

# **HEALTHY BROOKLINE**

## **VOLUME VIII**



*YOUTH RISK BEHAVIOR SURVEY*

**Brookline Department of Public Health**

**2004**

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# **Executive Summary**

## **Introduction**

The Brookline Department of Health publishes *Healthy Brookline* on an annual basis. Each volume presents data on the health status of the Brookline community in regards to a particular health issue. Previous reports have focused on Brookline's population of elderly immigrants from the former Soviet Union (*Volume II*) and Brookline youth's risk behaviors (*Volume IV*).

*Healthy Brookline Volume VIII* provides updated information on Brookline youth's risk behaviors. Both *Volumes IV* and *VIII* present data from the Youth Risk Behavior Survey (YRBS), which was developed by the Centers for Disease Control and Prevention. The YRBS was developed in 1990 to monitor priority health risk behaviors that contribute markedly to the leading causes of death, disability, and social problems among youth and adults in the United States.<sup>1</sup> These behaviors, often established during childhood and early adolescence, include:

- Tobacco use;
- Unhealthy dietary behaviors;
- Inadequate physical activity;
- Alcohol and other drug use;
- Sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases, including HIV infection;
- Behaviors that contribute to unintentional injuries and violence.<sup>1</sup>

The YRBS is administered state- and nationwide, and provides national data representative of high school students in public and private schools in the United States, as well as data representative of the state and local school districts in which it is administered. This range of information allows *Healthy Brookline VIII* to:

- Suggest the prevalence of health risk behaviors;
- Assess whether health risk behaviors appear to increase, decrease, or stay the same over time;
- Examine the co-occurrence of health risk behaviors;
- Provide comparable national, state, and local data;
- Provide comparable data among subpopulations of youth;
- Monitor progress toward achieving the Healthy People 2010 objectives and other program indicators.<sup>1</sup>

## **Methodology**

The national survey of the YRBS, to which the Brookline sample is compared, was

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<sup>1</sup> Centers for Disease Control and Prevention (2003, October 1). Youth Risk Behavior Surveillance System. Retrieved from <http://www.cdc.gov/nccdphp/dash/yrbs/>

administered during February – December, 2001, while the statewide survey was completed in the spring of 2001. Both used a multi-stage clustering sampling design to produce randomly selected, representative samples of students. The US YRBS included 13,601 questionnaires from a national survey, 34 state surveys and 18 local surveys conducted among students in public and private schools, grades 9 – 12. The MA YRBS included a statewide sample of 4,204 public school students in grades 9 – 12. The school and student participation at both levels was voluntary and anonymous. The MA Department of Education report on the 2001 MYRBS states that, in general, the estimates of health behaviors are accurate to within plus or minus three percentage points. For the Brookline sample, the sample was non-randomized. 176 students from the 9th grade class of 473 were surveyed during a required health class in June of 2003. The results for the Brookline sample were compiled in the summer and fall of 2003.

## **Summary of Results**

### *Alcohol Use*

Lifetime alcohol use, recent binge drinking, and recent drinking at school during the school day remained constant or decreased slightly over time. The 2003 rates of recent alcohol use and alcohol use before age 13 decreased markedly in comparison to rates reported in 1999:

- 32% of Brookline 9<sup>th</sup> graders reported recent alcohol use in 2003, in comparison to 43% of Brookline 9<sup>th</sup> graders who reported recent alcohol use in 1999;
- 25% of Brookline 9<sup>th</sup> graders reported alcohol use before age 13 in 2003, in comparison to 43% of Brookline 9<sup>th</sup> graders who reported alcohol use before age 13 in 1999.

For all comparable alcohol use indicators, Brookline 9<sup>th</sup> graders reported slight to markedly less alcohol use compared to state and nationwide levels.

### *Marijuana Use*

Lifetime marijuana use remained relatively constant, while recent marijuana use increased somewhat:

- 30% of Brookline 9<sup>th</sup> graders reported lifetime marijuana use in 2003, in comparison to 32% who reported lifetime marijuana use in 1999;
- 18% of Brookline 9<sup>th</sup> graders reported recent marijuana use in 2003, in comparison to 13% who reported recent marijuana use in 1999.

For all comparable marijuana use indicators, Brookline 9<sup>th</sup> graders reported slightly to markedly less marijuana use compared to state and nationwide levels.

### *Other Illegal Drug Use*

The use of other illegal drugs remains relatively low in Brookline; reported usage remains below 10% for all the illegal drugs surveyed. The percent of Brookline 9<sup>th</sup> graders who report drugs being offered or sold at school in the past year remains relatively high:

- 38% of Brookline 9<sup>th</sup> graders report drugs being offered or sold at school in the past year, compared to 36% in MA and 29% in the US.

### *Tobacco*

The percent of Brookline 9<sup>th</sup> graders who report ever having tried smoking decreased markedly in 2003, yet the rate of 9<sup>th</sup> graders who reported having tried to quit smoking cigarettes also decreased considerably.

- In 2003, 37% of 9<sup>th</sup> graders reported ever having tried smoking, compared to 51% in 1999;
- Twenty-six percent of smokers in 2003 reported having tried to quit, compared to 59% in 1999.

### *Vehicle-Related Risk Behaviors*

The rates of vehicle-related risk behaviors reported by Brookline 9<sup>th</sup> graders in 2003 remained relatively constant to those reported in 1999:

- A very slight decrease was seen in those who reported rarely or never wearing a seat belt (10% in 2003 versus 13% in 1999);
- Virtually no change was seen in those who reported rarely or never wearing a helmet while riding a bike (52% in 2003 versus 51% in 1999).

### *Violence-Related Behaviors*

Brookline 9<sup>th</sup> graders reported markedly fewer physical fights when compared over time and with their MA and US counterparts:

- In 2003, 24% of 9<sup>th</sup> graders reported being in a physical fight in the past 12 months, compared to 40% in 1999, 41% in the state of MA, and 40% nationwide;
- In 2003, 10% of 9<sup>th</sup> graders reported being in a physical fight in the past 12 months **at school**, compared to 23% in 1999, 15% in the state of MA, and 17% nationwide.

### *Suicidal Behavior*

Selected indicators of suicidal behavior reported by Brookline 9<sup>th</sup> graders decreased markedly over time:

- 11% of 9<sup>th</sup> graders reported having seriously considered suicide in the past 12 months, compared to 23% in 1999;
- 8% of 9<sup>th</sup> graders reported having made a suicide plan in the past 12 months, compared to 22% in 1999.

### *Sexual Behavior*

The rate of Brookline 9<sup>th</sup> graders reporting ever having sexual intercourse increased slightly over time, yet remains markedly lower than state and national levels. The rate of condom use during last sexual intercourse reported by Brookline 9<sup>th</sup> graders returned to rates comparable with MA and the US:

- In 2003, 18% of students reported ever having sexual intercourse, in comparison to 14% in 1999. State (28%) and US (34%) figures remain higher than those in Brookline;
- In 2003, 68% of students reported condom use during last sexual intercourse, which is similar to the state rate of 65% and the US rate of 68%. However, the 2003 rate is less than the 1999 rate of 77%.

#### *Body Weight and Dietary Behaviors*

While 25% of Brookline students described themselves as slightly or very overweight in the 2003 survey, only 14% of students weighed in the top 5% of all persons for their age and gender (which is defined as overweight).

#### *Physical Activity*

In 2003, the levels of physical activity reported by Brookline 9<sup>th</sup> graders varied depending on the level, duration, type, and frequency of physical activity being surveyed:

- 68% of 9<sup>th</sup> graders reported participating in vigorous physical activity for at least 20 minutes, 3 or more of the past 7 days;
- 23% reported participating in moderate physical activity for at least 30 minutes, 5 or more of the past 7 days;
- 43% reported participating in strengthening exercises on 3 or more of the past 7 days.

#### *Protective Factors*

Brookline 9<sup>th</sup> graders report consistently higher rates of protective factors compared to state levels. For instance:

- 92% of Brookline 9<sup>th</sup> graders received mostly As, Bs, and Cs, compared to 82% at the state level;
- 62% of Brookline 9<sup>th</sup> graders participated in organized extracurricular activities, compared to 49% at the state level.

## Summary Comparison Table of Risk Behaviors of Brookline 9th Graders, 2003 vs 1999 and State/US

	<b>Brookline 1999 %</b>	<b>Brookline 2003 %</b>	<b>State 2001 %</b>	<b>US 2001 %</b>
<b>Alcohol Use</b>				
Lifetime alcohol use	69	<b>65</b>	72	73
Recent alcohol use	43	<b>32</b>	44	41
Alcohol use before age 13	33	<b>25</b>	35	40
Recent binge drinking	16	<b>14</b>	23	25
Recent drinking at school during school day	6	<b>6</b>	5* (on school property)	5* (on school property)
<b>Marijuana Use</b>				
Lifetime marijuana use	32	<b>30</b>	37	33
Marijuana use before age 13	9	<b>9</b>	n/a	12
Recent marijuana use	13	<b>18</b>	23	19
Recent marijuana use at school during school day	4	<b>5</b>	n/a	6* (on school property)
<b>Other Illegal Drug Use</b>				
Lifetime cocaine use	1	<b>2</b>	5	7
Lifetime ecstasy (MDMA) use	n/a	<b>4</b>	8	n/a
Lifetime heroin use	n/a	<b>2</b>	3	3
Lifetime use of methamphetamines, Ritalin, Adderal, or Concerta without prescription	n/a	<b>8</b>	7* (just methamphetamines)	8* (just methamphetamines)
Lifetime steroid use	1	<b>2</b>	4	6

\* Different wording

n/a Statistic not available

comb State statistic for students grades 9 – 12 combined

	<b>Brookline 1999 %</b>	<b>Brookline 2003 %</b>	<b>State 2001 %</b>	<b>US 2001 %</b>
<b>Other Illegal Drug Use (cont.)</b>				
Lifetime use of other illegal drugs (e.g., LSD, PCP, mushrooms, Ketamine, Rohypnol, GHB)	4	<b>4</b>	10	n/a
Lifetime inhalant use	7*	<b>8</b>	14	17
Lifetime OTC cough/cold medicine use (to get high)	n/a	<b>7</b>	n/a	n/a
Lifetime medical treatment for overdose	n/a	<b>2</b>	n/a	n/a
Recent illegal drug use (other than marijuana)	n/a	<b>4</b>	n/a	n/a
Drugs offered or sold at school, past year	35* (past month)	<b>38</b>	36	29
<b>Tobacco</b>				
Ever tried smoking	51	<b>37</b>	53	58
Started smoking before age 13	19	<b>12</b>	19	26
Recent smoking at school	8	<b>7</b>	10	9
Smoke daily (now or have at some time in their lives)	9*	<b>12</b>	7	14
Recent use of chewing tobacco, snuff or dip	1	<b>5</b>	4	7
Tried to quit smoking cigarettes (% of smokers)	59	<b>26</b>	n/a	56*
<b>Vehicle-Related Risk Behaviors</b>				
Recent driving after drinking	5	<b>5</b>	12 <sup>comb</sup>	7
Recent riding with driver who had been drinking	23	<b>23</b>	31 <sup>comb</sup>	30
Rarely or never wore a seat belt	13	<b>10</b>	21*	15
Rarely or never wore a helmet while riding bike (of those who rode a bike)	51	<b>52</b>	79*	83

\* Different wording

n/a Statistic not available

comb State statistic for students grades 9 – 12 combined

	<b>Brookline 1999 %</b>	<b>Brookline 2003 %</b>	<b>State 2001 %</b>	<b>US 2001 %</b>
<b>Violence-Related Behaviors</b>				
Carried a weapon, past 30 days	18	<b>15</b>	15	20
Carried weapon at school, past 30 days	9	<b>5</b>	5	7
Injured/Threatened with weapon at school, past 12 months	8	<b>9</b>	10	13
Physical fight, past 12 months	40	<b>24</b>	41	40
Physical fight at school, past 12 months	23	<b>10</b>	15	17
Skipped school because felt unsafe, past 30 days	1	<b>3</b>	8	9
Heard prejudiced language/remarks made towards gay, lesbian or bisexual students, past 30 days	n/a	<b>76</b>	n/a	n/a
<b>Suicidal Behavior</b>				
Hurt or injured self on purpose, past 12 months	n/a	<b>22</b>	n/a	n/a
Seriously considered suicide, past 12 months	23	<b>11</b>	19	21
Made a suicide plan, past 12 months	22	<b>8</b>	15	16
Attempted suicide, past 12 months	10	<b>8</b>	10	11
Treated medically for suicide attempt, past 12 months	4	<b>5</b>	4	3
<b>Sexual Behavior</b>				
Ever had sexual intercourse	14	<b>18</b>	28	34
Sexual intercourse before age 13	4	<b>7</b>	7	9
Four or more sexual partners	2	<b>6</b>	8	10

\* Different wording

n/a Statistic not available

comb State statistic for students grades 9 – 12 combined

	<b>Brookline 1999 %</b>	<b>Brookline 2003 %</b>	<b>State 2001 %</b>	<b>US 2001 %</b>
<b>Sexual Behavior (cont.)</b>				
Sexual contact against one's will	5	<b>5</b>	n/a	7
Used a condom during last sexual intercourse (among sexually active students)	77	<b>68</b>	65	68*
<b>Body Weight and Dietary Behaviors</b>				
Describe self as slightly or very overweight	20	<b>25</b>	33 <sup>comb</sup>	29
BMI at 95% for age (overweight)	n/a	<b>14</b>	10	n/a
Trying to lose weight	37	<b>37</b>	44 <sup>comb</sup>	48
Fasted for 24 hours or more to lose or maintain weight	n/a	<b>10</b>	14 <sup>comb</sup>	15
Took diet pills, powders, or liquids without doctor's advice to lose or maintain weight	4*	<b>5</b>	8 <sup>comb</sup>	8
<b>Physical Activity</b>				
Participated in vigorous physical activity for at least 20 minutes, 3 or more of the past 7 days	81*	<b>68</b>	68	72
Participated in moderate physical activity for at least 30 minutes, 5 or more of the past 7 days	73*	<b>23</b>	28	27
Participated in strengthening exercises for at least 3 of the past 7 days	71*	<b>43</b>	55	59
Participated in at least 1 physical education class per week	70	<b>93</b>	73	74
Participated on at least 1 sports team in the past 12 months	n/a	<b>72</b>	60	60
Watched 3 or more hours of TV on an average school day	n/a	<b>26</b>	38	45

\* Different wording

n/a Statistic not available

comb State statistic for students grades 9 – 12 combined

	<b>Brookline 1999 %</b>	<b>Brookline 2003 %</b>	<b>State 2001 %</b>	<b>US 2001 %</b>
<b>Protective Factors</b>				
Received mostly As, Bs and Cs	n/a	<b>92</b>	82	n/a
Has teacher or other adult in school with whom one can talk about problem	n/a	<b>59</b>	57	n/a
Participated in volunteer work	n/a	<b>41</b>	37	n/a
Participated in organized extracurricular activities	n/a	<b>62</b>	49	n/a

\* Different wording

n/a Statistic not available

comb State statistic for students grades 9 – 12 combined

## Alcohol Use

Each year in the United States, approximately 100,000 deaths result from the misuse of alcohol. Alcohol is a major contributing factor in motor vehicle crashes and is the leading cause of death and disability among young people 15 - 20 years of age. Nationally, one in ten youth (22.3 million persons) drove under the influence of alcohol in 2000. Additionally, alcohol abuse has been linked with anxiety and depression, as well as suicidal thinking and behavior.

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 than those who begin drinking at age 21. Alcohol dependence or alcoholism is estimated to affect one in 13 Americans, and is a major cause of diseases, such as cirrhosis of the liver, pancreatitis, hemorrhagic stroke, and certain forms of cancer.

Across Massachusetts, most measures of alcohol use among 9<sup>th</sup> – 12<sup>th</sup> graders have shown no change since 1995. Recent alcohol use and binge drinking, which rose considerably from 1993 to 1995, leveled off from 1995 through 2001 (the latest YRBS figures available statewide). However, lifetime alcohol use has been slowly increasing since 1993.

In this report the following definitions were used:

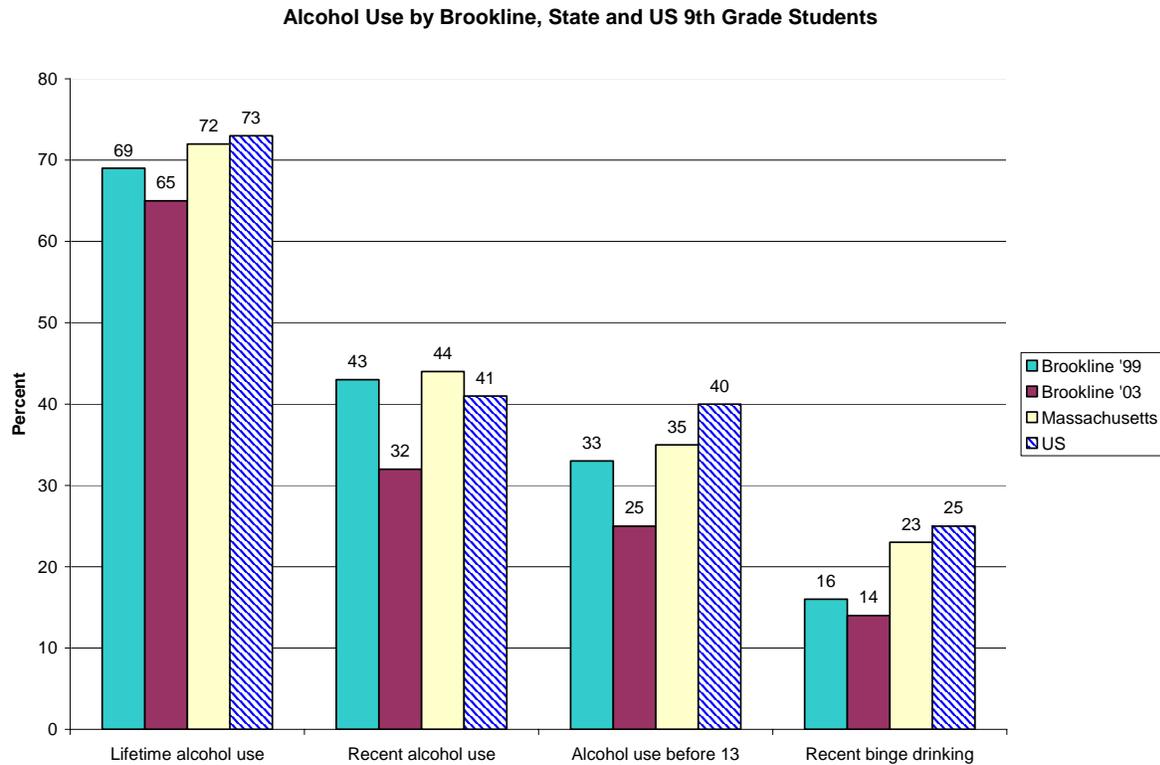
**Lifetime alcohol use:** Any consumption of alcohol during one's life, other than a few sips.

**Recent alcohol use:** One or more alcoholic drinks on at least one of the 30 days prior to the survey.

**Binge drinking:** Five or more alcoholic drinks in a row, within a couple of hours, on at least one day during the month prior to the survey.

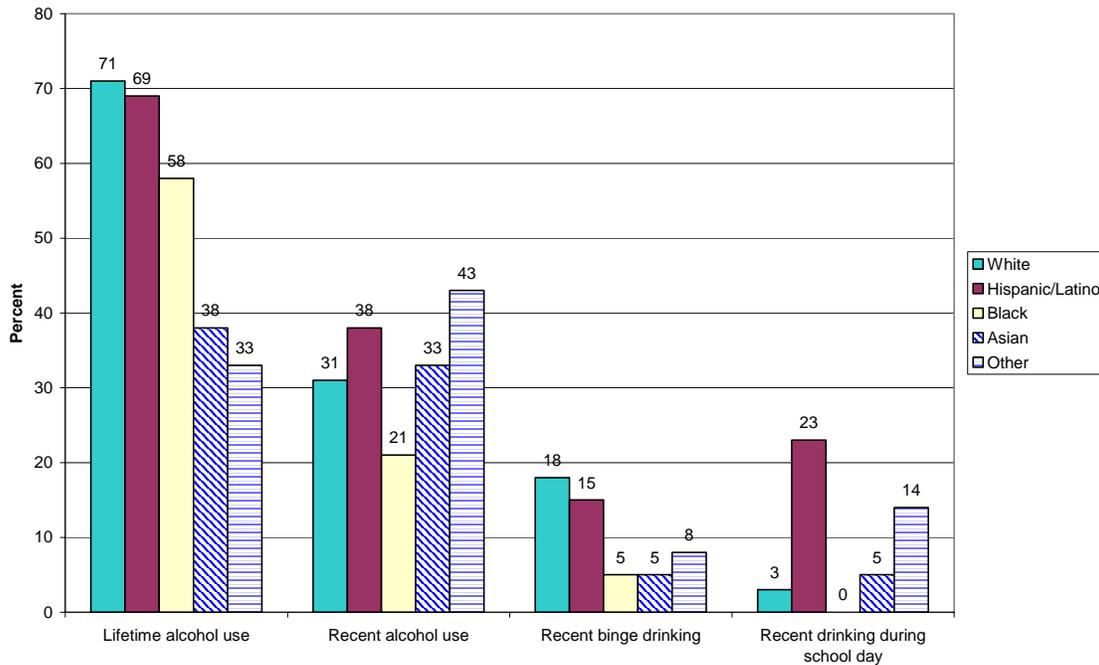
*The Brookline High School (BHS) 2003 Youth Risk Behavior Survey (YRBS) asked 9<sup>th</sup> grade students to report on their patterns of alcohol use, including binge drinking, age of first use, and alcohol use at school.*

## Alcohol Usage Rates of BHS, Massachusetts and US 9<sup>th</sup> Graders



- In 2003, 65% of BHS 9<sup>th</sup> grade students reported having used alcohol in their lifetime; the figures for the state and US were comparable, 72% and 73%, respectively.
- On the other hand, 32% of BHS students reported alcohol use in the past 30 days and the state and US figures were higher, 44% and 41%. At the time of the last BHS survey in 1999, BHS figures (69% and 43%) were more similar to the state and national figures.
- Twenty-five percent of BHS 9<sup>th</sup> graders reported using alcohol before the age of 13, compared to 35% of state and 40% of US 9<sup>th</sup> graders. In the 1999 BHS survey, 33% of 9<sup>th</sup> graders reported using alcohol before the age of 13.
- Brookline 9<sup>th</sup> graders' reported rate of binge drinking within the past month (14%) is considerably lower than state (23%) and national (25%) figures.
- Six percent of BHS 9<sup>th</sup> grade students reported having used alcohol during the school day in the last 30 days (not shown on graph).

Alcohol Use by Brookline 9th Grade Students Compared by Ethnicity



- White and Hispanic/Latino students had higher rates of lifetime alcohol use than Asian students or those in the Other category. The Other category included students of races/ethnicities with very small populations at Brookline High School, as well as students of mixed races/ethnicities.
- Recent binge drinking rates of White (18%) and Hispanic/Latino (15%) students were also higher than rates in the other groups.
- Hispanic/Latino students had a considerably higher rate of recent drinking during the school day (23%), with the next highest group being the Other category (14%).
- Of the students who first drank alcohol before age 13, 44% of them were White, while each of the remaining racial/ethnic groups accounted for only 12% - 17% (not shown in graph).

## **Illegal Drug Use**

Drug use costs taxpayers about \$98 billion annually in preventable health care costs, extra law enforcement, auto crashes, crime, and lost productivity. 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.

An estimated 14 million Americans used an illicit drug in 2000. Overall, the use of drugs in the U.S. has declined over the past two decades. However, in the past few years, prevalence rates of certain drugs in the adolescent population have shown no decline.

According to the Massachusetts YRBS (MYRBS), each year since 1995 at least half of all high school students have reported using an illegal drug during their lifetimes. Marijuana is the most commonly used drug among adolescents both nationwide and in Massachusetts, with no significant change in the rate of use since 1995. This is followed by inhalants, cocaine, methamphetamines, steroids, and heroin. In addition, national surveys of middle and high school students have shown an increase in ecstasy use over the past five years. Reports from a statewide study of middle and high school students in Massachusetts showed that ecstasy use doubled between 1996 and 1999.

*The 2003 BHS YRBS asked questions about lifetime rates of a variety of illicit drugs, as well as rates of current drug use (marijuana or other). In addition, students were asked to report if they were offered or sold drugs on school property in the 12 months before the survey.*

For the purposes of this report, the following definitions from the MYRBS are used:

**Lifetime use:** Any use during one's life.

**Recent use:** Any use within the 30 days prior to the survey.

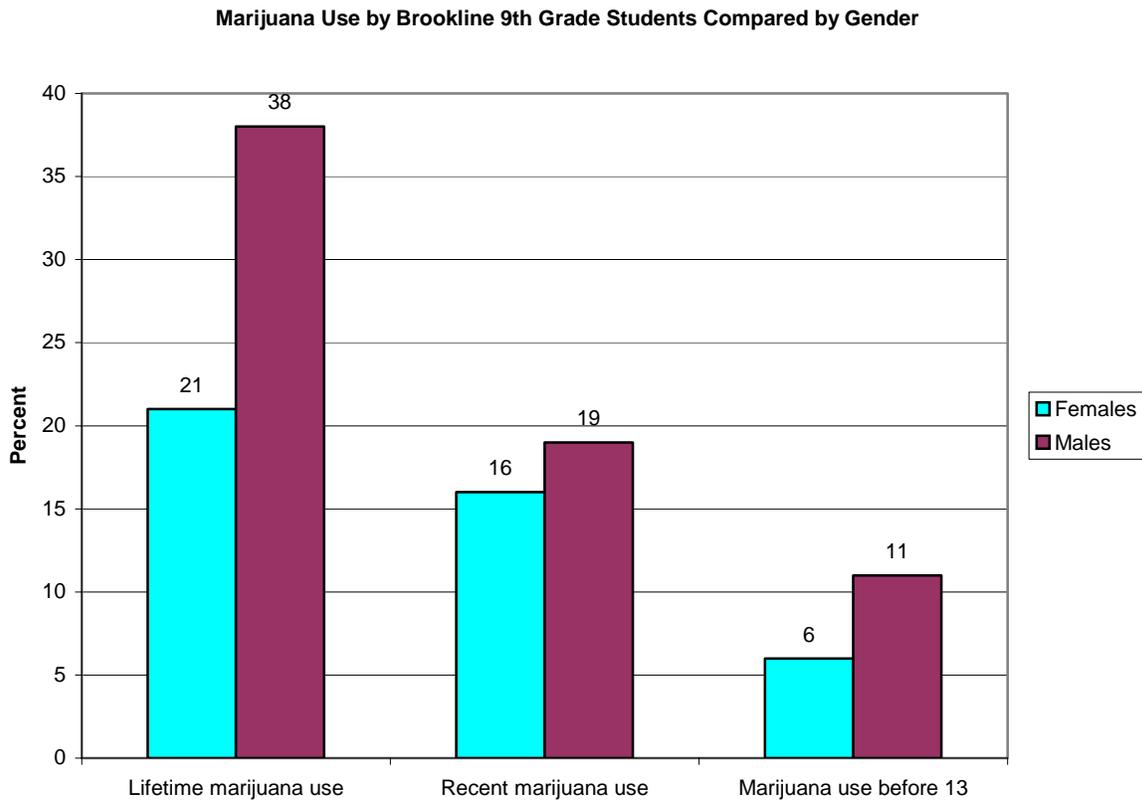
**Marijuana use:** Use of marijuana, also called grass, pot, or weed.

**Cocaine use:** Use of any form of cocaine, including powder, crack or freebase.

**Steroid use:** Use of steroids without a doctor's prescription.

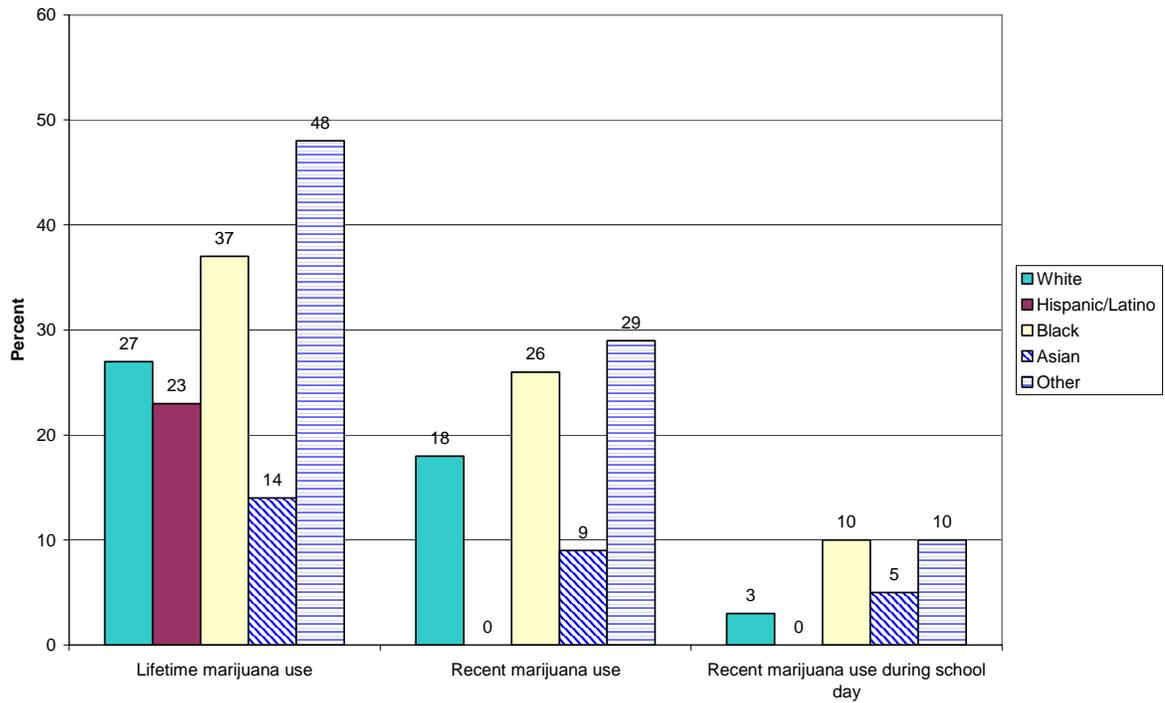
## Marijuana Usage Rates of BHS, Massachusetts and US 9<sup>th</sup> Graders

- Thirty percent of BHS 9<sup>th</sup> grade students report having used marijuana in their lifetime, while the figures for the state and US were somewhat higher, 37% and 33%, respectively (not shown on graph).
- Eighteen percent of BHS students reported marijuana use in the past 30 days. The state and US figures were comparable, 23% and 19% (not shown on graph).
- Since the last BHS survey in 1999, lifetime use of marijuana by BHS 9<sup>th</sup> graders has remained about the same, from 32% to 30%, while recent use has increased from 13% to 18% (not shown on graph).



- Considerably more males report lifetime use of marijuana than females (38% and 21%, respectively).

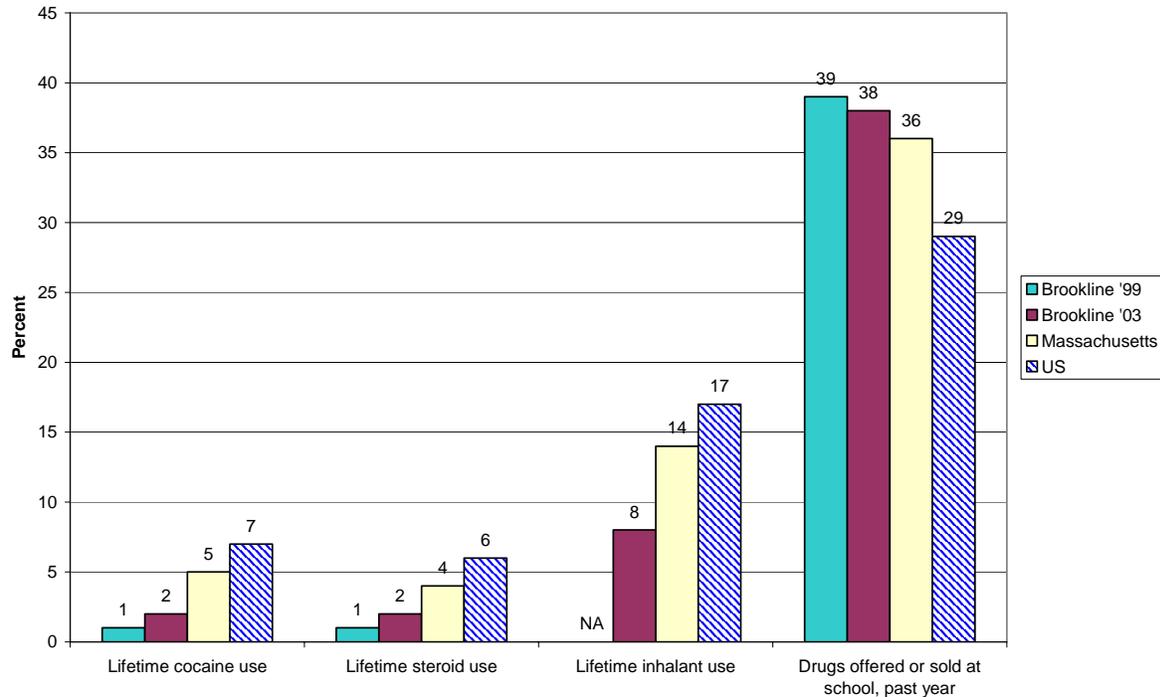
Marijuana Use by Brookline 9th Grade Students Compared by Ethnicity



- The lifetime marijuana use rates for White, Hispanic/Latino and Black students were all similar to the average for all students at 30%. The rate for Asian students was considerably lower at 14%, while that for students in the Other category was much higher at 48%.
- Overall, Hispanic/Latino and Asian students had the lowest use rates for marijuana.

## Other Illegal Drug Use

Illegal Drug Use by Brookline, State and US 9th Grade Students



- Brookline 9<sup>th</sup> graders' reported rate of lifetime cocaine use (2%) is twice the rate noted in the 1999 survey (1%), but is still lower than state (5%) and national (7%) figures.
- Inhalants are used by 8% of Brookline 9<sup>th</sup> graders (11% of males, 4% of females). Use is still lower in Brookline, however, than in the state (14%) or nation (17%).
- In the year prior to the survey, 38% of BHS 9<sup>th</sup> graders had someone offer, sell or give them an illegal drug on school property or within 100 yards of school, as compared to 36% statewide and 29% nationally. The Brookline figures are slightly higher for males than females (41% and 35%, respectively).
- Other than marijuana, the category of illegal drugs with the highest lifetime use (8%) among BHS 9<sup>th</sup> graders includes methamphetamines, Ritalin, Adderal, or Concerta without a prescription. This represents more males (10%) than females (5%) (not shown on graph).
- Over-the-counter cold or cough medicines were used to get high by 7% of Brookline 9<sup>th</sup> graders (not shown on graph).

## **Tobacco Use**

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. Tobacco use is responsible for one in every five deaths in the US, including deaths from heart disease, cancer, stroke and chronic respiratory illness.

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. The prevalence of cigarette smoking among US high school students increased throughout the early 1990's, but has gradually declined since a peak in 1997. Still, more than one-third of US high school students use some form of tobacco and more than 80% of tobacco users begin before the age of 18.

Among 9<sup>th</sup> graders in Massachusetts and across the nation, the numbers of students who have ever tried smoking has decreased considerably from 1995 to 2001 (Massachusetts: 69% to 53%; and US: 71% to 64%). There is a similar trend in recent smoking, as well, with rates in Massachusetts dropping from 36% to 26% and across the nation from 35% to 29%.

The Smokefree Brookline community-wide anti-tobacco use campaign has been working to support these trends in Brookline since 1994. Smokefree Brookline led the charge to make Brookline a smoke-free community, and town law now states that smoking is illegal in restaurants and lounges, public places and retail establishments, and most worksites. Additionally, tobacco retailers must have permits to sell tobacco and are periodically monitored to determine whether they are selling tobacco to minors.

*The 2003 BHS YRBS asked students to report their history and current use of cigarettes, both on and off school property. The survey also asked questions about their recent use of smokeless tobacco and about their attempts to quit smoking.*

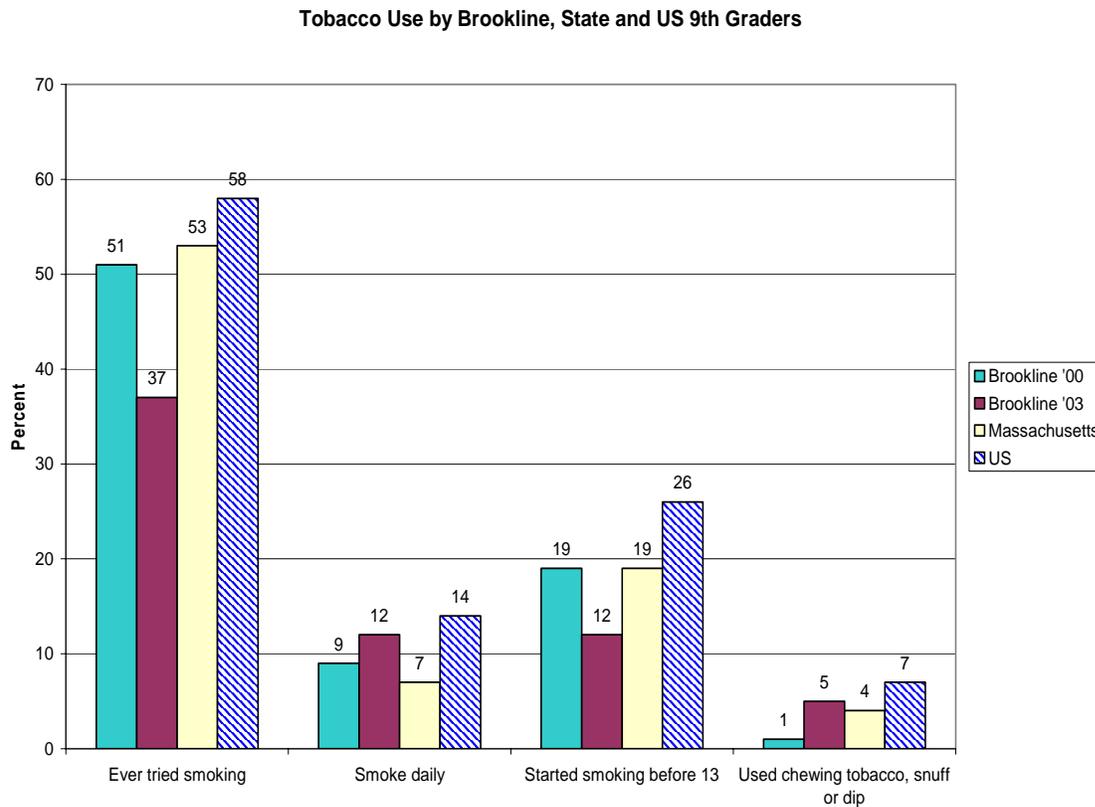
In this report the following definitions were used:

**Lifetime cigarette use:** Any cigarette smoking in one's lifetime, even one or two puffs.

**Recent cigarette smoking:** Any cigarette smoking in the 30 days before the survey.

**Daily smoking:** Smoking at least one cigarette every day for 30 days (no determination of how recently).

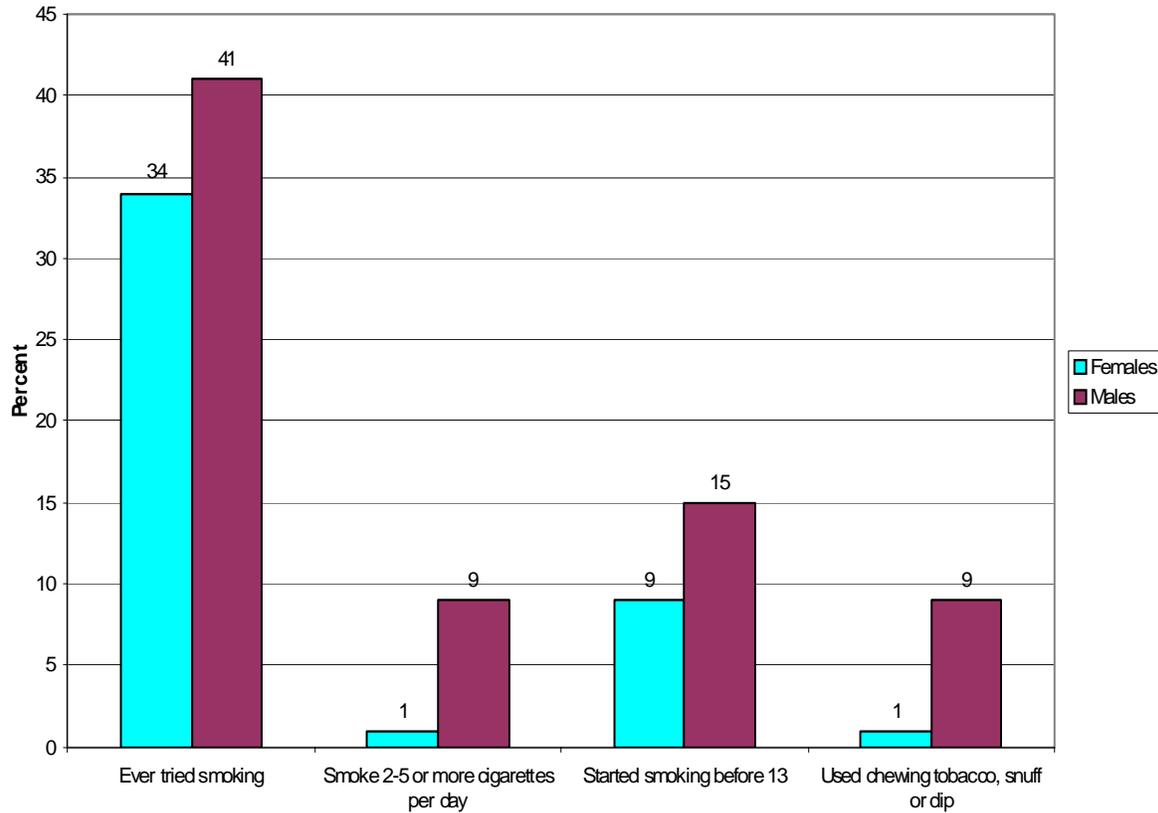
## Tobacco Usage Rates of BHS, Massachusetts and US 9<sup>th</sup> Graders



- From 1999 to 2003, the number of Brookline 9<sup>th</sup> graders who ever tried smoking a cigarette (37%) decreased by 14 percentage points, and is considerably lower than MA and US 9<sup>th</sup> graders (53% and 58%, respectively).
- Daily smoking rose from 9% (1999) to 12% (2003), which is considerably higher than MA (7%), but still comparable to the US (14%). However, nine-tenths of the students had *not* smoked in the 30 days prior to the survey.
- Fewer Brookline students are starting to smoke at an age younger than 13. Only 12% of 9<sup>th</sup> graders, which is one-third less than MA and less than half the rate of 9th graders across the US, smoked according to the 2003 survey.
- The use of chewing tobacco, snuff or dip rose considerably among Brookline 9<sup>th</sup> graders from 1999 to 2003 (1% and 5%, respectively), making Brookline's rate similar to that of MA and US figures.

## Tobacco Usage Rates of BHS 9<sup>th</sup> Grade Students Compared by Gender

Tobacco Use by Brookline 9th Grade Students Compared by Gender



Tobacco use rates for males and females were similar, except for the following measures:

- In the month prior to the survey, 9% of males had smoked from 2 – 5 up to more than 20 cigarettes per day, whereas only 1% of females had smoked 2 – 5 cigarettes and none had smoked more than that.
- Fifteen percent of 9<sup>th</sup> grade males began smoking cigarettes when they were younger than 13 years of age, as compared to 9% of females.
- Similarly, 9% of males had used chewing tobacco, snuff or dip in the month prior to the survey, as compared to only 1% of females.

## **Vehicle-Related Risk Behaviors**

Nearly 1000 persons die annually from injuries, primarily head injuries, resulting from bicycle accidents. Research shows that wearing a bicycle helmet has been found to reduce the risk of bicycle-related head injury by up to 85 percent.

In 2001, motor vehicle accidents were the leading cause of death among young people aged 15 to 24 years, both within Massachusetts and through the US. Seat belt use is estimated to reduce motor vehicle fatalities by 40 to 50 percent and serious injuries by 45 to 55 percent. In Massachusetts, 49% of youth crash fatalities were alcohol-related in 1999.

While helmet use among bicycle riders remains low within Massachusetts, it is increasing. In 1993, only 6% of riders reported wearing a helmet at least some of the time. In 2001, one out of five (21%) reported wearing a helmet at least some of the time.

Seatbelt usage in Massachusetts has also been increasing since 1993. At that time, 41% of MYRBS respondents reported that they rarely or never wore a seat belt when they rode in a car. In 2001, one-fifth of adolescents (21%) reported they rarely or never wore a seatbelt. Massachusetts has also seen significant declines in drinking and driving behaviors since 1995.

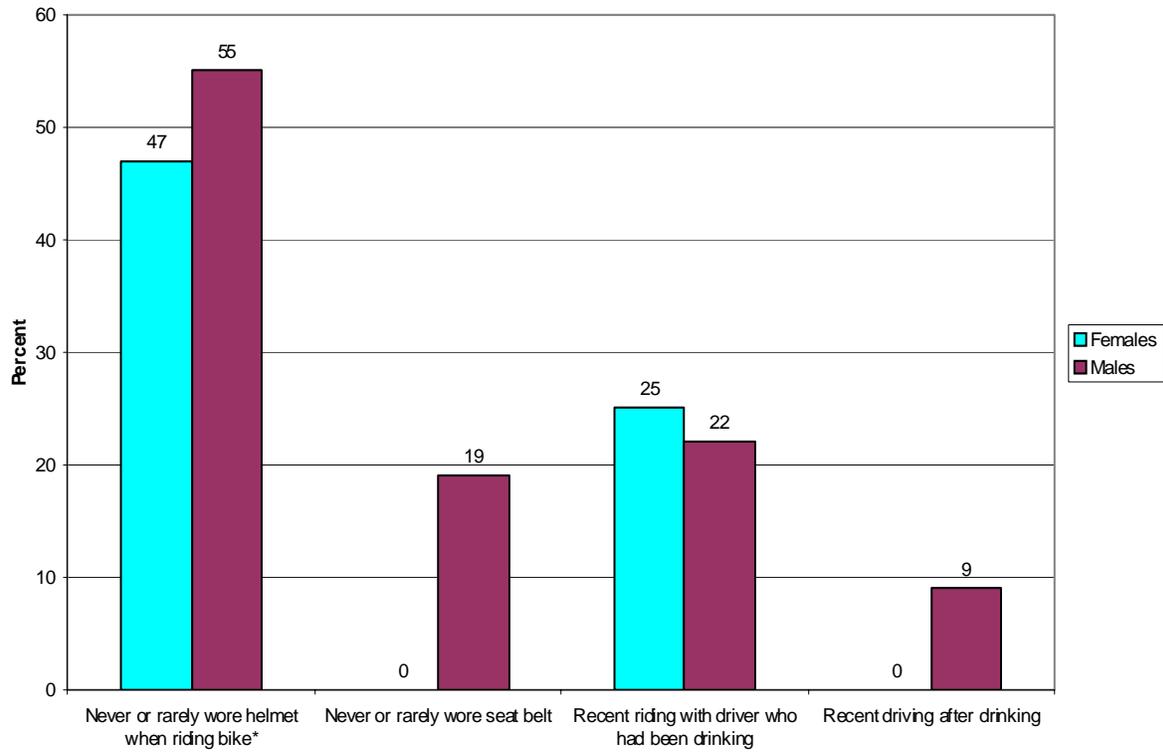
*The 2003 BYRBS asked 9<sup>th</sup> grade students about their seat belt and bicycle helmet use. Students were also asked about drinking and driving, both their own and riding with a driver who had been drinking.*

In this report, **recent** is defined as within the 30 days prior to the survey.

## **Vehicle-Related Risk Behaviors of BHS, Massachusetts and US 9th Graders**

- BHS 9<sup>th</sup> grade student reports of recent driving after drinking remained constant. In 1999 and 2003, 5% of students report recent driving after drinking. This rate is comparable to the US rate of 7% and about half the Massachusetts rate of 12%.
- BHS 9<sup>th</sup> grade student reports of recent riding with a driver who had been drinking also remained constant (23% for 1999 and 2003). This rate is lower than the US rate of 30% and Massachusetts rate of 31%.
- The percentage of BHS 9<sup>th</sup> grade students who rarely or never wore a seat belt decreased slightly over time (13% in 1999 and 10% in 2003). It is somewhat lower than the national rate of 15%, and about one-half of the rate for Massachusetts 9<sup>th</sup> graders (21%).
- The percentage of BHS 9<sup>th</sup> grade students who rarely or never wore a helmet while riding a bicycle remained similar over time at 51% in 1999 and 52% in 2003. This rate represents a considerably lower rate than that of the state (79%) and nation (83%).

Vehicle-Related Risk Behaviors by Brookline 9th Grade Students Compared by Gender



\* Of those who rode bikes

- Males were less likely than females to wear a helmet when riding a bicycle, and much less likely to wear a seat belt.
- Similar rates of females (25%) and males (22%) reported riding with a driver who had been drinking, but more males (9%) reported driving after drinking than did females (0%).

## **Violence-Related Behaviors**

The public health implications of violence among youth are great. With more teens dying each year from gunshot wounds than from disease, violence poses a particularly devastating risk to the health and safety of our nation's youth.

In recent years, the pervasive nature of violence has been made all too clear by the occurrence of high-profile incidents of fatal school violence. The possibility of violence affects all students, as their ability to learn is compromised when the threat of violence makes students question their safety.

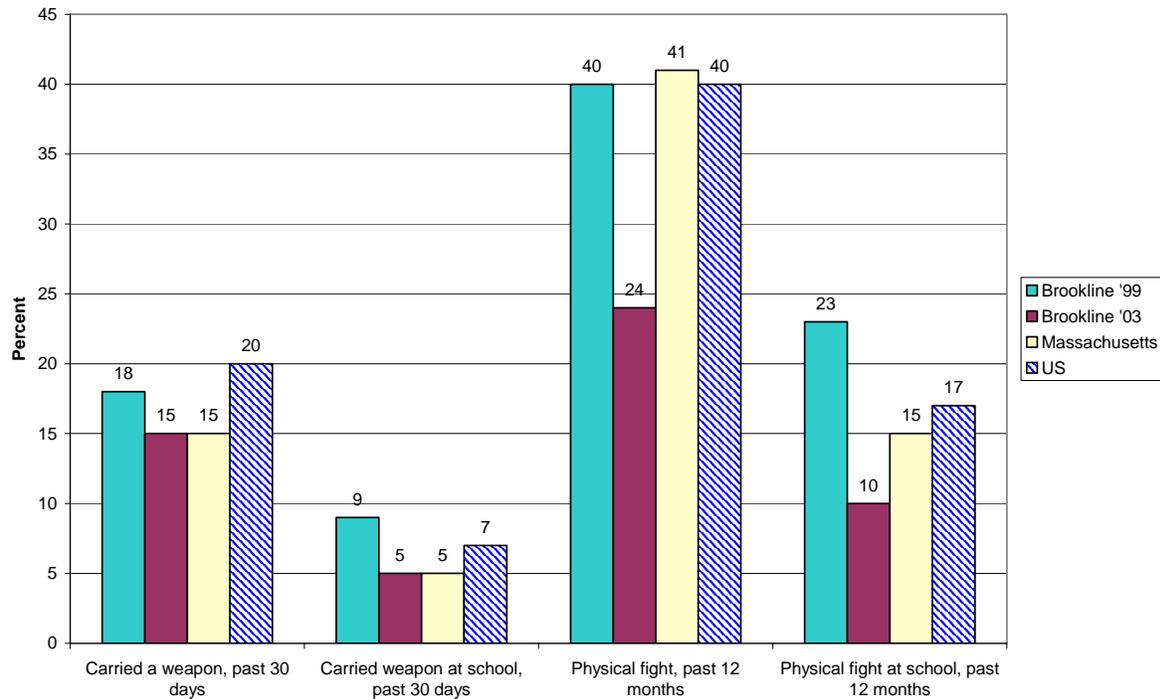
Within Massachusetts, a number of violence-related behaviors have decreased considerably in recent years. The number of students in physical fights, both overall and on school property, has declined since 1995. Additionally, the number of students who reported carrying a weapon, including a gun, has decreased since 1997.

*The 2003 BYRBS asked 9<sup>th</sup> grade students about weapon-carrying and physical fighting, both on and off school property, as well as students' perceived safety at school.*

In this report, **recent** is defined as within the 30 days prior to the survey.

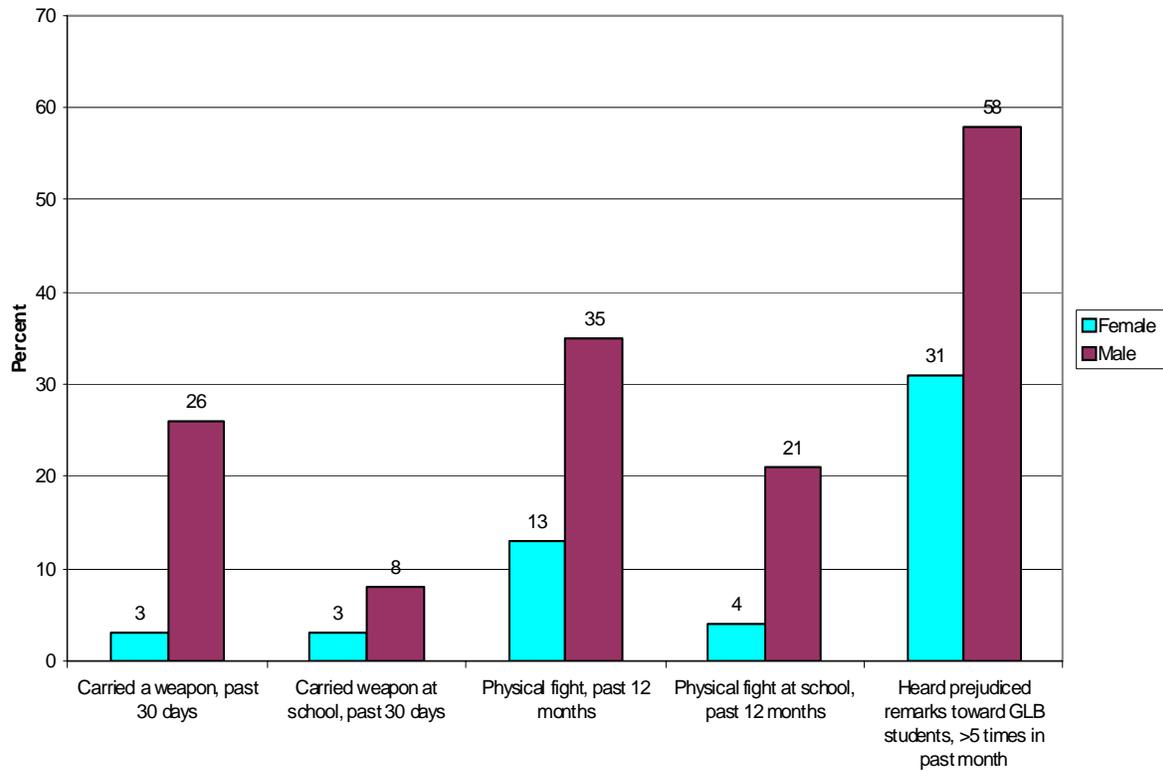
## Violence-Related Behaviors of BHS, Massachusetts and US 9th Graders

Violence-Related Behavior by Brookline, State and US 9th Grade Students



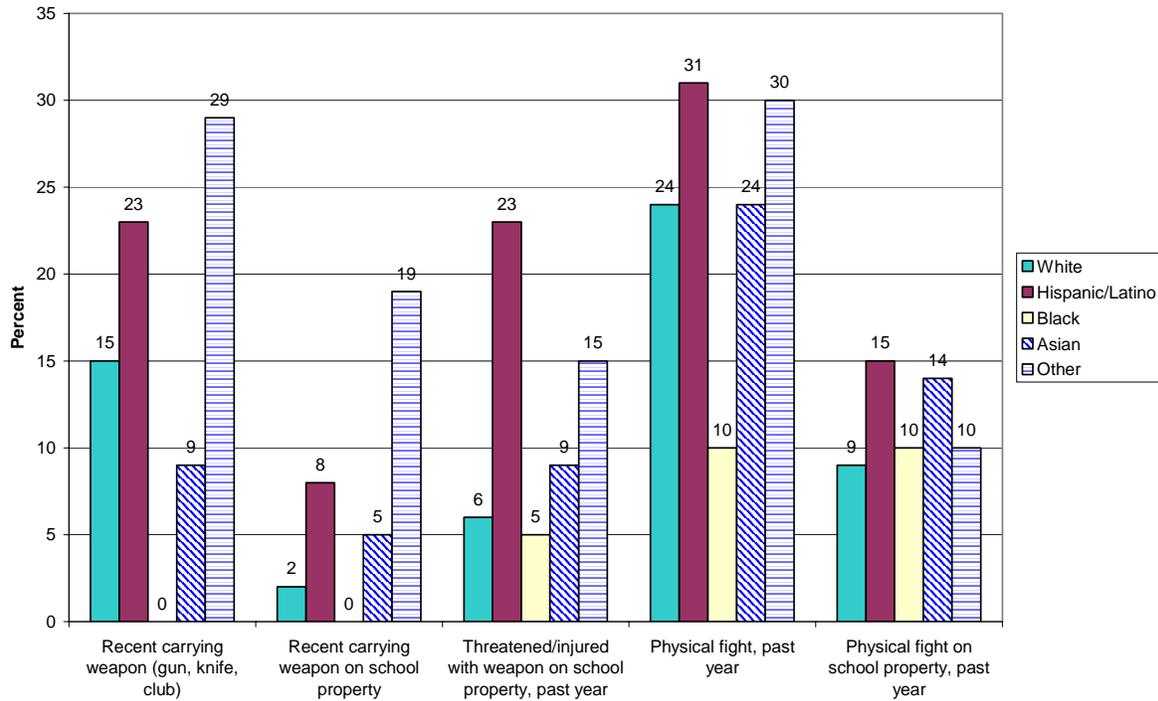
- Slight decreases were seen over time among BHS students who recently carried a weapon, both overall (18% in 1999 vs 15% in 2003) and at school (9% in 1999 and 5% in 2003). The 2003 rates were equal to those in Massachusetts and only slightly lower than the national figures (20% overall, 7% at school).
- The number of BHS students who report being in a physical fight within the past 12 months decreased considerably, from 40% in 1999 to 24% in 2003. In 2001, Massachusetts and US rates were 41% and 40%, respectively.
- Similarly, the rate of BHS 9<sup>th</sup> grade students who reported being in a physical fight at school also decreased considerably over time, from 23% to 10%. This is considerably lower than the state (15%) and national (17%) rates.
- While BHS 9<sup>th</sup> grade students reported a slightly higher rate of recently skipping school because of feeling unsafe in 2003 (3%) than in 1999 (1%), Brookline continues to have considerably lower rates than Massachusetts (8%) and the US (9%) (not shown on graph).
- While the data is not available nationwide, the rate of respondents who were injured or threatened at school recently remained consistent over time and were similar to statewide figures (Brookline: 8% in 1999, 9% in 2003; Massachusetts: 10%) (not shown on graph).

**Violence-Related Behavior of Brookline 9th Grade Students Compared by Gender**



- Violence-related behaviors were considerably higher for males in nearly all categories surveyed.

**Violence among Brookline 9th Grade Students Compared by Ethnicity**



- Black students had the lowest reported rates of violence-related behaviors. In particular, there were no instances of carrying weapons and relatively low rates of threats or physical fights.
- Hispanic/Latino students and those in the Other category had the highest rates in nearly every charted category.

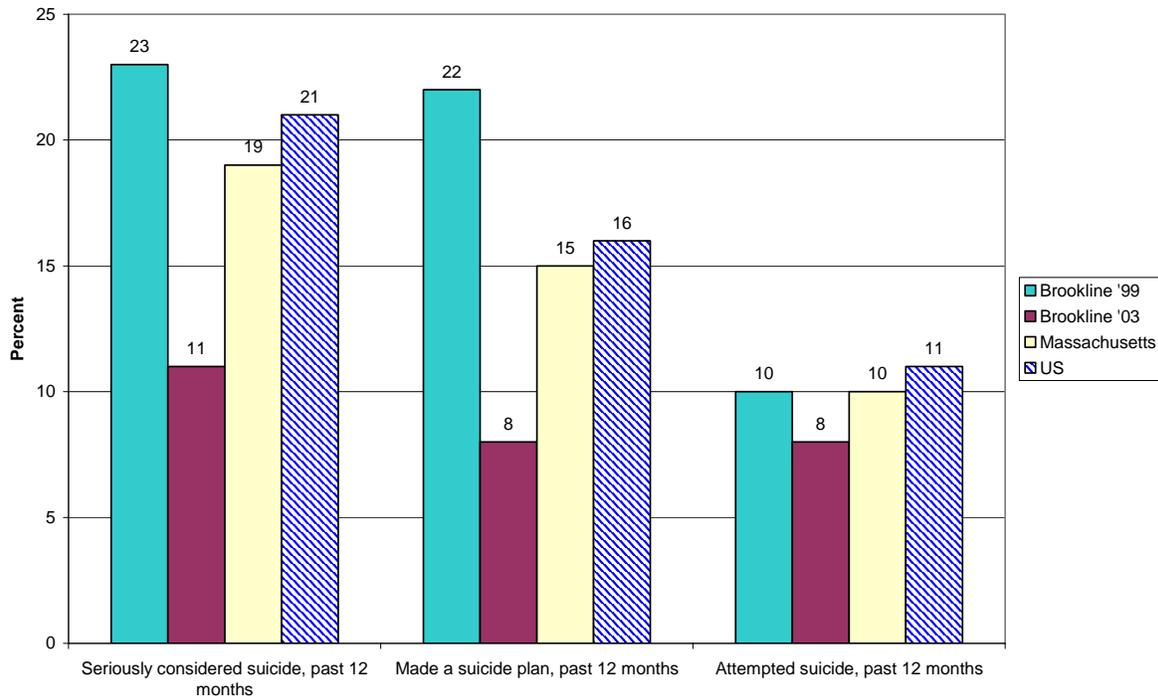
## **Suicide**

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

*The 2003 BHS YRBS asked students to report on their suicidal thoughts and behaviors during the previous year, including intentional self-injury, serious consideration of suicide, plans to commit suicide, and actual attempts.*

## Suicide-Related Behaviors of BHS, Massachusetts and US 9th Graders

Suicidal Behavior by Brookline, State and US 9th Grade Students



- From 1999 to 2003, the numbers of Brookline students who have seriously considered suicide (23% to 11%) and made a suicide plan (22% to 8%) within the year prior to the survey decreased markedly. The 2003 rates were considerably lower than those of Massachusetts and the US.
- The number of Brookline 9<sup>th</sup> graders who attempted suicide within the year prior to the survey remained about the same from 1999 to 2003 (10% to 8%).
- More than twice as many females as males (15% and 7%, respectively) report that they had seriously considered suicide in the year prior to the survey (not shown on graph).
- However, males were more likely than females (11% and 5%, respectively) to report that they had actually attempted suicide at least once in the year prior to the survey (not shown on graph).

## **Sexual Behavior**

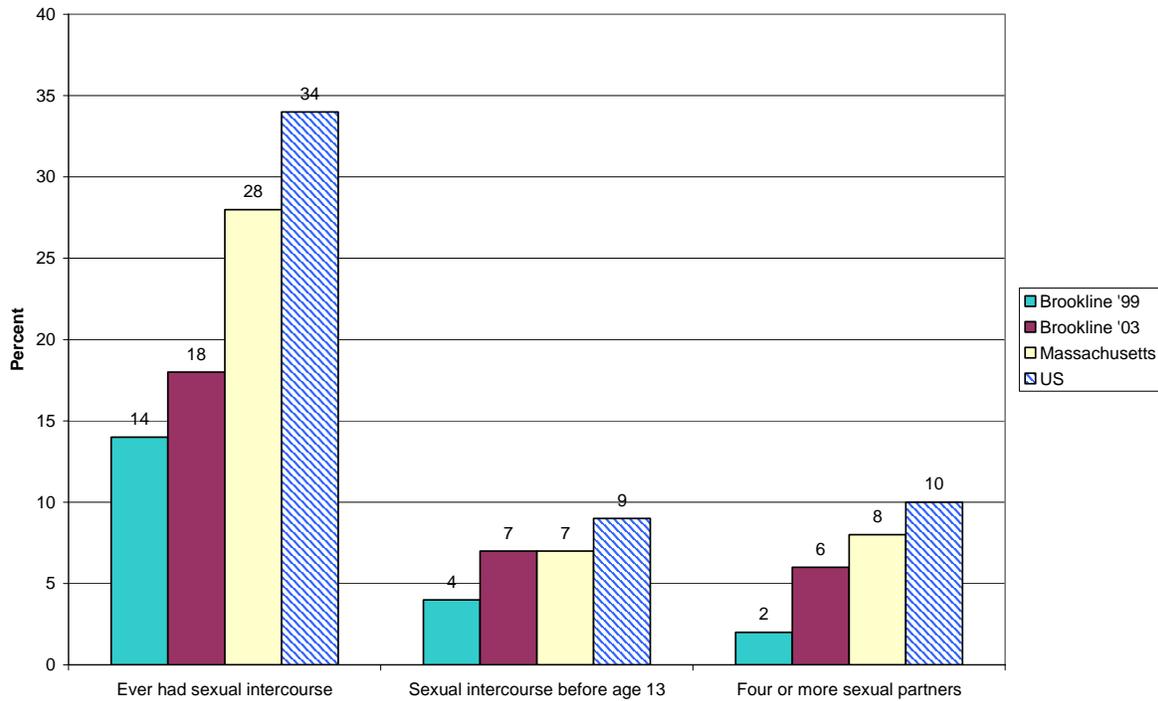
Healthy sexuality is a valued part of life. Unfortunately, some adolescents engage in sexual activity that may pose serious threats both to their health and to their plans for the future. Early sexual activity, multiple sexual partners, and the lack of condom or other contraceptive use are associated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

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. 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. 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 2003 BHS YRBS asked students to report lifetime and recent sexual intercourse, including number of sexual partners. It also asked about age at first intercourse, use of condoms, use of other forms of contraception, and use of alcohol or other drugs before sexual intercourse. In addition, there were questions about students' pregnancy and sexually transmitted diseases, including HIV.*

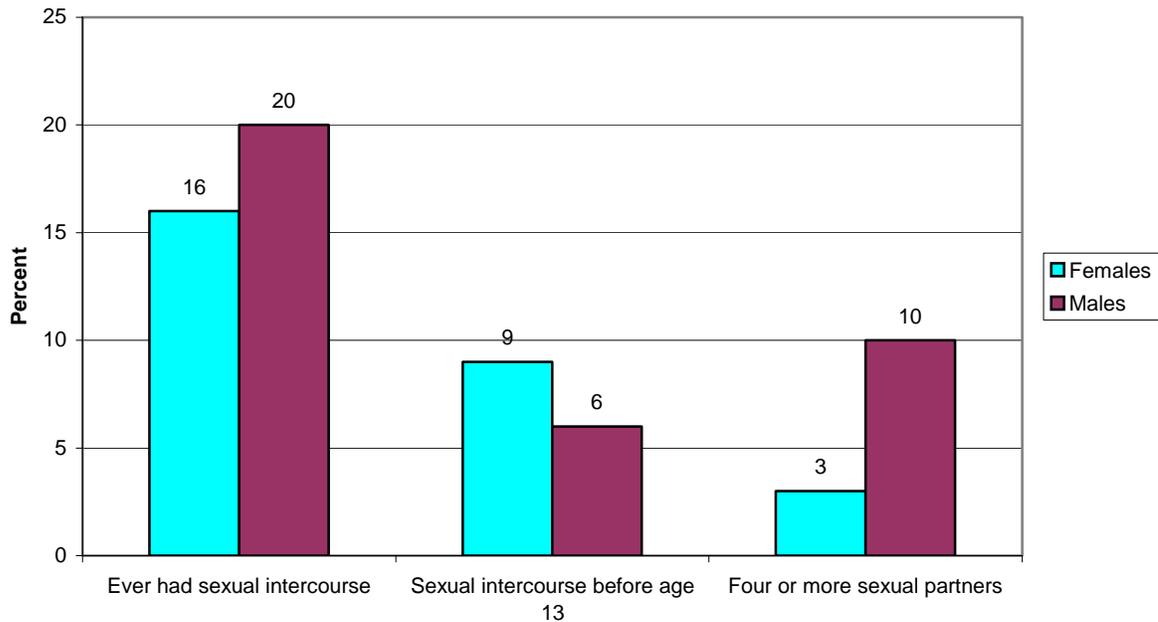
## Sexual Risk Behaviors of BHS, Massachusetts and US 9th Graders

Sexual Behavior of Brookline, State and US 9th Grade Students



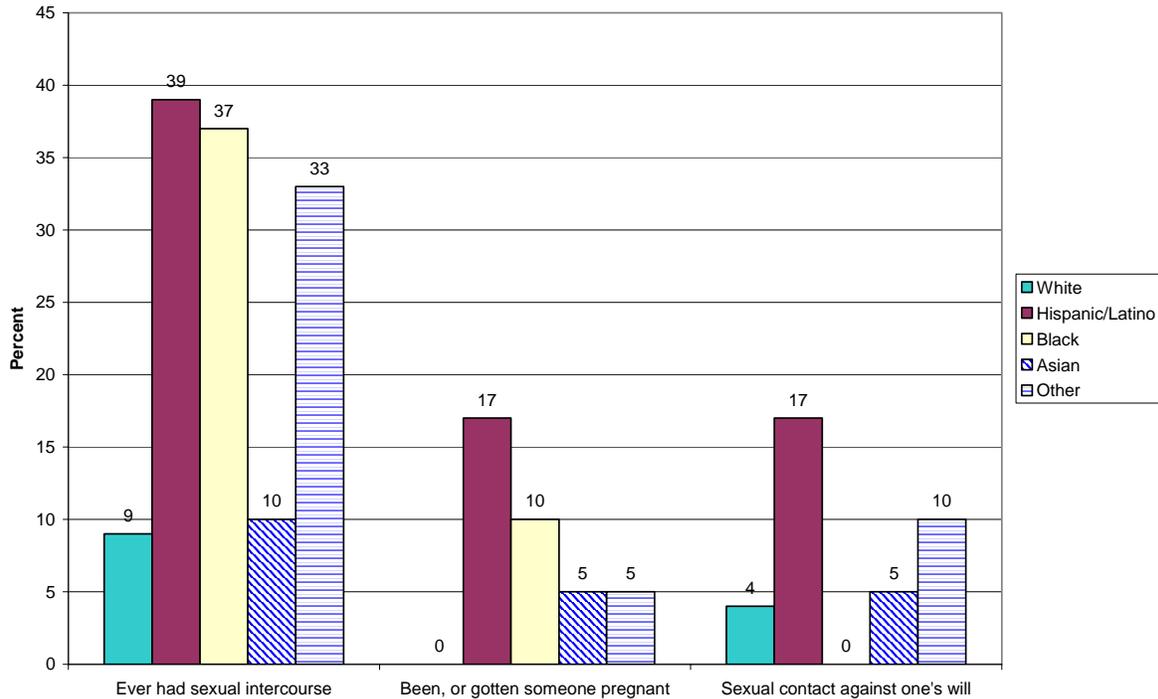
- The numbers of Brookline 9<sup>th</sup> graders who have ever had sexual intercourse has increased from 1999 to 2003 (14% to 18%), but the figure is still considerably lower than the state (28%) and national (34%) figures.
- From 1999 to 2003, the number of Brookline 9<sup>th</sup> graders who had sexual intercourse before age 13 nearly doubled, from 4% to 7%, comparable to the MA and US figures.
- The rate of students who have had four or more sexual partners tripled from 1999 to 2003 (2% to 6%). The state and national figures continue to be somewhat higher (8% and 10%, respectively).

**Sexual Behavior by Brookline 9th Grade Students Compared by Gender**



- Eighty-four percent of females and 80% of males report never having had sexual intercourse, when asked directly on the survey. In related questions, however, the numbers of males and females who report never having sexual intercourse varies from 85% to 92% for females and from 81% to 88% for males.
- Of the females who have ever had sexual intercourse, 60% had experienced it by age 13, compared to 38% of the males. In addition, half of the females who have ever had sexual intercourse had it at age 11 years or younger, while only one-fifth of the boys who have ever had sexual intercourse had experienced it by age 11 (not shown on graph).
- Ten percent of BHS 9th grade boys have had four or more sexual partners, and half of those report having six or more. Only 3% of females have had four or more partners, none of whom report six or more.
- Nearly two-thirds of 9<sup>th</sup> grade females (65%) have had conversations with their parents or other adults in their families about sexuality or ways to prevent HIV infection, other STDs or pregnancy, compared to less than half (43%) of males have (not shown on graph).
- Eighty-five percent of the females and 55% of the males who have ever had sexual intercourse reported that they or their partner used a condom the last time they had sex (not shown on graph).

**Sexual Behavior of Brookline 9th Grade Students Compared by Ethnicity**



- Rates of students who have ever had sexual intercourse were considerably higher for Hispanic/Latino (39%), Black (37%) and Other (33%) students than for White (9%) and Asian (10%) students.
- Rates of students who have ever been pregnant or gotten someone pregnant were highest for Hispanic/Latino (17%) and Black students (10%). These rates were considerably lower for Asian (5%) and Other (5%) students. No white students reported having ever been pregnant or having gotten someone pregnant (0%).
- Rates of students who have had sexual contact against their will were highest for Hispanic/Latino (17%) and Asian (10%) students, and considerably less for Other (4%) and White (5%) students. No Black students reported having sexual contact against their will.

## **Body Weight and Dietary Behaviors**

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. Nationally, 60% of American adults and 11% of adolescents are overweight.

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. Obesity during adolescence is also related to psychological stress, depression, problems with family relations, and poor school performance.

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. About one in ten cases of eating disorders lead to death from cardiac arrest, starvation, or suicide.

Because lifetime dietary patterns are established in youth, it is important for adolescents to choose nutritious foods and to develop healthy eating habits.

*The 2003 BHS YRBS asked students questions about their perception of their weight; what, if anything, they are doing to change or maintain their weight; and their diet.*

## Dietary Behaviors of BHS, Massachusetts and US 9th Graders

- One quarter of BHS 9<sup>th</sup> graders described themselves as slightly or very overweight. However, only 9% had a Body Mass Index (BMI) at the 95<sup>th</sup> percentile or greater for their age, the level recognized as overweight. This is similar to the rate for Massachusetts (10%).
- More than twice as many females as males had a BMI at the 95<sup>th</sup> percentile (13% and 6%, respectively).
- Twenty percent of BHS 9<sup>th</sup> graders described themselves as slightly or very underweight. However, only 3% had a BMI at the 5<sup>th</sup> percentile or less for their age (females, 1%; males, 4%).

### BMI Examples:

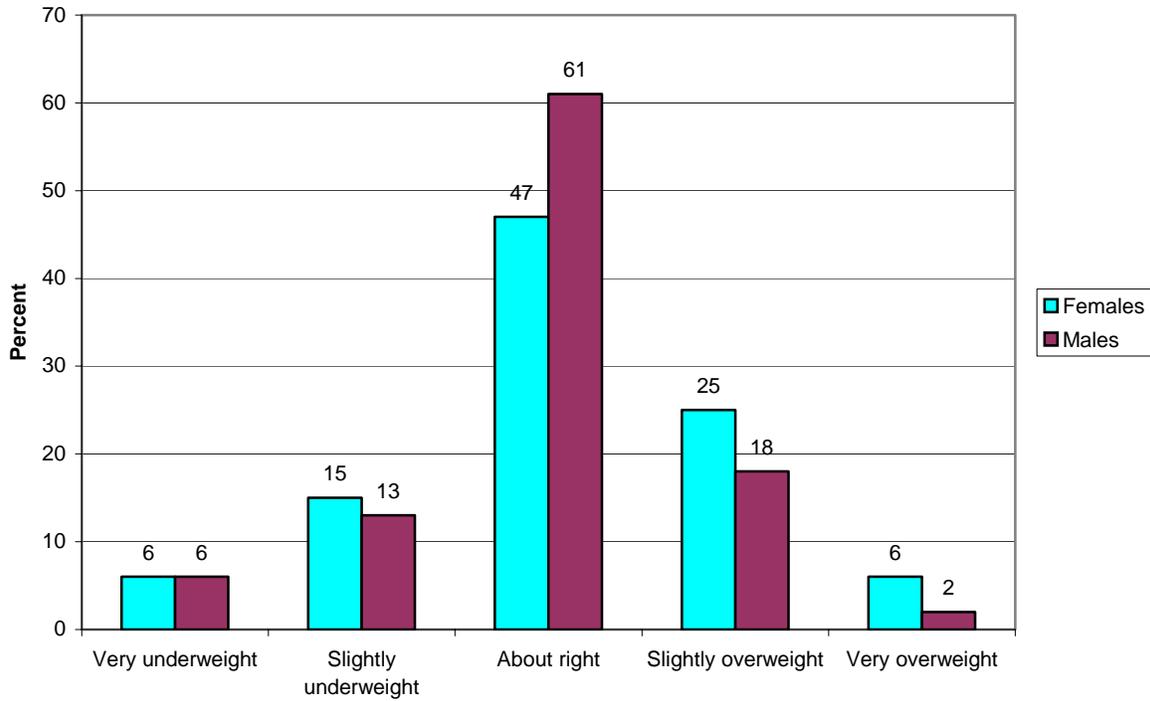
A student who is 5'4" tall and weighs 94 lbs has a BMI of 16.1.

A student who is 5'5" tall and weighs 120 lbs has a BMI of 20.

A student who is 5'4" tall and weighs 160 lbs has a BMI of 27.5.

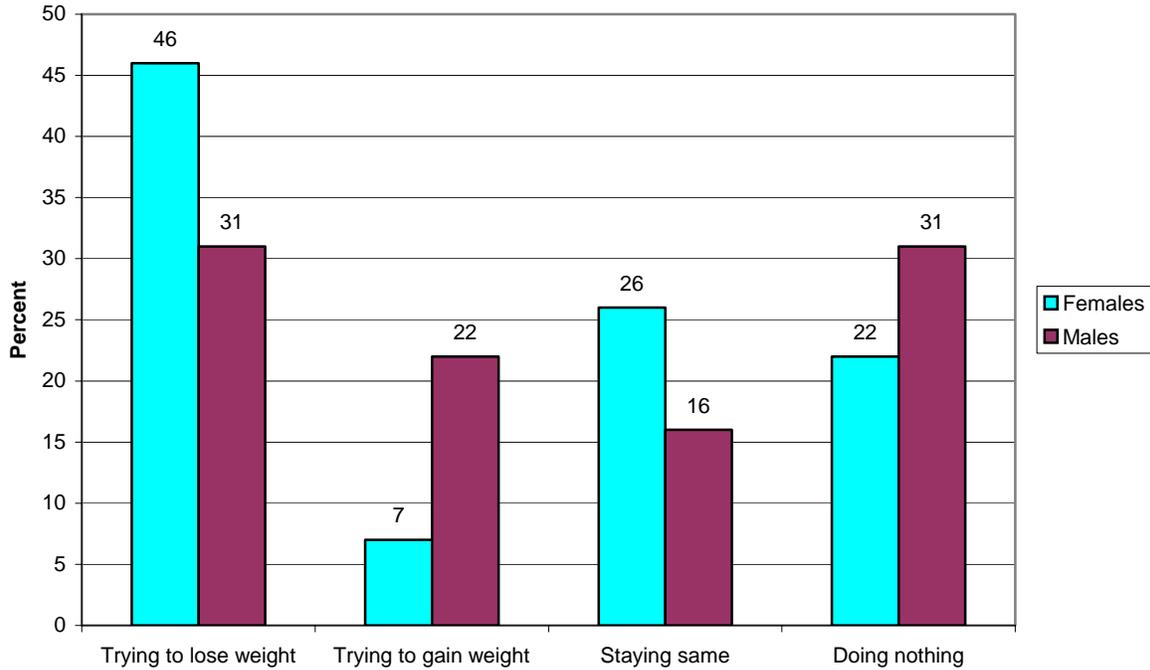
<b>Females:</b>	5 <sup>th</sup> Percentile	95 <sup>th</sup> Percentile	<b>Males</b>	5 <sup>th</sup> Percentile	95 <sup>th</sup> Percentile
14 years	15.8	27.2	14 years	16.0	26.0
15 years	16.3	28.1	15 years	16.5	26.8
16 years	16.8	28.9	16 years	17.1	27.6

Self-Described Weight by Brookline 9th Grade Students Compared by Gender



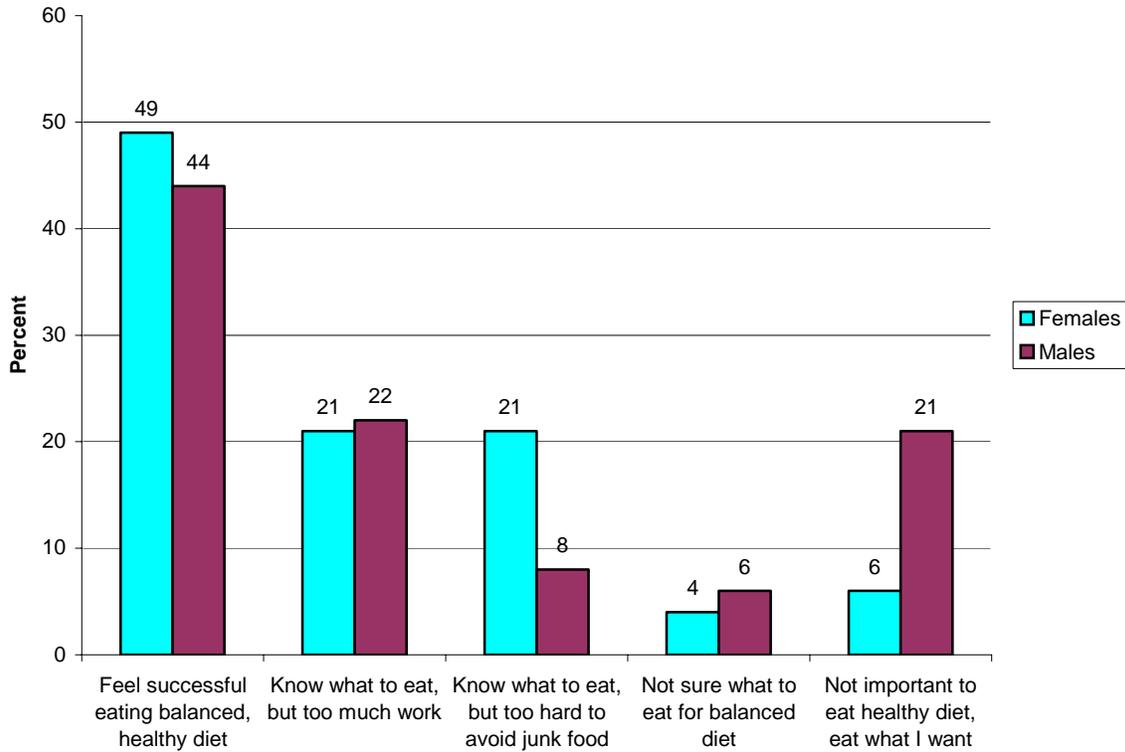
- The majority of males (61%) described their weight as “about right.”
- More females than males described themselves as “slightly overweight” or “very overweight.”

Action Regarding Weight by Brookline 9th Grade Students Compared by Gender



- Thirty-seven percent of students reported trying to lose weight, while 15% reported trying to gain weight. However, many more females were trying to lose weight, while more males were trying to gain weight.
- Ten percent reported having gone without food for 24 hours or more to lose or keep from gaining weight during the month previous to the survey. This figure was similar for both males and females (not shown on graph).

Balanced Diet of Brookline 9th Grade Students Compared by Gender



- Nearly half of Brookline 9<sup>th</sup> grade females and males feel that they are successful most of the time in eating a balanced and healthy diet (49% and 44%, respectively).
- Approximately one-fifth of males and females report that they know what to eat for a balanced diet but find it is too much planning and work.
- Another 21% of males and females do not eat a balanced diet, but for different reasons. For the females, it is because they find it too difficult to avoid junk food. The males reported that it is not important to them to eat a healthy diet, so they eat whatever tastes good to them.
- Twenty-two percent of BHS 9<sup>th</sup> graders drink more than three glasses of milk a day, equal to the rate for Massachusetts (not shown on graph).

## **Physical Activity**

Regular physical activity can help maintain a healthy body weight, muscle strength, and bone health. Regular physical activity increases life expectancy and is associated with good mental health and self-esteem. Yet almost one-third of adolescents do not engage in sufficient amounts of physical activity.

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. 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. Further, students who participate on sports teams are less likely than their peers to smoke tobacco or use drugs, and more likely to stay in school and have high academic achievement.

In this report, the following definitions were used:

**Vigorous exercise:** 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 activity.

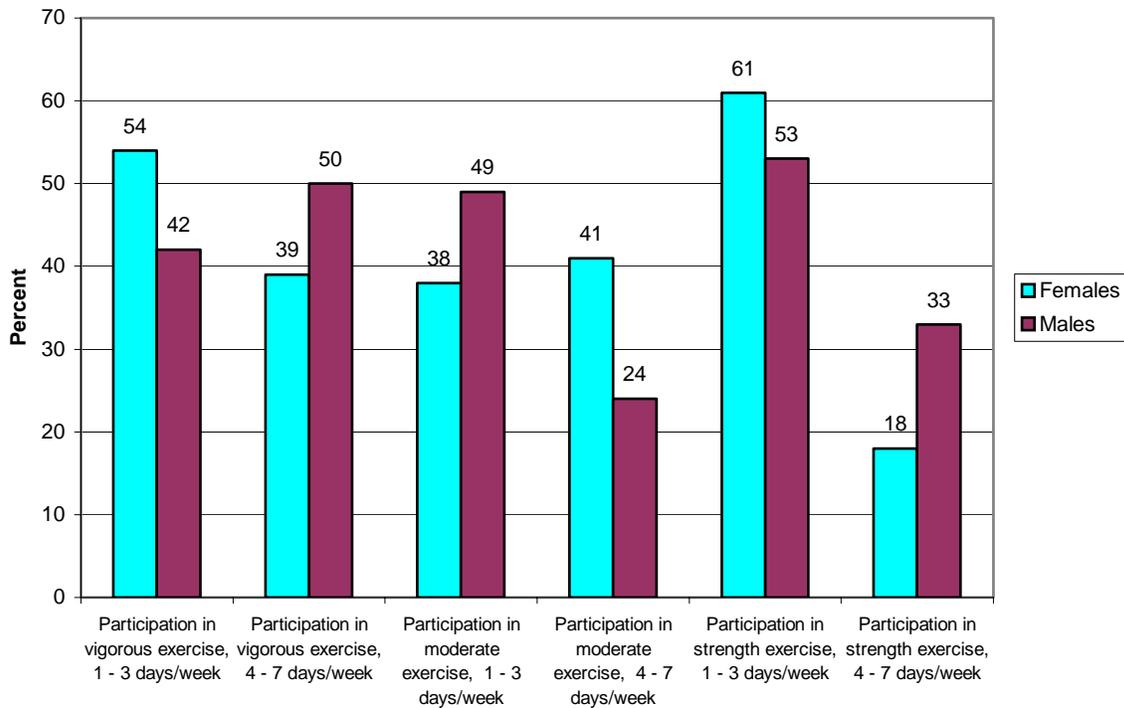
**Moderate exercise:** physical activity for at least 30 minutes that did not make you sweat or breathe hard, such as fast walking, slow bicycling, skating, pushing a lawn mower or mopping floors.

**Strength-building exercise:** exercises to strengthen or tone your muscles, such as push-ups, sit-ups or weight lifting.

*The 2003 BHS YRBS asked students to report on their levels of exercise in the week prior to the survey, their attendance at physical education classes at school, and the amount of television they watch.*

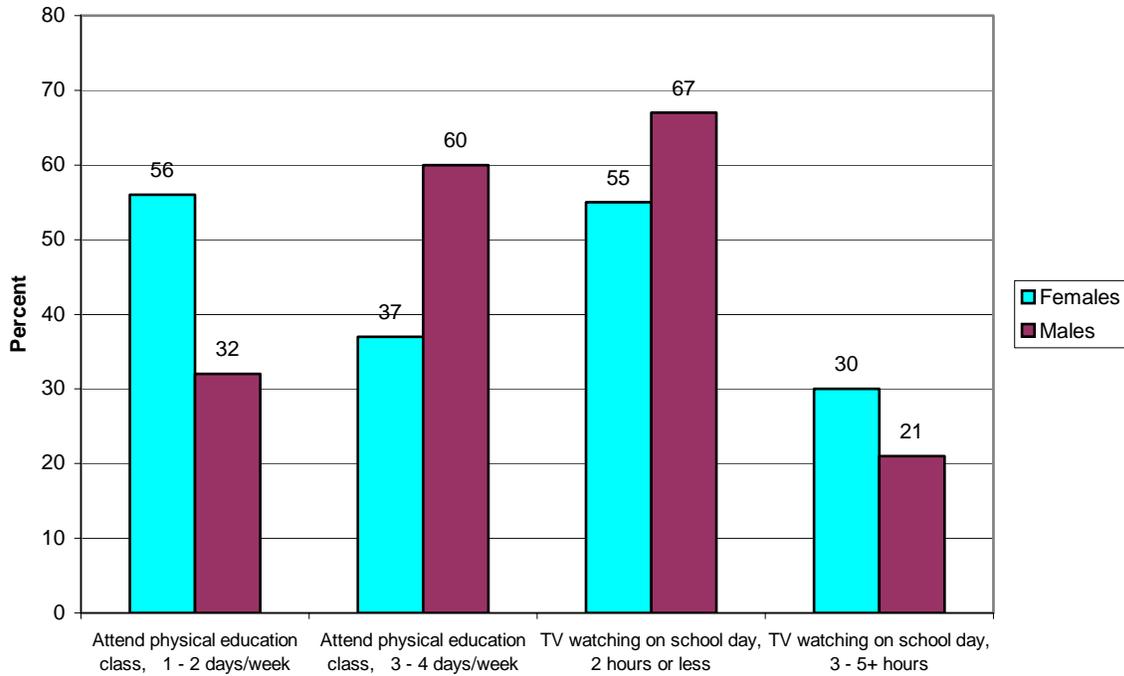
## Physical Activity of Brookline 9th Graders by Gender

Exercise of Brookline 9th Grade Students Compared by Gender



- Fifty-four percent of females report participating in one to three days per week of vigorous exercise and 39% report participation in vigorous exercise four to seven days per week. Males, on the other hand, were much more likely to participate four to seven days per week (50%), with 30% reporting participation seven days a week.
- Females were more likely to participate four or more days per week in moderate exercise (41%) than males (24%). Thirty-eight percent of females and 49% of males participated one to three days per week.
- Over one-half of males report participating in one to three days per week of strength-building exercise, with another third participating in four to seven days per week. Sixty-one percent of females report participating in one to three days per week and 18% in four to seven days of strength-building exercise.

Physical Behaviors of Brookline 9th Grade Students Compared by Gender



- There is a large discrepancy in the number of days of physical education classes per week between females and males. Fifty-five percent of females attend class only one to two days per week (most of those only one day), while 60% of males participate at least three days per week.
- On an average school day, 30% of females watch three to five or more hours of television and 55% watch from less than an hour to two hours. Among males, 21% watch three to five or more hours and 67% watch from less than an hour to two hours.

## **Resiliency and Protective Factors**

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 behaviors. Children can become resilient through the interaction of protective factors found within themselves, their families, their schools, and their communities.

Characteristics 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.

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.

*The 2003 BHS YRBS included five measures of potential protective factors among students. These included: (1) academic achievement, (2) perceived teacher or other adult support in school, (3) perceived support from adults (parent or other adult family member, non-family adult) outside of school, (4) participation in volunteer work or community service, and (5) participation in organized extracurricular activities.*

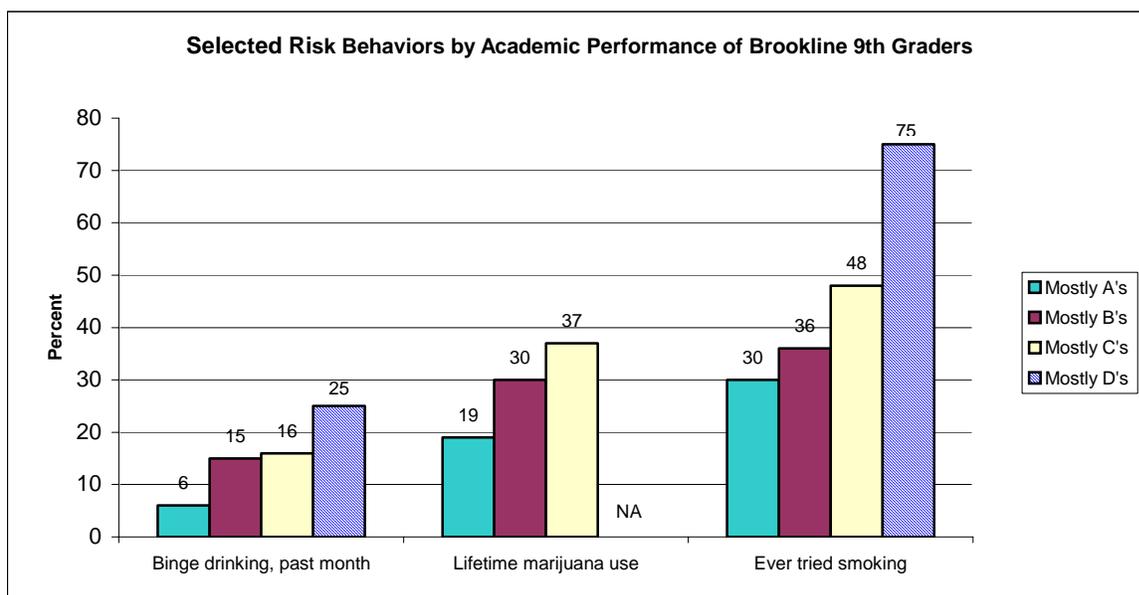
## Protective Factors among BHS 9<sup>th</sup> Graders

- Ninety-two percent of Brookline 9<sup>th</sup> graders received mostly As, Bs and Cs in the year prior to the survey, compared to 82% of 9<sup>th</sup> graders statewide.
- Fifty-nine percent reported having a teacher or other adult in school to whom they can talk if they have a problem, and 81% reported having an adult outside of school to whom they can talk.
- Brookline 9<sup>th</sup> grader reported a rate of volunteer work at 41% which is similar to the rate for Massachusetts at 37%.
- The rate of participation in organized extracurricular activities is higher among Brookline 9<sup>th</sup> graders (62%) than across the state (49%).

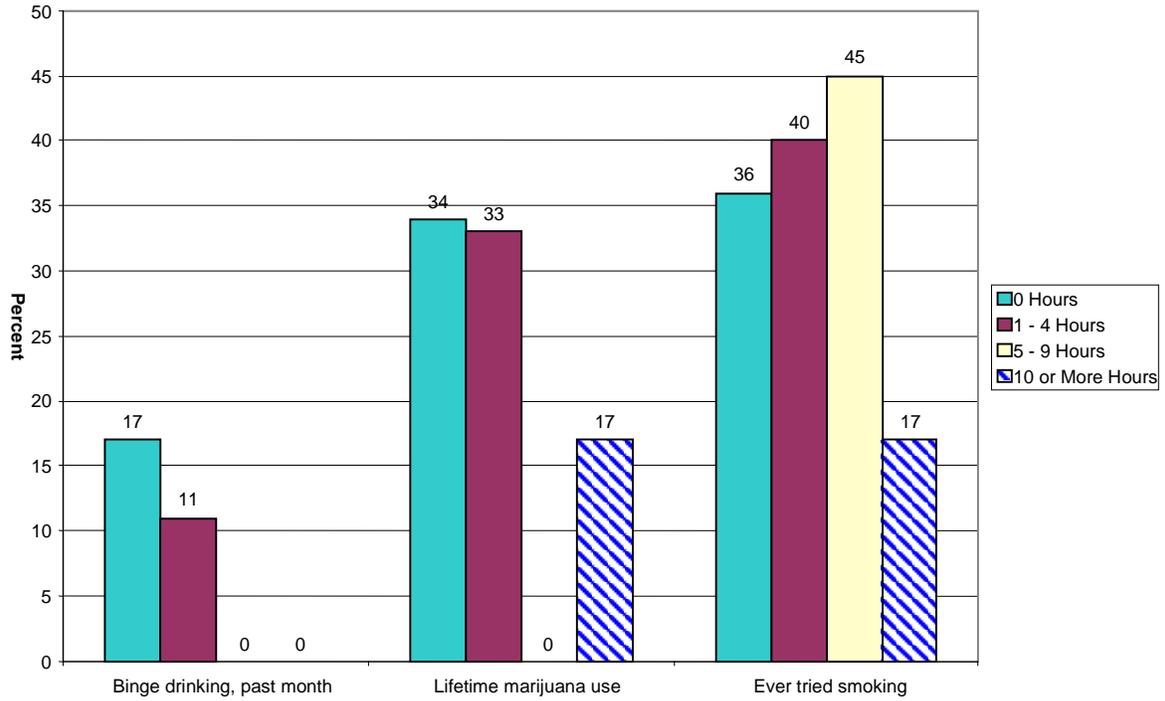
Cross tabulation of the BHS YRBS data suggests that Brookline mirrors the research on the input of protective factors impact on adolescent risk behaviors. Adolescent tobacco use (whether they have ever tried smoking), lifetime marijuana use, and binge drinking serve as examples of this correlation.

It is interesting to note that the results suggest that the level of adolescent involvement is often more important than simply whether or not an adolescent engages in a particular activity. For instance, adolescents who participated in two sports teams were more protected from certain risk factors than those who participated in none, one, or three or more sports teams. Similarly, adolescents who participated in 10 or more hours of community service were more protected from certain risk factors than those who participated in none or less than ten hours per week.

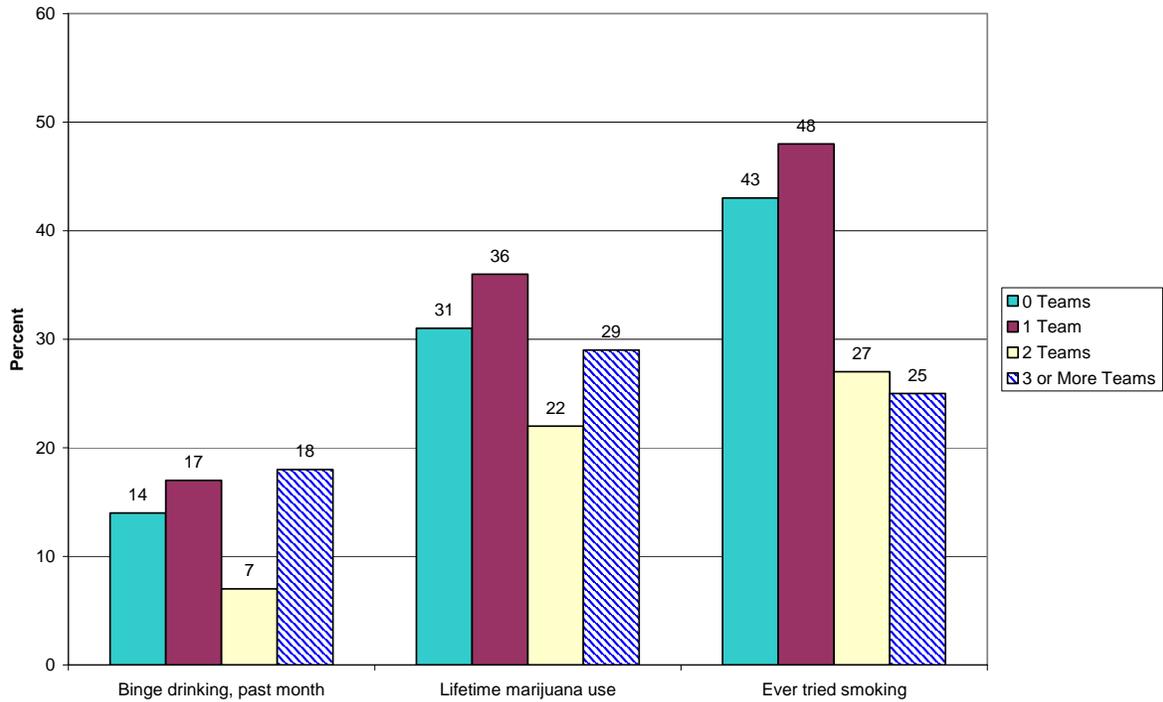
*Note that due to the limitations inherent in the study's small size, the following results are presented as possible indicators of trends, not absolute results.*



**Selected Risk Behaviors by Volunteer Hours of Brookline 9th Graders**



**Selected Risk Behaviors by Participation on Sports Teams by Brookline 9th Graders**



### **Binge Drinking (past month)**

- A general trend is seen when correlating lower grades and a higher likelihood of binge drinking. Six percent of students who reported mostly A's, 15% who reported mostly B's, 16% who reported mostly C's, and 25% who reported mostly D's reported binge drinking.
- Students who reported not having an adult to talk to outside of school or within school reported a higher likelihood of binge drinking (not shown on graph).
- Students who volunteered zero to four hours per week were more likely to report binge drinking than those who volunteered five or more hours per week.
- Students who were on two sports teams were less likely to report binge drinking (7%) than those who were not involved in sports (14%), or were involved in one (17%) or three or more (18%) teams.

### **Marijuana Use (lifetime)**

- A general trend is seen correlating lower grades and lifetime marijuana use. Nineteen percent of students who reported mostly A's, 30% who reported mostly B's, and 37% who reported mostly C's reported lifetime marijuana use.
- Students who reported not having an adult to talk to outside of school or within school reported a higher likelihood of lifetime marijuana use (not shown on graph).
- Students who volunteered zero to four hours per week were more likely to report lifetime marijuana use than those who were involved in volunteer activities for five or more hours per week.
- Students who were on two sports teams were less likely to report lifetime marijuana use (22%) than those who were involved on zero (31%), one (36%) or three or more (29%) teams.

### **Tobacco Use (ever tried smoking)**

- A general trend is seen correlating lower grades and a likelihood to have tried smoking. Thirty percent of students who reported mostly A's, 36% who reported mostly B's, 48% who reported mostly C's, and 75% who reported mostly D's had tried smoking.
- Students who reported not having an adult to talk to outside of school or within school reported a higher likelihood of having tried smoking (not shown on graph).
- Only those students who reported volunteering ten or more hours per week appeared to gain any protective benefits when it came to having tried smoking.
- Students who were on two or more sports teams were less likely to have tried smoking (two teams, 27%; three or more teams, 25%) than those who were not involved in sports teams (43%) or participated on one team (48%).
- In addition, students involved in after-school activities for fewer than two days per week were more likely to have tried smoking than those involved two or more days per week (not shown on graph).



## **APPENDIX A: Report Limitations**

The findings in this report are subject to several limitations. First, these data apply only to youth who attended Brookline High School and participated in the survey. Therefore, the data are not representative of all persons in this age group who live in Brookline. Second, the extent of under-reporting or over-reporting of behaviors cannot be determined, although the survey questions demonstrate good test-retest reliability. Third, BMI is calculated based on self-reported height and weight and, therefore, tends to underestimate the prevalence of overweight and at-risk for overweight. Fourth, in general, if the amount of change from one year to the next or between Brookline and state or national rates was no more than 20-25%, then it was considered to be comparable, rather than a marked difference.