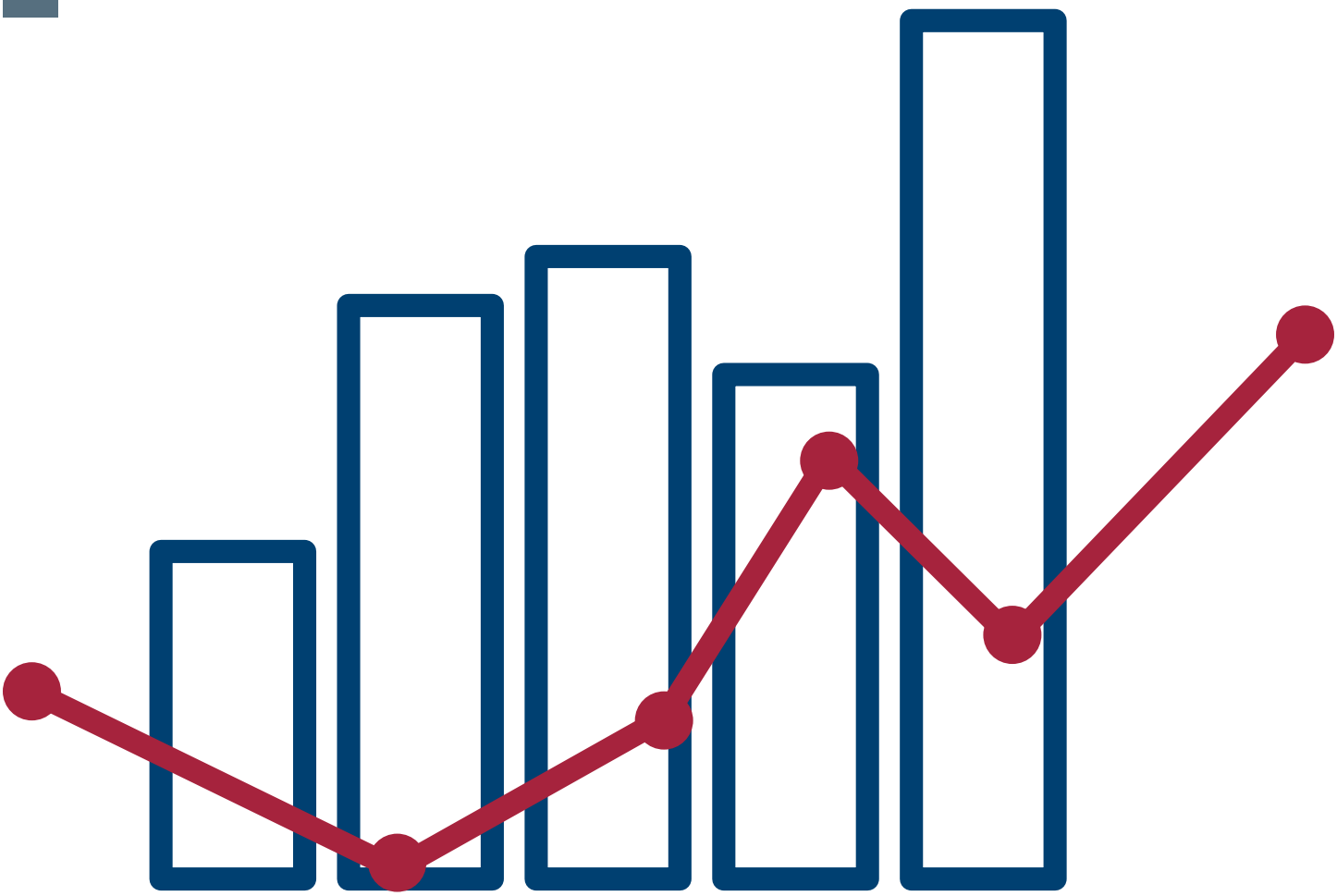
WEST VIRGINIA YOUTH RISK BEHAVIOR SURVEY, 2015:

Bullying and Suicidal Ideation



West Virginia Department of EDUCATION
Research, Accountability, & Data Governance

West Virginia Youth Risk Behavior Survey, 2015: Bullying and Suicidal Ideation Report

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Introduction

The Youth Risk Behavior Surveillance System was developed by the Centers for Disease Control and Prevention (CDC) in collaboration with state and local departments of education and health, national education and health organizations, and other federal agencies. The Youth Risk Behavior Survey (YRBS), the state and local level component of this system, assesses how certain youth risk behaviors change over time. The YRBS focuses on priority health risk behaviors established during youth that may affect academic performance and result in significant mortality and morbidity rates during both youth and adulthood. It assesses behaviors in six categories: (a) injury and violence, (b) tobacco use, (c) alcohol and other drug use, (d) sexual behaviors, (e) dietary behaviors, and (f) physical activity.

With funding from CDC and with the assistance of the RESA Regional School Wellness Specialists, the YRBS has been conducted by the West Virginia Department of Education (WVDE) since 1993 for high schools and since 1999 for middle schools.

The following series of YRBS topical reports, available at http://wvde.state.wv.us/research/reports2017.html, give a detailed snapshot of particular student risk behaviors across programmatic levels from high school back to early middle school ages:

- West Virginia Youth Risk Behavior Survey, 2015: Alcohol Use
- West Virginia Youth Risk Behavior Survey, 2015: Bullying and Suicidal Ideation
- West Virginia Youth Risk Behavior Survey, 2015: Dietary Behavior
- West Virginia Youth Risk Behavior Survey, 2015: Disease Prevention
- West Virginia Youth Risk Behavior Survey, 2015: Drug Use
- West Virginia Youth Risk Behavior Survey, 2015: Injury Risk
- West Virginia Youth Risk Behavior Survey, 2015: Physical Activity
- West Virginia Youth Risk Behavior Survey, 2015: Sexual Behavior
- West Virginia Youth Risk Behavior Survey, 2015: Tobacco Use
- West Virginia Youth Risk Behavior Survey, 2015: Violence
- West Virginia Youth Risk Behavior Survey, 2015: Weight Management

Methods

See the appendix, page 15 for details about sampling procedures, sample characteristics, questionnaires, weighting of the raw data, data analysis, and interpretation of the results.

Results

The results include time trend graphs to show how youth behaviors have changed over time through 2015. Results include prevalence by demographic characteristics such as gender and grade level. High school results are presented first, followed by middle school data where applicable. Results are not available for high school students for 2001 and middle school students for 2003 and 2005.

Bullied on School Property in the Past Year

Definition: Weighted percentage of students who were bullied on school property during the 12 months before the survey.

High school students

The prevalence of bullied on school property in the past year among high school students was 24.4% in 2015. Figure 1 displays the prevalence among high school students from 2009 to 2015. The results indicate there has been no significant change for the total prevalence among males during that time. Among females, the prevalence significantly increased from 2009 to 2015.

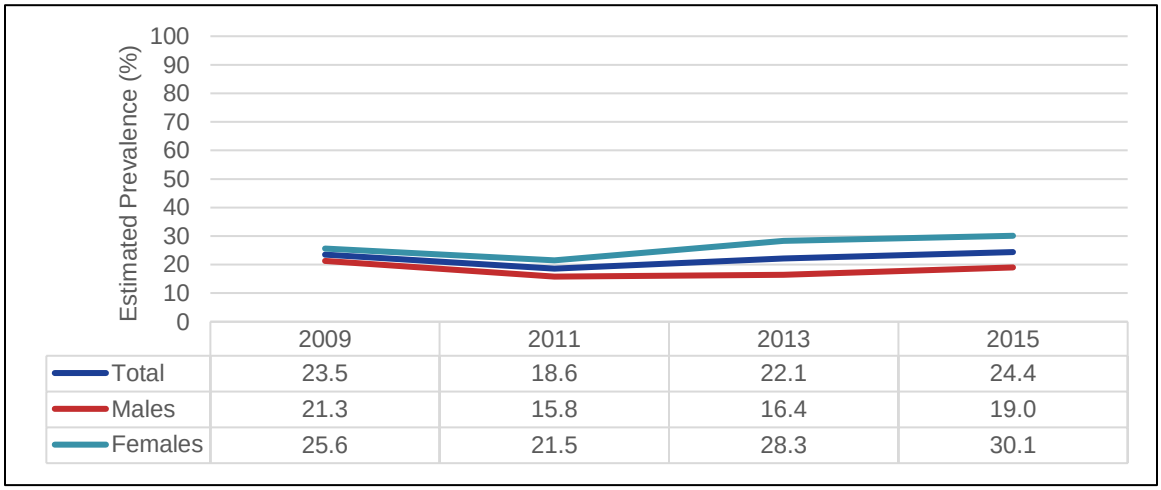


Figure 5. Prevalence of Bullied on School Property in the Past Year Among West Virginia High School Students

Data source: West Virginia Department of Education, Youth Risk Behavior Survey

Table 1 shows the prevalence of bullied on school property in the past year among high school students by demographic characteristics. The results indicate significantly higher prevalence among females than among males. An inconsistent pattern emerged among the various grade levels including significantly higher prevalence among 9th- and 10th-grade students than among 11th-grade students with no significant difference between 12th-grade students and those in other grades.

Table 1. Prevalence of Bullied on School Property in the Past Year Among WV High School Students by Gender and Grade Level, 2015

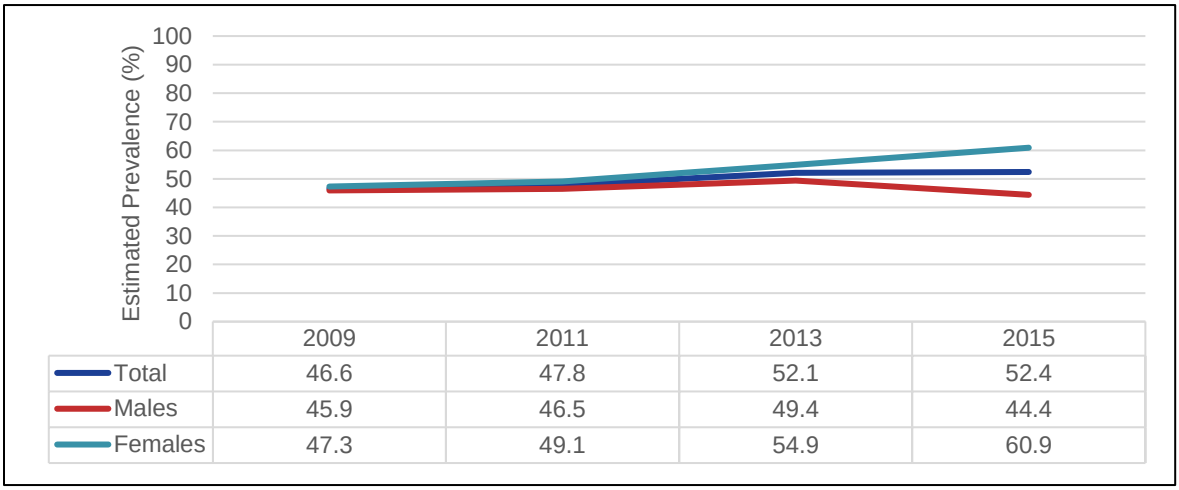
Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	24.4	22.0-26.9	19,297
Male	19.0	16.2-21.8	7,586
Female	30.1	26.8-33.3	11,700
9th	26.4	22.0-30.7	5,788
10th	31.0	26.3-35.8	6,220
11th	17.4	14.2-20.6	3,264
12th	21.7	16.1-27.3	3,879

Data source: West Virginia Department of Education, Youth Risk Behavior Survey, 2015

Middle school students

The prevalence of bullied on school property in the past year among middle school students was 52.4% in 2015.

Figure 2 shows that the prevalence of bullied on school property in the past year among middle school students significantly increased from 2009 to 2015 for the total population and among females but showed no significant change among males.



	2009	2011	2013	2015
Total	46.6	47.8	52.1	52.4
Males	45.9	46.5	49.4	44.4
Females	47.3	49.1	54.9	60.9

Figure 6. Prevalence of Bullied on School Property in the Past Year Among West Virginia Middle School Students

Data source: West Virginia Department of Education, Youth Risk Behavior Survey

Table 2 displays the prevalence of bullied on school property in the past year among middle school students by demographic characteristics for 2015. The results indicate that the prevalence was significantly higher among females than among males. The results also indicate there was no significant grade difference for this indicator.

Table 2. Prevalence of Bullied on School Property in the Past Year Among WV Middle School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	52.4	49.9-54.9	30,987
Male	44.4	40.4-48.4	13,531
Female	60.9	57.3-64.5	17,238
6th	50.7	46.2-55.2	9,458
7th	53.1	48.9-57.2	10,595
8th	53.5	47.5-59.5	10,685

Data source: West Virginia Department of Education, Youth Risk Behavior Survey, 2015

Electronically Bullied in the Past Year

Definition: Weighted percentage of students who were electronically bullied (including through e-mail, chat rooms, instant messaging, websites, or texting) during the 12 months before the survey.

High school students

The prevalence of electronically bullied in the past year among high school students was 20.2% in 2015. West Virginia ranked second highest in the nation for this indicator among high school students (Kann et al., 2016).

Figure 3 displays the prevalence among high school students for the years 2011-2015. The prevalence significantly increased among the total population and among females. Among males it did not change significantly.

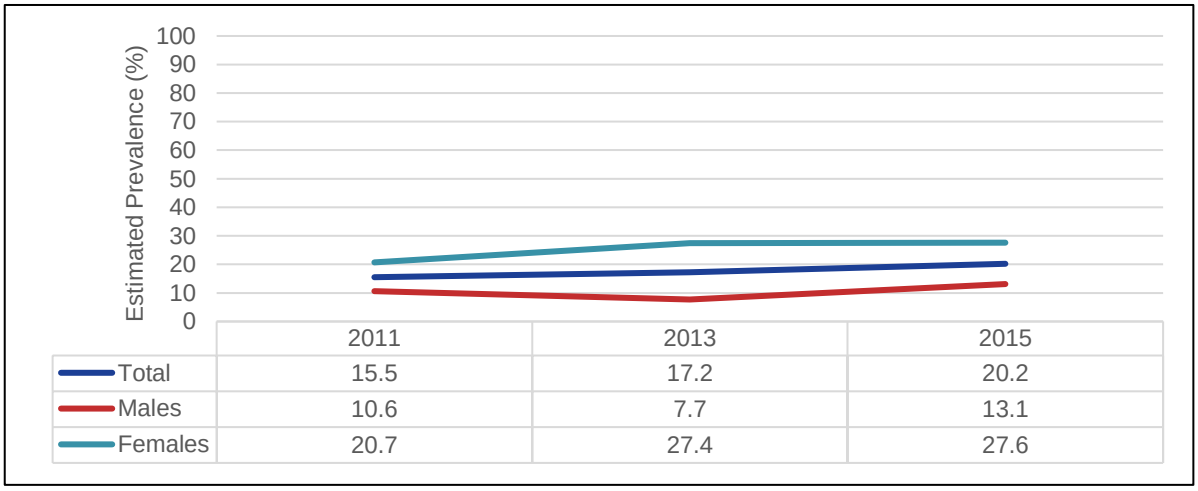


Figure 7. Prevalence of Electronically Bullied in the Past Year Among West Virginia High School Students

Data source: West Virginia Department of Education, Youth Risk Behavior Survey

Table 3 displays the prevalence of electronically bullied in the past year among high school students by demographic characteristics for 2015. While there was no grade difference in the prevalence, the prevalence among females was significantly higher than among males.

Table 3. Prevalence of Electronically Bullied in the Past Year Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	20.2	16.8-23.6	15,951
Male	13.1	10.2-16.0	5,246
Female	27.6	22.6-32.7	10,693
9th	21.4	16.1-26.7	4,736
10th	22.0	16.6-27.5	4,402
11th	17.2	13.7-20.6	3,213
12th	19.4	12.8-26.1	3,440

Data source: West Virginia Department of Education, Youth Risk Behavior Survey, 2015

Middle school students

The prevalence of electronically bullied in the past year among middle school students was 28.8% in 2015.

Figure 4 displays the prevalence of electronically bullied in the past year among middle school students for the years 2011-2015. The results indicate no significant change among males but a significant increase among the total population and among females from 2011 to 2015.

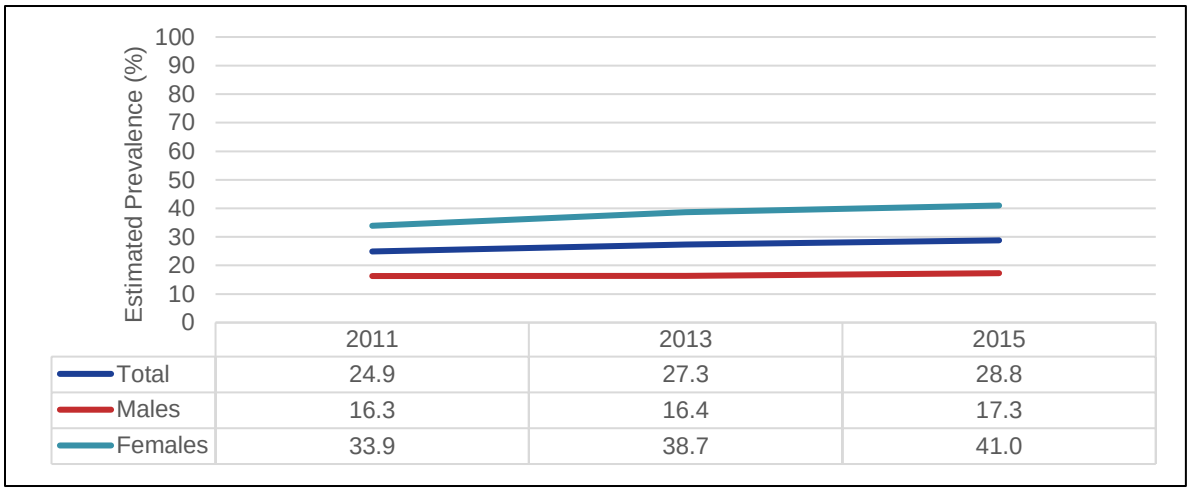


Figure 8. Prevalence of Electronically Bullied in the Past Year Among West Virginia Middle School Students

Data source: West Virginia Department of Education, Youth Risk Behavior Survey

Table 4 displays the prevalence of electronically bullied in the past year among middle school students by demographic characteristics for 2015. The prevalence was significantly higher among females than among males. There was no grade difference for this indicator.

Table 4. Prevalence of Electronically Bullied in the Past Year Among WV Middle School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	28.8	25.3-32.4	17,071
Male	17.3	14.2-20.3	5,270
Female	41.0	36.6-45.5	11,612
6th	24.6	20.3-28.9	4,598
7th	29.4	25.3-33.5	5,888
8th	32.1	25.5-38.7	6,398

Data source: West Virginia Department of Education, Youth Risk Behavior Survey, 2015

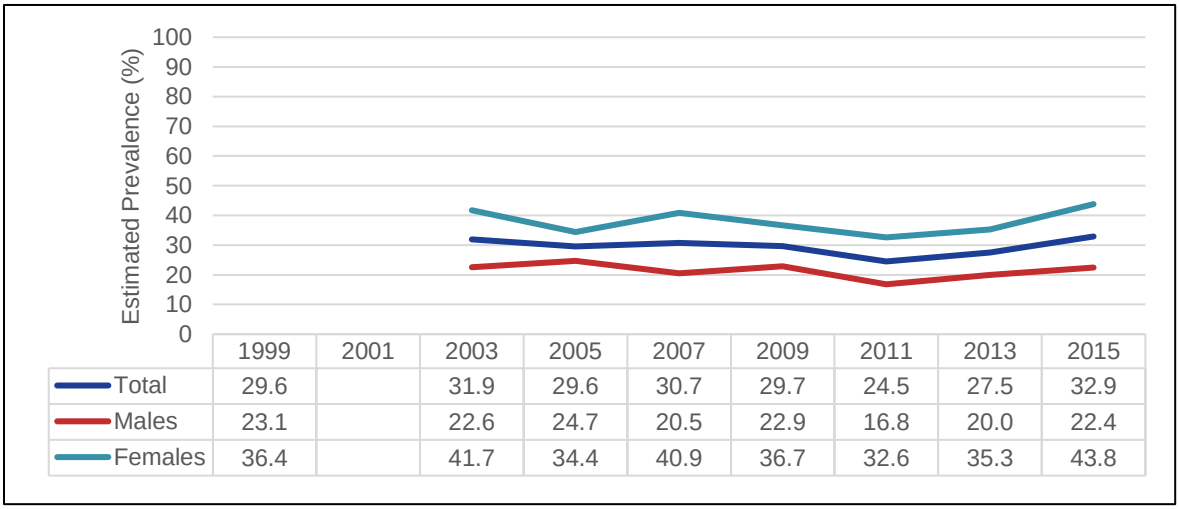
Felt Sad or Hopeless for 2 or More Weeks in the Past Year

Definition: Weighted percentage of students who felt so sad or hopeless almost every day for 2 or more consecutive weeks that they stopped doing some usual activities, during the 12 months before the survey.

High school students

The prevalence of felt sad or hopeless for 2 or more weeks in the past year among high school students was 32.9% in 2015. West Virginia ranked third highest in the nation for sadness/hopelessness among high school students (Kann et al., 2016).

Figure 5 displays the prevalence of this indicator among high school students for the years 1999-2015. The results indicate the prevalence significantly decreased from 1999 to 2015 among males but there was no significant change among the total population or among females.



	1999	2001	2003	2005	2007	2009	2011	2013	2015
Total	29.6		31.9	29.6	30.7	29.7	24.5	27.5	32.9
Males	23.1		22.6	24.7	20.5	22.9	16.8	20.0	22.4
Females	36.4		41.7	34.4	40.9	36.7	32.6	35.3	43.8

Figure 5. Prevalence of Felt Sad or Hopeless Almost Every Day for 2 or More Consecutive Weeks in the Past Year Among West Virginia High School Students

Data source: West Virginia Department of Education, Youth Risk Behavior Survey

Table 5 displays the prevalence of felt sad or hopeless for 2 or more weeks in the past year among high school students by demographic characteristics for 2015. The prevalence was significantly higher among females than among males. There was no grade difference in the prevalence for this indicator.

Table 5. Prevalence of Felt Sad or Hopeless Almost Every Day for 2 or More Consecutive Weeks Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	32.9	29.4-36.4	26,040
Male	22.4	18.3-26.5	8,997
Female	43.8	38.7-48.9	17,010
9th	30.3	25.9-34.7	6,718
10th	33.3	25.5-41.1	6,713
11th	31.3	25.8-36.7	5,818
12th	37.0	29.4-44.6	6,594

Data source: West Virginia Department of Education, Youth Risk Behavior Survey, 2015

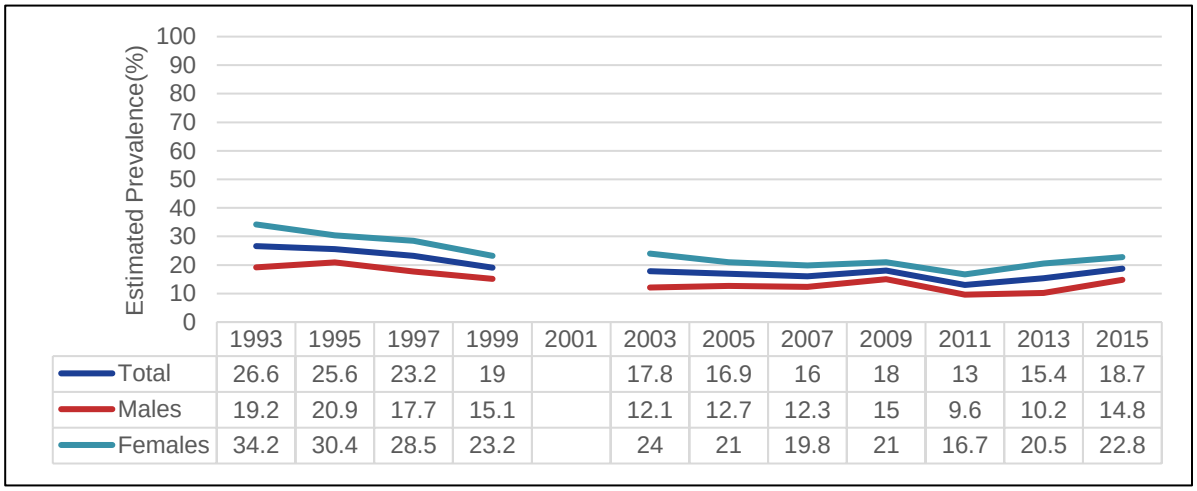
Seriously Considered Attempting Suicide in the Past Year

Definition: Weighted percentage of students who seriously considered attempting suicide during the 12 months before the survey.

High school students

The prevalence of seriously considered attempting suicide in the past year among high school students was 18.7% in 2015.

Figure 6 displays the prevalence of this indicator among high school students for the years 1993-2015. The results indicated that the prevalence significantly decreased from 1993 to 2011 and then significantly increased from 2011 to 2015. This pattern was consistent for both males and females.



	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011	2013	2015
Total	26.6	25.6	23.2	19		17.8	16.9	16	18	13	15.4	18.7
Males	19.2	20.9	17.7	15.1		12.1	12.7	12.3	15	9.6	10.2	14.8
Females	34.2	30.4	28.5	23.2		24	21	19.8	21	16.7	20.5	22.8

Figure 6. Prevalence of Seriously Considered Attempting Suicide in the Past Year Among West Virginia High School Students

Data source: West Virginia Department of Education, Youth Risk Behavior Survey

Table 6 displays the prevalence of seriously considered attempting suicide in the past year among high school students by demographic characteristics for 2015. While there was no grade difference, the prevalence was significantly higher among females than among males.

Table 6. Prevalence of Seriously Considered Attempting Suicide in the Past Year Among WV High School Students by Gender and Grade Level, 2015

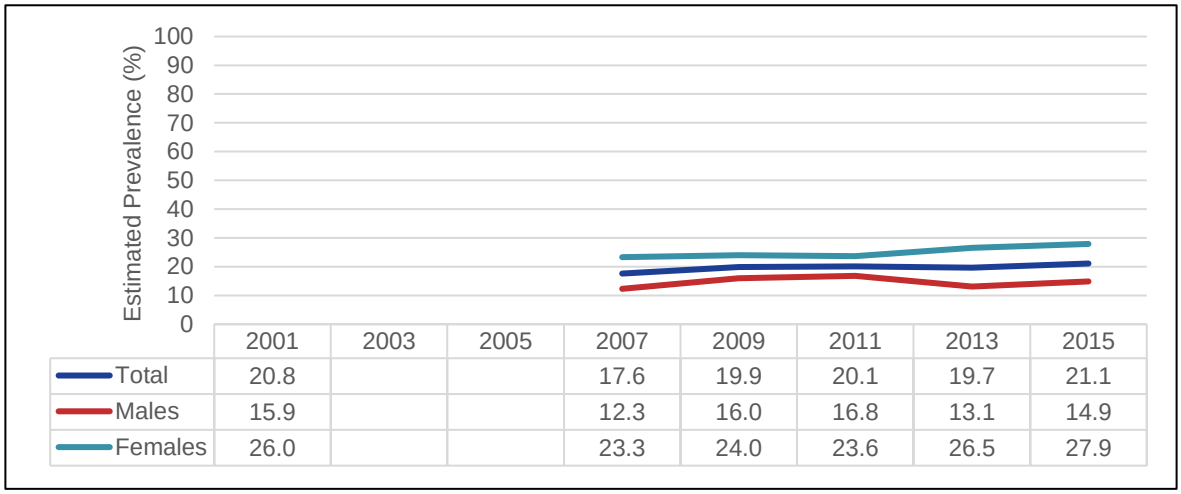
Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	18.7	16.2-21.2	14,784
Male	14.8	12.7-16.9	5,942
Female	22.8	18.2-27.4	8,823
9th	19.4	15.2-23.5	4,259
10th	20.0	15.0-25.0	4,022
11th	15.4	10.8-20.0	2,879
12th	19.4	14.0-24.8	3,469

Data source: West Virginia Department of Education, Youth Risk Behavior Survey, 2015

Middle school students

The prevalence of seriously considered attempting suicide in the past year among middle school students was 21.1% in 2015.

Figure 7 displays the prevalence of this indicator among middle school students for the years 2001-2015. The results indicate no significant change during this time period.



	2001	2003	2005	2007	2009	2011	2013	2015
Total	20.8			17.6	19.9	20.1	19.7	21.1
Males	15.9			12.3	16.0	16.8	13.1	14.9
Females	26.0			23.3	24.0	23.6	26.5	27.9

Figure 7. Prevalence of Seriously Considered Attempting Suicide in the Past Year Among West Virginia Middle School Students

Data source: West Virginia Department of Education, Youth Risk Behavior Survey

Table 7 displays the prevalence of seriously considered attempting suicide in the past year among middle school students by demographic characteristics for 2015. The results indicate that the prevalence was significantly higher among females than among males. Also, the prevalence was significantly higher among 8th-grade students than among 6th-grade students.

Table 7. Prevalence of Seriously Considered Attempting Suicide in the Past Year Among WV Middle School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	21.1	18.3-24.0	12,229
Male	14.9	12.5-17.3	4,466
Female	27.9	23.6-32.2	7,678
6th	14.1	10.9-17.2	2,571
7th	20.3	15.5-25.1	3,993
8th	28.7	22.7-34.8	5,594

Data source: West Virginia Department of Education, Youth Risk Behavior Survey, 2015

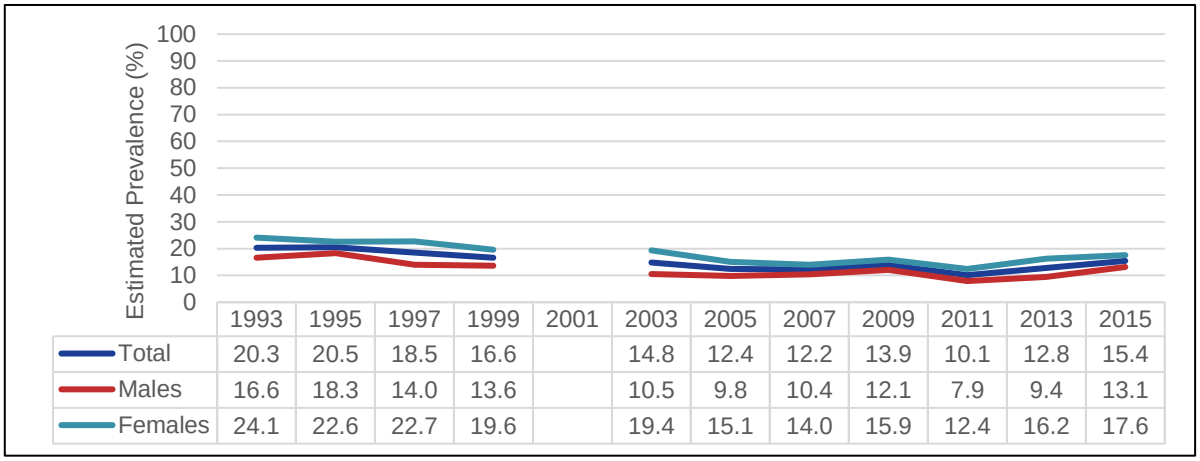
Made a Suicide Plan in the Past year

Definition: Weighted percentage of students who made a plan about how they would attempt suicide during the 12 months before the survey.

High school students

The prevalence of made a suicide plan in the past year among high school students was 15.4% in 2015.

Figure 8 displays the prevalence of this indicator among high school students for the years 1993-2015. The prevalence significantly decreased from 1993 to 2011 and significantly increased from 2011 to 2015 for the total population and among both males and females.



	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011	2013	2015
Total	20.3	20.5	18.5	16.6		14.8	12.4	12.2	13.9	10.1	12.8	15.4
Males	16.6	18.3	14.0	13.6		10.5	9.8	10.4	12.1	7.9	9.4	13.1
Females	24.1	22.6	22.7	19.6		19.4	15.1	14.0	15.9	12.4	16.2	17.6

Figure 8. Prevalence of Made a Suicide Plan in the Past Year Among West Virginia High School Students

Data source: West Virginia Department of Education, Youth Risk Behavior Survey

Table 8 displays the prevalence of made a suicide plan in the past year among high school students by demographic characteristics for 2015. The results indicate no significant gender or grade differences in the prevalence of this indicator.

Table 8. Prevalence of Made a Suicide Plan in the Past Year Among WV High School Students by Gender and Grade Level, 2015

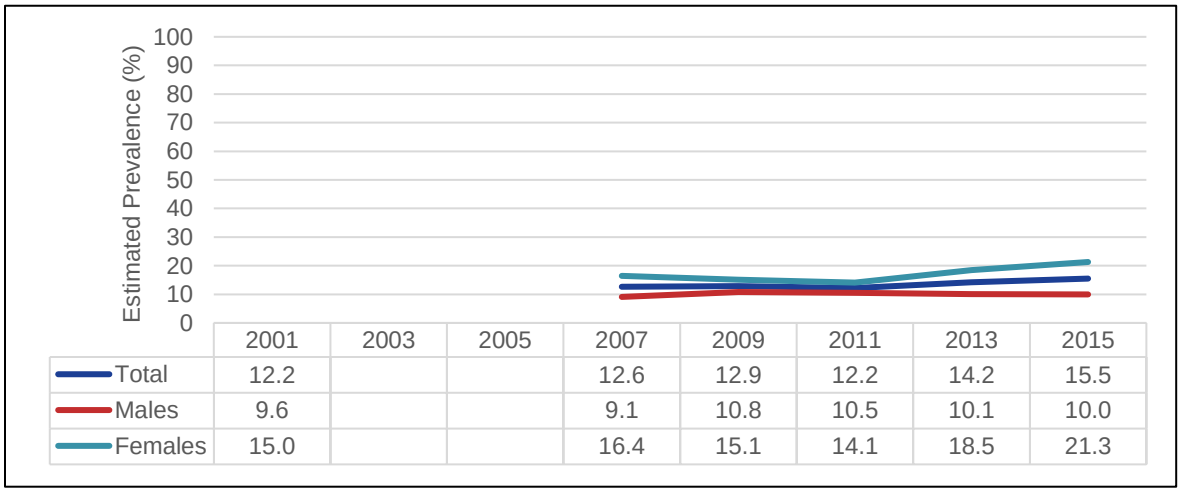
Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	15.4	13.1-17.6	12,092
Male	13.1	11.0-15.2	5,256
Female	17.6	13.9-21.3	6,795
9th	16.7	12.7-20.8	3,694
10th	17.2	12.2-22.2	3,459
11th	11.4	7.6-15.3	2,128
12th	15.6	11.0-20.3	2,771

Data source: West Virginia Department of Education, Youth Risk Behavior Survey, 2015

Middle school students

The prevalence of made a suicide plan in the past year among middle school students was 15.5% in 2015.

Figure 9 displays the prevalence of this indicator among middle school students for the years 2001-2015. The results show that the prevalence significantly increased among females from 2011 to 2015 and showed no significant change for the total population or among males from 2001 to 2015.



	2001	2003	2005	2007	2009	2011	2013	2015
Total	12.2			12.6	12.9	12.2	14.2	15.5
Males	9.6			9.1	10.8	10.5	10.1	10.0
Females	15.0			16.4	15.1	14.1	18.5	21.3

Figure 9. Prevalence of Made a Suicide Plan in the Past Year Among West Virginia Middle School Students

Data source: West Virginia Department of Education, Youth Risk Behavior Survey

Table 9 displays the prevalence of made a suicide plan in the past year among middle school students by demographic characteristics for 2015. The prevalence was significantly higher among females than among males. The results also indicate that the prevalence was significantly higher among 8th-grade students than among 6th- and 7th-grade students.

Table 9. Prevalence of Made a Suicide Plan in the Past Year Among WV Middle School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	15.5	12.7-18.3	9,076
Male	10.0	7.3-12.7	3,042
Female	21.3	16.6-25.9	5,949
6th	10.8	7.5-14.1	1,988
7th	11.8	8.5-15.1	2,343
8th	23.4	17.6-29.2	4,650

Data source: West Virginia Department of Education, Youth Risk Behavior Survey, 2015

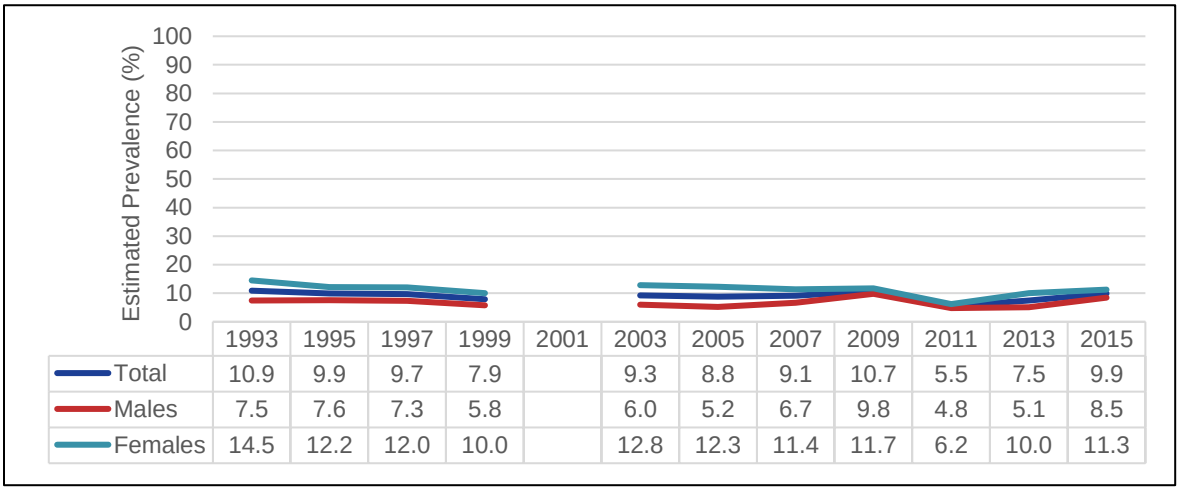
Attempted Suicide in the Past Year

Definition: Weighted percentage of students who attempted suicide one or more times during the 12 months before the survey.

High school students

The prevalence of attempted suicide in the past year among high school students was 9.9% in 2015.

Figure 10 displays the prevalence of this indicator among high school students for 1993-2015. The prevalence significantly decreased among the total population and among females and showed no significant change among males during that time.



	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011	2013	2015
Total	10.9	9.9	9.7	7.9		9.3	8.8	9.1	10.7	5.5	7.5	9.9
Males	7.5	7.6	7.3	5.8		6.0	5.2	6.7	9.8	4.8	5.1	8.5
Females	14.5	12.2	12.0	10.0		12.8	12.3	11.4	11.7	6.2	10.0	11.3

Figure 10. Prevalence of Attempted Suicide in the Past Year Among West Virginia High School Students

Data source: West Virginia Department of Education, Youth Risk Behavior Survey

Table 10 displays the prevalence of attempted suicide in the past year among high school students by demographic characteristics for 2015. Although there was no gender difference in the prevalence of this indicator, the prevalence was significantly higher among 9th-grade students than among 11th-grade students.

Table 10. Prevalence of Attempted Suicide in the Past Year Among WV High School Students by Gender and Grade Level, 2015

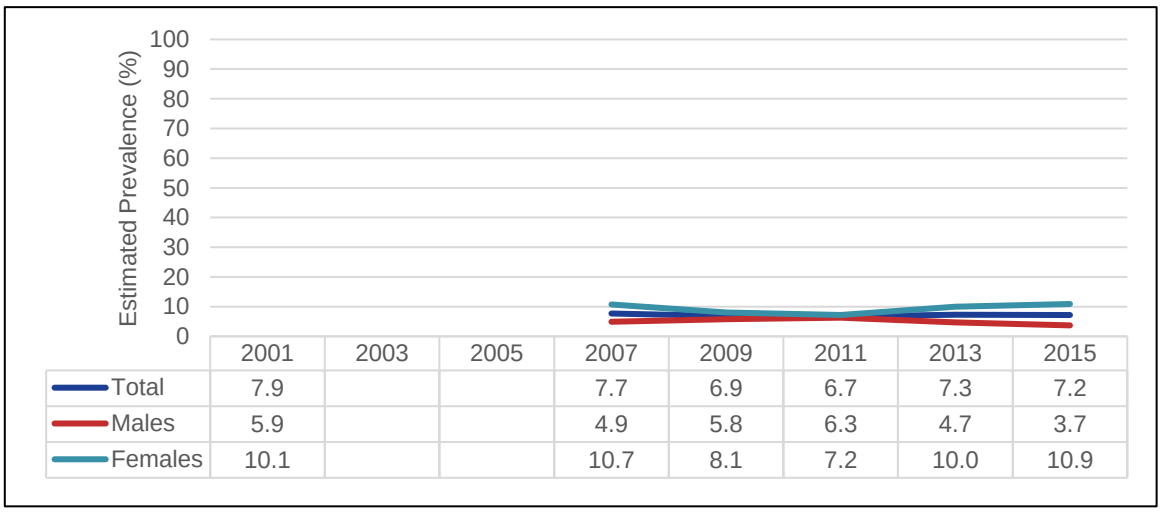
Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	9.9	8.4-11.4	6,966
Male	8.5	6.3-10.7	2,986
Female	11.3	8.7-13.9	3,964
9th	12.3	8.7-16.0	2,452
10th	12.6	8.1-17.1	2,188
11th	6.0	3.3-8.6	1,005
12th	8.2	3.7-12.8	1,321

Data source: West Virginia Department of Education, Youth Risk Behavior Survey, 2015

Middle school students

The prevalence of attempted suicide in the past year among middle school students was 7.2% in 2015.

Figure 11 displays the prevalence of this indicator among middle school students for the years 2001-2015. The results indicate there was no significant change in prevalence during that time.



	2001	2003	2005	2007	2009	2011	2013	2015
Total	7.9			7.7	6.9	6.7	7.3	7.2
Males	5.9			4.9	5.8	6.3	4.7	3.7
Females	10.1			10.7	8.1	7.2	10.0	10.9

Figure 11. Prevalence of Attempted Suicide in the Past Year Among West Virginia Middle School Students

Data source: West Virginia Department of Education, Youth Risk Behavior Survey

Table 11 displays the prevalence of attempted suicide in the past year among middle school students by demographic characteristics for 2015. The results indicate that the prevalence was significantly higher among females than among males. Additionally, the prevalence was significantly higher among 8th-grade students than among 6th-grade students.

Table 11. Prevalence Attempted Suicide in the Past Year Among WV Middle School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	7.2	5.1-9.3	4,225
Male	3.7	2.2-5.3	1,137
Female	10.9	7.8-14.0	3,062
6th	3.5	1.5-5.5	641
7th	5.7	4.1-7.4	1,143
8th	12.1	7.3-16.9	2,405

Data source: West Virginia Department of Education, Youth Risk Behavior Survey, 2015

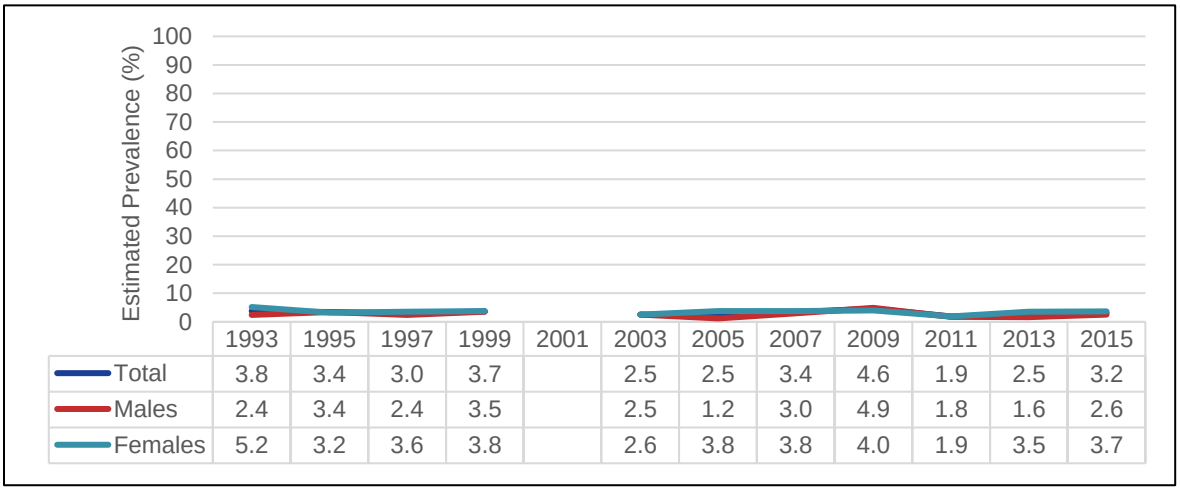
Suicide Attempt Resulting in Injury in the Past Year

Definition: Weighted percentage of students who attempted suicide that resulted in an injury, poisoning, or overdose that had to be treated by a doctor or nurse during the 12 months before the survey.

High school students

The prevalence of suicide attempt injury in the past year among high school students was 3.2% in 2015.

Figure 12 shows the prevalence of suicide attempt injury in the past year among high school students remained constant from 1993 to 2015.



	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011	2013	2015
Total	3.8	3.4	3.0	3.7		2.5	2.5	3.4	4.6	1.9	2.5	3.2
Males	2.4	3.4	2.4	3.5		2.5	1.2	3.0	4.9	1.8	1.6	2.6
Females	5.2	3.2	3.6	3.8		2.6	3.8	3.8	4.0	1.9	3.5	3.7

Figure 12. Prevalence of Suicide Attempt Resulting in Injury in the Past Year Among West Virginia High School Students

Data source: West Virginia Department of Education, Youth Risk Behavior Survey

Table 12 displays the prevalence of suicide attempt injury in the past year among high school students by demographic characteristics for 2015. The results indicate there were no gender or grade differences for this indicator.

Table 12. Prevalence of Suicide Attempt Resulting in Injury in the Past Year Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	3.2	1.9-4.5	2,233
Male	2.6	1.1-4.2	916
Female	3.7	1.9-5.6	1,318
9th	3.5	0.6-6.4	688
10th	4.0	1.6-6.4	685
11th	1.8	0.6-3.1	305
12th	3.5	0.0-7.1	556

Data source: West Virginia Department of Education, Youth Risk Behavior Survey, 2015

Discussion

The research base indicates that many risky behaviors in adolescence are interrelated. An abundance of research has been conducted linking adolescent behaviors to suicidal thought and suicide attempts including bullying and sadness (Sibold, Edwards, Murray-Close, & Hudziak, 2015), maladaptive dieting (Thullen, Taliaferro, & Muehlenkamp, 2015; Brown, Kola-Palmer, & Dhingra, 2015), binge drinking, daily smoking, and marijuana use (Brown, Kola-Palmer, & Dhingra, 2015).

Factors related to the prevention of risky behavior during adolescence have also been extensively investigated. Sibold, Edwards, Murray-Close, and Hudziak (2015) found that exercise lowers sadness, suicidal thoughts, and suicide attempts among teenagers.

The research base indicates several methods of preventing risky behaviors among adolescents. School-based suicide prevention programs have had a substantial impact on adolescent behavior (LaFromboise & Hussain, 2015). Banspach et al (2016) recommend a variety of family-based approaches, school-based approaches, and health services to help prepare adolescents for lifelong health and wellness.

Collaborations among community organizations, local social networks, school health centers, public health departments, and effective school programs can play a large role in prevention of many of these high risk behaviors among adolescents. Promoting healthy behaviors during adolescence can lead to healthy lifestyle and behavioral choices in adulthood thereby preventing major chronic diseases and leading to less disability and greater health-related quality of life in adulthood and through the aging continuum.

Appendix: Survey Methods

The West Virginia Youth Risk Behavior Survey (YRBS) was most recently administered in public middle schools and high schools during the spring of 2015. The following sections describe the methodology of the YRBS.

Sampling Procedures

Because it is not feasible to administer the YRBS questionnaire to all students in the state, a sample of students complete the questionnaires. The West Virginia Department of Education (WVDE) and The Centers for Disease Control and Prevention (CDC) employ a two-stage, cluster sample design. All public high schools and middle schools in the state were included in the sampling frame, which includes enrollment by grade for each school. During the 2015 YRBS administration, a total of 35 randomly selected public high schools and 49 middle schools from around the state participated in the survey. In sampled schools, the survey was administered in a random selection of second period classes.

Sample Characteristics, 2015

A total of 1,622 students enrolled in Grades 9–12, participated in the survey, representing a school response rate of 100% and a student response rate of 77%. A total of 1,854 students enrolled in Grades 6–8, participated in the survey, representing a school response rate of 100% and a student response rate of 75%.

Data Collection

Survey procedures protected the privacy of students by allowing for anonymous and voluntary participation. Passive parental permission was obtained before surveys were administered to students. Data collection was conducted by regional education service agency (RESA) school wellness specialists with coordination by the YRBS coordinator with the WVDE Office of Research, Accountability, and Data Governance. Completed response forms were sent to CDC for processing and weighting.

Questionnaires

Standard questionnaires for middle school students and high school students are provided by CDC. The WVDE modifies the questionnaires by adding or deleting questions based on the needs of WVDE offices and external stakeholders such as the WV Bureau for Public Health. The standard questionnaires are changed by CDC for each administration. The standard high school questionnaire provided by CDC included 89 questions. The 2015 West Virginia version of the high school questionnaire was a 92-item self-administered questionnaire that included all of the topics mentioned in the Introduction as well as three state added questions about dieting practices. The standard middle school questionnaire included 49 questions covering the standard topics listed previously. The West Virginia version of the 2015 middle school questionnaire was 48 questions in length and excluded questions regarding sexual behavior and included three state-added questions about dieting practices.

Weighting of Raw Data

The student responses were scientifically weighted, which allows the results to be generalized to all public middle school and high school students in West Virginia. West Virginia YRBS data have been weighted for high school students each year the survey has been conducted, except 2001, while the middle school data was weighted for all years conducted except 2003 and 2005. The raw data collected are weighted to West Virginia's public school student population based on grade, sex, and race/ethnicity.

Data Analysis

Once the raw data are processed by CDC, WVDE receives the weighted middle school and high school datasets. CDC also provides time trend analyses and standard tables detailing student behavior by demographic characteristics including sex, age, grade, and race/ethnicity. The WVDE YRBS coordinator then performs analyses of the datasets to produce weighted prevalence estimates and weighted frequencies. In general terms, the prevalence is the proportion or percentage of the population that has a specific characteristic or displays a specific behavior during a given time frame. Because the YRBS data are collected from a sample of students, and not all students, and are weighted in order to apply to the population of all students, a prevalence estimate is generated. The prevalence estimate is the weighted percentage of students who engaged in the behavior during a specific period of time. A weighted frequency is calculated based on the prevalence estimate, and estimates the number of students who engage in a specific behavior during a given time period. Additionally, analyses of comorbid behaviors (i.e. behaviors that occur simultaneously) are conducted.

Interpretation of Results

Once the weighted data are analyzed, the results must be interpreted in a scientifically acceptable manner. For comparison of prevalence estimates by demographic characteristics such as gender, age, grade, and race/ethnicity, a conservative statistical procedure is used that involves comparison of 95% confidence intervals. The 95% confidence interval is a range of prevalence estimates within which it is expected that the actual prevalence falls. If the 95% confidence intervals of two prevalence estimates overlap, the estimates are considered to be statistically equivalent or the same. If the 95% confidence intervals of two prevalence estimates do not overlap, the estimates are considered to be significantly different from a statistical perspective. When examining changes in prevalence estimates over time, logistic regression analysis is conducted in order to determine if the changes are statistically significant.

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