

Exercise, Nutrition, and Obesity

The proliferation of local gyms and opportunities for exercise has helped spotlight the importance of maintaining a healthy weight through adequate exercise and nutrition. In addition to local initiatives to galvanize the public, nationally, *Healthy People 2010* has set goals for physical activity and dietary counseling.¹ While some researchers and clinicians place one of these three risk factors at the forefront of their agendas, the three are intricately woven together and impact various health outcomes. For example, Nayga and Reed find that adequate intake of minerals and vitamins are essential to lowering the prevalence of degenerative diseases such as heart disease, cancer and osteoporosis.² In addition, researchers have reported that obesity, lack of physical activity, and poor food choices (nutrition) play a critical role in reducing type 2 diabetes mellitus.^{3,4}

While researchers continue to explore the relationship between risk factors and disease, an important consideration is whether or not the population at large is knowledgeable about the benefits of proper nutrition and exercise. Several researchers reported that difference in knowledge and attitude toward these risk factors influence the willingness and ability of individuals to choose activities and behaviors that will lower their risk of disease.^{5,6} According to Blumenthal et al., public health interventions aimed at decreasing obesity should take a multifaceted approach that includes emphasis on physical activity and a healthy diet.

State and National Trends

Exercise

According to reports by the Centers for Disease Control and Prevention, the period from 1990-2001 saw a decrease in the number of individuals who report that they are not involved in any type of leisure time physical activity, from 28.7% in 1990 to 25.7% in 2001. A similar trend has also occurred across the state of Tennessee over the same time period, from 38.5% in 1990 to 35.1% in 2001.⁷

Nutrition

The Food and Drug Administration recommends that individuals consume five or more servings of fruits and vegetables a day. National and state BRFSS prevalence rates are available for the years 1996, 1998, and 2000 only. In 2000, only 23.1% of respondents nationwide reported consuming the recommended amount. This is down from 23.6% in 1996 and 23.8% in 1998. At the state level, there was an increase in the number of respondents who reported that they consumed enough fruit and vegetables, from 25.8% in 1996 and 29.7% in 1998 to 34.1% in 2000. It is important to note that more than 50% of Tennessee residents reported that they did not follow the FDA recommended guidelines for fruits and vegetables.⁷

Obesity

Across the nation, the number of individuals that are classified as obese by Body Mass Index (BMI) continues to rise. In 1990, 12.0% of those surveyed across the nation and 12.1% in Tennessee were classified as obese. By 2001, these numbers had swelled to 20.9% nationwide and 22.6% at the state level.^{8,9}

Healthy People 2010

Healthy People 2010 objectives related to obesity, nutrition, and exercise are:

- Increase the proportion of adults who are at a healthy weight to 60%.
- Reduce the proportion of adults who are obese to 15%.
- Increase the proportion of persons aged 2 years and older who consume at least two daily servings of fruit to 75%.
- Increase the proportion of persons aged 2 years and older who consume at least three daily servings of vegetables, with at least one-third being dark green or deep yellow vegetables.
- Increase the proportion of persons aged 2 years and older who consume no more than 30 percent of calories from fat to 75%.
- Reduce the proportion of adults who engage in no leisure-time physical activity to 20%.
- Increase the proportion of adults who engage regularly, preferably daily, in moderate physical activity for at least 30 minutes per day to 30%.
- Increase the proportion of adults who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness 3 or more days per week for 20 or more minutes per occasion to 30%.¹⁰

Description of Measures

The BRFSS module utilizes various measures to gauge the health behaviors and status of individuals. Obesity was measured by calculating the Body Mass Index (BMI) of respondents. Body Mass Index is calculated by dividing weight in kilograms by the square of height in meters. According to the National Institutes of Health and the World Health Organization, obesity is defined as having a BMI above 30. Overweight is defined as having a BMI between 25 and 29.9. Survey respondents were asked “About how tall are you without shoes?” and “About how much do you weigh without shoes?” BMI was calculated from self reported height and weight.

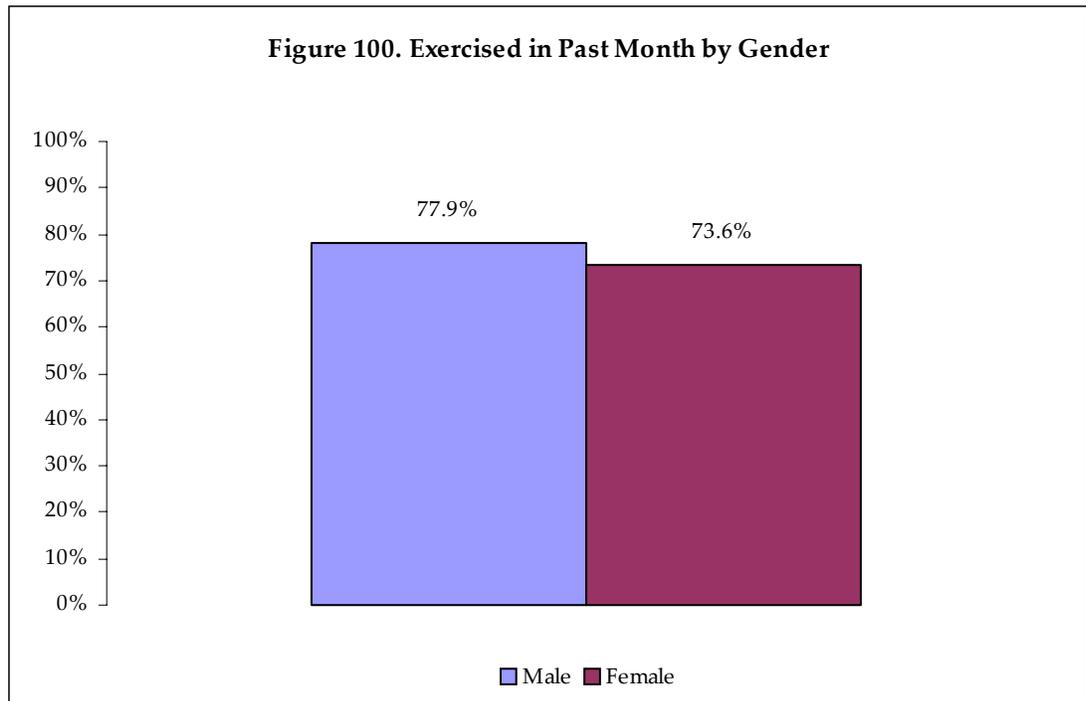
In terms of exercise, respondents reported on whether or not they exercised, how often they exercised and whether their activity was related to an attempt to lose weight. The first item related to exercise was: “During the past month, how many times did you participate in any physical activities or exercises such as running, calisthenics, or walking for exercise?” Because of low numbers for each level of exercise participation, this question was recoded and analyzed as a dichotomous, “yes or no” question, and percentages were calculated for respondents participating in exercise regardless of frequency. Nutrition was measured by asking respondents about their dietary habits. Respondents were asked, “Do you almost always eat five or more servings of fruits and vegetables each day?” followed by examples of a serving and “Do you try to avoid eating high fat foods (for example, butter, margarine, oil, salad dressing, fatty meat, fried food, and ice cream)?” Three items covered weight loss attempts: “Are you now trying to lose weight?”, “Are you eating either fewer calories or less fat to lose weight?”, and “Are you using physical activity or exercise to lose weight?” Finally, respondents were asked, “Do you currently take any multivitamins?”

Results

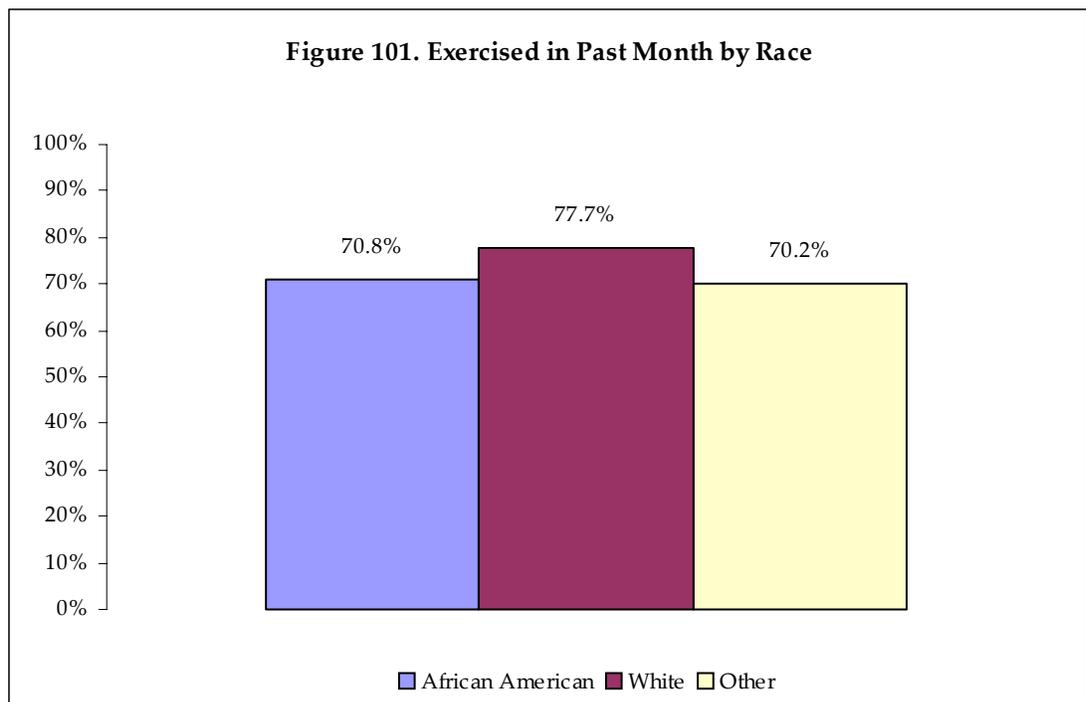
Exercise

- Overall, the majority, 75.6% (95% confidence interval 74.7 – 76.6) of respondents polled reported engaging in some physical activity or exercise in the past month.

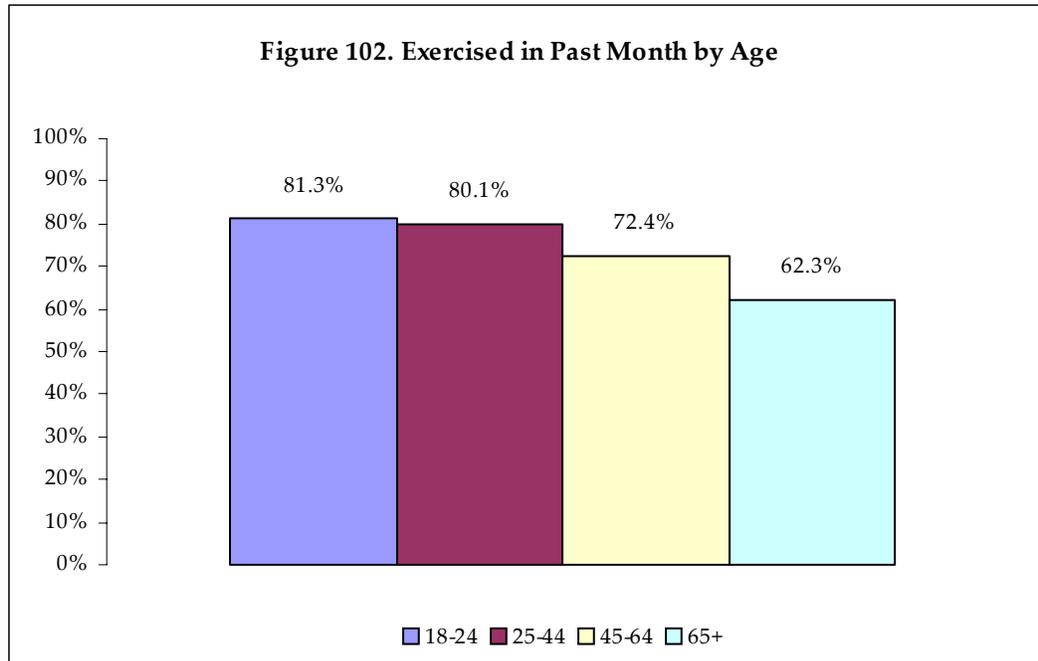
- Male respondents were more likely than females to say they had exercised in the past month. (Figure 100)



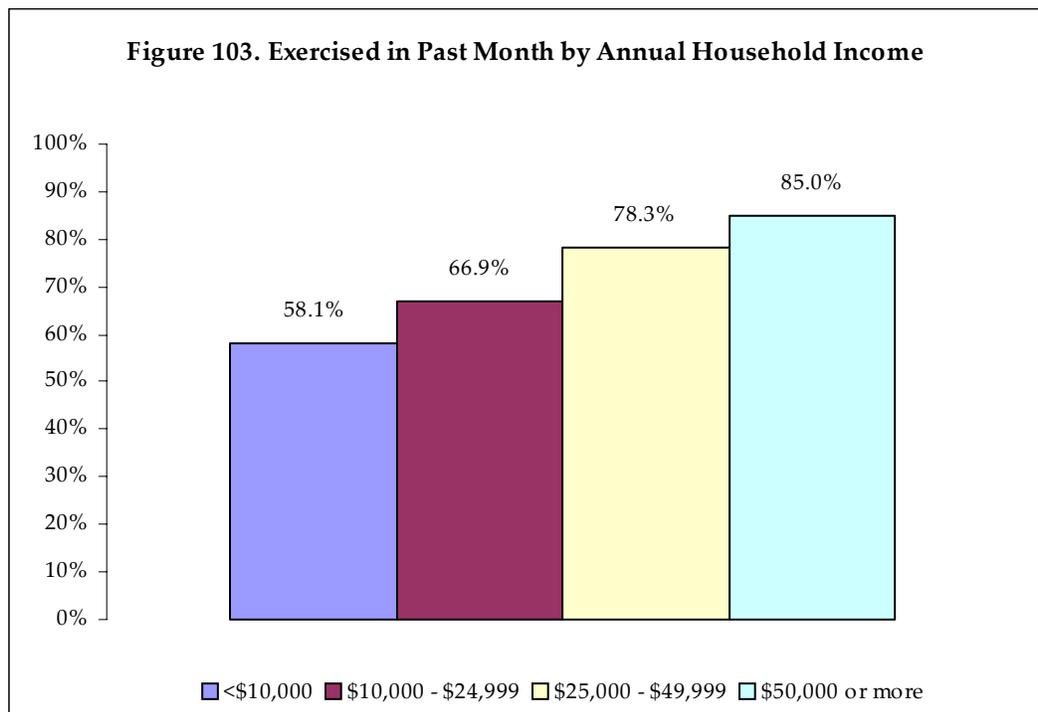
- White respondents were substantially more likely than African American or Other racial groups to have exercised in the past month. (Figure 101)



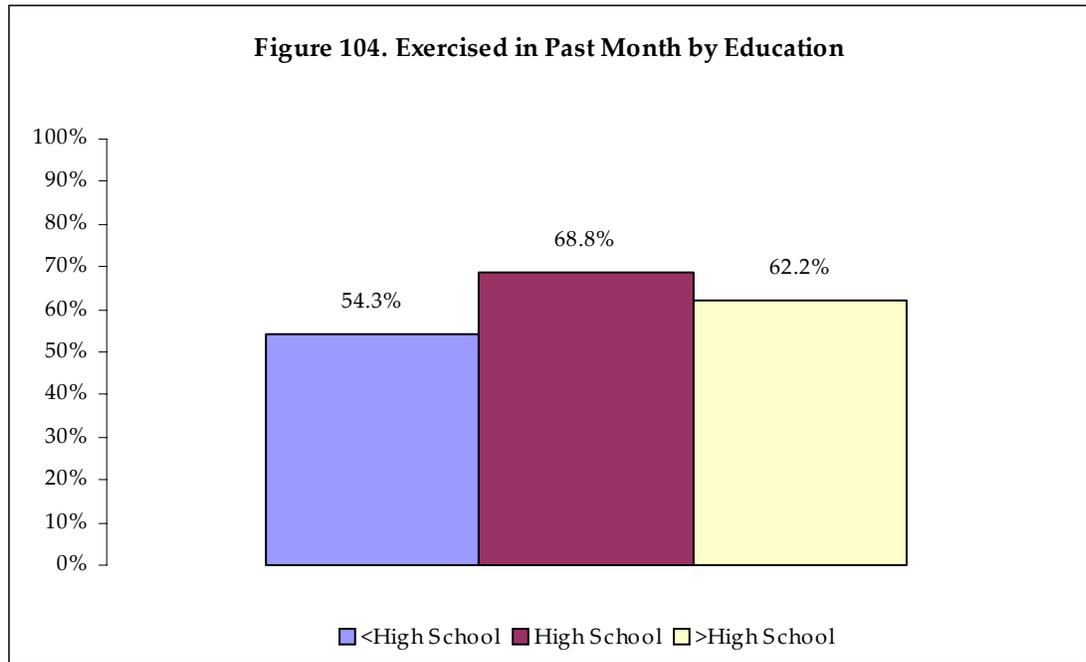
- Differences between age groups were not significant except for respondents 65 and over, who were substantially less likely to have exercised in the past month. (Figure 102)



- Respondents with annual household income of \$25,000 or more were more likely to report that they had participated in exercise in the past month. (Figure 103)

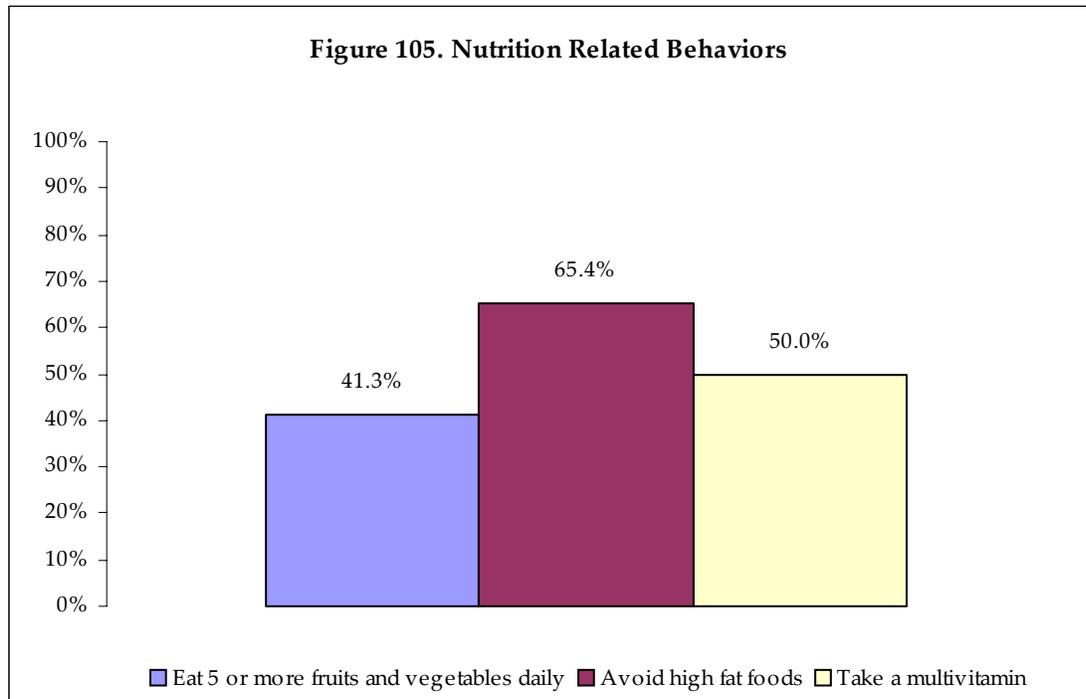


- Respondents with more education were more likely to report they had exercised in the past month. (Figure 104)

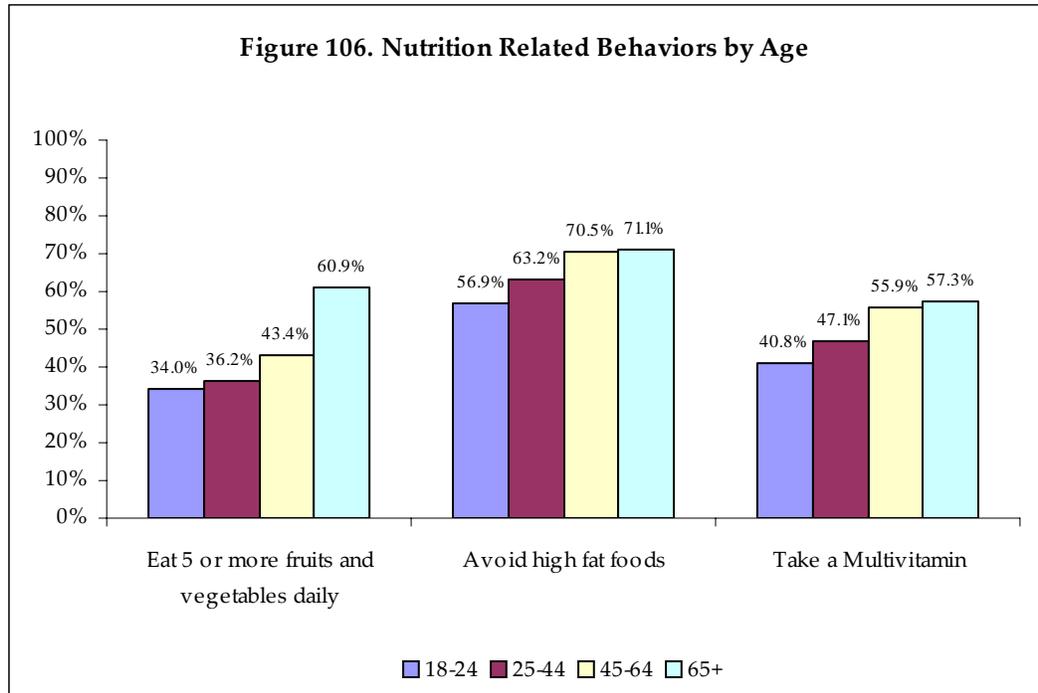


Nutrition.

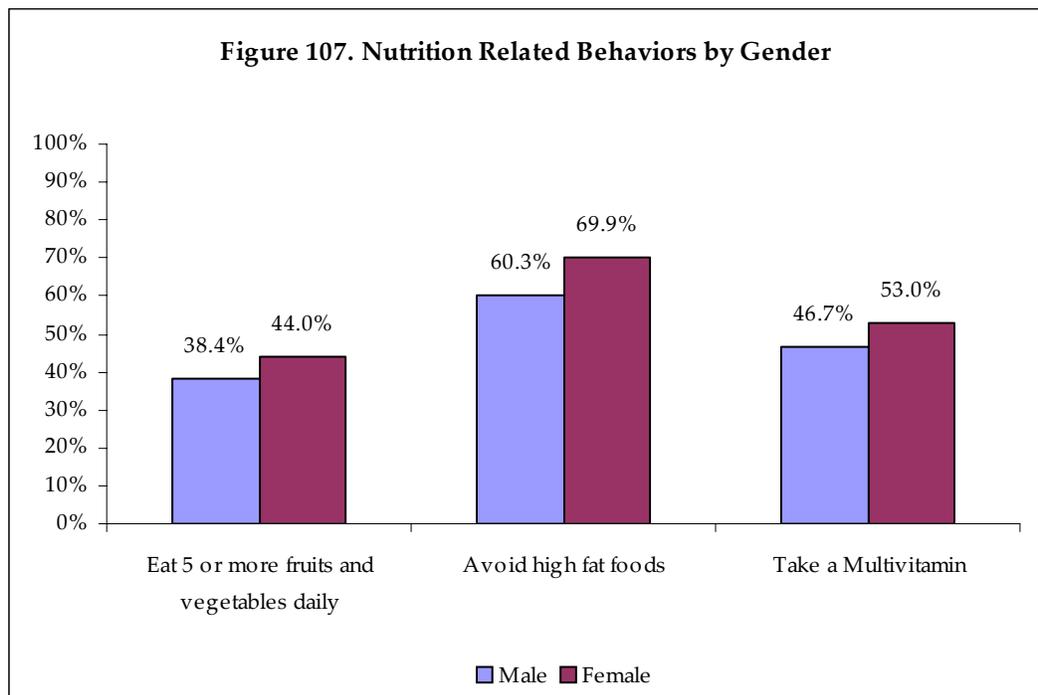
- Less than half (41.3%, 95% confidence interval 40.2 – 42.2) reported that they ate the recommended daily amount of fruit and vegetables. However, more than half (65.4%, 95% confidence interval 64.4 – 66.5) reported that they tried to avoid eating foods that were high in fat. In addition, half (50.0%, 95% confidence interval 48.9 – 51.1) reported taking a multivitamin. (Figure 105)



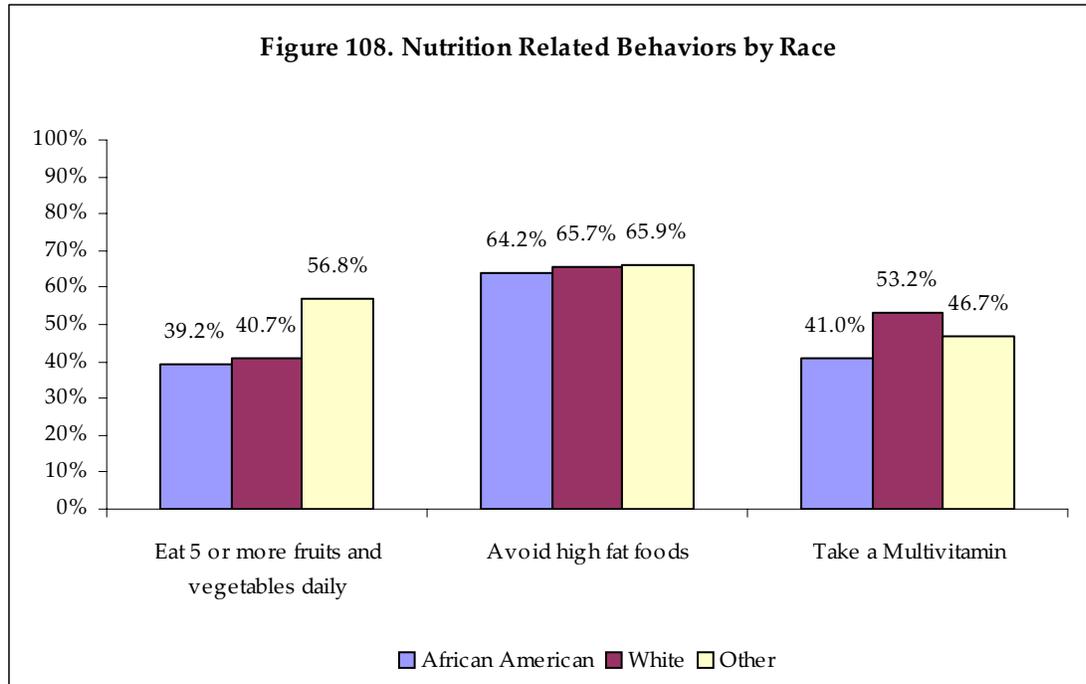
- Older respondents were more likely than younger ones to eat five servings of fruits or vegetables daily. Respondents 45 and older were more likely than respondents under 45 to avoid fat and to take a multivitamin. (Figure 106)



- Women were more likely to eat the recommended daily servings of fruit and vegetables, avoid foods high in fat, and take a multivitamin. (Figure 107)



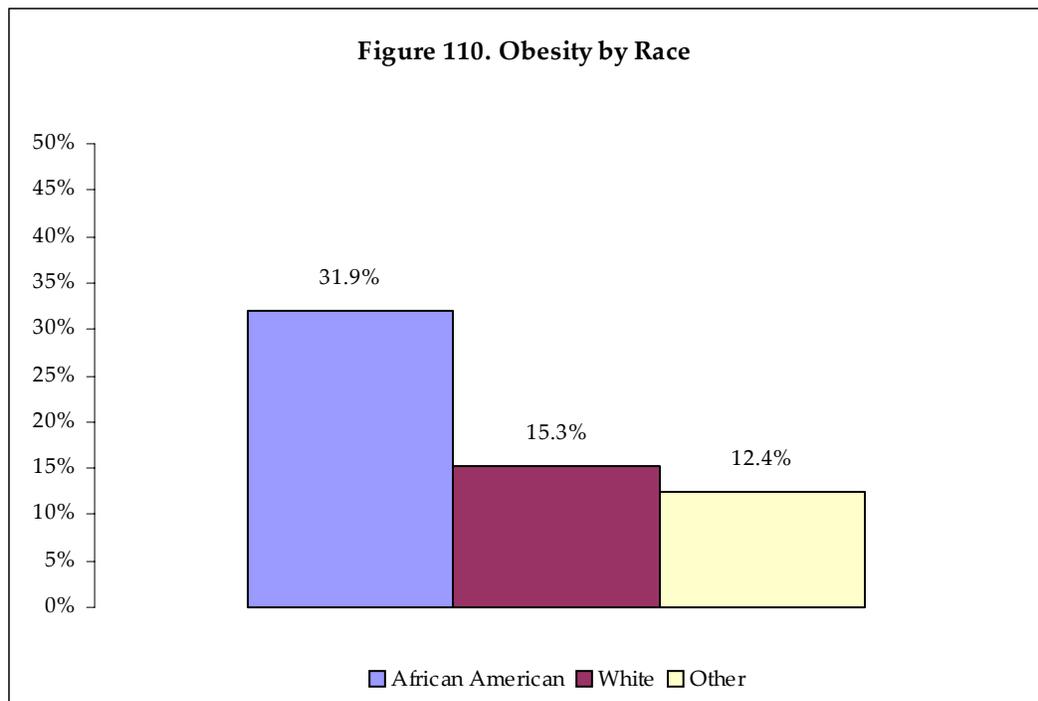
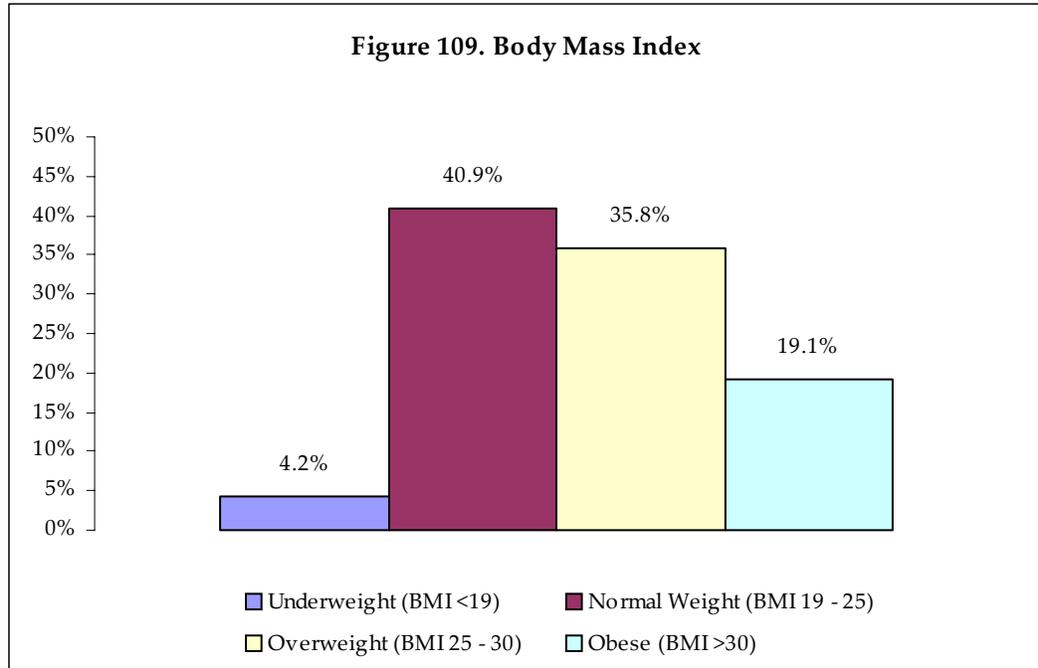
- Racial differences were also apparent, with those identifying their race as either White or African American eating fewer fruits and vegetables than Other races. On the other hand, those who identified themselves as White were more likely to report taking a multivitamin. Respondents across racial categories reported that they tried to avoid eating foods that were high in fat. (Figure 108)

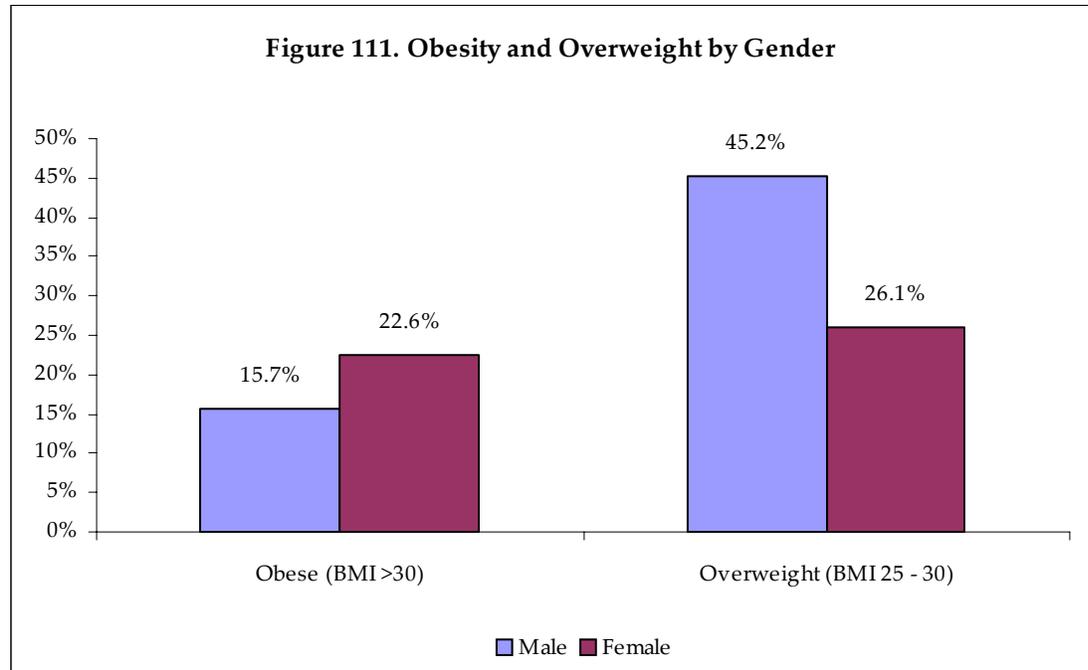


Obesity

Nineteen percent of respondents (19.1%, 95% confidence interval 18.2 – 20.0) were classified obese based on the information they provided. An additional 33% were considered overweight. (Figure 109)

- African Americans were more likely than White or Other races to be classified as obese. (Figure 110)
- Males and females were equally likely to be characterized as obese. In addition to respondents who were obese, 42% of men and 28% of women were considered overweight. (Figure 111)





References

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Table 10a. Exercise, Nutrition, and Obesity: Overweight, Obesity, and Exercised in Past Month. Results of the 2001 Community Health Behavior Survey in Davidson County, Tennessee Weighted by Council District (95% Confidence Interval)			
<i>Demographics</i>	<u>Overweight</u> (BMI 25 - 29.9)	<u>Obesity</u> (BMI >=30)	<u>Exercised in Past Month</u>
<u>Total</u>	35.8% (34.8 - 36.9)	19.1% (18.2 - 20.0)	75.6% (74.7 - 76.6)
<u>Age</u>			
18-24	28.4% (24.9 - 31.9)	13.7% (11.0 - 16.4)	81.3% (78.56 - 85.44)
25-44	35.2% (33.5 - 36.9)	19.9% (18.5 - 21.3)	80.1% (72.46 - 87.54)
45-64	35.2% (33.2 - 37.3)	22.3% (20.5 - 24.1)	72.4% (69.66 - 74.34)
65+	45.6% (42.9 - 48.3)	17.8% (15.7 - 19.9)	62.3% (57.49 - 64.51)
<u>Race</u>			
African American	35.8% (33.6 - 38.1)	31.9% (29.7 - 34.1)	70.8% (68.6 - 73.0)
White	35.7% (34.4 - 37.0)	15.3% (14.3 - 16.3)	77.7% (76.6 - 78.8)
Other	36.8% (30.3 - 43.3)	12.4% (7.9 - 16.9)	70.2% (64.0 - 76.4)
<u>Gender</u>			
Male	45.2% (43.3 - 47.1)	15.7% (14.3 - 17.1)	77.9% (76.3 - 79.5)
Female	26.1% (24.9 - 27.4)	22.6% (21.4 - 23.8)	73.6% (72.3 - 74.8)
<u>Income</u>			
< \$10,000	24.2% (19.3 - 29.2)	29.7% (24.4 - 35.0)	58.1% (52.4 - 63.8)
\$10,000 - \$24,999	35.1% (32.9 - 37.4)	22.5% (20.6 - 24.4)	66.9% (64.7 - 69.1)
\$25,000 - \$49,999	37.8% (35.9 - 39.7)	20.4% (18.8 - 22.0)	78.3% (76.7 - 79.9)
> \$50,000	36.3% (34.1 - 36.6)	17.6% (15.8 - 19.4)	85.0% (83.3 - 86.7)
<u>Education</u>			
< High School	35.6% (32.4 - 38.8)	22.4% (19.6 - 25.2)	54.3% (49.1 - 58.9)
High School	38.0% (35.9 - 40.2)	24.4% (22.5 - 26.3)	68.8% (65.4 - 70.6)
> High School	35.2% (33.8 - 36.6)	16.5% (15.4 - 17.6)	62.2% (60.8 - 63.6)
<u>Marital Status</u>			
Single	36.7% (34.5 - 38.8)	17.4% (15.7 - 19.1)	80.8% (79.1 - 82.6)
Married/Cohabiting	41.3% (38.7 - 43.9)	20.0% (17.9 - 22.1)	76.1% (73.9 - 78.4)
Divorced/Separated	30.4% (28.8 - 32.0)	18.2% (16.8 - 19.6)	72.3% (70.7 - 73.9)
Widowed	40.2% (36.9 - 43.5)	21.7% (18.9 - 24.5)	61.0% (57.7 - 64.3)
<u>Insurance Coverage</u>			
Insured	35.4% (34.3 - 36.6)	19.5% (18.6 - 20.5)	76.0% (73.9 - 76.0)
Uninsured	38.9% (36.3 - 41.6)	15.8% (13.8 - 17.8)	72.2% (69.7 - 74.7)

Table 10b. Exercise, Nutrition, and Obesity: Avoid High Fat Foods, Takes a Multivitamin, and Eats Five or More Fruits and Vegetables Daily. Results of the 2001 Community Health Behavior Survey in Davidson County, Tennessee Weighted by Council District (95% Confidence Interval)

<i>Demographics</i>	<u>Avoid high fat foods</u>	<u>Takes a Multivitamin</u>	<u>Eats Five or More Fruits and Vegetables Daily</u>
<u>Total</u>	65.4% (64.4 - 66.5)	50.0% (48.9 - 51.1)	41.3% (40.2 - 42.4)
<u>Age</u>			
18-24	56.9% (53.1 - 60.8)	40.8% (36.9 - 49.1)	34.0% (30.3 - 37.7)
25-44	63.2% (61.5 - 64.8)	47.1% (45.5 - 50.5)	36.2% (34.5 - 37.9)
45-64	70.5% (68.5 - 72.5)	55.9% (53.1 - 58.9)	43.4% (41.3 - 45.6)
65+	71.1% (68.6 - 73.6)	57.3% (56.5 - 63.6)	60.9% (58.2 - 63.6)
<u>Race</u>			
African American	64.2% (61.9 - 66.5)	41.0% (39.0 - 47.0)	39.2% (36.9 - 41.5)
White	65.7% (64.4 - 67.0)	53.2% (53.2 - 56.8)	40.7% (39.4 - 42.0)
Other	65.9% (59.5 - 72.3)	46.7% (33.7 - 54.3)	56.8% (50.1 - 63.5)
<u>Gender</u>			
Male	60.3% (58.4 - 62.2)	46.7% (44.8 - 48.6)	38.4% (36.5 - 40.3)
Female	69.9% (68.6 - 71.2)	53.0% (51.6 - 54.4)	44.0% (42.6 - 45.4)
<u>Income</u>			
< \$10,000	65.0% (59.5 - 70.5)	43.7% (37.9 - 49.4)	40.3% (34.6 - 46.0)
\$10,000 - \$24,999	65.5% (63.3 - 67.7)	43.2% (40.9 - 45.5)	42.1% (39.8 - 44.4)
\$25,000 - \$49,999	64.1% (62.2 - 66.0)	50.6% (48.7 - 52.6)	39.0% (37.1 - 40.9)
> \$50,000 or more	67.1% (64.9 - 69.3)	54.8% (52.5 - 57.2)	41.7% (39.4 - 44.0)
<u>Education</u>			
<High School	61.8% (58.6 - 65.0)	37.4% (34.2 - 40.6)	44.8% (41.5 - 48.1)
High School	62.4% (60.2 - 64.6)	44.7% (42.5 - 46.9)	38.8% (36.6 - 41.0)
> High School	67.3% (65.9 - 68.7)	54.2% (52.7 - 55.7)	41.6% (40.2 - 43.1)
<u>Marital Status</u>			
Single	62.4% (60.3 - 64.6)	46.3% (44.1 - 48.5)	32.8% (20.7 - 34.9)
Married/Cohabiting	65.7% (63.2 - 68.2)	50.9% (48.3 - 53.5)	45.7% (43.1 - 48.3)
Divorced/Separated	66.6% (64.9 - 68.3)	51.8% (50.0 - 53.6)	38.8% (37.1 - 40.5)
Widowed	70.8% (67.7 - 73.9)	54.1% (50.7 - 57.5)	55.1% (51.7 - 58.5)
<u>Insurance Coverage</u>			
Insured	66.5% (65.4 - 67.6)	51.4% (50.2 - 52.6)	41.9% (42.1 - 56.8)
Uninsured	55.8% (53.1 - 58.5)	38.8% (36.1 - 41.5)	36.0% (33.4 - 38.6)