HEALTHY BROOKLINE
VOLUME XVIII

YOUTH RISK BEHAVIOR SURVEY

Brookline Department of Public Health
2018

Acknowledgements

This report is a collaborative project of the Brookline Public Health and Human Services Department and the Public Schools of Brookline.

The report was prepared by staff, Mary Minott, LICSW, Division Director, Brookline Public Health Department Brookline, Substance Awareness Programs for Youth, and Sara Khan, Masters Candidate at Boston University School of Public Health.

The Public Schools of Brookline Director of Data Analysis & Information Management, Erin Cooley, and Victoria Chang, Data Analysis Specialist, created the online survey tool and completed the data collection and analysis.

The survey was implemented under the direction of The Public Schools of Brookline staff Tina Bozeman, Curriculum Coordinator for Health and Physical Education, and Jen Martin, Brookline High School *School Within a School* History Teacher and Advisory Teacher Leader.

A special thanks to:
Dr. Swanee Jett, Director of Brookline Public Health and Human Services
Andrew Bott, M.Ed., Superintendent of the Public Schools of Brookline, and
The Advisory Council on Public Health:

Anthony L. Schlaff, MD, MPH
Cheryl Lefman, MA
Patricia Maher, APRN, MA MS
Peter Moyer, MD MPH
Nalina Narain, Ph.D.
Gretchen Stoddard, MPH

We thank them all for their generous support.

Table of Content

Title	Page Number
Executive Summary	3
Demographics of Participants	14
Summary Comparison Table of Risk Behaviors of Brookline 9th-12th Graders (2011-2017) and State/US 9th-12th Graders (2015)	17
Summary Comparison Table of Risk Behaviors of Brookline 7th-8th Graders (2011-2017) and State/US 6th-8th Graders (2015)	21
Alcohol Use	25
Illegal Drug Use	30
Tobacco and Electronic Cigarettes	39
Physical Safety and Violence-Related Behaviors	44
Sexual Behaviors	51
Mental Health	56
Physical Health and Activity	65
Use of Technology	68
Body Weight and Dietary Behaviors	69
Attitudes and Perceptions	72
Resiliency and Protective Factors	75
Appendix A: Report Limitations	78

Executive Summary for Healthy Brookline Volume XVIII

Introduction

Healthy Brookline Volume XVIII, part of the Brookline Department of Public Health's annual assessment of the health status of the Brookline community, provides updated information on the health risk behaviors of Brookline youth. Data was gathered from the *Brookline High School Health Survey* given to Brookline students in grades 7-12 during March and April 2017. (Previous editions of *Healthy Brookline* involving youth risk behavior include Volumes IV, VIII, XI, XIV XV and XVII.)

The *Brookline High School Health Survey* was updated for the 2017 school year in conjunction with a four-town Substance Abuse Prevention Coalition including Watertown, Waltham, and Belmont with support from the Education Development Center (EDC). The survey is based on a national initiative, the *Youth Risk Behavior Survey (YRBS)*, which was developed by the Centers for Disease Control and Prevention 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. These behaviors, often established during childhood and early adolescence, include:

- Alcohol and other drug use;
- Tobacco use;
- Unhealthy dietary habits;
- Inadequate physical activity;
- Sexual practices that contribute to unintended pregnancy and sexually transmitted diseases, including HIV infection;
- Actions that contribute to unintentional injuries and violence.

The *YRBS* is administered biannually both 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 XVIII* 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.

The *Brookline High School Health Survey* also includes questions pertaining to risk and protective factors taken from the National Institute of Health's *Monitoring the Future (MTF)* survey.

Methodology

All of the students who were present in school on the days the *Brookline Student Health Survey* was given in March and April of 2017 participated in the survey. At Brookline High School, the survey was given during

students' advisory period. 1,542 students in grades 9 – 12 participated. The middle school health survey was given in health classes, and included 1067 students in grades 7-8 throughout Brookline's eight K-8 Schools. (Students in the 6th grade were not surveyed.) The results for the Brookline sample were compiled in the summer and fall of 2017.

The national and statewide surveys of the *YRBS*, to which the Brookline sample is compared, were administered during the spring of 2015. Both used a multi-stage cluster sampling design to gather randomly selected representative samples of students. The national *YRBS* included data from questionnaires from 148 public and private schools, grades 9-12. (There is no national survey for the middle school level.) The Massachusetts *YRBS* included students in 121 schools. Students taking the state's middle school survey represented grades 6-8. The school and student participation at both levels was voluntary and anonymous. 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.

Summary of Results for the 2017 *Brookline Student Health Survey*

Alcohol Use among 9th-12th graders

Some reported measures of alcohol use among 9th-12th graders continued to decline while others increased.

- Lifetime use rates were 36% in 2017 -- down from 56% in 2013 and 47% in 2015.
- First use of alcohol before age 13 decreased from 6% in 2015 to 5% in 2017.
- Reported use of alcohol during the month prior to the survey was 30% in 2017, up from 27% in 2015.
- In the month prior to both the 2015 and 2017 surveys, 18% reported binge drinking.
- Students who reported symptoms of depression reported higher rates of substance use -- 42% reported binge drinking (compared to general student population of 18%) and 41% reported recent marijuana use (compared to 17% of the general student population).
- The 2017 survey asked students if they had **ever** used alcohol during the school day. 15% reported that they had. Prior surveys had asked students if they had used alcohol during the school day **in the past 30 days**, and the rate was 2% in 2015.
- Twelfth graders reported significantly higher rates for several behaviors than the other classes: 52% had at least one drink of alcohol, 32% had one drink of alcohol during school day, and 35% engaged in binge-drinking during the past year.
- Males and females were not markedly different for some measures of alcohol use. At the senior level, 54% of males and females ever had alcohol. Among juniors, 43% of males and 53% of females ever had alcohol. At the sophomore level, 38% of males and 36% of females ever had alcohol, and 17% of freshmen males and 18% of freshmen females ever had alcohol.
- However, males were more likely to binge drink for certain grades. 39% of senior males reported binge drinking compared to 31% of senior females. In contrast, 24% of junior males reported binge drinking compared to 28% of junior females. The measures were similar for sophomore and freshman males and females.

- Finally, more senior females than males reported that they had engaged in sexual activity after using alcohol that they wouldn't have if they hadn't been drinking -- 15% of senior females as compared to 10% of senior males. In other grades, 11% junior females, 6% of sophomore females, and 3% of freshmen females, and 15% of junior males, 4% of sophomore males and 1% of freshmen males, reported that they had engaged in sexual activity after using alcohol that they wouldn't have if they hadn't been drinking.

Alcohol Use among 7th and 8th graders

- Lifetime use rates were 15% in 2013, 11% in 2015, and 12% in 2017.
- Rates of first use of alcohol before age 13 decreased from 11% in 2013 to 6% in 2015, but increased to 9% in 2017.

For most comparable alcohol indicators, Brookline 9th-12th graders reported lower rates than state and national levels. Rates were the same (18%) for recent binge drinking at Brookline High School as state and nationwide.

In comparison to students on the statewide survey, Brookline 7th and 8th graders reported similar rates of lifetime alcohol use (12% versus 13%). National data is not collected at the middle school level, so there is none to compare.

Illegal Drug Use

Marijuana Use 9th-12th graders

Reported rates among Brookline 9th -12th graders from 2013 to 2017 continued to decline or remained consistent over the past four years.

- Rates of having ever used marijuana declined to 26% in 2017, down from 34% in 2013 and 27% in 2015.
- Rates of first use before age 13 declined from 2% in 2013 to 1% in 2015, remaining consistent at 1% in 2017.
- Marijuana use during the month before the survey was 17% in 2017, 21% in 2013, and 16% in 2015.
- Twelfth graders reported significantly higher rates than 9th graders in most behaviors -- 32% reported use in the last 30 days compared to 7% of freshman, 16% of sophomores and 21% of juniors.
- 13% of seniors reported having used marijuana during the the school day in the last year, compared to 2% of freshman, with sophomores at 8% and juniors at 7%.
- The lifetime use of marijuana varied by grade as well as gender -- among seniors, 44% of males and 43% of females; 30% of junior males and 36% of junior females; 30% of sophomore males and 25% of sophomore females; and 12% of freshman males and 7% of freshman females.
- Among students who drive, males reported that over the past 30 days, they were more than twice as likely as females to drive a car after using marijuana (26% versus 11%).

- Each student was asked about their perception of the risks associated with marijuana, whether there was no risk or slight risk, moderate risk, or great risk of harming oneself under the influence of marijuana. Results varied by grade:
    - Freshman - 43% no or slight risk, 35% moderate, 22% great
    - Sophomore - 65% no or slight risk, 23% moderate, 13% great
    - Junior - 68% no or slight risk, 23% moderate, 9% great
    - Senior - 77% no or slight risk, 20% moderate, 4% great

Marijuana use among 7th and 8th graders

Among Brookline 7th and 8th graders, most measures of marijuana use decreased or remained about the same from 2013 to 2017.

- Lifetime marijuana use rates were 5% in 2013, 2% in 2015, and 2% in 2017.
- Rates of marijuana use before age 13 were 2% in 2013, 1% in 2015, and 1% in 2017.
- Reported use of marijuana in the month prior to the survey was 2% in 2017, lower than the 4% in 2013 and higher than 1% in 2015.
- 3% of 8th graders had ever used marijuana products, including edibles and dabs, whereas 1% of 7th graders had ever used marijuana products.

Rates of marijuana use on all indicators among Brookline 9th-12th graders were lower than state and national levels. Lifetime marijuana use was 26% for Brookline High School students, compared to 41% for state and 39% for US levels. Marijuana use in the past 30 days was 17% for Brookline High School students, compared to 25% for state and 22% for US levels.
Among 7th and 8th graders, lifetime marijuana use was 2%, lower than the 6% rate statewide. Marijuana use in the last 30 days was 2% for Brookline middle school students as well as students statewide.

Other Illegal Drug Use 9th-12th graders

Among 9th-12th graders, most measures of the use of other illegal drugs remained relatively low, with reported usage at 1-2% for all the illegal drugs surveyed. Rates of several drugs decreased from 2015 to 2017 among high school students, including cocaine, heroin, and hallucinogens.

- Reported rates of cocaine use remained the same from 2015 to 2017 at 1%, and the rates of heroin use decreased from 1% to <1% over the same time period.
- The reported use of hallucinogens decreased from 2015 (3%) to 2017(1%).
- The use of prescription drugs without a prescription also decreased -- from 4% to 2% for amphetamines (i.e., Adderall, Ritalin, etc), from 1% to <1% for steroids, and from 2% to 1% for depressants (i.e., Valium, Xanax) .

Other Illegal Drug among 7th and 8th graders

For students in grades 7-8, the reported rates of illegal drug use remain relatively low with little change from 2015 to 2017.

- Cocaine, less than 1%.
- Inhalants, less than 1%.
- Lifetime use of prescription painkillers to get high, less than 1%.
- Use without a prescription: steroids less than 1%; amphetamines (Ritalin, Adderall, Concerta) 1%; and painkillers (Percocet, Oxycodone, or Vicodin) 1%.

The rate of cocaine use among Brookline 9th-12th graders was considerably lower than state and national figures. Levels of heroin use were lower for Brookline (1%) than for Massachusetts and nationwide (5% for both). There was no comparable Massachusetts middle school data by drug type category; the State reports lifetime other drug use among students in 7th and 8th grade as 10%.

Tobacco among Brookline 9th-12th graders

In 2017, the survey question "ever used" was changed to include both tobacco cigarettes and electronic cigarettes, without differentiation. Rates of use among Brookline 9th-12th graders remain relatively low, with a decrease in most indicators from 2015 to 2017.

- The rate of first use of tobacco before age 13 remained the same from 2015 to 2017 at 2%.
- The rate of lifetime tobacco use increased from 15% in 2015 to 17% in 2017.
- Use in the past 30 days remained the same from 2015 to 2017 at 5%.
- The rate of recent use of chewing tobacco, snuff, or dip increased slightly, from 2% in 2015 to 3% in 2017.

Tobacco among 7th and 8th graders

- The reported rate of lifetime use of tobacco and or electronic cigarettes was 3%.Use of chewing tobacco was 1% in 2015 and less than 1% in 2017.
- The use of other forms of tobacco (ie: flavored products, cigarellos) decreased to 1% in 2017 from 4% in 2015.

At the high school level, the rate at which Brookline teens had ever used tobacco (17%) was lower than the state (29%) and national (31%) rates. Recent use of chewing tobacco, snuff and dip was lower as well -- Bookline 5%, state 8%, and national 11%.

Similarly, the Brookline 7th-8th grade rate of lifetime use (3%) was lower than the state rate (6%). Other tobacco measures were not collected at the state level for middle school students.

Violence-Related Behavior among 9th -12th graders

BHS 9th -12th graders reported fewer violence-related risk behaviors than their MA and US counterparts in several categories.

- The number of students who reported being bullied at school in the past 12 months was 13% in 2017, 9% in 2015, and 16% in 2013.
- Students reported having been electronically bullied in the past 12 months at a rate of 7%, as compared to 6% in 2015.
- Similar numbers of students in different grades reported being bullied at school --11% of seniors, 11% of juniors, 13% of sophomores, and 14% of freshmen.
- Likewise, similar number of students in different grades reported being **electronically** bullied-- 9% of seniors, 5% of juniors, 8% of sophomores, and 8% of freshmen.
- 19% of gay or lesbian students and 20% of bisexual students reported being bullied on school property compared to 12% hetereosexual students.
- Similarly, 27% of gay or lesbian students and 11% of bisexual students reported being **electronically** bullied as compared to 6% of heterosexual students.
- The percentage of students who reported sexual contact against their will was 6% in 2017, down from 7% in 2013 and 8% in in 2015.
- The percentage of students who reported being physically hurt on purpose by a boyfriend or girlfriend decreased from 5% in 2015 to 1% in 2017.
- The prevalence of students that reported hearing derogatory remarks regarding sexual orientation at school decreased from 68% in 2015 to 56% in 2017.
- The prevalence of BHS students that reported hearing derogatory remarks regarding racial, ethnic, immigrant, and /or religious groups was 70% in 2017. (This question was added for the for the first time in 2017.)
- Females in all grade levels were much more likely to have experienced sexual harassment at school -- 19% of twelfth graders, 20% of eleventh graders, 20% of tenth graders and 18% of ninth graders. Male rates were 3% of twelfth graders, 4% of eleventh graders, 6% of tenth graders and 3% of ninth graders.
- This trend was also true for sexual contact against a person's will, especially for females in their senior year -- 21% of twelfth graders, 9% of eleventh graders, 11% of tenth graders and 8% of ninth graders. Male rates were only 8% of twelfth graders, 3% of eleventh graders, 4% of tenth graders and 1% of ninth graders.

Violence-Related Behavior among 7th and 8th graders

- The reported rate of electronic bullying in the past 12 months was 8%, down from 13% in 2015 and lower than the state rate (15%).
- The rate of sexual contact against one's will was 1% in 2017, down from 6% in 2013 and 2% in 2015.
- 4% of students reported having been in a physical fight in the past 12 months that required treatment, as compared to 7% in 2015.

- The rate of students reporting hearing derogatory remarks regarding sexual orientation at school continued to decrease, from 59% in 2013, to 54% in 2015, and 47% in 2017.

Sexual Behavior among 9th -12th graders

The rate of Brookline 9th -12th graders who reported ever having had sexual intercourse continued to decline.

- In 2017, 18% of BHS students reported ever having had sexual intercourse, compared to 23% in 2013 and 21% in 2015. This rate is considerably lower than both the 2015 MA rate of 36% and US rate of 41%.
- Among sexually active BHS students, condom use during sexual intercourse slightly increased from 62% in 2015 to 66% in 2017. However, this is still a decrease from 75% usage in 2013.
- In 2017, 26% of BHS seniors reported engaging in sexual activity after using alcohol that they wouldn't have if they hadn't been drinking, compared with 17% of juniors, 10% of sophomores, and 4% of freshmen.

Sexual Behavior among 7th and 8th graders

The rate of Brookline 7th and 8th graders in 2015 who reported ever having sexual intercourse also declined.

- Two percent reported having ever had sexual intercourse, compared to 6% in 2013 and 2% in 2015.
- Among middle school students, 3% reported ever having participated in oral sex.

Mental Health among 9th -12th graders

- The rate of BHS 9th -12th graders who reported having felt overwhelming stress or anxiety during the past 12 months rose from 82% in 2015 to 84% in 2017.
- All grade levels experienced similar levels of overwhelming stress or anxiety in the last year -- 82% of seniors, 85% of juniors, 86% of sophomores and 83% of freshmen.
- Across all grade levels, more females than males reported stress and anxiety -- 96% of twelfth graders, 95% of eleventh graders, 93% of tenth graders, and 91% of ninth graders. Rates among males students were 65% in twelfth grades, 75% in eleventh grades, 78% in tenth grade and 77% in ninth grade.
- In 2017, 29% of students reported symptoms of depression (feeling so sad or hopeless for two or more weeks in a row that they stopped doing some usual activities), and 24% reported feeling suicidal in the past 12 months. These rates are an increase from 2015, when 25% reported symptoms of depression and 18% reported feeling suicidal.
- Females were more likely to report depression -- 48% of seniors, 41% of juniors, 35% of sophomores, and 35% of freshmen. Male rates of reported depression were considerably lower -- 12% of seniors, 24% of juniors, 16% of sophomores, and 20% of freshmen.

- Females were also more likely to report feeling suicidal -- 7% of seniors, 5% of juniors, 7% of sophomores, and 8% of freshmen. compare to 2% of senior boys, 2% of junior boys, 4% of sophomore boys, and 3% of freshmen boys.
- The rates of students who reported they seriously considered suicide and made a suicide plan in the past 12 months has doubled, from 2% in 2013 and 2015 to 4% in 2017.
- BHS students identifying as LGBTQ were more likely to report symptoms of depression than heterosexual students -- lesbian and gay (56%), bisexual (63%), and questioning (31%) students, as compared to heteretosexual (25%) students.
- In addition, 27% of gay or lesbian and 12% of bisexual students listed non-acceptance, intolerance, bullying, and/or harassment as their primary cause of stress, compared to only 4% of heterosexual students.

Mental Health among 7th and 8th graders

- At the middle school level, the percentage of 7th and 8th grade students who reported experiencing overwhelming stress or anxiety in the past year increased from 70% in 2015 to 79% in 2017.
- 11% reported ever having attempted self-harm (i.e cutting, burning) compared to 14% in 2015.
- 1% reported having EVER attempted suicide.

The 2015 Massachusetts state survey showed 4% of state middle school students (6th-8th) reported attempting suicide in the past 12 months.

Body Weight and Dietary Behaviors among 9th - 12th graders

The survey asked BHS students about their perceived body weight. Students were not asked about their actual body weight.

- Similar to prior years, 24% in 2017 described themselves as slightly overweight or very overweight. This is compared to 32% for both Massachusetts and the nation.
- Over the past 12 months, 4% reported they vomited or took laxatives, and 2% reported that they fasted to lose or maintain weight.
- Females were more likely than males in all grade levels to vomit or throw up on purpose after eating -- 10% of seniors, 5% of juniors, 9% of sophomores, and 4% of freshmen. No senior males or junior males reported these behaviors. Only 2% of freshman and sophomore males reported vomiting or throwing up on purpose.

Body Weight and Dietary Behaviors among 7th and 8th graders

- Among 7th and 8th graders, 20% describe themselves as slightly overweight or very overweight.

- For 7th and 8th graders, 2% of females and less than 1% of males reported vomiting or throwing up on purpose after eating during the past 12 months.
- Among 7th and 8th graders 1% reported that they had fasted to lose or maintain weight.

At the high school level, Brookline's rate of participation in one hour or more of cardiovascular activity for at least five days in the past week was the same as the MA rate of 45%, though it was lower than the national rate of 49%.

Physical Activity among 9th to 12th graders

The survey asked BHS students about the number of days in the past week they exercised.

- 45% reported participating in 60 minutes of cardiovascular activity for at least 5 of the 7 days.
- 59% reported participating in at least one BHS sports team in the past 12 months.
- 45% reported participating in one hour of cardiovascular activity for at least three days in the past week, up from 40% in 2015.

Physical Activity among 7th and 8th graders

The survey asked middle school students about the number of days in the past week they exercised.

- Among 7th and 8th graders, males were more likely to get regular physical activity (5 to 7 days) for a total of at least 60 minutes per day.
- Sixty-three percent of Brookline 7th and 8th grade students reported that on average they slept 8 or more hours, and 16% percent of students reported they slept 6 or less hours per night on average.

Use of Technology for Recreational Purposes among 9th - 12th graders

The survey questions pertaining to use of technology were updated to reflect the increase in platforms and viewing options. Due to changes in technology and viewing habits, the 2017 survey combined TV use with all other technology use.

- In 2017, 51 % of BHS students reported using technology for non-school related work for three or more hours a day with handheld devices. Prior years asked this question in two components -- TV or computer for non-school related work (i.e video games, Facebook, surfing the web). In 2015, 16% watched TV for three or more hours on an average school day, and 39% used computer for recreational purposes on an average school day.

Use of Technology for Recreational Purposes among 7th and 8th graders

- Eighth grade students were more likely to report spending 3 or more hours per day spent using TV, computer, phone or other handheld devices for non-school related activities: among males, 40% of 7th graders, and 47% of 8th graders. Among females, 41% of 7th graders and 56% of 8th grade males.

- Thirty-five percent of 7th and 8th graders reported that they have talked to people they don't know personally online. 6% reported that they had ever arranged an "in person" meeting with someone they met online. 12% ever felt threatened or scared when online.

Perceptions of Parental Disapproval among 7th through 12th graders

Students' perceptions of the level of parental disapproval appeared to affect their reported rates of use of alcohol and other drugs.

BHS students who believed their parents disapproved of their use of alcohol used significantly less alcohol on all indicators.

- Students who perceived no parental disapproval or slight parental disapproval were far more likely to have ever tried alcohol than those who perceived strong disapproval (66% and 59% respectively as compared to 24%), and far more likely to have reported recent use (66% and 59% as compared to 24 % perceiving strong parental disapproval).
- Of those who perceived no parental disapproval, 52% reported recent binge drinking, compared to 41% who perceived slight parental disapproval, and 13% who perceived strong parental disapproval.

BHS Students who believed their parents disapproved of their use of marijuana also used significantly less.

- Of those who perceived strong parental disapproval, 18% reported recent marijuana use, compared with 47% of those who perceived slight parental disapproval and 69% of those who perceived no parental disapproval.
- Of those who perceived strong parental disapproval, 5% reported heavy marijuana use, compared with 18% of those who perceived slight parental disapproval and 39% of those who perceived no parental disapproval.

Among 7th and 8th graders, most students reported that their parents strongly disapprove of their use of alcohol and marijuana.

Perception of Accessibility

- Generally as grade level increased, perceived ease of access (responses of fairly or very easy to access) of each type of drug increased. 69% reported ease of access to alcohol as compared to 72% in 2015, and 55% of BHS students said it would be fairly or very easy to access marijuana as compared to 53% in 2015 .

- Among 7th and 8th graders, 47% said that it would be fairly or very easy to access alcohol, and 25% said it would fairly or very easy to access cigarettes. The survey did not ask about ease of access to marijuana for middle school students.

Resiliency and Protective Factors

The survey includes questions pertaining to protective factors, including participation in athletics and other physical activity, extracurricular activities, academic performance, and having an adult to talk with about problems. This report looks at correlations between health risk behaviors and protective factors.

- The rate of students reporting participation on at least one BHS athletic team was 59%.
- The rate of students participating in volunteer work was 47% and extracurricular activities was 66%.
- The rate of students who said they had an adult to talk with about problems was 62%.

Brookline middle school resiliency and protective factors are included in the survey:

- Fifty-eight percent of 7th and 8th graders said they have at at least one adult they can talk to in school, and 88% said they have an adult they can talk to outside of school if they have a problem.
- In the past 12 months, 21% of middle school students participated in one sports team, 25% participated in two sports team, and 30% participated in three or more sports teams.

Student Demographics

HIGH SCHOOL DATA:

Total Surveys	1542
Complete Surveys	1289
Partially Completed Surveys	253
Grade	2017
9th grade	435
10th grade	311
11th grade	283
12th grade	288
Gender	
Female	51%
Male	49%

Students Race and Ethnicity:

- 66% White/Caucasian
- 25% Asian (including Native Hawaiian or Other Islander, Chinese, Japanese, Indian, Filipino, Taiwanese, Cambodian, Vietnamese, Korean, etc.)
- 10% Black/African American
- 10% Hispanic or Latino
- 5% Middle Eastern (Pakistan, Afghanistan, Lebanon, Syria, Turkey)
- 2% Armenian
- Less than 1% American Indian or Alaskan Native
- 3% other

Students residency in the US:

- 75% for have always lived in the US
- 14% for 7-14 years
- 4% for 4-6 years,
- 6% for 1-3 years,
- 2% for less than one year

Primary caretaker:

- 71% both parents
- 10% both parents (separately)
- 4% single and stepparent
- 14% single parent
- 2% other guardian
- Less than 1% foster parent, older sibling, and did not live with adult caretaker

MIDDLE SCHOOL DATA

Total Surveys	1067
Complete Surveys	950
Partially Complete	117
Grade	2017
7th grade	506
8th grade	431
Gender	
Female	49%
Male	50%
Intersex or non-binary	2%

Students race and ethnicity:

- 60% White/Caucasian,
- 24% Asian (including Native Hawaiian or Other Islander, Chinese, Japanese, Indian, Filipino, Taiwanese, Cambodian, Vietnamese, Korean, etc.),
- 12% Hispanic or Latino,
- 11% Black/African American,
- 6% Armenian,
- 6% Middle Eastern (Pakistan, Afghanistan, Lebanon, Syria, Turkey),
- 3% American Indian or Alaskan Native, and
- 10% other.

Students residency in the US:

- 76% for have always lived in the US
- 11% for 7-14 years
- 6% for 4-6 years
- 4% for 1-3 years
- 4% for less than one year

Primary caretaker:

- 76% both parents,
- 11% both parents (separately),
- 3% single and step parent,
- 8% single parent,
- less than 1% foster parent, other guardian, older sibling, not with adult caretaker

2017 Brookline High School Survey	Brookline	Brookline	Brookline	State	US
Survey Questions	2013	2015	2017	2015	2015
	(9th-12th)	(9th-12th)	(9th-12th)	(9th-12th)	(9th-12th)
	%	%	%	%	%
ALCOHOL USE					
Lifetime alcohol use	56	47	36	61	63
Alcohol use, past 30 days	35	27	30	34	33
Alcohol use before age 13	12	6	5	13	17
Binge drinking, past 30 days	19	18	13	18	18
Drinking during school day, past 30 days	5	2	15	3	N/A
Of students who drive, did you drive after drinking alcohol in past 30 days	3	N/A	6	9	8
Riding in vehicle with driver who has been drinking and was over 21	11 *(Over age 21)	12*(Over age 21)	16	18*(Driver age not specified)	20*(Driver age not specified)
Riding in vehicle with driver who has been drinking and was under 21	6	4	5		
MARIJUANA USE					
Lifetime marijuana use	34	27	26	41	39
Lifetime marijuana use, over 100 times	7	4	4	N/A	N/A
Marijuana use, before age 13	2	1	1	6	8
Marijuana use, past 30 days	21	16	17	25	22
Marijuana use during school day, past 30 days	9	5	6	5	N/A
OTHER ILLEGAL DRUG					
Lifetime cocaine use	4	1	1	5	5
Lifetime heroin use	3	1	>1	2	2

Lifetime use of Ritalin, Adderall, Concerta, amphetamines without a prescription	7	4	2	3*(Methamphetamine only)	3*(Methamphetamine only)
Lifetime steroid use without a prescription	3	1	<1	N/A	4
Lifetime use of hallucinogens, LSD, mushrooms, ketamine, ecstasy	8	3	1	4*(Ecstasy)	5*(Ecstasy)
Lifetime use of prescription painkillers to get high (Percocet, Oxycodone, Vicodin)	6	2	2	N/A	N/A
Lifetime use of depressants to get high (Klonopin, Valium, Xanax, Ativan)	4	2	1	N/A	N/A
Lifetime OTC cough/cold medicine use (to get high)	4	5	2	N/A	N/A
TOBACCO					
Ever used a tobacco product including cigarettes, cigars, smokeless tobacco, shisha or hookah tobacco, and electronic vapor products?	26	15	17	29	31
Started smoking tobacco cigarettes before age 13	5	2	2	4	7
Smoking tobacco cigarettes, past 30 days	10	5	5	8	11
Use of chewing tobacco, snuff, dip, past 30 days	4	2	3	6	N/A
Tried to quit smoking cigarettes (% of smokers)	39	27	20	N/A	45
VIOLENCE RELATED BEHAVIORS					
Carried a gun, past 30 days	4	1	<1	3	5
Carried weapon (such as knife or club) at school, past 30 days	4	2	2	3	4
Skipped school because felt unsafe, past 30 days	5	4	3	5	6

Heard prejudiced language/remarks made towards gays, lesbians, bisexual students, past 30 days	68	68	56	N/A	N/A
Heard negative or derogatory remarks about racial, ethnic, immigrant, and / or religious groups	N/A	N/A	61	N/A	N/A
Bullied at school, past 12 months	16	9	13	16	20
Electronically bullied, past 12 months	11	6	7	13	16
Sexual contact against one's will	7	8	6	6* (Forced sexual intercourse)	7 *(Forced)
Sexual contact against one's will, boyfriend or girlfriend	N/A	N/A	4	8	11
Girlfriend or boyfriend hit, slap, or physically hurt you on purpose, past 12 months	5	5	1	7	10
MENTAL HEALTH					
Felt overwhelming stress or anxiety occasionally or frequently, past 12 months	75	82	84	N/A	N/A
Felt sad, hopeless for 2 or more weeks, past 12 months	N/A	25	29	27	30
Felt suicidal, past 12 months	20	18	24	15*(Seriously considered suicide)	18* (Seriously considered suicide)
Seriously considered suicide and made a suicide plan, past 12 months	2	2	4	12*(Made a plan)	15* (Made a plan)
Attempted suicide that resulted in medical treatment, past 12 months	<1	1	<1	3	3
SEXUAL BEHAVIOR					
Ever had sexual intercourse	23	21	18	36	41
Sexual intercourse before age 13	3	1	1	3	4
Three or more sexual partners	7	6	5	8 *(4 or more partners)	12* (4 or more partners)

Usually use a condom during sexual intercourse (among sexually active students)	75	62	66	63	57
(Among students who have ever used alcohol) Engaged in sexual activity after using alcohol that you wouldn't have if you weren't drinking	14	8	21	22	21
BODY WEIGHT AND DIETARY BEHAVIORS					
Describe self as slightly or very overweight	22	23	24	32	32
Fasted for 24 hours or more to lose or maintain weight, past month	11	6	7	10	N/A
Took diet pills, powders, or liquids without Dr.'s advice to lose or maintain weight, past month	3	2	2	3	N/A
Ever vomited or took laxatives to lose or maintain weight, past 12 months	3	3	4	4* (Past month)	N/A
PHYSICAL ACTIVITY					
Participated in 60 minutes of cardiovascular activity for at least 5 of the 7 days	36	40	45	45	49
Participated on at least 1 BHS sports team, past 12 months	53	58	59	61	58
Watched 3 or more hours of TV on an average school day.	13 (TV)	16 (TV/Hulu/ Netflix	N/A	18	25
Used a computer, phone or other handheld device for non-school related activities for 3 or more hours (i.e videogames, Facebook, surfing the web) on an average school day	33 (Computer, phone, other handheld devices)	39 (Technology for recreational purposes)	51*	43	41
*TV was included in this question					
PROTECTIVE FACTORS					
Received mostly A's, B's and C's	86	95	96	76* (Mostly A's or B's)	N/A

Participated in volunteer work (at least 1 1 hour/month)	47	49	47	N/A	N/A
Participated in organized extra-curricular activities (at least 1 day in past week)	64	77	66	N/A	N/A
Has teacher or other adult in school with whom one can talk about problem	62	67	62	73	N/A

2017 Brookline Middle School Survey	**Brookline**	**Brookline**	**Brookline**	**Brookline**	**State**
Questions	**2011**	**2013**	**2015**	**2017**	**2015**
	(7th-8th)	(7th-8th)	(7th-8th)	(7th-8th)	(7th-8th)
	%	**%**	**%**	**%**	**%**
ALCOHOL USE					
Lifetime alcohol use	22	15	11	12	13
Alcohol use, past 30 days	8	6	4	N/A	4
Alcohol use before age 13	15	11	6	9	N/A
Riding vehicle with driver who had been drinking	8	8	11	4	9
Felt pressured to drink alcohol	9	8	3	6*	N/A
*unlike prior years, only asked of students who actually answered yes to any alcohol use					
MARIJUANA USE					
Lifetime marijuana use	6	5	2	2	6
Marijuana use before age 13	2	2	1	1	N/A
Marijuana use, past 30 days	4	4	1	>1	2
Felt pressured to use marijuana	10	6	3	32*	N/A
*unlike prior years, only asked of students who actually answered yes to any marijuana use					

OTHER ILLEGAL DRUG USE					
Lifetime other drug use*					10*
Lifetime cocaine use	1	2	<1	<1	N/A
Lifetime use of Ritalin, Adderall, Concerta, Amphetamines without a prescription	2	1	1	1	N/A
Lifetime steroid use without a prescription	1	1	2	<1	N/A
Lifetime use of sniffing glue, paints, or sprays to get high	6	4	1	<1	N/A
Lifetime use of prescription painkiller to get high (Percocet, Oxycontin, Vicodin)	1	2	1	<1	1* (Past 30 days)
Lifetime use of prescription drug that is not student's	N/A	2	2	<1	3
TOBACCO					
Ever used a tobacco product including cigarettes, cigars, smokeless tobacco, shisha or hookah tobacco, and electronic vapor products	9	5	3	3	6
Use of chewing tobacco, snuff, dip, past 30 days	2	2	p	<1	N/A
Use of other forms of tobacco (smoke-free, dissolvable, cigarillos, flavored cigarettes), past 30 days	2	4	4	1	N/A
Felt pressured to use tobacco products	9	7	4	N/A	N/A
VIOLENCE-RELATED BEHAVIORS					
Ever carried a weapon (gun, club or knife)	16	15	15	3	N/A
Access to a gun	5	5	3	3	N/A
Ever in a physical fight requiring treatment by doctor or nurse	5	5	4	7	N/A
Sexual contact against one's will	4	6	2	1	N/A

Deliberately hit, slapped, or physically hurt by boyfriend or girlfriend, past year	6	3	1	1	N/A
Heard prejudiced language/remarks made towards gay, lesbian, or bisexual students, past 30 days	80*(Location not specified)	59*(At school) 55*(Outside of school)	54*(At school) 61*(Outside school)	47*(At school) 45*(Outside school)	N/A
Heard negative or derogatory remarks about racial, ethnic, immigrant, and / or religious groups	N/A	N/A	N/A	46*(At school)	N/A
Electronically bullied, past 12 months	16	N/A	13	8	15
MENTAL HEALTH					
Felt overwhelming stress or anxiety, occasionally or frequently, past 12 months	71	69	79	76	N/A
Ever seriously thought about killing self	11	12	14	15	8*(‡(In past year)
Ever made a plan about how to kill self	7	10	10	3	N/A
Ever attempted suicide	3	4	4	1	4*(‡(In past year)
Ever attempted self- harm (i.e cutting, burning)	10	12	14	11	16*(‡(In past year))
SEXUAL BEHAVIOR					
Ever had sexual intercourse	6	6	2	2	N/A
Sexual intercourse before age 13	4	3	1	1	N/A
Three or more sexual partners	3	2	1	1	N/A
Usually use a condom during sexual intercourse (among sexually active students)	65	70	68	43	N/A
Participated in oral sex	8	5	4	3	N/A
Felt pressured to have sexual intercourse	7	9	4	25*	N/A

*Only asked of students who actually answered yes to having sexual intercourse					
BODY WEIGHT DIETARY BEHAVIORS					
Described self as slightly or very overweight	22	23	23	20	24
Fasted for 24 hours or more to lose or maintain weight, past 30 days	6	5	5	4	8
Took diet pills, powders, or liquids without Dr.'s advice to lose or maintain weight, past month	1	2	1	1	1
Ever vomited or taken laxatives to lose or maintain weight	2	4	3	<1	3*(‡(In past 30 days)
*State survey question combined fasting, vomiting, taking pills or taking laxatives					
PHYSICAL ACTIVITY					
Participated in at least 60 minutes of activity for at least 5 of the past 7 days (increased HR and breathed hard)	51	50	52	52	49
Watched 3 or more hours of TV on an average school day	16	14	19	NA	21
Used a computer, phone or other handheld device for non- school related work for 3 or more hours (i.e video games, Facebook, surfing the web, on an average school day)	28	34	33	46*	42
*TV was included in this question					

Alcohol Use

For the year 2015 in the United States, approximately 10,265 deaths resulted from the excessive use of alcohol.[1] Alcohol is a factor in approximately 29% of all deaths from motor vehicle crashes.[2] Among youth, the use of alcohol and other drugs additionally has been linked to unintentional injuries, physical fights, academic and occupational problems, and illegal behavior.[3] In 2015, 20% of students reported riding with a driver who had been drinking alcohol, and 9% reported driving after drinking in the past 30 days. [4]

Long-term alcohol misuse also is associated with liver disease, cancer, cardiovascular disease, and neurological damage, as well as psychiatric problems, such as depression, anxiety, and antisocial personality disorder.[5] Each year, approximately 4,300 people under the age of 21 die as a result of underage drinking. In 2010, about 189,000 emergency room visits by persons under age 21 for injuries and other conditions were linked to alcohol. [6]

Alcohol use by youths has been linked to delinquent behaviors, such as stealing, illicit drug use, and problems in school. Research also indicates that early drinkers are more likely than nondrinkers to engage in delinquent behaviors.[7] The way young people drink also results in harm to self and others, including: risky sexual behavior; physical and sexual assaults; potential deleterious effects on the developing brain; problems in school, at work, and with the legal system; various types of injury; car crashes; homicide and suicide; and death from alcohol poisoning.[6]

In the United States, 17 million people--about l in every 12 adults--abuse alcohol or are alcohol dependent. In general, more men than women are alcohol dependent or have alcohol problems, and alcohol problems are highest among young adults ages 18-29. [9]

Relatively new research indicates that the developing adolescent brain may be particularly susceptible to long-term negative consequences from alcohol use. Recent studies show that alcohol consumption has the potential to trigger long-term biological changes that may have detrimental effects on the developing adolescent brain, including cognitive impairment.[10]

Adolescents' attitudes about the risks associated with substance use are often closely related to their substance use, with an inverse association between drug use and risk perceptions (i.e., as the prevalence of risk perception decreases, the prevalence of drug use increases).[11] *Nationally, only 39% of adolescents perceived great risk from having five or more drinks of alcohol once or twice a week, remaining constant from 2008 to 2013.* The perception of risk decreased slightly in 2017 for 10th graders.[12, 13]

Nationally, from 2012 to 2016 alcohol use and binge drinking continued to show a significant five-year decline. However, there was no significant decline from 2016 to 2017[13]

In this report the following definitions were used:
Lifetime alcohol use: Any consumption of alcohol during one's life, other than a few sips with family or for religious purposes.
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

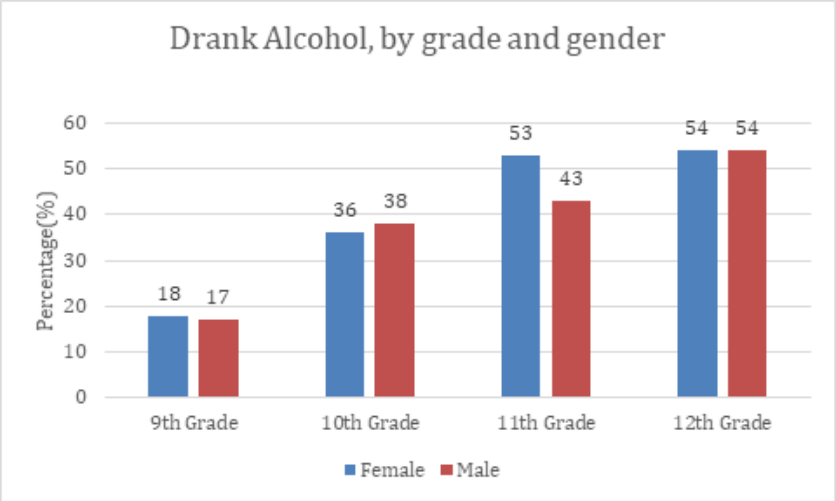
The Brookline Middle School and High School (BHS) 2017 Health Surveys asked 7th - 8th or 9th – 12th grade students, respectively, to report on their patterns of alcohol use, including lifetime and recent use, as well as age of first use. The High School survey included questions about binge drinking, driving after drinking, and alcohol use during the school day. Students were also asked about riding with a driver (both under age 21 or over 21) who had been drinking.

References
[1] - https://www.cdc.gov/motorvehiclesafety/impaired_driving/impaired-drv_factsheet.html
[2] - U.S. Department of Transportation. Fatality Analysis Reporting System (FARS) Web-based Encyclopedia.
[3] - Substance Abuse and Mental Health Services Administration. The relationship between mental health and substance abuse among Adolescents. Rockville, MD: Substance Abuse and Mental Health Services Administration, 1999.
[4] – Massachusetts Department of Elementary and Secondary Education. *2015 Health and Risk Behaviors of Massachusetts Youth*.
[5] - Naimi TS, Brewer RD, Mokdad A, Denny C, Serdula MK, Marks JS. Binge drinking among US adults. *JAMA* 2003;289:70-75.
[6] - https://www.cdc.gov/alcohol/fact-sheets/underage-drinking.htm
[7] - Office of Applied Studies. (2004). *Results from the 2003 National Survey on Drug Use and Health: National findings* (DHHS Publication No. SMA 04–3964, NSDUH Series H–25). Rockville, MD: Substance Abuse and Mental Health Services Administration.
http://oas.samhsa.gov/2k5/alcDelinquent/alcDelinquent.htm
[8] - NIH fact sheet *Underage Drinking*
http://www.nih.gov/about/researchresultsforthepublic/UnderageDrinking.pdf
[9] – National Institute on Alcohol Abuse and Alcoholism. (2014) *Alcohol Use Disorder* [online]. Retrieved December 2015, from
http://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/alcohol-use-disorders
[10] - U.S. Department of Health and Human Services. *The Surgeon General's Call to Action To Prevent and Reduce Underage Drinking*. U.S. Department of Health and Human Services, Office of the Surgeon General, 2017. (http://www.surgeongeneral.gov/topics/underagedrinking/calltoaction.pdf)

[11] - Palmgreen, P., & Donohew, L. (2006). Effective mass media strategies for drug abuse prevention campaigns. In Z. Sloboda & W. J. Bukoski (Eds.), *Handbook of drug abuse prevention* (pp. 27-43, Part II, Handbooks of Sociology and Social Research series). New York: Springer US.
[12] - Office of Applied Studies. (2014). *Results from the 2015 National Survey on Drug Use and Health: National findings* (DHHS Publication No. SMA 14-4863, NSDUH Series H-48). Rockville, MD: Substance Abuse and Mental Health Services Administration. (http://oas.samhsa.gov)
[13]. National Institutes of Health (Revised 2017). *NIDA InfoFacts: High School and Youth Trends.* [On-line] Retrieved on December 2015 from http://www.nida.nih.gov/infofacts/hsyouthtrends.html.

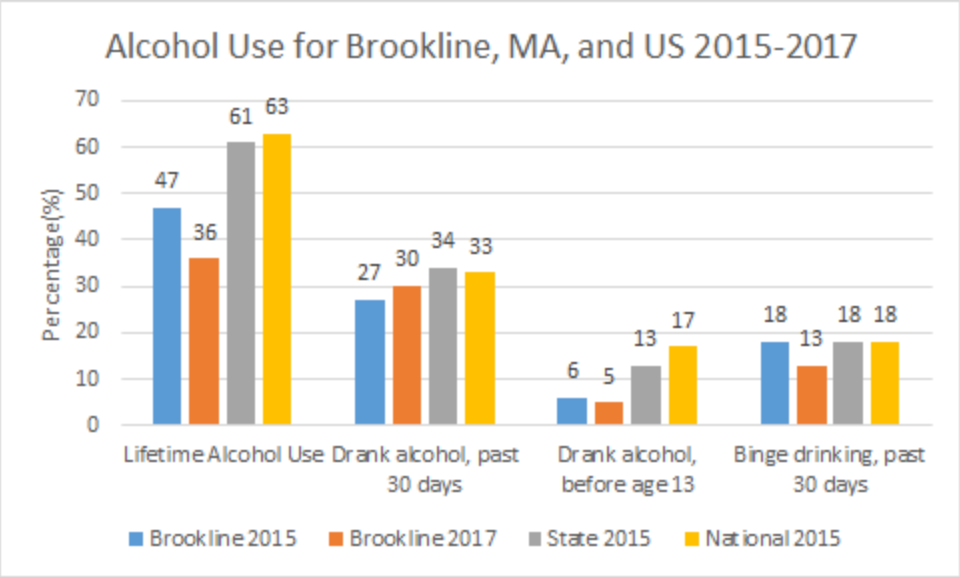
High School Data

- Alcohol lifetime use rates were 36% in 2017 -- down from 56% in 2013 and 47% in 2015. Males reported similar rates to females for different grade levels -- 54% of seniors, 43% of juniors, 38% of sophomores, and 17% of freshmen. Female rates reported -- 54% of seniors, 53% of juniors, 36% of sophomores, and 18% of freshmen.



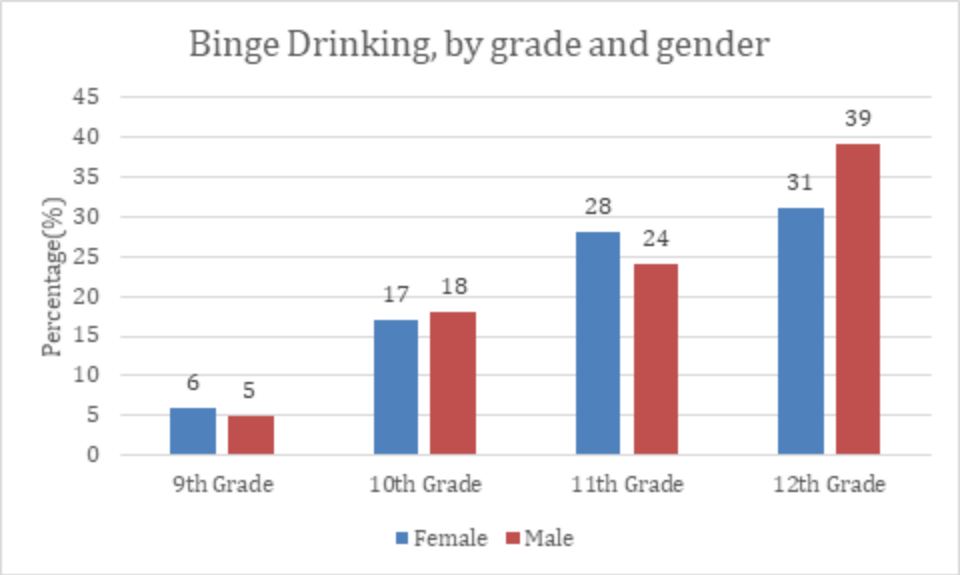
- First use of alcohol before age 13 decreased from 6% in 2015 to 5% in 2017. First use of alcohol before age 13 were 13% for the state of Massachusetts and 17% for the nation.

- Reported use of alcohol during the month prior to the survey was 30% in 2017, up from 27% in 2015. Alcohol use for the past 30 days was 34% for the state of Massachusetts and 33% for US.



- Reported rates of binge drinking in the past 30 days were 13% in 2017 for Brookline. Reported rates of binge drinking for both Massachusetts and the US were 18%.

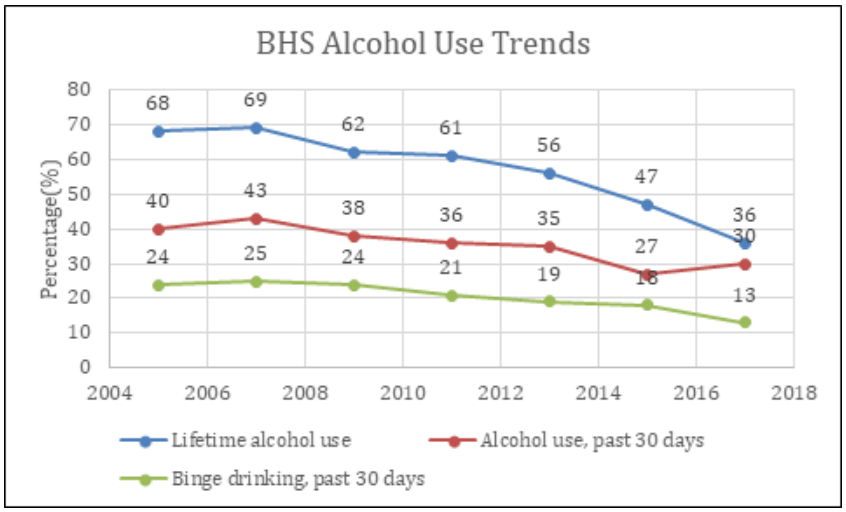
- Senior and sophomore males reported higher rates to females for their grade levels. Male rates were 39% of seniors, 24% of juniors, 18% of sophomores, and 5% of freshmen. Female rates reported -- 31% of seniors, 28% of juniors, 17% of sophomores, and 6% of freshmen. In general, binge drinking increased with grade level-5% of freshmen, 17% of sophomore, 26% of junior, and 35% of senior.



- Reported rates of drinking during the school day among BHS students were 15% in 2017, a notable increase from 2% in 2015. Drinking during school increased with the grade level - 9% of freshmen, 8% of sophomore, 16% of juniors, and 32% of seniors. This is higher than the 3% reported by the state. No statistics were available for the nation.

- The 2017 survey asked two questions about riding with a driver who had been drinking alcohol, distinguishing whether the driver was younger than or older than 21 years of age. Five percent of BHS students reported driving with a person younger than 21 who had been drinking, as compared to 16% who rode with someone over 21.

- Females were more likely to engage in sexual activity after drinking – 3% of freshmen, 6% of sophomores, 11% of juniors and 15% of seniors. Males – almost 1% of freshmen, 4% of sophomores, 6% of juniors, and 10% of seniors.



Middle School Data

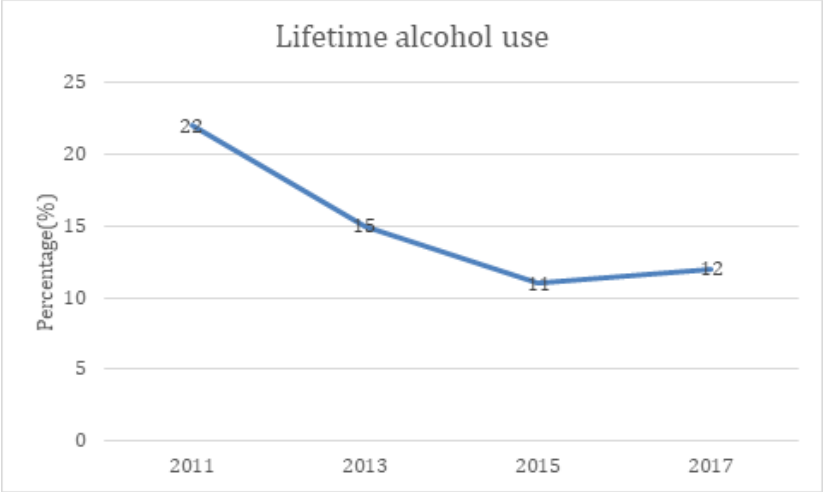
Note: There are no US middle school data for comparison.

- Among Brookline 7th and 8th graders, lifetime alcohol use rates were 15% in 2013, 11% in 2015, and 12% in 2017.

- In 2015 the state rate of lifetime alcohol use among 7th and 8th graders was 13% (10% for 7th graders and 14% for 8th graders).

- Stratified by gender for 7th graders, 10% of females and 9% of males had tried alcohol. Stratified by gender for 8th graders, 14% of females and 13% of males had tried alcohol.

- Rates of first use of alcohol before age 13 decreased from 11% in 2013 to 6% in 2015, but increased to 9% in 2017.



- 25% of 7th and 8th grade students who reported symptoms of depression had also tried alcohol as compared to 10% of 7th and 8th graders who did not report symptoms of depression.

Illegal Drug Use

Drug abuse and addiction have enormous negative consequences for individuals and society. Estimates of the total overall costs of illicit drug abuse in the United States, including productivity and health- and crime-related costs, approximate $700 billion.[1] More importantly, the use of illegal drugs can have a devastating impact on a person's health and safety, including injury, violence, unwanted sexual contact, teen pregnancy, school failure, and delinquency.

Marijuana, the most commonly abused illegal drug in the United States, can seriously affect adolescents in a number of ways, from short term effects to rewiring the developing brain to a variety of physical health effects, such as cancer and respiratory problems.[2] Recent research has shown the presence, in both mainstream and sidestream smoke of marijuana cigarettes, of known carcinogens and other chemicals implicated in respiratory diseases (similar to tobacco smoke).[3] Over the past three decades, the average amount of THC in marijuana has more than tripled, and studies show the drug -- whether smoked, vaped, or ingested -- to have addictive properties.

The short-term effects can include impaired short-term memory, attention, judgment, and other cognitive functions; difficulty in thinking and problem solving; loss of coordination and balance; and increased heart rate.[2] Students who smoke marijuana get lower grades and are less likely to graduate from high school, compared with their nonsmoking peers. [4] A number of studies have shown an association between chronic marijuana use and increased rates of mental health problems, including anxiety, depression, amotivational syndrome, and schizophrenia. Some of these studies have shown that the age at which marijuana is first used is an important risk factor, with early use a marker of increased vulnerability to later problems.[5] Chronic

marijuana use, especially in a very young person, may also be a marker of risk for mental illnesses - including addiction – for those with genetic or environmental vulnerabilities (such as early exposure to stress or violence).[6]

Evidence from both real and simulated driving studies indicates that marijuana can negatively affect a driver's alertness, concentration, reaction time, perception of speed, and ability to draw on information obtained from past experiences.[7] Data has shown that while smoking marijuana, people show the same lack of coordination on standard "drunk driver" tests as people who have had too much to drink. Youth who use marijuana are also more likely to drink alcohol, and a study from the National Highway Traffic Safety Administration found that while a moderate dose of marijuana alone was shown to impair driving performance, the effects of even a low dose of marijuana combined with alcohol were greater than for either drug alone.[8]

Many other illegal drugs are also used by a small percentage of adolescents in the United States, ranging from cocaine, heroin, and hallucinogens (e.g., LSD, peyote, psilocybin, and PCP), to over-the-counter and prescription drugs (used without a doctor's prescription). There are numerous negative physiological effects (e.g., irregular heartbeat, high body temperature, depressed brain function) associated with these drugs, and users may be at greater risk for developing a number of psychological problems (e.g., anxiety disorders, phobias, depression).[9]

While rates of use for harder drugs remain low among high school students, there is a growing heroin epidemic nationally as well as in Massachusetts. Early onset of use, and heavy marijuana use in adolescence put teens at risk of later becoming adult heroin users.[10]

According to the most recent national Monitoring the Future (MTF) study (2017), the annual prevalence of any illicit drug use among 8th, 10th, and 12th graders increased in 2017, reversing the trend over the past five years.[4] Annual use also increased for marijuana, inhalants, cocaine, and tranquilizers.[11]

The 2017 Brookline High School Health Survey asked questions about lifetime rates of a variety of illicit drugs, as well as rates of current drug use (marijuana or other), heavy use, and age of first use. In addition, students were asked to report if they used marijuana during the school day and if they drove a car or other vehicle after having used marijuana or drugs other than alcohol or marijuana. The Brookline Grades 7 and 8 Health Survey asked questions about lifetime and recent marijuana use, age of first use of marijuana, and lifetime use of other illegal drugs.

In this report, the following definitions were used:
Lifetime use: Any use during one's life.
Recent use: Any use within the 30 days prior to the survey.
Heavy use: Reported use 100 or more times in one's life.

Prescription painkillers: Use of prescription opiates (such as Percocet, Oxycontin, or Vicodin), to get high.
Ritalin, Adderall or Concerta, or any other amphetamines: Use of these drugs without a doctor's prescription.
Cocaine use: Use of any form of cocaine, including powder, crack or freebase.
Steroid use: Use of steroids (pills or shots) without a doctor's prescription.

References

[1] National Institute on Drug Abuse (2015). *Trends & Statistics*. National Institute of Health, [Online] Retrieved December 2015. http://www.drugabuse.gov/related-topics/trends-statistics

[2] National Institute on Drug Abuse (2010). *Research Report Series – Marijuana Abuse*. [Online] Retrieved December 2015 from http://www.nida.nih.gov/ResearchReports/Marijuana/Marijuana3.html.

[3]Moir, D., Rickert, W. S., Levasseur, G., Larose, Y., Maertens, R., White, P., & Desjardins, S. (2008). A comparison of mainstream and sidestream marijuana and tobacco cigarette smoke produced under two machine smoking conditions. *Chemical Research in Toxicology*, *21*(2), 494-502. Retrieved December 2015 from http://www.ncbi.nlm.nih.gov/pubmed/18062674.

[4]Neighmond, P. (2014, March 03). Marijuana May Hurt The Developing Teen Brain. Retrieved March 22, 2018, from https://www.npr.org/sections/health-shots/2014/02/25/282631913/marijuana-may-hurt-the-developing-teen-brain

[5]Lynskey, M. & Hall, W. The effects of adolescent cannabis use on educational attainment: A review. *Addiction* 95(11): 1621-1630, 2000.

[6] Marijuana and Public Health. (2017, April 13). Retrieved March 22, 2018, from https://www.cdc.gov/marijuana/factsheets/teens.htm

[7] National Institutes of Health (2010). *NIDA InfoFacts: Drugged Driving.* [On-line] Retrieved December 2015 from http://drugabuse.gov/infofacts/driving.html.

[8] National Institute on Drug Abuse. Prescription Medications. [online] Retrieved on December 2015 from http://www.drugabuse.gov/drugs-abuse/prescription-medications.

[9] Wu, Li-Tzy, Ringwalt, CL, Mannelli, P, Patkar, AA. Prescription Pain Reliever Abuse and Dependence among Adolescents: A Nationally Representative Study. *Journal of the American Academy of Child and Adolescent Psychiatry* 47(9):1020-1029, 2008.

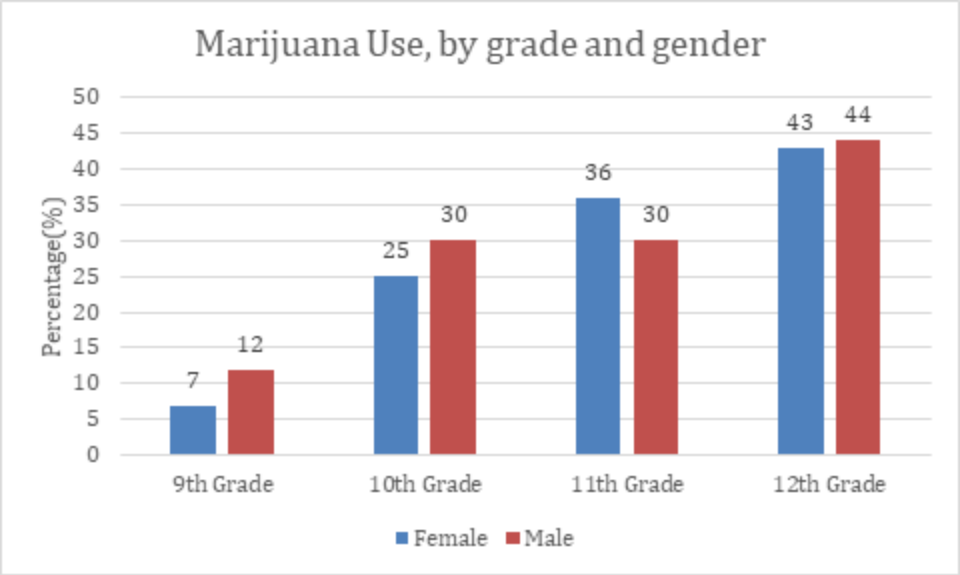
[10]A. (2017, February 27). Pediatricians step up warnings about marijuana use by teens. Retrieved March 22, 2018, from https://www.cbsnews.com/news/pediatricians-step-up-warnings-about-marijuana-use-by-teens/

[11] Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2018). Monitoring the Future national survey results on drug use: 1975-2017: Overview, key findings on adolescent drug use. Ann Arbor: Institute for Social Research, The University of Michigan.

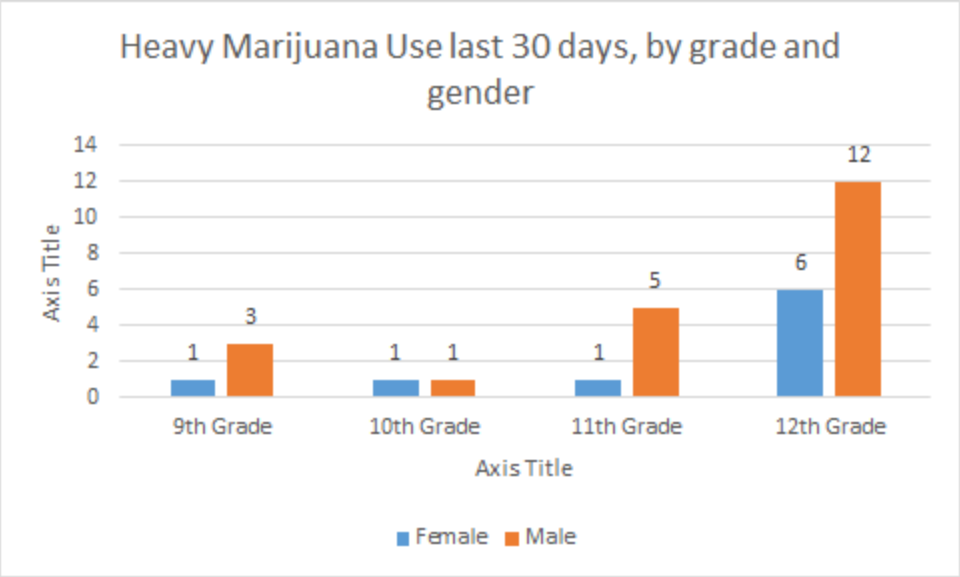
Marijuana Use

High School Data

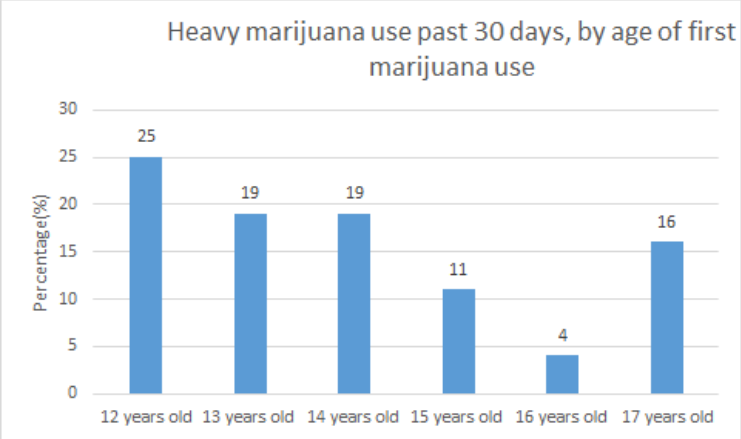
- In 2017, 26% of Brookline students in grades 9-12 reported ever having used marijuana, compared to 34% in 2013 and 27% in 2015. Males reported similar or slightly higher rates to females for all grade levels among except juniors.: 12% of freshmen, 30% of sophomores, 30% of juniors, and 44% of seniors. Among females reported 7% of freshmen, 25% of sophomore, 36% of junior and 43% of senior reported ever having used marijuana.



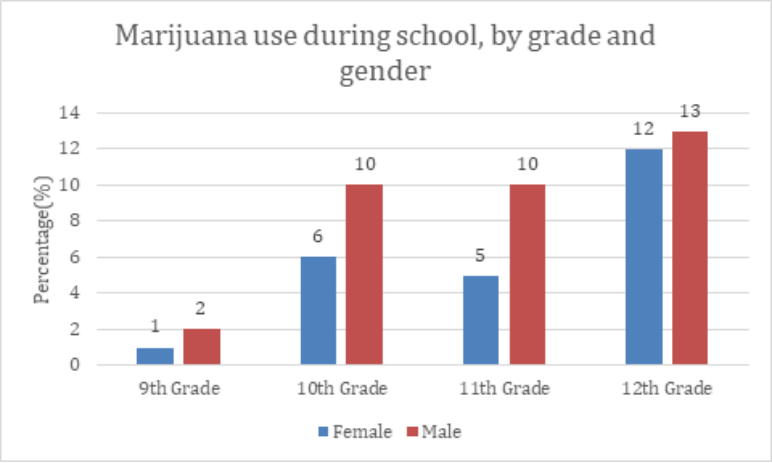
- Marijuana use during the month before the survey declined to 17% in 2017, as compared to 21% in 2013 and 16% in 2015. The average use during the prior month for Massachusetts was 25% and for the nation was 22%.
- Higher grade levels reported marijuana use in the last 30 days - 7% of freshmen, 16% of sophomores, 21% of juniors, and 32% of seniors.
- In 2017, 4% of BHS students reported using marijuana 100 or more times. Males reported higher rates of heavy marijuana use than females for different grade levels – 3% of freshmen, 1% of sophomore, 5% juniors and 12% of seniors. Female rates reported – 1% of freshmen, 1% of sophomore, 1% of junior, and 6% of senior.

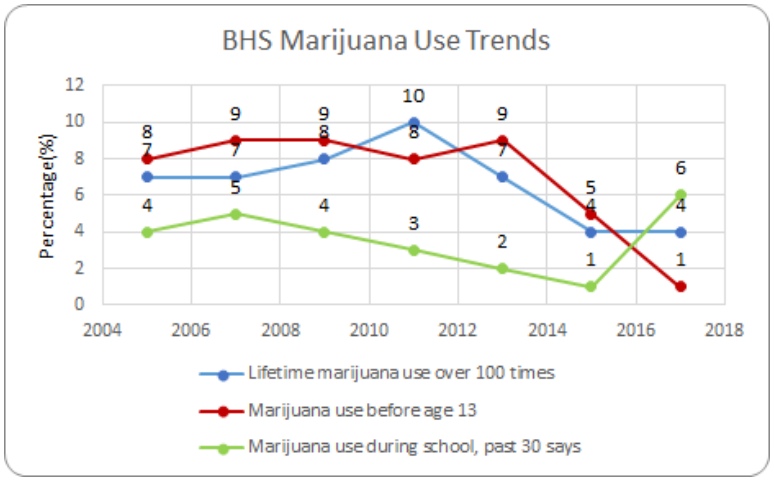


- Rates of first use before age 13 declined from 2% in 2013 to 1% in 2015, remaining consistent at 1% in 2017. This is lower than the state average of 6% and the nation average of 8%.
- Students who first tried marijuana at a younger age were more likely to have used marijuana more than 10 times in past 30 days. Twenty-five percent of students who had used marijuana by age 12 reported having used more than 10 times in the past 30 days, and 19% of those who had used by age 14 reported having used more than 10 times in the past 30 days.



- Six percent of Brookline High School students reported that they had used marijuana during the school day. Males reported higher rates of marijuana use during the school day than females: for freshman - 2% of males as compared to 1% of females; for sophomores - 10% of males as compared to 6% of females; for juniors - 10% of males as compared to 5% of females; and among seniors - 13% of males as compared to 12% of females.





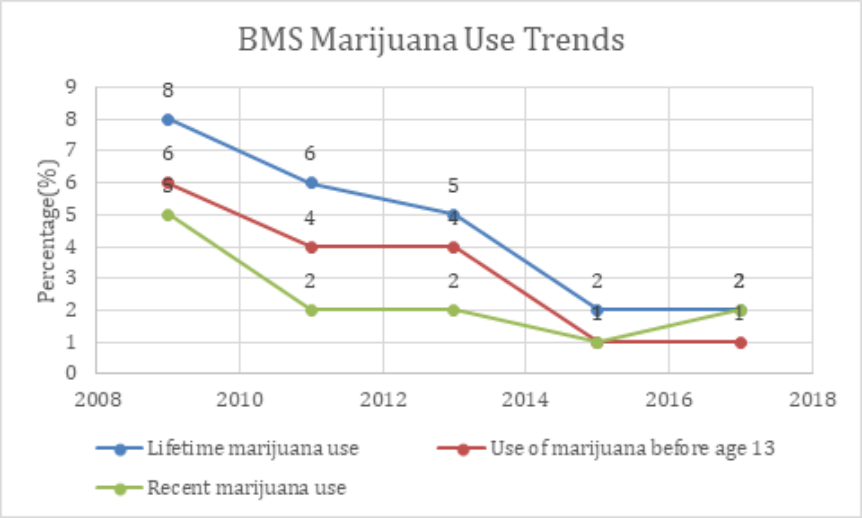
Middle School Data

Note: There are no US middle school data for comparison.

- Among Brookline 7th and 8th graders, lifetime marijuana use rates were 2% in 2017 and 2015, and 5% in 2013.

- Lifetime marijuana use rates were 1% for 7th graders and 3% for 8th graders. Stratified by gender and grade, 1% of female 7th graders, 2% of male 7th graders, 1% of female 8th graders and 4% of male 8th graders had used marijuana.

- Reported use of marijuana in the month prior to the survey was less than 1% in 2017.
- Rates of marijuana use before age 13 were 2% in 2013, 1% in 2015, and 1% in 2017.



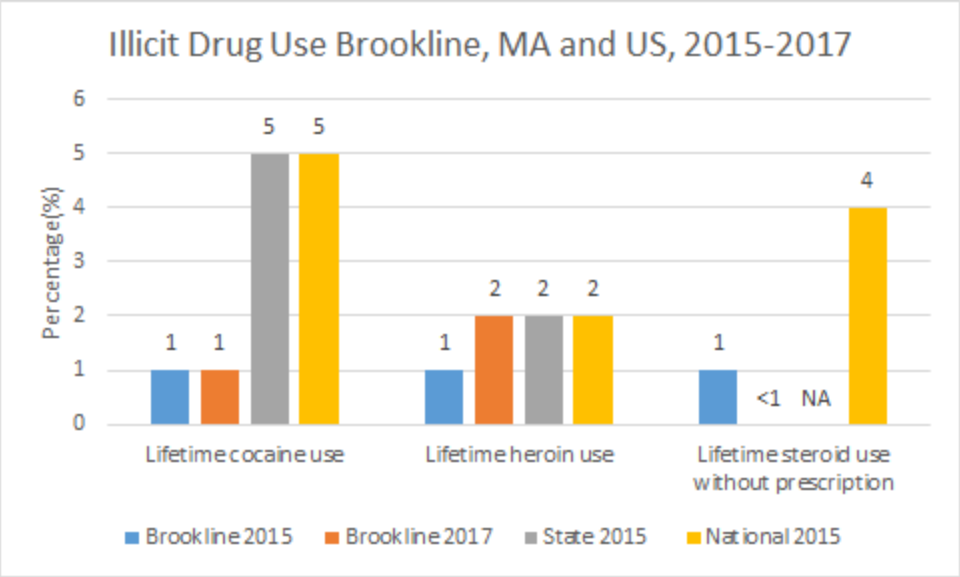
- Among 7th and 8th graders who reported that they had used marijuana, 41% reported symptoms of depression as compared to 14% of students who had not used marijuana.

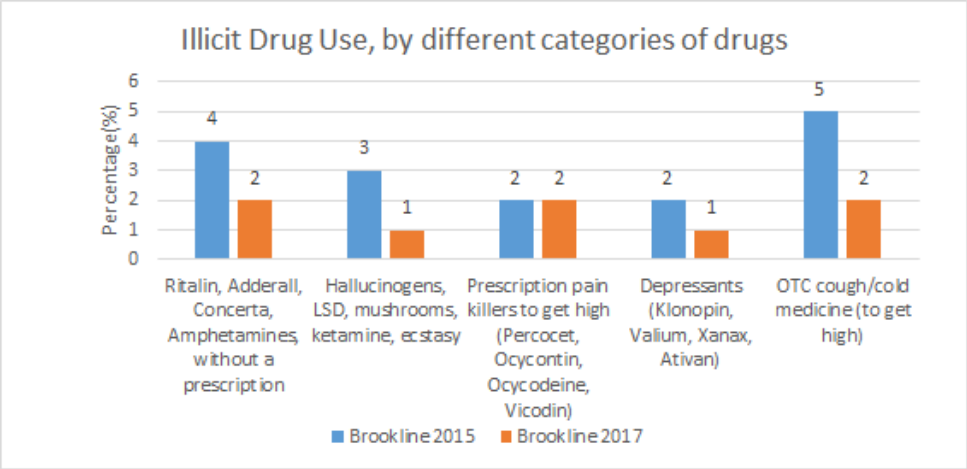
<u>Other Illegal Drug Use</u>

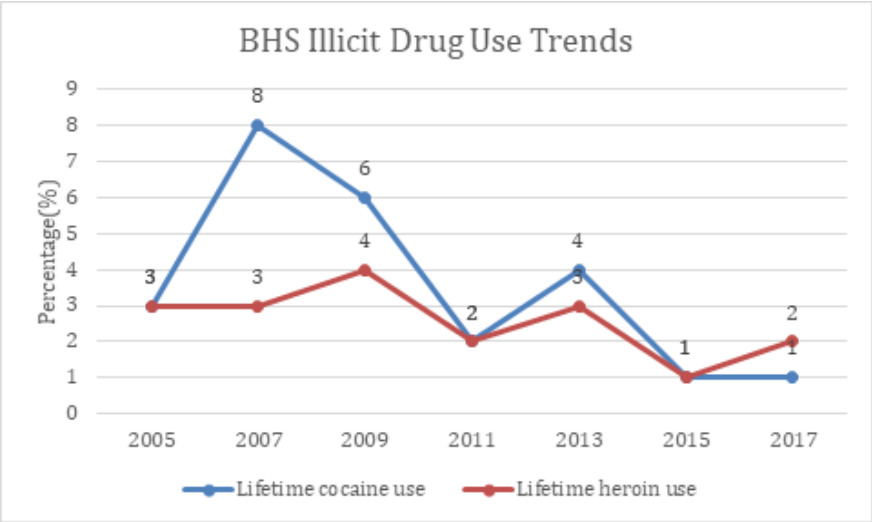
High School Data

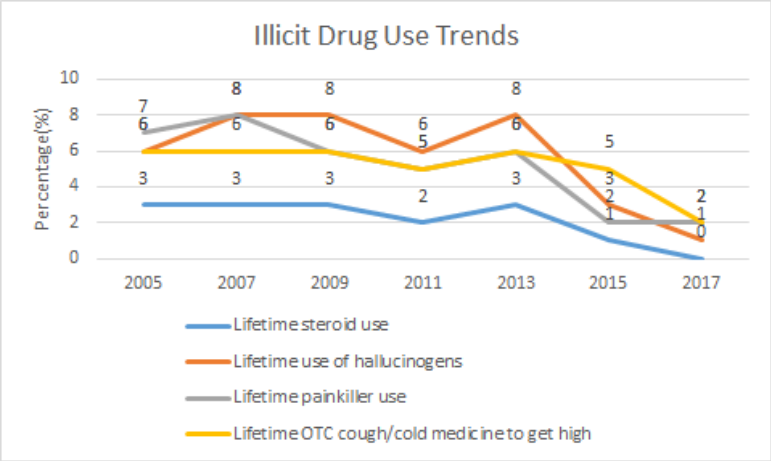
Note: The only comparable questions on the state and national surveys are about cocaine, heroin and steroids.

- Reported rates of cocaine use remained the same from 2015 to 2017 at 1%. This is lower than the state and nation average of 5%.
- The rates of heroin use decreased from 1% to <1% over the same time period. This is lower than the state and nation average of 2%.
- The use of steroids decreased from 1% to <1% for steroids.
- The use of prescription drugs without a prescription also decreased -- from 4% to 2% for amphetamines (i.e., Adderall, Ritalin, etc.)
- The use of depressants (i.e., Valium, Xanax) decreased from 2% to 1%.
- The reported use of hallucinogens decreased from 2015 (3%) to 2017 (1%). The only information collected at the state and nation level for hallucinogens was for the use of ecstasy. In the year 2017, the lifetime use of ecstasy was 4% for Massachusetts and 5% for US.
- The use of prescription painkillers (i.e Percocet, Oxycodone, Vicodin) stayed the same from 2015 to 2017 at 2%.
- The use of OTC cough / cold medicine to get high decreased from 2015 (5%) to 2017 (2%).


Illicit Drug Use Brookline, MA and US, 2015-2017
Percentage(%)
6
5
4
3
2
1
0
1
1
5
5
1
2
2
2
1
<1
NA
4
Lifetime cocaine use
Lifetime heroin use
Lifetime steroid use without prescription
Brookline 2015
Brookline 2017
State 2015
National 2015


Illicit Drug Use, by different categories of drugs
Percentage(%)
6
5
4
3
2
1
0
4
2
3
1
2
2
2
1
5
2
Ritalin, Adderall, Concerta, Amphetamines, without a prescription
Hallucinogens, LSD, mushrooms, ketamine, ecstasy
Prescription pain killers to get high (Percocet, Ocycontin, Ocycodeine, Vicodin)
Depressants (Klonopin, Valium, Xanax, Ativan)
OTC cough/cold medicine (to get high)
Brookline 2015
Brookline 2017


BHS Illicit Drug Use Trends
Percentage(%)
9
8
7
6
5
4
3
2
1
0
3
8
6
2
4
1
3
3
4
3
1
2
2005
2007
2009
2011
2013
2015
2017
Lifetime cocaine use
Lifetime heroin use

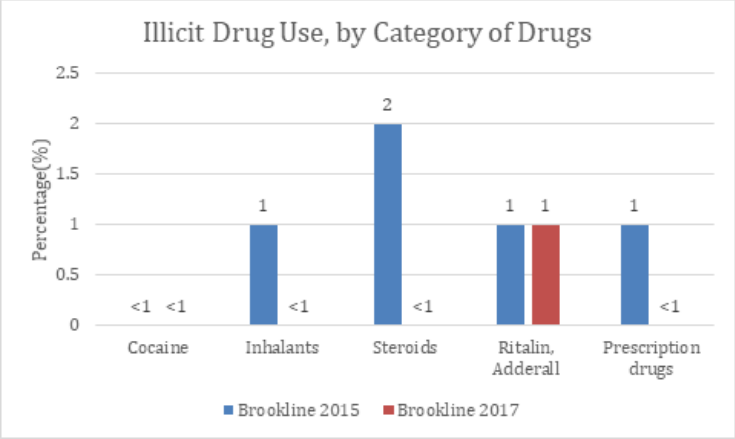


Middle School Data

Note: There are no Massachusetts or US middle school data for comparison.

- For students in grades 7-8, the reported rates of illegal drug use remain relatively low, one percent or less, with little change from 2015 to 2017.
    - Cocaine was less than 1% in 2017.
    - Inhalants were less than 1% in 2017.
    - Lifetime use of prescription painkillers to get high was also less than 1% in 2017.
    - The use of steroids (without a prescription) was less than 1% in 2017.
    - The use of amphetamines (Ritalin, Adderall, Concerta) without prescription was 1% in 2017.
    - The use of painkillers (Percocet, Oxycodone, or Vicodin) was less than 1% in 2017.

- In the statewide middle school survey, several illicit drugs were put together in one question, including cocaine, inhalants, amphetamines, methamphetamines, and steroids, and the reported rate of use was 10% in 2017.



Tobacco Use and Electronic Cigarettes

Tobacco use is the leading *preventable* cause of disease, disability, and death in the United States even though smoking rates have declined to half the 1964 level.[1,] Nearly 40 million US adults still smoke cigarettes, and 4.7 million middle and high school students use some form of tobacco product daily.[2] About half a million people die prematurely because of smoking each year.[2] Cancer, stroke, and chronic respiratory illness are the leading causes of death each year. Since tobacco decreases lung function, even with short-term use, it can increase absenteeism among students. Additionally, smokeless tobacco use (chewing tobacco or snuff) causes oral cancer and other health problems.[3]

Tobacco use among young people poses especially serious risks. Adolescent tobacco use not only threatens health, but it is also associated with drinking, illegal drug use, and poor school performance. 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.[4] From 2013 to 2015, survey results showed decreases in several measures, including ever tried cigarette smoking, smoked a whole cigarette before age 13 years, currently smoked cigarettes, currently smoked cigarettes frequently, and currently smoked cigarettes daily. No changes were observed for currently used a smokeless tobacco or tried to quit smoking.[5,8] Still, about one-fifth (20.8%) of U.S. high school students have used some form of tobacco in the past year.[6]

Indicators of cigarette smoking have significantly declined among Massachusetts high school students since 1995 to 2015 (e.g., the decrease is from 23.9% in 2009 to 15.8% in 2015).[8] The downward trend has been observed for cigars and smokeless tobacco as well. Males are more likely to smoke in all categories. Some subgroups, however, report higher use, including those considering suicide, receiving academic grades of mostly C's, D's or F's, and self-identified as gay, lesbian, bisexual, or transgender.[8]

Brookline is a smoke-free community, and town law now states that smoking is illegal in restaurants and lounges, public places and retail establishments, most worksites, and within 400 feet of Brookline High School buildings. Tobacco retailers must have permits to sell tobacco and are periodically monitored to determine whether they are selling tobacco to minors. Additionally, in 2014 Brookline raised the legal age for purchase tobacco products to 21, and in 2015 the town passed a warrant article to include e-cigarettes in all town tobacco regulations.

However, even though cigarette smoking per se is down in Brookline, the use of e-cigarettes and vape pens is significantly on the rise. The cartridge-filled vape pens especially are being marketed to kids as fun, downplaying any risk. Without fumes or visible vapors to give them away, they are providing an accessible and sneaky way for kids to smoke tobacco and marijuana. The pens come in a wide range of sizes and looks (from a fake cigarette style to a USB drive) and they can be filled with a huge variety of e-juices, from fruity to nicotine-based. When these liquids, in a mixed chemical base, are heated in the battery-powered pen, they emit a vapor that the user inhales like a cigarette. Even young kids who would never consider smoking tobacco might be lured by the sweetness of some of the liquids to try vaping, misperceiving that these juices

contain no nicotine and are therefore harmless. In addition, vape pens are increasingly being used as delivery methods for marijuana.

The 2017 Brookline High School Health Survey asked students to report their history and current use of cigarettes and their recent use of all tobacco products, and about their attempts to quit smoking, as well as age of first use. The Brookline Grades 7 and 8 Health Survey asked similar questions.

In this report the following definitions were used:
Lifetime use of any tobacco products: including cigarettes, cigars, smokeless tobacco, shisha, or hookah tobacco, and electronic vapor products
Recent use of tobacco: Any cigarette smoking or electronic vapor products in the 30 days before the survey.
Recent use of chewing tobacco, snuff or dip: Any use of these products in the 30 days before the survey.
Recent use of other forms of tobacco: Any use of tobacco other than the above, such as smoke-free and dissolvables (like Snus and Orbs), tip cigars, cigarillos, or other flavored cigars (like Phillies Blunt or Black and Mild).

References

[1] https://www.drugabuse.gov/drugs-abuse/tobacconicotine-e-cigs

[2] https://www.cdc.gov/tobacco/data_statistics/index.htm

[3] 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.

[4] 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.

[5] Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2014). Monitoring the Future national results on adolescent drug use: Overview of key findings, 2013. Ann Arbor, MI: Institute for Social Research, The University of Michigan.

[6] SAMHSA, Center for Behavioral Health Statistics and Quality. National Survey on Drug Use and Health, 2014. [online] Retrieved on November 23, 2015 from http://www.samhsa.gov/data/sites/default/files/NSDUH-FRR1-2014/NSDUH-FRR1-2014.pdf.

[7] https://www.cdc.gov/healthyyouth/data/yrbs/pdf/trends/2015_us_tobacco_trend_yrbs.pdf

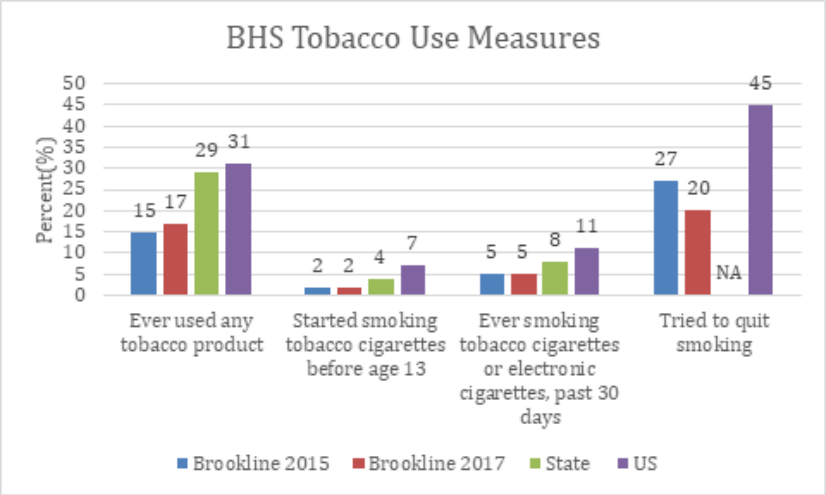
[8] http://www.mass.gov/eohhs/docs/dph/tobacco-control/youth-tobacco-report-2015.pdf

Tobacco Use and Electronic Cigarettes

In the 2017, the survey question "ever used " changed to include both tobacco cigarettes and electronic cigarettes, without differentiation.

High School Data

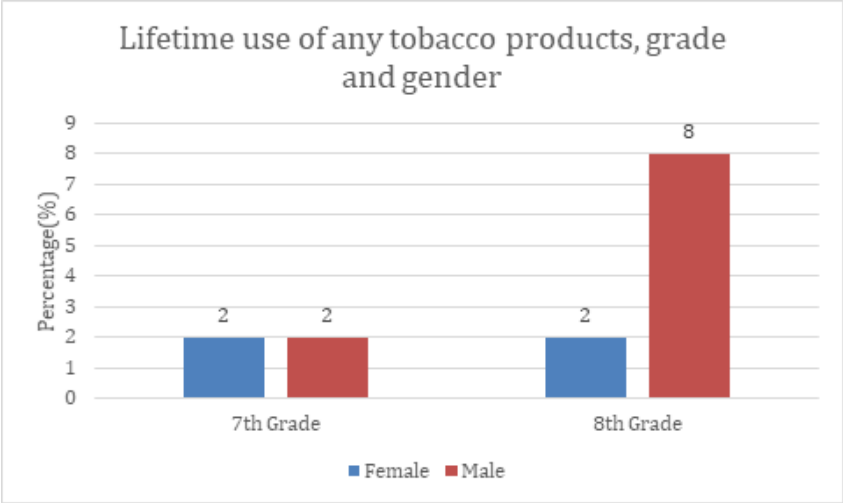
- The rate of lifetime tobacco use increased from 15% in 2015 to 17% in 2017. However, it is lower than the average for Massachusetts of 29% and the average for US of 31%. 19% of males and 17% of females had ever used any tobacco products.
- The rates of first use of tobacco before age 13 remained the same from 2015 to 2017 at 2%.
- Use in the past 30 days remained the same from 2015 to 2017 at 5%. The state average was 8%.
- In 2017, 20% of BHS smokers had tried to quit smoking cigarettes at least once, as compared to 27% in 2015.



- The rate of recent use of chewing tobacco, snuff, or dip was 3% in 2017 as compared to 2% in 2015. This is less than the state average of 6%.

<u>Middle School Data</u>

- The reported rate of lifetime use of tobacco and or electronic cigarettes was 3%. By grade and gender, 2% of male 7th graders, 2% of female 7th graders, 4% of male 8th graders and 2% of female 8th graders reported ever used any form of tobacco.

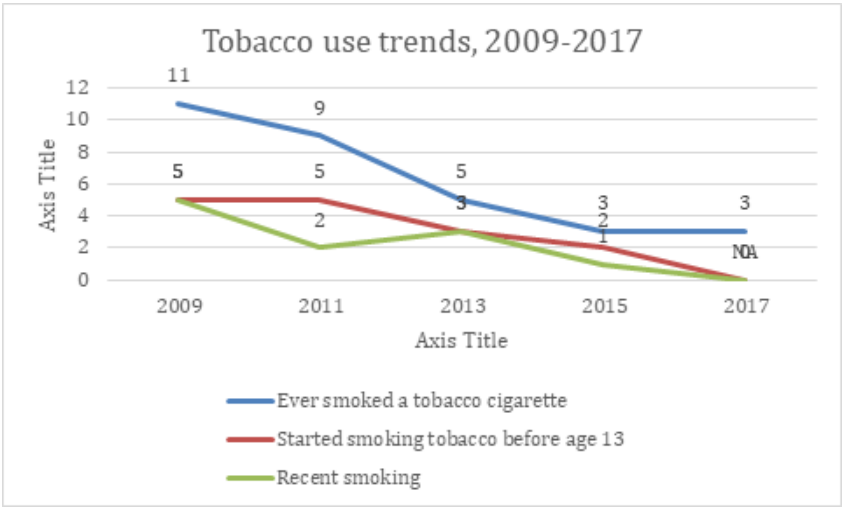


- The number of students who reported having smoked either a tobacco cigarette or e-cigarette at least once in the last month was 5% in 2015 and 3% in 2017.

- The number of students who reported having smoked either a tobacco cigarette or e-cigarette before age 13 was 2% in 2015 and >1% in 2017

- Use of chewing tobacco was 1% in 2015 and less than 1% in 2017.

- The use of other forms of tobacco (ie: flavored products, cigarellos) decreased to 1% in 2017 from 4% in 2015.



For the first time in 2017, the national "Monitoring the Future" survey asked high school students about vaping specific substances. Past-year vaping was reported by 13% percent of 8th graders, 24% of 10th graders, and 28% of 12th graders nationally.

Automobile Safety Behaviors:

High School Data:

- When driving a car, 94% of BHS students always wear seatbelts, 4% wear seatbelts most of the time, <1% wear seatbelts sometimes, <1% wear seatbelts rarely, and <1% wear seatbelts never.
- When someone else is driving, only 63% of BHs students always wear a seatbelt, 23% most of the time, 6% sometimes, and 3% rarely or never.
- 95% of BHS students did not ride in a car or other vehicle driven by someone under 21 who had been drinking alcohol in the past 30 days. 5% of students did ride in a vehicle with someone under 21 who had been drinking alcohol for 1 or more time.
- 84% of BHS students did not ride in a car or other vehicle driven by someone over 21 who had been drinking alcohol in the past 30 days, while 16 % did.
- Among BHS students who drive, 83% did not drive a car or another vehicle while drinking alcohol during the past 30 days, while 17% did.
- Among BHS students who drive, 72% did not drive a car or another vehicle while using marijuana during the past 30 days, 28% did.
- Among BHS students who drive, 42% did not drive a car or another vehicle while using a cellphone or other handheld device (iPod, iPad, Blackberry, etc) during the past 30 days. However, 58% did.

Middle School Data:

- 70% of Brookline middle school students always wear seatbelts, 22% wear seatbelts most of the time, 6% wear seatbelts sometimes, 2% wear seatbelts rarely, and 1% wear seatbelts never.
- 87% of BMS students did not ride in a car or other vehicle driven by someone who had been drinking alcohol in the past 30 days, while 13% of students did.
- 94% of BMS students did not ride in a car or other vehicle driven by someone who had been using marijuana in the past 30 days. while 6% did.

Physical Safety and Violence-Related Behaviors

Violence related behaviors such as carrying weapons, fighting, and bullying, pose serious risks to the health and safety of young people. Nationally, homicide is the third leading cause of death for young people aged

15 to 24 (behind only unintentional injury and suicide).[1] In the United States in 2013, there were an average of over 12 youth (age 10-24) homicide victims per day.[1] Of these youth, 86% of 10 to 24-year-old victims were killed by firearms.[2] According to the nationwide 2015 Youth Risk Behavior Survey, 22% of high school students reported involvement in a physical fight, and more than 6% had been threatened or injured by a weapon within 12 months of the survey.[8] According to Massachusetts Youth Risk Behavior Survey (2015), 19% reported involvement in a physical fight within 12 months of the survey, and 4% had been threatened or injured by a weapon within 12 months of the survey.[3]

According to the American Academy of Pediatrics, adolescents are more likely to experience sexually violent crimes than any other age group.[4] Sexual violence, including sexual coercion and assault, can have a devastating impact on healthy psychological development.[5] Teen dating violence has serious long-term consequences, both in itself and as a possible precursor to adult domestic violence. 1 in 5 female college students are survivors of sexual assault.[5] 70% of women sexually assaulted on a college campus knew the perpetrator.[5]

In the past several years, national, state, and local attention has been directed towards the bullying of young people. Bullying is generally defined as the repeated and intentional intimidation, harassment, or physical harm of victims who are perceived as unable to defend themselves. A large government initiative directed towards children, parents, and educators began in 2010.[6] The American Academy of Pediatrics maintains that bullying is not merely a normal part of growing up and can lead to serious physical and mental health consequences.[7] Nationally, 20% of high school students report being bullied in the past 12 months on school property.[8] More females reported being bullied in the past 12 months. Females were more likely to be bullied irrespective of grade level or race and or ethnicity.[8]

Attention has been paid to the internet, cell phones, and social networking as emerging venues for electronic bullying or cyberbullying. Cyberbullying is when a person under 18 years old is tormented, threatened, harassed, humiliated, embarrassed, or otherwise targeted by another child under 18 years old using the internet or other digital technology including cell phones.[6] Cyberbullying is different from in-person bullying in several ways. It allows for anonymity, rapid information dissemination, separation of the victim and perpetrator, and has a lack of adult oversight.

The 2017 Brookline High School and Middle School Health Surveys asked questions about bullying, electronic bullying, weapon-carrying, physical fighting, perceived safety at school, and dating violence. Perceived safety questions included questions about witnessing derogatory remarks made about gay, lesbian, bisexual, and transgendered people. Perceived safety questions also included questions about witnessing derogatory remarks about different races and ethnicities.

In this report, the following definitions were used:
Past 12 months or past year: Participation in the reported behavior at least once during the 12 months prior to the survey
Recent or past month: Participation in the reported behavior on at least one of the 30 days prior to the survey.
Ever: Participation in the reported behavior at any time during the student's lifetime.
Electronic Bullying: Bullied through e-mail, chat rooms, instant messaging, websites, or texting (cell phones)
Carried a weapon: The high school survey—all non-firearm weapons like knives or clubs. The middle school survey—inclusive of all weapons including firearms like guns.

References

[1] Center for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WIQARS)[online]. (2014). Available from www.cdc.gov/injry

[2] Kann L, McManus T, Harris WA, et al. Youth Risk Behavior surveillance- United States, 2015 MMWR Morb Mortal Surveil Summ. 2015; 65(SS-06):1-174. Available from http://www.cdc.gov/mmwr/volume/65/ss/pdfs/ss6506.pdf

[3] Massachusetts Department of Education and Massachusetts Department of Public Health. (2015) Health and Risk Behaviors of Massachusetts Youth.

[4] American Academy of Pediatrics (2008). Care of the Adolescent Sexual Assault Victim. Pediatrics, 122 (2) pp 462-470.

[5](Washington Post-Kaiser Family Foundation Survey, 2015; Krebs, Lindquist, Berzofsky, Shooks-Sa & Peterson 2016; Cantor et al., 2015)

[6] Department of Health and Human Services, Department of Education, and Department of Justice. www.stopbullying.gov Accessed: December 2015.

[7]American Academy of Pediatrics (2009). Role of the Pediatrician in Youth Violence Prevention, 124 (1) pp 393-402.

[8] Centers for Disease Control and Prevention. [2015] Youth Risk Behavior Survey. Available at: www.cdc.gov/yrbs.

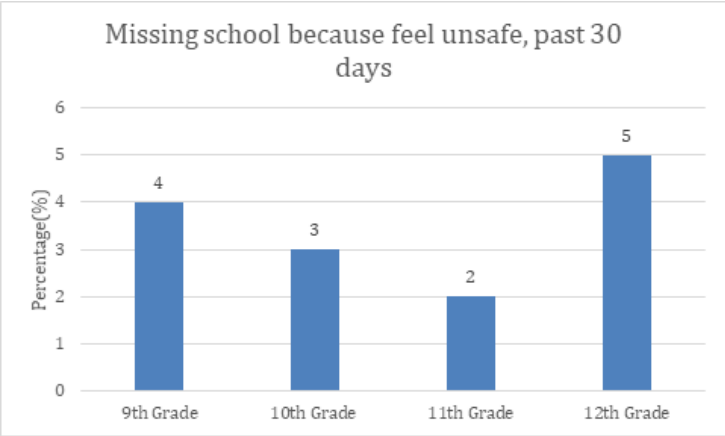
[9]Parks, SE, Johnson LL, McDaniel DD, Gladden M; Centers for Disease Control and Prevention (2014). Surveillance for violent deaths - National Violent Death Reporting System, 16 states, 2010. Morbidity and Mortality Weekly Report Surveillance Summary, 63(1): 1-33.

Physical Safety and Violence-Related Behaviors

High School Data

- 17% of BHS students have felt unsafe at home or in the community in the past month.

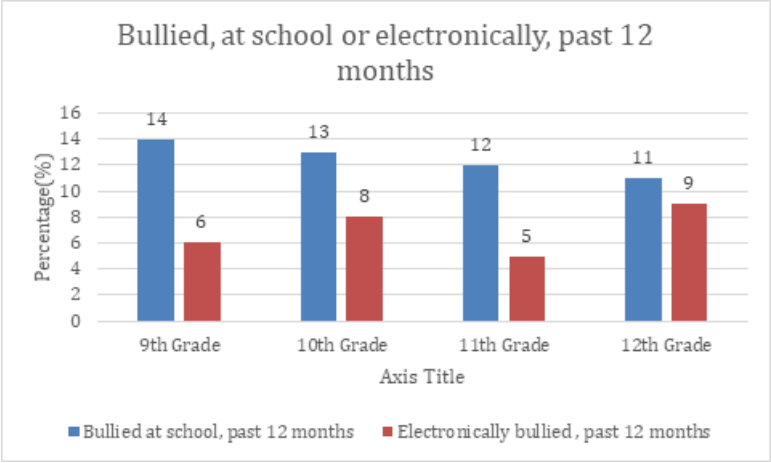
- Three percent of BHS students reported missing school because of feeling unsafe in the past month as compared to 4% in 2015. It is comparable to the state (5%) and national (6%) prevalence. All grade levels reported nearly the same percentage of students missing school because of feeling unsafe in the past month – 4% of freshmen, 3% of sophomore, 2% of juniors, and 5% of seniors.



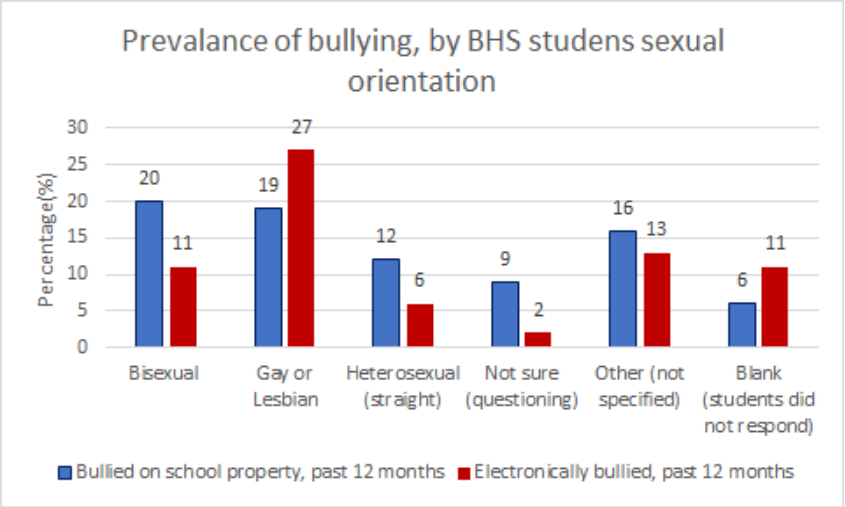
- The number of students who reported being **bullied at school** in the past 12 months was 13% in 2017, 9% in 2015, and 16% in 2013. Bullying at school decreased with higher level grades: 14% of freshmen, 13% of sophomore, 12% of juniors, and 11% of seniors.

- Students reported having been **electronically** bullied in the past 12 months at a rate of 7%, as compared to 6% in 2015. Electronic bullying remained steady for the grades - 8% of freshmen, 8% of sophomores, 5% of juniors, and 9% of seniors.

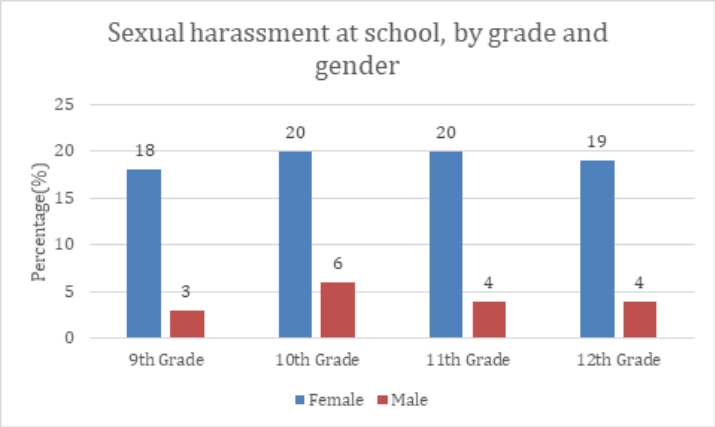
- Rates of being bullied in school and electronically were higher for gay, lesbian, and bisexual students: 43% of gay or lesbian students and 26% of bisexual students reported being bullied **on school property,** compared to 12% hetereosexual students. 27% of gay or lesbian students and 11% of bisexual students reported being **electronically** bullied, as compared to 6% of heterosexual students.



- Of the 15% of students who reported that they were bullied, one third reported that they did not tell anyone.
- 5% were in a physical fight on school property in the past 12 months.
- The 2017 overall prevalence for BHS students having carried a weapon (like a knife or club) on school property within the 30 days prior to the survey was 2%. This has remained the same since 2015.
- At the High School level, Brookline's rates (2%) of students carrying a weapon at school were lower than state (13%) and national rates (16%). Similarly, Brookline's rates (less than 1%) of students carrying a gun were lower than state (3%) and national rates (5%).
- Less than 1% of BHS students reported having carried a gun in the past month. This has declined from 1% in 2015. In 2015, state and national figures were 3% and 5%, respectively.
- The prevalence of students that reported hearing derogatory remarks regarding sexual orientation at school decreased from 68% in 2015 to 55% in 2017.
- The prevalence of BHS students that reported hearing derogatory remarks regarding racial, ethnic, immigrant, and /or religious groups was 70% in 2017. (This question was added for the for the first time in 2017.)
- Twenty-seven percent of gay and lesbian students and 11% of bisexual students report being bullied in the past year, as compared to 6% of heterosexual students. Gays or lesbians (43%) and bisexuals (26%) reported higher rates of having been bullied on school property in the past 12 months, compared to heterosexual students (10%).

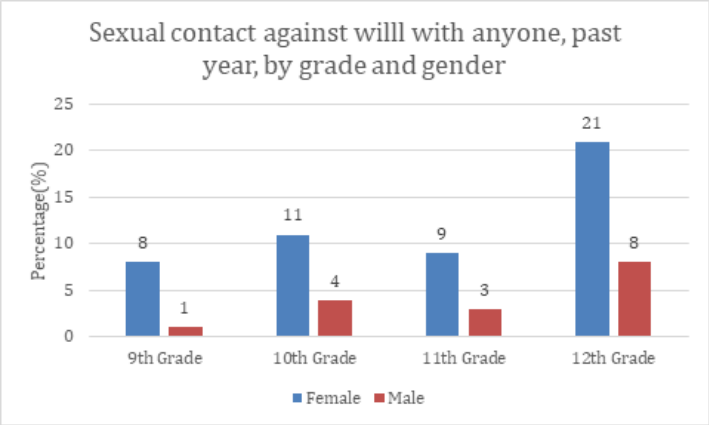


- The survey asked about sexual harassment at school for the first time in 2017. Sexual harassment was higher for females at all grade levels – 18% of freshmen females compared to 3% of freshmen males, 20% of sophomore females compared to 6% of sophomore males, 20% of junior females compared to 4% of junior males, and 19% of senior females compared to 4% of senior males.



- BHS Students were asked if anyone has ever had sexual contact against their will. In 2017, 6% reported they had experienced sexual contact against their will, as compared to 8% in 2015 and 7% in 2013.

- **Sexual contact against their will with anyone** was higher for females than males – 8% for freshmen females compared to 1% for freshmen males, 11% of sophomore females compared to 4% of sophomore males, 9% of junior females compared to 3% of junior males, and 21% of senior females compared to 8% of senior males.



- 4% of Brookline students reported that they experienced **forced sexual contact with someone they were dating** or going out with in 2017. Forced sexual contact with a date was higher for females than males - 4% of freshmen females compared to 0% of freshmen males, 8% of sophomore females compared to less than 1% of sophomore males, 2% of junior females compared to 1% of junior males, and 8% of senior females compared to 4% of senior males.

- 1% of BHS students had someone they were dating or going out with physically hurt on purpose, including being hit, slammed into something, or injured with an object or weapon.

Middle School

Note: There are no US middle school data for comparison.

- Three percent of Brookline 7th-8th grade students reported having *ever* carried a weapon (including gun, knife, or club) to school.

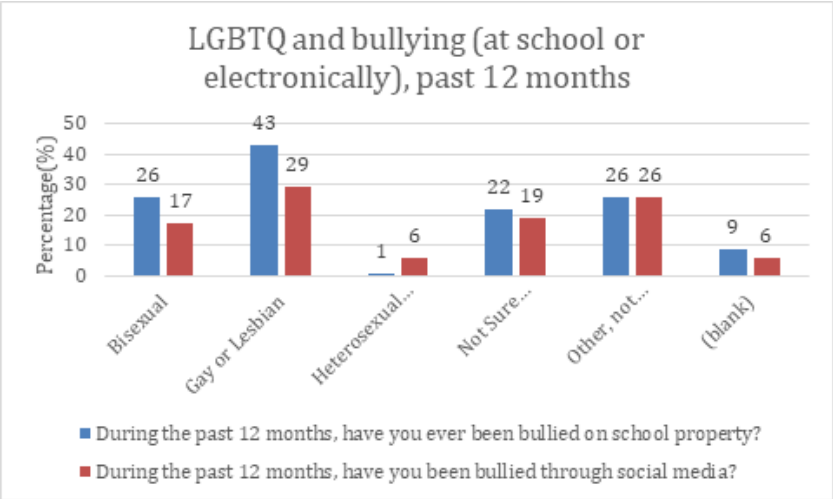
- Three percent of middle school students report having access to a gun. This is the same as the prevalence in 2015.

- Seven percent of Brookline 7th-8th grade students report having *ever* been in a physical fight that resulted in injury and required medical treatment.

- 12% have been bullied on school property during the past 12 months (one or more students tease, threaten, spread rumors about, hit, shove or hurt another student over and over again).

- Gays or lesbians (43%) and bisexuals (26%) reported higher rates of having been bullied on school property in the past 12 months than heterosexual students (1%).

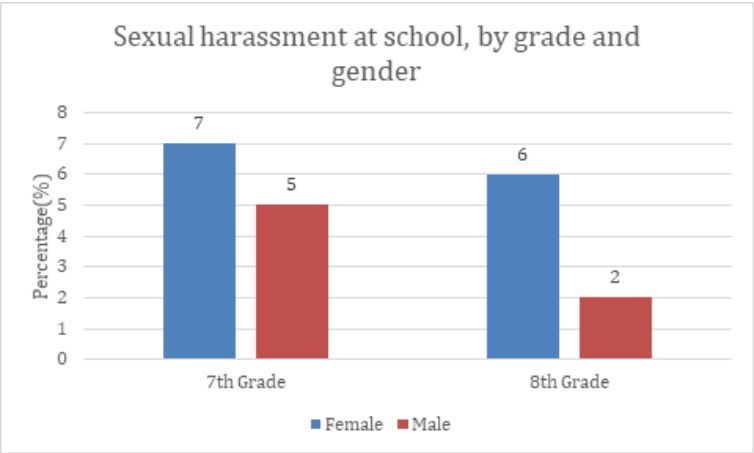
- The reported rate of electronic bullying in the past 12 months was 8%, down from 13% in 2015 and lower than the state rate (15%). Gay/lesbian (29%) and bisexual (17%) students reported significantly higher rates of electronic bullying than heterosexual students (6%).



- Of the 18% of students who reported they had ever experienced some form of bullying, close to a half told a parent or guardian, and one third did not tell anyone.

- Seven percent of Brookline 7th-8th grade students report having *ever* been in a physical fight that resulted in injury and required medical treatment.

- For the first time the survey asked about sexual harassment at school. Females reported higher rates of sexual harassment at school than males – 7% of 7th grade females compared to 5% of 7th grade males, and 6% of 8th grade females compared to 2% of 8th grade males.



- Less than 1% of of Brookline 7th-8th grade students reported ever having been hit, slap or physically hurt on purpose by a boyfriend or girlfriend.

- 8th grade females reported higher rates of sexual contact against their will – 3% of 8th grade females compared to less than 1% of 8th grade males. 7th grade females reported less than 1% of sexual contact against will. Similarly, 8th grade males reported less than 1% of sexual contact against will.

- Forty-seven percent of 7th and 8th grade students reported hearing negative comments about gay, lesbian, bisexual, or transgendered people **at school** in the past 30 days, down from 54% in 2015.

- 45% of 7th and 8th graders reported having negative comments towards gay, lesbian, bisexual, or transgendered people while **outside of school** incidents were down from 61% in 2015.

Sexual Behavior

Many adolescents engage in sexual activity that may pose a serious threat to their health and 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 sexually transmitted diseases (STDs), including Human Immunodeficiency Virus (HIV), the virus that causes AIDS.

The teen birth rate for the United States in 2015 was 22.3 per 1,000 females aged 15-19, down 11% from 2014.[1] This follows the recent years' trend of declining birth rates.[1] The number of births attributed to teenage mothers was 229,715.[1] The rate of teen pregnancy and also teen abortion are lower now than they have been in the past 40 years. Most of the decline has been attributed to increased contraceptive use, although a small portion is due to a reduction in sexual activity.[2] Massachusetts follows national trends with declining teen birth rate. In 2015, the state's teen birth rate reached an all time low of 9.4 per 1000 women, a decline of 56% since 2007, which was 21.4 births per 1,000 women.[1]

Sexually transmitted diseases contribute to illness and death among adolescents, young adults, and newborns. According to the Center for Disease Control, one half of the twenty million new STD infections each year occur among young persons between the ages of 15 and 24.[3] Furthermore, one in four sexually active adolescent female has an STD such as chlamydia or human papilloma virus (HPV).[4] Compared to adults, teenagers are at higher risk of these diseases due to behaviors, biology, and teenage culture.[4] Adolescent females are more susceptible than older women to STDs and may suffer severe consequences, including pelvic inflammatory disease, ectopic pregnancy, infertility, and cervical cancer.[4]

Research has shown that formal, comprehensive sexual education programs that instruct students on the value of postponing sexual activity and the correct use of condoms are successful in delaying the onset of

sexual activity and increasing condom use among youth.[5] 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.[6,7]

The 2017 Brookline High School Health Survey posed questions about age at first sexual intercourse, number of sexual partners, forced sexual contact, condom usage, and sexual behavior that occurred after alcohol use.

The 2017 Brookline Middle School Health Survey posed questions about oral sex, age of first sexual intercourse, number of sexual partners, condom usage, and pressure to have oral sex and sexual intercourse.

References

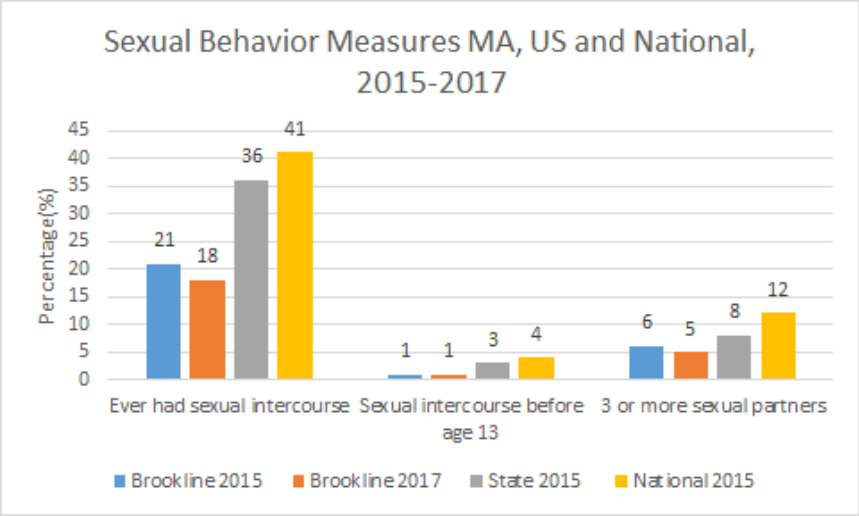
1 J A MArtin, BE Hamilton, M J K Osterman, A K Driscoll, T J Mathews. Births: Final Data for 2015. Vol 66 Num 1. January 2017. https://www.cdc.gov/nchs/data/nvsr/nvsr66/nvsr66_01.pdf
2 Santelli JS et al., Explaining recent declines in adolescent pregnancy in the United States: the contribution of abstinence and improved contraceptive use, *American Journal of Public Health,* 2007, 97(1):150–156.
3https://www.cdc.gov/std/life-stages-populations/adolescents-youngadults.htm
4 https://www.cdc.gov/std/stats16/adolescents.htm
5 Mueller TE, Gavin LE, Kulkarni A., (2008) The association between sex education and youth's engagement in sexual intercourse, age at first intercourse, and birth control use at first sex. *J Adolesc Health* 42(1).
6 Hadley, W., Brown, L., Lescano, C., Kell, H., Spalding, K., DiClemente, R., Donenberg., et al. (2009). Parent-adolescent sexual communication: Associations of condom use with condom discussions. *AIDS Behavior*. 13(5): 997-1004.
7 Blake, S., Simkin, L., Ledsky, R., Perkins, C., Calabrese, J., (2001) Effects of a parent-child communications intervention on young adolescents' risk for early onset of sexual behavior. *Family Planning Perspectives*. 33: 52-62.
8http://www.mass.gov/eohhs/docs/dph/research-epi/teen-births-2013.pdf

Sexual Behavior

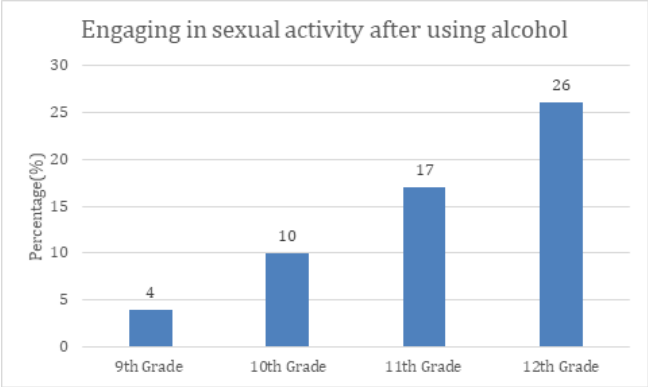
High School Data

- In 2017, 18% of BHS students reported ever having had sexual intercourse, compared to 23% in 2013 and 21% in 2015. This rate is considerably lower than both the 2015 MA rate of 36% and US rate of 41%.

- In 2017, 5% of BHS students reported having intercourse with 3 or more sexual partners.

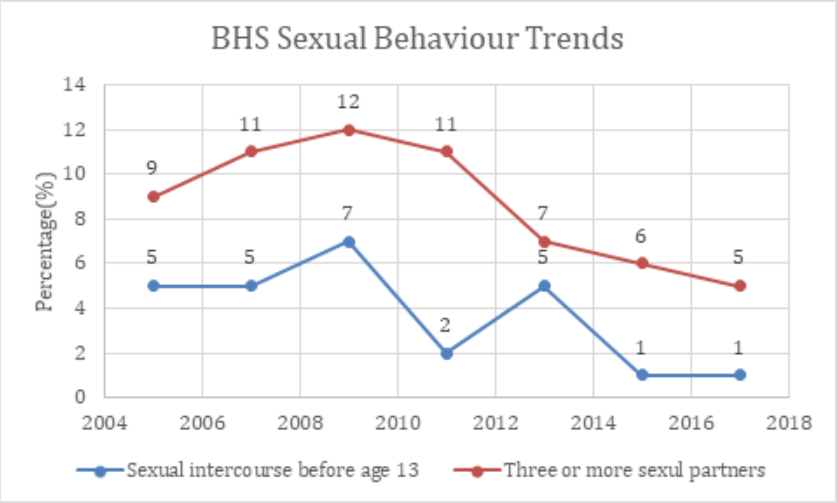


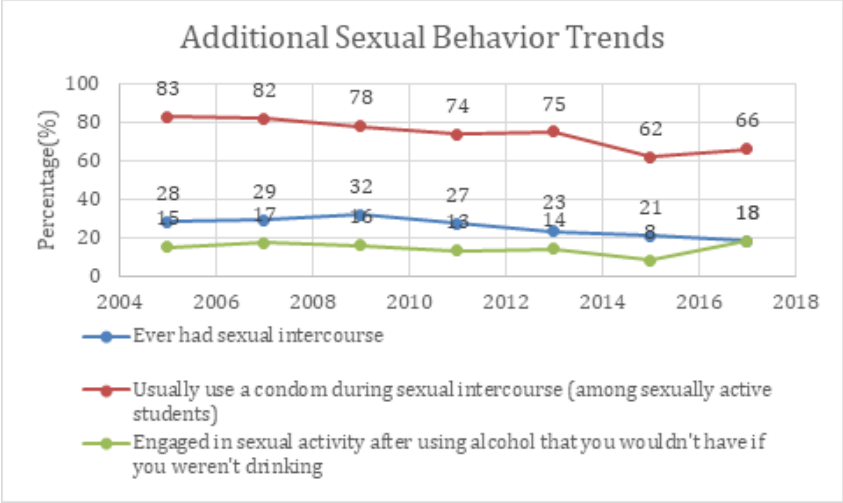
- In 2017, 26% of BHS seniors reported engaging in sexual activity after using alcohol that they wouldn't have if they hadn't been drinking, compared with 17% of juniors, 10% of sophomores, and 4% of freshmen.



- Among sexually active BHS students, condom use during sexual intercourse slightly increased from 62% in 2015 to 66% in 2017. However, this is still a decrease from 75% usage in 2013.

- Those who recently engaged in binge drinking were less likely to use a condom. 62% of students who reported recent binge drinking usually used condoms as compared to 67% of students who had not recently engaged in binge drinking.

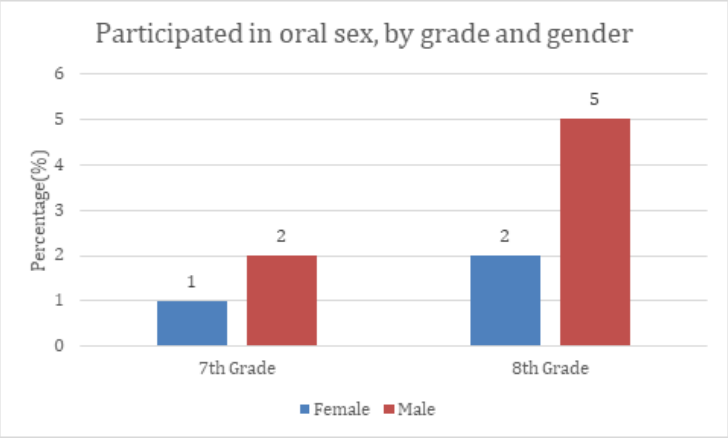




Middle school data:

- Two percent reported having ever had sexual intercourse, compared to 6% in 2013 and similar to 2% in 2015. 8th grade boys reported higher rates of sexual intercourse than girls: 4% of 8th grade boys and 1% of 8th grade girls.

- Among middle school students, 3% reported ever having participated in oral sex. More males than females reported having participated in oral sex: 2% of 7th grade boys, as compared to 1% of 7th grade girls, and 5% of 8th grade boys as compared to 2% of 8th grade girls.



Mental Health

As of 2015, suicide is the second leading cause of death nationally for 15 to 24 year olds and third leading cause of death for 10 to 14 year olds.[1] It accounted for 5,491 deaths for 15 to 24 year olds and 5,481 deaths for those 10 to 14.[1]

One risk factor for youth suicide is undiagnosed, untreated, or undertreated mental illness. Other risk factors include bullying, physical or sexual abuse, stressful life events or losses, substance abuse, and easy access to lethal methods like firearms or weapons.

Of increasing concern is the large percentages of students both in Brookline and nationally who report high levels of stress. High levels of stress are detrimental to students' mental and physical health. While optimal levels of stress support learning and growth, when teens feel overstressed, their ability to process information and function in school is impaired. Sleep patterns can be disturbed, as can the ability to make good decisions.[2]

Rates of teen depression are also on the rise, both in Brookline and nationally. Almost 8% of Americans aged 12 and over had depression, with moderate to severe symptoms in the past 2 weeks.[3] About 3% of all Americans aged 12 and over reported severe depressive symptoms. 78% reported no depressive symptoms. 90% of those with severe depressive symptoms reported difficulty with work, home, or social activities related to the depression effects.[3]

The 2017 Brookline High School and Middle School Health Surveys elicited information about feelings of overwhelming stress and anxiety, as well as about depression and suicidal thoughts and attempts.

Students were asked about symptoms of depression: *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*.

Students were also asked about suicidal ideation given the following choices:

> *Yes but I did not make a plan or act on my feelings*
>
> *Yes I seriously considered suicide and made a plan*
>
> *Yes I attempted suicide, resulting in an injury, poisoning, or overdose that had to be treated by a doctor or nurse.*

The Middle School survey also asked about self-harm (like cutting or self-burning).

References

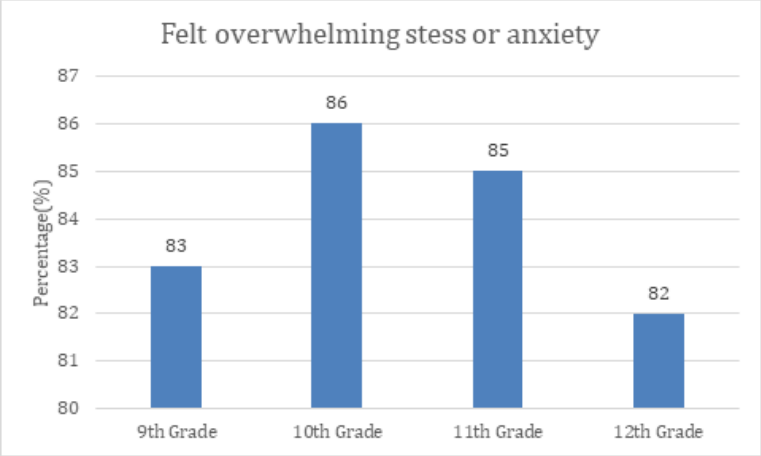
1. Suicide Facts at a Glance. National Center for Injury and Prevention Control. Division of Violence Prevention. 2015. https://www.cdc.gov/violenceprevention/pdf/suicide-datasheet-a.pdf
2. Youth Risk Behavior Surveillance Systems. Center for Disease Control and Prevention. August 2017. https://www.cdc.gov/healthyyouth/data/yrbs/overview.htm
3. Depression in the US Household Population 2009-2012. Center for Disease Control. NCHS Data Brief No. 172. December 2014. https://www.cdc.gov/nchs/data/databriefs/db172.htm

Mental Health

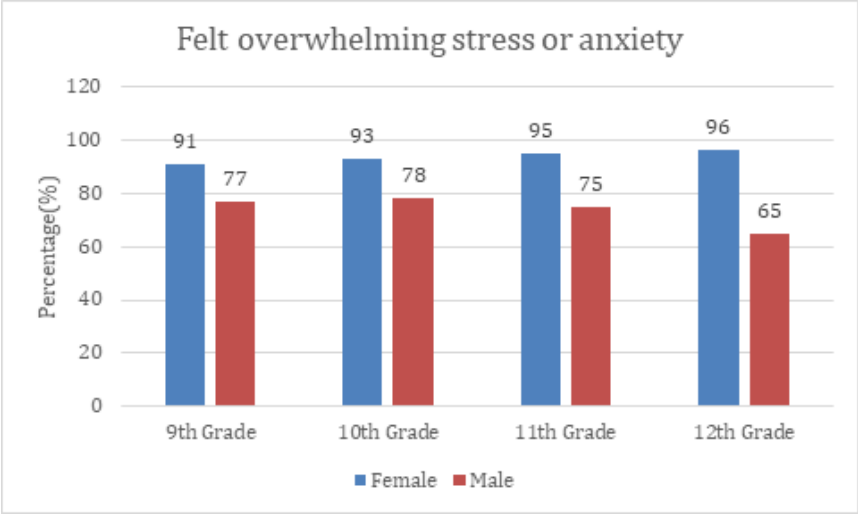
High School Data

- The rate of BHS 9th -12th graders who reported having felt overwhelming stress or anxiety during the past 12 months rose from 82% in 2015 to 84% in 2017. 50% of students responded that they felt overwhelming stress or anxiety *on occasion,* and 34% responded that they felt overwhelming stress or anxiety *frequently*.

- All grade levels experienced similar levels of overwhelming stress or anxiety in the last year: 82% of seniors, 85% of juniors, 86% of sophomores, and 83% of freshmen.

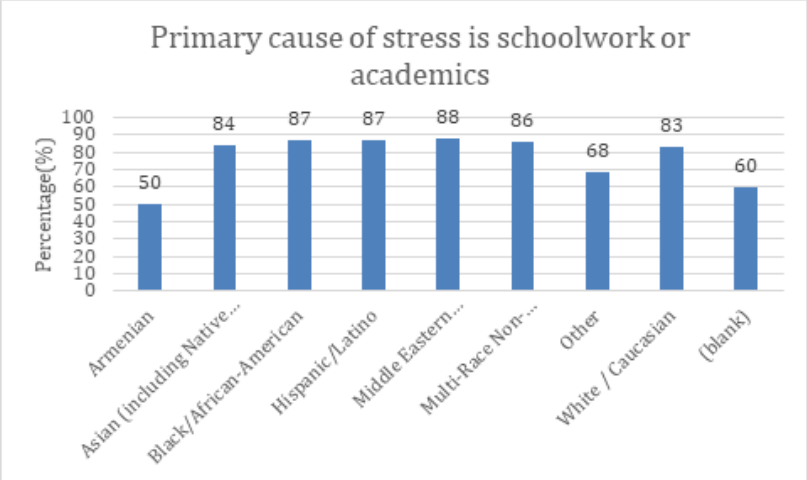


- Across all grade levels, more females than males reported stress and anxiety. Among females: 96% of twelfth graders, 95% of eleventh graders, 93% of tenth graders, and 91% of ninth graders. Rates among males students were 65% in twelfth grade, 75% in eleventh grade, 78% in tenth grade, and 77% in ninth grade.

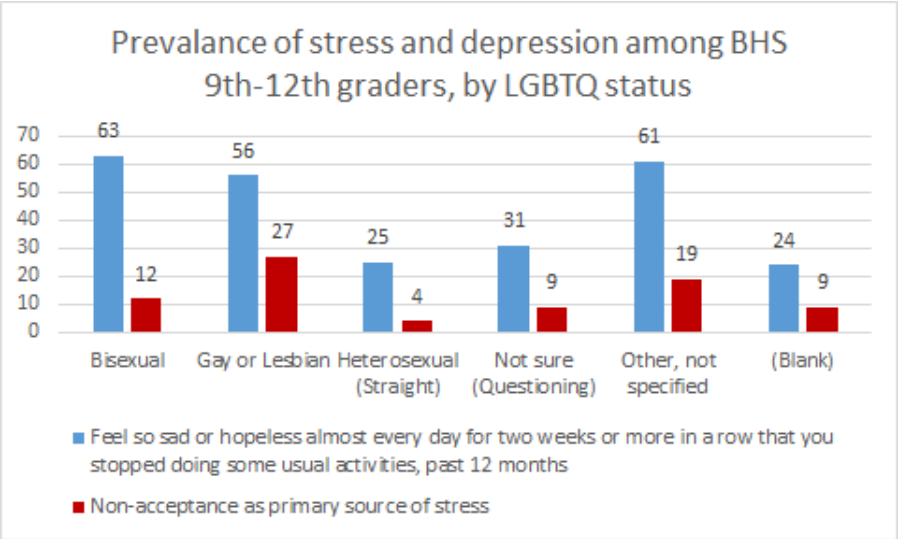


- The primary cause of stress reported by all grade levels was schoolwork or academic stress – 84% of freshmen, 87% of sophomores, 89% of juniors, and 74% of seniors.

- The primary cause of stress reported by all ethnicities was schoolwork or academic stress: 50% of Armenians, 84% of Asian (including Naïve Hawaiian), 87% of Black/African American, 87% of Hispanic, 88% of Middle Eastern, 86% of multi-race, and 68% of other.

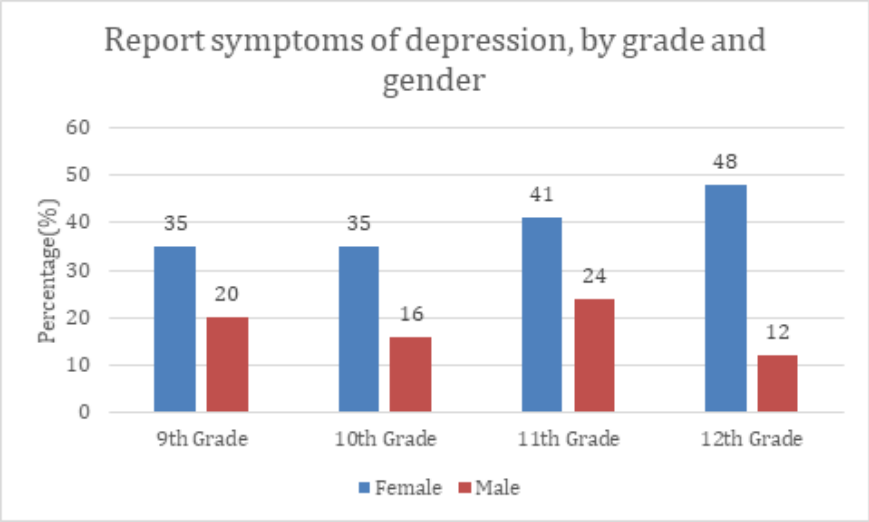


- Gay, lesbian and bisexual students were were more likely to report non-acceptance, intolerance, bullying, or harassment as their primary source of stress: 12% of bisexual students, 27% gay or lesbian students, and 9% of not sure (or questioning), as compared to 4% of heterosexual students.

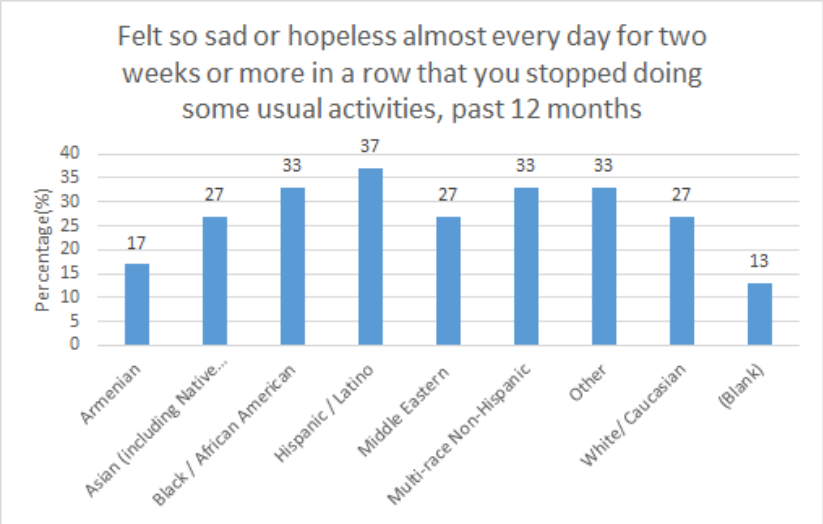


- In 2017, 29% of students reported that they felt so sad or hopeless for two or more weeks in a row that they stopped doing some usual activities (symptoms of depression), as compared to 25% in 2015.

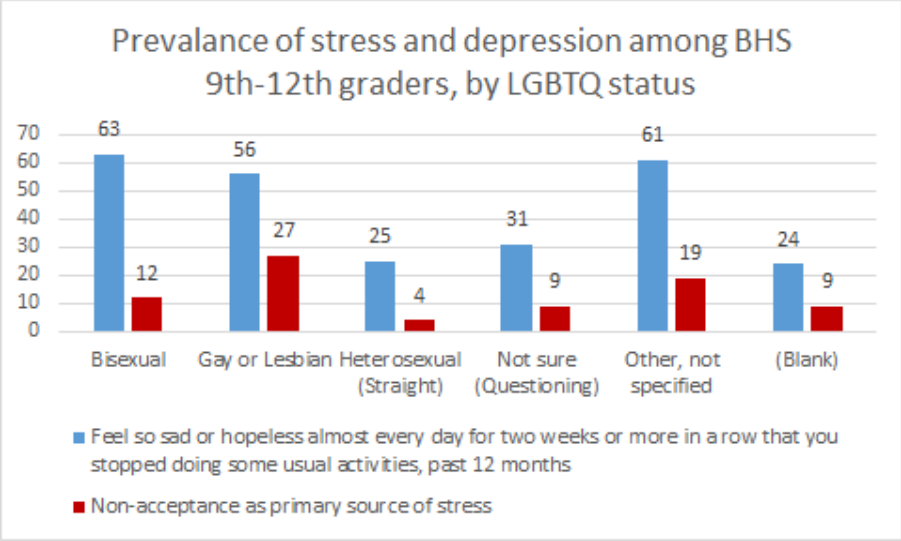
- Females were more likely to report symptoms of depression: 35% of freshmen, 35% of sophomores, 41% of juniors and 48% of senior females, as compared to males -- 20% of freshmen, 16% of sophomores 24% of juniors, and 12% of seniors.



- Hispanic/latino students reported the highest rate of depressive symptoms in the past 12 months, 37%. Students who identified as American Indian/Alaskan native or black reported higher levels of depression (33%) as compared with students who identified as Asian, Hawaiian/other Pacific Islander, and white, 27%.



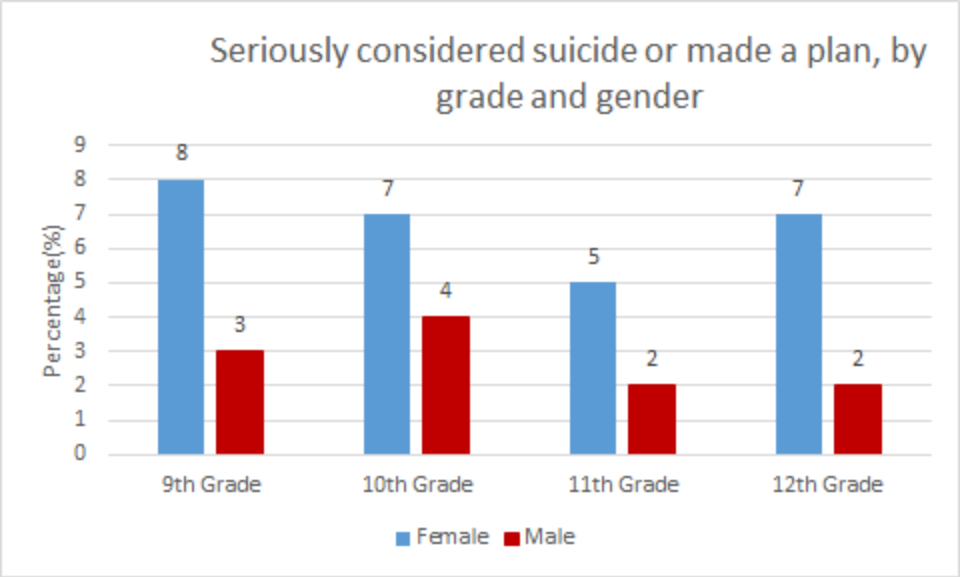
- BHS students identifying as LGBTQ were more likely to report symptoms of depression than heterosexual students -- lesbian and gay 56%, bisexual 63%, and questioning 31%, as compared to heterosexual 25%.



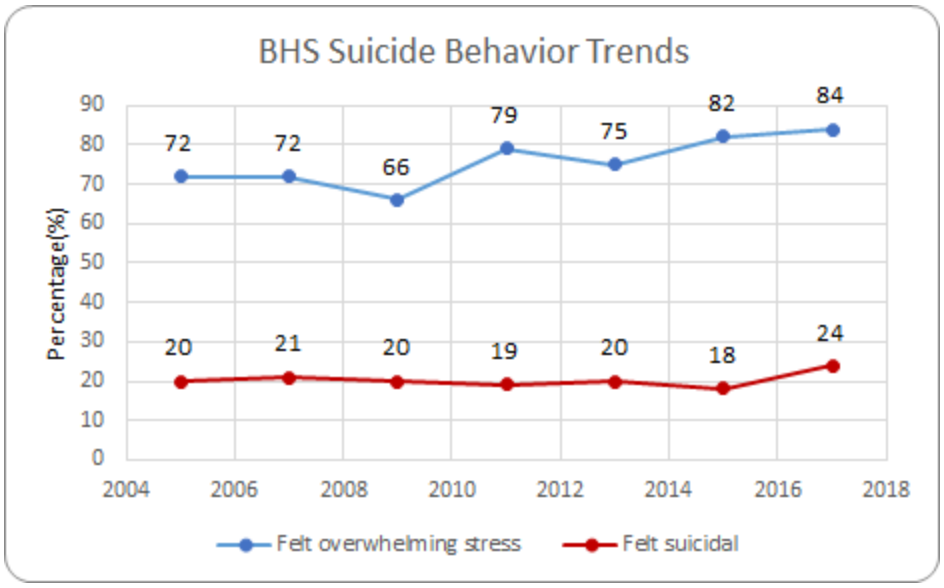
- Reported rates of feeling suicidal in the past 12 months increased, from 18% in 2015 to 24% in 2017.

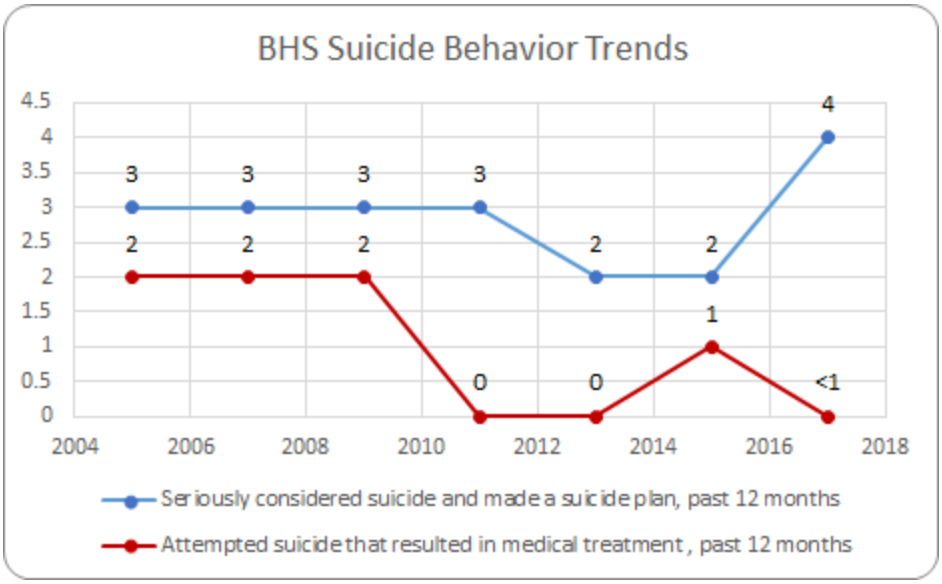
- The rates of BHS students who reported they seriously considered suicide and made a suicide plan *in the past 12 months* has increased, from 2% in 2013 and 2015 to 4% in 2017.

- Females were more likely to report they seriously considered suicide and made a suicide plan in the past 12 months: 8% of freshmen, 7% of sophomores, 5% of juniors, and 7% of seniors, as compared to males: 3% of freshmen, 4% of sophomore, 2% of juniors, and 2% of seniors.



- Nationally the rates of students who reported they *have ever* seriously considered suicide and made a suicide plan was 15%. In Massachusetts, the rate was 12%. (Brookline rates reflect only the past 12 months)





In all case, stress and depression increased incidents of alcohol and marijuana use.

- 19% of students who reported feeling stressed engaged in binge drinking in the past 30 days. 15% of students who did not report feeling stressed engaged in binge drinking in the past 30 days.

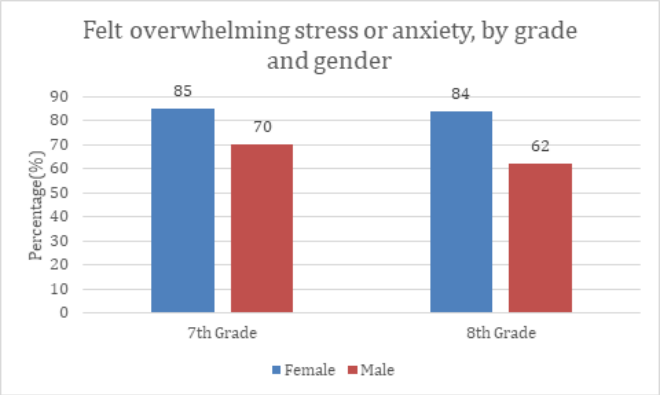
- 18% of students who reported being stressed also reported marijuana use in the past 30 days. 15% of students who did not report being stressed also reported marijuana use in the past 30 days..

- 27% of students who reported symptoms of depression engaged in binge drinking in the past 30 days. 15% of students who did not report symptoms of depression engaged in binge drinking in the past 30 days

- 24% of students who reported symptoms of depression also reported marijuana use in the past 30 days. 14% of of students who did not report reported symptoms of depression reported marijuana use in the past 30 days.

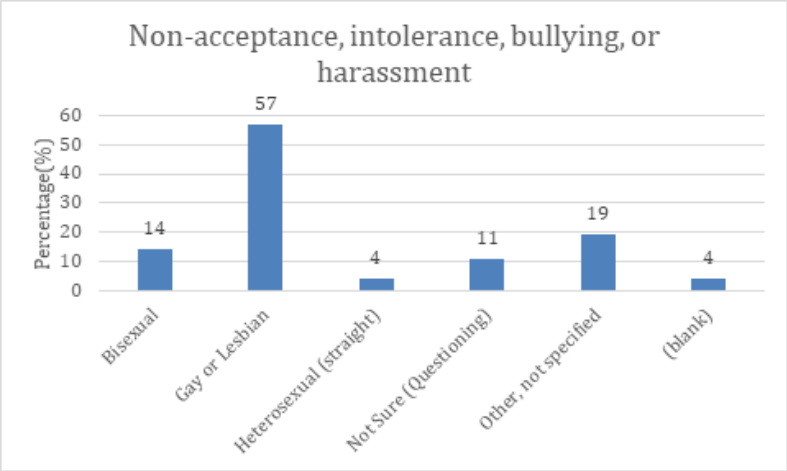
Middle School Data:

- In 2017, 76% of Brookline 7th and 8th grade students reported feeling overwhelming stress or anxiety occasionally (54%) or frequently (22%) during the 12 months prior to the survey. More females reported overwhelming stress or anxiety -- 85% for 7th graders and 84% for 8th graders -- than males -- 70% for 7th graders and 62% for 8th graders.

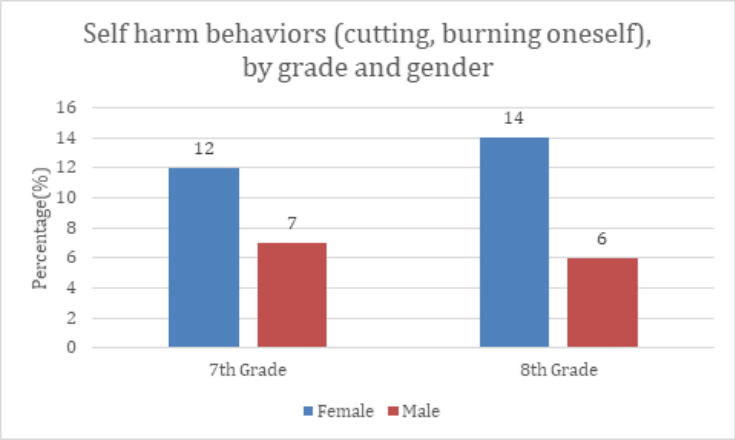


- More females than males reported feeling stress or anxiety (but not overwhelming) in the past 12 months. Females-- 91% for 7th graders and 93% for 8th graders. Males -- 77% for 7th graders and 78% for 8th graders.

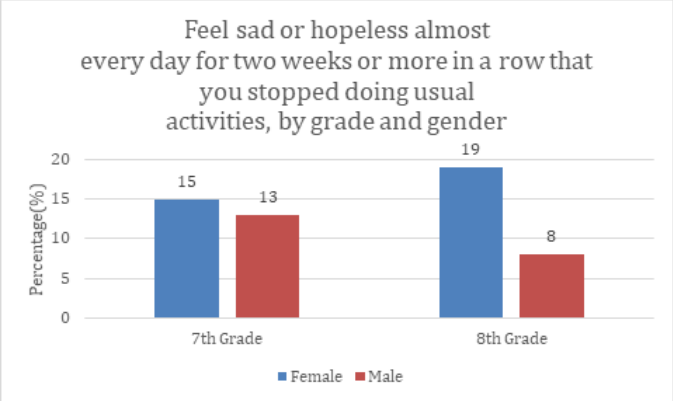
- Gay, lesbian, and bisexual students were more likely to report non-acceptance, intolerance, bullying, or harassment as their primary source of stress: 14% of bisexual students, 57% gay or lesbian students,11% of not sure (or questioning), as compared to 4% of heterosexual students.



- The survey asks the student about deliberate self-harm. 11% of Brookline 7th and 8th grade students reported ever having attempted self-harm (i.e cutting, burning) compared to 14% in 2015. Females participated in more self harm behaviors -- 12% of 7th graders and 14% of 8th graders -- as compared to males -- 7% of 7th graders and 6% of 8th graders.



- The survey asked about a common symptom of depression in the form of feeling so sad or hopeless for 2 or more weeks in a row that they stopped doing usual activity. Fourteen percent of 7th and 8th grade students reported this symptom of depression over the past year. More females reported this than males: 15% of 7th grade and 19% of 8th grade females, as compared to 13% of 7th grade and 8% of 8th grade males.

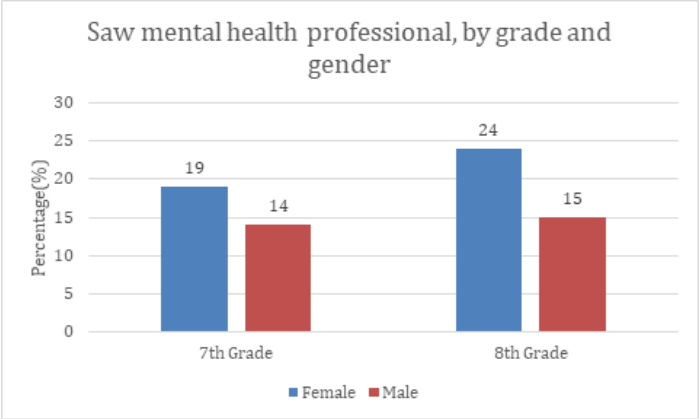


- Twenty percent of Brookline 7th and 8th grade students reported that they felt suicidal in the past 12 months. Fifteen percent reported that they seriously considered suicide, and 3% reported that they made a plan to on act on their feeling. 1% attempted suicide resulting in injury, poisoning, or overdose that had to be treated by a doctor or nurse.

- More 8th grade females (5%) reported they seriously considered suicide and made a plan sometime in the past year than 8th grade males (2%). Rates for 7th grade males and 7th grade females were similar, at about 4% for both.

- Female students were more likely than male students to seek professional help (social worker, counselor, psychologist, psychiatrist) for an emotional or mental health issue: 19% of 7th grade

females as compared to 14% of 7th grade males; and 24% of 8th grade females as compared to 15% of 8th grader males .



- 25% of students who reported symptoms of depression also reported ever having used alcohol, as compared to 10% of students who drank and did not report depression symptoms.

- 5% of students who reported symptoms of depression also reported ever having used marijuana as compared to 2% of students who used marijuana and did not report depression symptoms.

- 41% of students who recently used marijuana reported symptoms of depression as compared to 14% of students who had not recently used marijuana.

Physical Health, Activity and Use of Technology

In addition to proper nutrition and healthy eating habits, regular physical activity can help maintain a healthy body weight, muscle strength, and bone health.[1] 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.[2,3,4,5,6] Regular physical activity increases life expectancy[6] and is associated with good mental health and self-esteem.[1]

School physical education programs promote increased 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 evidence that participation in a health-related physical education program can have a positive effect on student achievement.[7] Students who are physically active have better grades and attend school more often. The national recommendation is that children and adolescents have 60 minutes (1 hour) of physical activity each day, with most of it as moderate to vigorous aerobic activity.[8] Bone strengthening is also recommended and should be included in children and adolescent physical activity.[8]

Young people have access to screens in the form of television, computers, and cell phones. Eliminating screen time altogether is nearly impossible with the necessity of the internet to communicate and complete homework assignments. The American Academy of Pediatrics (AAP) has recently changed its guidelines incorporate the current reality of digital life. These guidelines include considering media as another form of environment, incorporating co-engagement, curation, and content information. However, there are recommendations to have tech-free zones and setting limits. [9]

The 2017 Brookline High and Middle School Student Health Surveys asked students to report on their participation in cardiovascular and strengthening exercises, TV usage, and technology usage.

In this report the following definitions were used:
Past week: Participation in the reported behavior at least once during the 7 days prior to the survey.
Average School Day: Participation in the reported behavior on a typical school day when school is in session.

References

[1]World Health Organization (2010). Global recommendations on physical activity for health. Switzerland. Available online http://www.who.int/dietphysicalactivity/factsheet_young_people/en/index.html
[2]American Heart Association. (2011) Heart Disease and Stroke Statistics- 2011 Update. Circulation, 123. e18-e209.
[3]Centers for Disease Control and Prevention. *National Diabetes Statistics Report: Estimates of Diabetes and Its Burden in the United States, 2014*. Atlanta, GA: US Department of Health and Human Services; 2014.
[4]American Cancer Society. Cancer Facts & Figures 2012. Atlanta: American Cancer Society; 2012

[5]National Institutes of Health (2010). Physical Activity and Weight Control. NIH Publication: 03-4031. Updated March 2010.
[6]Samitz, G., Egger, M., Zwahlen, M. (2011). Domains of physical activity and all-cause mortality: systemic review and dose-response meta-analysis of cohort studies. International Journal of Epidemiology. 40 (5) 1382-1400.
[7]Prosper, M. H., Moczulski, V. L., Qureshi, A., Weiss, M., & Bryars, T. (2009). Healthy for life/pe4me: Assessing an intervention targeting childhood obesity. *Californian Journal of Health Promotion, 7*(Special Issue), November 16, 2009.
[8]Physical Activity Facts. Center for Disease Control and Prevention. https://www.cdc.gov/healthyschools/physicalactivity/facts.htm
[9] Shapiro J. The American Academy of Pediatrics Just Changed Their Guidelines on Kids and Screen Time. Forbes. September 2015. https://www.forbes.com/sites/jordanshapiro/2015/09/30/the-american-academy-of-pediatrics-just-changed-their-guidelines-on-kids-and-screen-time/#69a754fb5c40

Physical Health and Activity

High school data:

- Forty-five percent of BHS students reported participating in 60 minutes of cardiovascular activity on average for at least 5 of the 7 days.

- 59% reported participating in at least one BHS sports team in the past 12 months.

- 35% reported participating in a community sports team (rec dept, travel, or club).

- Twenty-one percent of BHS students reported that they suffered a blow or jolt to the head while playing on a sports team which caused concussion symptoms (e.g. pressure in the head, headaches, dizziness or seeing stars, double or blurry vision, confusion, memory problems, nausea or vomiting, or temporary loss of consciousness.)

- Twenty five percent of BHS students reported that on average they slept 8 or more hours. Thirty-nine percent of students reported they slept 6 or less hours per night on average.

Middle school data

- Among 7th and 8th graders, males were more likely to get regular physical activity (5 day to 7 days) for a total of at least 60 minutes per day. Males – 67% of 7th graders and 56% of 8th graders. Females – 47% of 7th graders and 39% of 8th graders.

- Thirty-eight percent of Brookline 7th and 8th grade students reported that they suffered a blow or jolt to the head while playing on a sports team which caused concussion symptoms (e.g. pressure in the head, headaches, dizziness or seeing stars, double or blurry vision, confusion, memory problems, nausea or vomiting, or temporary loss of consciousness) and 17% reported that they experienced concussion symptoms more than once.

- Sixty three percent of Brookline 7th and 8th grade students reported that on average they slept 8 or more hours and 16% percent of students reported they slept 6 or less hours per night on average.

Use of Technology

High school data:

- The survey asked students if they have internet access at home: 99% of White or Caucasian, 85% of Black or African-American, American Indian or Alaskan Native, 100% Armenian, 100% Middle Eastern, 99% multi-race, 99% of Asian, and 95% Hispanic/Latino students reported they did have access in the home.

- In 2017, 51% of BHS students reported using technology for non-school related work for three or more hours a day with handheld devices. Prior years asked this question in two components -- TV or computer for non-school related work (i.e video games, Facebook, surfing the web). In 2015, 16% watched TV for three or more hours on an average school day, and 39% used computer for recreational purposes on an average school day.

- Seniors were more likely to report 3 or more hours per day spent using TV, computer, phone, or other handheld device for non-school related activities: Males – 48% of freshmen, 51% of sophomores, 52% of juniors and 60% of seniors; Females – 49% of freshmen, 48% of sophomore, 44% of juniors, and 66% of seniors.

- Depressed students were more likely to use technology 3 or more hours a day -- 60% as compared to 48% of students who did not report symptoms of depression.

Middle school data:

- Almost all students had internet access at home – 100% of White or Caucasian, Black or African-American, American Indian or Alaskan Native, Armenian, Middle Eastern, multi-race, and 98% of Asian and Hispanic/Latino.

- Eighth grade students were more likely to report spending 3 or more hours per day spent using TV, computer, phone or other handheld devices for non-school related activities: among males, 40% of 7th graders, and 47% of 8th graders. Among females, 41% of 7th graders and 56% of 8th graders.

- Thirty-five percent of 7th and 8th graders reported that they have talked to people they don't know personally online. 6% reported that they had ever arranged an "in person" meeting with someone they met online. 12% ever felt threatened or scared when online.

Body Weight and Dietary Behaviors

Latest obesity trends show that more than one third (39.8%) of US adults are obese, and approximately 18.5% of 2-19 year olds are obese.[1] The prevalence of obesity is: 13.9% for ages 2-5; 18.4% for ages 6-11;

and 20.6% for ages 12-19.[1] However, there have not been significant changes in obesity prevalence. Sugar-sweetened beverages contribute extensively to the amount of calories consumed and are linked to weight gain, metabolic syndrome, dental cavities, and type II diabetes in adults.[2]

Our culture is obsessed with physical appearances, weight, diet, and exercise, which can contribute to some healthy exercise and eating habits. But our obsessions can also lead to problematic relationships with food and body image. For teens, self-esteem can be tied to body shape and weight. This can lead to excessive or rigid exercise routines and unhealthy dieting. An overemphasis on thinness during adolescence may contribute to some eating disorders, such as anorexia nervosa and bulimia nervosa. In contrast, children may misperceive that they are healthier. About 30% of children and adolescent ages 8 to 15 in the United States misperceive their weight status.[3] Nearly 81% of overweight boys and 71% of overweight girls believe they are about the right weight.[3]

Lifetime dietary patterns are established during childhood and adolescence. It is important for adolescents to adopt healthy eating and exercise habits in order to retain these habits for life. 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.

Popular approved dietary approaches may help to reduce long-term consequences. One that has ranked highest for the eighth consecutive year in the US News and World Report includes the National Institutes of Health as the "best overall" diet.[4] It is not a diet, but it is a healthy eating plan that supports long-term lifestyle changes and is low in saturated fat, trans fat, and cholesterol.[4] It emphasizes fruits, vegetables, and low-fat dairy foods, and it includes whole grains, poultry, fish, lean meats, beans, and nuts.[4]

Certain racial groups have higher rates of obesity than others. The overall prevalence was higher among non-Hispanic black and Hispanics than among non-Hispanic white and non-Hispanic Asian. Non-Hispanic blacks had a prevalence of 22%, and Hispanics had a prevalence of 25.8% compared to Hispanic whites, who had a prevalence of 14.1% and non-Hispanic Asians, who had a prevalence of 11%.[1] There is no significant difference in the prevalence of obesity between boys and girls overall or by age group.[1]

The 2017 Brookline High and Middle School Health Surveys asked students questions about their perception of their own weight, dietary habits, and dieting practices.

In this report, the following definitions were used:
Past 12 months or past year: Participation in the reported behavior at least once during the 12 months prior to the survey.

Recent or past month: Participation in the reported behavior on at least one of the 30 days prior to the survey.
Ever: Participated in the behavior at any time in the student's life.

References

1. C M Hales, M D Carroll, C D Fryar and C L Ogden. *Prevalance of Obesity Among Adults and Youth:United States, 2015-2016*. Centers for Disease Control and Prevention. NCHS Data Brief No. 288. October 2017. https://www.cdc.gov/nchs/products/databriefs/db288.htm

2. A Rosinger, K Herrick, J Gahche and S Park. *Sugar-sweetened Beverage Consumption Among US Adults, 2011 to 2014.* Center for Disease Control and Prevention. NCHS Data Brief No. 270. January 2017. https://www.cdc.gov/nchs/products/databriefs/db270.htm

3. N Sarafrazi, J P Hughes, L Borrud, V Burt, R Paulose-Ram. *Perception of Weight Status in US Children and Adolescent Aged 8-15 Years, 2005-2012.* Center for Disease Control and Prevention. NCHS Data Brief No. 158. July 2014. https://www.cdc.gov/nchs/products/databriefs/db158.htm

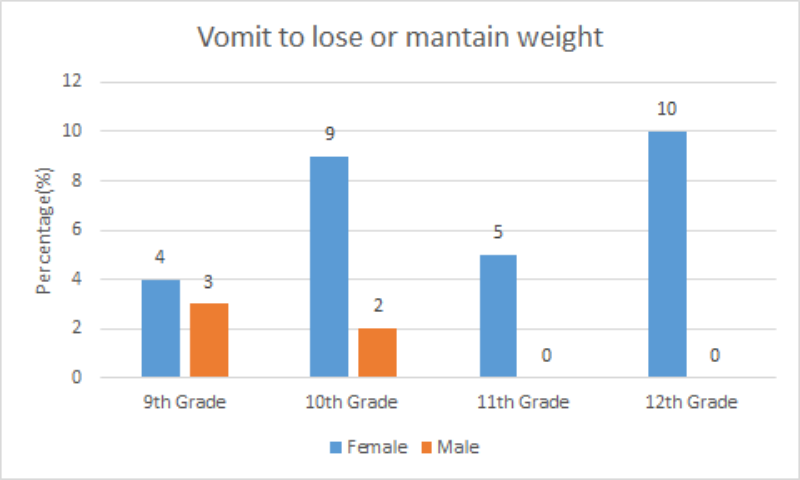
4. *Dash ranked Best Diet Overall for eight year in a row by US News and World Report.* National Heart, Lung, and Blood Institute. January 2018. https://www.nhlbi.nih.gov/news/2018/dash-ranked-best-diet-overall-eighth-year-row-us-news-and-world-report

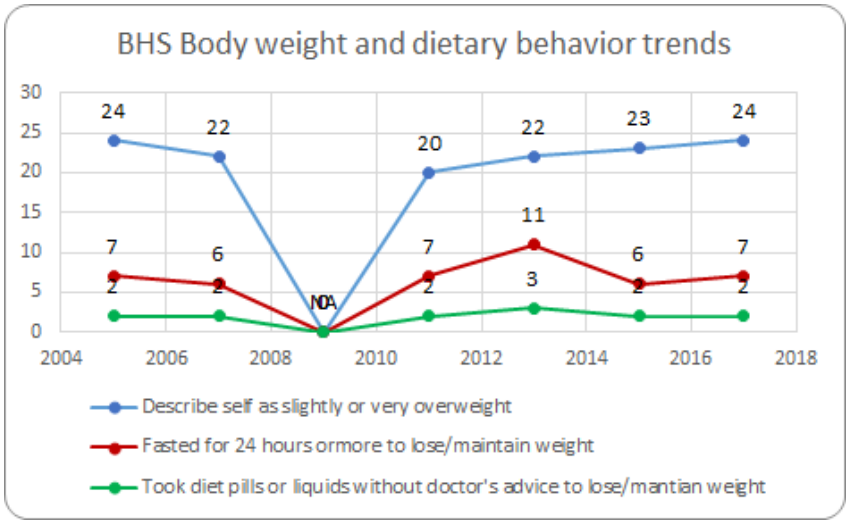
Body Weight and Dietary Behaviors

High school data

- Similar to prior years, 24% of BHS students described themselves as slightly overweight or very overweight in 2017. This is compared to 32% for both Massachusetts and the nation.

- Over the past 12 months, 4% reported they vomited or took laxatives, and 2% reported that they fasted to lose or maintain weight. Females were more likely than males in all grade levels to vomit or throw up on purpose after eating -- 10% of seniors, 5% of juniors, 9% of sophomores, and 4% of freshmen. No senior males or junior males reported these behaviors. Only 3% of freshman and 2% sophomore males reported vomiting or throwing up on purpose.





Middle School Data

- Similar to prior years, 23% of 7th and 8th grade students described themselves as slightly overweight or very overweight in 2017. This is compared to 20% for Massachusetts and 24% for the nation.

- Over the past twelve months, 2% of 7th and 8th graders reported that they vomited on purpose after eating, and 5% reported that they fasted to lose or maintain weight.

- More females reported that they vomit to lose or maintain weight: 2.2% of 7th grade girls and 1.7% of 8th grade girls, as compared to 0.5% of 7th grade boys and 1.3% of 8th grade boys.

Attitudes and Perceptions

The attitudes and perceptions of teens, their peers and their families have the ability to affect teen drug use. Individual and environmental risk factors can also influence perceptions and, therefore, impact decision making. These factors may include low self-esteem, anxiety, abuse, peer pressure, and school/family environment.[1] Strong correlations exist between use of a drug and attitudes and beliefs about that drug. Youth perception of the risks of using a substance, the rate of use, and availability of a substance, in addition to how their peers and parents feel about substance use, can all affect their own rates of use. Individuals who believe that the use of a particular drug involves risk of harm and/or who disapprove of its use are less likely to use that drug. As perceived risk of of alcohol and marijuana use decreases, the prevalence of use increases.[2] Students who use a given drug are less likely to disapprove of its use and to see its use as dangerous.[3] Parental attitudes regarding substance use can affect not only whether adolescents decide to use or not, but also how much they use.

Perceived level of peer use can be a factor in adolescent substance use decision-making. The higher the perception is of peers using, the higher the use tends to be. The desire to fit in and conform to the group is more of a factor during the middle school years, making peer perception of use a significant factor in the inception of use for this age group.[4] Negative peer pressure, in the form of modeling behavior or forming norms and attitudes, may increase experimentation or use. This is especially true when combined with exposure to alcohol and other drugs, which has been shown to increase in the middle school years.

The 2017 BHS Health Survey included several measures of perceptions and attitudes among students. These included: (1) perception of harm of using substances, (2) perception of parent approval or disapproval, (3) perceived accessibility of substances, and (4) use of substances in relation to parental approval or disapproval. The 7th and 8th Grade Health Survey also examined measures of perceptions and attitudes including: (1) perception of harm of using substances, (2) perception of parent approval or disapproval, (3) perceived accessibility of substances, and (4) use of substances in relation to parental approval or disapproval.

References

[1] Bejarano, J., Ahumada, G., Sanchez, G., Cadenas, N., de Marco, M., Hynes, M., and Cumsille, F. (2011). "Perception of Risk and Drug Use: An Exploratory Analysis of Explanatory Factors in Six Latin American Countries." *The Journal of International Drug, Alcohol and Tobacco Research*, Vol. 1, No. 1, 9–17. Bethesda, MD: National Institute on Drug Abuse.

[2] Adolescent Substance Abuse Knowledge Base. Factors of Teen Drug Use. http://www.adolescent-substance-abuse.com/

[3]Johnston, L.D., O'Malley, P.M., Bachman, J.G., & Schulenberg, J.E. (2006). Monitoring the Future national survey results on drug use, 1975-2006: Volume I, Secondary school students. NIH Publication.

[4] D'Amico, Elizabeth J., Ph.D., and McCarthy, Denis M., Ph.D. (2006). "Escalation and Initiation of Younger Adolescents' Substance Use: The Impact of Perceived Peer Use." *Journal of Adolescent Health*, 39: 481–487.

Attitudes and Perceptions

Perception of Risk
High school data:

- Sixty eight percent of BHS students reported they perceived slight or no risk if people use marijuana *occasionally,* and 43% reported they perceived slight or no risk if people use marijuana *regularly* (1 to 3 times per week).

- Twenty percent perceived slight or no risk if people occasionally use prescription stimulants (such as Ritalin, Adderall, Concerta) that are not their own.

Middle school data:

- Twenty five percent of Brookline 7th and 8th grade students reported they perceived slight or no risk and 75% reported moderate or great risk if people use marijuana *occasionally.* 82% reported moderate or great risk if people use marijuana *regularly* (1 to 3 times per week).

- Twenty percent perceived slight or no risk if people occasionally use prescription stimulants (such as Ritalin, Adderall, Concerta) that are not their own.

Perception of Access
High School

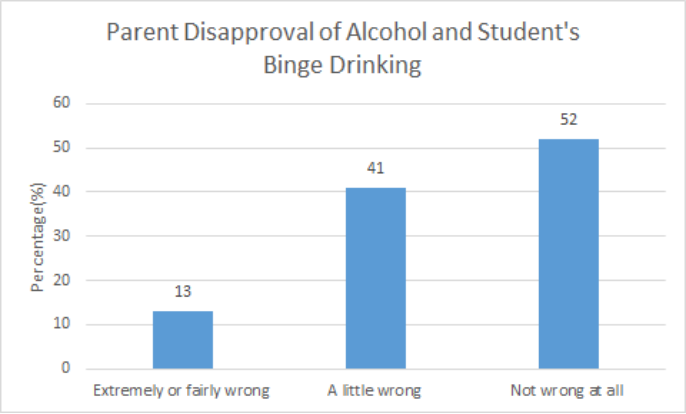
- Generally as grade level increased, perceived ease of access (responses of fairly or very easy to access) of each type of drug increased. 55% of BHS students said it would be fairly or very easy to access marijuana as compared to 53% in 2015, and 69% reported ease of access to alcohol as compared to 72% in 2015.

- Among 7th and 8th graders, 47% said that it would be fairly or very easy to access alcool, and 25% said it would be fairly or very easy to cigarettes.

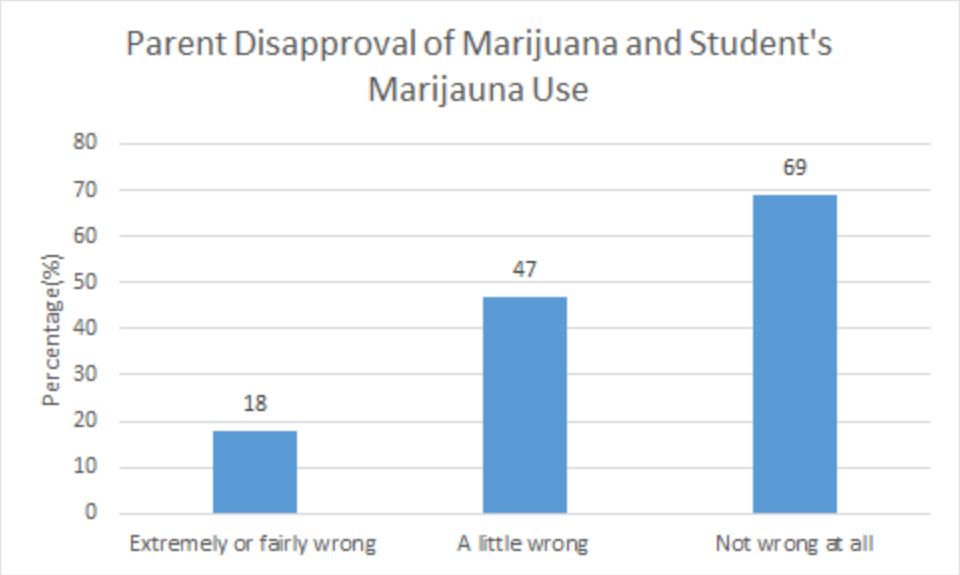
Perception of Parent Disapproval
High School Data

Students who perceived stronger parent disapproval were less likely to use alcohol or marijuana.

- Students who perceived stronger parent disapproval were less likely to have had 5 or more drinks of alcohol in a row, within a couple of hours. 52% of students whose parents thought it was "not at all wrong" or a "little bit wrong" to drink reported binge drinking. 41% of students whose parents thought it was "a little bit wrong" to drink reported binge drinking compared to 13% of students whose parents thought it was "wrong or very wrong".



- Students who perceived stronger parent disapproval were less likely to have used marijuana. 18% of students whose parents thought it was "wrong or very wrong" had used marijuana as compared to 47% of students whose parents thought it was "a little bit wrong" and 69% of students whose parents thought it was "not at all wrong."



- Students who perceived stronger parent disapproval were less likely to have reported heavy marijuana use. Five percent of students whose parents thought it was "wrong or very wrong" had

used marijuana heavily as compared to 18% of students whose parents thought it was “a little bit wrong” and 9% of students whose parents thought it was “not at all wrong.”

Middle School Data:

- Students who perceived stronger parent disapproval were less like to have ever drunk alcohol. 8% of students whose parents thought it was “wrong or very wrong” to drink had used alcohol as compared to 29% of students whose parents thought it was “a little bit wrong” .

- Students who perceived stronger parent disapproval were less likely to have used marijuana. One percent of students whose parents thought it was “wrong or very wrong” had used marijuana as compared to 10% of students whose parents thought it was “a little bit wrong”.

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. Risk and protective factors include variables that operate at different stages of development and reflect different areas of influence, including the individual, family, peer, school, community, and societal levels.[1,2,3] Strategies to prevent substance use or other risk behaviors generally are designed to reduce the influence of risk factors and enhance the effectiveness of protective factors.

Potential protective factors include 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. 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. [4-7] In contrast, poor academic performance and classroom behavior have been associated with increased risk of later drug abuse.[12]

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. [8-11]

The 2017 BHS Health Survey included several measures of potential protective factors among students. These included: (1) academic achievement, (2) perceived teacher or other adult support (in school or outside of school), (3) participation in volunteer work or community service, (4) participation in organized extracurricular activities, and (5) participation on Brookline High School athletic teams.

References

[1] Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. Psychological Bulletin, 112(1), 64-105.

[2]Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2012). Monitoring the Future national survey results on drug use, 1975-2011: Volume I, Secondary school students. Ann Arbor: Institute for Social Research, The University of Michigan. Retrieved from http://monitoringthefuture.org/pubs/monographs/mtf-vol1_2011.pdf

[3] Bellatorre, A., Choi, K., Bernat, D. (2015). The influence of the social environment on youth smoking status. Preventive Medicine, 81, 309-313.

[4] Resnick, M.D., Harris, L., & Blum, R. (1993). The impact of caring and connectedness on adolescent health and well-being. Journal of Pediatric Child Health, 29, S3-S9.

[5] Franke, T. (2000). The role of attachment as a protective factor in adolescent violent behavior. Adolescent and Family Health, 1, 40-51.

[6] 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

[7] Kopak, A.M., Chen, A.C., Haas, S.A., Gillmore, M.R. (2012). The importance of family factors to protect against substance use related problems among Mexican heritage and White youth. Drug and Alcohol Dependence, 124, 34-41.

[8]Neal, R.B. (1999). Participation in high school extracurricular activities: Investigating school effects. Social Science Quarterly, 80, 291-309.

[9] Mahoney, J.L. (2000). School extracurricular activity participation as a moderator in the development of antisocial patterns. Child Development, 71, 502-516.

[10] Northeastern University (2008, March 21). Can Involvement In Extra-curricular Activities Help Prevent Juvenile Delinquency?. *ScienceDaily*. Retrieved March 8, 2012, from http://www.sciencedaily.com /releases/2008/03/080321174211.htm

[11] Fredricks, J.A., Eccles, J.S. (2006). Is extracurricular participation associated with beneficial outcomes? Concurrent and longitudinal relations. Developmental Psychology 42(4), 698-713.

[12] National Institute on Drug Abuse. (2003). Preventing Drug Use among Children and Adolescents. Retrieved December 15, 2015, from http://www.drugabuse.gov/publications/preventing-drug-abuse-among-children-adolescents/

[13]Lipari RN, Williams MR. isk and Protective Factors and Estimates of Substance Use Initiation: Results from the 2015 National Survey on Drug Use and Health. National Survey on Drug Use and Health. October 2016. https://www.samhsa.gov/data/sites/default/files/NSDUH-PreventionandInit-2015/NSDUH-PreventionandInit-2015.htm

Protective Factors

High school data:

- Sixty two percent of students reported that they have at least one teacher or other adult in the school that they could talk to if they had a problem. Among male students-- 62% of freshmen, 56% of sophomores, 73% of juniors, and 68% of seniors reported they did. Among female students – 49% of freshmen, 59% of sophomores, 62% of juniors, and 72% of seniors reported they did.

- 67% of Armenian, 62% of Asian, 64% of Black/ African-American, 65% of Hispanic / Latino, 64% of Middle Eastern, 57% of multi-race, and 58% of other race reported that they have at least one teacher or other adult in the school they could talk to if they had a problem.

- Eighty-five percent of students reported they have an adult to talk to outside of the school (family, non-family adults, parent, or other family member) if they have a problem. Among males -- 88% of freshmen, 88% of sophomores, 86% of juniors and 87% of seniors reported they did. Among females --79% of freshmen, 85% of sophomores, 80% of juniors, and 88% of seniors reported they did.

- 83% of Armenian, 84% of Asian, 80% of Black / African-American, 84% of Hispanic / Latino, 97% of Middle Eastern, 83% of multi-race and 84% of other reported they have an adult to talk to outside of the school if they have a problem.

- 47% of BHS students reported that they are involved in volunteer work, community service or helping people outside the home without getting paid.

- Students who participated on AT LEAST one BHS athletic team (83%) reported lower rates of stress than students who did not participate on ANY BHS athletic team (87%).

- 25% participation on BHS athletic team also correlated with lower rates of depression. Students who participated on at least one BHS athletic team reported symptoms of depression as compared to 35% of students who did not participate on any BHS athletic team.

- Students who participated on athletic teams reported higher rates of alcohol use in the past 30 days: 22% of students in 0 teams, 36% of students in 1 team, 33% of students in 2 teams, and 39% of students in 3 or more teams.

Middle School

- Fifty-eight percent of Brookline 7th and 8th graders said they have at at least one adult they can talk to in school, and 88% said they have an adult they can talk to outside of school if they have a problem.
- In the past 12 months, 21% of 7th-8th grade students participated in 1 sports team, 25% of BMS students participated in 2 sports team, and 30% participated in 3 or more sports teams.

Appendix A: Report Limitations

The findings in this report are subject to limitations. First, these data apply only to youth who attend Brookline High School and Brookline Middle Schools and participated in the survey. Therefore, the data are not representative of all persons in this age group who live in Brookline. Second, all findings in this report are based on 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.