

## 4.3 Weight Status

Obesity occurs when a person consumes more calories from food than he or she burns. Our bodies need calories to sustain life and be physically active, but to maintain weight we need to balance the energy we eat with the energy we use. When a person eats more calories than he or she burns, the energy balance is tipped toward weight gain and obesity. This imbalance between calories-in and calories-out may differ from one person to another. Genetic, environmental, and other factors may all play a part.<sup>1</sup>

The Centers for Disease Control have defined "obesity" as specifically referring to an excessive amount of body fat. "Overweight" is defined as an excessive amount of body weight that includes muscle, bone, fat, and water. As a rule, women have more body fat than men.<sup>2</sup>

Health care providers are concerned not only with how much fat a person has, but also where the fat is located on the body. Women typically collect fat in their hips and buttocks, giving them a "pear" shape. Men usually build up fat around their bellies, giving them more of an "apple" shape.<sup>3</sup>

During the past 20 years, obesity among adults has risen significantly in the United States. The latest data from the National Center for Health Statistics show that 35.7 percent of U.S. adults 20 years of age and older are obese. In Michigan, 30.9% of adults are obese.<sup>4</sup>

Obesity is more than a cosmetic problem. Many serious medical conditions have been linked to obesity, including type 2 diabetes, heart disease, high blood pressure, and stroke. Obesity is also linked to higher rates of certain types of cancer. Men who are considered obese are more likely than nonobese men to develop cancer of the colon, rectum, or prostate. Women who are considered obese are more likely than nonobese women to develop cancer of the gallbladder, uterus, cervix, or ovaries. Esophageal cancer has also been associated with obesity.<sup>5</sup>

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<sup>1</sup> Understanding Adult Obesity, 2012, Weight Control Information Network, accessed at <http://win.niddk.nih.gov/publications/understanding.htm#causes>

<sup>2</sup> Understanding Adult Obesity, 2012, Weight Control Information Network, accessed at <http://win.niddk.nih.gov/publications/understanding.htm#whatis>

<sup>3</sup> Understanding Adult Obesity, 2012, Weight Control Information Network, accessed at <http://win.niddk.nih.gov/publications/understanding.htm#whatis>

<sup>4</sup> Overweight and Obesity, 2012, Centers for Disease Control, accessed at <http://www.cdc.gov/nccdphp/dnpa/obesity/>

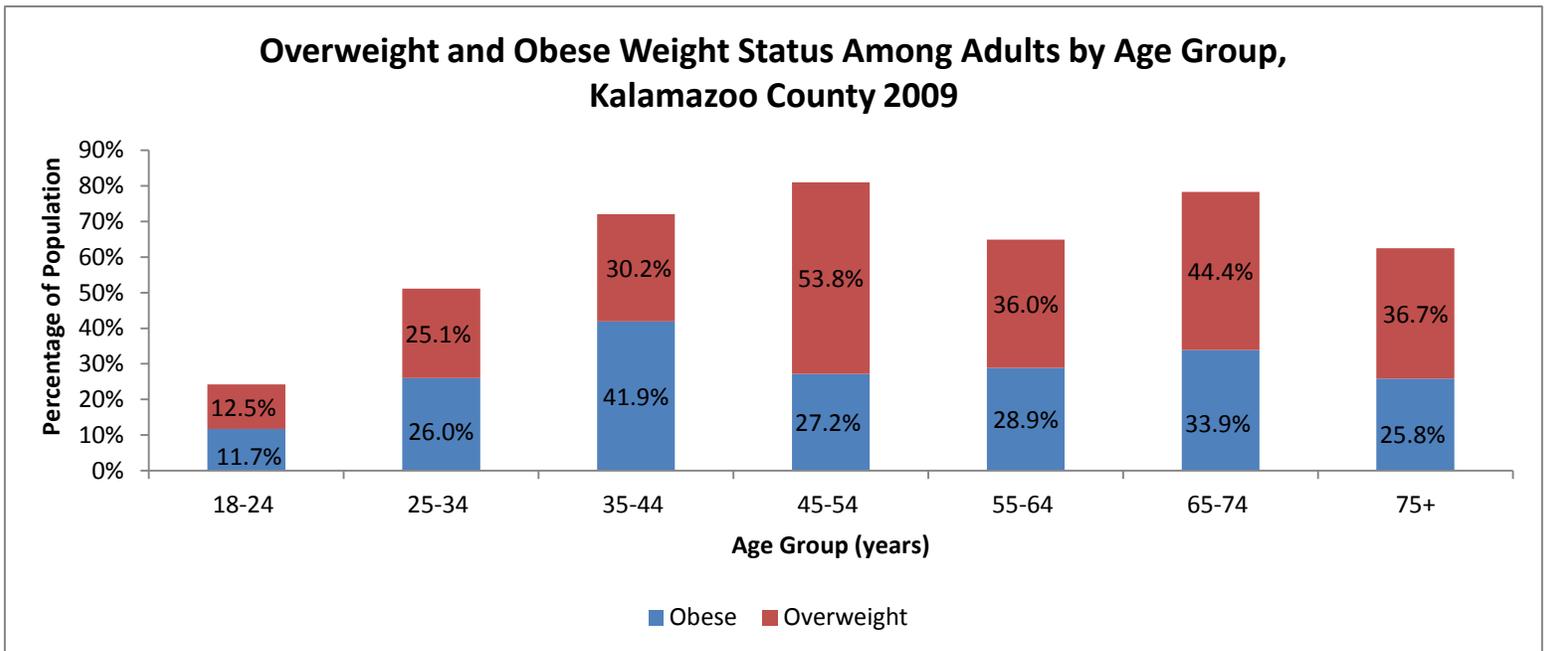
<sup>5</sup> Understanding Adult Obesity, 2012, Weight Control Information Network, accessed at <http://win.niddk.nih.gov/publications/understanding.htm#consequences>

### 4.3.1 Weight Status

Increasing rates of overweight and obesity raise concern because of the implications for Americans' health.<sup>6</sup> Being overweight or obese increases the risk of many diseases and health conditions, including the following: hypertension, dyslipidemia (for example, high total cholesterol or high levels of triglycerides), type 2 diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon).<sup>7</sup>

According to self-reported weight and height measurements used in body mass index (BMI) calculations, in 2009 26.0% of adults in Kalamazoo County were obese, 32.2% were overweight but not obese, and 41.8% were not overweight or obese. (A BMI of 30.0 or greater is considered obese, a BMI of 25.0 or greater but less than 30.0 is considered overweight, and a BMI less than 25.0 is considered to be not overweight or obese.)

The prevalence of obesity varied across age groups in Kalamazoo County. The rate of obese or overweight adults was highest among those aged 25 years and over (almost twice as high as the rate among those aged 18 to 24 years). The rate of obesity was highest among the 35-44 age group and the age group with the greatest proportion of the population that was overweight or obese was 45-54 year olds (81.0% were overweight or obese). The rate of overweight and obesity was similar across educational and income levels.

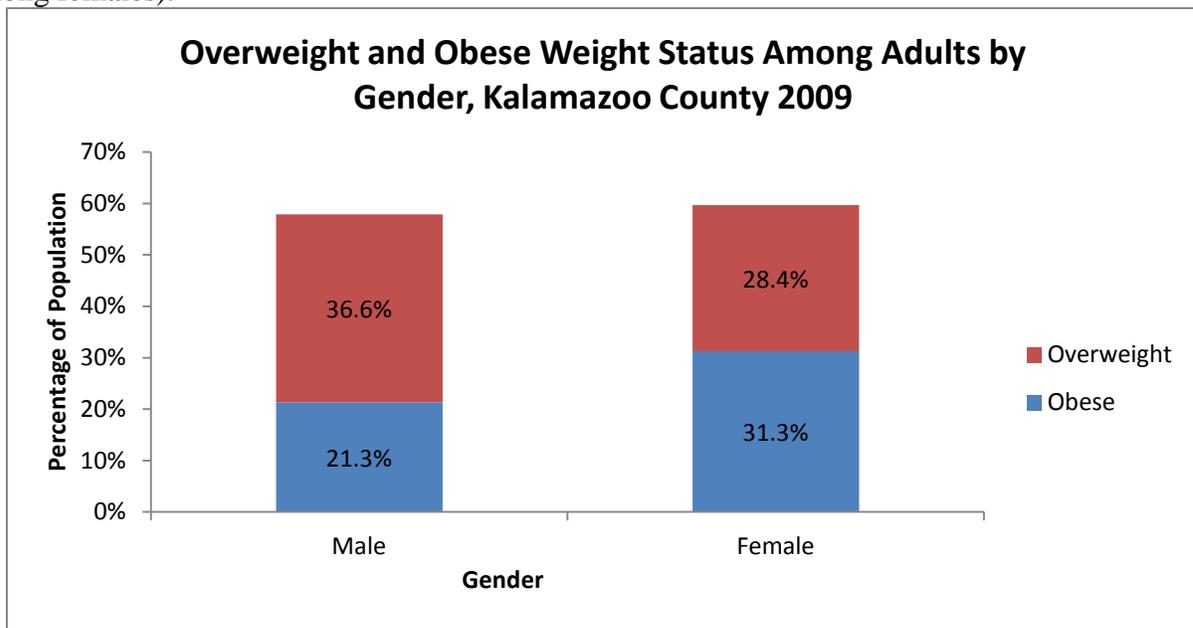


Source: Kalamazoo County 2009 Behavioral Risk Factor Survey

<sup>6</sup> Overweight and Obesity, 2012, Centers for Disease Control, accessed at <http://www.cdc.gov/nccdphp/dnpa/obesity/>

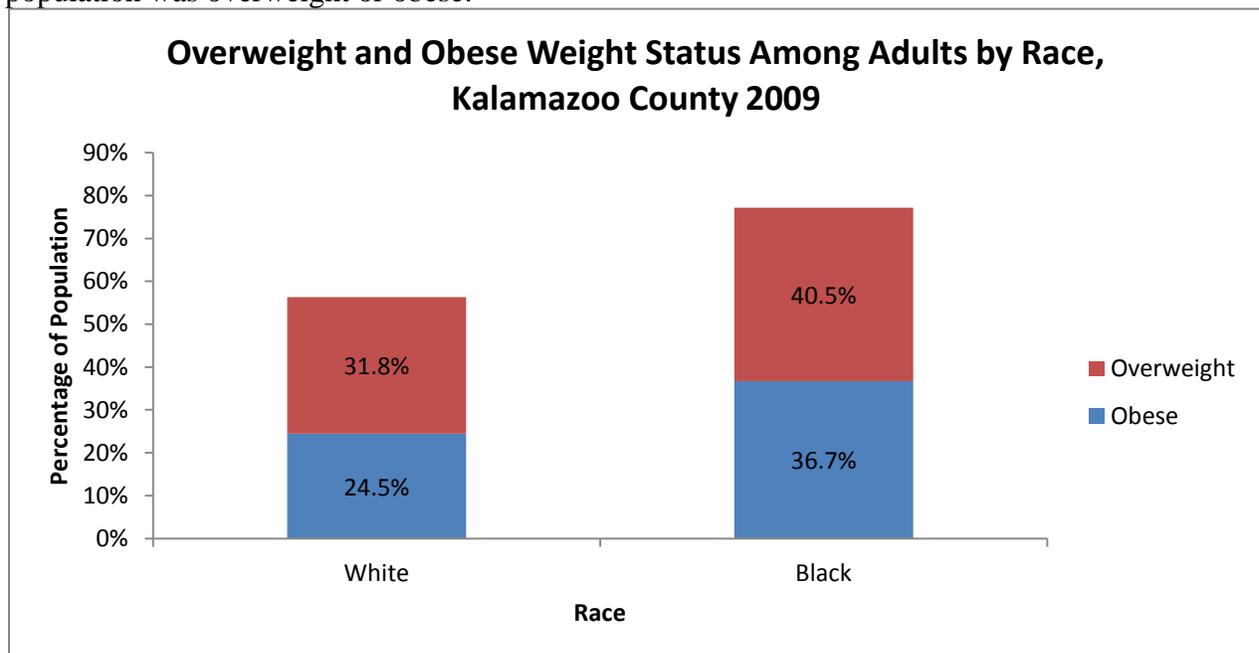
<sup>7</sup> Overweight and Obesity, 2012, Centers for Disease Control, accessed at <http://www.cdc.gov/nccdphp/dnpa/obesity/>

The rate of overweight was higher among males than females; however the rate of obesity was higher among females than males. The prevalence of overweight or obese between genders was similar (57.9% among males, compared with a prevalence rate of 59.7% overweight or obese among females).

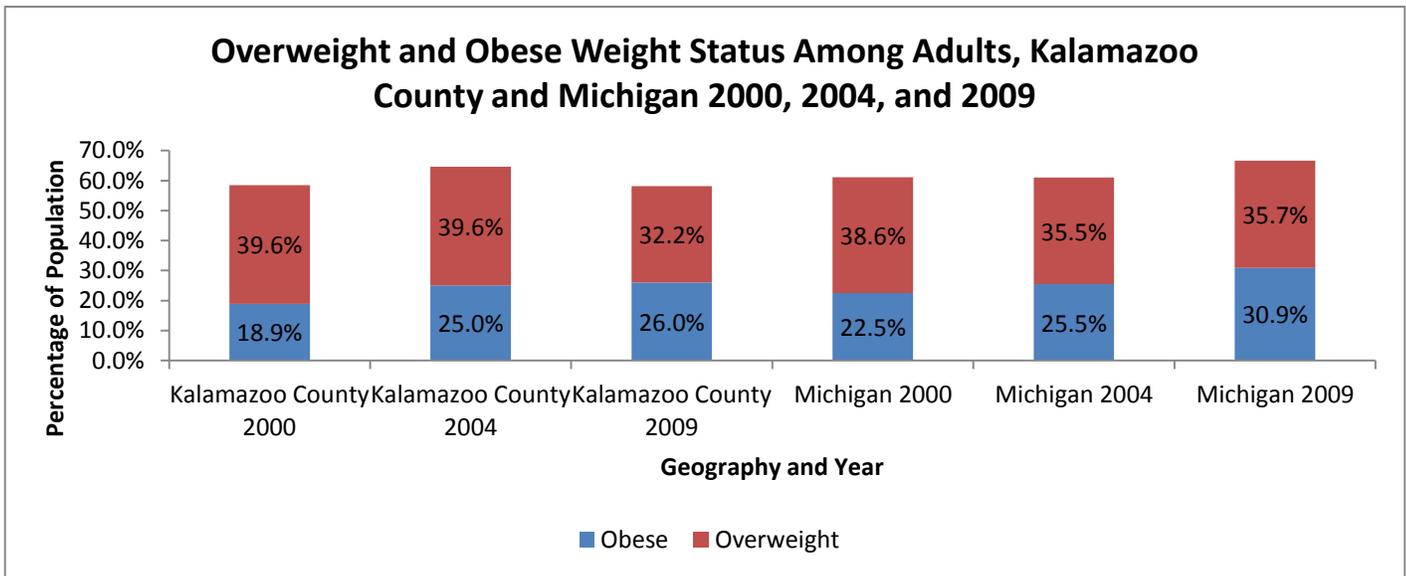


Source: Kalamazoo County 2009 Behavioral Risk Factor Survey

The prevalence of overweight or obesity differed by race. A greater proportion of the black population was overweight or was obese than the proportion among the white population. In total, an estimated 56.3% of the white population was overweight or obese, while 77.2% of the black population was overweight or obese.



Source: Kalamazoo County 2009 Behavioral Risk Factor Survey



Source: Kalamazoo County and Michigan 2000, 2004, and 2009 Behavioral Risk Factor Survey

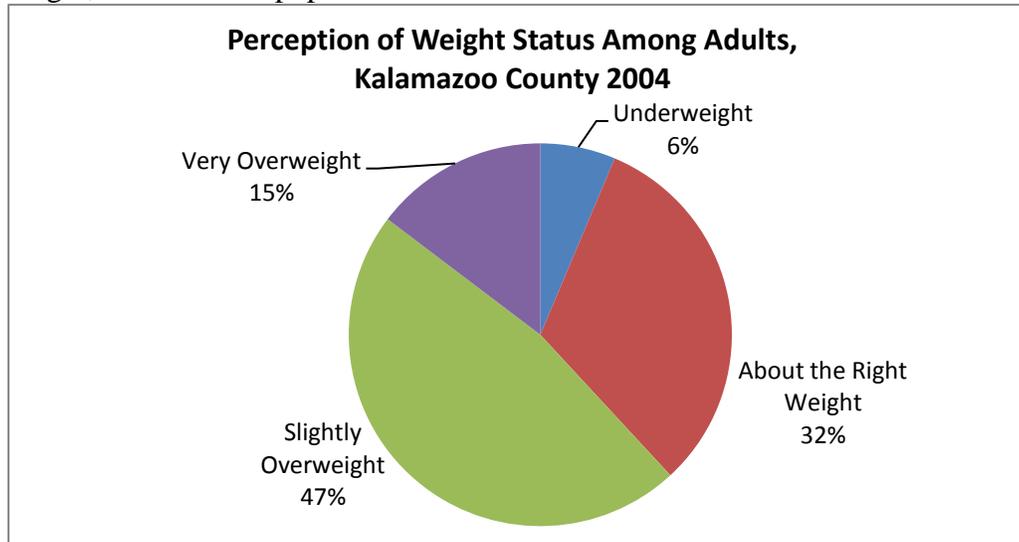
The rate of obesity and overweight adults varied only slightly over time and between Michigan and Kalamazoo County. The overall trend for both Michigan and Kalamazoo County showed that obesity rates increased over time, but the prevalence of overweight adults decreased over time (and the percentage of adults who were either overweight or obese was similar across years and between Kalamazoo County and Michigan).

### Weight Status Among Adults, Kalamazoo County 2009

Demographic Characteristics	Obese <sup>a</sup>		Overweight <sup>b</sup>		Not Overweight or Obese <sup>c</sup>	
	%	95% C.I.	%	95% C.I.	%	95% C.I.
<b>Total</b>	26.0	(20.7 - 32.1)	32.2	(26.4 - 38.7)	41.8	(33.9 - 50.1)
<b>Age</b>						
18-24 years	11.7	(3.1 - 35.4)	12.5	(4.0 - 32.7)	75.9	(52.4 - 90.0)
25-34 years	26.0	(15.2 - 40.9)	25.1	(14.5 - 39.8)	48.9	(33.5 - 64.5)
35-44 years	41.9	(31.2 - 53.5)	30.2	(21.1 - 41.1)	27.9	(19.5 - 38.1)
45-54 years	27.2	(19.1 - 37.1)	53.8	(43.7 - 63.6)	19.0	(13.2 - 26.6)
55-64 years	28.9	(20.7 - 38.8)	36.0	(24.8 - 49.0)	35.1	(25.0 - 46.7)
65-74 years	33.9	(25.1 - 43.9)	44.4	(34.4 - 54.9)	21.7	(14.6 - 31.0)
75 years +	25.8	(15.0 - 40.5)	36.7	(26.6 - 48.0)	37.6	(27.4 - 49.0)
<b>Gender</b>						
Male	21.3	(14.9 - 29.5)	36.6	(26.9 - 47.6)	42.1	(29.6 - 55.6)
Female	31.3	(23.6 - 40.2)	28.4	(21.8 - 36.1)	40.3	(31.6 - 49.7)
<b>Race</b>						
White non-Hispanic	24.5	(18.7 - 31.3)	31.8	(25.6 - 38.8)	43.7	(35.1 - 52.7)
Black non-Hispanic	36.7	(20.1 - 57.2)	40.5	(20.7 - 64.1)	22.8	(6.2 - 57.0)
<b>Education</b>						
Less than HS	20.5	(9.5 - 38.7)	36.8	(15.9 - 64.1)	42.7	(20.5 - 68.4)
HS Graduate	26.8	(18.7 - 36.8)	34.9	(24.9 - 46.4)	38.3	(26.8 - 51.3)
Some college	30.8	(19.6 - 44.7)	24.8	(16.2 - 36.0)	44.4	(28.5 - 61.5)
College graduate	20.3	(14.6 - 27.6)	38.7	(31.0 - 47.0)	40.9	(32.9 - 49.6)
<b>Income</b>						
Less than \$20,000	31.4	(20.0 - 45.4)	34.0	(19.7 - 52.1)	34.6	(21.0 - 51.3)
\$20,000-34,999	36.1	(22.9 - 51.8)	34.8	(22.7 - 49.3)	29.1	(17.7 - 43.9)
\$35,000-49,999	17.4	(8.6 - 32.2)	37.2	(20.5 - 57.6)	45.4	(26.7 - 65.5)
\$50,000-74,999	32.5	(20.3 - 47.7)	38.1	(25.1 - 53.0)	29.4	(14.6 - 50.4)
\$75,000+	19.9	(13.3 - 28.8)	31.1	(22.1 - 41.8)	49.0	(37.6 - 60.4)
<b>City/Out-County</b>						
City of Kalamazoo	27.4	(19.4 - 37.2)	34.8	(24.2 - 47.2)	37.8	(27.1 - 49.7)
Rest of County	26.0	(18.0 - 36.0)	32.9	(24.4 - 42.6)	41.1	(29.1 - 54.3)
<b>Within City of Kalamazoo</b>						
White in City	19.2	(11.2 - 30.8)	29.1	(18.1 - 43.2)	51.7	(37.6 - 65.6)
Black in City	46.4	(25.9 - 68.1)	48.1	(26.3 - 70.6)	5.5	(1.6 - 17.4)
<p>Note: BMI, body mass index, is defined as weight (in kilograms) divided by height (in meters) squared [weight in kg/(height in meters)<sup>2</sup>]. Weight and height were self-reported. Pregnant women were excluded from this estimate.</p> <p><sup>a</sup> The proportion of respondents whose BMI was greater than or equal to 30.0.</p> <p><sup>b</sup> The proportion of respondents whose BMI was greater than or equal to 25.0, but less than 30.0.</p> <p><sup>c</sup> The proportion of respondents whose BMI was less than 25.0.</p>						

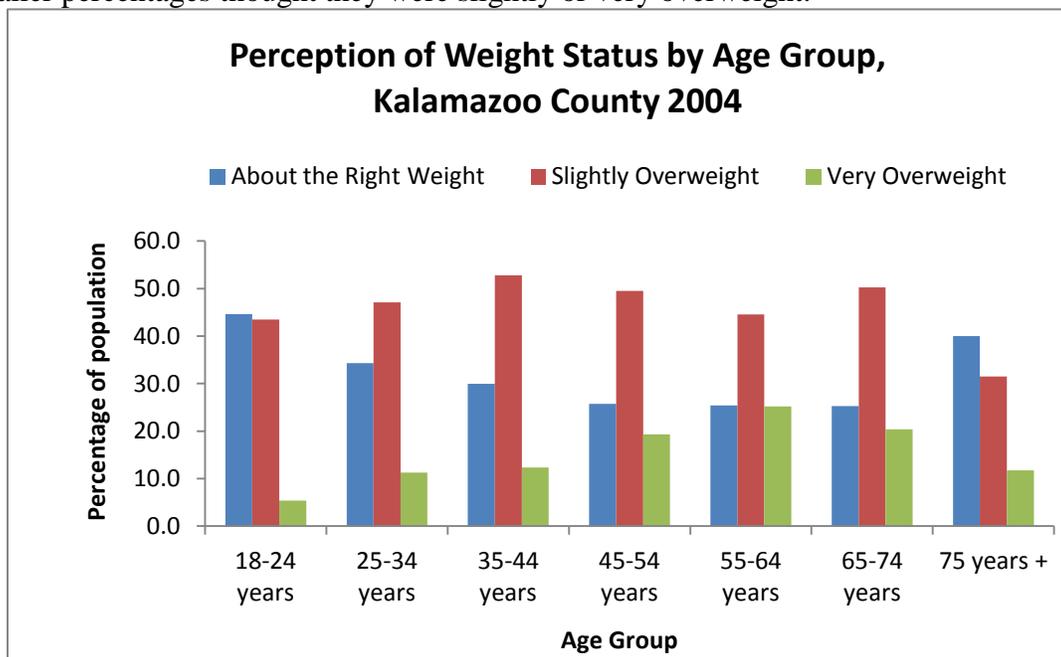
Source: Kalamazoo County 2009 Behavioral Risk Factor Survey

Perception of weight status may influence an individual's efforts to lose or maintain a healthy weight. In Kalamazoo County in 2004, 31.8% of the population thought they were at about the right weight. This corresponds to the proportion of the population who, by BMI measurement, were not overweight or obese (35.4%). Additionally, 61.9% of adults thought they were either slightly overweight or very overweight. While only 14.7% of the population perceived themselves to be very overweight, 25.0% of the population measured as obese.



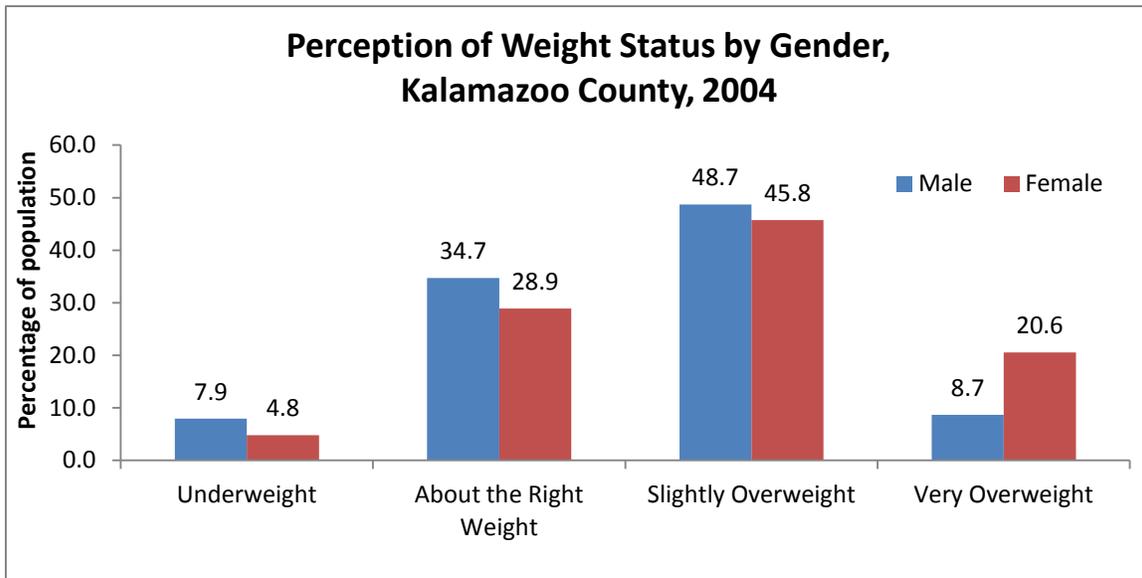
Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

Perception of weight status varied across age groups. With increasing age, the proportion of people who thought they were about the right weight decreased and the proportion who thought they were very overweight increased. The proportion of the population who thought they were only slightly overweight was similar across age groups. The exception to these trends was the population aged 75 years and older; a greater percentage of this population thought they were about the right weight, and smaller percentages thought they were slightly or very overweight.



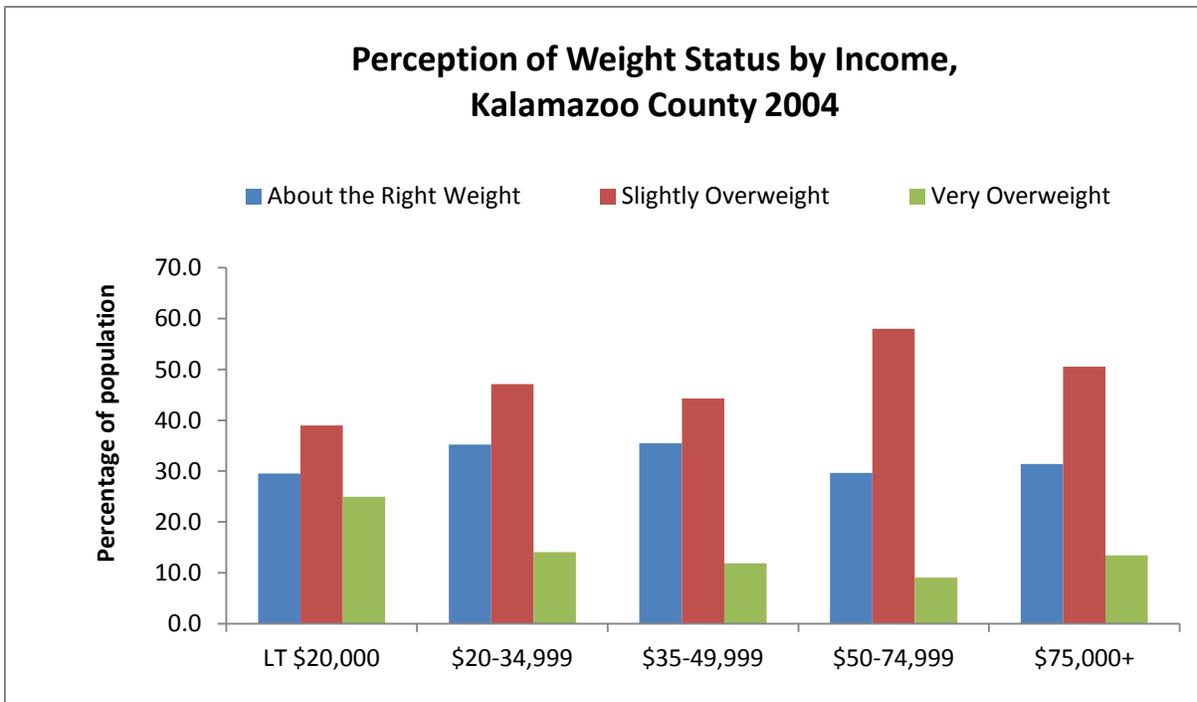
Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

Perception of weight status also differed by gender and across income levels. A greater proportion of males considered their weight to be about right than females; more males thought they were underweight than females, and more females believed they were very overweight than males.



Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

As income increased, more adults thought they were slightly overweight but fewer adults perceived their weight status to be very overweight.



Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

### Perception of Weight Status<sup>a</sup> Among Adults, Kalamazoo County 2004\*

Demographic Characteristics	Underweight		About the Right Weight		Slightly Overweight		Very Overweight	
	%	95% C.I.	%	95% C.I.	%	95% C.I.	%	95% C.I.
<b>Total</b>	6.4	(4.5 - 8.2)	31.8	(28.1 - 35.4)	47.2	(43.3 - 51.1)	14.7	(12.1 - 17.3)
<b>Age</b>								
18-24 years	6.5	(0.8 - 12.2)	44.7	(31.9 - 57.4)	43.5	(30.8 - 56.2)	5.4	*
25-34 years	7.3	(2.0 - 12.6)	34.3	(25.0 - 43.6)	47.1	(37.3 - 56.9)	11.3	(4.8 - 17.8)
35-44 years	5.0	(1.1 - 8.8)	29.9	(22.2 - 37.6)	52.8	(44.5 - 61.1)	12.3	(7.6 - 17.1)
45-54 years	5.5	(2.0 - 9.0)	25.7	(18.4 - 33.0)	49.5	(41.0 - 57.9)	19.3	(12.4 - 26.2)
55-64 years	4.9	(0.6 - 9.1)	25.4	(18.0 - 32.8)	44.5	(35.9 - 53.2)	25.2	(17.7 - 32.7)
65-74 years	4.1	(1.0 - 7.2)	25.2	(16.8 - 33.7)	50.3	(40.1 - 60.4)	20.4	(11.9 - 28.9)
75 years +	16.7	(6.1 - 27.4)	40.0	(28.4 - 51.6)	31.5	(21.1 - 41.9)	11.7	(4.9 - 18.6)
<b>Gender</b>								
Male	7.9	(4.9 - 11.0)	34.7	(28.8 - 40.6)	48.7	(42.6 - 54.7)	8.7	(5.3 - 12.0)
Female	4.8	(2.6 - 7.0)	28.9	(24.5 - 33.3)	45.8	(40.9 - 50.6)	20.6	(16.6 - 24.5)
<b>Race</b>								
White	5.9	(3.9 - 7.8)	30.8	(27.0 - 34.7)	48.3	(44.1 - 52.4)	15.0	(12.1 - 17.9)
Black	9.6	(2.8 - 16.3)	35.6	(21.8 - 49.4)	44.8	(31.5 - 58.2)	10.0	(4.3 - 15.8)
<b>Education</b>								
Less than HS	8.1	(0.7 - 15.4)	29.0	(17.3 - 40.7)	42.2	(29.7 - 54.7)	20.8	(10.0 - 31.5)
HS Graduate	10.3	(5.7 - 14.8)	28.9	(21.8 - 35.9)	45.1	(37.5 - 52.8)	15.8	(10.2 - 21.3)
Some college	4.3	(1.6 - 7.1)	31.5	(24.3 - 38.7)	50.3	(42.8 - 57.7)	13.9	(9.5 - 18.3)
College graduate	4.1	(1.9 - 6.3)	36.0	(30.6 - 41.5)	47.8	(42.1 - 53.4)	12.1	(8.7 - 15.5)
<b>Income</b>								
Less than \$20,000	6.5	(2.8 - 10.2)	29.5	(20.3 - 38.7)	39.0	(29.6 - 48.3)	25.0	(16.0 - 34.0)
\$20,000-34,999	3.6	(1.0 - 6.2)	35.2	(26.4 - 44.0)	47.1	(38.4 - 55.9)	14.0	(8.6 - 19.5)
\$35,000-49,999	8.4	(1.9 - 14.8)	35.5	(25.3 - 45.6)	44.3	(34.1 - 54.5)	11.9	(5.8 - 17.9)
\$50,000-74,999	3.3	(0.3 - 6.2)	29.7	(21.2 - 38.2)	58.0	(48.7 - 67.3)	9.0	(4.5 - 13.6)
\$75,000+	4.6	(1.1 - 8.2)	31.4	(23.9 - 39.0)	50.5	(42.3 - 58.7)	13.4	(8.2 - 18.7)
<b>City/Out-County</b>								
City of Kalamazoo	7.5	(4.1 - 10.9)	32.6	(26.6 - 38.7)	46.7	(40.2 - 53.2)	13.2	(9.2 - 17.2)
Rest of County	5.8	(3.5 - 8.0)	31.1	(26.5 - 35.7)	47.6	(42.7 - 52.4)	15.5	(12.1 - 19.0)
<b>Within City of Kalamazoo</b>								
White in City	6.3	(2.4 - 10.3)	33.3	(26.3 - 40.2)	47.4	(39.9 - 55.0)	13.0	(8.1 - 17.8)
Black in City	11.5	(3.5 - 19.5)	30.8	(17.3 - 44.2)	46.1	(32.3 - 59.9)	11.7	(4.9 - 18.5)

<sup>a</sup> Respondents were asked how they would describe their current body weight

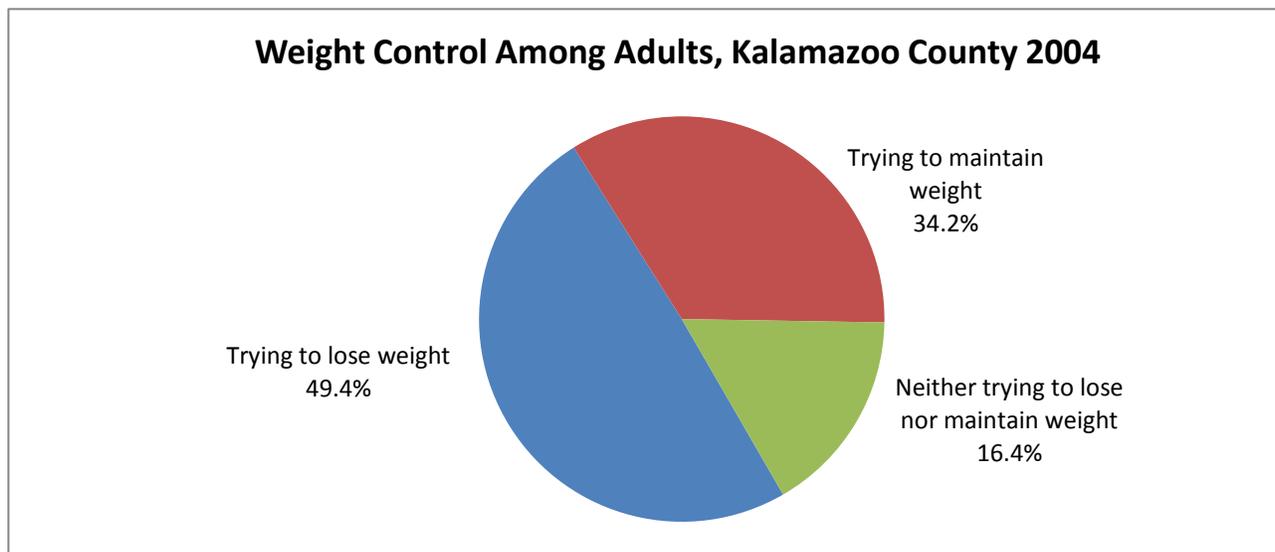
\*Indicators not collected for 2009 survey

Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

### 4.3.2 Weight Control

Whether one wants to lose weight or maintain a healthy weight, it's important to understand the connection between the energy a body takes in (through the foods one eats and the beverages one drinks) and the energy a body uses (through the activities one does).<sup>8</sup> To lose weight, one needs to use more calories than being taken in. To maintain a healthy weight, balance the calories used with those taken in.<sup>9</sup>

In Kalamazoo County in 2004, 49.4% of adults were trying to lose weight, 34.2% were trying to maintain weight and 16.4% were neither trying to lose nor maintain weight.

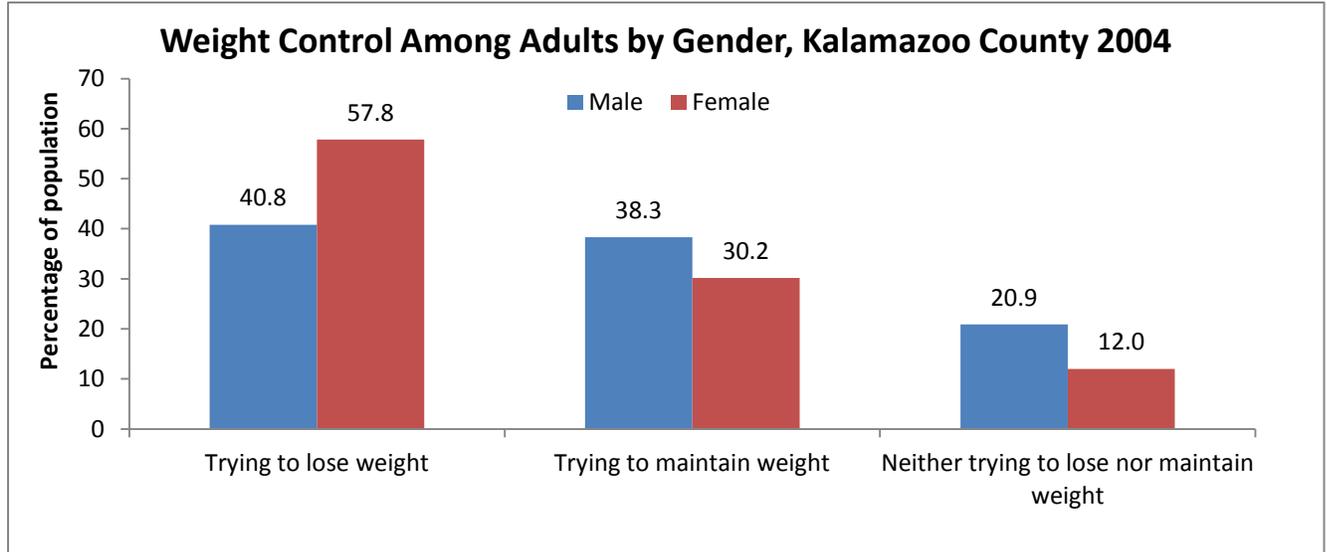


Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

<sup>8</sup> Nutrition For Everyone: Healthy Weight, 2007, accessed at [http://www.cdc.gov/nccdphp/dnpa/nutrition/nutrition\\_for\\_everyone/healthy\\_weight/](http://www.cdc.gov/nccdphp/dnpa/nutrition/nutrition_for_everyone/healthy_weight/)

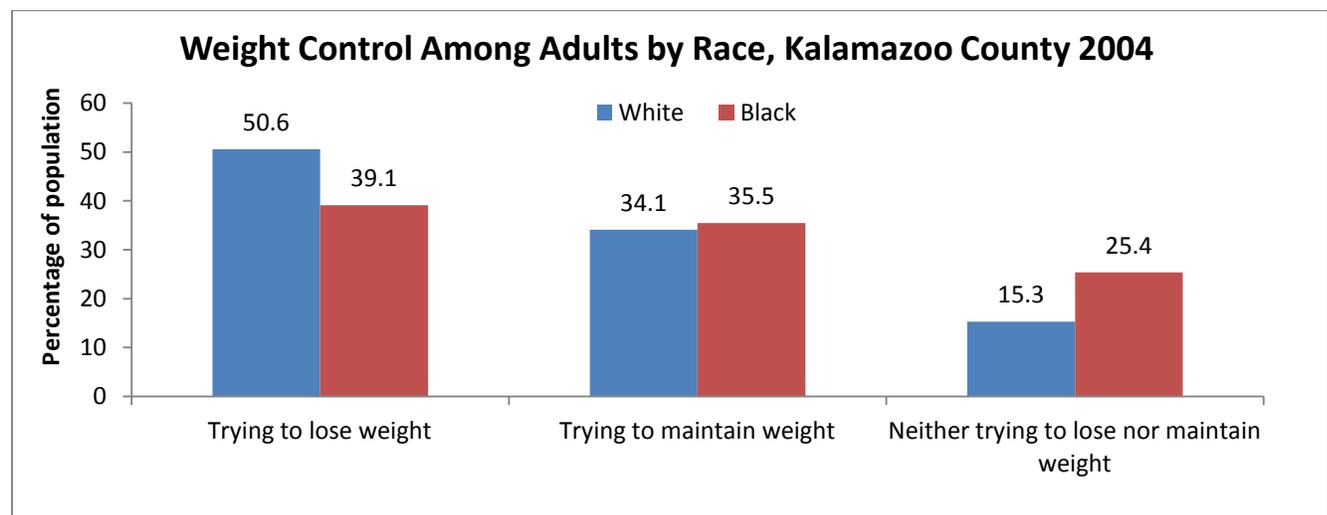
<sup>9</sup> Nutrition For Everyone: Healthy Weight, 2007, accessed at [http://www.cdc.gov/nccdphp/dnpa/nutrition/nutrition\\_for\\_everyone/healthy\\_weight/](http://www.cdc.gov/nccdphp/dnpa/nutrition/nutrition_for_everyone/healthy_weight/)

More females in Kalamazoo County were trying to lose weight than males, and more males than females were neither trying to lose nor maintain their weight.



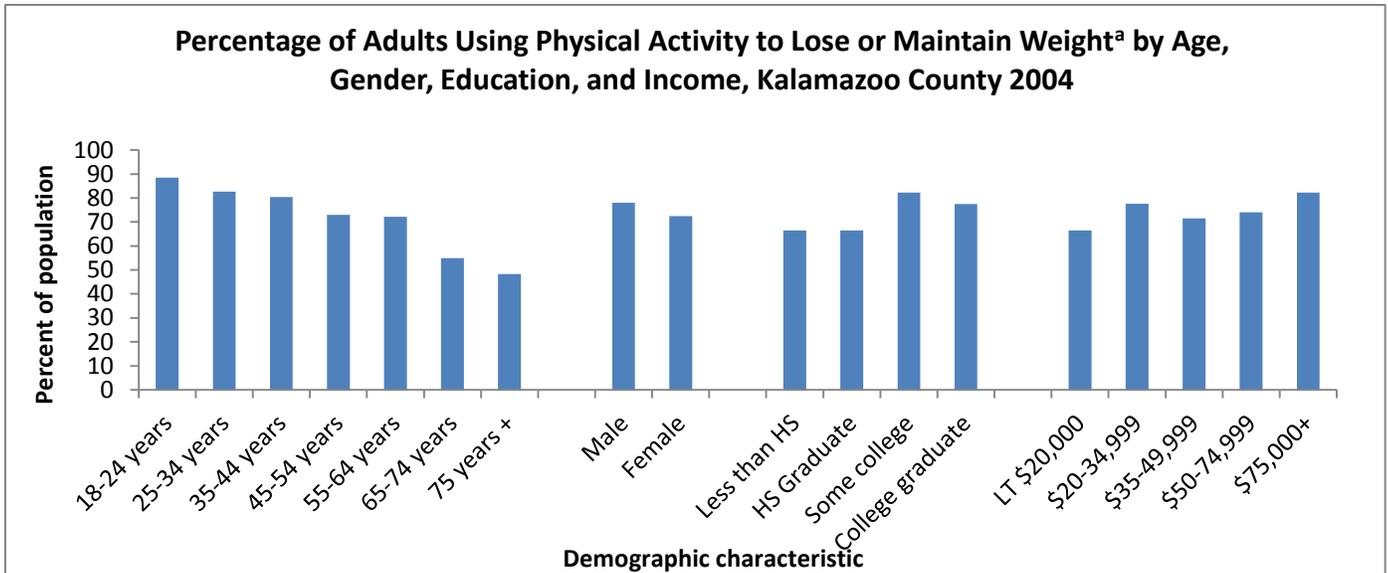
Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

A greater proportion among the white population in Kalamazoo County was trying to lose weight in 2004 than the proportion among the black population, and a greater proportion of the black population than the white population was neither trying to lose nor maintain weight.



Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

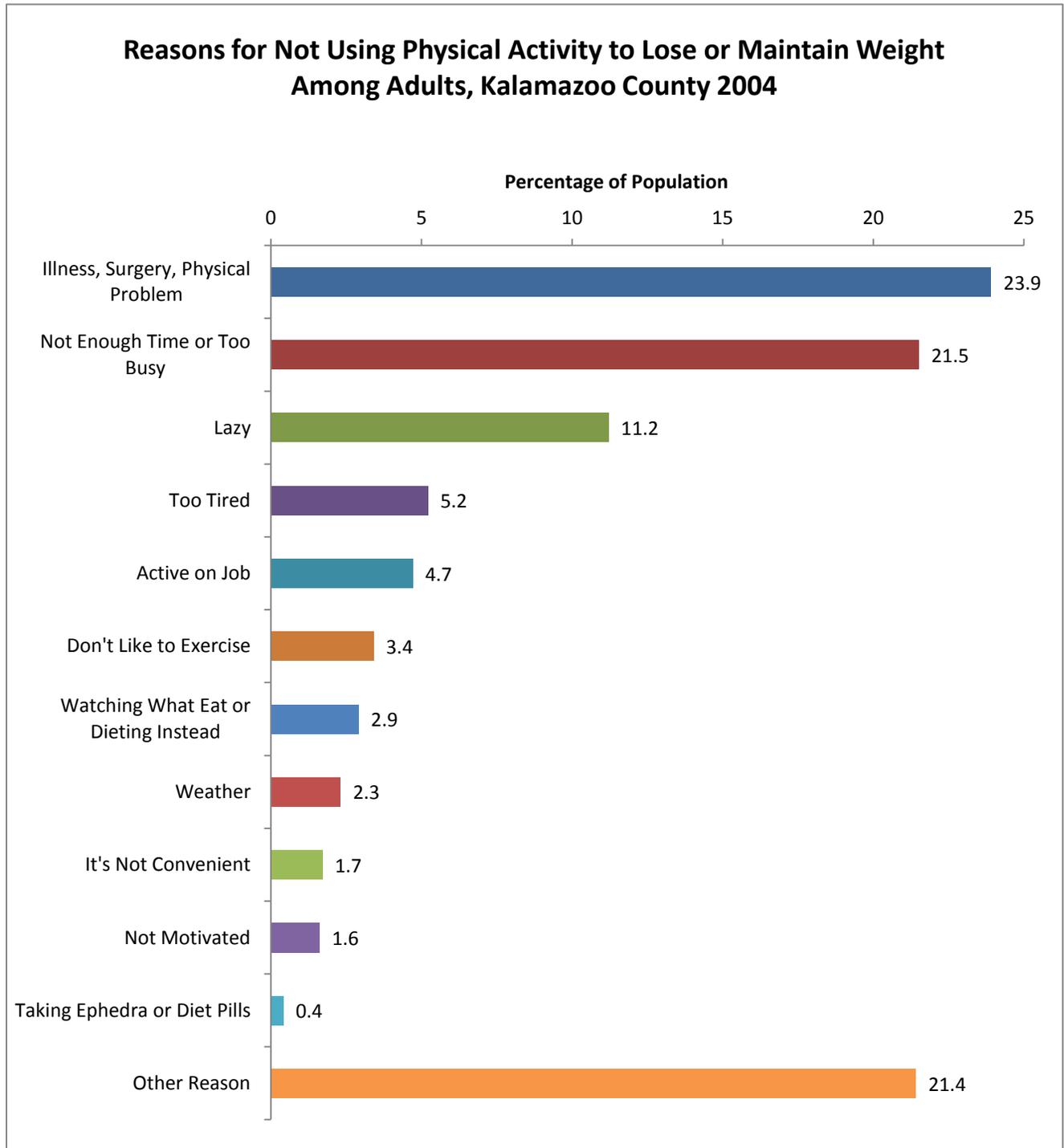
Among all adults who were trying to lose or maintain their weight, 75.0% of them were using physical activity or exercise to achieve this purpose. Younger adults were more commonly using physical activity or exercise than older adults, as were males, those with higher education levels, and higher incomes.



<sup>a</sup> Among adults who were currently trying to lose or maintain weight

Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

Among the 25.0% of adults who were trying to lose or maintain weight but not using physical activity to achieve their goals, there were varied reasons given as to why they were not using physical activity. The most common reason was that a physical problem such as illness or surgery was preventing them from using physical activity to lose weight; the second most common reason was that there was not enough time or they were too busy.



Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

**Reasons Not Using Physical Activity to Lose or  
Maintain Weight<sup>a</sup>, Kalamazoo County 2004\***

<b>Reason</b>	<b>%</b>	<b>95% C.I.</b>
Illness, surgery, physical problem	23.9	(17.7 - 30.1)
Not enough time or too busy	21.5	(15.1 - 27.9)
Lazy	11.2	(5.8 - 16.5)
Too tired	5.2	(1.9 - 8.6)
Active on job	4.7	(1.5 - 8.0)
Don't like to exercise	3.4	(0.5 - 6.3)
Watching what eat or dieting instead	2.9	(0.7 - 5.1)
Weather	2.3	*
It's not convenient	1.7	*
Not motivated	1.6	(0.3 - 2.8)
Taking ephedra or diet pills	0.4	*
Other reason	21.4	(14.7 - 28.1)

<sup>a</sup> Among respondents reporting that they were currently trying to lose or maintain their weight and were not using physical activity to lose or keep from gaining weight.

\* Indicators not collected for 2009 survey

Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

### Weight Control Status Among Adults, Kalamazoo County 2004\*

Demographic Characteristics	Trying to Lose Weight <sup>a</sup>		Trying to Maintain Weight <sup>b</sup>		Neither Trying to Lose Nor Maintain Weight <sup>c</sup>		Currently Using Physical Activity or Exercise to Lose or Maintain Weight <sup>d</sup>	
	%	95% C.I.	%	95% C.I.	%	95% C.I.	%	95% C.I.
<b>Total</b>	49.4	(45.5 - 53.3)	34.2	(30.6 - 37.8)	16.4	(13.3 - 19.4)	75.0	(71.6 - 78.4)
<b>Age</b>								
18-24 years	47.3	(34.5 - 60.0)	31.1	(19.3 - 42.8)	21.7	(11.2 - 32.2)	88.5	(80.6 - 96.4)
25-34 years	56.8	(47.0 - 66.5)	22.5	(14.7 - 30.4)	20.7	(12.4 - 29.1)	82.7	(74.1 - 91.3)
35-44 years	52.1	(43.7 - 60.5)	33.9	(25.7 - 42.0)	14.1	(8.1 - 20.1)	80.4	(73.6 - 87.2)
45-54 years	46.0	(37.6 - 54.4)	40.5	(32.2 - 48.9)	13.5	(7.3 - 19.7)	72.9	(65.1 - 80.7)
55-64 years	51.3	(42.6 - 60.0)	39.0	(30.5 - 47.6)	9.7	(4.2 - 15.2)	72.2	(64.0 - 80.4)
65-74 years	50.9	(40.7 - 61.0)	38.5	(28.7 - 48.3)	10.6	(4.5 - 16.7)	54.9	(44.2 - 65.6)
75 years +	31.2	(20.8 - 41.5)	40.7	(29.5 - 52.0)	28.1	(16.5 - 39.7)	48.3	(35.4 - 61.2)
<b>Gender</b>								
Male	40.8	(34.8 - 46.7)	38.3	(32.5 - 44.2)	20.9	(15.8 - 25.9)	78.0	(72.9 - 83.2)
Female	57.8	(53.0 - 62.7)	30.2	(25.8 - 34.5)	12.0	(8.6 - 15.4)	72.4	(67.9 - 76.9)
<b>Race</b>								
White	50.6	(46.4 - 54.7)	34.1	(30.3 - 38.0)	15.3	(12.1 - 18.5)	73.4	(69.7 - 77.1)
Black	39.1	(26.5 - 51.6)	35.5	(22.3 - 48.7)	25.4	(13.3 - 37.6)	80.9	(70.2 - 91.5)
<b>Education</b>								
Less than HS	52.7	(39.9 - 65.5)	30.8	(18.9 - 42.7)	16.5	(7.2 - 25.8)	66.5	(53.1 - 79.8)
HS Graduate	43.0	(35.4 - 50.6)	32.8	(26.0 - 39.7)	24.2	(17.3 - 31.1)	66.5	(58.8 - 74.2)
Some college	53.7	(46.1 - 61.2)	34.1	(26.8 - 41.4)	12.2	(7.1 - 17.3)	82.3	(77.2 - 87.4)
College graduate	49.8	(44.1 - 55.5)	37.0	(31.6 - 42.4)	13.2	(8.9 - 17.6)	77.5	(72.6 - 82.4)
<b>Income</b>								
Less than \$20,000	52.0	(42.2 - 61.8)	28.0	(19.6 - 36.4)	20.0	(11.6 - 28.5)	66.4	(56.8 - 76.0)
\$20,000-34,999	50.6	(41.8 - 59.4)	34.0	(25.8 - 42.2)	15.4	(8.4 - 22.4)	77.6	(70.5 - 84.7)
\$35,000-49,999	44.4	(34.2 - 54.5)	40.6	(30.2 - 51.0)	15.0	(7.6 - 22.4)	71.5	(61.5 - 81.5)
\$50,000-74,999	54.4	(44.8 - 64.0)	29.8	(21.5 - 38.2)	15.8	(8.5 - 23.1)	74.0	(65.0 - 82.9)
\$75,000+	46.9	(38.8 - 55.1)	40.5	(32.4 - 48.6)	12.6	(6.7 - 18.4)	82.2	(76.0 - 88.3)
<b>City/Out-County</b>								
City of Kalamazoo	52.4	(46.0 - 58.9)	30.4	(24.5 - 36.3)	17.2	(12.4 - 21.9)	74.4	(68.5 - 80.3)
Rest of County	47.9	(43.0 - 52.7)	36.3	(31.6 - 40.9)	15.8	(11.9 - 19.8)	75.3	(71.2 - 79.5)
<b>Within City of Kalamazoo</b>								
White in City	54.8	(47.4 - 62.2)	29.3	(22.7 - 35.9)	15.9	(10.8 - 20.9)	72.0	(64.9 - 79.1)
Black in City	40.0	(26.9 - 53.1)	37.0	(23.3 - 50.6)	23.0	(10.8 - 35.3)	77.2	(65.0 - 89.4)

<sup>a</sup> Among all respondents, the proportion who reported that they were currently trying to lose weight.

<sup>b</sup> Among all respondents, the proportion who reported that they were currently trying to maintain weight.

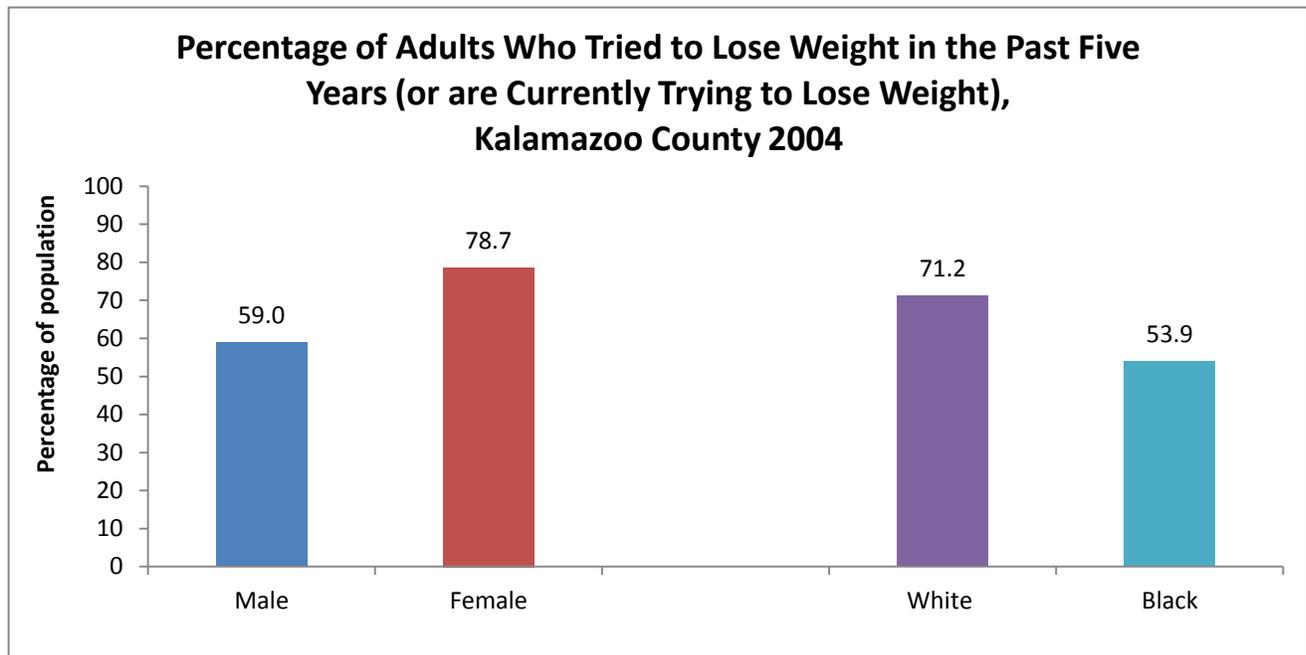
<sup>c</sup> Among all respondents, the proportion who reported that they were neither trying to lose nor maintain their weight.

<sup>d</sup> Among all respondents currently trying to lose or maintain their weight, the proportion who were using physical activity to lose or keep from gaining weight.

\* Indicators not collected for 2009 survey

Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

Among all adults in Kalamazoo County in 2004, 68.9% had tried to lose weight in the past five years or were currently trying to lose weight. More females than males had a history of trying to lose weight, and a higher percentage of the white population had a history of trying to lose weight than the percentage among the black population.



Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

**Attempts to Lose Weight, Kalamazoo County 2004\***

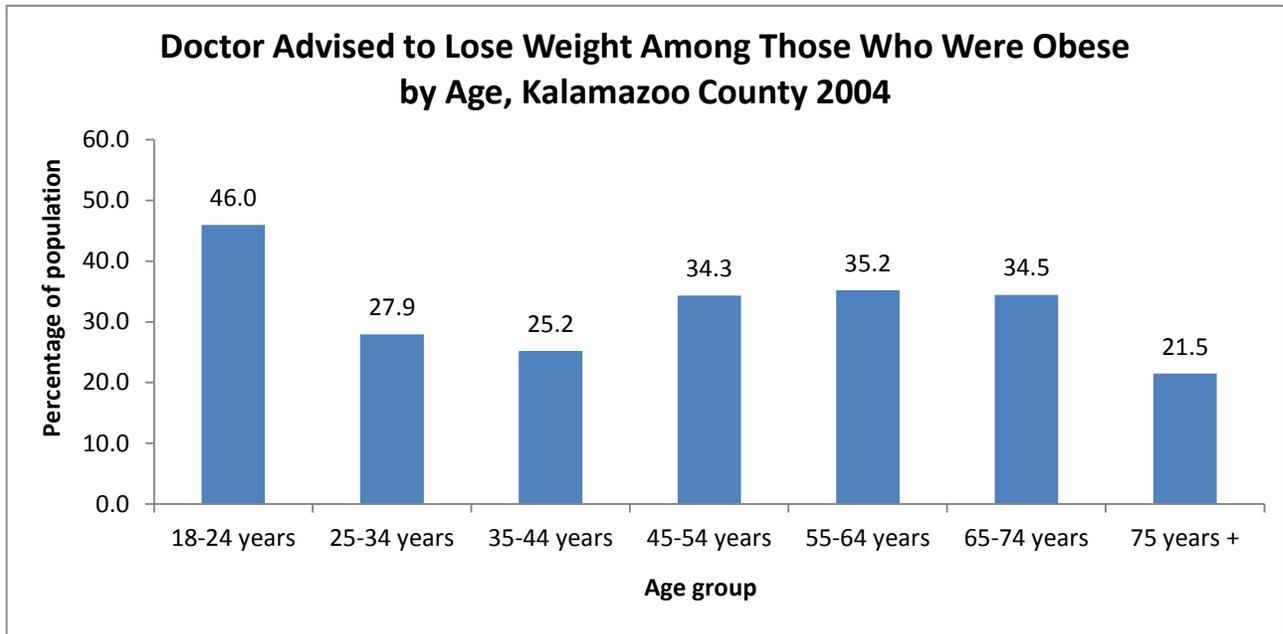
Demographic Characteristics	Tried to Lose Weight in the Past Five Years <sup>a</sup>	
	%	95% C.I.
<b>Total</b>	68.9	(65.3 - 72.6)
<b>Age</b>		
18-24 years	60.9	(48.2 - 73.5)
25-34 years	73.2	(64.6 - 81.8)
35-44 years	74.5	(67.0 - 82.1)
45-54 years	69.1	(60.9 - 77.2)
55-64 years	75.2	(67.5 - 82.8)
65-74 years	70.9	(61.7 - 80.1)
75 years +	46.5	(34.9 - 58.1)
<b>Gender</b>		
Male	59.0	(53.0 - 64.9)
Female	78.7	(74.6 - 82.7)
<b>Race</b>		
White	71.2	(67.4 - 75.0)
Black	53.9	(40.5 - 67.4)
<b>Education</b>		
Less than HS	63.4	(51.0 - 75.8)
HS Graduate	60.7	(53.2 - 68.2)
Some college	75.9	(69.1 - 82.7)
College graduate	71.6	(66.4 - 76.7)
<b>Income</b>		
Less than \$20,000	65.3	(55.7 - 74.9)
\$20,000-34,999	76.2	(68.8 - 83.5)
\$35,000-49,999	65.1	(54.6 - 75.5)
\$50,000-74,999	72.9	(64.6 - 81.3)
\$75,000+	73.5	(66.0 - 81.1)
<b>City/Out-County</b>		
City of Kalamazoo	67.8	(61.8 - 73.7)
Rest of County	69.6	(64.9 - 74.2)
<b>Within City of Kalamazoo</b>		
White in City	69.7	(63.0 - 76.5)
Black in City	57.8	(44.2 - 71.5)

<sup>a</sup> Among all respondents, the proportion who reported that they were either currently trying to lose weight or had tried to lose weight at some time in the past five years.

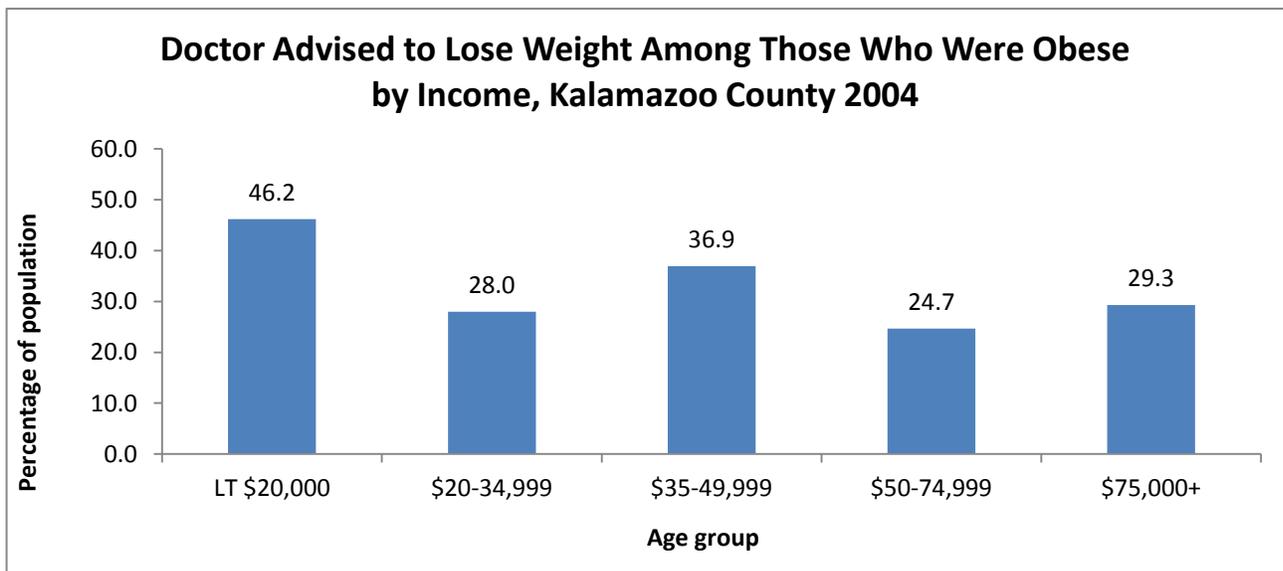
\*Indicators not collected for 2009 survey

Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

Research has shown that doctors only advise their obese patients to lose weight a minority of the time, yet patients who receive this advice are more likely to be trying to lose weight than those who do not.<sup>10</sup> In Kalamazoo County in 2004, only 32.1% of obese patients had been advised by their doctor to lose weight in the past year. Residents who were younger and with lower income levels most frequently reported that they had received this advice.



Source: Kalamazoo County 2004 Behavioral Risk Factor Survey



Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

<sup>10</sup> Galuska, DA, JC Will, MK Serdula, et al. 1999. Are health care professionals advising obese patients to lose weight? JAMA 282(16): 1576-1578.

**Health Professional's Advice About Weight in the Past 12 Months  
Among Those Whose BMI  $\geq 30.0^a$ , Kalamazoo County 2004\***

Demographic Characteristics	Advised to lose weight among those whose BMI $\geq 30.0$	
	%	95% C.I.
<b>Total</b>	32.1	(24.5 - 39.6)
<b>Age</b>		
18-24 years	46.0	(10.7 - 81.2)
25-34 years	27.9	(6.0 - 49.9)
35-44 years	25.2	(12.3 - 38.1)
45-54 years	34.3	(18.7 - 49.9)
55-64 years	35.2	(20.6 - 49.9)
65-74 years	34.5	(15.6 - 53.3)
75 years +	21.5	(1.4 - 41.5)
<b>Gender</b>		
Male	28.3	(16.7 - 39.9)
Female	36.2	(26.8 - 45.6)
<b>Race</b>		
White	32.4	(24.1 - 40.7)
Black	34.7	(13.0 - 56.3)
<b>Education</b>		
Less than HS	34.7	(12.2 - 57.1)
HS Graduate	33.2	(18.0 - 48.3)
Some college	29.6	(17.2 - 42.1)
College graduate	33.5	(21.6 - 45.4)
<b>Income</b>		
Less than \$20,000	46.2	(27.7 - 64.7)
\$20,000-34,999	28.0	(12.3 - 43.6)
\$35,000-49,999	36.9	(15.3 - 58.6)
\$50,000-74,999	24.7	(8.4 - 40.9)
\$75,000+	29.3	(13.5 - 45.1)
<sup>a</sup> Among those who were obese, the proportion who reported being advised by a doctor to lose weight in the past year		

\* Indicators not collected for 2009 survey

Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

### Health Professional's Advice About Weight in the Past 12 Months<sup>a</sup>, Kalamazoo County 2004\*

Demographic Characteristics	Advised to Lose Weight		Advised to Gain Weight		Advised to Maintain Current Weight		Not Advised About Weight	
	%	95% C.I.	%	95% C.I.	%	95% C.I.	%	95% C.I.
<b>Total</b>	15.2	(12.5 - 18.0)	1.8	(0.7 - 2.8)	1.7	(0.9 - 2.5)	81.3	(78.3 - 84.3)
<b>Age</b>								
18-24 years	12.1	(3.6 - 20.6)	4.1	**	1.6	**	82.2	(72.6 - 91.9)
25-34 years	13.0	(5.7 - 20.3)	1.4	**	1.2	**	84.4	(76.8 - 92.0)
35-44 years	18.7	(12.1 - 25.3)	0.4	**	0.7	**	80.3	(73.6 - 86.9)
45-54 years	15.6	(9.6 - 21.5)	1.8	**	1.3	**	81.4	(75.0 - 87.7)
55-64 years	19.6	(13.1 - 26.0)	0.5	**	1.6	**	78.3	(71.6 - 85.0)
65-74 years	13.3	(7.0 - 19.7)	0.4	**	5.5	(1.1 - 9.9)	80.7	(73.3 - 88.2)
75 years +	12.5	(5.7 - 19.3)	5.0	**	2.0	**	80.5	(70.4 - 90.7)
<b>Gender</b>								
Male	14.4	(10.1 - 18.6)	2.2	(0.2 - 4.1)	1.8	(0.4 - 3.2)	81.6	(76.9 - 86.3)
Female	16.1	(12.6 - 19.6)	1.3	(0.3 - 2.4)	1.6	(0.7 - 2.5)	81.0	(77.3 - 84.7)
<b>Race</b>								
White	15.1	(12.1 - 18.0)	1.8	(0.6 - 3.1)	1.6	(0.7 - 2.4)	81.6	(78.4 - 84.7)
Black	20.7	(9.9 - 31.5)	0.5	(0.1 - 0.9)	0.9	(0.2 - 1.5)	77.9	(67.1 - 88.7)
<b>Education</b>								
Less than HS	17.5	(7.0 - 28.0)	2.7	**	0.1	**	79.8	(68.7 - 90.8)
HS Graduate	15.1	(9.6 - 20.6)	3.7	(0.6 - 6.7)	1.9	(0.4 - 3.3)	79.4	(73.3 - 85.6)
Some college	14.8	(9.9 - 19.8)	0.8	**	2.7	(0.7 - 4.7)	81.7	(76.4 - 87.0)
College graduate	14.9	(10.9 - 18.8)	0.6	**	1.1	(0.1 - 2.2)	83.4	(79.3 - 87.5)
<b>Income</b>								
Less than \$20,000	19.1	(10.8 - 27.4)	2.4	(0.2 - 4.5)	0.2	(0.0 - 0.4)	78.3	(69.8 - 86.8)
\$20,000-34,999	15.2	(9.2 - 21.2)	1.6	**	2.3	(0.3 - 4.4)	80.9	(74.3 - 87.4)
\$35,000-49,999	19.8	(11.9 - 27.6)	0.0	(0.0 - 0.0)	0.7	**	79.5	(71.6 - 87.4)
\$50,000-74,999	13.8	(7.6 - 20.0)	1.4	**	1.2	**	83.6	(76.8 - 90.4)
\$75,000+	14.4	(8.5 - 20.4)	1.1	**	3.3	(0.6 - 6.0)	81.1	(74.6 - 87.6)
<b>City/Out-County</b>								
City of Kalamazoo	14.0	(9.5 - 18.5)	0.8	**	1.7	(0.5 - 2.9)	83.5	(78.8 - 88.2)
Rest of County	16.0	(12.5 - 19.4)	2.3	(0.7 - 3.9)	1.7	(0.6 - 2.9)	80.0	(76.2 - 83.8)
<b>Within City of Kalamazoo</b>								
White in City	12.0	(7.1 - 17.0)	0.3	**	2.0	(0.4 - 3.6)	85.6	(80.4 - 90.8)
Black in City	19.8	(8.8 - 30.9)	0.5	(0.0 - 1.0)	1.0	(0.2 - 1.8)	78.6	(67.6 - 89.7)

<sup>a</sup> Among all respondents, the proportion who reported they received advice from a health professional (doctor, nurse, or other) about their weight in the past 12 months.

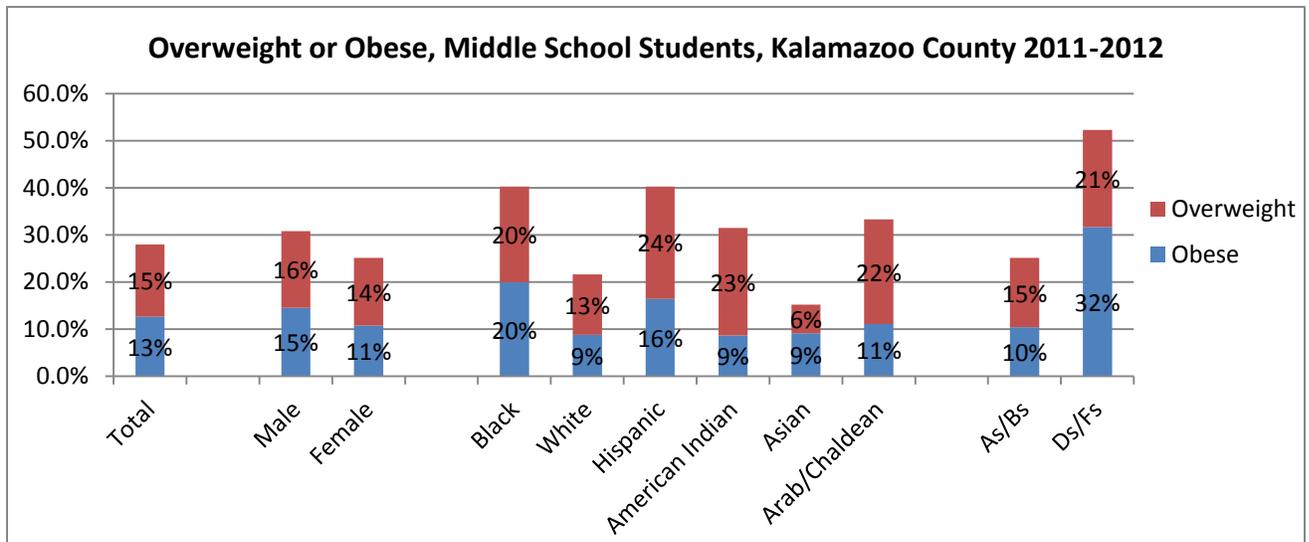
\* Indicators not collected for 2009 survey

\*\*Confidence interval exceeds possible limits

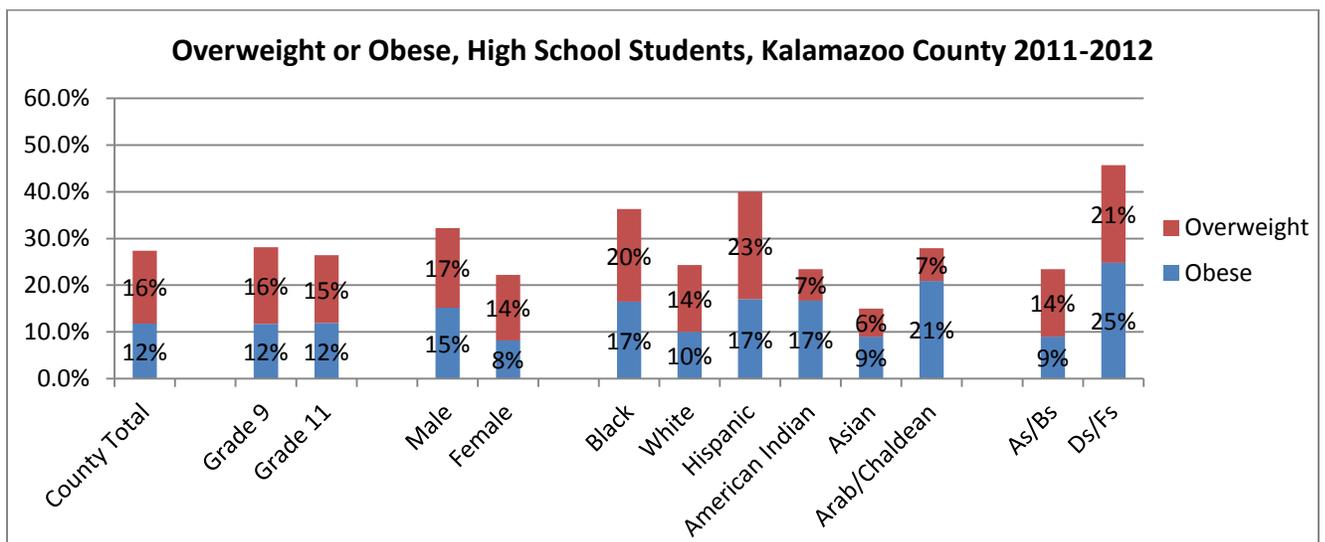
Source: Kalamazoo County 2004 Behavioral Risk Factor Survey

### 4.3.3 Youth Weight Status

In Kalamazoo County, 11.8% of 9<sup>th</sup>-11<sup>th</sup> graders and 12.6% of 7<sup>th</sup> graders were obese (at or above the 95th percentile for BMI by age and sex) according to heights and weights they reported during the Michigan Profile for Healthy Youth Survey during the 2011-2012 school year.<sup>11</sup> Among 7<sup>th</sup> graders, groups reporting the highest rates of obesity include male students, black students, and students receiving Ds/Fs for grades. Groups reporting the highest rates of obesity among high school students were those who were male, Arab/Chaldean students, black students, Hispanic students, American Indian students, and students receiving Ds/Fs for grades.



Source: Michigan Profile for Healthy Youth, Kalamazoo County 2011-2012

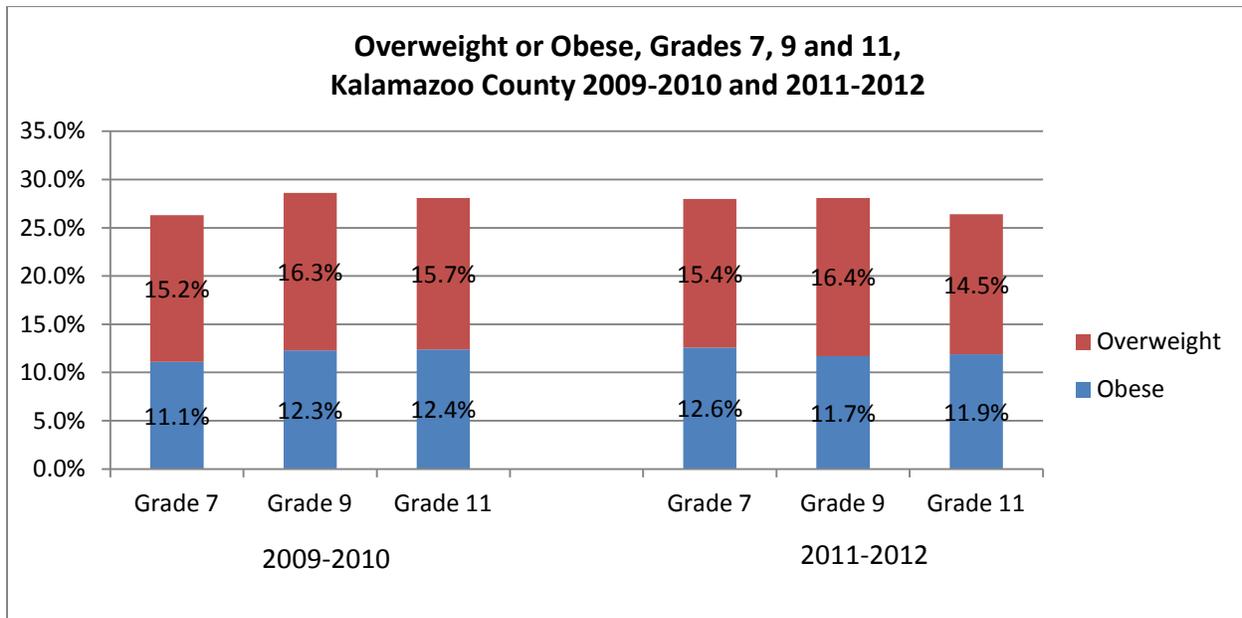


Source: Michigan Profile for Healthy Youth, Kalamazoo County 2011-2012

<sup>11</sup> Results are publicly available for the county overall (not by individual districts or schools) here: <https://mdoe.state.mi.us/MIPHYADMIN/reports/CountyReport.aspx>.

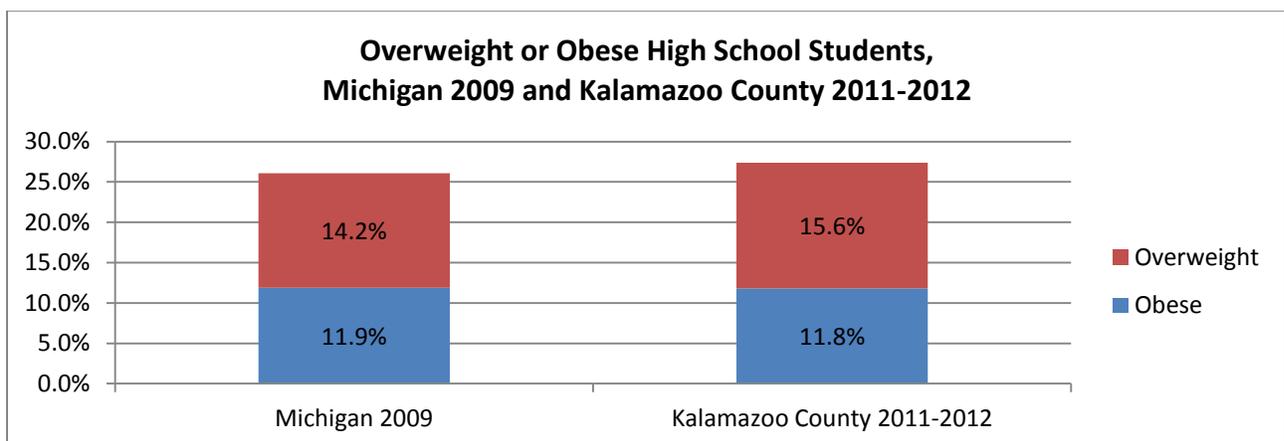
When obese and overweight prevalence is combined, 28.0% of 7<sup>th</sup> graders and 27.4% of 9<sup>th</sup> and 11<sup>th</sup> graders had BMIs meeting one of these designations. Middle school students with the highest rates of overweight or obesity were males, Hispanic students, black students, and students receiving Ds/Fs. Among high school students, Hispanic students, black students, and students receiving Ds/Fs had the highest rates of overweight or obese students.

Comparing survey years (2009-2010 and 2011-2012), the prevalence of overweight or obese students were similar over time for each grade level surveyed.



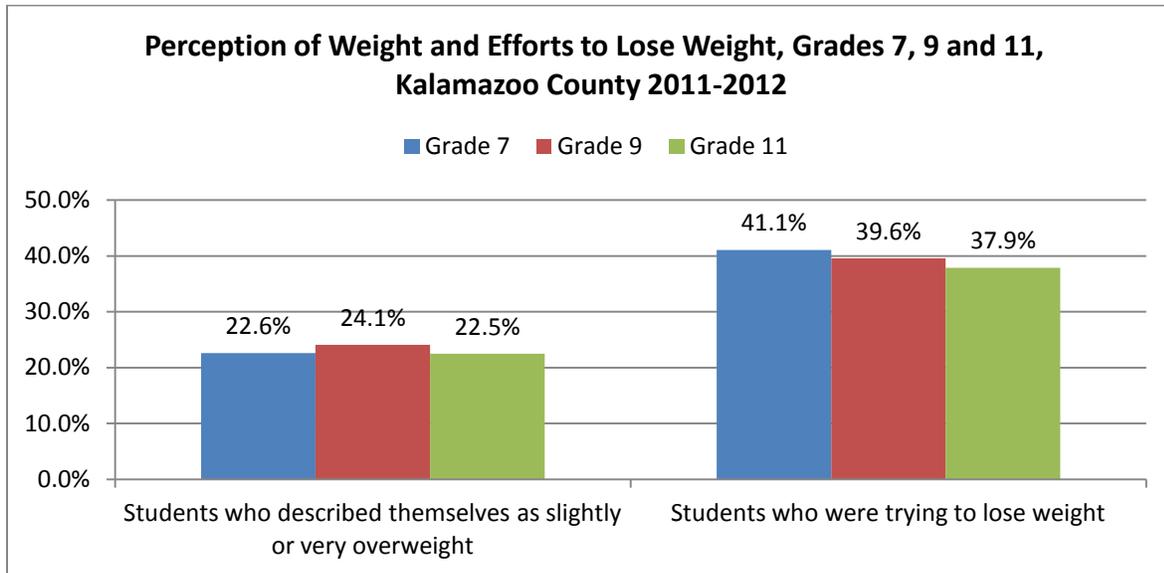
Source: Michigan Profile for Healthy Youth, Kalamazoo County 2011-2012

In comparison with Michigan high school students, the prevalence of obese or overweight students was similar in Kalamazoo County.



Source: Michigan Profile for Healthy Youth, Kalamazoo County 2011-2012

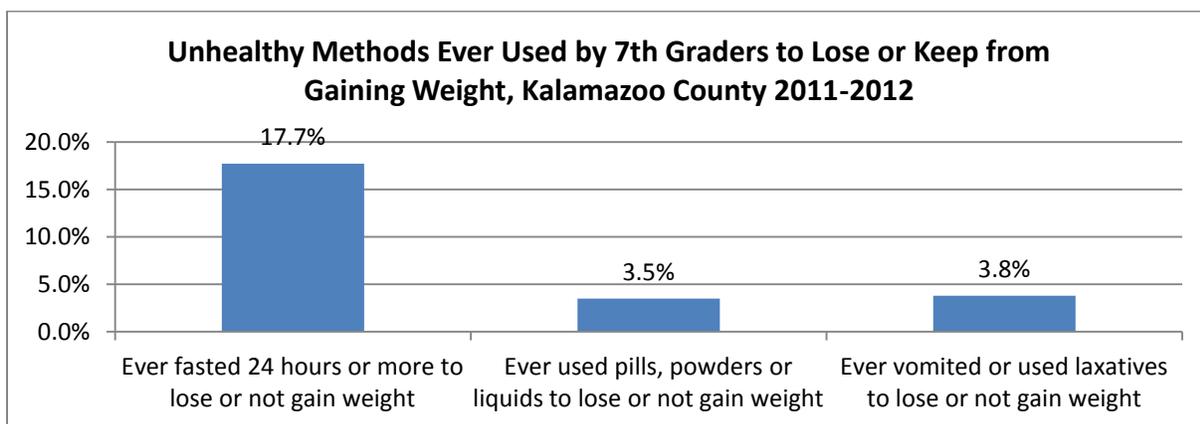
In Kalamazoo County, almost one out of four 7<sup>th</sup> graders and 9<sup>th</sup> and 11<sup>th</sup> graders and described themselves as being slightly or very overweight in 2011-2012 (22.6% of 7<sup>th</sup> graders and 23.4% of 9<sup>th</sup> and 11<sup>th</sup> graders). An even higher proportion of students in middle school and high school reported they were trying to lose weight: two out of five 7<sup>th</sup> graders (41.1%) and 9<sup>th</sup> and 11<sup>th</sup> graders (39.0%) reported they were trying to lose weight.



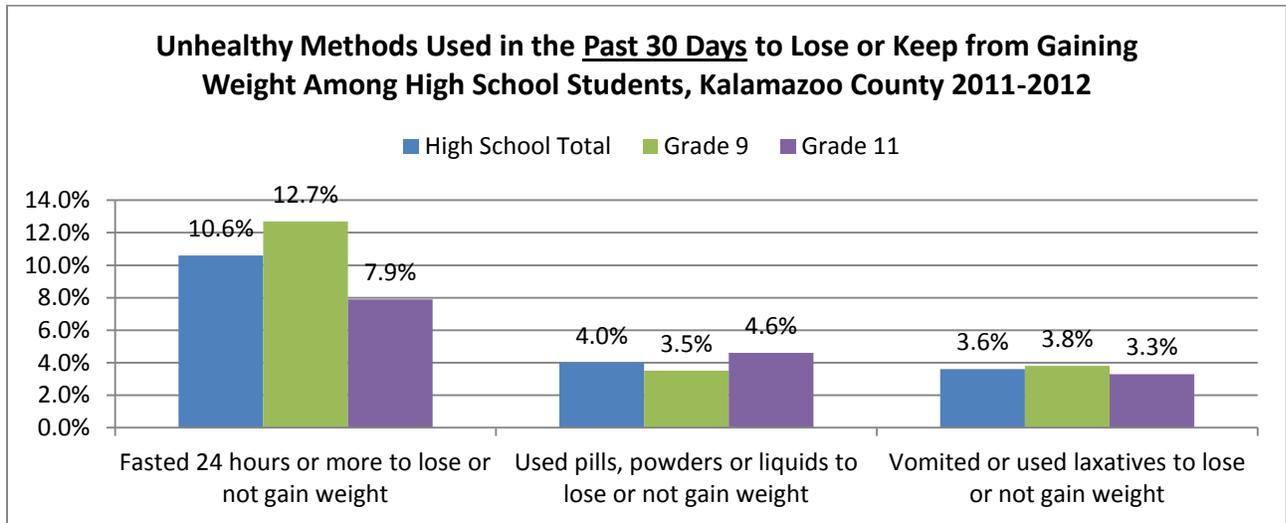
Source: Michigan Profile for Healthy Youth, Kalamazoo County 2011-2012

Unhealthy methods students were using to lose weight or to keep from gaining weight were asked about in the MIPHY survey. The survey asked about fasting, taking pills, powders or liquids without a doctor’s advice, and vomiting or using laxatives. High school students were asked about using these methods in the past 30 days and middle school students were asked whether they ever had used these methods.

Among middle school students, fasting was the most reported of the three unhealthy methods to lose or maintain weight surveyed. Fasting was also the most commonly reported recent method used by 9<sup>th</sup> and 11<sup>th</sup> graders, with 10.6% reporting that in the past 30 days they had fasted to lose or keep from gaining weight.



Source: Michigan Profile for Healthy Youth, Kalamazoo County 2011-2012



Source: Michigan Profile for Healthy Youth, Kalamazoo County 2011-2012

### Weight Status Among High School Students, Kalamazoo County 2011-2012

Demographic Characteristic		Students who are obese (at or above the 95th percentile for BMI by age and sex)	Students who are overweight (at or above the 85th percentile and below the 95th percentile for BMI by age and sex)	Students who described themselves as slightly or very overweight	Students who were trying to lose weight	Students who had ever gone without eating for 24 hours or more to lose weight or to keep from gaining weight (fasting)	Students who had ever taken pills, powders or liquids without a doctor's advice to lose weight or to keep from gaining weight	Students who had ever vomited or took laxatives to lose weight or to keep from gaining weight
<b>Total</b>		12.6%	15.4%	22.6%	41.1%	17.7%	3.5%	3.8%
<b>Gender</b>								
	<b>Male</b>	14.5%	16.3%	19.0%	30.3%	11.7%	2.5%	1.6%
	<b>Female</b>	10.7%	14.4%	25.8%	51.0%	22.0%	4.4%	5.9%
<b>Race/Ethnicity</b>								
	<b>Black</b>	19.9%	20.4%	17.7%	38.4%	19.4%	4.4%	3.7%
	<b>White</b>	8.8%	12.8%	22.1%	38.3%	13.6%	2.7%	3.1%
	<b>Hispanic</b>	16.4%	23.9%	27.0%	48.1%	24.8%	7.0%	8.4%
	<b>American Indian</b>	8.6%	22.9%	21.6%	42.1%	23.7%	0.0%	2.6%
	<b>Asian</b>	9.1%	6.1%	25.6%	53.8%	23.1%	0.0%	5.1%
	<b>Arab/Chaldean</b>	11.1%	22.2%	18.2%	45.5%	36.4%	9.1%	9.1%
<b>Academics</b>								
	<b>As/Bs</b>	10.4%	14.7%	22.0%	40.6%	14.8%	2.5%	3.2%
	<b>Ds/Fs</b>	31.7%	20.6%	36.2%	54.3%	26.1%	5.9%	2.9%

Source: Michigan Profile for Healthy Youth, Kalamazoo County 2011-2012

### Weight Status Among High School Students, Kalamazoo County 2011-2012

Demographic Characteristic		Students who are obese (at or above the 95th percentile for BMI by age and sex)	Students who are overweight (at or above the 85th percentile and below the 95th percentile for BMI by age and sex)	Students who described themselves as slightly or very overweight	Students who were trying to lose weight	Students who went without eating for 24 hours or more to lose weight or to keep from gaining weight during the past 30 days (fasting)	Students who took pills, powders or liquids without a doctor's advice to lose weight or to keep from gaining weight during the past 30 days	Students who vomited or took laxatives to lose weight or to keep from gaining weight during the past 30 days
<b>Michigan 2009*</b>		11.9%	14.2%	27.9%	44.8%	13.1%	7.3%	7.2%
<b>County Total</b>		11.8%	15.6%	23.4%	39.0%	10.6%	4.0%	3.6%
<b>Grade</b>	<b>Grade 9</b>	11.7%	16.4%	24.1%	39.6%	12.7%	3.5%	3.8%
	<b>Grade 11</b>	11.9%	14.5%	22.5%	37.9%	7.9%	4.6%	3.3%
<b>Gender</b>	<b>Male</b>	15.2%	17.0%	21.4%	27.2%	5.5%	2.9%	2.0%
	<b>Female</b>	8.2%	14.0%	25.5%	50.8%	15.7%	5.0%	5.2%
<b>Race/Ethnicity</b>	<b>Black</b>	16.5%	19.8%	18.9%	38.5%	13.0%	3.0%	4.7%
	<b>White</b>	10.0%	14.3%	23.4%	38.5%	9.5%	3.6%	2.8%
	<b>Hispanic</b>	17.0%	23.0%	29.2%	44.1%	12.6%	6.3%	5.6%
	<b>American Indian</b>	16.7%	6.7%	28.1%	53.1%	21.9%	18.8%	6.3%
	<b>Asian</b>	9.0%	6.0%	13.2%	28.6%	2.9%	1.9%	1.9%
	<b>Arab/Chaldean</b>	20.9%	7.0%	34.0%	33.3%	12.2%	2.0%	2.0%
<b>Academics</b>	<b>As/Bs</b>	9.0%	14.4%	20.9%	36.7%	9.0%	3.4%	2.9%
	<b>Ds/Fs</b>	24.8%	20.9%	31.0%	47.1%	18.1%	10.2%	7.8%

\*2009 Michigan Youth Risk Behavior Survey. For additional information on the YRBS results, please go to [www.michigan.gov/yrbs](http://www.michigan.gov/yrbs).

Source: Michigan Profile for Healthy Youth, Kalamazoo County 2011-2012