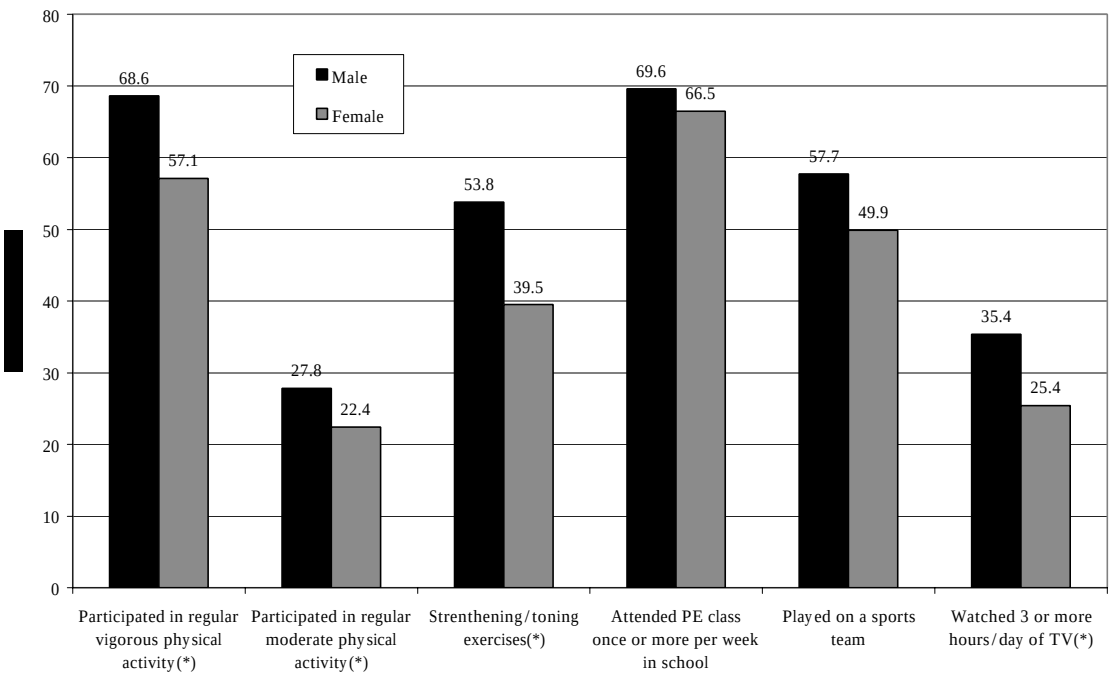
- Male students were significantly more likely than female students to have participated in regular moderate physical activity in the week before the survey (28% vs. 22%; see Figure 10e, page 98).

Figure 10d. Physical Activity Among Massachusetts High School Students, 1993 to 2001



Notes: (*) Statistically significant decrease from 1993 to 2001, $p<.05$; (a) Comparability from year to year limited by changes in question wording

Figure 10e. Physical Activity Among Massachusetts High School Students by Gender, 2001



Note: (*) Statistically significant difference between male and female students, p<.05

- Slightly more freshman (28%) reported regular moderate physical activity than did sophomores, juniors, or seniors (24% of each grade).

- The lowest rate of regular moderate physical activity was seen among Hispanic students: 18% of Hispanic students reported participating in regular moderate physical activity compared to 20% of Asian students, 25% of Black students, 26% of White students, and 31% of students of Other or Multiple ethnicity.

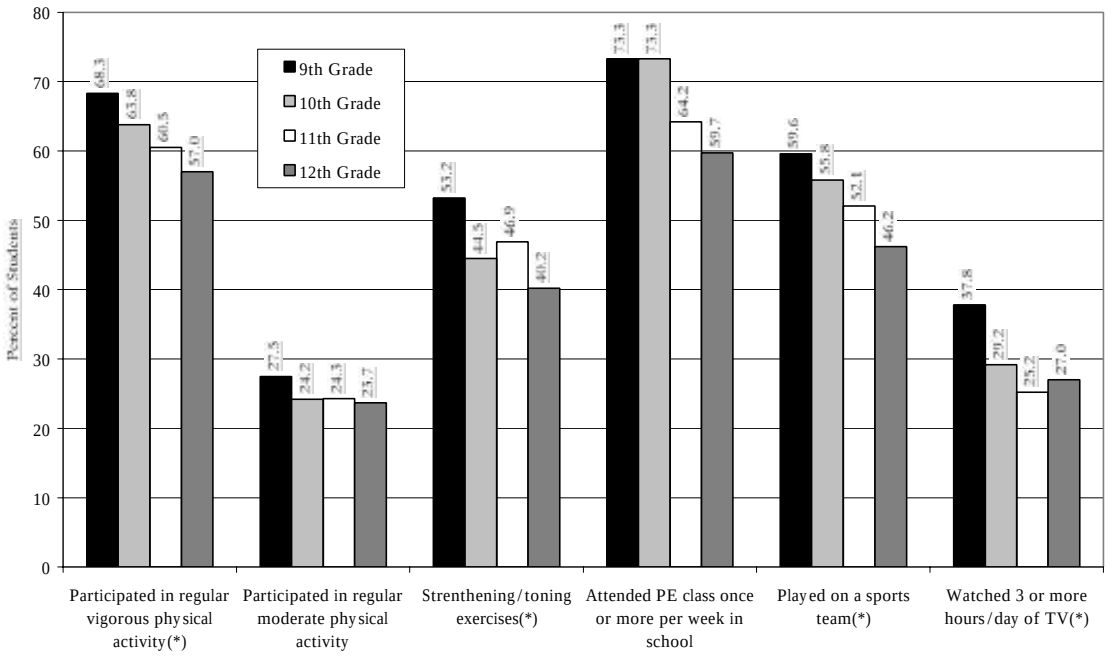
Muscle Strengthening and Toning Exercise:

- **Slightly fewer than half of all students (47%) did exercises to strengthen or tone their muscles** (such as push-ups, sit-ups, or weightlifting) on at least three of the seven days before the survey.

- Strengthening and toning exercise was significantly more common among male students than among females (54% vs. 40%, respectively).

- There were significant grade differences such that strengthening and toning exercise was most common among freshman (53%) and least common among seniors (40%; see Figure 10f, next page).

Figure 10f. Physical Activity Among Massachusetts High School Students by Grade, 2001



Note: (*) Statistically significant difference between grades, p<.05

- White students and students of Other or Multiple ethnicity (48% of each group) were most likely to have exercised to strengthen or tone their muscles three or more times in the past week. Forty-two percent (42%) of Hispanic students, 40% of Black students, and 39% of Asian students also reported strengthening and toning exercise.

Physical Activity and Other Risk Behaviors:

- Students who participated in regular vigorous or moderate physical activity were more likely than their peers to have consumed recommended amounts of fruits and vegetables and milk. In addition, compared to their peers, students who participated in regular *vigorous* physical activity were:

  - Slightly less likely to have perceived themselves as overweight (32% vs. 36%);
  - Less likely to have taken diet pills (7% vs. 10%), fasted (13% vs. 16%), or taken laxatives or vomited (5% vs. 8%);
  - Less likely to have smoked (24% vs. 29%) or to have smoked daily (8% vs. 14%)in the 30 days before the survey;
  - Less likely to have used cocaine in their lifetime (7% vs. 10%);
  - Slightly less likely to have had sexual intercourse in their lifetime (42% vs. 49%) or in the past three months (31% vs. 36%); and

- Less likely to have felt sad or hopeless for a two-week period (27% vs. 32%).

♦ On the other hand, students who participated in regular vigorous physical activity had significantly higher rates than their peers of binge drinking (35% vs. 30%) and physical fighting (36% vs. 29%).

Physical Education:

♦ **More than two-thirds (68%) of all high school students reported attending a physical education class at least once in an average school week.** After decreasing consistently and significantly since 1995, the percent of students who attended physical education at least once increased from 1999 to 2001. Eighteen percent (18%) of students attended a physical education class daily in an average school week.

♦ There were no significant gender, grade, or racial/ethnic differences in the percent of students who attended a physical education class at least once in an average school week.

♦ Students who attended a physical education class at least once in an average school week were significantly more likely than their peers to have participated in regular vigorous physical activity (67% vs. 54%), regular moderate physical activity (27% vs. 21%), or muscle strengthening exercise (49% vs. 41%), or to have played on a sports team in the 12 months before the survey (58% vs. 46%).

Team Sports:

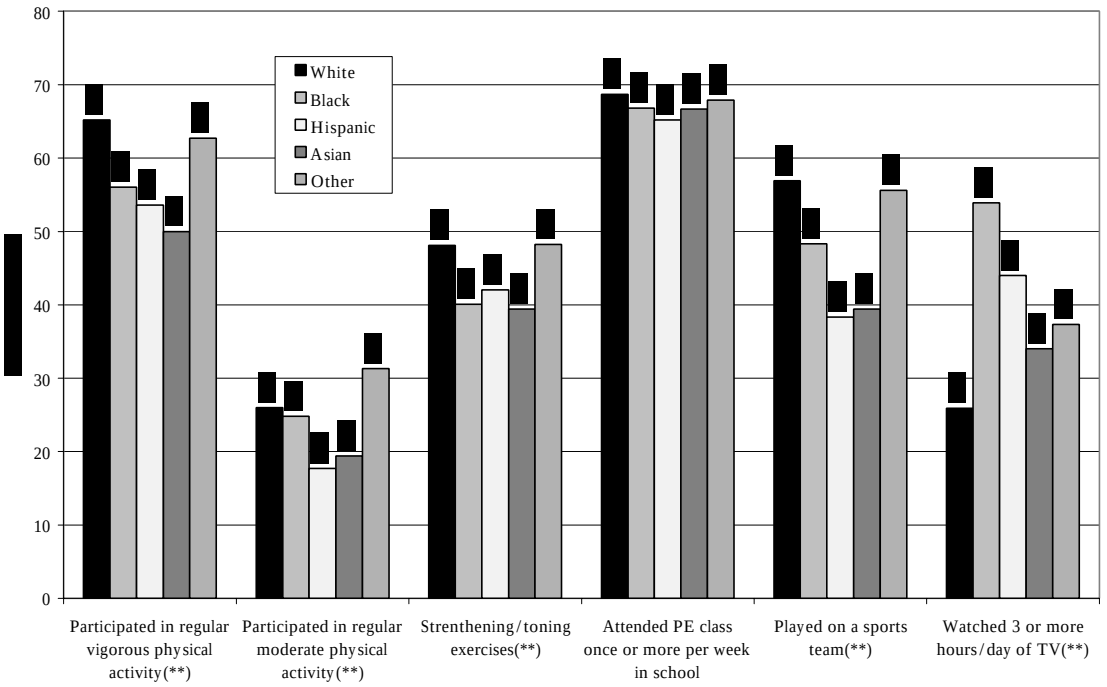
♦ **More than half (54%) of all students had played on at least one sports team in the year before the survey:** 23% played on one team, 15% played in two teams, and 16% played on three or more teams.

♦ Male students were more likely than female students to have played on a sports team (58% vs. 50%, respectively).

♦ Participation on a sports team decreased with grade in school: 60% of 9th grade students played on at least one team compared to 46% of 12th grade students.

♦ Participation on a sports team was more common among White students (57%) than among Black, Hispanic, or Asian students (48%, 38%, and 40%, in order; see Figure 10g, next page).

Figure 10g. Physical Activity Among Massachusetts High School Students by Race/Ethnicity(a), 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) See Table 1.1, page 3, for a detailed explanation of racial/ethnic categories

Sports Team Participation and Other Risk Behaviors:

- Students who played on a sports team in the 12 months before the survey were significantly less likely than their peers to have been overweight (8% vs. 12%) or to have considered themselves overweight (31% vs. 37%).

- Having participated on a sports team was significantly associated with lower rates of:

  - Current smoking (22% vs. 31%) and daily smoking (6% vs. 16%);
  - Current illegal drug use (30% vs. 35%);
  - Lifetime use of cocaine (6% vs. 10%), ecstasy (11% vs. 16%), and methamphetamines (6% vs. 8%);
  - Lifetime and recent sexual intercourse (40% vs. 49% and 30% vs. 36%); and
  - Feeling sad or hopeless (25% vs. 33%), considering suicide18% vs. 23%), or attempted suicide (7% vs. 12%).

- On the other hand, students who played on a sports team were more likely than their peers to have reported binge drinking in the 30 days before the survey (35% vs. 30%).

Television watching:

- **Most (70%) high school students watched less than three hours of television on an average school day.** This represents a slight increase over 65% reported in 1999.

- Female students watched less television than did male students: 75% of female students watched less than three hours of television, compared to 65% of males.

- Heavy television watching (three or more hours per day) was more common among freshman (38%) and sophomores (29%) than among juniors (25%) and seniors (27%).

- Television watching varied significantly with race/ethnicity. Black students (54%) were significantly more likely than students of any other racial/ethnic group to report watching three or more hours of television on an average school day. Forty-four percent (44%) of Hispanic students, 37% of students of Other or Multiple ethnicity, 34% of Asian students, and 26% White students reported watching three or more hours of television.

- Students who watched three or more hours of television per day were significantly more likely than their peers to have been overweight (14% vs. 8%) and to have perceived themselves as overweight (37% vs. 32%).

- Heavy television watching was not significantly associated with lower rates of regular vigorous or moderate physical activity, but students who watched three or more hours of television per day were significantly less likely than their peers to have played on a sports team (47% vs. 57%).

ADDITIONAL FINDINGS

Urban, Suburban, and Rural Communities:

- Although rural students were somewhat more likely than their peers in urban and suburban communities to be at risk for becoming overweight, urban students were significantly more likely to be overweight.

- Urban students, compared to suburban and rural youth, were least likely to have been attempting weight loss, participated in regular vigorous physical activity, or played on a sports team. They were significantly more likely to watch three or more hours of television per day.

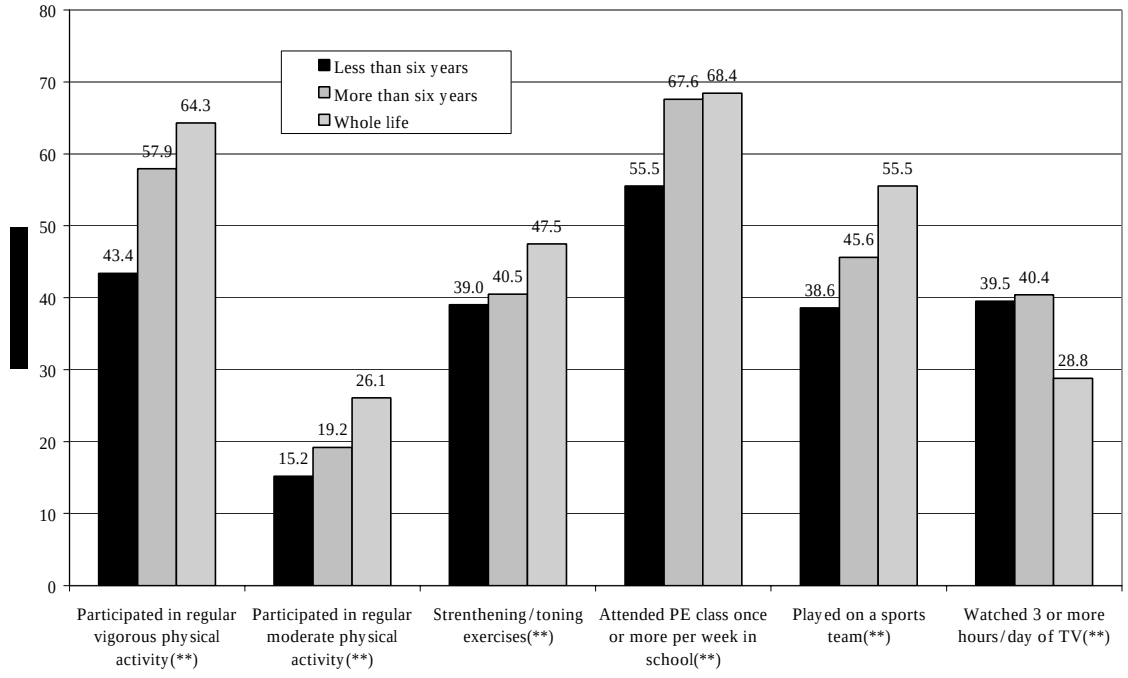
- Significantly fewer rural students than suburban or urban students reported attending a physical education class at least once in an average school week.

Immigrant Status:

- Students who had lived in the United States their whole life were significantly more likely than students who had just moved to the U.S. to have considered themselves overweight.

- The longer a student had lived in the U.S., the more likely he/she was to participate in physical activity. In addition, students who lived in the U.S. their whole life were less likely than their peers to report heavy television watching (see Figure 10h).

Figure 10h. Physical Activity Among Massachusetts High School Students by Length of Time Lived in United States, 2001



Note: (**) Statistically significant difference between groups, $p<.01$

Sexual Minority Students:

- Sexual minority students were no more likely to have been overweight or at risk of becoming overweight than were other students, but they were significantly more likely than other students to have considered themselves slightly or very overweight (42% vs. 33%, respectively).

- Sexual minority students were equally as likely as other students to have been attempting weight loss, but were more likely to have done so using unhealthy methods such as diet pills, powders, or liquids (13% vs. 8%), fasting (27% vs. 13%), or laxatives or vomiting (15% vs. 6%).

- Compared to their peers, sexual minority students were significantly less likely to have participated in regular vigorous or moderate physical activity (53% vs. 63% and 17% vs. 26%), or to have played on a sports team (36% vs. 55%). However, they were also somewhat less likely to have watched three or more hours of television on an average day (24% vs. 31%, respectively).

SUMMARY OF RESULTS

Significantly more students in 2001 than in 1999 were overweight; one in ten students in 2001 was overweight, and an even larger proportion were at risk of becoming overweight. Nearly one half of students were trying to lose weight, most often through diet and exercise, though a minority of students used fasting, diet pills, laxatives, and/or vomiting to control their weight. All methods of weight control were more common among female than male students. Only a minority of students consumed recommended levels of fruits, vegetables, and milk.

More than three-fifths of Massachusetts students engaged in regular aerobic exercise, and half also regularly did exercises to strengthen and tone their muscles. Physical activity rates were higher among males, 9th graders, and non-urban students than among females, older students, and youth in urban areas. Participation in team sports continued to decline, but attending a physical education class increased between 1999 and 2001. Regular exercise and sports participation were both associated with lower rates of several risk behaviors, including smoking, illegal drug use, and sexual risk behaviors.

IMPLICATIONS AND RECOMMENDATIONS

Many Massachusetts adolescents are either currently overweight or at risk of becoming overweight as adults. Obesity in adolescence is likely to continue into adulthood and poses serious threats to one's health, including increased risk for high blood pressure, cardiovascular disease, diabetes, and other chronic health conditions. These findings suggest the importance of including obesity prevention topics, such as the importance of proper nutrition, physical activity, and healthy weight control in comprehensive school health education programs

Most students appear to be attempting to control their weight in appropriate ways, through diet and exercise. However, some youth use weight-loss strategies that endanger health and may indicate signs of eating disorders such as anorexia or bulimia. Students should be informed of the dangers of eating disorders. Education about weight control should emphasize the physical risks of overweight, but actively discourage dangerous weight control techniques.

More education about the importance of proper nutrition is needed. It is disturbing that so few of our adolescents consume the recommended daily levels of five fruits and vegetables; they may instead be consuming less nutritious fast foods and soft drinks. Additionally, the low levels of milk consumption reported on this survey indicate that most adolescents may not be getting needed amounts of calcium in their diets. This is especially a problem among girls, as they were significantly less likely than males to drink enough milk, and are more likely to suffer from osteoporosis later in life. Healthy eating habits, good nutrition, and responsible weight control

can be fostered not only by comprehensive school health education, but also by school counseling programs and school nurses and through healthy food choices in school cafeterias.

Although most students in 2001 reported participating in regular exercise, one-third of all students participated in an insufficient amount of physical activity and about one in ten students reported no physical activity at all. It is also troubling that one-third of all students did not attend a physical education class in an average school week, and that sports team participation has declined over the past few years. In addition, in 2001 all measures of physical activity decreased with grade level, suggesting that many students are not maintaining the exercise patterns that will lead to good health as adults. School should support the development of healthy patterns of physical activity by ensuring that time is allotted in the school schedule for physical education, and that all students have the opportunity and are encouraged to participate in those classes and in other athletic activities. Communities can help as well by promoting physically active recreation activities for adolescents.

Significant gender differences in diet, weight control, and physical activity behaviors were observed in the 2001 MYRBS. Young male students were significantly more likely than female students to be overweight, but less likely to realize they were overweight or to be attempting weight loss. In fact, just the opposite occurred: male students were more likely than female students to view themselves as *underweight* and to be trying to *gain* weight.

Conversely, female students were less likely than males to be overweight, but far more likely to consider themselves overweight, to be attempting weight loss, and to be using unhealthy methods of weight loss. Most females who were trying to lose weight had a healthy body weight. These findings suggest that education programs should recognize and incorporate the opposite views of male and female students regarding desirable body weight in an effort emphasize the importance of maintaining a *healthy* body weight. Also, significant racial/ethnic differences in overweight, weight control, and physical activity suggest that education programs should promote maintaining a healthy body weight and active lifestyle within a cultural context, incorporating varying cultural views on diet and body weight.

Targeted interventions for students in urban communities and sexual minority youth may also be needed. Students in urban communities were more likely than non-urban students to be overweight and appeared to be particularly vulnerable to developing sedentary rather than active lifestyles. Sexual minority youth were more likely than their peers to have a distorted perception of their weight, and were more likely to use unhealthy and dangerous methods of weight loss.

Finally, coaches, athletic directors, and administrators should be aware of the increased risk for binge drinking among student athletes: students who played on a sports team were more likely than their peers to have engaged in binge drinking. Programs to educate students about the dangers associated with the misuse of alcohol should be accompanied by policies that limit or restrict the playing time of athletes found to be drinking.

11 RESILIENCY

INTRODUCTION

It has been shown that young people who do not become involved in risk behaviors share a common set of characteristics, collectively called resiliency, that enable them to make healthy choices and avoid health risk behavior. Children can become resilient through the interaction of protective factors found within themselves, their families, their schools, and their communities.

Factors such as academic achievement, a significant relationship with a parent or caregiver, a significant relationship with an adult member of the school community, and involvement in community service have been recognized as potential protective factors among adolescents. Research has shown that these factors are associated with lower rates of risk behaviors including emotional distress, suicidal ideation and behavior, violence, substance use, and early sexual initiation.[123, 124]

In addition, participation in extracurricular activities can positively influence a student's behavior. Compared to their peers, students who participate in extracurricular activities feel more connected to school, and therefore may be less likely to engage in risk behaviors. Extracurricular activities also provide support and supervision from adults, positive peer relationships, and opportunities to develop and demonstrate competence.[125, 126]

For the first time, the MYRBS included six measures of potential protective factors among students. These included: (1) academic achievement, (2) perceived parent or adult family support, (3) perceived teacher or other adult support in school, (4) perceived support from other adults outside of school, (5) participation in volunteer work or community service, and (6) participation in organized extracurricular activities.

RESULTS

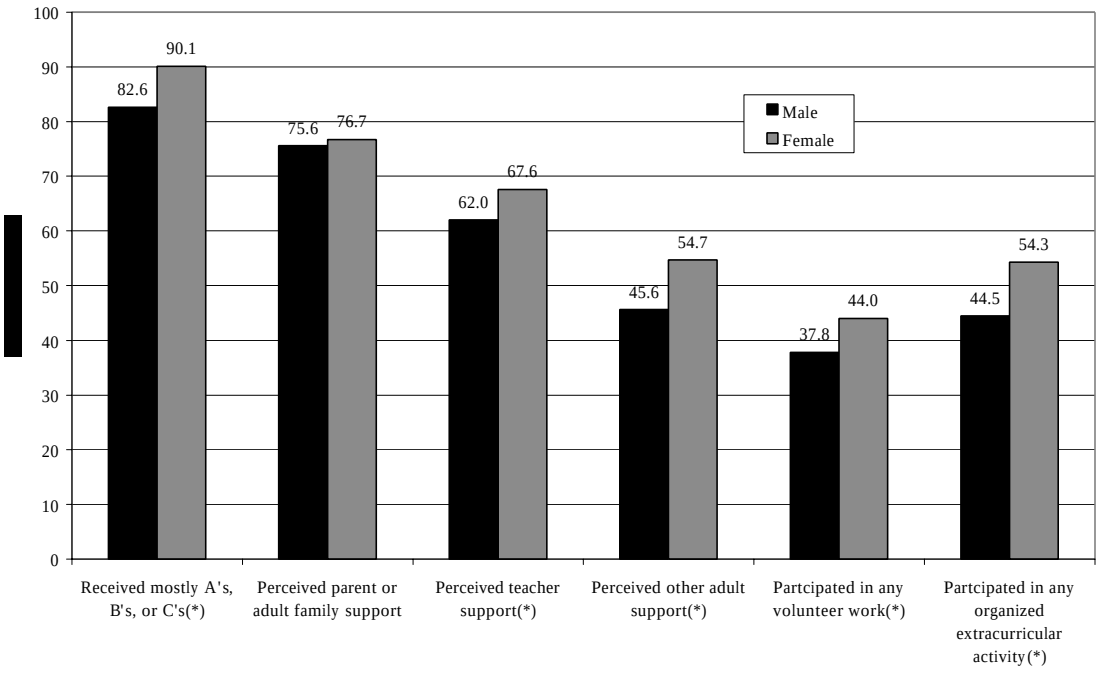
KEY FINDINGS FROM THE 2001 MYRBS

- Most students (86%) reported receiving mostly A's, B's, and C's for grades in the 12 months before the survey.
- Most (76%) students felt they could talk to a parent or other adult family member about things they thought were important.
- Many (65%) felt there was a teacher or other adult school staff member they could talk to about a problem.
- Half (50%) felt there was another adult outside of school (such as a religious leader, club advisor, or neighbor) they could talk to about things they thought were important.
- Two out of five students (41%) participated in at least one hour of volunteer work or community service in an average month.
- Half of all high school students (49%) participated in organized extra-curricular activities at least once in the seven days before the survey.
- Each protective factor was significantly associated with lower rates of most risk behaviors including: tobacco use, alcohol use, illegal drug use, violence, suicide, and sexual risk behaviors.

ACADEMIC ACHIEVEMENT

- The majority of students (61%) described their grades in the 12 months before the survey as mostly A's or B's. One-quarter of students (25%) described their grades as mostly C's, and roughly 9% reported receiving mostly D's or F's.
- Female students were significantly more likely than male students to report receiving good grades, i.e., mostly A's, B's, or C's (90% vs. 83%, respectively; see Figure 11a, next page).
- Seniors were significantly more likely than sophomores and freshmen to report receiving good grades (92% vs. 86% and 82%, in order).
- White students (89%) were significantly more likely than Black students (78%), Hispanic students (77%), or students of Other or Multiple ethnicity (75%) to report getting mostly A's, B's, or C's. Nearly 85% of Asian students reported getting good grades.

Figure 11a. Protective Factors Among Massachusetts High School Students by Gender, 2001



Note: (*) Statistically significant difference between male and female students, $p<.05$

- Students who reported receiving good grades were significantly more likely than their peers to report perceived parent or family support, perceived teacher support, and participation in volunteer work or extra-curricular activities.

- Students who reported getting mostly A's, B's, or C's in the 12 months before the survey had significantly lower rates than their peers of most other risk behaviors, including: daily smoking, binge drinking, lifetime and current use of illegal drugs, weapon-carrying, physical fighting, suicide attempts, and lifetime sexual intercourse (see Table 11.1, page 112).

FAMILY SUPPORT

- Most students (76%) felt they could talk to a parent or other adult family member about things they felt were important.

- There were no gender or grade differences in the percent of students who reported having a parent or other adult family member to talk to about important things.

- Asian students were significantly least likely to report having a parent or adult family member to talk to about things that are important (63% vs. 77% of White students, 75% of

Hispanic students, 73% of Black students, and 69% of students of Other or Multiple ethnicity).

- Students who perceived family adult support were significantly more likely than their peers to report receiving good grades, perceived teacher or adult support in school, perceived support from other adults, and participation in volunteer work.

- Students who felt they could talk to a parent or other adult family member were significantly less likely than their peers to report most other risk behaviors including: alcohol, tobacco, and illegal drug use; violence and injury-related behaviors; sexual behaviors; and unhealthy weight control behaviors (see Table 11.1, page 112).

TEACHER SUPPORT

- Many (65%) students felt there was a teacher or other adult in their school that they could talk to if they had a problem. Nineteen percent (19%) did not perceive any teacher support and an additional seventeen percent (17%) were not sure that there was a teacher they could talk to about a problem.

- Female students were significantly more likely than male students to report perceived teacher support (68% vs. 62%).

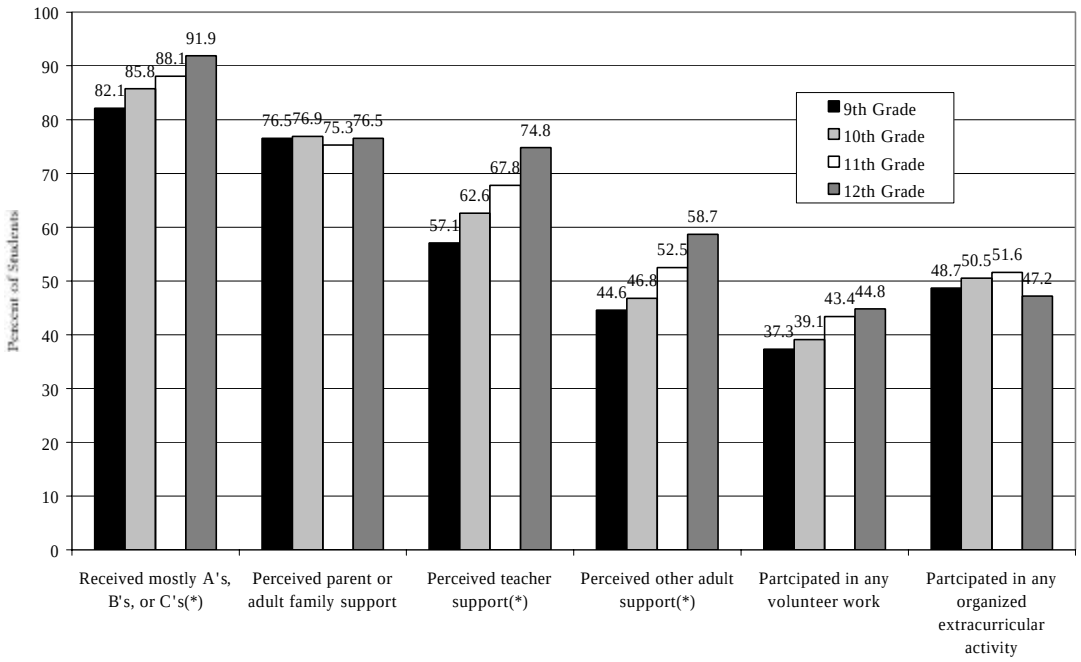
- Older students were significantly more likely than younger students to report perceived teacher support: 75% of seniors thought that there was a teacher or other adult in school they could talk to about a problem, compared to 57% of freshman (see Figure 11b, next page).

- There were also significant racial/ethnic differences in the percent of students who reported perceived teacher support: 67% of White students, 61% of Black students, 59% of Hispanic students, 56% of students of Other or Multiple ethnicity, and 51% of Asian students thought there was a teacher or other adult in school they could talk to about a problem.

- Students who perceived teacher or adult support in school were significantly more likely than their peers to report receiving good grades, perceived adult support outside of school, and participation in volunteer work and extra-curricular activities.

- Students who perceived teacher or adult support in school were significantly less likely than their peers to report lifetime use of inhalants, methamphetamines, steroids, heroin, or injected drugs. They were also less likely to report having carried a weapon both on and off school property, having carried a gun, having been threatened or injured with a weapon on school property, or having been involved in a gang (see Table 11.1, page 112).

Figure 11b. Protective Factors Among Massachusetts High School Students by Grade, 2001



Note: (*) Statistically significant difference between grades, $p<.05$

OTHER ADULT SUPPORT

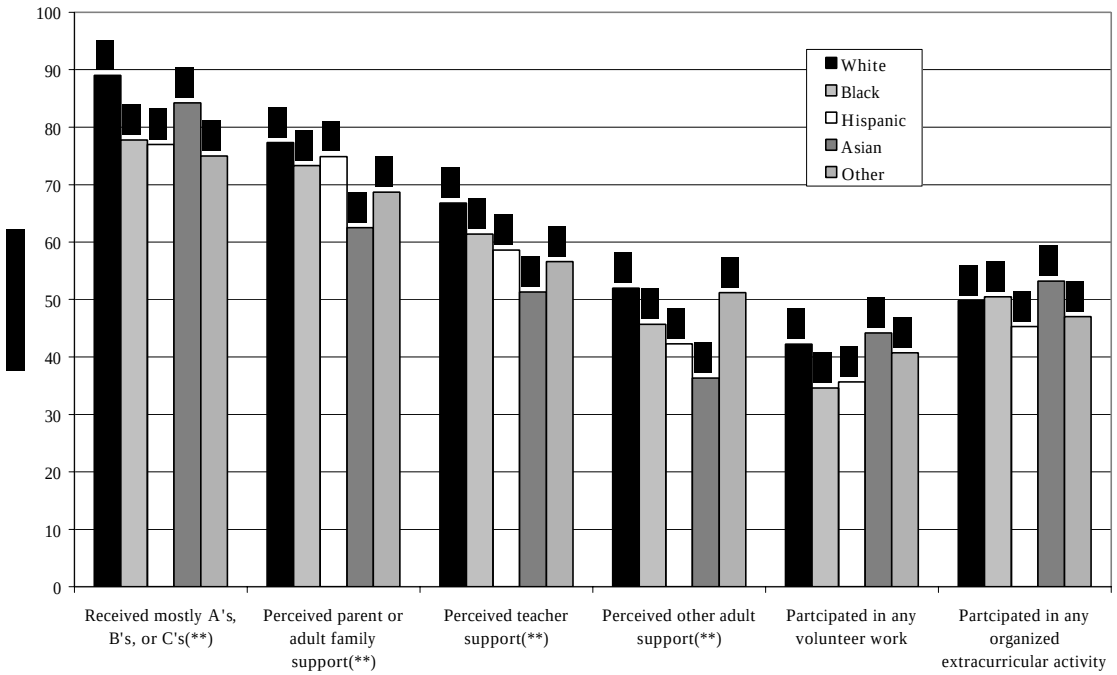
- Half (50%) of all students said there was a non-family adult outside of school, such as a religious leader, club advisor, or neighbor) that they could talk to about things they felt were important.

- Female students were significantly more likely than male students to report having a non-family adult outside of school to talk to about things that are important (55% vs. 46%, respectively).

- Older students were significantly more likely than younger students to report having other adult support: 59% of seniors vs. 45% of freshman reported having a non-family adult outside of school to whom they could talk.

- White students (52%) and students of Other or Multiple ethnicity (51%) were most likely to report having a non-family adult outside of school that they could talk to about important things. Forty-six percent (46%) of Black students and 42% of Hispanic students reported adult support. Asian students were significantly least likely to report other adult support (36%; see Figure 11c, next page).

Figure 11c. Protective Factors Among Massachusetts High School Students by Race/Ethnicity(a), 2001



Notes: (**) Statistically significant difference between groups, p<.01; (a) See Table 1.1, page 3, for a detailed explanation of racial/ethnic categories

- Students who felt they could talk to a non-family adult outside of school were significantly more likely than their peers to report perceived parent or adult family support, perceived teacher support, and participation in volunteer work or extracurricular activities.

- Students who felt they could talk to a non-family adult outside of school such as a religious leader, club advisor, or neighbor had significantly lower rates than their peers of lifetime heroin and injected drug use, being threatened or injured with a weapon at school, or having used alcohol or drugs the last time they had sex (see Table 11.1, next page).

VOLUNTEER WORK OR COMMUNITY SERVICE

- Two-fifths (41%) of students participated in at least one hour of volunteer work or community service in an average month. Thirty percent (30%) of students participated in one to four hours, 6% participated in five to nine hours, and 5% participated in 10 or more hours in average month.

- Female students were significantly more likely than male students to have participated in at least one hour of volunteer work (44% vs. 38%, respectively). There were no significant grade or racial/ethnic differences.

Table 11.1 Protective Factors Significantly Associated with Lower Rates of Risk Behaviors Among Massachusetts High School Students, 2001

	Mostly A's, B's, or C's	Teacher support	Family Adult Support	Non-family Adult support(a)	Volunteer work	Extracurricular activities
Substance Use Behaviors						
Current smoking	**		**		**	**
Daily smoking	**		**		**	**
Current alcohol use	**		**			**
Binge drinking	**		**			**
Lifetime use of any illegal drug	**		**		**	**
Lifetime marijuana use	**		**		**	**
Lifetime inhalant use	**	**	**		**	
Lifetime ecstasy use	**		**		**	**
Lifetime cocaine use	**		**		**	**
Lifetime methampetamine use	**	**	**		**	**
Lifetime steroid use	**	**	**			
Lifetime heroin use	**	**	**	**		
Lifetime injected drug use	**	**	**	**		
Lifetime use of other drugs	**		**		**	**
Current use of any illegal drug	**		**		**	**
Current marijuana use	**		**		**	**
Violence & Injury-Related Behaviors						
Carried a weapon	**	**	**			**
Carried a gun	**	**	**			
Carried a weapon at school	**	**	**			
Physical fight	**		**			
Physical fight at school	**		**			
Threatened or injured with a weapon at school	**	**	**	**		
Skipped school because felt unsafe	**		**			
Involved in gang	**	**	**			**
Considered suicide	**	**	**			
Attempted suicide	**		**			
Sexual Behaviors						
Sexual intercourse in lifetime	**		**		**	
Four or more sexual partners in lifetime	**		**		**	
Ever been or gotten someone pregnant(b)	**					
Ever been diagnosed with an STD(b)						
Sexual intercourse in the past three months(b)						
No condom use at last intercourse(c)					**	**
No birth control use at last intercourse(c)	**				**	**
Alcohol or drug use at last intercourse(c)	**			**		
Weight Control and Physical Activity						
Overweight or at risk of becoming overweight	**					
Fasted to lose/control weight	**		**			
Took diet pills to lose/control weight			**			
Took laxatives or vomited to lose/control weight		**	**			
No regular vigorous physical activity(d)	**		**	**	**	**
No regular moderate physical activity(e)					**	**
Watched three or more hours of television per day	**				**	**

(**) Protective factor significantly associated with lower rates of risk behavior, $p < .01$; (a) Such as religious leader, club advisor, neighbor, etc.; (b) Among students who had sexual intercourse in their lifetime; (c) Among students who had sexual intercoure in the three months before the survey; (d) On less than three of the past seven days; (e) On less than five of the past seven days

- Students who participated in volunteer work or community service were significantly more likely than their peers to report receiving good grades, perceived teacher or adult support in school, perceived adult support outside of school, and participation in extra-curricular activities.

- Students who participated in at least one hour of volunteer work or community service in an average month had significantly lower rates than their peers of smoking, illegal drug use, and sexual behaviors. They were more likely than their peers to have used condoms or birth control if sexually active, and more likely to have engaged in regular physical activity (see Table 11.1, previous page).

EXTRA-CURRICULAR ACTIVITIES

- Half (49%) of all students participated in organized afterschool, evening, or weekend activities (such as school clubs, community center groups, music, art, or dance lessons, drama, church, or other supervised activities) on at least one day in the week before the survey.

- Participation in extra-curricular activities was more common among females than among males (54% vs. 45%). There were no significant grade or racial/ethnic differences.

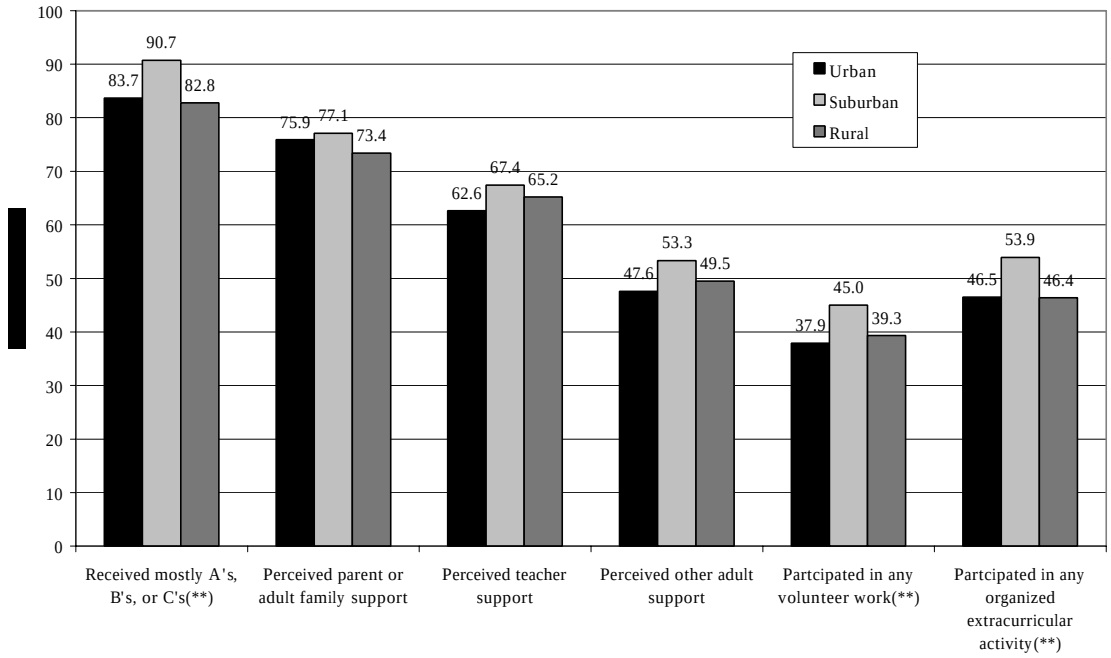
- Students who participated in extra-curricular activities were significantly more likely than their peers to report receiving good grades, perceived teacher or adult support in school, perceived adult support outside of school, and participation in volunteer work or community service.

- Students who participated in organized extra-curricular activities were significantly less likely than their peers to have reported: current and daily smoking, current and binge drinking, lifetime and current illegal drug use, gang involvement, lifetime sexual intercourse and four or more sexual partners, or heavy television watching. They were more likely than their peers to report condom or birth control use if sexually active, and more likely to report regular physical activity (see Table 11.1, previous page).

ADDITIONAL FINDINGS

- Students in suburban communities were most likely to report each protective factor. They were significantly more likely than urban and rural students to report receiving good grades, participating in volunteer work, or participating in extra-curricular activities (see Figure 11d, next page).

Figure 11d. Protective Factors Among Massachusetts High School Students in Urban, Suburban, and Rural Communities, 2001



Note: (**) Statistically significant difference between groups, p<.01

- Students who had lived in the U.S. their whole lives were significantly more likely than those who were recent immigrants (i.e., had lived in the U.S. less than six years) to have participated in volunteer work or extra-curricular activities, or to have a non-family adult outside of school to whom they could talk. The groups did not differ significantly on any of the other protective factors.

- Sexual minority youth were significantly less likely than their peers to report receiving mostly A's, B's, or C's in the year before the survey, or to have perceived parent or adult family support. There were no significant differences in the percent of sexual minority youth and their peers who reported the other protective factors.

SUMMARY OF RESULTS

Most Massachusetts high school students reported receiving good grades (mostly A's, B's, or C's) and most perceived teacher or adult support in school and adult support, usually from a parent, outside of school. About half of all high school students participated in extra-curricular activities and slightly less than half participated in volunteer work or community service. Although male and female students were equally as likely to have reported perceived parent or family support outside of school, male students were significantly less likely than female students to have reported the other protective factors. Younger students and students of racial/ethnic

minorities were less likely than other students to have reported certain protective factors. Each protective factor was significantly associated with lower rates of risk behaviors.

IMPLICATIONS AND RECOMMENDATIONS

The 2001 MYRBS findings provide further evidence that students who achieve academically, perceive support from adults, or participate in community service or other extracurricular activities are less likely to engage in health risk behaviors. Because students who reported one protective factor were significantly more likely to report all other protective factors, it is difficult to state with certainty the association between each factor and health risk behaviors. However, the findings presented here support previous research identifying these factors as having significant correlations to certain risk behaviors including illegal drug use, suicidal thinking, and sexual intercourse.

We know that alcohol use, tobacco use, other drug use, teen pregnancy, exposure to violence, and poor nutrition can negatively impact student attendance and learning. The association between academic achievement and lower rates of risk behaviors found here suggests that comprehensive school health programs designed to prevent risk behaviors and promote habits that enhance health and wellness may also increase student achievement. The Massachusetts Department of Education developed a technical assistance tool for school district staff to promote the value of comprehensive school health education programs. The kit, *Health and Academics: Making the Link*, reviews a body of research documenting the connection between the provision of comprehensive school health programs and increased academic success. Specifically, in schools where components of comprehensive school health programs are implemented, students have experienced higher grade point averages and better standardized test performance.[127, 128]

Most students had at least one adult outside of school, usually a parent, that they could talk to about things that were important to them. The 2001 MYRBS findings lend further support to the idea that a significant and supportive relationship with a parent or other caring adult has a positive impact on child and adolescent development. In fact, family support or connectedness was shown here to be one of the most important protective factors, associated with lower rates of substance use, violence, suicidal behavior, sexual intercourse, and unhealthy weight loss strategies. Schools should work to involve parents, guardians, and other caregivers in all aspects of a student's school experience.

Although many students felt there was a teacher or other adult school staff member they could talk to about a problem, one-fifth of all students did not perceive any teacher or adult support in school. Male students, Asian students, and students in younger grades were less likely than their peers to perceive teacher or adult support in school. Therefore comprehensive school health programs should also include goals of enhancing school connectedness and creating an environment in which *all* students are recognized and supported by teachers and school staff. Programs started early, perhaps in elementary school, that aim to foster positive and supportive relationships between school staff and students may have an impact on student behavior later in life. Specifically early interventions have been associated with reduced violent behavior, heavy drinking, and sexual intercourse later in the student's life.[127]

Finally, participation in volunteer work, community service, or other extra-curricular activities was associated with lower rates of substance use and sexual risk behaviors, as well as higher rates of physical activity. Schools should ensure that all students have the opportunity to participate in volunteer work and extra-curricular activities and should encourage students to do so.

12 CONCLUSIONS

SUMMARY OF KEY FINDINGS

Many adolescent risk behaviors have decreased within the past few years. Compared to 1995, significantly fewer students in 2001 were smoking cigarettes, using smokeless tobacco, using inhalants, carrying weapons, engaging in physical fights, considering or planning suicide, drinking and driving, and using substances before sexual intercourse. In addition, the 2001 MYRBS findings show increases in seat belt and bicycle helmet use, and in condom and birth control use among sexually active students. These findings suggest that the influences of comprehensive school health programs, community efforts, and public health initiatives are having a strong positive impact on the behavior of Massachusetts adolescents.

Substance use and violence on school property have significantly decreased. Compared to previous years, significantly fewer students in 2001 smoked cigarettes, used marijuana, or were offered, sold, or given drugs on school property, and fewer students reported carrying a weapon or fighting at school. These findings highlight the continued success of efforts by school personnel to provide a safe and drug-free learning environment for Massachusetts students.

AIDS education is working. Students who were taught in school about HIV/AIDS prevention had lower levels of every sexual risk behavior than those who were not. These students were also less likely to have ever been pregnant or to have ever been diagnosed with a sexually transmitted disease.

Despite the observed decreases in most risk behaviors, it remains that **many high school students engage in some risk behaviors that pose serious threats to their health and safety.** In particular, lifetime and current alcohol use, marijuana use, and sexual intercourse, as well as the lack of sufficient physical activity are still common risk behaviors among Massachusetts high school students. Very little improvement has been made in preventing these behaviors, as the prevalence rates have remained virtually unchanged since 1995.

Risk behaviors tend to cluster together. Students who engage in one high-risk or health-compromising behavior are often likely to engage in other risk behaviors as well. This suggests that a comprehensive approach to health education, rather than programs targeting specific risk behaviors in isolation, is most appropriate.

Certain factors in a student's life have been identified as having a protective effect on behavior. Students who feel they can talk to a family member or non-family adult outside of school, or a teacher or other adult in school, were far less likely than their peers to be participating in health-risk behaviors. Academic achievement (based on self-reported grades), volunteer or community service work, and participation in extracurricular activities were also associated with lower levels of risk behavior.

For some students, risk behaviors began well before high school. Although the MYRBS surveyed only high school students, it is clear that a minority began substance use and sexual activity before they reach the 9th grade. It is important that comprehensive health education and prevention programs begin in elementary school and continue throughout the middle and high school years.

Patterns of risk are different for different students. Gender, race/ethnicity, grade level, sexual orientation, kind of community, and many other factors were all related to variations in risk behavior. Although all students need the knowledge, encouragement, and skills to develop healthy lifestyles, it may also be appropriate to develop "targeted" programs aimed specifically at the risks faced by certain segments of the adolescent population.

Rates of some risk behaviors in Massachusetts remain lower than the national rates. Compared to U.S. high school students, Massachusetts high school students had lower rates of tobacco use (i.e., current cigarette smoking, smokeless tobacco use, and cigar smoking), lifetime illegal drug use (i.e., inhalants and methamphetamines), weapon-carrying, and sexual risk behaviors (i.e., lifetime sexual intercourse, four or more sexual partners, and substance use during last intercourse). However, Massachusetts rates of marijuana use and alcohol use, including binge drinking, as well as some measures of substance use on school property are higher than the national rates (see Appendix D).

CONCLUSIONS

Beginning in 1993, tobacco tax revenues (i.e., the Health Protection Fund) helped to fund comprehensive school health education programs in the Commonwealth. Since then, substantial and statistically significant improvements have occurred in many adolescent risk behaviors, as documented by the 2001 MYRBS results. Comprehensive school health education and human services programs, especially those that help students develop the skills and attitudes needed for making sound decisions about health and safety, can have a positive effect on adolescent behavior. In addition, because this and other research has documented a link between academic achievement and healthy behaviors, it is important to promote and continue strong comprehensive school health education to prevent adolescent risk behaviors that can act as barriers to student learning.

Further, schools should strive to foster a healthy school environment in which all students feel safe and connected to the school. The 2001 MYRBS findings related to resiliency suggest that if students have the opportunity to develop strong relationships with teachers, administrators, and other school staff, and to get involved in community service work or organized extra-curricular activities, they may be less likely to participate in health-risk or health-compromising behaviors.

The 2001 MYRBS results highlight continued progress in reducing adolescent risk behaviors in the Commonwealth. Nevertheless, existing levels of some risk behaviors among Massachusetts high school youth still warrant concern. Comprehensive school health education programs, within the context of a safe and healthy school environment, can reinforce positive decision-making and behavior change, and thus help youth resist or limit their participation in high-risk activities.

REFERENCES AND NOTES

1. The MYRBS was conducted in 1990, 1992, 1993, 1995, 1997, 1999, and 2001. The next scheduled administration is spring 2003.

2. Brener, N., Collins, J., Kann, L., Warren, C., and Williams, B. (1995). Reliability of the Youth Risk Behavior Survey questionnaire. *American Journal of Epidemiology, 141,* 575-580.

3. Items added to the standard CDC survey instrument by the Massachusetts Department of Education include questions 8, 9, 10, 11, 12, 27, 55, 60, 62, 63, 65 67, 68, 73, 78, 79, 98, and 99. Questions 4, 26, 37, 38, 41, 80, 83, 87, and 90 were modified slightly from the original CDC wording.

4. Substance Abuse and Mental Health Services Administration, Office of Applied Studies (2001). *Summary of findings from the 2000 National Household Survey on Drug Abuse [on-line].* Retrieved December 4, 2001, from www.samhsa.gov/oas.

5. Centers for Disease Control and Prevention (1997). Smoking-attributable mortality and years of potential life lost – United States, 1994. *Morbidity and Mortality Weekly Report, 46,* 444-451.

6. National Center for Health Statistics (2001). Deaths: Final data for 1999. *National Vital Statistics Report, 49(8),* 1-114.

7. Public Health Service (1986). *The health consequences of using smokeless tobacco: A report of the advisory committee to the Surgeon General.* (NIH Publication No. 86-2874). Bethesda, MD: U.S. Department of Health and Human Services.

8. Public Health Service (1994). *Preventing tobacco use among young people: A report of the Surgeon General.* (DHHS Publication No. 0455-B-02). Washington, DC: U.S. Government Printing Office.

9. Centers for Disease Control and Prevention (1998). Tobacco use among high school students – United States, 1997. *Morbidity and Mortality Weekly Report, 47,* 229-33.

10. Johnston, L.D., O'Malley, P.M., Bachman, J.G. (1999). Cigarette smoking among American teens continues gradual decline. *University of Michigan News and Information Services [on-line].* Retrieved December 4, 2001, from www.monitoringthefuture.org.

11. Centers for Disease Control and Prevention (2001). Youth Tobacco Surveillance – United States, 2000. *Morbidity and Mortality Weekly, 50,* 1-84.

12. Johnston, L.D., O'Malley, P.M., and Bachman, J.G. (1987). *National trends in drug use and related factors among American high school students and young adults, 1975-1986.* (DHHS Pub No. (ADM) 87-1535). Rockville, MD: National Institute on Drug Abuse.

13. Massachusetts Department of Education (1999). *The 1998 Massachusetts School Health Education Profile Report.* Malden, MA: Author.

14. District classifications were based on a cluster analysis conducted several years ago by the Massachusetts Department of Education.

15. Johnston, L.D., O'Malley, P.M., and Bachman, J.G. (2001). *Monitoring the Future national survey results on drug use, 1975-2000. Volume I: Secondary school students.* (NIH Publication No. 01-4924). Bethesda, MD: National Institute on Drug Abuse.

16. Centers for Disease Control (1998). Youth Risk Behavior Surveillance – United States, 1997. *Morbidity and Mortality Weekly Report, 47,* 1-89.

17. Centers for Disease Control (2000). Youth Risk Behavior Surveillance – United States, 1999. *Morbidity and Mortality Weekly Report, 49*, 1-96.

18. Reid, D.K., McNeill, A.D., and Glynn, T.J. (1995). Reducing the prevalence of smoking in youth in Western countries: An international review. *Tobacco Control, 4*, 266-277.

19. Massachusetts Department of Education (1999). *Massachusetts Comprehensive Health Curriculum Framework*. Malden, MA: Author.

20. Centers for Disease Control and Prevention (1994). Guidelines for school health programs to prevent tobacco use and addiction. *Morbidity and Mortality Weekly Report, 43(RR-2)*, 1-18.

21. U.S. Department of Health and Human Services (1990). *Prevention '89/90: Federal programs and progress.* Washington, DC: U.S. Government Printing Office.

22. National Highway Traffic Safety Administration, Impaired Driving Division (2001). *1999 Youth fatal crash and alcohol facts: Youth fatalities and A/R fatalities [on-line].* Retrieved April 17, 2002, from http://www.nhtsa.dot.gov/people/injury/alcohol/1999%20YFCAF%20final%20web/page9.html.

23. National Highway Traffic Safety Administration, Impaired Driving Division (2001). *1999 Youth fatal crash and alcohol facts: State fatalities (ages 15-20) [on-line].* Retrieved April 17, 2002, from http://www.nhtsa.dot.gov/people/injury/alcohol/1999%20YFCAF%20final%20web/page10.html.

24. National Institute on Alcohol Abuse and Alcoholism (1997). Youth drinking: Risk factors and consequences. *Alcohol Alert, No. 37 [on-line].* Retrieved April 17, 2002, from http://www.niaaa.nih.gov/publications/aa37.htm.

25. Massachusetts Department of Education (2000). *1999 Massachusetts Youth Risk Behavior Survey Results.* Malden, MA: author.

26. Public Health Service (2000). *Healthy people 2010: Understanding and improving health.* (DHHS Pub. No. 0485). Washington, DC: U.S. Government Printing Office

27. The National Center on Addiction and Substance Abuse at Columbia University (1996). *Substance Abuse and the American Woman.* New York: Columbia University.

28. Office of the Inspector General (1992). *Youth and alcohol: Dangerous and deadly consequences.* Washington, DC: U.S. Department of Health and Human Services.

29. Substance Abuse and Mental Health Services Administration, Office of Applied Studies (2002). *Binge drinking among underage persons [on-line].* Retrieved April 12, 2002, from http://www..samhsa.gov/oas/facts.cfm.

30. National Clearinghouse for Alcohol and Drug Information (1995). *Making the Link: Alcohol, tobacco, and other drugs and the college experience [on-line].* Retrieved April 17, 2002, from http://www.health.org/govpubs/m1003/index.htm.

31. National Institute on Drug Abuse (1998). *National survey results on drug use from the Monitoring the Future Study, 1975-1997.* (DHHS Publication No. 0467-A-32). Washington, DC: U.S. Government Printing Office.

32. Wechsler, H., Dowdall, G., Maenner, G., Gledhill-Hoyt, J., and Hang, L. (1998). Changes in binge drinking and related problems among American college students between 1993 and 1997: Results of the Harvard School of Public Health College Alcohol Study. *Journal of American College Health, Volume 47*, 57-68.

33. National Institute on Alcohol Abuse and Alcoholism (1997). *Ninth special report to the U.S. Congress on alcohol and health.* Bethesda, MD: U.S. Department of Health and Human Services.

34. Grant, B.F. and Dawson, D.A. (1997). Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: Results from the National Longitudinal Alcohol Epidemiologic Survey. *Journal of Substance Abuse, 9*, 103-110.

35. National Institute on Alcohol Abuse and Alcoholism (1998). *Frequently asked questions on alcohol abuse and alcoholism [on-line]*. Retrieved April 17, 2002, from http://www.niaaa.nih.gov.

36. National Institute on Alcohol Abuse and Alcoholism (2002). Alcohol and disease interaction. *Alcohol Research and Health, 25(4)*, 245-306.

37. Mothers Against Drunk Driving (2002). *Underage drinking information parents need to know [on-line]*. Retrieved April 17, 2002, from http://www.madd.org/under21/0,1056,1162,00.html.

38. Substance Abuse and Mental Health Services Administration (2002). *Consequences of underage alcohol use [on-line]*. Retrieved April 12, 2002, from http://www.health.org/govpubs/rpo992.

39. Johnston, L., O'Malley, P., and Bachman, J. (1997). *Monitoring the Future Study, 1996.* Ann Arbor, MI: University of Michigan.

40. Johnston, L., O'Malley P., and Bachman, J. (2001). Data tables from the 2001 Monitoring the Future Survey. *University of Michigan News and Information Services [on-line]*. Retrieved December 7, 2001, from http://www.monitoringthefuture.org.

41. Gillmore, M.R. (1998). Children's beliefs about drinking. *American Journal of Drug and Alcohol Abuse, 24(1)*, 131-151.

42. National Institute on Drug Abuse (1998). *Drug Abuse Cost to Society Set at $97.7 Billion, Continuing Steady Increase Since 1975 [on-line]*. Retrieved May 1, 2002, from http://www.nida.nih.gov/NIDA_Notes/NNVol13N4/Abusecosts.html.

43. U.S. Department of Health and Human Services (2001). *Substance abuse – A national challenge: Prevention, treatment and research at HHS [on-line]*. Retrieved May 1, 2002, from http://www.nida.nih.gov/MedAdv/SubstanceAbuseFacts.html.

44. Johnston, L.D., O'Malley, P.M., & Bachman, J.G. (2002). *The Monitoring the Future national survey results on adolescent drug use: Overview of key findings, 2001*. (NIH Publication No. 02-5105). Bethesda, MD: National Institute on Drug Abuse.

45. Massachusetts Department of Education (1998). *1997 Massachusetts Youth Risk Behavior Survey Results*. Malden, MA: author.

46. Massachusetts Department of Public Health (in-press). *Triennial Prevalence Survey: Adolescent Substance Use 1999*. Boston, MA: author.

47. Centers for Disease Control and Prevention (1996). Youth Risk Behavior Surveillance – United States, 1995. *Morbidity and Mortality Weekly Report, 45*, 1-83.

48. Centers for Disease Control and Prevention (1995). Youth Risk Behavior Surveillance – United States, 1993. *Morbidity and Mortality Weekly Report, 44*, 1-55.

49. Office of National Drug Control Policy (2002). *Drug facts: Club drugs [on-line]*. Retrieved September 10, 2002, from http://www.whitehousedrugpolicy.gov/drugfact/club/club%5Fb.html.

50. Drug Enforcement Administration (2001). *Drug intelligence brief. Club drugs: an update [on-line]*. Retrieved September 10, 2002, from http://www.dea.gov/pubs/intel/01026/index.html.

51. Bachman, J., Johnston, L., and O'Malley, P. (1998). Explaining recent increases in students' marijuana use: Impacts of perceived risks and disapproval, 1976 through 1996. *American Journal of Public Health, 88*, 887-892.

52. Massachusetts Department of Public Health (1997). *Adolescent substance use in Massachusetts: Trends among public school students.* Boston, MA: author.

53. Massachusetts Department of Public Health (1994). *Tobacco, Alcohol, and Other Drug Use: Trends among Massachusetts public school adolescents, 1984-1993.* Boston, MA: Health and Addictions Research.

54. Substance Abuse and Mental Health Services Administration (1994). *National Household Survey on Drug Abuse: Population estimates, 1994.* (DHHS Publication No. (SMA) 95-3063). Washington, DC: U.S. Government Printing Office

55. Dusenbury, L., Falco, M. and Lake, A. (1997). A review of the evaluation of 47 drug abuse prevention curricula available nationally. *Journal of School Health, 67*, 127-132.

56. Massachusetts Department of Public Health (2000). *Advance data: Deaths 1998.* Boston, MA: Author.

57. National Center for Health Statistics (1999). Deaths: Final data for 1997. *National Vital Statistics Reports, 47*, 1-108.

58. Monk, M. (1987). Epidemiology of suicide. *Epidemiological Review, 9*, 51-59.

59. Moscicki, E. and Boyd, J. (1985). Epidemiologic trends in firearm suicides among adolescents. *Pediatrician, 12*, 52-62.

60. American Political Network (1993). CDC study: Teen gun deaths hit new high. *Daily Report Card News Service, 2*, p. 195.

61. Luckinbill, D. (1977). Criminal homicide as a situated transaction. *Social Problems, 25*, 176-186.

62. Bensley, L., Van Eenwyk, J., Spieker, S. and Schoder, J. (1999). Self-reported abuse history and adolescent problem behaviors. I. Antisocial and suicidal behaviors. *Journal of Adolescent Health, 24*, 173-180.

63. Massachusetts Department of Education (1996). *1995 Massachusetts Youth Risk Behavior Survey Results.* Malden, MA: Author.

64. The question of skipping school because of feeling unsafe is included on the survey section of the Massachusetts Comprehensive Assessment System, which tests all 10th grade students in the Commonwealth each year. Data from MCAS survey question show that, among 10th grade students, the percent of students who skipped school because they felt unsafe *decreased* from 1999 to 2001. Thus we can not be sure at this time that the increase shown in MYRBS data is anything other than a temporary "blip".

65. Prothrow-Stith, D. (1991). *Deadly consequences: How violence is destroying our teenage population and a plan to begin solving the problem.* New York, NY: HarperCollins.

66. Eron, L., Gentry, J., and Schlegel, P. (Eds.) (1994). *Reason to hope: A psychosocial perspective on violence and youth.* Washington, DC: American Psychological Association.

67. Wilson-Brewer, R. (1995). Peer violence-prevention programs in middle and high schools. *Adolescent Medicine: State of the Art Reviews, 6*, 233-250.

68. Dusenbury, L., Falco, M., Lake, A., Brannigan, R., and Bosworth, K. (1997). Nine critical elements of promising violence-prevention programs. *Journal of School Health, 67*, 409-414.

69. Battisch, V. and Hom, A. (1997). The relationship between students' sense of their school as a community and their involvement in problem behaviors. *American Journal of Public Health, 87*, 1997-2001.

70. American Psychiatric Association. (1994). *DSM-IV: Diagnostic and Statistical Manual of Mental Disorders.* Washington, DC: American Psychiatric Press.

71. U.S. Department of Health and Human Services Public Health Service (2001*). National strategy for suicide prevention: Goals and objectives for action.* Rockville, MD: author.
72. Resnick, M., et al. (1997). Protecting adolescents from harm: Findings from the National Longitudinal Study on Adolescent Health. *Journal of the American Medical Association, 278*, 823-832

73. Centers for Disease Control and Prevention (1995). Injury-control recommendations: Bicycle helmets. *Morbidity and Mortality Weekly Report, 44*, 1-17.

74. Thompson, R., Rivara, F., and Thompson, D. (1989). A case-control study of the effectiveness of bicycle safety helmets. *New England Journal of Medicine, 320*, 1361-1367.

75. National Highway Traffic Safety Administration (1980). *A report to the congress on the effect of motorcycle helmet use law repeal: A case for helmet use.* Washington, DC: Department of Transportation.

76. National Highway Traffic Safety Administration. (1984). *Final regulatory impact analysis: Amendment of FMVSS no. 208 – Passenger car front seat occupant protection.* Washington, DC: U.S. Department of Transportation.

77. Mayhew, D., Donelson, A., Beirness, D., and Simpson, H. (1986). Youth, alcohol, and the relative risk of crash involvement. *Accident Analysis and Prevention, 18*, 273-287.

78. Mothers Against Drunk Driving (2000*). Research on youth: Drinking, driving, and other drugs [on-line].* Retrieved May 20, 2002, from http://www.madd.org/stats/0,1056,1807,00.html.

79. The majority of Black students, Hispanic students, Asian students, and students of Other or Multiple ethnicity reported that they did not ride a motorcycle in the 12 months before the survey . Thus there were fewer than 100 students in each category included in the analysis of motorcycle helmet use. Percentages are only reported when there are 100 or more cases in the denominator.

80. Henshaw, S.K. and VanVort, J. (1989). Teenage abortion, birth, and pregnancy statistics: An update. *Family Planning Perspectives, 21*, 85-88.

81. Westoff, C.F. (1988). Contraceptive paths toward reduction of unintended pregnancy and abortion. *Family Planning Perspectives, 20*, 4-13.

82. Singh, S. and Darroch, J. (2000). Adolescent pregnancy and childbearing: Levels and trends in developed countries. *Family Planning Perspectives, 32*, 14-23.

83. Massachusetts Department of Public Health (2002). *Massachusetts Births 2000.* Boston, MA: Author.

84. Institute of Medicine. (1997). *The hidden epidemic: Confronting sexually transmitted disease.* Washington, DC: National Academy Press.

85. Centers for Disease Control and Prevention, Division of STD Prevention (1995). *Sexually transmitted disease surveillance, 1994.* Atlanta, GA: author.

86. Massachusetts Department of Public Health (2000). *AIDS surveillance summary, February 1, 2000.* Boston, MA: Author.

87. Analyses of condom use, birth control use, and use of alcohol or drugs before intercourse include only students who had intercourse in the three months before the survey. Fewer than 100 students in some racial/ethnic groups reported recent sexual intercourse; therefore racial/ethnic differences in condom use, birth control use, and the use of alcohol or drugs before intercourse are not reported.

88. "Sexual contact" was not defined on the survey.

89. Unusual as these pregnancy differences may seem, this result can be found in the 1995, 1997, and 1999 MYRBS data as well. The MYRBS does not collect data that would permit drawing clear conclusions about the causes of this finding, although one possible influence may be attempts on the part of adolescents struggling with issues of sexual orientation to "prove" to themselves or others that they are not gay. See also Saewyc, E., Bearinger, L., Blum, R., and Resnick, M. (1999). Sexual intercourse, abuse, and pregnancy among adolescent women: Does sexual orientation make a difference? *Family Planning Perspectives, 31,* 127-131.

90. Garafalo, R., Wolf, C., Kessel, S., Palfrey, J. and DuRant, R (1998). The association between health risk behaviors and sexual orientation among a school-based sample of adolescents. *Pediatrics, 101,* 895-902.

91. Public Health Service (1999). *HIV/AIDS surveillance report: US HIV and AIDS cases reported through June 1999.* Washington, DC: US Department of Health and Human Services.

92. Kirby, D. (1992). School-based programs to reduce sexual risk-taking behaviors. *Journal of School Health, 62,* 280-287.

93. Kirby, D., Barth, R., Leland, N., and Fetro, J. (1991). Reducing the Risk: Impact of a new curriculum on sexual risk taking. *Family Planning Perspectives, 23,* 253-263.

94. Kirby, D. (1999). Reducing adolescent pregnancy: Approaches that work. *Contemporary Pediatrics, 16,* 83-94.

95. Howard, M. and McCabe, J. (1990). Helping teenagers postpone sexual involvement. *Family Planning Perspectives, 22,* 21-26.

96. Card, J. (1999). Teen pregnancy prevention: Do any programs work? *Annual Review of Public Health, 20,* 257-285.

97. Goodenow, C., Netherland, J., and Szalacha, L. (2002). AIDS-related risk among adolescent males who have sex with males, females, or both: Evidence from a statewide survey. *American Journal of Public Health, 92(2),* 203-210.

98. Whitaker, D., Miller, K., May, D., and Levin, M. (1999). Teenage partners' communication about sexual risk and condom use: The importance of parent-teenager discussions. *Family Planning Perspectives, 31,* 117-121.

99. Biglan, A., Metzler, C., Wirt, R., Ary, D., Noell, J., Ochs, L. French, C., and Hood, D. (1990). Social and behavioral factors associated with high-risk sexual behavior among adolescents. *Journal of Behavioral Medicine, 13,* 245-261.

100. Whitaker, D. and Miller, K. (2000). Parent-adolescent discussions about sex and condoms: Impact on peer influences of sexual risk behavior. *Journal of Adolescent Research, 15,* 251-273.

101. At present, eight programs have completed the extensive CDC evaluation review process and have been found in experimental studies to be effective. To be considered effective, the evaluation results must show an association between exposure to the program and at least one of the following outcomes: (1) delay of initiation of sexual intercourse; (2) increase in return to the practice of sexual abstinence; (3) decrease in the number of sexual partners, (4) decrease in the frequency of sexual intercourse, (5) increase in condom use, or (6) decrease in newly reported cases of an STD. The current list of evaluated programs includes *Reducing the Risk, Get Real about AIDS, Be Proud! Be Responsible!, Becoming a Responsible Teen, Focus on Kids: HIV Awareness, Safer Choices, Making a Difference, and Making Proud Choices.* Other programs are currently under review.

102. U.S. Department of Health and Human Services (2002). *Physical Activity Fundamental to Preventing Disease [on-line].* Retrieved July 2, 2002, from http://aspe.hhs.gov/health/reports/physicalactivity/.

103. Centers for Disease Control and Prevention (2002). Youth Risk Behavior Surveillance – United States, 2001. *Morbidity and Mortality Weekly Report, 51(SS-4),* 1-64.

104. Public Health Service (1988). *The Surgeon General's Report on Nutrition and Health, 1988*. (DHHS Publication (PHS) 88-50210). Washington, D.C.: U.S. Department of Health and Human Services.

105. Rotatori, A. and Fox, R. (1989). *Obesity in Children and Youth: Measurement, Characteristics, Causes, and Treatment.* Springfield, IL: Charles C. Thomas, Publisher.
106. Stein, R. (1987). Comparison of self-concept of non-obese and obese university junior female nursing students. *Adolescence, 22*, 77-90.

107. National Institute of Mental Health (1993). *Eating Disorders*. (DHHS Publication No. (NIH) 93-3477). Washington, D.C.: U.S. Department of Health and Human Services.

108. Centers for Disease Control and Prevention (1996). *Physical activity and health: A report of the Surgeon General.* Atlanta, GA: author.

109. American Heart Association (2002). *2002 Heart and Stroke Statistical Update*. Dallas, TX: American Heart Association.

110. Centers for Disease Control and Prevention (2002). *National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2000.* Atlanta, GA: author.

111. American Cancer Society (2002). *Cancer facts & figures, 2002*. Atlanta, GA: Author.

112. Vainio, H. and Bianchini, F., Eds. Weight control and physical activity. *IARC Handbooks of Cancer Prevention, Vol 6*.

113. Powell, K., Casperson, C., Koplan, J., and Ford, E. (1989). Physical activity and chronic diseases. *American Journal of Clinical Nutrition, 49*, 999-1006.

114. Paffenbarger, R., Hyde, R. Wing, A., and Hsieh, C. (1986). Physical activity, all-cause mortality, and longevity of college alumni. *New England Journal of Medicine, 314*, 605-613.

115. Marinek, T., Cheffere, J., and Zaichkowsky, L. (1978). Physical activity, motor development, and self-concept: Race and age differences. *Perceptual and Motor Skills 46*, 147-154.

116. U.S. Department of Health and Human Services (1985). National children and youth fitness study. *Journal of Physical Education, Recreation, and Dance, 56*, 44-90.

117. Sallis, J.F., McKenzie, T.L., Kolody, B., Lewis, M., Marshall, S., and Rosengard, P. (1999). Effects of health-related physical education on academic achievement: project SPARK. *Research Quarterly for Exercise and Sport, 70(2),* 127-34.

118. Escobedo, L.G., Marcus, S.E., Holtzman, D. and Giovino, G.A. (1993). Sports participation, age at smoking initiation and the risk of smoking among U.S. high school students. *Journal of the American Medical Association, 269*, 1391-5.

119. Zill, N., Nord, C.W., and Loomis, L.S. (1995). *Adolescent time use, risky behavior, and outcomes: an analysis of national data.* Rockville, MD: Westat.

120. Milk and other dairy products are valuable sources of calcium, which is important in preventing late-life osteoporosis and other chronic health problems. Adequate calcium consumption is especially critical in adolescence, because most bone mass is developed by age 20; the recommended level of calcium intake for adolescents is 1300 mg. per day, the amount found in four glasses of milk. See: Institute of Medicine (1997). *Dietary reference intakes for calcium, phosphorus, magnesium, vitamin D, and fluoride.* Washington, DC: National Academy Press.

121. The ability to digest dairy products varies by race/ethnicity; up to 75% of African-Americans and 90% of Asian-Americans may be lactose intolerant. For many adolescents, alternate sources of calcium (such as soy

products or dark green vegetables) may be preferable to heavy milk consumption. See: National Digestive Diseases Information Clearinghouse (1998). Lactose intolerance. www.niddk.nih.gov.

122. Body Mass Index measures height/weight ratio, and is calculated by dividing weight in kilograms by the square of height in meters. Among adults, a BMI of 25 or over is considered overweight and a BMI of 30 or more is considered obese. Different benchmarks are applied to children and adolescents, depending on age and gender. For example, according to standards obtained from the Centers for Disease Control and Prevention, a 16 year-old male with a BMI of 24.55 or greater is considered at risk of becoming overweight, and a BMI of 27.88 or greater is considered overweight. See: Kuczmarski, R. J., Ogden, C. L., Grummer-Strawn, L.M., et al. (2000). *CDC growth charts: United States. Advance data from vital and health statistics; no. 314.* Hyattsville, MD: National Center for Health Statistics.

123. Resnick, M.D., Harris, L., and Blum, R. (1993). The impact of caring and connectedness on adolescent health and wellbeing. *Journal of Pediatric Child Health, 29,* S3-S9.

124. Franke, T.M. (2000). The role of attachment as a protective factor in adolescent violent behavior. *Adolescent & Family Health, 1(1),* 40-51.

125. McNeal, R.B. (1999). Participation in high school extracurricular activities: investigating school effects. *Social Science Quarterly, 80,* 291-309.

126. Mahoney, J.L. (2000). School extracurricular activity participation as a moderator in the development of antisocial patterns. *Child Development, 71,* 502-516.

127. Hawkins, J., Catalano, R., Kosterman, R., et al. (1999). Preventing adolescent health-risk behaviors by strengthening protection during childhood. *Archives of Pediatric and Adolescent Medicine, 153,* 226-234

128. Simun, P.B., Slovacek, S. P., Batie, M., and Simun, M. (1996). *Project Support Evaluation. Los Angeles Unified School District, report #3-Final Evaluation.* (ED 398 291). Los Angeles, CA.

APPENDIX A

2001 Massachusetts Youth Risk Behavior Survey Questionnaire

English Version

2001 Massachusetts
Youth Risk Behavior Survey

This survey is about health behavior. It has been developed so you can tell us what you do that may affect your health. The information you give will be used to develop better health education for young people like yourself.

DO NOT write your name on this survey. The answers you give will be kept private. No one will know what you write. Answer the questions based on what you really do.

Completing the survey is voluntary. Whether or not you answer the questions will not affect your grade in this class. If you are not comfortable answering a question, just leave it blank.

The questions that ask about your background will be used only to describe the types of students completing this survey. The information will not be used to find out your name. No names will ever be reported.

Make sure to read every question. Fill in the ovals completely. When you are finished, follow the instructions of the person giving you the survey.

Thank you very much for your help

Directions
Use a #2 pencil only.
Make dark marks.
Fill in a response like this: A B ● D.
To change your answer, erase completely.
Choose only one answer for each question (except question 4)
.

1. How old are you?

   a. 12 years old or younger
   b. 13 years old
   c. 14 years old
   d. 15 years old
   e. 16 years old
   f. 17 years old
   g. 18 years old or older

2. What is your sex?

   a. Female
   b. Male

3. In what grade are you?

   a. 9th grade
   b. 10th grade
   c. 11th grade
   d. 12th grade
   e. Ungraded or other grade

4. How do you describe yourself? **(Select one or more responses.)**

   a. American Indian or Alaska Native
   b. Southeast Asian American (such as Cambodian, Vietnamese, Laotian, Thai)
   c. Asian American (such as Chinese, Japanese, Korean, East Indian)
   d. Black or African American
   e. Hispanic or Latino
   f. Native Hawaiian or Other Pacific Islander
   g. White

5. During the past 12 months, how would you describe your grades in school?

   a. Mostly A's
   b. Mostly B's
   c. Mostly C's
   d. Mostly D's
   e. Mostly F's
   f. None of these grades
   g. Not sure

6. How tall are you without your shoes on?

Directions: Write your height in the shaded blank boxes and fill in the matching oval below each number on your answer sheet.

Example:

HEIGHT	
Feet	**Inches**
5	***11***
③	⓪
④	①
●	②
⑥	③
⑦	④
	⑤
	⑥
	⑦
	⑧
	⑨
	⑩
	●

7. How much do you weigh without your shoes on?

Directions: Write your weight in the shaded blank boxes and fill in the matching oval below each number on your answer sheet.

Example:

Weight		
Pounds		
1	***5***	***2***
●	⓪	⓪
②	①	①
③	②	●
	③	③
	④	④
	●	⑤
	⑥	⑥
	⑦	⑦
	⑧	⑧
	⑨	⑨

8. How long have you lived in the United States?

   a. Less than one year
   b. 1 to 3 years
   c. 4 to 6 years
   d. More than 6 years, but not my whole life
   e. I have **always** lived in the United States

9. How often do the people in your home speak a language **other than** English?

   a. Never
   b. Rarely
   c. Sometimes
   d. Most of the time
   e. Always

10. Which of the following best describes you?

    a. Heterosexual (straight)
    b. Gay or lesbian
    c. Bisexual
    d. Not sure

11. Is there at least one teacher or other adult in this school that you can talk to if you have a problem?

    a. Yes
    b. No
    c. Not sure

12. Outside of school, is there an adult (or adults) you can talk to about things that are important to you?

    a. Yes, parent or other adult family member
    b. Yes, non-family adult (such as religious leader, club advisor, neighbor, etc.)
    c. Yes, both family and non-family adults
    d. No
    e. Not sure

The next 5 questions ask about personal safety.

13. **When you rode a motorcycle** during the past 12 months, how often did you wear a helmet?

    a. I did not ride a motorcycle during the past 12 months
    b. Never wore a helmet
    c. Rarely wore a helmet
    d. Sometimes wore a helmet
    e. Most of the time wore a helmet
    f. Always wore a helmet

14. **When you rode a bicycle** during the past 12 months, how often did you wear a helmet?

    a. I did not ride a bicycle during the past 12 months
    b. Never wore a helmet
    c. Rarely wore a helmet
    d. Sometimes wore a helmet
    e. Most of the time wore a helmet
    f. Always wore a helmet

15. How often do you wear a seat belt when **riding in** a car driven by someone else?

    a. Never
    b. Rarely
    c. Sometimes
    d. Most of the time
    e. Always

16. During the past 30 days, how many times did you **ride** in a car or other vehicle **driven by someone who had been drinking alcohol**?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or more times

17. During the past 30 days, how many times did you **drive** a car or other vehicle **when you had been drinking alcohol**?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or more times

The next 10 questions ask about violence-related behaviors.

18. During the past 30 days, on how many days did you carry **a weapon** such as a gun, knife, or club?

    a. 0 days
    b. 1 day
    c. 2 or 3 days
    d. 4 or 5 days
    e. 6 or more days

19. During the past 30 days, on how many days did you carry **a gun?**

    a. 0 days
    b. 1 day
    c. 2 or 3 days
    d. 4 or 5 days
    e. 6 or more days

20. During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club on school property?

    a. 0 days
    b. 1 day
    c. 2 or 3 days
    d. 4 or 5 days
    e. 6 or more days

21. During the past 30 days, on how many days did you **not** go to school because you felt you would be unsafe at school or on your way to or from school?

    a. 0 days
    b. 1 day
    c. 2 or 3 days
    d. 4 or 5 days
    e. 6 or more days

22. During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun, knife, or club **on school property?**

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or 7 times
    f. 8 or 9 times
    g. 10 or 11 times
    h. 12 or more times

23. During the past 12 months, how many times were you in a physical fight?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or 7 times
    f. 8 or 9 times
    g. 10 or 11 times
    h. 12 or more times

24. During the past 12 months, how many times were you in a physical fight in which you were injured and had to be treated by a doctor or nurse?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or more times

25. During the past 12 months, how many times were you in a physical fight **on school property**?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or 7 times
    f. 8 or 9 times
    g. 10 or 11 times
    h. 12 or more times

26. Have you ever been hurt physically or sexually by a date or someone you were going out with? This would include being hurt by being shoved, slapped, hit, or forced into any sexual activity.

    a. I have never been on a date or gone out with anyone.
    b. No, I have never been hurt by a date or someone I was going out with.
    c. Yes, I was hurt physically.
    d. Yes, I was hurt sexually.
    e. Yes, I was hurt <u>both</u> physically and sexually.

27. During the past 12 months, have you been a member of a gang?

    a. Yes
    b. No

The next 5 questions ask about sad feelings and attempted suicide. Sometimes people feel so depressed about the future that they may consider attempting suicide, that is, taking some action to end their own life.

28. During the past 12 months, did you ever feel so sad or hopeless almost every day for **two weeks or more in a row** that you stopped doing some usual activities?

    a. Yes
    b. No

29. During the past 12 months, did you ever **seriously** consider attempting suicide?

    a. Yes
    b. No

30. During the past 12 months, did you make a plan about how you would attempt suicide?

    a. Yes
    b. No

31. During the past 12 months, how many times did you actually attempt suicide?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or more times

32. **If you attempted suicide** during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?

    a. **I did not attempt suicide** during the past 12 months
    b. Yes
    c. No

The next 12 questions ask about tobacco use.

33. Have you ever tried cigarette smoking, even one or two puffs?

    a. Yes
    b. No

34. How old were you when you smoked a whole cigarette for the first time?

    a. I have never smoked a whole cigarette
    b. 8 years old or younger
    c. 9 or 10 years old
    d. 11 or 12 years old
    e. 13 or 14 years old
    f. 15 or 16 years old
    g. 17 years old or older

35. During the past 30 days, on how many days did you smoke cigarettes?

    a. 0 days
    b. 1 or 2 days
    c. 3 to 5 days
    d. 6 to 9 days
    e. 10 to 19 days
    f. 20 to 29 days
    g. All 30 days

36. During the past 30 days, on the days you smoked, how many cigarettes did you smoke **per day**?

    a. I did not smoke cigarettes during the past 30 days
    b. Less than 1 cigarette per day
    c. 1 cigarette per day
    d. 2 to 5 cigarettes per day
    e. 6 to 10 cigarettes per day
    f. 11 to 20 cigarettes per day
    g. More than 20 cigarettes per day

37. During the past 30 days, how did you **usually** get your own cigarettes? (Select only **one** response.)

    a. I did not smoke cigarettes during the past 30 days
    b. I bought them in a store such as a convenience store, supermarket, or gas station
    c. I bought them from a vending machine
    d. A parent or other adult family member gave them to me
    e. I gave someone else money to buy them for me
    f. I borrowed (or bummed) them from someone else
    g. I stole them
    h. I got them some other way

38. During the past 30 days, were you ever asked to show proof of age when you tried to buy cigarettes?

    a. I did not try to buy cigarettes in a store during the past 30 days
    b. Yes
    c. No

39. During the past 30 days, on how many days did you smoke cigarettes **on school property**?

    a. 0 days
    b. 1 or 2 days
    c. 3 to 5 days
    d. 6 to 9 days
    e. 10 to 19 days
    f. 20 to 29 days
    g. All 30 days

40. Have you ever smoked cigarettes daily, that is, at least one cigarette every day for 30 days?

    a. Yes
    b. No

41. How many times have you tried **to quit** smoking cigarettes?

    a. 0 times
    b. 1 or 2 times
    c. 3 to 5 times
    d. 6 to 9 times
    e. 10 or more times

42. During the past 30 days, on how many days did you use **chewing tobacco or snuff**, such as Redman, Levi Garrett, Beechnut, Skoal, Skoal Bandits, or Copenhagen?

    a. 0 days
    b. 1 or 2 days
    c. 3 to 5 days
    d. 6 to 9 days
    e. 10 to 19 days
    f. 20 to 29 days
    g. All 30 days

43. During the past 30 days, on how many days did you use **chewing tobacco or snuff on school property**?

    a. 0 days
    b. 1 or 2 days
    c. 3 to 5 days
    d. 6 to 9 days
    e. 10 to 19 days
    f. 20 to 29 days
    g. All 30 days

44. During the past 30 days, on how many days did you smoke **cigars, cigarillos, or little cigars**?

    a. 0 days
    b. 1 or 2 days
    c. 3 to 5 days
    d. 6 to 9 days
    e. 10 to 19 days
    f. 20 to 29 days
    g. All 30 days

The next 5 questions ask about drinking alcohol. This includes drinking beer, wine, wine coolers, hard lemonade or hard cider, and liquor such as rum, gin, vodka, or whiskey. For these questions, drinking alcohol does not include drinking a few sips of wine for religious purposes.

45. During your life, on how many days have you had at least one drink of alcohol?

    a. 0 days
    b. 1 or 2 days
    c. 3 to 9 days
    d. 10 to 19 days
    e. 20 to 39 days
    f. 40 to 99 days
    g. 100 or more days

46. How old were you when you had your first drink of alcohol other than a few sips?

    a. I have never had a drink of alcohol other than a few sips
    b. 8 years old or younger
    c. 9 or 10 years old
    d. 11 or 12 years old
    e. 13 or 14 years old
    f. 15 or 16 years old
    g. 17 years old or older

47. During the past 30 days, on how many days did you have at least one drink of alcohol?

    a. 0 days
    b. 1 or 2 days
    c. 3 to 5 days
    d. 6 to 9 days
    e. 10 to 19 days
    f. 20 to 29 days
    g. All 30 days

48. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?

    a. 0 days
    b. 1 day
    c. 2 days
    d. 3 to 5 days
    e. 6 to 9 days
    f. 10 to 19 days
    g. 20 or more days

49. During the past 30 days, on how many days did you have at least one drink of alcohol **on school property**?

    a. 0 days
    b. 1 or 2 days
    c. 3 to 5 days
    d. 6 to 9 days
    e. 10 to 19 days
    f. 20 to 29 days
    g. All 30 days

The next 4 questions ask about marijuana use. Marijuana also is called grass, pot, weed, or reefer.

50. During your life, how many times have you used marijuana?

    a. 0 times
    b. 1 or 2 times
    c. 3 to 9 times
    d. 10 to 19 times
    e. 20 to 39 times
    f. 40 to 99 times
    g. 100 or more times

51. How old were you when you tried marijuana for the first time?

    a. I have never tried marijuana
    b. 8 years old or younger
    c. 9 or 10 years old
    d. 11 or 12 years old
    e. 13 or 14 years old
    f. 15 or 16 years old
    g. 17 years old or older

52. During the past 30 days, how many times did you use marijuana?

    a. 0 times
    b. 1 or 2 times
    c. 3 to 9 times
    d. 10 to 19 times
    e. 20 to 39 times
    f. 40 or more times

53. During the past 30 days, how many times did you use marijuana **on school property**?

    a. 0 times
    b. 1 or 2 times
    c. 3 to 9 times
    d. 10 to 19 times
    e. 20 to 39 times
    f. 40 or more times

The next 11 questions ask about cocaine and other drugs.

54. During your life, how many times have you used **any** form of cocaine, including powder, crack, or freebase?

    a. 0 times
    b. 1 or 2 times
    c. 3 to 9 times
    d. 10 to 19 times
    e. 20 to 39 times
    f. 40 or more times

55. During your life, how many times have you used MDMA (i.e. **ecstasy**, “E”, “X”)?

    a. 0 times
    b. 1 or 2 times
    c. 3 to 9 times
    d. 10 to 19 times
    e. 20 to 39 times
    f. 40 or more times

56. During your life, how many times have you sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high?

    a. 0 times
    b. 1 or 2 times
    c. 3 to 9 times
    d. 10 to 19 times
    e. 20 to 39 times
    f. 40 or more times

57. During your life, how many times have you used **heroin** (also called smack, junk, or China White)?

    a. 0 times
    b. 1 or 2 times
    c. 3 to 9 times
    d. 10 to 19 times
    e. 20 to 39 times
    f. 40 or more times

58. During your life, how many times have you used **methamphetamines** (also called speed, crystal, crank, or ice)?

    a. 0 times
    b. 1 or 2 times
    c. 3 to 9 times
    d. 10 to 19 times
    e. 20 to 39 times
    f. 40 or more times

59. During your life, how many times have you taken **steroid pills or shots** without a doctor's prescription?

    a. 0 times
    b. 1 or 2 times
    c. 3 to 9 times
    d. 10 to 19 times
    e. 20 to 39 times
    f. 40 or more times

60. During your life, how many times have you used any **other type of illegal drug** such as LSD (acid), PCP, mushrooms, Ketamine (Special K), Rohypnol (Roofies), or GHB?

    a. 0 times
    b. 1 or 2 times
    c. 3 to 9 times
    d. 10 to 19 times
    e. 20 to 39 times
    f. 40 or more times

61. During your life, how many times have you used a needle to inject any **illegal** drug into your body?

    a. 0 times
    b. 1 time
    c. 2 or more times

62. During your life, how many times have you **shared a needle** for any purpose (such as tattooing, piercing, injecting drugs, etc.)?

    a. 0 times
    b. 1 time
    c. 2 or more times

63. **During the past 30 days,** how many times have you used any illegal drug **other than** marijuana? This includes any drug such as cocaine, heroin, methamphetamines, inhalants, ecstasy, or other illegal drugs.

    a. 0 times
    b. 1 or 2 times
    c. 3 to 9 times
    d. 10 to 19 times
    e. 20 to 39 times
    f. 40 or more times

64. During the past 12 months, has anyone offered, sold, or given you an illegal drug **on school property**?

    a. Yes
    b. No

The next 4 questions concern communication and education about sexuality and AIDS prevention.

65. During the past 12 months, about how often have you had a conversation with your parents or other adults in your family about sexuality or ways to prevent HIV infection, other sexually transmitted diseases (STD's) or pregnancy?

    a. Not at all in the past 12 months
    b. About once in the past 12 months
    c. About once every few months
    d. About once a month
    e. More than once a month

66. Have you ever been taught about AIDS or HIV infection in school?

    a. Yes
    b. No
    c. Not sure

67. In school, have you ever received a presentation by someone with AIDS or HIV infection?

    a. Yes
    b. No
    c. Not sure

68. In school, have you ever been taught how to use condoms?

    a. Yes
    b. No
    c. Not sure

The next 12 questions concern sexual behavior.

69. Have you ever had sexual intercourse?

    a. Yes
    b. No

70. How old were you when you had sexual intercourse for the first time?

    a. I have never had sexual intercourse
    b. 11 years old or younger
    c. 12 years old
    d. 13 years old
    e. 14 years old
    f. 15 years old
    g. 16 years old
    h. 17 years old or older

71. During your life, with how many people have you had sexual intercourse?

    a. I have never had sexual intercourse
    b. 1 person
    c. 2 people
    d. 3 people
    e. 4 people
    f. 5 people
    g. 6 or more people

72. During the past 3 months, with how many people did you have sexual intercourse?

    a. I have never had sexual intercourse
    b. I have had sexual intercourse, but not during the past 3 months
    c. 1 person
    d. 2 people
    e. 3 people
    f. 4 people
    g. 5 people
    h. 6 or more people

73. During your life, the person(s) with whom you have had sexual contact is (are)

    a. I have not had sexual contact with anyone
    b. Female(s)
    c. Male (s)
    d. Female(s) and male(s)

74. Did you drink alcohol or use drugs before you had sexual intercourse the **last time**?

    a. I have never had sexual intercourse
    b. Yes
    c. No

75. The **last time** you had sexual intercourse, did you or your partner use a condom?

    a. I have never had sexual intercourse
    b. Yes
    c. No

76. The last time you had sexual intercourse, what one method did you or your partner use to **prevent pregnancy?** (Select only **one** response.)

    a. I have never had sexual intercourse
    b. No method was used to prevent pregnancy
    c. Birth control pills
    d. Condoms
    e. Depo-Provera (injectable birth control)
    f. Withdrawal
    g. Some other method
    h. Not sure

77. How many times have you been pregnant or gotten someone pregnant?

    a. 0 times
    b. 1 time
    c. 2 or more times
    d. Not sure

78. Have you ever been tested for **HIV infection or other sexually transmitted diseases (STD's)** such as genital herpes, chlamydia, syphilis, or genital warts?

    a. No
    b. Yes, I have been tested for HIV.
    c. Yes, I have been tested for other STD's.
    d. Yes, I have been tested for both HIV and for other STD's.

79. Have you ever been told by a doctor or other health care professional that you had HIV infection or any other sexually transmitted disease (STD)?

    a. No
    b. Yes

80. Has anyone ever had sexual contact with you against your will?

    a. No one has ever had sexual contact with me against my will
    b. Yes, within the past 12 months
    c. Yes, more than 12 months ago
    d. Yes, both "b" and "c"

The next 6 questions ask about body weight.

81. How do **you** describe your weight?

    a. Very underweight
    b. Slightly underweight
    c. About the right weight
    d. Slightly overweight
    e. Very overweight

82. Which of the following are you trying to do about your weight?

    a. **Lose** weight
    b. **Gain** weight
    c. **Stay** the same weight
    d. I am **not trying to do anything** about my weight

83. During the past 30 days, did you **exercise** or **eat less food, fewer calories, or foods low in fat** to lose weight or to keep from gaining weight?

    a. Yes, I exercised.
    b. Yes, I ate less food, fewer calories, or foods low in fat.
    c. Yes, I both exercised and ate less food, fewer calories, or foods low in fat.
    d. No.

84. During the past 30 days, did you **go without eating for 24 hours or more** (also called fasting) to lose weight or to keep from gaining weight?

    a. Yes
    b. No

85. During the past 30 days, did you **take any diet pills, powders, or liquids** without a doctor's advice to lose weight or to keep from gaining weight? (Do **not** include meal replacement products such as Slim Fast.)

    a. Yes
    b. No

86. During the past 30 days, did you **vomit or take laxatives** to lose weight or to keep from gaining weight?

    a. Yes
    b. No

The next 5 questions ask about food you ate or drank during the past seven days. Think about all the meals and snacks you had from the time you got up until you went to bed. Be sure to include food you ate at home, at school, at restaurants, or anywhere else.

87. During the past seven days, how many times did you eat fruit or drink **100% fruit juices**? (Do **not** count punch, Kool-Aid, sports drinks, or other fruit-flavored drinks.)

    a. I did not eat fruit or drink 100% fruit juice during the past seven days
    b. 1 to 3 times during the past seven days
    c. 4 to 6 times during the past seven days
    d. 1 time per day on average
    e. 2 times per day on average
    f. 3 times per day on average
    g. 4 or more times per day on average

88. During the past seven days, how many times did you eat **green salad**?

    a. I did not eat green salad during the past seven days
    b. 1 to 3 times during the past seven days
    c. 4 to 6 times during the past seven days
    d. 1 time per day on average
    e. 2 times per day on average
    f. 3 times per day on average
    g. 4 or more times per day on average

89. During the past seven days, how many times did you eat **potatoes**? (Do **not** count french fries, fried potatoes, or potato chips.)

    a. I did not eat potatoes during the past seven days
    b. 1 to 3 times during the past seven days
    c. 4 to 6 times during the past seven days
    d. 1 time per day on average
    e. 2 times per day on average
    f. 3 times per day on average
    g. 4 or more times per day on average

90. During the past seven days, how many times did you eat **other vegetables** such as carrots, peas, broccoli, etc.? (Do **not** count green salad or potatoes.)

    a. I did not eat other vegetables during the past seven days
    b. 1 to 3 times during the past seven days
    c. 4 to 6 times during the past seven days
    d. 1 time per day on average
    e. 2 times per day on average
    f. 3 times per day on average
    g. 4 or more times per day on average

91. During the past seven days, how many **glasses of milk** did you drink? (Include the milk you drank in a glass or cup, from a carton, or with cereal. Count the half pint of milk served at school as equal to one glass.)

    a. I did not drink milk during the past seven days
    b. 1 to 3 glasses during the past seven days
    c. 4 to 6 glasses during the past seven days
    d. 1 glass per day on average
    e. 2 glasses per day on average
    f. 3 glasses per day on average
    g. 4 or more glasses per day on average

The next 4 questions ask about physical activity.

92. On how many of the past seven days did you exercise or participate in physical activity for **at least 20** minutes **that made you sweat and breathe hard**, such as basketball, soccer, running, swimming laps, fast bicycling, fast dancing, or similar aerobic activities?

    a. 0 days
    b. 1 day
    c. 2 days
    d. 3 days
    e. 4 days
    f. 5 days
    g. 6 days
    h. seven days

93. On how many of the past seven days did you participate in physical activity for **at least 30** minutes that did **not** make you sweat or breathe hard, such as fast walking, slow bicycling, skating, pushing a lawn mower, or mopping floors?

    a. 0 days
    b. 1 day
    c. 2 days
    d. 3 days
    e. 4 days
    f. 5 days
    g. 6 days
    h. seven days

94. On how many of the past seven days did you do exercises to **strengthen or tone your muscles**, such as push-ups, sit-ups, or weight lifting?

    a. 0 days
    b. 1 day
    c. 2 days
    d. 3 days
    e. 4 days
    f. 5 days
    g. 6 days
    h. seven days

95. In an average week when you are in school, on how many days do you go to physical education (PE) classes?

    a. 0 days
    b. 1 day
    c. 2 days
    d. 3 days
    e. 4 days
    f. 5 days

The next 4 questions ask about how you spend your free time.

96. During the past 12 months, on how many sports teams did you play? (Include any teams run by your school or community groups.)

    a. 0 teams
    b. 1 team
    c. 2 teams
    d. 3 or more teams

97. On an **average school day**, how many hours do you **watch TV**?

    a. I do not watch TV on an average school day
    b. Less than 1 hour per day
    c. 1 hour per day
    d. 2 hours per day
    e. 3 hours per day
    f. 4 hours per day
    g. 5 or more hours per day

98. In an **average month**, how many hours do you spend on **volunteer work, community service**, or helping people outside of your home without getting paid?

    a. 0 hours
    b. 1 to 4 hours
    c. 5 to 9 hours
    d. 10 or more hours

99. On how many of the past seven days did you take part in **organized afterschool, evening, or weekend activities** (such as school clubs, community center groups, music/art/dance lessons, drama, church, or other supervised activities)?

    a. 0 days
    b. 1 day
    c. 2 days
    d. 3 days
    e. 4 days
    f. 5 days
    g. 6 days
    h. All seven days

This is the end of the survey.
Thank you very much for your help.

APPENDIX B

Sampling, survey administration, data weighting, data analysis procedures

Sampling, Survey Administration, Data Weighting, and Data Analysis Procedures

SAMPLING PROCEDURES

MYRBS schools and classrooms were randomly selected using a multi-stage clustering sampling design.

Stage 1: School-level Sampling – All public secondary schools in Massachusetts containing grades 9, 10, 11, or 12 were included in the sampling frame. Using a random start, schools were selected systematically with probability of being selected proportional to enrollment in grades 9 through 12. Each student in the eligible schools had an equal probability of being selected for the survey, although students were selected by classroom within school, not individually (see Classroom-level Sampling below).

Of the schools included in the sampling frame, 67 schools were selected to participate in the survey. School selection was done by a specialized computer program called *PCSample*. Superintendents and principals of selected school districts and schools were notified by mail of their school's selection and were contacted by phone for their permission to move forward in administering the survey. Sixty-four (64) schools agreed to participate; three refused or were unable to participate, yielding a school response rate of 96% (64/67).

Stage 2: Classroom-Level Sampling – Within each school, an average of three to five classrooms (approximately 70 students per school), were randomly selected to participate in the MYRBS. Depending on the school, all classes within a required subject (for example, all English classes) or all classes meeting during a particular period (for example, second period) were included in the sampling frame. Systematic equal probability sampling with a random start was used to select classes from each school to participate in the survey.

Across the state, a total of 5,223 students were selected to participate in the survey, and 4, 204 students actually completed the survey, yielding a student response rate of 80% (4204/5223). Student attendance on the day of the survey was the primary factor determining the response rate.

The overall response rate of the survey was 77%, calculated by multiplying the 96% school response rate by the 80% student response rate. Because of this high overall response rate, data from the survey can be considered representative of all public high school students in Massachusetts.

SURVEY ADMINISTRATION PROCEDURES

All survey administrators were members of the Department of Education's Health, Safety, and Student Support Services or Nutrition units, and all were trained in standardized survey administration procedures.

For each participating school, the survey administrator and contact person designated by the school's principal scheduled a convenient date on which to administer the survey. Teachers of selected classrooms were notified in advance in order to avoid scheduling conflicts on the day of the survey. Local district procedures were followed with regard to parent notification about the survey. Because the MYRBS is both anonymous and voluntary, schools were not required by state or federal law to notify parents or to secure parental consent for student participation.

Survey administrators conducted the survey in a single class period in the selected classrooms of participating schools. In some schools, selected classes were pooled into a larger room and surveyed simultaneously. Classroom teachers were permitted to stay in the room if they wished, but were asked not to circulate through the room in order to ensure students' sense of privacy.

The survey administrators gave all students a verbal introduction to the survey. These remarks described (1) the purpose of the survey, (2) the anonymous and voluntary nature of the survey, and (3) instructions for completing the survey. Students were given a cover sheet to conceal their answers as they worked. Students then recorded their answers on a separate, scannable answer sheet. Students who chose not to take the survey were asked to remain in the room and read or sit quietly until all students finished the survey. No talking was permitted during the survey, although students were allowed to ask questions of they survey administrator. On average, students took between 30 and 45 minutes to complete the survey. Completed answer sheets were collected, facedown, by the survey administrator and were placed in an envelope, which was sealed by the survey administrator before leaving the room. Completed answer sheets were assembled at the Department of Education and were sent off-site for data scanning, cleaning, and preliminary frequency analyses.

DATA WEIGHTING PROCEDURES

Because of the high overall response rate for this survey, the data were weighted to reduce any possible bias in the sample. A weight was associated with each questionnaire to reflect the likelihood of sampling each student and to reduce bias by compensating for differing patterns of non-response. The weight used for estimation is given by:

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

- W1 = the inverse of the probability of selecting the school
- W2 = the inverse of the probability of selecting the classroom within the school
- f1 = a school-level non-response adjustment factor calculated by school size category (small, medium, large). The factor was calculated in terms of school enrollment instead of number of schools.
- f2 = a student-level non-response adjustment factor calculated by class.
- f3 = a post-stratification adjustment factor calculated by gender within grade and by race/ethnicity.

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

DATA ANALYSIS PROCEDURES

Data scanning, cleaning, and preliminary analyses were performed by Westat, Inc., of Rockville, Maryland and by the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia. SUDAAN, a statistical software program which accounts for complex sampling designs was used to generate point estimates of proportions, sampling errors, and 95% confidence intervals for aggregate data and data broken down into demographic categories by age, gender, and grade.

Comparisons of major groups within the 2001 data (for example, comparisons by gender or grade) and comparisons of prevalence rates over time (for example, comparisons of 2001 rates to 1999 rates) were based on the SUDAAN-generated 95% confidence intervals supplied by the CDC. Differences between prevalence estimates were considered statistically significant if the confidence intervals did not overlap. This approach is statistically conservative; it may in some instances result in a finding of no difference when alternative procedures would indicate a statistically significant difference.

In cases where the CDC had not supplied confidence intervals (as in the case of subgroups based on race/ethnicity, immigrant status, sexual orientation, kind of community, or particular risk status), comparisons were based on analyses performed in SPSS 10.0, the statistical program used by the Department of Education. Because SPSS assumes a simple random sample rather than the multi-stage sample actually employed for the MYRBS, analyses may result in a significant finding when indeed there is none. Therefore, a more stringent level of significance ($p<.01$) was used for group analyses performed in SPSS.

LIMITATIONS

All analyses and findings in this report are based on cross-sectional self-reported data. Interpretations of the results should be made with careful consideration of possible biases that may have resulted from the self-reported nature of the data. Despite assurances of confidentiality and requests for honesty, a small number of students may have been inclined to give misleading answers, either overestimating or underestimating their actual behaviors. Also, confounding variables were not controlled for in analyses of groups. For example, when a difference was reported between smokers and non-smokers, the analyses did not control for the confounding effects of gender, grade, race/ethnicity, or other variables that may have been associated with smoking.

APPENDIX C

Summary tables

Table 2: Tobacco Use Among Massachusetts High School Students, 1993 to 2001

	Total (%)					Males (%)					Females (%)				
	1993	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**
Any cigarette smoking, lifetime	**67.8**	**71.5**	**69.1**	**67.4**	**61.9**	**68.8**	**73.3**	**68.1**	**68.1**	**61.5**	**66.8**	**69.7**	**70.1**	**66.6**	**62.4**
9th grade	64.4	68.9	62.3	62.6	52.7	66.6	72.7	61.9	64.2	54.4	62.3	65.1	62.6	60.9	50.9
10th grade	62.3	71.0	72.0	68.5	58.7	66.1	73.7	67.8	68.9	56.8	58.2	68.4	76.3	67.9	60.7
11th grade	72.8	72.0	69.3	68.1	66.5	71.3	71.6	71.3	69.6	65.3	74.2	72.3	67.3	66.4	67.6
12th grade	73.0	74.8	73.8	71.1	72.6	72.4	74.8	72.2	70.3	72.6	73.7	74.9	75.4	71.7	72.7
White	68.5	72.6	70.0	68.2	62.8	69.2	73.6	68.3	67.9	62.5	67.9	71.6	71.8	68.4	63.1
Black	73.0	70.9	73.0	62.8	60.4	77.7	73.4	69.6	65.8	57.5	67.7	67.8	76.5	58.4	63.9
Hispanic	67.4	69.2	66.3	67.2	57.5	–	73.0	67.3	70.0	57.9	76.3	65.4	65.7	64.0	57.1
Asian	48.4	51.6	49.8	61.3	52.3	–	–	48.3	65.0	60.0	–	41.9	51.8	56.8	45.2
Other	72.6	75.7	76.0	76.4	67.9	–	78.7	84.1	–	63.8	–	73.6	67.6	–	–
Recent cigarette smoking	**30.2**	**35.7**	**34.4**	**30.3**	**26.0**	**31.1**	**35.2**	**33.0**	**29.9**	**25.0**	**29.2**	**36.2**	**35.8**	**30.7**	**27.0**
9th grade	28.9	32.3	27.8	25.1	20.2	28.8	32.4	26.9	25.7	20.5	29.1	32.2	28.8	24.5	20.0
10th grade	25.2	34.8	35.8	29.2	22.1	26.0	34.2	32.7	27.3	18.8	24.3	35.3	39.0	31.0	25.4
11th grade	31.0	37.7	35.5	31.4	27.9	32.3	36.6	34.9	33.6	26.6	29.6	38.8	36.1	29.2	29.2
12th grade	35.9	39.1	40.2	36.9	35.4	37.8	38.5	39.9	34.0	36.4	34.0	39.6	40.7	39.4	34.5
White	32.3	39.9	38.0	32.9	28.0	32.6	38.8	35.5	31.8	26.8	31.9	41.1	40.7	33.8	29.2
Black	21.1	21.0	24.6	20.3	16.5	23.7	21.1	21.6	19.6	16.7	19.1	20.5	27.6	20.7	15.8
Hispanic	25.1	20.2	19.2	23.0	19.8	–	21.4	19.5	25.0	18.1	24.5	18.5	19.6	20.5	21.9
Asian	19.0	19.0	17.3	23.3	18.7	–	–	19.1	26.9	21.3	–	14.7	15.3	18.1	15.9
Other	25.2	31.1	36.8	39.1	29.3	–	26.6	48.5	–	26.1	–	34.4	25.7	–	–
Daily cigarette smoking	**11.9**	**14.6**	**14.5**	**12.6**	**10.4**	**12.3**	**15.1**	**14.6**	**12.2**	**10.2**	**11.5**	**14.2**	**14.3**	**12.8**	**10.6**
9th grade	8.1	11.8	10.4	8.2	6.6	7.1	13.9	11.2	8.5	7.9	9.0	9.8	9.5	7.9	5.2
10th grade	9.9	14.7	14.2	10.5	7.9	10.8	16.9	12.4	10.3	7.4	8.9	12.4	16.2	10.5	8.2
11th grade	14.1	14.6	15.8	15.8	11.4	14.5	12.9	16.4	16.1	9.2	13.3	16.2	15.2	15.6	13.4
12th grade	15.9	18.0	18.5	16.9	17.1	16.8	16.7	19.9	14.9	17.6	15.0	19.4	17.3	18.6	16.7
White	13.1	16.7	16.6	13.8	11.6	13.4	16.7	15.9	12.9	11.0	12.7	16.8	17.2	14.6	12.1
Black	5.4	5.8	7.1	7.2	4.8	3.1	6.5	8.2	7.5	6.9	8.0	4.3	5.2	7.1	2.5
Hispanic	6.4	8.1	5.3	7.4	6.8	–	10.1	8.4	7.7	6.9	7.4	6.2	3.0	6.8	6.6
Asian	7.0	5.2	8.0	10.2	5.5	–	–	9.6	12.3	6.4	–	2.9	6.3	6.3	4.5
Other	12.6	13.1	15.9	18.1	9.9	–	12.8	18.6	–	10.6	–	13.4	13.3	–	–

Table 2, continued

	Total (%)					Males (%)					Females (%)				
	1993	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**
Smoked before age 13	**24.4**	**23.9**	**24.3**	**23.4**	**19.3**	**27.1**	**26.6**	**26.3**	**25.1**	**20.9**	**21.6**	**21.3**	**22.2**	**21.7**	**17.8**
9th Grade	27.1	28.6	26.5	27.2	19.2	28.8	30.7	28.0	29.3	22.1	25.3	26.3	24.9	25.0	16.3
10th Grade	22.4	24.9	26.5	24.5	19.4	27.0	28.8	27.4	26.4	18.9	17.5	21.0	25.5	22.6	20.0
11th Grade	22.4	20.6	20.8	22.3	20.0	23.1	24.1	24.4	22.9	21.9	21.8	17.1	17.7	22.0	18.0
12th Grade	25.1	21.0	21.9	18.2	17.9	28.6	22.0	24.1	20.3	19.8	21.6	19.9	20.0	16.0	16.4
White	25.6	25.2	25.4	24.2	19.2	28.4	28.0	27.3	26.0	21.2	22.7	22.3	23.4	22.5	17.2
Black	19.1	19.1	21.7	19.3	19.1	22.7	21.1	24.8	20.3	16.1	15.4	16.4	17.6	18.5	22.6
Hispanic	19.2	19.1	21.4	21.7	18.7	–	19.3	21.0	22.5	18.7	23.7	18.5	22.0	20.9	18.8
Asian	17.6	12.7	13.6	17.5	17.0	–	–	15.3	21.9	22.2	–	6.9	11.8	13.0	9.5
Other	24.5	28.5	29.0	35.1	26.3	–	27.6	34.3	–	28.9	–	29.0	22.4	–	–
Smoked on school property	**17.7**	**18.9**	**18.9**	**15.6**	**12.4**	**18.5**	**18.7**	**19.6**	**15.3**	**11.9**	**16.8**	**19.0**	**18.3**	**15.8**	**12.9**
9th Grade	15.1	18.1	15.0	11.5	10.0	15.1	18.7	13.9	11.7	9.9	18.5	17.5	16.0	11.2	10.3
10th Grade	16.1	19.9	20.5	16.5	10.8	16.7	20.7	20.6	15.8	9.3	12.0	19.1	20.4	17.2	12.3
11th Grade	17.8	18.2	18.3	17.6	12.6	19.3	17.2	19.9	17.9	11.3	10.7	19.1	16.8	17.3	13.6
12th Grade	21.8	19.3	23.0	17.3	16.7	22.7	17.8	25.9	16.6	18.3	9.5	20.7	20.5	18.1	15.1
White	18.8	21.0	21.2	16.5	13.1	19.0	20.7	21.4	15.9	12.5	18.5	21.4	21.0	17.0	13.7
Black	12.4	11.9	13.9	13.8	9.5	12.7	11.6	13.8	14.2	9.7	12.1	11.5	14.2	13.6	9.3
Hispanic	11.9	10.6	8.3	11.3	8.8	–	11.7	9.9	12.4	7.3	11.1	9.0	6.8	10.1	10.4
Asian	13.2	10.7	10.5	12.4	10.6	–	–	10.3	14.3	10.2	–	8.7	10.0	8.7	9.1
Other	18.3	17.3	18.6	23.8	15.9	–	12.9	23.1	–	14.9	–	19.8	14.5	–	–
Recent smokeless tobacco use	**9.4**	**8.4**	**6.0**	**4.9**	**4.4**	**17.0**	**15.1**	**10.3**	**8.1**	**7.4**	**1.5**	**1.5**	**1.4**	**1.4**	**1.3**
9th grade	10.3	8.8	5.7	4.5	3.6	18.5	15.9	9.6	7.3	5.8	1.8	1.5	1.4	1.5	1.0
10th grade	8.1	8.1	6.8	4.5	4.0	14.5	15.0	11.3	7.5	6.5	1.5	1.0.	1.7	1.3	1.3
11th grade	10.1	8.1	5.6	5.5	5.1	18.8	14.8	10.0	9.8	8.2	1.0	1.5	1.2	1.1	1.6
12th grade	8.8	8.1	5.3	4.5	5.0	15.9	14.6	9.5	7.6	9.7	1.5	1.5	1.4	1.3	0.4
White	10.6	9.7	6.7	5.2	4.5	19.7	17.5	11.9	9.0	7.7	1.2	1.3	1.4	1.3	1.2
Black	4.0	2.3	3.0	2.7	3.2	5.7	3.8	4.9	4.5	3.3	2.2	1.6	0.0	0.0	2.5
Hispanic	1.7	3.6	2.3	3.4	3.4	–	5.5	3.1	3.5	6.3	1.0	1.8	1.7	2.6	0.5
Asian	8.2	2.8	2.7	6.4	5.2	–	–	4.3	8.5	7.8	–	1.0	0.9	3.1	2.2
Other	7.5	8.6	8.8	7.4	8.3	–	13.3	13.7	–	10.4	–	5.2	3.6	–	–

Table 2, continued

	Total (%)					Males (%)					Females (%)				
	1993	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**
Recent cigar/cigarrillo smoking	**na**	**na**	**na**	**15.6**	**13.1**	**na**	**na**	**na**	**23.0**	**19.6**	**na**	**na**	**na**	**7.9**	**6.4**
9th grade	na	na	na	13.6	10.9	na	na	na	19.7	14.9	na	na	na	7.1	6.8
10th grade	na	na	na	13.7	13.1	na	na	na	18.3	17.7	na	na	na	8.8	8.2
11th grade	na	na	na	16.8	13.6	na	na	na	25.6	21.3	na	na	na	7.4	5.3
12th grade	na	na	na	18.8	15.3	na	na	na	30.3	26.1	na	na	na	7.2	4.7
White	na	na	na	16.4	13.4	na	na	na	24.9	20.8	na	na	na	7.9	5.9
Black	na	na	na	15.1	12.2	na	na	na	23.8	16.2	na	na	na	5.0	8.5
Hispanic	na	na	na	10.4	11.1	na	na	na	13.4	14.2	na	na	na	6.4	7.9
Asian	na	na	na	10.8	10.3	na	na	na	14.0	15.4	na	na	na	6.2	4.5
Other	na	na	na	26.1	14.3	na	na	na	--	18.8	na	na	na	--	--
Any recent tobacco use	**na**	**na**	**na**	**35.1**	**30.9**	**na**	**na**	**na**	**37.8**	**33.4**	**na**	**na**	**na**	**32.3**	**28.3**
9th grade	na	na	na	28.2	23.3	na	na	na	30.8	25.5	na	na	na	25.6	20.8
10th grade	na	na	na	33.9	28.3	na	na	na	34.9	29.3	na	na	na	32.8	27.4
11th grade	na	na	na	36.3	32.6	na	na	na	41.3	35.0	na	na	na	31.0	30.0
12th grade	na	na	na	43.9	41.6	na	na	na	46.7	47.5	na	na	na	41.1	35.9
White	na	na	na	38.3	33.2	na	na	na	41.3	36.2	na	na	na	35.4	30.3
Black	na	na	na	26.2	21.1	na	na	na	28.5	24.1	na	na	na	23.0	18.6
Hispanic	na	na	na	25.2	22.9	na	na	na	28.0	22.7	na	na	na	21.6	23.1
Asian	na	na	na	24.8	22.0	na	na	na	29.3	26.1	na	na	na	18.9	18.2
Other	na	na	na	44.4	33.8	na	na	na	--	32.6	na	na	na	--	--

na = Question/measure not available that year; "--" = Percentage not available (fewer than 100 cases in denominator)

Table 3: Alcohol Use Among Massachusetts High School Students, 1993 to 2001

	Total (%)					Males (%)					Females (%)				
	1993	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**
Any alcohol use, lifetime	**76.3**	**79.2**	**79.2**	**80.3**	**81.2**	**77.4**	**80.9**	**79.7**	**80.9**	**80.7**	**75.1**	**77.6**	**78.8**	**79.7**	**81.7**
9th Grade	70.4	71.6	70.3	72.9	71.8	71.4	73.6	70.5	74.2	73.0	69.3	69.6	70.0	71.5	70.7
10th Grade	71.7	79.6	81.5	81.1	80.5	73.1	81.7	81.2	82.1	79.1	70.5	77.3	81.9	80.3	81.9
11th Grade	80.7	81.2	82.2	82.2	87.1	83.8	82.2	82.7	81.7	86.4	77.6	80.4	81.7	82.5	87.8
12th Grade	83.9	86.2	84.5	86.9	87.9	83.1	87.5	84.5	87.7	87.1	84.8	85.0	82.6	86.1	88.7
White	78.1	81.6	81.9	83.0	83.2	78.6	81.9	81.1	83.0	83.2	77.6	81.2	82.7	83.0	83.3
Black	77.0	72.9	72.5	71.0	72.9	83.7	76.9	76.2	73.2	70.2	69.6	70.1	67.9	68.0	76.4
Hispanic	79.7	78.4	75.6	77.6	78.5	–	79.1	79.3	80.1	76.9	82.4	77.1	73.7	74.4	80.2
Asian	46.6	51.5	53.4	64.3	62.7	–	–	53.5	69.7	65.2	–	37.5	53.2	57.1	59.5
Other	73.9	74.3	80.0	86.7	79.5	–	77.5	91.9	–	79.1	–	71.9	69.0	–	–
Alcohol use, past month	**47.4**	**53.2**	**53.5**	**51.8**	**53.0**	**49.2**	**56.0**	**55.3**	**53.3**	**54.3**	**45.5**	**50.4**	**51.8**	**50.2**	**51.7**
9th Grade	41.5	46.1	43.1	44.3	44.1	41.0	47.3	42.9	44.3	45.8	42.2	45.0	43.4	44.0	42.5
10th Grade	43.3	52.6	55.1	52.0	49.4	44.2	55.6	55.3	54.5	49.0	42.6	49.5	54.7	49.7	49.9
11th Grade	49.0	55.3	56.3	52.4	56.8	53.1	59.1	58.9	55.0	60.0	44.8	51.6	53.9	49.7	53.4
12th Grade	57.1	60.2	61.9	60.7	64.8	60.5	63.6	68.4	62.8	66.1	53.6	56.8	56.2	58.6	63.6
White	49.3	56.1	57.6	56.0	55.9	50.4	57.4	58.3	56.9	57.2	48.2	54.8	56.9	54.9	54.6
Black	43.4	43.7	47.6	41.3	44.1	48.4	51.8	52.2	48.0	45.0	37.5	35.9	42.2	34.8	43.4
Hispanic	44.0	49.2	42.4	43.3	44.3	–	53.7	46.3	46.6	45.3	42.1	44.0	39.2	39.9	43.3
Asian	28.3	29.2	23.8	32.5	34.8	–	–	25.5	36.4	41.3	–	22.2	22.1	27.8	27.9
Other	44.8	47.7	53.0	58.6	51.3	–	54.5	62.1	–	52.3	–	42.9	44.6	–	–
Any binge drinking, past month	**27.5**	**33.4**	**32.7**	**32.6**	**32.7**	**31.8**	**38.7**	**35.8**	**36.6**	**36.4**	**23.1**	**28.0**	**29.4**	**28.5**	**28.9**
9th Grade	19.7	26.3	21.0	24.1	23.2	21.6	30.4	21.4	26.7	24.6	17.7	22.3	20.4	21.4	21.8
10th Grade	23.8	31.7	34.8	32.0	30.5	27.1	36.7	36.2	35.4	32.6	20.6	26.7	33.3	28.6	28.4
11th Grade	29.0	36.4	36.3	36.9	36.0	36.8	43.4	41.1	42.5	41.0	20.9	29.6	31.6	31.4	30.9
12th Grade	39.4	40.7	41.2	39.2	44.0	44.1	46.6	49.7	45.2	52.4	34.6	35.1	33.3	33.2	36.2
White	29.5	37.3	37.1	36.4	36.3	33.7	41.6	39.5	40.1	40.0	25.1	32.8	34.7	32.7	32.7
Black	19.1	19.8	20.5	21.0	15.9	22.9	23.6	23.1	29.1	17.6	15.2	16.5	17.5	12.1	14.1
Hispanic	22.0	24.8	21.0	24.1	22.4	–	34.7	29.9	28.5	27.2	18.2	15.0	13.5	19.2	17.4
Asian	18.2	14.3	9.2	17.6	17.2	–	–	12.7	22.3	22.4	–	6.7	4.7	12.3	11.4
Other	22.7	21.4	29.2	40.7	34.1	–	26.3	35.6	–	39.1	–	17.7	23.4	–	–

Table 3, continued

	Total (%)					Males (%)					Females (%)				
	1993	1995	1997	1999	2001	1993	1995	1997	1999	2001	1993	1995	1997	1999	2001
Frequent binge drinking	**6.3**	**8.1**	**8.5**	**7.9**	**7.2**	**31.8**	**11.0**	**9.9**	**10.5**	**9.5**	**4.7**	**5.0**	**7.0**	**5.1**	**4.9**
9th Grade	3.5	5.0	4.6	5.5	4.7	21.6	6.4	5.2	7.6	6.4	2.3	3.4	3.9	3.1	3.1
10th Grade	5.4	7.1	7.8	6.7	5.9	27.1	9.5	9.0	8.6	5.8	4.0	4.5	6.6	4.7	6.2
11th Grade	7.5	8.9	8.7	9.2	9.3	36.8	13.7	10.8	12.1	12.6	5.5	4.4	6.6	6.4	6.1
12th Grade	9.6	11.7	13.6	10.6	9.5	44.1	15.2	15.8	14.9	15.1	7.2	8.0	11.6	6.1	4.3
White	6.9	9.2	9.5	8.8	8.1	8.9	12.4	10.9	11.6	10.6	4.9	6.0	8.2	5.9	5.7
Black	4.8	4.0	3.8	5.4	3.9	5.2	6.5	2.1	9.9	5.8	4.3	1.7	5.0	0.0	1.9
Hispanic	2.8	4.5	4.5	5.5	3.5	–	6.0	7.1	6.7	4.5	3.1	2.5	2.2	3.9	3.0
Asian	2.5	2.3	4.6	4.9	3.2	–	–	8.2	5.7	6.1	–	1.0	0.9	3.8	0.0
Other	5.9	5.3	9.1	9.2	7.3	–	7.4	10.9	–	10.9	–	3.1	7.5	–	–
Drank before age 13	**31.0**	**31.1**	**30.8**	**29.5**	**27.9**	**36.8**	**36.3**	**35.3**	**33.7**	**32.1**	**24.9**	**25.7**	**26.3**	**25.0**	**23.5**
9th Grade	38.5	38.6	37.1	39.9	34.8	42.2	45.2	41.6	45.0	38.5	34.7	31.9	32.3	34.7	30.9
10th Grade	26.1	33.8	33.0	30.3	27.9	31.7	39.2	34.7	34.8	32.4	20.4	28.3	31.0	25.6	23.2
11th Grade	30.7	25.6	25.5	24.0	27.4	39.9	31.0	30.7	27.9	31.9	21.6	20.2	20.5	19.4	22.4
12th Grade	27.3	24.3	25.3	20.3	19.8	32.4	27.4	31.5	23.2	23.7	21.9	21.3	19.6	17.2	15.9
White	30.4	30.2	29.5	28.5	25.7	36.6	35.1	33.6	32.0	30.5	23.9	24.9	25.4	25.0	20.8
Black	39.4	38.2	39.1	33.6	37.4	47.8	44.8	44.4	38.4	34.8	29.1	32.1	32.7	27.4	40.7
Hispanic	34.4	35.9	34.1	33.3	36.6	–	40.3	40.3	40.0	40.4	34.9	31.5	29.0	24.7	32.2
Asian	25.5	19.5	24.5	23.1	27.4	–	–	25.7	31.0	32.6	–	9.6	23.2	13.0	21.6
Other	31.6	38.5	39.6	39.9	31.2	–	44.9	51.0	–	34.9	–	33.6	28.0	–	–
Drank on school property	**5.4**	**6.6**	**6.2**	**6.1**	**5.5**	**7.0**	**9.1**	**7.5**	**7.2**	**6.9**	**3.7**	**4.1**	**4.6**	**4.7**	**4.0**
9th Grade	4.8	6.9	6.3	6.6	5.4	5.2	9.3	7.6	7.8	6.7	4.4	4.6	5.1	5.3	4.1
10th Grade	5.7	7.2	7.3	6.0	5.5	8.0	9.0	8.3	6.0	6.4	3.3	5.5	6.0	6.0	4.7
11th Grade	5.2	6.6	5.0	5.6	5.5	7.3	9.7	6.4	6.9	6.6	3.1	3.5	3.7	4.4	4.3
12th Grade	5.7	5.0	5.3	5.1	5.1	7.1	7.9	7.4	7.9	7.9	4.3	2.1	3.4	2.1	2.4
White	5.1	5.9	5.9	5.5	5.1	6.7	7.3	7.3	6.2	6.5	3.4	4.4	4.4	4.6	3.6
Black	10.0	6.8	6.8	7.1	7.5	13.1	6.3	6.3	9.3	7.5	6.6	7.4	7.4	4.3	6.9
Hispanic	4.0	8.6	8.6	6.9	6.2	–	11.4	11.4	7.3	7.8	5.1	6.7	6.7	6.1	4.5
Asian	3.7	2.7	2.7	5.8	6.5	–	–	3.5	7.5	8.5	–	1.9	1.9	3.8	4.5
Other	8.5	7.2	7.2	11.1	9.8	–	8.5	10.1	–	10.9	–	3.7	3.7	–	–

na = Question/measure not available that year; "--" = Percentage not available (fewer than 100 cases in denominator)

Table 4: Illegal Drug Use Among Massachusetts High School Students, 1993 to 2001

	Total (%)					Males (%)					Females (%)				
	1993	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**
Any marijuana use, lifetime	**33.6**	**47.9**	**50.9**	**50.2**	**50.4**	**37.9**	**54.0**	**52.2**	**53.0**	**53.7**	**29.1**	**41.7**	**49.6**	**47.1**	**47.1**
9th grade	24.3	40.8	38.9	40.1	37.1	27.4	49.9	40.2	43.3	41.3	21.1	31.7	37.6	36.9	32.7
10th grade	27.1	46.8	53.8	49.5	50.0	30.3	52.7	54.6	53.2	50.5	23.9	40.6	52.9	45.5	49.6
11th grade	37.8	51.0	54.6	54.8	55.8	42.6	55.4	57.2	57.1	58.7	32.8	46.6	52.1	52.2	52.7
12th grade	47.4	54.2	58.7	59.3	62.6	54.1	46.6	59.9	61.9	69.5	40.5	50.4	57.9	56.7	55.9
White	34.3	50.7	53.0	52.4	52.4	38.0	55.2	52.5	55.0	55.7	30.5	46.0	53.5	49.8	49.2
Black	41.8	51.4	64.9	50.3	49.1	48.0	58.5	69.3	53.6	50.9	35.2	44.2	59.2	45.7	47.5
Hispanic	29.9	34.9	43.3	45.6	39.1	--	50.6	49.4	50.0	43.8	24.2	19.9	38.9	40.1	34.5
Asian	17.7	20.0	20.8	31.3	33.0	--	--	27.0	36.4	40.8	--	12.7	15.1	24.0	25.6
Other	31.4	45.5	51.9	62.0	60.7	--	51.6	61.2	--	62.5	--	41.1	43.6	--	--
Marijuana use, past month	**20.1**	**31.9**	**30.9**	**30.6**	**30.9**	**23.5**	**37.3**	**34.2**	**33.8**	**34.5**	**16.4**	**26.4**	**27.5**	**27.4**	**27.3**
9th grade	14.9	27.8	24.2	25.1	23.3	18.0	34.6	25.2	28.0	26.5	11.7	20.8	23.1	22.3	20.0
10th grade	16.7	32.0	35.1	30.1	30.8	19.5	36.9	38.1	33.8	31.7	13.8	26.6	32.0	26.5	30.0
11th grade	21.1	33.7	30.8	31.7	34.4	25.4	39.3	35.8	34.7	38.4	16.6	28.1	25.9	28.6	30.2
12th grade	28.6	34.4	34.6	37.3	37.1	32.6	37.5	39.7	41.0	44.7	24.3	31.4	29.9	33.7	29.9
White	20.5	34.5	32.2	31.9	32.4	23.3	39.1	34.2	35.0	35.7	17.7	29.7	30.2	29.0	29.1
Black	25.1	32.5	41.3	32.1	30.1	31.4	39.5	47.1	34.9	36.2	18.0	25.0	34.5	28.8	23.8
Hispanic	15.3	20.8	23.5	27.2	20.8	--	30.2	29.9	32.4	24.9	10.1	11.3	18.2	20.8	16.7
Asian	10.1	11.3	12.8	16.2	18.9	--	--	15.5	21.3	23.4	--	4.8	10.3	10.1	14
Other	21.8	28.1	29.4	42.3	38.6	--	29.2	40.0	--	39.6	--	27.3	19.8	--	--
Any cocaine use, lifetime	**5.8**	**7.5**	**7.0**	**9.6**	**8.3**	**7.2**	**9.6**	**7.9**	**11.8**	**9.7**	**4.3**	**5.5**	**5.9**	**7.1**	**6.8**
9th grade	5.0	6.6	4.5	7.2	5.2	6.3	9.8	4.1	8.9	6.5	3.7	3.3	4.6	5.4	3.9
10th grade	4.5	7.5	6.6	8.8	6.5	5.7	8.8	7.4	10.8	7.2	3.2	6.2	5.5	6.6	5.8
11th grade	5.2	6.6	8.0	10.8	11.3	7.0	8.3	9.2	13.8	12.5	3.1	4.9	6.7	7.8	9.8
12th grade	8.4	9.2	9.5	11.8	11.0	9.7	11.2	11.9	14.8	14.1	7.0	7.3	7.2	8.6	7.9
White	5.9	7.8	7.7	9.9	8.6	7.2	9.6	8.6	11.7	9.7	4.6	5.9	6.7	8.0	7.5
Black	4.7	6.0	1.5	6.7	3.5	6.8	5.7	2.8	9.6	5.6	2.2	5.7	0.0	2.8	1.2
Hispanic	5.0	6.3	5.1	8.5	8.0	--	10.2	5.8	12.0	11.6	4.0	2.4	3.9	4.3	4.4
Asian	3.8	3.4	2.8	7.9	9.5	--	--	2.8	10.6	12.0	--	1.9	2.8	4.7	6.8
Other	8.4	11.2	10.9	17.8	12.9	--	14.7	14.6	--	14.3	--	7.9	6.6	--	--

Table 4, Continued

	Total (%)					Males (%)					Females (%)				
	1993	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**
Any inhalant use, lifetime	**na**	**19.2**	**17.3**	**14.4**	**12.4**	**na**	**21.6**	**18.0**	**16.5**	**13.3**	**na**	**16.8**	**16.4**	**12.2**	**11.5**
9th grade	na	21.3	19.1	15.8	14.1	na	23.7	16.9	17.4	14.7	na	18.8	21.4	14.0	13.5
10th grade	na	19.6	19.4	14.5	10.5	na	19.7	20.4	17.1	9.8	na	19.3	18.1	11.6	11.2
11th grade	na	18.1	14.8	14.7	13.3	na	22.0	15.9	16.8	14.0	na	14.4	13.8	12.6	12.6
12th grade	na	17.2	14.7	12.0	11.1	na	20.5	18.6	13.8	14.5	na	13.9	11.0	10.0	7.8
White	na	21.8	19.7	15.3	13.5	na	24.4	20.5	17.2	13.8	na	19.1	18.9	13.4	13.2
Black	na	9.0	7.9	9.7	5.8	na	9.4	9.7	12.3	8.9	na	8.1	4.1	6.4	2.5
Hispanic	na	8.8	9.6	9.7	10.0	na	9.6	8.6	10.8	12.6	na	7.3	10.6	8.2	7.4
Asian	na	10.1	7.9	12.5	9.4	na	–	8.3	14.5	10.0	na	7.8	7.5	10.0	8.9
Other	na	17.6	19.3	24.1	14.1	na	17.2	20.8	–	16.3	na	17.9	17.3	–	–
Any illicit steroid use, lifetime	**3.7**	**4.4**	**4.2**	**4.6**	**4.8**	**5.5**	**5.9**	**5.4**	**5.9**	**6.4**	**1.7**	**2.7**	**2.6**	**3.2**	**3.1**
9th grade	3.5	5.8	4.8	4.4	4.3	4.8	7.6	5.4	5.5	5.7	2.3	4.0	3.9	3.2	2.9
10th grade	2.6	4.5	4.5	4.4	5.3	3.7	6.2	6.0	5.2	6.3	1.6	2.8	2.8	3.4	4.3
11th grade	4.1	3.3	3.1	5.5	4.4	7.3	5.4	4.6	7.2	5.6	0.8	1.1	1.6	3.8	2.9
12th grade	4.3	2.8	3.3	3.8	5.1	6.3	3.9	4.8	5.8	8.3	2.3	1.8	1.9	1.6	1.9
White	4.1	4.3	3.8	4.1	4.9	6.3	6.0	5.0	4.8	6.4	1.7	2.5	2.6	3.3	3.4
Black	3.6	5.9	2.2	6.3	2.6	2.9	6.3	3.4	9.4	3.4	4.4	4.0	0.0	2.1	1.2
Hispanic	0.6	3.0	2.9	3.8	3.4	–	4.3	3.1	5.0	5.7	1.0	1.8	2.2	2.2	1.5
Asian	2.5	1.7	7.7	7.1	6.2	–	–	9.8	8.0	7.8	–	1.0	5.6	6.1	2.3
Other	4.2	7.3	8.6	9.9	10.6	–	11.0	13.0	–	12.2	–	5.2	3.6	–	–
Injected illegal drugs, lifetime	**2.6**	**2.8**	**2.0**	**2.7**	**1.7**	**3.8**	**4.5**	**2.9**	**3.6**	**2.4**	**1.2**	**1.0**	**1.1**	**1.6**	**0.9**
9th grade	2.7	4.3	2.2	2.9	1.7	4.4	7.3	3.0	4.4	2.7	1.0	1.1	1.3	1.2	0.7
10th grade	2.9	3.1	2.4	1.9	1.0	4.0	4.5	3.1	2.6	1.1	1.9	1.7	1.5	1.2	1.0
11th grade	1.8	1.3	1.6	3.3	2.3	1.3	2.3	2.6	3.9	3.0	0.0	0.2	0.6	2.6	1.4
12th grade	2.4	1.5	1.9	2.0	1.5	2.9	2.8	2.8	3.2	2.9	2.0	0.3	1.1	0.6	0.2
White	2.7	2.7	1.8	2.3	1.5	4.0	4.4	2.5	3.0	2.1	1.2	0.9	1.1	1.5	0.8
Black	2.6	3.2	1.1	2.4	2.3	2.9	4.8	2.1	4.5	2.8	2.2	1.6	0.0	0.0	1.2
Hispanic	0.0	1.5	2.0	2.8	2.0	–	2.5	3.1	3.5	3.0	0.0	0.0	1.1	1.3	1
Asian	3.7	3.4	2.8	5.0	4.2	–	–	3.6	6.6	5.9	–	1.0	0.9	3.8	2.2
Other	3.3	4.8	6.1	6.1	4.8	–	7.2	8.8	–	4.3	–	2.3	2.8	–	–

TABLE 4, Continued

	Total (%)					Males (%)					Females (%)				
	1993	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**
Offered/sold drugs at school	**31.4**	**38.5**	**42.2**	**35.6**	**34.2**	**37.4**	**45.4**	**46.8**	**40.2**	**38.6**	**25.0**	**31.6**	**37.5**	**30.7**	**29.5**
9th grade	31.0	39.8	38.9	33.2	35.7	36.4	44.2	40.5	37.5	40.8	25.5	35.4	37.3	28.8	30.4
10th grade	31.6	39.6	44.4	37.2	34.5	37.4	46.7	49.2	41.9	39.8	25.7	32.0	39.0	32.3	28.8
11th grade	29.9	35.8	43.7	36.2	34.1	36.3	44.4	49.6	41.0	37.7	39.7	46.4	47.1	31.0	30.3
12th grade	32.5	38.4	41.1	35.8	31.7	39.7	46.4	47.1	41.3	35.7	25.0	30.4	35.6	30.0	27.9
White	32.5	40.7	43.1	35.8	34.4	38.5	47.6	46.8	39.9	39.3	26.3	33.3	39.2	31.8	29.4
Black	32.8	32.8	45.1	39.6	36.3	41.0	37.9	50.0	47.8	42.6	23.6	26.2	39.2	30.5	29.6
Hispanic	24.2	28.3	37.9	30.2	30.4	–	35.4	47.5	37.1	31.6	20.4	20.7	29.8	22.3	29.1
Asian	24.1	27.5	30.6	31.8	30.9	–	–	36.3	34.3	38.0	–	25.0	24.5	27.7	22.7
Other	24.0	39.4	46.0	48.1	39.0	–	46.9	50.5	–	41.3	–	34.3	40.4	–	–

na = Question/measure not available that year; "--" = Percentage not available (fewer than 100 cases in denominator)

Table 5: Violence-Related Behaviors and Experiences of Massachusetts High School Students, 1993 to 2001

	Total (%)					Males (%)					Females (%)				
	1993	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**
Carried a weapon, past month	**20.3**	**20.4**	**19.0**	**15.3**	**13.2**	**32.3**	**31.9**	**29.6**	**24.2**	**22.0**	**8.0**	**8.6**	**8.2**	**6.0**	**4.2**
9th grade	25.1	26.4	21.2	18.0	14.5	38.3	41.8	31.4	28.5	24.3	11.3	10.6	10.6	7.1	4.3
10th grade	18.9	23.1	20.0	15.3	13.0	30.4	35.3	31.0	23.6	20.5	7.2	10.8	8.4	6.6	5.3
11th grade	17.9	15.5	17.0	15.1	12.6	29.2	24.8	28.1	23.3	22.1	6.5	6.0	5.9	6.4	2.9
12th grade	18.3	14.1	16.8	11.5	11.4	29.6	21.8	26.5	20.0	19.7	6.7	6.6	7.7	2.9	3.2
White	18.8	18.8	18.1	13.6	12.0	31.6	30.1	28.8	22.8	21.0	5.5	7.0	7.2	4.6	3.2
Black	33.3	30.5	28.7	16.2	16.6	46.1	43.8	38.0	25.3	23.6	18.9	15.7	17.8	5.8	8.6
Hispanic	29.1	26.3	19.8	20.2	15.8	–	41.8	34.0	26.7	24.4	21.4	10.8	7.3	11.7	7.0
Asian	14.5	11.8	12.8	16.3	14.9	–	–	18.1	22.2	22.0	–	7.7	8.1	7.7	6.8
Other	23.5	28.3	23.7	26.1	25.3	–	40.9	35.6	–	36.2	–	19.2	12.1	–	–
Carried a weapon at school, past month	**10.1**	**9.2**	**8.1**	**7.3**	**5.5**	**15.4**	**13.8**	**11.9**	**11.3**	**8.9**	**4.7**	**4.5**	**4.0**	**2.9**	**1.9**
9th grade	12.5	11.2	9.3	7.1	5.3	18.3	16.2	12.6	10.1	8.8	6.4	6.0	5.8	3.8	1.6
10th grade	9.6	10.6	9.4	7.3	6.0	15.2	14.5	14.0	12.5	8.5	3.8	6.6	4.4	2.1	3.3
11th grade	9.9	7.0	6.6	8.2	5.1	14.4	12.1	11.0	12.4	9.3	5.4	1.8	2.3	3.6	0.6
12th grade	7.8	7.2	5.5	6.1	5.1	12.6	11.1	8.3	10.5	8.7	2.9	3.3	2.9	1.7	1.5
White	9.3	8.0	7.3	5.6	4.3	15.1	12.6	11.1	9.4	7.6	3.3	3.0	3.3	1.9	1.1
Black	16.7	17.5	13.7	11.9	10.2	21.6	23.2	13.5	18.6	14.0	10.1	11.3	13.4	4.3	6.1
Hispanic	14.1	12.7	7.0	12.1	7.2	–	18.8	11.7	16.1	10.4	12.4	6.0	2.8	6.1	4.0
Asian	6.3	6.7	7.0	8.5	9.4	–	–	10.2	11.0	13.7	–	3.8	3.6	5.4	4.5
Other	13.6	15.5	12.7	13.5	15.9	–	16.8	20.0	–	21.7	–	14.6	4.7	–	–
Physical fight, past year	**41.6**	**38.3**	**35.5**	**36.7**	**33.2**	**51.2**	**48.3**	**44.0**	**47.3**	**42.7**	**31.7**	**28.3**	**26.5**	**25.8**	**23.6**
9th grade	47.6	45.0	40.4	43.2	40.8	56.2	54.7	48.1	54.3	52.8	38.9	35.4	32.2	31.6	27.9
10th grade	41.6	42.8	36.6	40.5	31.9	52.6	51.8	45.5	52.5	39.3	30.2	33.6	27.0	28.1	24.8
11th grade	37.3	31.3	30.7	31.3	29.0	47.7	42.0	39.8	40.2	37.8	26.6	20.7	21.7	21.7	20.0
12th grade	38.7	31.8	31.9	29.2	28.6	46.9	42.2	40.7	39.1	37.6	30.4	21.6	23.8	19.3	19.9
White	41.3	37.9	34.2	34.8	32.2	52.2	48.6	44.2	46.7	42.7	30.2	26.8	24.1	23.1	21.7
Black	42.4	43.0	51.9	41.1	35.4	43.4	47.1	57.7	49.4	42.0	41.3	38.8	44.4	32.1	28.0
Hispanic	40.2	44.2	35.2	41.3	41.5	–	54.5	36.0	46.9	46.2	36.5	33.3	34.7	34.2	36.6
Asian	35.7	24.0	22.2	33.4	30.9	–	–	28.4	42.0	40.0	–	18.3	15.5	21.3	20.5
Other	50.8	42.3	42.9	53.4	31.3	–	49.0	52.4	–	40.4	–	37.4	33.0	–	–

Table 5, continued

	Total (%)					Males (%)					Females (%)				
	1993	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**
Physical fight at school, past year	**15.4**	**15.0**	**12.9**	**13.8**	**11.5**	**22.2**	**21.8**	**17.3**	**19.3**	**16.0**	**8.4**	**8.0**	**8.1**	**8.2**	**6.9**
9th grade	20.5	17.5	15.8	18.1	14.8	29.3	24.6	20.5	25.7	21.6	11.5	10.4	10.7	10.1	7.6
10th grade	13.8	17.7	13.2	14.4	11.2	20.7	25.2	17.0	19.8	15.7	6.6	10.1	9.0	8.8	6.9
11th grade	13.1	13.0	11.7	12.1	10.2	19.8	20.3	17.5	17.7	13.6	6.3	5.7	5.9	6.5	6.7
12th grade	13.0	10.2	9.3	9.0	8.5	17.0	15.7	12.8	11.7	11.3	9.0	4.8	6.1	6.2	5.8
White	14.6	14.3	11.9	12.4	10.8	22.0	21.8	17.3	18.1	15.9	7.0	6.4	6.3	6.8	5.8
Black	13.3	20.1	19.6	16.3	13.8	15.5	21.9	20.8	20.3	18.2	11.7	18.5	16.8	11.4	9.2
Hispanic	18.6	19.2	15.9	17.0	13.4	--	25.3	16.4	21.3	14.2	16.5	13.3	15.5	12.5	12.6
Asian	15.8	10.7	5.7	14.0	12.9	--	--	8.5	18.8	16.7	--	4.8	2.7	7.9	8.9
Other	26.1	16.7	18.2	23.5	18.1	--	21.0	22.6	--	21.7	--	13.5	13.0	--	--
Injured/threatened with weapon at school	**9.0**	**7.8**	**7.5**	**8.6**	**8.2**	**11.6**	**10.2**	**10.1**	**11.7**	**10.5**	**6.4**	**5.2**	**4.4**	**5.3**	**5.7**
9th grade	12.0	10.4	9.4	11.5	9.5	14.6	13.6	11.2	14.6	12.7	9.2	7.1	7.2	8.2	6.2
10th grade	9.2	8.4	8.9	7.9	9.6	12.2	11.8	12.1	10.3	11.7	6.1	4.9	5.2	5.4	7.4
11th grade	7.8	6.2	5.8	7.5	6.9	10.5	8.2	8.9	11.3	8.9	4.9	4.1	2.6	3.5	4.9
12th grade	6.7	4.6	4.2	6.1	5.5	8.4	5.5	6.7	9.6	7.5	4.9	3.7	1.8	2.5	3.6
White	8.3	7.3	6.5	7.4	7.4	11.0	9.4	9.3	9.9	9.6	5.4	5.0	3.5	4.8	5.3
Black	12.8	14.1	9.7	10.6	11.0	15.9	17.9	11.6	14.0	13.2	10.3	9.6	6.6	5.6	8.0
Hispanic	9.9	7.7	6.3	10.4	8.2	--	12.0	6.6	14.9	9.5	7.0	3.6	6.0	4.8	6.9
Asian	9.9	4.5	7.4	13.2	13.4	--	--	12.6	15.7	19.6	--	1.9	1.8	10.0	6.7
Other	10.7	10.2	16.3	12.1	15.3	--	12.7	19.3	--	20.4	--	8.3	12.7	--	--
Skipped school because unsafe, past month	**5.3**	**5.6**	**4.6**	**6.4**	**8.1**	**5.7**	**6.0**	**5.2**	**6.5**	**6.7**	**4.9**	**5.1**	**3.9**	**6.0**	**9.4**
9th grade	5.6	6.4	5.7	7.8	8.2	4.6	7.0	5.3	8.0	7.9	6.7	5.7	6.1	7.3	8.4
10th grade	5.9	6.1	4.8	6.8	9.0	6.9	6.0	5.6	7.2	8.5	4.6	6.1	3.6	6.4	9.6
11th grade	4.8	5.2	3.7	5.2	7.1	5.6	6.3	4.7	5.8	4.8	3.8	4.1	2.7	4.6	9.5
12th grade	4.5	3.9	3.2	4.4	7.6	5.0	4.0	4.0	--	5.1	4.0	3.8	2.4	4.4	10.0
White	3.8	3.7	3.9	4.5	6.5	3.8	3.7	4.1	4.3	5.6	3.8	3.6	3.5	4.7	7.5
Black	9.9	8.0	5.3	8.8	12.5	11.3	11.9	2.8	8.7	8.3	8.2	2.4	7.4	8.4	17.2
Hispanic	13.2	16.0	6.6	12.9	14.7	--	17.3	10.8	13.0	11.2	12.0	14.8	2.8	12.4	18.4
Asian	8.0	8.5	5.2	9.4	9.4	--	--	6.6	10.2	9.6	--	6.7	3.7	7.7	9.1
Other	12.3	11.0	8.7	12.7	15.3	--	10.7	11.1	--	16.3	--	11.2	5.5	--	--

na = Question/measure not available that year; "--" = Percentage not available (fewer than 100 cases in denominator)

Table 6: Suicidal Thinking and Behaviors of Massachusetts High School Students, 1993 to 2001

	Total (%)					Males (%)					Females (%)				
	1993	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**
Felt hopeless or sad for two weeks	na	na	na	30.4	28.8	na	na	na	25.1	22.7	na	na	na	35.9	35.0
9th Grade	na	na	na	30.7	28.8	na	na	na	26.4	23.0	na	na	na	35.1	34.9
10th Grade	na	na	na	30.2	27.7	na	na	na	21.6	20.0	na	na	na	38.8	35.7
11th Grade	na	na	na	28.2	30.5	na	na	na	24.9	23.8	na	na	na	31.8	37.6
12th Grade	na	na	na	32.2	28.0	na	na	na	27.3	24.4	na	na	na	37.1	31.4
White	na	na	na	29.2	27.0	na	na	na	23.8	21.5	na	na	na	34.3	32.6
Black	na	na	na	27.0	29.0	na	na	na	20.5	19.0	na	na	na	34.1	39.8
Hispanic	na	na	na	34.3	37.6	na	na	na	27.1	28.3	na	na	na	41.3	47.7
Asian	na	na	na	34.4	31.2	na	na	na	33.1	30.0	na	na	na	36.2	33.3
Other	na	na	na	41.5	38.1	na	na	na	--	32.7	na	na	na	--	--
Seriously considered suicide, past year	24.3	25.8	23.5	21.2	20.1	19.5	19.8	17.3	21.2	15.0	29.2	31.9	29.9	25.1	25.3
9th Grade	24.4	26.5	24.1	21.6	19.4	16.3	20.1	16.7	17.0	16.8	32.8	33.2	32.0	26.1	22.1
10th Grade	25.2	27.9	23.7	22.2	21.5	21.9	19.8	17.2	18.9	13.5	28.5	36.3	30.5	25.7	30.0
11th Grade	23.2	23.9	22.4	20.5	21.9	20.5	18.5	17.5	16.4	16.4	25.9	29.4	27.5	24.6	27.7
12th Grade	24.2	24.1	23.4	19.5	17.1	19.4	20.3	17.4	16.0	13.1	28.9	27.9	29.1	22.7	21.0
White	23.9	26.3	23.6	20.9	20.3	19.4	20.6	17.5	16.6	15.4	28.6	32.4	29.7	25.0	25.3
Black	19.5	19.8	22.8	17.6	16.3	18.3	16.5	16.2	14.3	12.0	21.5	22.4	30.8	20.9	21.2
Hispanic	23.5	25.7	16.8	19.2	19.8	--	18.3	9.3	13.4	12.2	31.3	33.1	23.9	24.8	27.9
Asian	25.6	20.8	22.0	26.2	18.8	--	--	14.5	25.2	16.0	--	23.0	29.7	26.8	20.5
Other	34.7	29.5	35.3	28.8	23.5	--	17.3	32.4	--	20.4	--	38.8	38.9	--	--
Made a suicide plan, past year	19.8	18.8	19.2	16.6	15.2	17.1	14.6	15.1	14.7	12.2	22.7	23.1	23.3	18.5	18.3
9th Grade	20.4	20.7	20.8	17.3	14.6	15.9	16.2	15.6	15.1	12.0	25.2	25.5	26.2	19.5	17.3
10th Grade	19.9	19.9	18.4	17.7	15.3	16.8	11.8	14.2	15.0	10.1	23.2	28.4	22.6	20.6	20.6
11th Grade	18.1	16.6	19.4	16.1	17.2	19.5	12.8	15.3	14.7	15.9	16.9	20.3	23.5	17.7	18.5
12th Grade	20.8	17.3	17.7	14.2	13.7	16.6	17.9	14.7	13.6	11.1	25.2	16.7	20.5	14.9	16.4
White	19.2	19.3	19.0	16.5	14.8	16.2	15.6	15.4	14.6	11.5	22.4	23.3	22.7	18.3	18.1
Black	16.5	11.2	19.1	14.0	13.6	16.2	7.5	13.9	13.0	12.6	16.8	14.6	24.8	14.8	14.6
Hispanic	20.4	15.7	17.2	14.7	17.1	--	10.2	9.6	10.3	13.5	--	21.3	24.3	19.4	21.0
Asian	25.3	16.2	17.6	18.9	15.6	--	--	12.0	19.9	14.0	--	17.2	23.4	17.7	17.8
Other	26.4	26.5	25.0	23.3	21.2	--	15.4	24.5	--	18.8	--	35.1	25.9	--	--

Table 6, continued

	Total (%)					Males (%)					Females (%)				
	1993	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**
Attempted suicide, past year	10.3	10.4	9.5	8.3	9.6	8.6	7.6	6.3	6.2	6.9	11.9	13.3	12.7	10.2	12.2
9th Grade	11.7	13.8	10.6	10.0	9.6	6.2	9.9	5.9	7.2	6.8	17.2	17.8	15.5	12.6	12.4
10th Grade	10.2	11.9	10.9	8.4	10.7	8.4	8.5	7.2	6.7	5.9	11.9	15.3	14.5	10.3	15.2
11th Grade	9.5	7.9	8.3	7.4	10.1	9.8	6.3	6.5	4.0	7.8	9.3	9.5	10.0	10.8	12.3
12th Grade	9.3	7.0	7.4	5.9	7.3	9.8	4.3	4.6	6.4	7.1	8.7	9.7	10.1	5.5	7.4
White	9.2	9.3	8.8	7.4	9.0	7.5	6.8	5.7	5.6	6.2	10.9	12.1	11.8	9.2	11.8
Black	10.1	7.0	9.2	6.4	9.2	10.0	6.2	6.9	4.7	7.5	11.3	8.8	11.9	7.5	10.3
Hispanic	10.8	17.2	11.0	9.5	11.9	--	13.3	5.0	5.5	7.5	11.8	21.4	16.6	13.8	16.3
Asian	12.8	9.0	13.1	14.8	9.8	--	--	8.6	14.0	9.5	--	7.9	17.6	--	10.6
Other	24.5	18.8	13.3	14.7	16.2	--	11.3	14.1	--	16.7	--	24.8	12.5	--	--
Treated medically for a suicide attempt	3.4	3.6	3.7	4.1	3.5	3.1	3.2	2.9	3.7	3.0	3.7	4.0	4.5	4.5	3.8
9th Grade	3.7	4.4	4.1	5.2	3.5	3.0	3.3	2.8	4.6	3.3	4.4	5.7	5.6	5.7	3.7
10th Grade	3.5	4.2	4.3	4.6	3.4	3.6	4.4	3.9	3.9	2.6	3.1	4.0	4.4	5.3	4.2
11th Grade	3.4	2.6	3.2	3.5	3.8	3.6	2.3	2.5	3.3	2.8	3.3	2.9	3.9	3.7	4.3
12th Grade	2.8	2.7	2.8	2.5	2.8	2.1	2.4	1.8	2.4	3.4	3.4	2.9	3.8	2.3	2.2
White	2.8	3.1	3.3	3.3	3.1	2.3	2.9	2.8	2.8	2.4	3.4	3.3	3.9	3.8	3.6
Black	4.1	3.3	3.7	3.6	4.5	4.4	4.5	3.1	3.9	5.4	3.8	2.0	3.6	3.4	3.5
Hispanic	2.4	5.1	3.9	5.2	5.5	--	4.6	0.7	3.4	5.2	--	5.6	6.5	6.5	5.7
Asian	5.8	3.3	6.3	9.5	2.5	--	--	2.9	10.3	2.4	--	3.4	8.9	--	2.6
Other	10.5	7.8	6.2	8.8	6.8	--	4.1	8.2	--	7.0	--	10.7	5.2	--	--

na = Question/measure not available that year; "--" = Percentage not available (fewer than 100 cases in denominator)

TABLE 8: Sexual Behaviors of Massachusetts High School Students, 1993 to 2001

	Total (%)					Males (%)					Females (%)				
	1993	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**
Ever had sexual intercourse	**48.7**	**46.5**	**44.7**	**44.1**	**44.3**	**51.4**	**50.3**	**46.8**	**46.4**	**46.3**	**46.0**	**42.8**	**42.4**	**41.8**	**42.3**
9th grade	31.0	33.4	28.7	30.7	28.0	36.5	40.7	31.6	34.8	32.7	25.5	26.3	25.8	26.4	23.3
10th grade	39.3	41.1	41.8	40.2	37.2	41.5	44.8	44.4	43.7	38.3	37.2	37.4	39.0	36.5	36.2
11th grade	55.9	51.5	49.7	49.2	51.5	56.8	54.2	52.1	52.6	51.9	55.1	48.8	47.4	46.0	51.2
12th grade	71.2	63.4	62.8	60.6	65.4	72.9	63.7	63.8	58.9	68.0	69.9	63.0	62.0	62.0	63.1
White	46.7	44.5	41.9	41.5	41.6	47.7	45.8	42.3	41.5	42.0	45.8	43.1	41.4	41.3	41.2
Black	75.3	68.5	67.7	61.4	58.1	82.4	79.0	71.5	66.9	68.0	67.9	58.2	63.3	56.2	47.5
Hispanic	56.6	57.5	59.5	53.8	56.7	–	76.2	72.1	66.2	62.8	43.0	38.2	48.2	39.5	50.6
Asian	34.6	27.7	24.4	32.8	34.5	–	–	24.5	35.0	39.5	–	24.5	24.3	30.5	26.8
Other	50.0	51.6	51.8	59.0	48.6	–	62.4	60.0	–	52.5	–	44.9	44.2	–	–
Sexual intercourse before age 13	**8.3**	**7.8**	**7.1**	**6.0**	**5.3**	**12.9**	**11.8**	**9.8**	**9.0**	**8.0**	**3.6**	**3.8**	**4.2**	**3.0**	**2.5**
9th grade	8.9	9.0	7.8	8.6	6.9	14.5	13.1	10.7	12.3	10.8	3.4	5.1	4.9	4.6	3.0
10th grade	6.1	8.8	8.1	5.1	5.5	9.6	13.9	11.4	7.4	8.7	2.6	3.8	4.4	2.7	2.4
11th grade	9.3	7.4	4.9	4.9	3.8	13.6	11.8	8.1	7.2	4.7	5.2	2.9	1.8	2.7	2.7
12th grade	8.6	5.0	6.7	4.9	4.2	13.7	7.4	7.9	8.5	6.9	3.5	2.6	5.5	1.4	1.7
White	6.1	5.5	5.0	4.2	3.3	9.3	7.8	6.9	6.3	5.2	3.0	3.1	3.1	2.1	1.6
Black	25.7	20.7	17.0	13.8	17.2	41.4	36.8	27.3	18.8	25.5	9.5	4.6	6.4	8.1	7.8
Hispanic	15.4	13.7	12.6	11.0	9.2	–	23.8	20.4	17.8	13.3	4.3	2.8	5.9	4.0	5.1
Asian	8.3	6.0	6.6	6.6	6.0	–	–	6.3	9.4	9.5	–	2.0	6.9	3.4	4.8
Other	12.4	19.2	12.8	11.5	9.7	–	27.9	15.6	–	12.8	–	14.0	9.6	–	–
Four or more sexual partners in life	**14.5**	**14.8**	**12.7**	**12.2**	**12.0**	**18.5**	**18.4**	**14.8**	**14.7**	**14.6**	**10.6**	**11.1**	**10.6**	**9.7**	**9.4**
9th grade	8.1	10.4	8.1	10.1	8.1	11.5	16.8	10.6	14.6	12.4	4.7	4.2	5.7	5.5	3.8
10th grade	9.7	13.9	11.3	11.1	9.5	12.6	18.4	12.1	14.1	11.7	6.9	9.5	10.1	7.7	7.5
11th grade	17.2	14.4	12.6	12.2	12.4	20.8	16.8	16.6	13.2	14.6	13.9	12.0	8.8	11.3	10.2
12th grade	24.0	21.0	20.3	16.2	18.9	29.8	21.9	21.9	17.5	20.9	18.0	20.2	18.9	15.0	17.1
White	12.9	12.2	10.4	9.5	9.3	15.5	13.5	10.4	9.9	10.5	10.3	10.9	10.4	9.0	8.2
Black	32.5	33.6	35.5	25.9	29.2	43.0	43.1	43.8	39.5	37.9	21.7	24.8	25.7	12.2	20.4
Hispanic	20.1	24.5	18.0	19.9	18.1	–	40.1	31.1	29.9	27.8	9.7	7.7	6.6	8.8	8.4
Asian	12.6	9.0	5.8	12.7	14.1	–	–	6.4	13.9	18.6	–	4.1	4.9	11.6	9.8
Other	12.6	21.9	15.5	15.6	15.5	–	36.8	20.5	–	17.9	–	11.7	10.6	–	–

Table 8, Continued

	Total (%)					Males (%)					Females (%)				
	1993	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**	**1993**	**1995**	**1997**	**1999**	**2001**
Sexual intercourse in past 3 months	**33.5**	**33.1**	**31.0**	**32.0**	**32.5**	**32.6**	**33.4**	**30.0**	**31.7**	**31.9**	**34.2**	**32.7**	**31.8**	**32.0**	**33.1**
9th grade	17.0	20.8	18.4	20.2	18.2	19.2	24.4	19.0	22.0	20.5	14.8	17.2	17.8	18.1	15.9
10th grade	26.9	28.0	27.7	28.1	25.8	24.8	27.5	27.2	29.8	23.5	28.9	28.3	28.2	26.1	27.9
11th grade	39.9	38.7	34.0	36.1	38.0	37.3	38.1	34.3	36.7	36.9	42.5	39.2	33.8	35.7	39.2
12th grade	52.4	48.2	47.3	47.1	52.3	50.7	46.2	42.8	41.8	51.3	54.0	50.1	51.3	52.0	53.1
White	32.6	32.1	29.3	30.7	31.2	30.3	30.8	27.2	28.5	29.9	34.9	33.4	31.3	32.5	32.5
Black	48.8	46.5	47.2	43.9	40.8	49.4	49.5	51.3	48.0	44.4	48.8	43.5	42.7	39.5	37.3
Hispanic	37.3	38.0	40.4	35.4	37.4	–	47.6	40.8	40.5	40.0	30.1	27.6	39.6	28.4	34.8
Asian	23.1	21.0	17.4	25.1	27.4	–	–	14.9	25.4	28.6	–	19.6	19.0	25.6	24.4
Other	32.0	36.0	34.2	39.7	36.6	–	41.9	42.2	–	35.9	–	32.6	27.9	–	–
Alcohol/drugs at last intercourse (a)	**22.1**	**30.7**	**26.7**	**29.7**	**22.7**	**28.6**	**38.0**	**32.3**	**37.1**	**28.8**	**16.0**	**23.4**	**21.5**	**22.5**	**16.9**
9th grade	26.2	39.2	33.3	37.0	26.5	–	49.1	31.9	46.6	28.6	–	––	–	25.1	23.8
10th grade	23.2	32.9	24.8	30.5	20.3	–	42.2	30.0	38.8	20.8	–	24.3	19.3	21.3	20.2
11th grade	21.5	25.6	25.7	28.3	22.8	32.1	30.9	34.7	35.0	29.0	12.0	20.3	17.1	22.0	17.1
12th grade	20.4	28.9	25.4	25.2	21.8	25.3	34.6	32.1	29.4	32.5	15.8	23.8	20.5	21.8	12.1
White	20.9	32.7	27.4	30.9	24.3	27.9	40.8	32.5	38.9	32.0	14.8	25.3	22.9	24.2	17.5
Black	–	23.4	21.3	24.5	11.1	–	–	–	–	–	–	–	–	–	–
Hispanic	–	21.7	25.4	23.6	17.4	–	–	–	–	–	–	–	–	–	–
Asian	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Other	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Condom use at last intercourse (a)	**51.8**	**55.9**	**57.0**	**57.2**	**58.1**	**57.4**	**59.9**	**64.2**	**62.6**	**61.6**	**46.7**	**52.0**	**50.4**	**52.0**	**54.9**
9th grade	60.4	63.7	61.4	65.4	65.2	–	64.5	–	70.1	60.5	–	–	–	60.2	–
10th grade	57.4	56.9	62.7	63.2	65.9	57.1	62.1	68.9	69.9	71.5	57.6	52.7	57.0	55.7	61.5
11th grade	49.8	55.9	61.2	57.2	60.0	53.1	59.2	72.2	58.0	63.7	47.2	52.6	50.8	56.1	36.6
12th grade	47.4	51.6	48.0	49.0	49.1	59.0	56.9	53.8	55.0	54.9	36.4	46.8	43.1	44.5	43.8
White	52.7	55.0	57.1	56.5	56.4	59.8	58.1	62.6	60.6	60.8	46.5	52.1	52.5	53.0	52.5
Black	–	64.5	61.8	67.9	70.2	–	–	–	–	–	–	–	–	–	–
Hispanic	–	58.3	52.1	56.2	60.5	–	–	–	–	–	–	–	–	–	–
Asian	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Other	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

na = Question/measure not available that year; "--" = Percentage not available (fewer than 100 cases in denominator); (a) Among students who had sexual intercourse in the past 3 months

APPENDIX D

Risk Behaviors Among U.S. and Massachusetts High School Students

The Massachusetts Youth Risk Behavior Survey (MYRBS) is funded by the Centers for Disease Control and Prevention (CDC) as part of the larger Youth Risk Behavior Surveillance System (YRBSS). The YRBSS consists of: (a) a national survey conducted in randomly selected high schools across the U.S., (b) 32 state surveys, and (c) 16 local (city-level) surveys. All surveys are conducted in the spring of odd numbered years. The national Youth Risk Behavior Survey (YRBS) and the MYRBS questionnaires contain many of the same questions. The following table shows the prevalence rates of many risk behaviors as measured in the U.S. by the 2001 national YRBS and in Massachusetts by the 2001 MYRBS.

Appendix D. Risk Behaviors Among U.S. and Massachusetts High School Students, 2001 YRBS

	Data from 2001 YRBS	
	U.S.	MA
Substance Use Behaviors		
Current smoking	28.5	26.0
Current smokeless tobacco use	8.2	4.4
Current cigar use	15.2	13.1
Current alcohol use	47.1	53.0
Current binge drinking	29.9	32.7
Lifetime marijuana use	42.4	50.4
Lifetime inhalant use	14.7	12.4
Lifetime cocaine use	9.4	8.3
Lifetime methamphetamine use	9.8	7.0
Lifetime steroid use	5.0	4.8
Lifetime heroin use	3.1	3.0
Lifetime injected drug use	2.3	1.7
Current marijuana use	23.9	30.9
Violence & Injury-Related Behaviors		
Carried a weapon	17.4	13.2
Carried a gun	5.7	3.1
Was in a physical fight	33.2	33.2
Rarely or never wore a seat belt	14.1	20.7
Rode with a driver who had been drinking alcohol	30.7	30.5
Drove after drinking alcohol	13.3	12.2
Considered suicide, past year	19.0	20.1
Attempted suicide, past year	8.8	9.6
Substance Use and Violence on School Property		
Smoked cigarettes on school property	9.9	12.4
Used smokeless tobacco on school property	5.0	2.2
Drank alcohol on school property	4.9	5.5
Used marijuana on school property	5.4	7.0
Was offered, sold, or given drugs on school property	28.5	34.2
Carried a weapon at school	6.4	5.5
Was in a physical fight at school	12.5	11.5
Threatened or injured with a weapon at school	8.9	8.2
Skipped school because felt unsafe	6.6	8.1
Sexual Behaviors		
Had sexual intercourse in lifetime	45.6	44.3
Had four or more sexual partners in lifetime	14.2	12.0
Ever been or gotten someone pregnant	4.7	4.9
Had sexual intercourse in the three months before the survey	33.4	32.5
Used a condom at last intercourse(a)	57.9	58.1
Use alcohol or drugs at last intercourse(a)	25.6	22.7
Weight Control and Physical Activity		
At risk of becoming overweight	13.6	15.0
Overweight	10.5	10.0
Thought they were overweight	29.2	33.4
Were trying to lose weight	46.0	46.9
Fasted to lose/control weight	13.5	13.7
Took diet pills to lose/control weight	9.2	8.1
Took laxatives or vomited to lose/control weight	5.4	6.1
Participated in regular vigorous physical activity	64.6	62.8
Participated in regular moderate physical activity	25.5	25.1
Attended a physical education class at least once a week	51.7	68.0
Attend a physical education class daily	32.2	17.7
Watched three or more hours of television per day	38.3	30.4

(a) Among students who had sexual intercourse in the three months before the survey

Massachusetts Department of Education

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