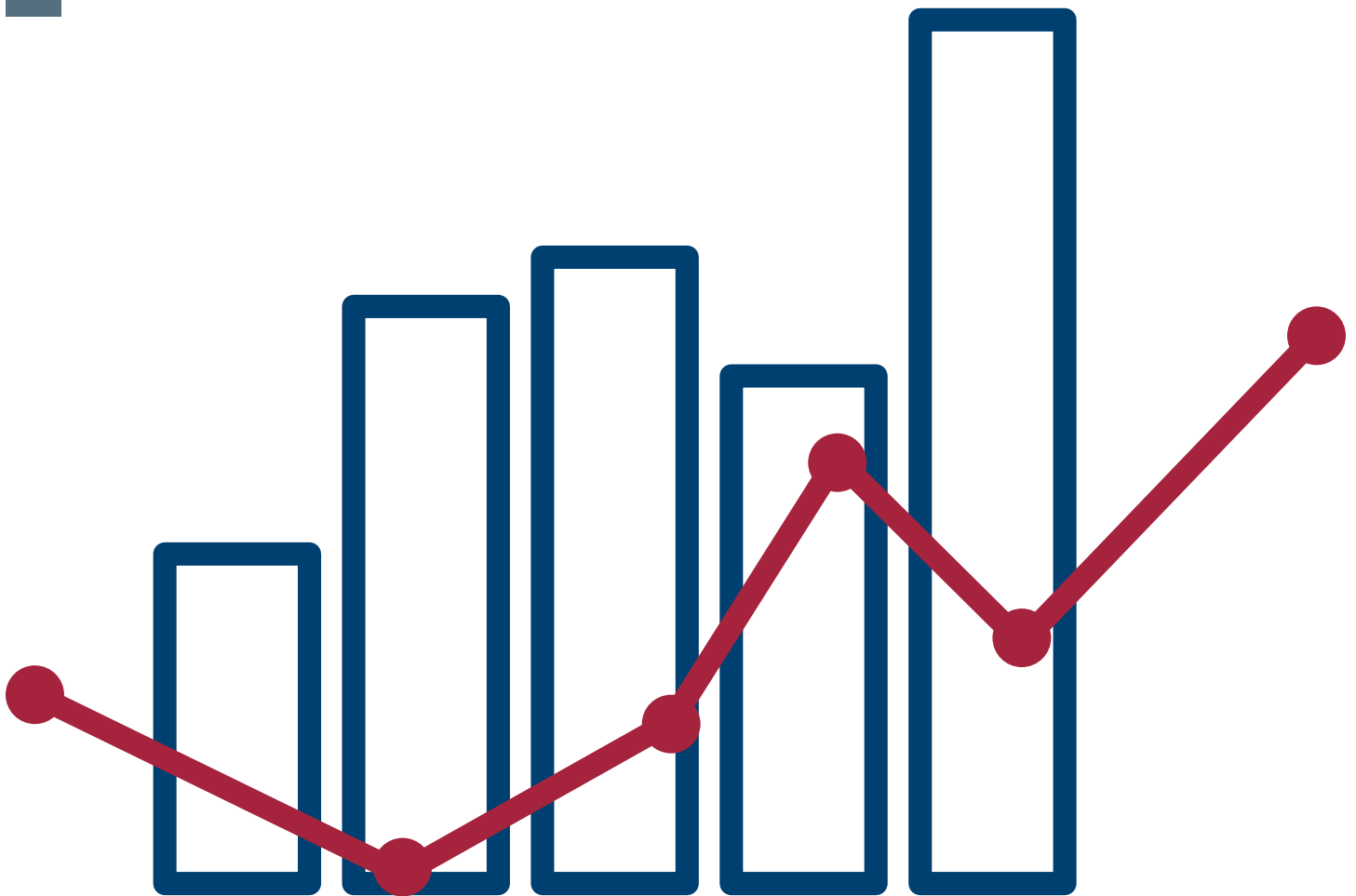


# WEST VIRGINIA YOUTH RISK BEHAVIOR SURVEY, 2015:

## Dietary Behavior





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# West Virginia Youth Risk Behavior Survey, 2015: Dietary Behavior Report

Birgit A. Shanholtzer, M.A.



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## West Virginia Department of Education

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March 2017

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## Table of Contents

Table of Contents.....	iii
Introduction .....	1
Methods .....	1
Results.....	1
No Fruit Juice in the Past Week.....	2
High school students .....	2
No Fruit in the Past Week.....	3
High school students .....	3
No Fruit or Fruit Juice During the Past Week.....	4
High school students .....	4
Consumed Fruit or Fruit Juice One or More Times per Day in the Past Week .....	5
High school students .....	5
Consumed Fruit or Fruit Juice Two or More Times per Day in the Past Week .....	6
High school students .....	6
Consumed Fruit or Fruit Juice Three or More Times per Day in the Past Week.....	7
High school students .....	7
No Salad in the Past Week.....	8
High school students .....	8
No Potatoes in the Past Week.....	9
High school students .....	9
No Carrots in the Past Week .....	10
High school students .....	10
No Other Vegetables in the Past Week .....	11
High school students .....	11
No Vegetables in the Past Week .....	12
High school students .....	12
Ate Vegetables One or More Times per Day in the Past Week.....	13
High school students .....	13
Ate Vegetables Two or More Times per Day in the Past Week.....	14
High school students .....	14
Ate Vegetables Three or More Times per Day in the Past Week .....	15
High school students .....	15

No Soda or Pop in the Past Week .....	16
High school students .....	16
Drank Soda or Pop at Least Once a Day in the Past Week .....	17
High school students .....	17
Drank Soda or Pop Two or More Times a Day in the Past Week .....	18
High school students .....	18
Drank Soda or Pop Three or More Times a Day in the Past Week .....	19
High school students .....	19
No Milk in the Past Week .....	20
High school students .....	20
Drank One or More Glasses of Milk per Day in the Past Week.....	21
High school students .....	21
Drank Two or More Glasses of Milk per Day in the Past Week.....	22
High school students .....	22
Drank Three or More Glasses of Milk per Day in the Past Week .....	23
High school students .....	23
Did Not Eat Breakfast in the Past Week .....	24
High school students .....	24
Middle school students .....	25
Ate Breakfast Daily in the Past Week .....	26
High school students .....	26
Middle school students .....	27
Discussion .....	28
Appendix: Survey Methods .....	29
References .....	31

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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

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## Methods

See the Appendix, page 29 for details about sampling procedures, sample characteristics, questionnaires, weighting of the raw data, data analysis, and interpretation of the results.

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## 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.

## No Fruit Juice in the Past Week

Definition: Weighted percentage of students who did not drink 100% fruit juice one or more times during the 7 days before the survey.

### High school students

The prevalence of no fruit juice in the past week among high school students was 29.1% in 2015.

Figure 1 displays the prevalence of no fruit juice in the past week among high school students for 1999-2015. The results indicate the prevalence significantly increased during that time period for the total population and among both males and females.

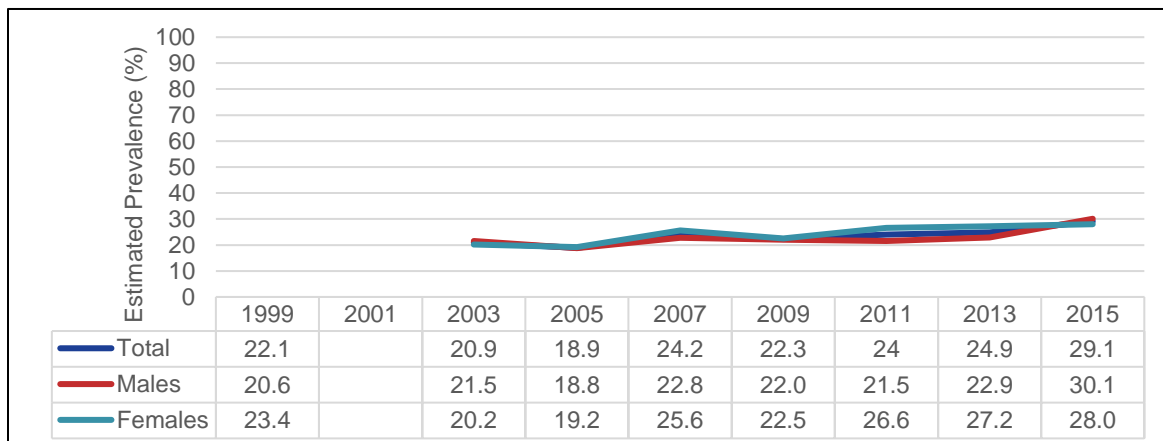


Figure 1. Prevalence of No Fruit Juice in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 1 displays the prevalence of no fruit juice in the past week among high school students by demographic characteristics for 2015. The results indicate no statistically significant gender or grade differences in the prevalence of this indicator.

Table 1. Prevalence of No Fruit Juice in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	29.1	26.2-32.0	22,689
Male	30.1	26.1-34.1	11,932
Female	28.0	24.1-31.9	10,695
9th	30.3	25.3-35.2	6,553
10th	26.9	21.0-32.8	5,344
11th	28.5	24.1-32.8	5,240
12th	30.1	22.6-37.7	5,339

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



## No Fruit in the Past Week

Definition: Weighted percentage of students who did not eat fruit one or more times during the 7 days before the survey.

### High school students

The prevalence of no fruit in the past week among high school students was 14.5% in 2015.

Figure 2 displays the prevalence of no fruit in the past week among high school students for 1999-2015. The results indicate the prevalence was stable during that time for the total population and among females. Additionally, after dropping to its lowest level in 2013 the prevalence among males significantly increased in 2015.

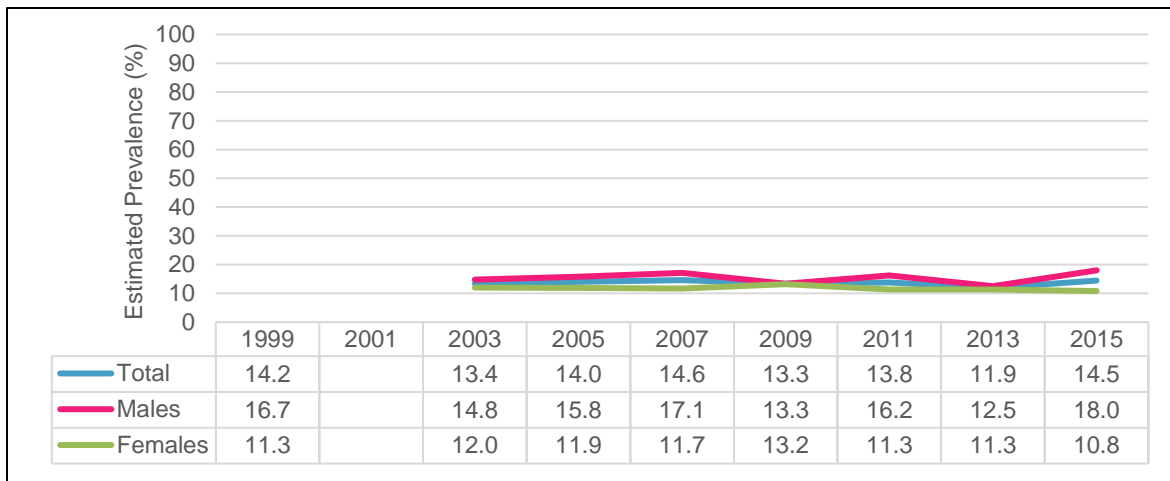


Figure 2. Prevalence of No Fruit in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 2 displays the prevalence of no fruit in the past week among high school students by demographic characteristics for 2015. The results indicate the prevalence of no fruit was significantly higher among males than among females. There was no significant grade difference for this indicator.

Table 2. Prevalence of No Fruit in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	14.5	12.4-16.6	11,265
Male	18.0	14.5-21.6	7,131
Female	10.8	8.3-13.3	4,120
9th	14.1	9.8-18.4	3,040
10th	14.7	10.7-18.7	2,916
11th	13.0	9.1-17.0	2,398
12th	15.9	8.7-23.1	2,806

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

## No Fruit or Fruit Juice During the Past Week

Definition: Weighted percentage of students who did not eat fruit or drink 100% fruit juice during the 7 days before the survey.

### High school students

The prevalence of no fruit or fruit juice in the past week among high school students was 8.1% in 2015.

Figure 3 shows prevalence of no fruit or fruit juice in the past week among high school students was stable from 1999 to 2015.

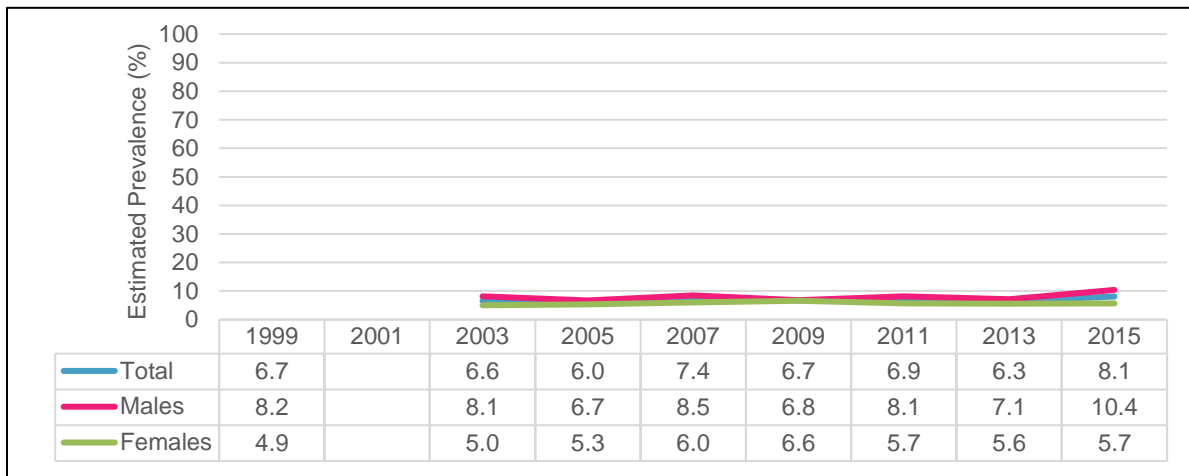


Figure 3. Prevalence of No Fruit or Fruit Juice in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 3 displays the prevalence of no fruit or fruit juice in the past week among high school students by demographic characteristics for 2015. The results indicate no statistically significant gender or grade differences for this indicator.

Table 3. Prevalence of No Fruit or Fruit Juice in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	8.1	6.2-10.1	6,307
Male	10.4	7.2-13.7	4,109
Female	5.7	3.8-7.7	2,185
9th	8.6	4.8-12.3	1,846
10th	7.4	5.0-9.7	1,458
11th	5.9	3.2-8.6	1,087
12th	10.3	4.1-16.5	1,811

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

## Consumed Fruit or Fruit Juice One or More Times per Day in the Past Week

Definition: Weighted percentage of students who ate fruit or drank 100% fruit juice one or more times per day during the 7 days before the survey.

### High school students

The prevalence of consuming fruit or fruit juice one or more times per day in the past week among high school students was 55.1% in 2015.

Figure 4 displays this level of consumption among high school students for 1999-2015. The results indicate the prevalence significantly decreased from 2013 to 2015 for the total population and among males, with no change among females.

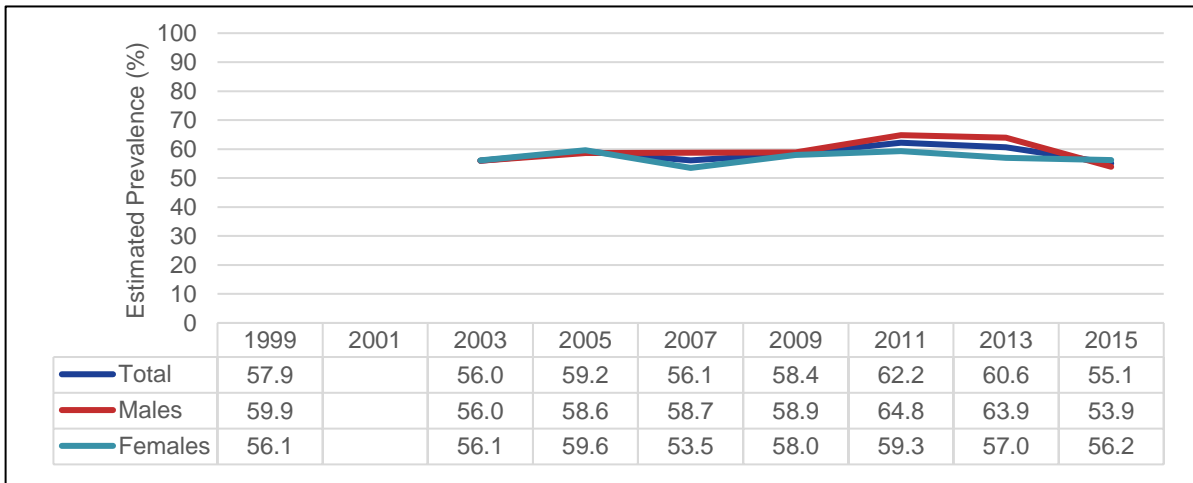


Figure 4. Prevalence of Consuming Fruit or Fruit Juice One or More Times per Day in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 4 displays the prevalence of consuming fruit or fruit juice one or more times per day in the past week among high school students by demographic characteristics for 2015. There were no statistically significant gender or grade differences for this indicator.

Table 4. Prevalence of Consuming Fruit or Fruit Juice One or More Times per Day in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	55.1	51.5-58.6	42,735
Male	53.9	49.9-57.8	21,210
Female	56.2	50.0-62.5	21,409
9th	55.4	49.4-61.3	11,944
10th	56.9	50.3-63.5	11,237
11th	52.1	46.0-58.1	9,576
12th	55.7	47.5-63.9	9,775

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

## Consumed Fruit or Fruit Juice Two or More Times per Day in the Past Week

Definition: Weighted percentage of students who ate fruit or drank 100% fruit juice two or more times per day during the 7 days before the survey.

### High school students

The prevalence of consuming fruit or fruit juice two or more times per day in the past week among high school students was 27.9% in 2015.

Figure 5 displays this level of consumption among high school students for the years 1999-2015. The results show the prevalence significantly decreased from 2013 to 2015 among males only. The prevalence was stable for the total population and among females.

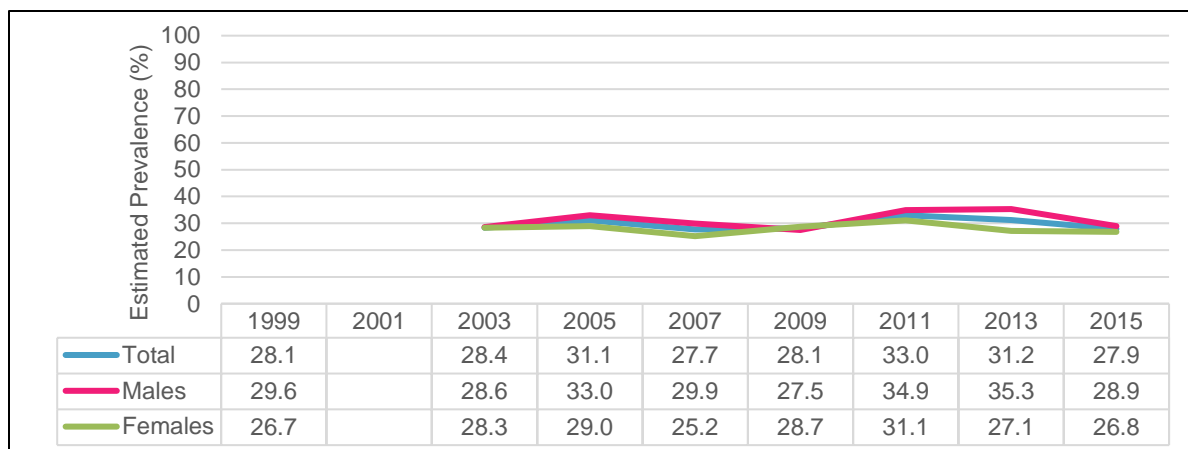


Figure 5. Prevalence of Two or More Servings of Fruit or Fruit Juice per Day in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 5 displays the prevalence of consuming fruit or fruit juice two or more times per day in the past week among high school students by demographic characteristics for 2015. The results indicate no statistically significant gender or grade differences for this indicator.

Table 5. Prevalence of Two or More Servings of Fruit or Fruit Juice per Day in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	27.9	25.5-30.4	21,690
Male	28.9	26.3-31.5	11,382
Female	26.8	22.1-31.5	10,205
9th	28.4	24.1-32.7	6,130
10th	30.6	25.6-35.7	6,049
11th	24.0	19.7-28.3	4,408
12th	28.1	23.1-33.0	4,926

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

## Consumed Fruit or Fruit Juice Three or More Times per Day in the Past Week

Definition: Weighted percentage of students who ate fruit or drank 100% fruit juice three or more times per day during the 7 days before the survey.

### High school students

The prevalence of consuming fruit or fruit juice three or more times per day in the past week among high school students was 18.2% in 2015.

Figure 6 indicates prevalence of this level of consumption among high school students was stable from 1999 to 2015.

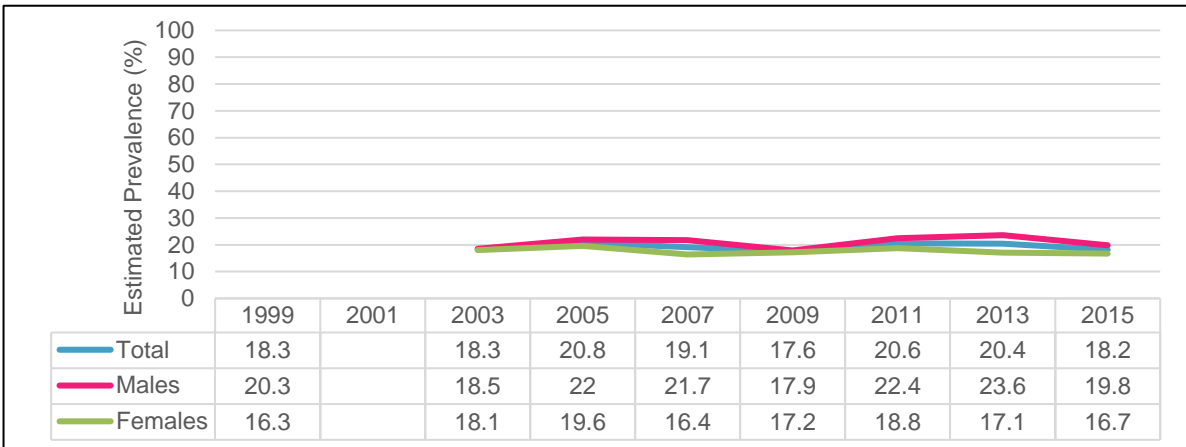


Figure 6. Prevalence of Consuming Fruit or Fruit Juice Three or More Times per Day in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 6 displays the prevalence of consuming fruit or fruit juice three or more times per day in the past week among high school students by demographic characteristics for 2015. The results indicate no gender difference and no statistically significant grade difference for this indicator.

Table 6. Prevalence of Consuming Fruit or Fruit Juice Three or More Times per Day in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	18.2	15.9-20.5	14,164
Male	19.8	16.1-23.5	7,788
Female	16.7	12.9-20.4	6,351
9th	18.2	14.9-21.6	3,929
10th	21.7	17.4-26.0	4,289
11th	17.1	13.0-21.1	3,137
12th	15.6	11.4-19.8	2,737

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

## No Salad in the Past Week

Definition: Weighted percentage of students who did not eat salad during the 7 days before the survey.

### High school students

The prevalence of no salad in the past week among high school students was 42.3% in 2015.

Figure 7 shows the prevalence of no salad in the past week among high school students significantly increased for the total population and among both males and females from 1999 to 2015.

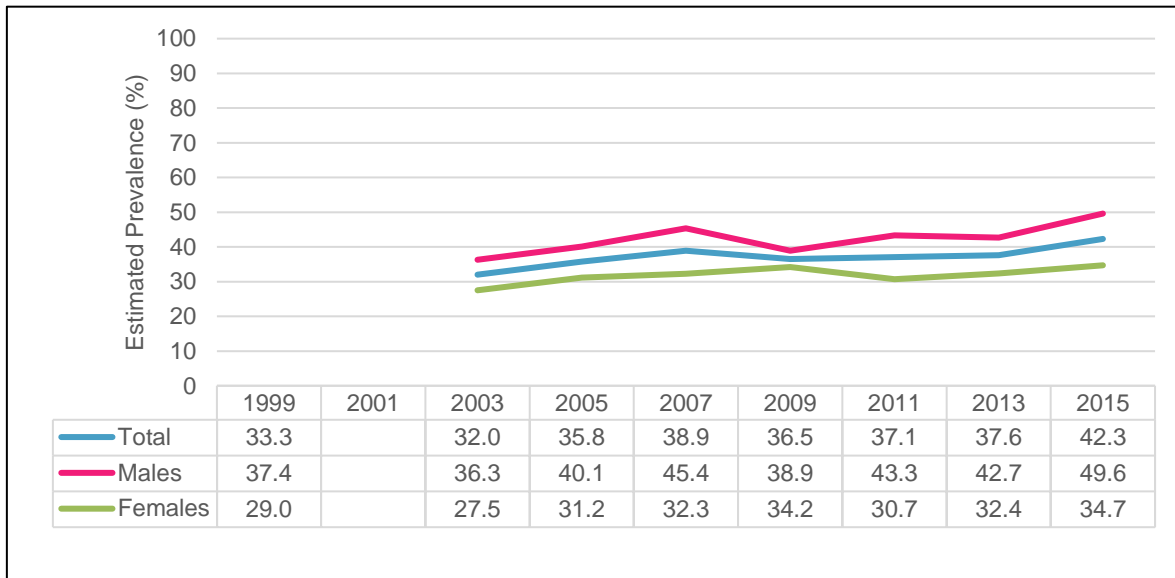


Figure 7. Prevalence of No Salad in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 7 displays the prevalence of no salad in the past week among high school students by demographic characteristics for 2015. The prevalence was significantly higher among males than among females. There was no significant grade difference in the prevalence.

Table 7. Prevalence of No Salad in the Past Week Among WV High School Students by Gender and Grade Level, 2015			
Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	42.3	38.8-45.7	32,756
Male	49.6	43.8-55.4	19,533
Female	34.7	30.8-38.6	13,172
9th	43.0	37.4-48.6	9,269
10th	38.9	33.6-44.3	7,710
11th	44.0	39.8-48.2	8,025
12th	43.2	34.7-51.6	7,594

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

## No Potatoes in the Past Week

Definition: Weighted percentage of students who did not eat potatoes (excluding French fries, fried potatoes, and potato chips) during the 7 days before the survey.

### High school students

The prevalence of no potatoes in the past week among high school students was 30.8% in 2015.

Figure 8 displays that the prevalence of no potatoes in the past week among high school students significantly increased for the total population and among both males and females from 1999 to 2015.

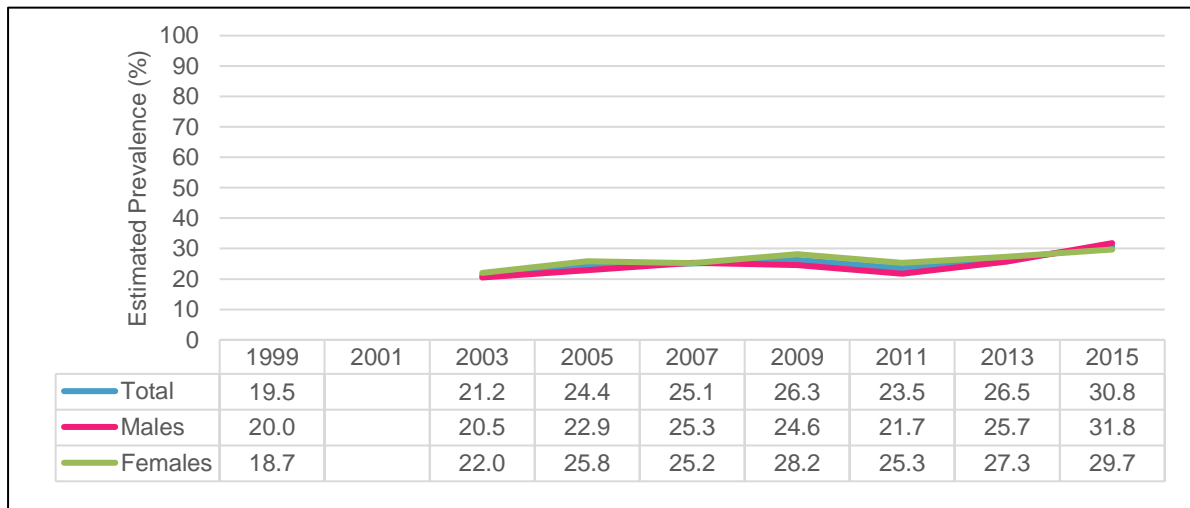


Figure 8. Prevalence of No Potatoes in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 8 displays the prevalence of no potatoes in the past week among high school students by demographic characteristics for 2015. While there was no statistically significant gender difference, the prevalence was significantly higher among 9th-grade students than among 10th- and 11th-grade students.

Table 8. Prevalence of No Potatoes in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	30.8	27.6-33.9	23,918
Male	31.8	27.2-36.4	12,557
Female	29.7	25.5-34.0	11,322
9th	39.9	33.7-46.0	8,597
10th	27.0	21.5-32.6	5,370
11th	26.8	22.3-31.2	4,907
12th	28.3	20.9-35.6	4,978

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

## No Carrots in the Past Week

Definition: Weighted percentage of students who did not eat carrots during the 7 days before the survey.

### High school students

The prevalence of no carrots in the past week among high school students was 58.6% in 2015.

Figure 9 displays the prevalence of no carrots in the past week among high school students for the years 1999-2015. The prevalence significantly increased from 2013 to 2015 for the total population and among males while there was no significant change among females.

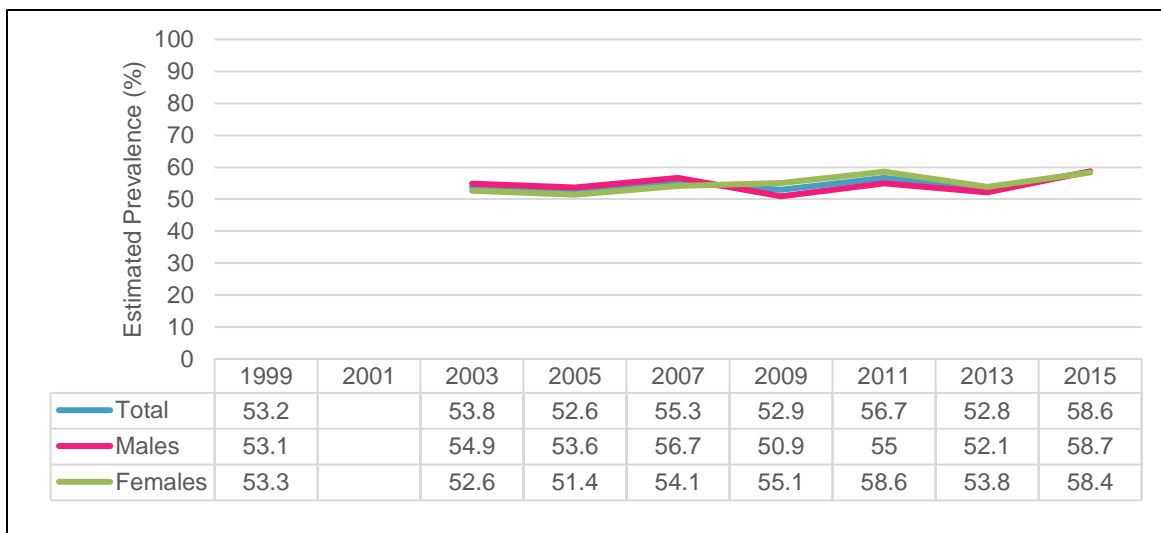


Figure 9. Prevalence of No Carrots in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 9 displays the prevalence of no carrots in the past week among high school students by demographic characteristics for 2015. The results indicate no statistically significant gender or grade differences for this indicator.

Table 9. Prevalence of No Carrots in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	58.6	56.7-60.5	45,508
Male	58.7	55.1-62.3	23,214
Female	58.4	54.5-62.2	22,153
9th	58.4	51.6-65.2	12,516
10th	53.1	48.2-57.9	10,484
11th	61.6	57.5-65.7	11,330
12th	62.0	54.3-69.7	10,994

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



## No Other Vegetables in the Past Week

Definition: Weighted percentage of students who did not eat other vegetables (excluding salad, carrots, and potatoes) during the 7 days before the survey.

### High school students

The prevalence of no other vegetables in the past week among high school students was 23.9% in 2015.

Figure 10 shows the prevalence of no other vegetables in the past week among high school students significantly increased from 1999 to 2015.

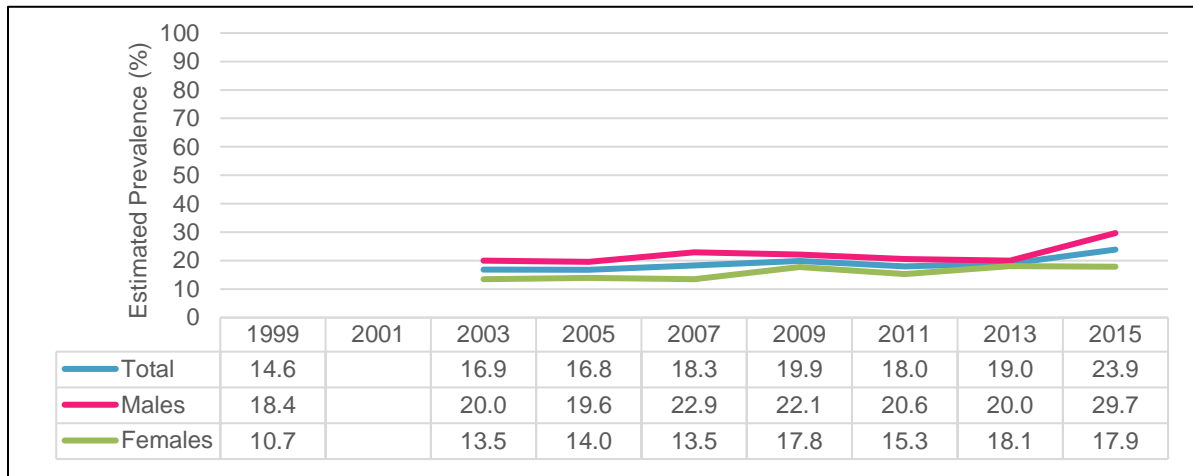


Figure 10. Prevalence of No Other Vegetables in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 10 displays the prevalence of no other vegetables in the past week among high school students by demographic characteristics for 2015. The results indicate the prevalence was significantly higher among males than among females. There was no significant grade difference for this indicator.

Table 10. Prevalence of No Other Vegetables in the Past Week Among WV High School Students by Gender and Grade Level for 2015.

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	23.9	19.7-28.1	18,363
Male	29.7	25.2-34.2	11,603
Female	17.9	13.6-22.3	6,734
9th	26.1	19.5-32.7	5,501
10th	24.1	15.7-32.4	4,681
11th	18.6	14.9-22.3	3,386
12th	26.7	17.7-35.7	4,731

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

## No Vegetables in the Past Week

Definition: Weighted percentage of students who did not eat vegetables (green salad, potatoes, carrots, or other vegetables) during the 7 days before the survey.

### High school students

The prevalence of no vegetables in the past week among high school students was 8.3% in 2015.

Figure 11 shows the prevalence of no vegetables in the past week among high school students significantly increased from 1999 to 2015 for the total population and among both males and females.

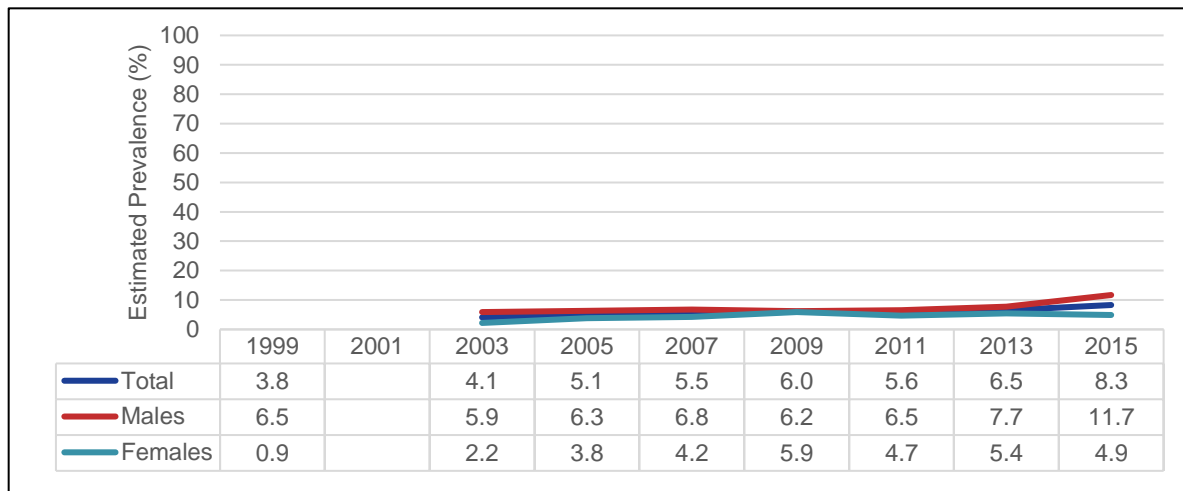


Figure 11. Prevalence of No Vegetables in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 11 displays the prevalence of no vegetables in the past week among high school students by demographic characteristics for 2015. The prevalence of no vegetables in the past week was significantly higher among males than among females. There was no significant grade difference in the prevalence.

Table 11. Prevalence of No Vegetables in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	8.3	5.9-10.8	6,309
Male	11.7	8.8-14.5	4,474
Female	4.9	2.6-7.1	1,822
9th	10.0	5.7-14.3	2,086
10th	9.1	4.1-14.2	1,756
11th	5.7	3.2-8.2	1,026
12th	8.1	2.7-13.4	1,406

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

## Ate Vegetables One or More Times per Day in the Past Week

Definition: Weighted percentage of students who ate vegetables (green salad, potatoes, carrots, or other vegetables) one or more times per day during the 7 days before the survey.

### High school students

The prevalence of ate vegetables one or more times per day in the past week among high school students was 55.8% in 2015.

Figure 12 displays the prevalence of this level of consumption among high school students significantly decreased for the total population and among females from 1999 to 2015. The prevalence among males significantly decreased from 2013 to 2015.

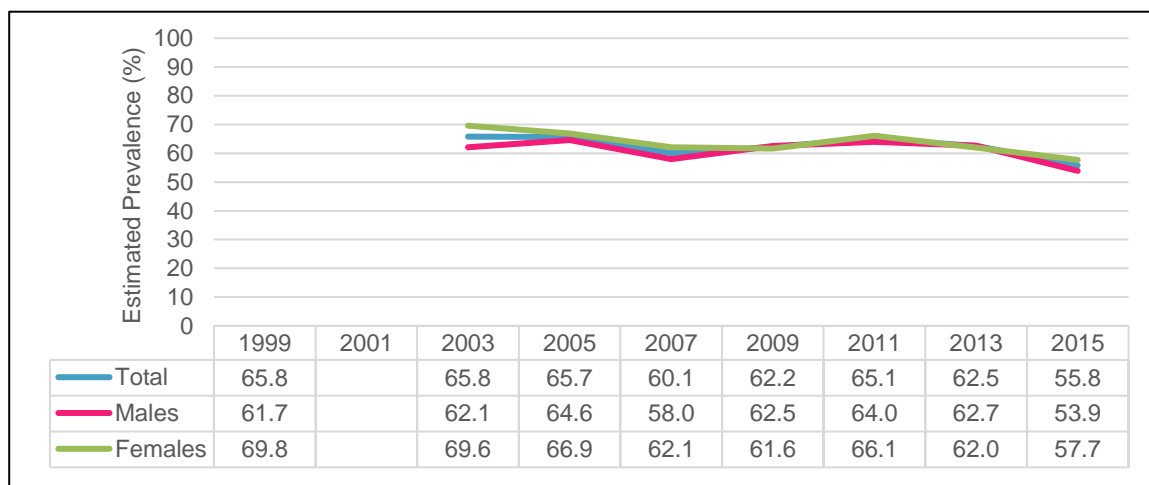


Figure 12. Prevalence of Ate Vegetables One or More Times per Day in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 12 displays the prevalence of ate vegetables one or more times per day in the past week among high school students by demographic characteristics for 2015. The results indicate there was no significant gender or grade differences for this indicator.

Table 12. Prevalence of Ate Vegetables One or More Times per Day in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	55.8	52.4-59.2	42,311
Male	53.9	49.4-58.3	20,655
Female	57.7	53.3-62.1	21,540
9th	52.1	45.0-59.2	10,856
10th	57.5	51.0-64.1	11,069
11th	57.6	53.4-61.8	10,379
12th	55.8	49.1-62.5	9,735

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

## Ate Vegetables Two or More Times per Day in the Past Week

Definition: Weighted percentage of students who ate vegetables (green salad, potatoes, carrots, or other vegetables) two or more times per day during the 7 days before the survey.

### High school students

The prevalence of ate vegetables two or more times per day in the past week among high school students was 23.8% in 2015.

Figure 13 displays the prevalence of this level of consumption among high school students for 1999-2015. The prevalence was unchanged among females but significantly decreased from 2013 to 2015 for the total population and among males.

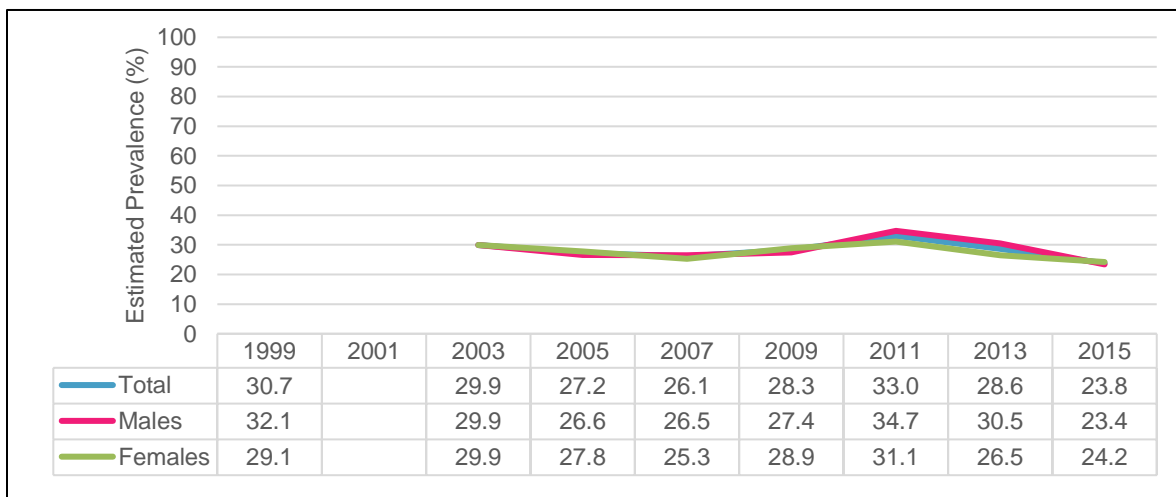


Figure 13. Prevalence of Ate Two or More Servings of Vegetables per Day in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 13 displays the prevalence of ate vegetables two or more times per day in the past week among high school students by demographic characteristics for 2015. There were no significant gender or grade differences in the prevalence of this indicator.

Table 13. Prevalence of Ate Vegetables Two or More Times per Day in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	23.8	21.0-26.5	18,016
Male	23.4	19.4-27.3	8,953
Female	24.2	20.2-28.2	9,034
9th	22.6	16.6-28.7	4,715
10th	28.8	22.1-35.5	5,539
11th	23.6	19.5-27.8	4,256
12th	18.9	13.7-24.0	3,295

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

## Ate Vegetables Three or More Times per Day in the Past Week

Definition: Weighted percentage of students who ate vegetables (green salad, potatoes, carrots, or other vegetables) three or more times per day during the 7 days before the survey.

### High school students

The prevalence of ate vegetables three or more times per day in the past week among high school students was 12.9% in 2015.

Figure 14 shows the prevalence of this level of consumption among high school students was stable from 1999 to 2015.

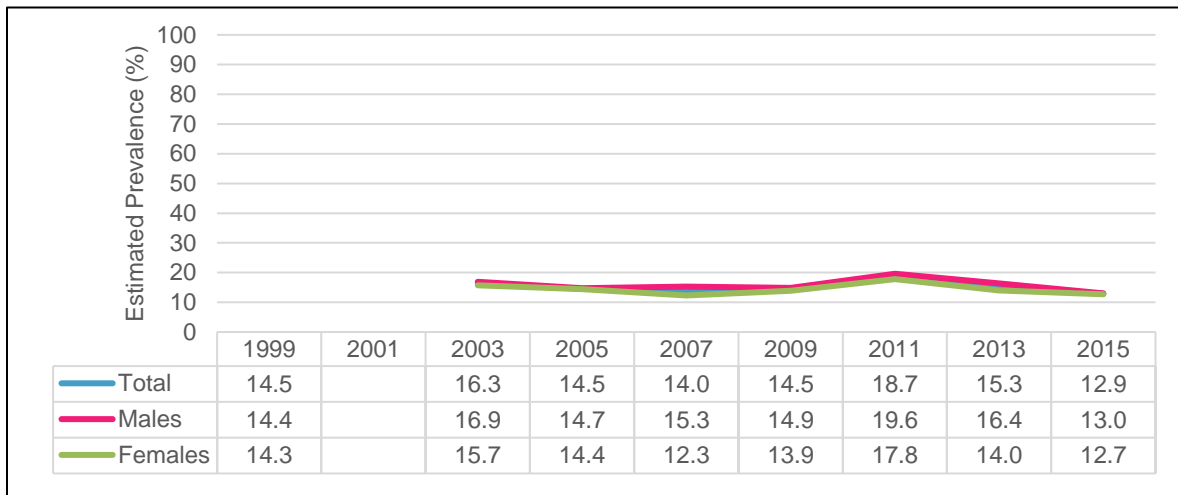


Figure 14. Prevalence of Ate Vegetables Three or More Times per Day in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 14 displays the prevalence of ate vegetables three or more times per day in the past week among high school students by demographic characteristics for 2015. There were no significant gender or grade differences in the prevalence of this indicator.

Table 14. Prevalence of Ate Vegetables Three or More Times per Day in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	12.9	11.2-14.6	9,760
Male	13.0	9.7-16.2	4,971
Female	12.7	10.6-14.9	4,759
9th	11.7	8.9-14.4	2,427
10th	16.3	12.5-20.2	3,142
11th	13.3	9.9-16.7	2,395
12th	9.4	5.6-13.2	1,636

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

## No Soda or Pop in the Past Week

Definition: Weighted percentage of students who did not drink a can, bottle, or glass of soda or pop (not including diet soda or diet pop) during the 7 days before the survey.

### High school students

The prevalence of no soda or pop in the past week among high school students was 21.8% in 2015.

Figure 15 shows the prevalence of this level of consumption among high school students significantly increased from 2007 to 2015.

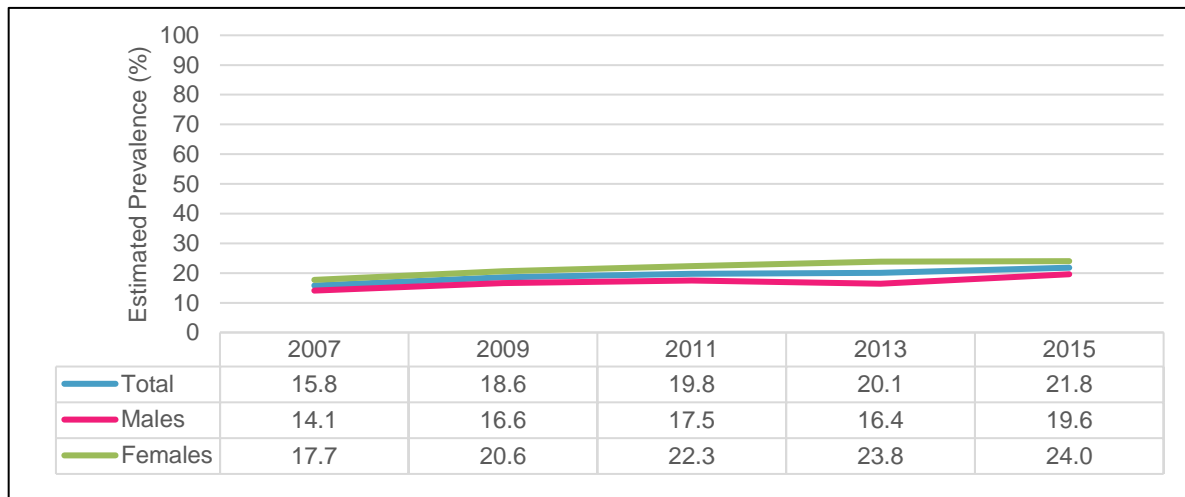


Figure 15. Prevalence of No Soda or Pop in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 15 displays the prevalence of no soda or pop in the past week among high school students by demographic characteristics for 2015. There were no statistically significant gender or grade differences for the prevalence of this indicator.

Table 15. Prevalence of No Soda or Pop in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	21.8	19.3-24.4	16,940
Male	19.6	15.8-23.5	7,723
Female	24.0	20.7-27.3	9,125
9th	22.4	17.2-27.7	4,772
10th	21.0	15.8-26.1	4,165
11th	20.3	16.0-24.7	3,727
12th	23.6	19.2-28.0	4,188

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

## Drank Soda or Pop at Least Once a Day in the Past Week

Definition: Weighted percentage of students who drank a can, bottle, or glass of soda or pop (not including diet soda or diet pop) one or more times per day during the 7 days before the survey.

### High school students

The prevalence of drinking soda or pop at least once a day in the past week among high school students was 30.1% in 2015. West Virginia ranked the second highest in the nation for the prevalence of this indicator among high school students (Kann et al., 2016).

Figure 16 shows the prevalence among high school students significantly decreased from 2007 to 2015.

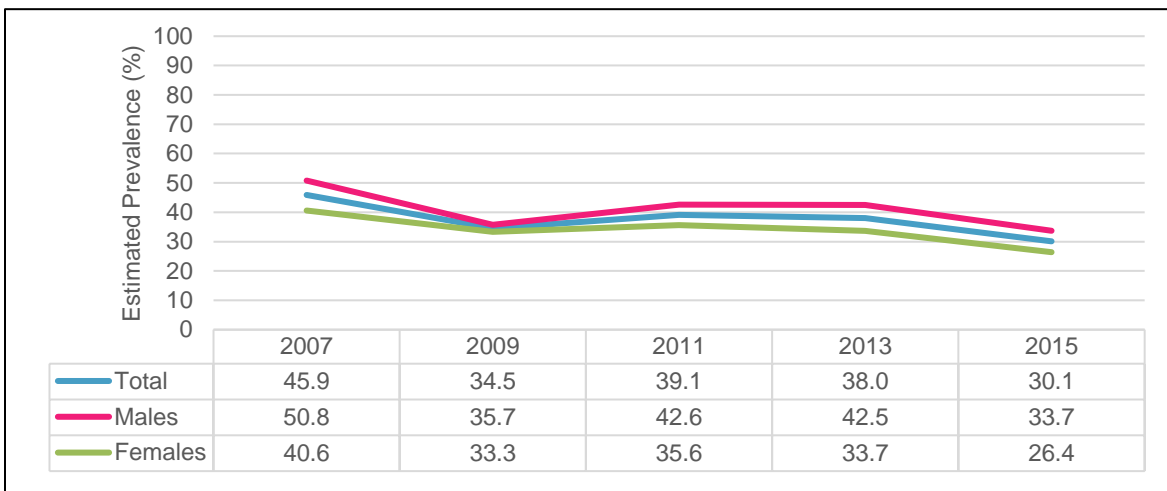


Figure 16. Prevalence of Drank Soda or Pop at Least Once a Day Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 16 displays the prevalence of drinking soda or pop at least once a day in the past week among high school students by demographic characteristics for 2015. The results indicate the prevalence was significantly higher among males than among females. There was no significant grade difference for this indicator.

Table 16. Prevalence of Drank Soda or Pop at Least Once a Day in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	30.1	27.6-32.6	23,339
Male	33.7	30.2-37.3	13,286
Female	26.4	22.8-30.0	10,045
9th	22.9	17.5-28.3	4,875
10th	32.9	26.0-39.8	6,529
11th	32.0	27.7-36.3	5,872
12th	33.4	27.1-39.8	5,930

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

## Drank Soda or Pop Two or More Times a Day in the Past Week

Definition: Weighted percentage of students who drank a can, bottle, or glass of soda or pop (not including diet soda or diet pop) two or more times per day during the 7 days before the survey.

### High school students

The prevalence of drank soda or pop two or more times a day in the past week among high school students was 22.1% in 2015. West Virginia ranked second highest in the nation for the prevalence of drank soda or pop two or more times a day among high school students (Kann et al., 2016).

Figure 17 shows the prevalence of this level of consumption among high school students significantly decreased from 2007 to 2015 for the total population and among both males and females.

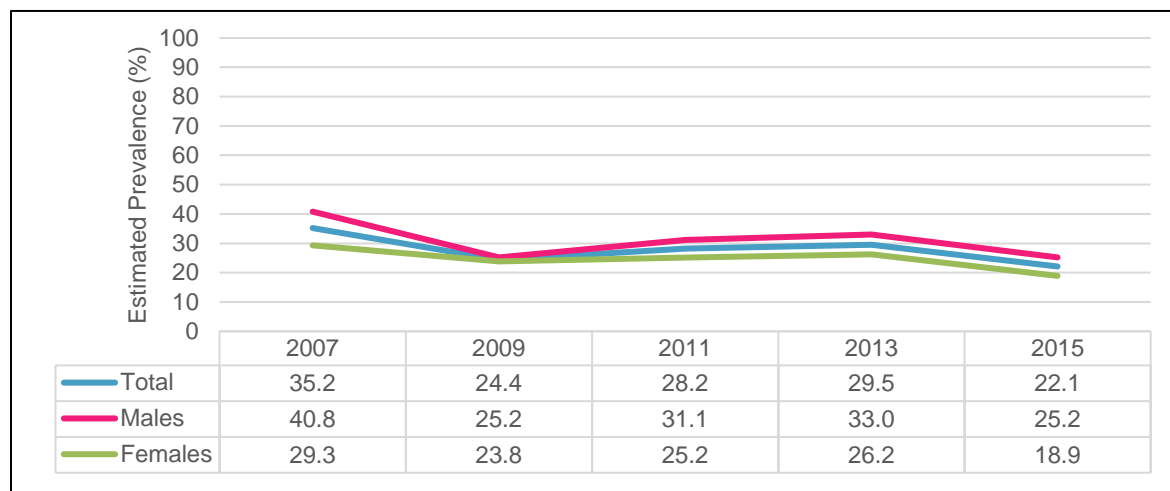


Figure 17. Prevalence of Drank Soda or Pop Two or More Times per Day in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 17 displays the prevalence of drank soda or pop two or more times a day in the past week 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 17. Prevalence of Drank Soda or Pop Two or More Times per Day in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	22.1	19.7-24.5	17,137
Male	25.2	21.9-28.6	9,934
Female	18.9	15.6-22.2	7,196
9th	16.4	12.1-20.8	3,498
10th	24.8	19.2-30.5	4,928
11th	24.0	19.9-28.0	4,399
12th	23.7	17.4-30.1	4,207

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



## Drank Soda or Pop Three or More Times a Day in the Past Week

Definition: Weighted percentage of students who drank a can, bottle, or glass of soda or pop (not including diet soda or diet pop) three or more times per day during the 7 days before the survey.

### High school students

The prevalence of drank soda or pop three or more times a day in the past week among high school students was 13.5% in 2015. West Virginia ranked the highest in the nation for high school students drinking soda or pop three or more times per day (Kann et al, 2016).

Figure 18 displays the prevalence of this level of consumption among high school students for 2007-2015. The prevalence significantly decreased during that time period for the total population and among males. The prevalence among females significantly decreased from 2013 to 2015.

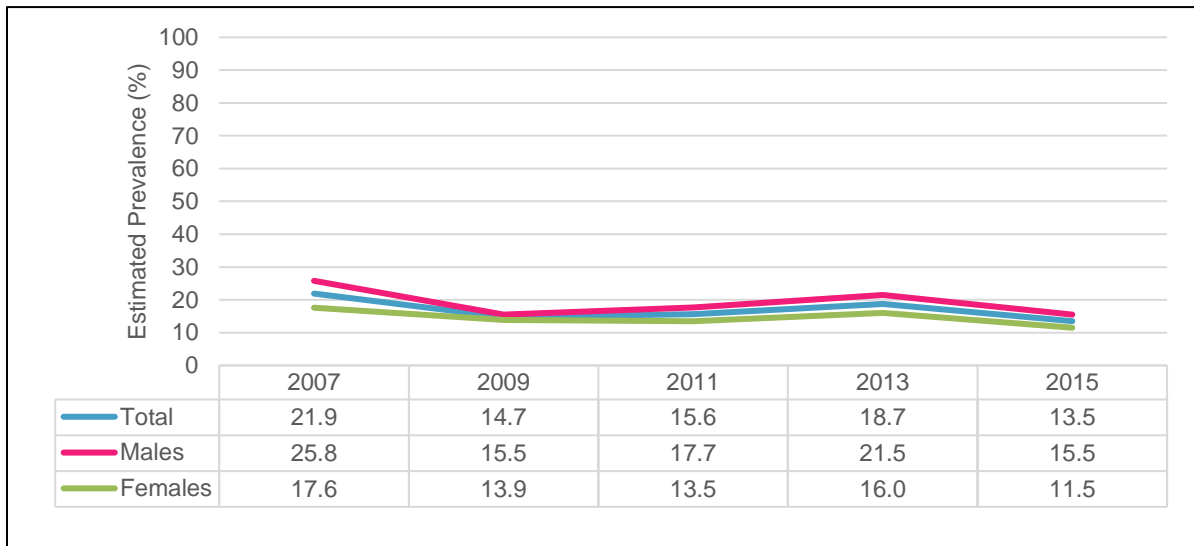


Figure 18. Prevalence of Drank Soda or Pop Three or More Times per Day in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 18 displays the prevalence of drank soda or pop three or more times a day in the past week among high school students by demographic characteristics for 2015. There were no significant gender or grade differences for this indicator.

Table 18. Prevalence of Drank Soda or Pop Three or More Times per Day in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	13.5	12.3-14.8	10,491
Male	15.5	13.1-17.9	6,098
Female	11.5	9.3-13.7	4,385
9th	9.9	7.2-12.5	2,097
10th	15.0	10.6-19.4	2,976
11th	13.5	9.5-17.6	2,481
12th	16.0	10.9-21.2	2,845

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

## No Milk in the Past Week

Definition: Weighted percentage of students who did not drink milk during the 7 days before the survey.

### High school students

The prevalence of no milk in the past week among high school students was 21.2% in 2015.

Figure 19 shows the prevalence of this level of consumption among high school students significantly increased for the total population and among males but not among females from 2013 to 2015.

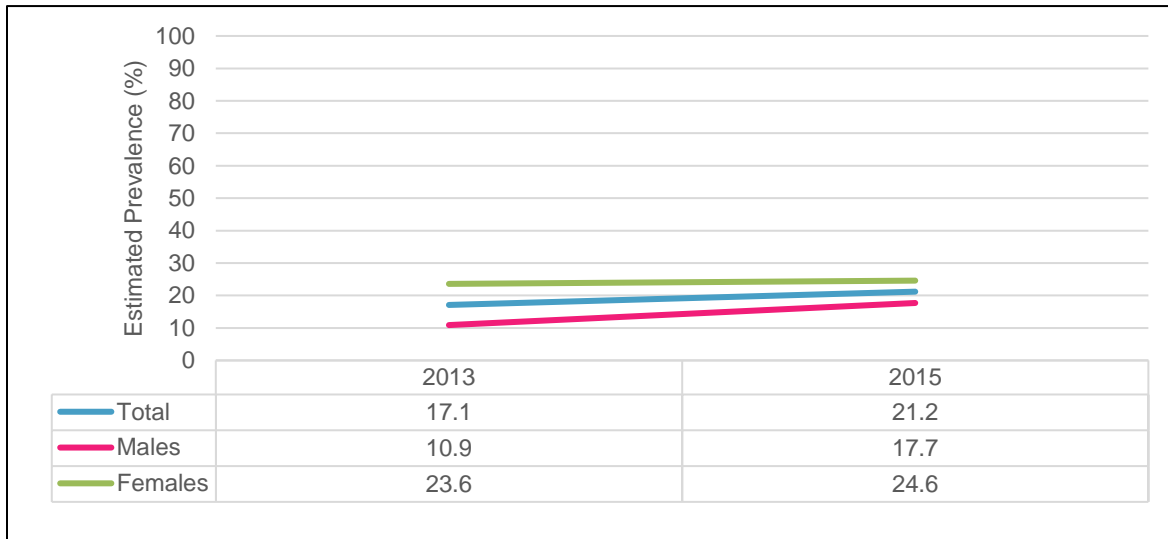


Figure 19. Prevalence of No Milk in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 19 displays the prevalence of no milk in the past week among high school students by demographic characteristics for 2015. The prevalence was significantly higher among females than among males. There was no significant grade difference for this indicator.

Table 19. Prevalence of No Milk in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	21.2	18.8-23.7	16,362
Male	17.7	14.1-21.3	6,893
Female	24.6	21.7-27.6	9,353
9th	19.1	13.8-24.5	4,025
10th	19.7	16.1-23.3	3,901
11th	24.9	20.5-29.3	4,516
12th	21.4	15.0-27.8	3,795

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

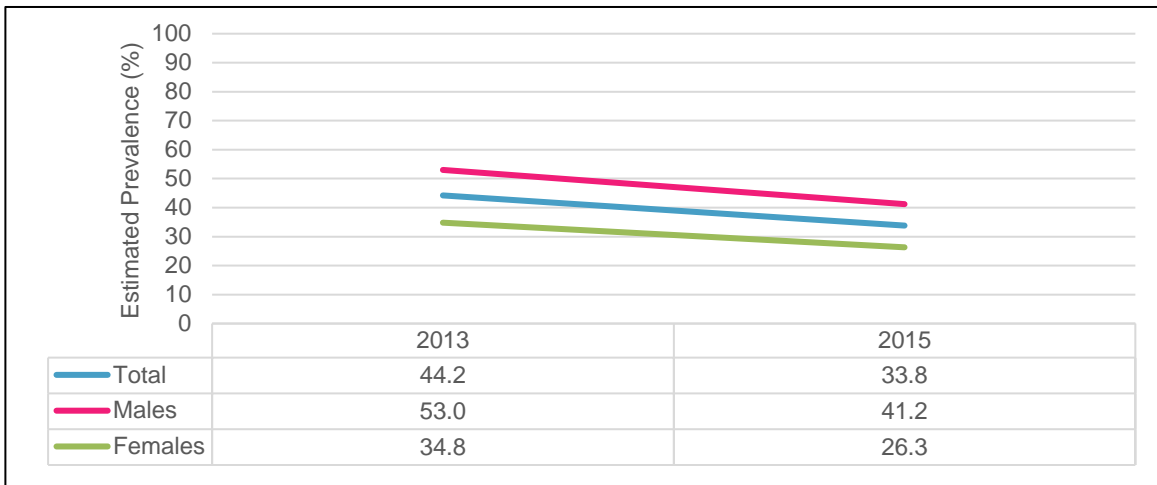
## Drank One or More Glasses of Milk per Day in the Past Week

Definition: Weighted percentage of students who drank one or more glasses of milk per day during the 7 days before the survey.

### High school students

The prevalence of drank one or more glasses of milk per day in the past week among high school students was 33.8% in 2015.

Figure 20 shows the prevalence of this level of consumption among high school students significantly decreased from 2013 to 2015.



*Figure 20. Prevalence of Drank One or More Glasses of Milk per Day in the Past Week Among West Virginia High School Students*

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 20 displays the prevalence of drank one or more glasses of milk per day in the past week among high school students by demographic characteristics for 2015. The results show the prevalence was significantly higher among males than among females. There was no significant grade difference for this indicator.

**Table 20. Prevalence of Drank One or More Glasses of Milk per Day in the Past Week Among WV High School Students by Gender and Grade Level, 2015**

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	33.8	30.4-37.1	26,030
Male	41.2	36.7-45.6	16,030
Female	26.3	22.7-29.6	10,000
9th	31.4	23.2-39.7	6,614
10th	33.4	28.7-38.1	6,616
11th	31.8	26.6-37.1	5,776
12th	39.1	32.2-46.0	6,938

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

## Drank Two or More Glasses of Milk per Day in the Past Week

Definition: Weighted percentage of students who drank two or more glasses of milk per day during the 7 days before the survey.

### High school students

The prevalence of drank two or more glasses of milk per day in the past week among high school students was 20.8% in 2015.

Figure 21 shows the prevalence of this level of consumption among high school students significantly decreased from 2013 to 2015.

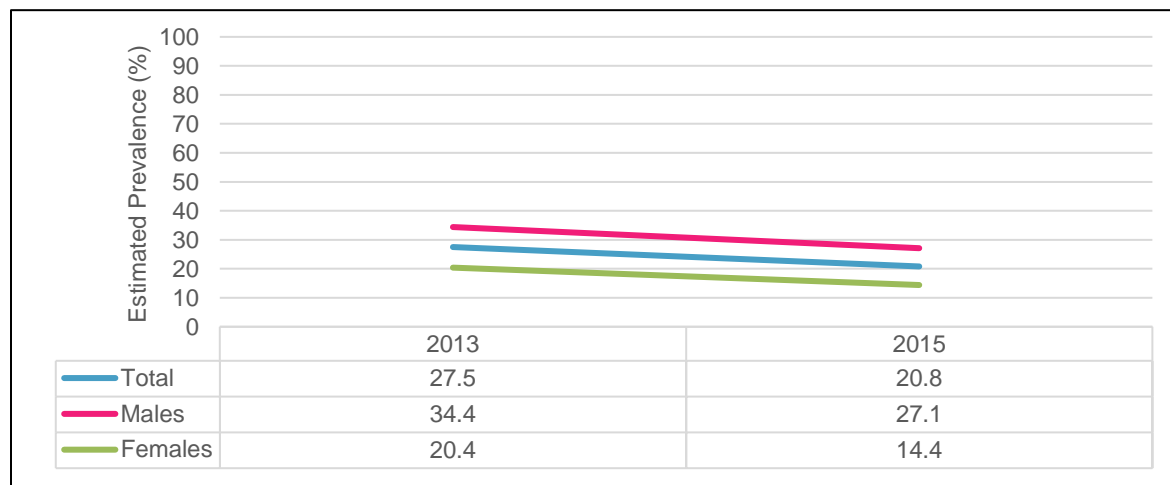


Figure 21. Prevalence of Drank Two or More Glasses of Milk per Day in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 21 displays the prevalence of drank two or more glasses of milk per day in the past week among high school students by demographic characteristics for 2015. While there was no significant grade difference, the prevalence was significantly higher among males than among females.

Table 21. Prevalence of Drank Two or More Glasses of Milk per Day in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	20.8	18.3-23.2	16,003
Male	27.1	23.7-30.5	10,551
Female	14.4	11.6-17.2	5,452
9th	19.4	13.0-25.9	4,082
10th	21.1	16.7-25.4	4,170
11th	19.8	15.0-24.7	3,596
12th	23.0	18.3-27.6	4,070

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

## Drank Three or More Glasses of Milk per Day in the Past Week

Definition: Weighted percentage of students who drank three or more glasses of milk per day during the 7 days before the survey.

### High school students

The prevalence of drank three or more glasses of milk per day in the past week among high school students was 9.9% in 2015.

Figure 22 shows the prevalence of this level of consumption among high school students significantly decreased from 2013 to 2015.

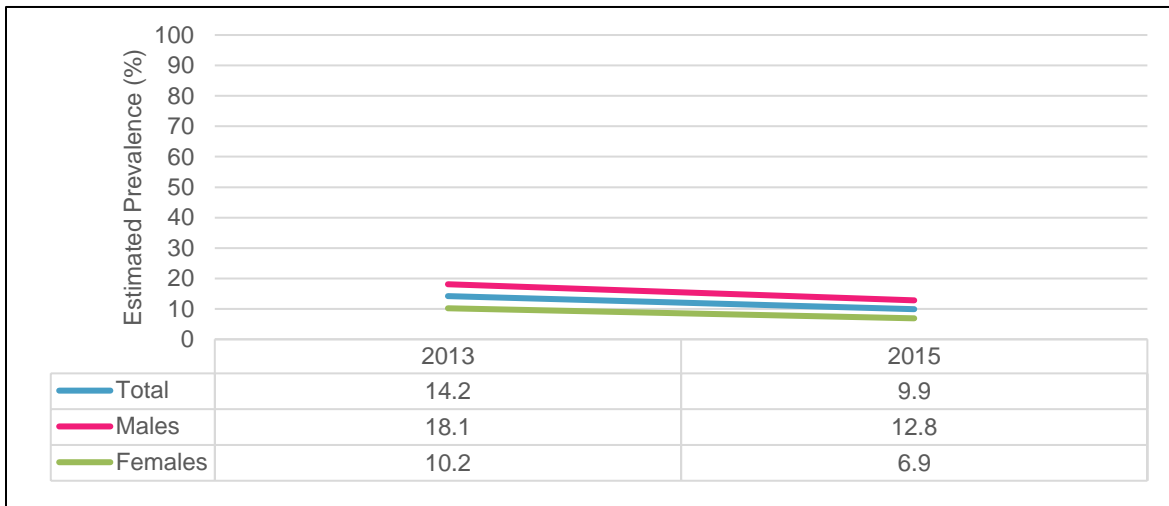


Figure 22. Prevalence of Drank Three or More Glasses of Milk per Day in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 22 displays the prevalence of drank three or more glasses of milk per day in the past week among high school students by demographic characteristics for 2015. The prevalence was significantly higher among males than among females. There was no significant grade difference for this indicator.

Table 22. Prevalence of Drank Three or More Glasses of Milk per Day in the Past Week Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	9.9	8.4-11.3	7,600
Male	12.8	10.3-15.3	4,984
Female	6.9	5.1-8.7	2,616
9th	8.2	5.1-11.2	1,720
10th	10.0	7.2-12.9	1,988
11th	10.9	7.8-14.0	1,971
12th	10.4	7.3-13.4	1,836

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

## Did Not Eat Breakfast in the Past Week

Definition: Weighted percentage of students who did not eat breakfast during the 7 days before the survey.

### High school students

The prevalence of did not eat breakfast in the past week among high school students was 14.8% in 2015.

Figure 23 displays the prevalence of this level of consumption among high school students for 2013 and 2015 was stable.

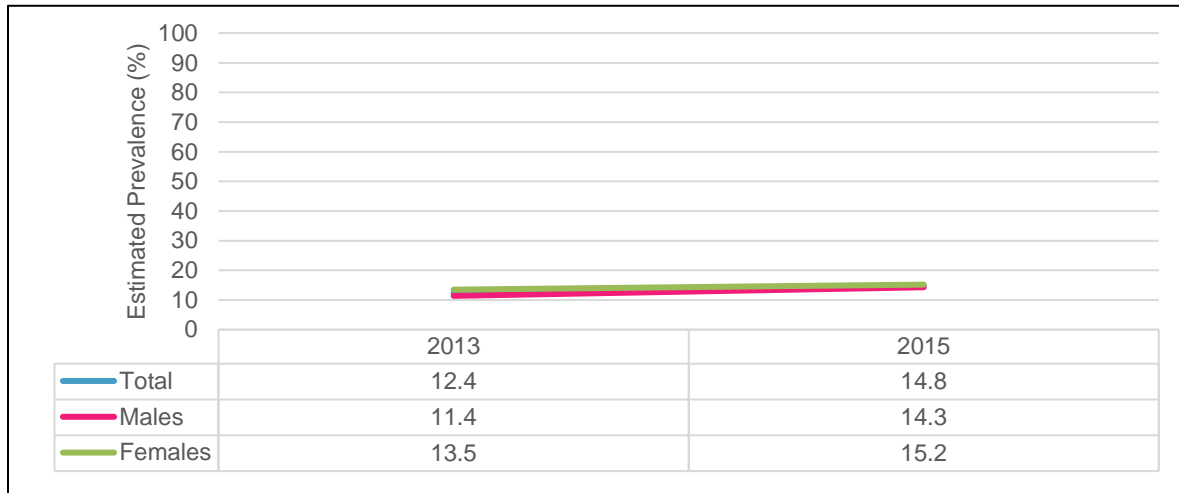


Figure 23. Prevalence of Did Not Eat Breakfast in the Past Week Among West Virginia High School Students

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 23 displays the prevalence of did not eat breakfast in the past week among high school students by demographic characteristics for 2015. The results indicate no significant gender or grade differences in this indicator.

Table 23. Prevalence of Did Not Eat Breakfast in the Past Week Among WV High School Students by Gender and Grade Level, 2015

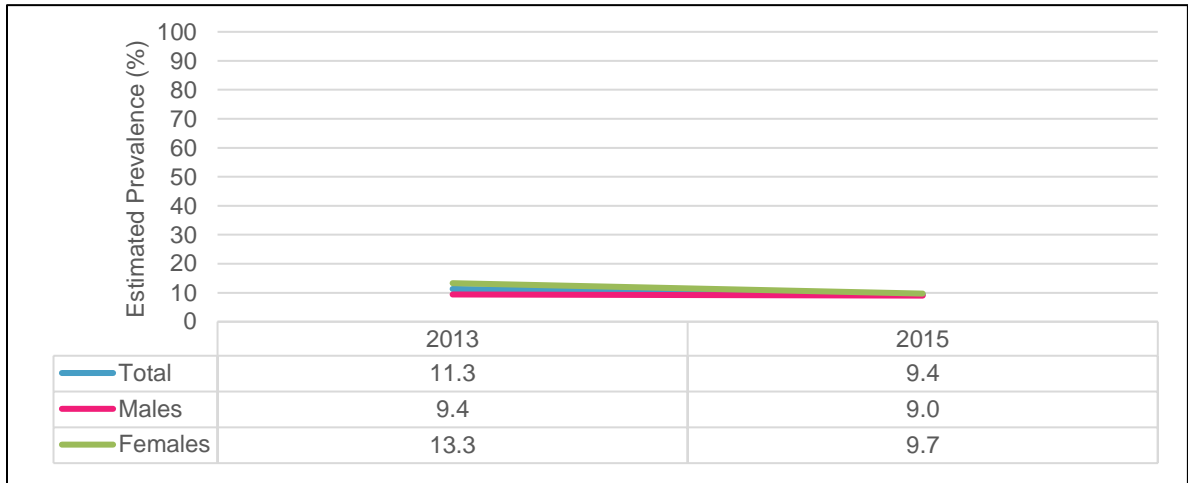
Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	14.8	12.1-17.4	11,267
Male	14.3	12.1-16.6	5,580
Female	15.2	11.6-18.7	5,662
9th	15.7	11.4-20.0	3,259
10th	11.5	7.1-15.8	2,237
11th	16.3	12.0-20.5	2,955
12th	15.4	10.5-20.4	2,711

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

## Middle school students

The prevalence of did not eat breakfast in the past week among middle school students was 9.4% in 2015.

Figure 24 displays the prevalence of this level of consumption among middle school students for 2013 and 2015. The results indicate there was no change for the total population and among males, however the prevalence significantly increased among females.



*Figure 24. Prevalence of Did Not Eat Breakfast in the Past Week Among West Virginia Middle School Students*

Data source: WV Department of Education, Youth Risk Behavior Survey

Table 24 displays the prevalence of did not eat breakfast in the past week among middle school students by demographic characteristics for 2015. The results indicate no significant gender or grade differences for this indicator.

**Table 24. Prevalence of Did Not Eat Breakfast in the Past Week Among WV Middle School Students by Gender and Grade Level, 2015**

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	9.4	7.6-11.2	5,548
Male	9.0	6.7-11.3	2,743
Female	9.7	7.4-12.1	2,751
6th	9.6	7.1-12.0	1,778
7th	6.6	4.5-8.7	1,319
8th	12.2	8.6-15.7	2,424

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

## Ate Breakfast Daily in the Past Week

Definition: Weighted percentage of students who ate breakfast on all 7 days during the 7 days before the survey.

### High school students

The prevalence of ate breakfast daily during the past week among high school students was 34.3% in 2015.

Figure 25 shows the prevalence of this level of consumption among high school students significantly decreased from 2013 to 2015 for the total population and among males but was stable among females.

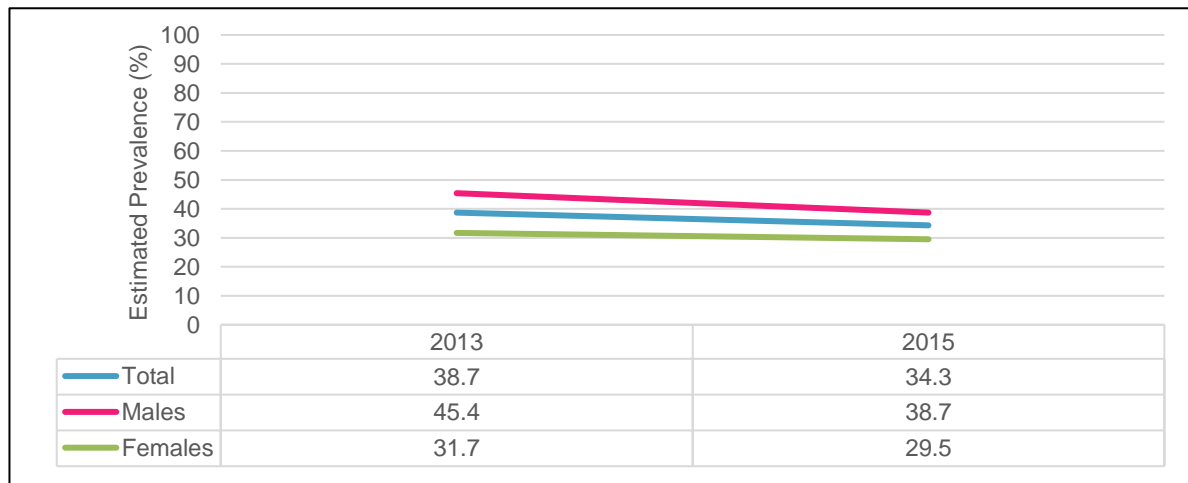


Figure 25. Prevalence of Ate Breakfast Daily Among West Virginia High School Students  
Data source: WV Department of Education, Youth Risk Behavior Survey

Table 25 displays the prevalence of ate breakfast daily among high school students by demographic characteristics for 2015. The results indicate the prevalence of ate breakfast daily was significantly higher among males than among females. There was no significant grade difference for this indicator.

Table 25. Prevalence of Ate Breakfast Daily Among WV High School Students by Gender and Grade Level, 2015

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	34.3	31.7-36.9	26,177
Male	38.7	34.6-42.9	15,067
Female	29.5	26.4-32.6	11,019
9th	37.3	31.6-43.0	7,741
10th	32.7	26.1-39.3	6,389
11th	33.0	29.3-36.8	5,990
12th	33.9	27.2-40.6	5,963

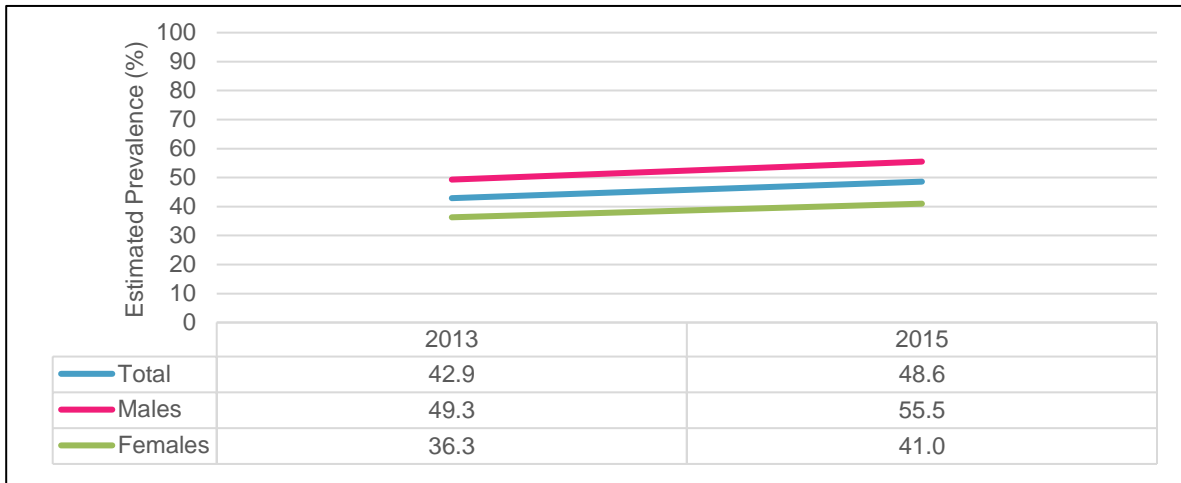
Data source: West Virginia Department of Education, Youth Risk Behavior Survey, 2015



## Middle school students

The prevalence of ate breakfast daily during the past week among middle school students was 48.6% in 2015.

Figure 26 displays the prevalence of this level of consumption among middle school students for 2013 and 2015. The results indicate the prevalence significantly increased for that time period for the total population and among males but was stable among females.



*Figure 26. Prevalence of Ate Breakfast Daily Among West Virginia Middle School Students*  
Data source: WV Department of Education, Youth Risk Behavior Survey

Table 26 displays the prevalence of ate breakfast daily among middle school students by demographic characteristics for 2015. The prevalence was significantly higher among males than among females. There was no significant grade difference in the prevalence of this indicator.

**Table 26. Prevalence of Ate Breakfast Daily Among WV Middle School Students by Gender and Grade Level, 2015**

Characteristic	Estimated prevalence (%)	95% confidence interval	Weighted frequency
Total	48.6	46.0-51.1	28,643
Male	55.5	51.9-59.2	16,857
Female	41.0	37.4-44.6	11,585
6th	53.4	48.8-57.9	9,919
7th	47.2	43.2-51.2	9,453
8th	45.4	40.2-50.6	9,020

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

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## 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).

Research has also found that several other factors influence adolescent behavior. Achievement in school as measured by letter grades received is associated with the amount of physical activity, screen time, and soda consumption teenagers engage in (Snelling, Belson, Beard, & Young, 2015).

Factors related to the prevention of risky behavior during adolescence has also been extensively investigated. 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.

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## 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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## References

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