

Risk Factors for Cardiovascular Disease

Heart disease and stroke, two components of cardiovascular disease, together account for nearly 40% of all deaths nationwide.¹ Heart disease is the leading cause of death nationwide. In 2000, heart disease was also the leading cause of death in Nashville, accounting for 1,412 deaths, an age adjusted rate of 275.78 per 100,000 population.² Stroke is the third leading cause of death nationwide,¹ as well as in Nashville. In 2000, stroke was responsible for 406 deaths in Nashville/Davidson County, or a rate of 79.83 per 100,000. In addition to being leading causes of death, heart disease and stroke are also leading causes of permanent disability and hospitalization.²

Mortality due to cardiovascular disease has historically been higher in men than in women.² However, in recent years the gender advantage for women has been offset by increasing incidence of obesity and diabetes.⁴

Minorities bear a disproportionate burden from these illnesses.² Cardiovascular diseases, mostly hypertension, account for one third of the disparity in mortality between African Americans and Whites.⁵

Risk factors for cardiovascular disease include high blood pressure and high cholesterol, as well as obesity, diabetes, smoking, inactivity, and poor nutrition,⁴ which are discussed elsewhere in this report. The first four of these factors – high blood pressure, high cholesterol, obesity, and diabetes – have been found to cluster in a small percentage of individuals, and are sometimes referred to as the “deadly quartet” or metabolic cardiovascular syndrome.⁶

Cardiovascular disease is largely preventable through healthy lifestyle, proper nutrition, and physical activity. Preventive behaviors of physical exercise and avoiding high fat foods are discussed in the section on weight, nutrition, and activity. The Community Health Behavior Survey also measured preventive counseling by health professionals to their patients to exercise more and/or avoid high fat foods.

National and State Prevalence

Nationwide in 2001, 25.6% of BRFSS respondents (median percentage of all states) reported having been diagnosed with high blood pressure, and 30.2% with high cholesterol. In Tennessee that same year, the percentage was 29.3% for high blood pressure, and 33.2% for high cholesterol.⁷

Healthy People 2010

The relevant Healthy People 2010 objectives are:

- Reduce the proportion of adults with high blood pressure (target: 16%).
- Increase the proportion of adults with high blood pressure whose blood pressure is under control (target 50%).
- Increase the proportion of adults with high blood pressure who are taking action (for example, losing weight, increasing physical activity, and reducing sodium intake) to help control their blood pressure (target 95%).
- Reduce the proportion of adults with high total blood cholesterol levels (target 17%).³

Description of Measures

The Community Health Behavior Survey measured both risk factors and preventive counseling for cardiovascular disease. The risk factors measured were high blood pressure and high cholesterol. Survey respondents were asked, “Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?” and “Have you ever been told by a doctor, nurse, or other health professional that your blood cholesterol is high?”

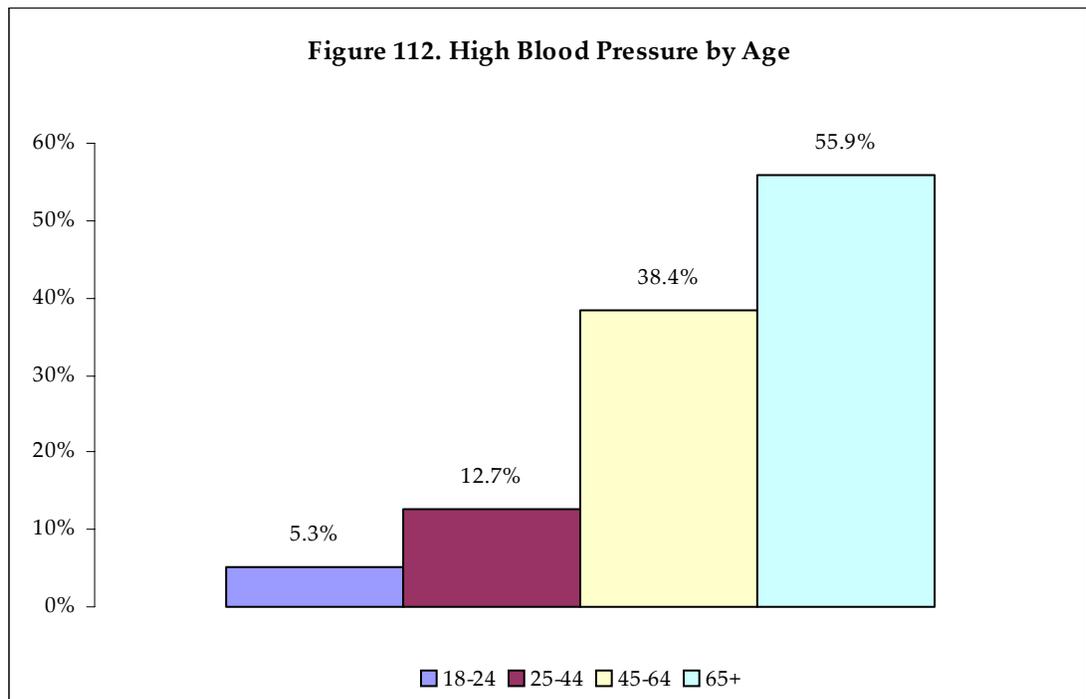
The preventive counseling measured concerned eating fewer high fat foods and exercising more. The questions asked were: “To lower your risk of developing heart disease or stroke, has a doctor advised you to (a) eat fewer high fat or high cholesterol foods (b) exercise more?”

Results

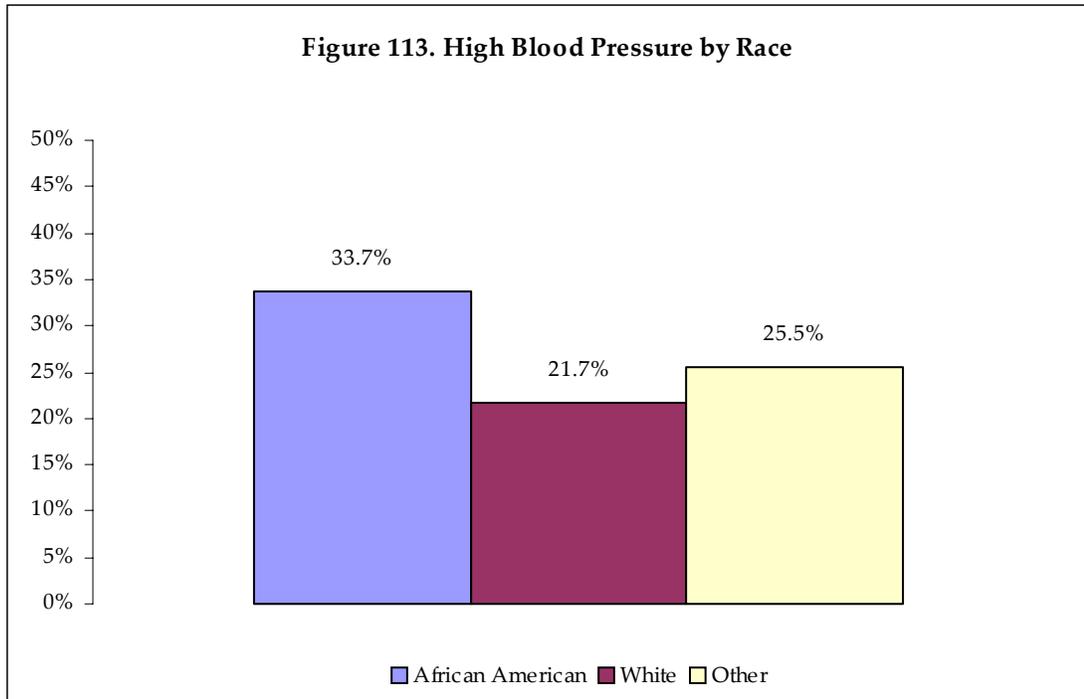
Risk factors

High Blood Pressure

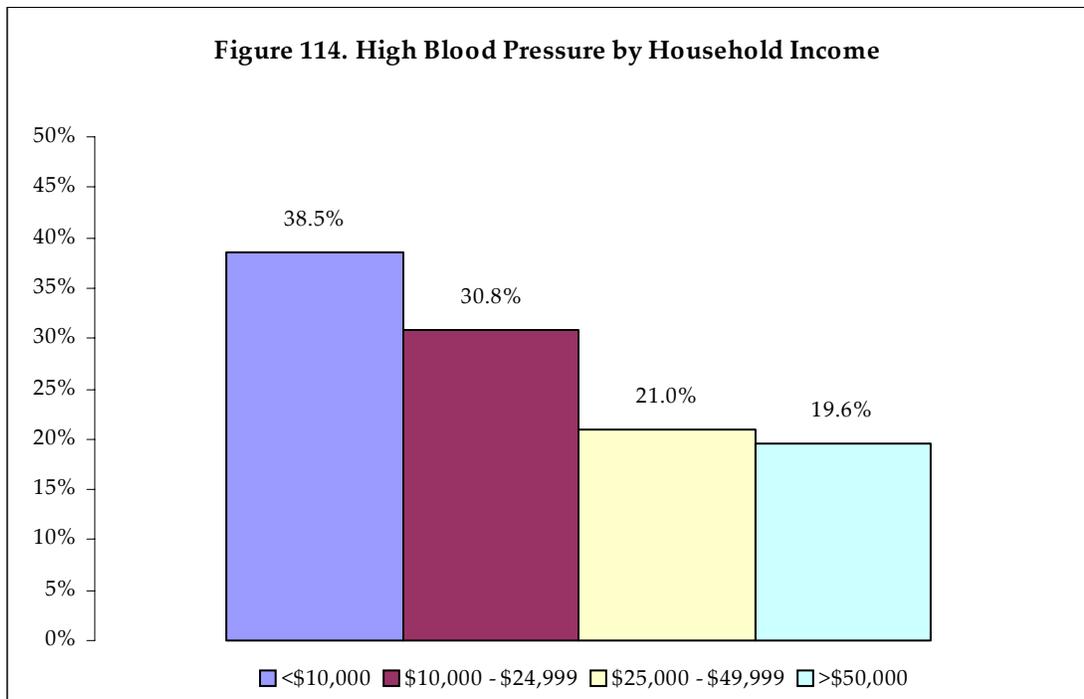
- Overall, 28.2% (95% confidence interval 27.2 – 29.2) of respondents said that they had been told by a health professional that they had high blood pressure (weighted percentage). This is lower than the nationwide and the Tennessee percentage.
- Age was significantly related to high blood pressure. Older persons were substantially more likely to have high blood pressure than younger persons. Percentages of respondents with high blood pressure ranged from 5.3% in the 18-24 age group, to 55.9% of those 65 and over. (Figure 112)



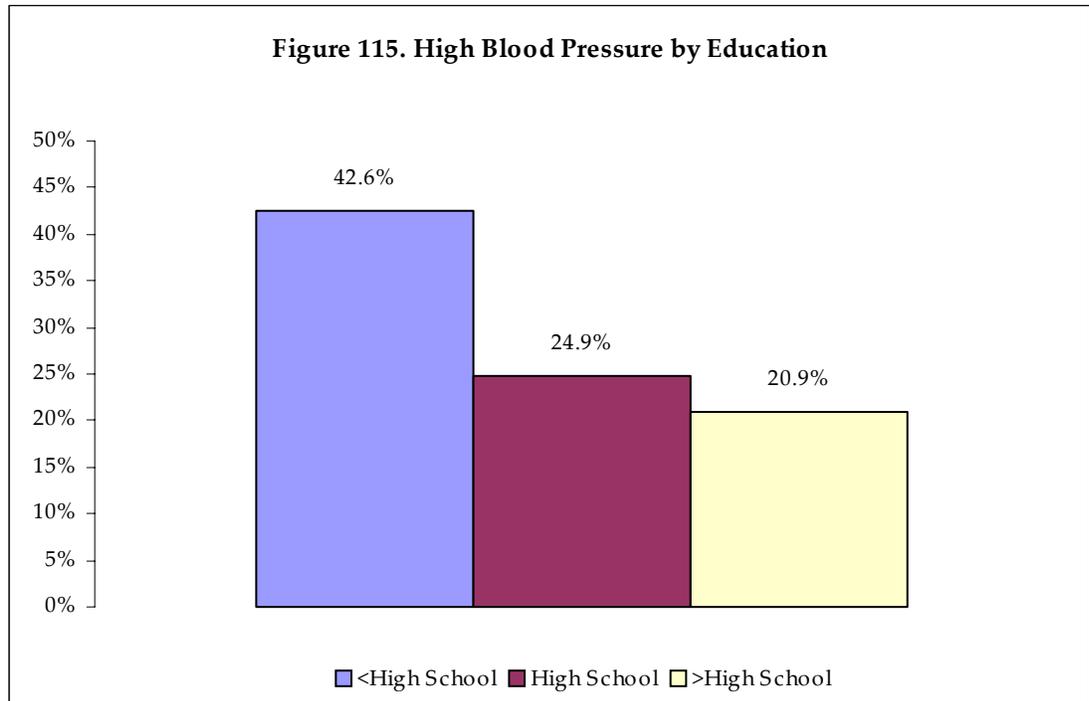
- African Americans were more likely than Whites to have high blood pressure; 33.7% of African Americans compared to 21.6% of Whites had high blood pressure. (Figure 113)



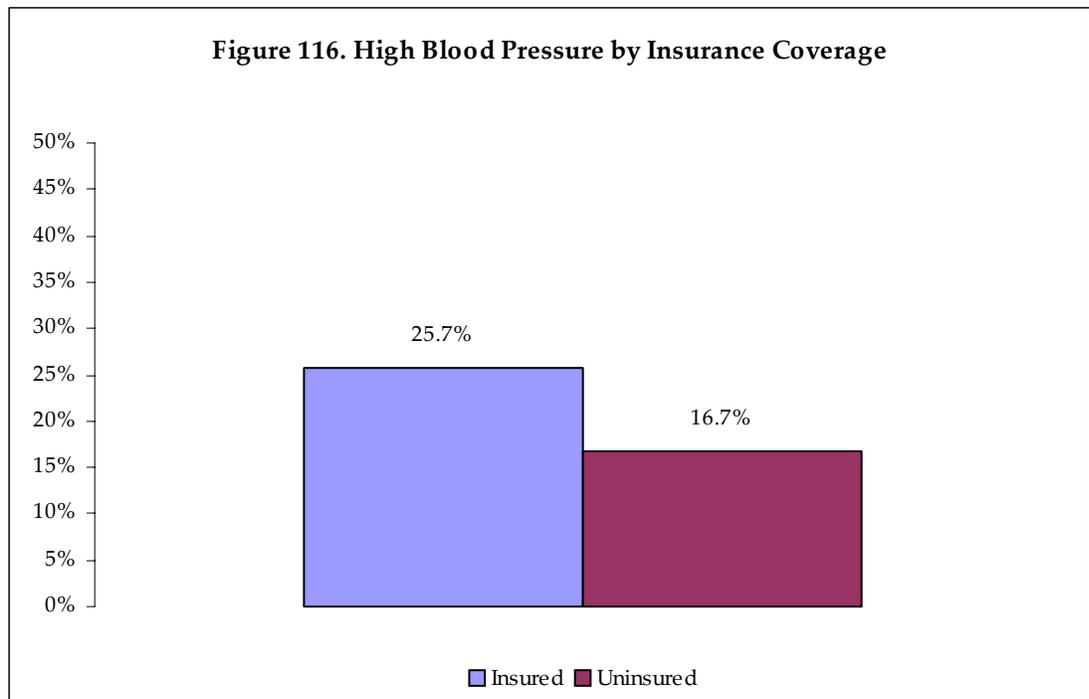
- Respondents with household incomes of \$25,000 and above were substantially less likely to have high blood pressure than those whose income was below this level. (Figure 114)



- Respondents with higher levels of educational attainment were less likely to have high blood pressure. (Figure 115)

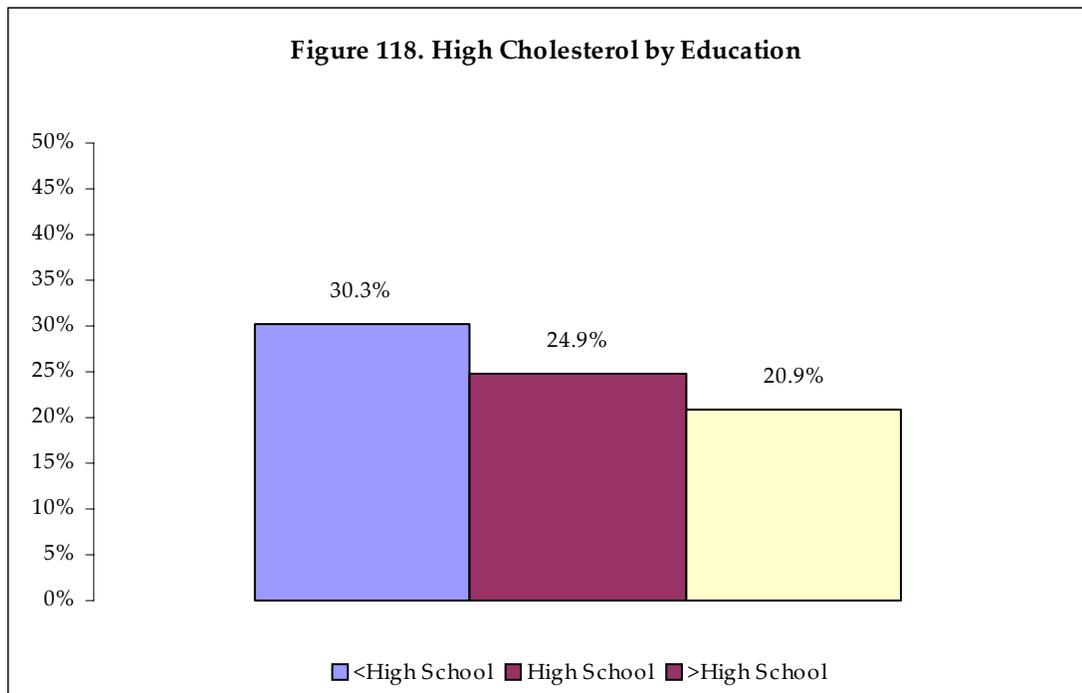
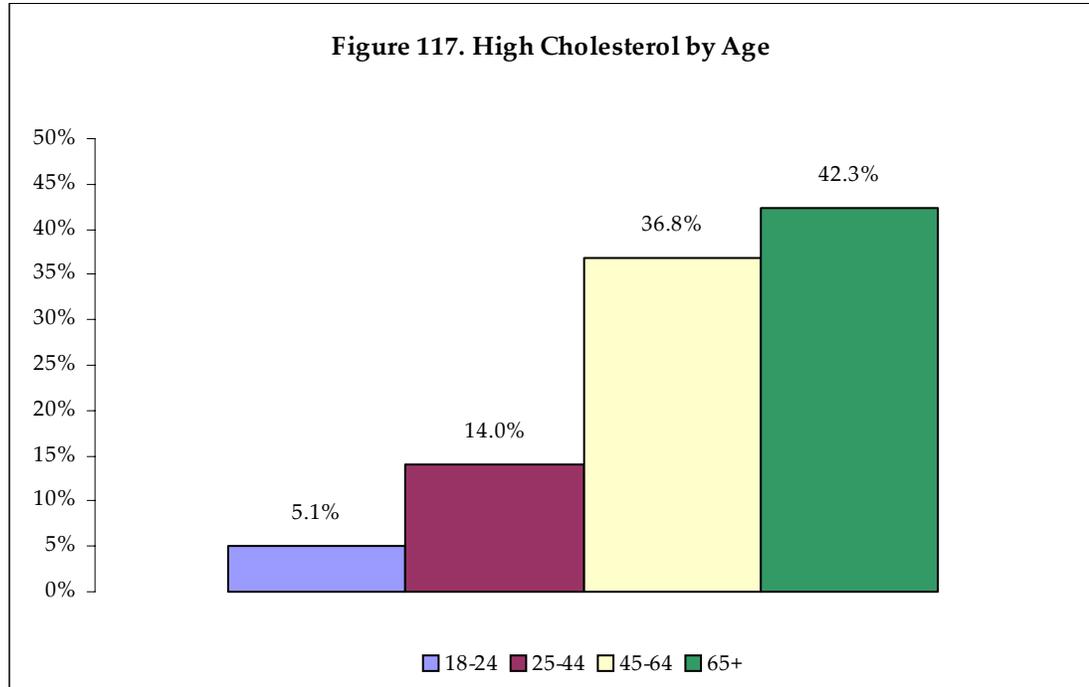


- The percentage of persons with health insurance diagnosed with high blood pressure was higher (25.7%) than the percentage of uninsured persons (16.7%) This may indicate undiagnosed high blood pressure among uninsured. [Insert (Figure 116)]

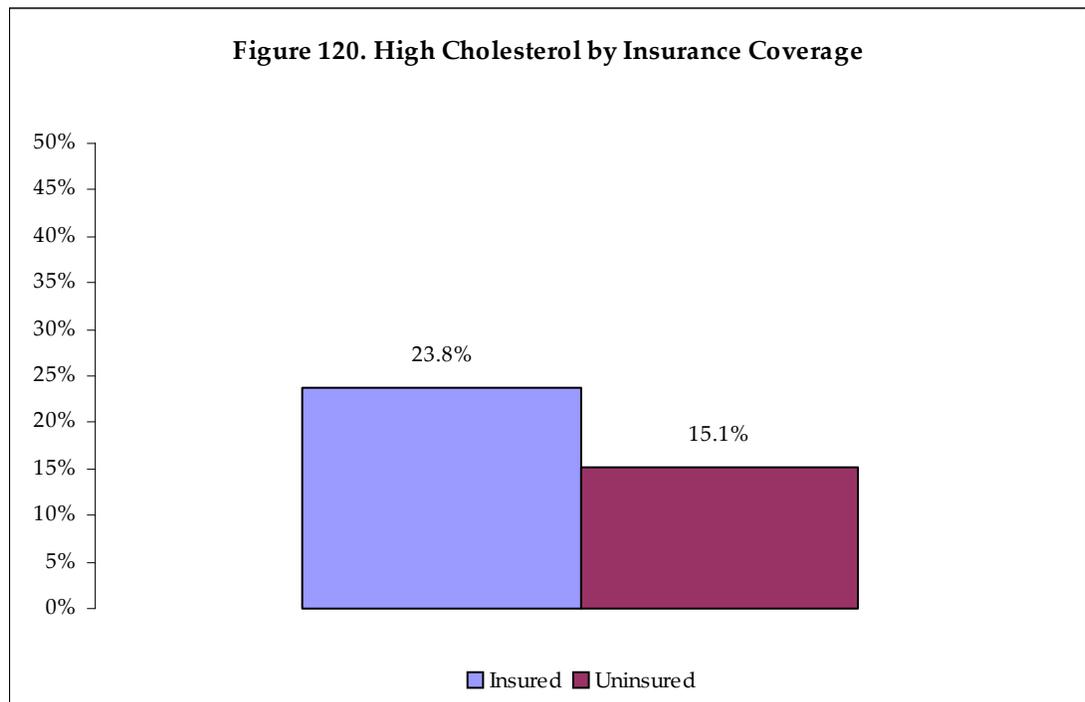
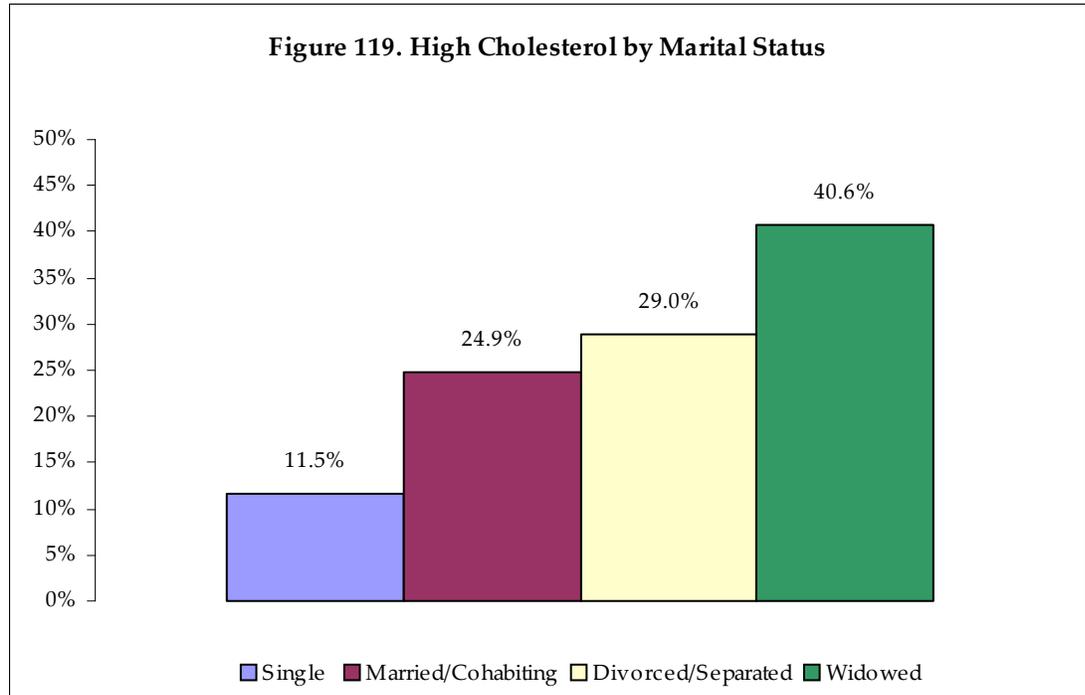


High Cholesterol

- Overall, 24.6% (95% confidence interval 22.6 – 26.6) of respondents said they had been told they had high cholesterol.
- Older persons were more likely than younger ones to have high cholesterol. (Figure 117)
- Respondents with higher levels of education had lower percentages of high cholesterol. (Figure 118)



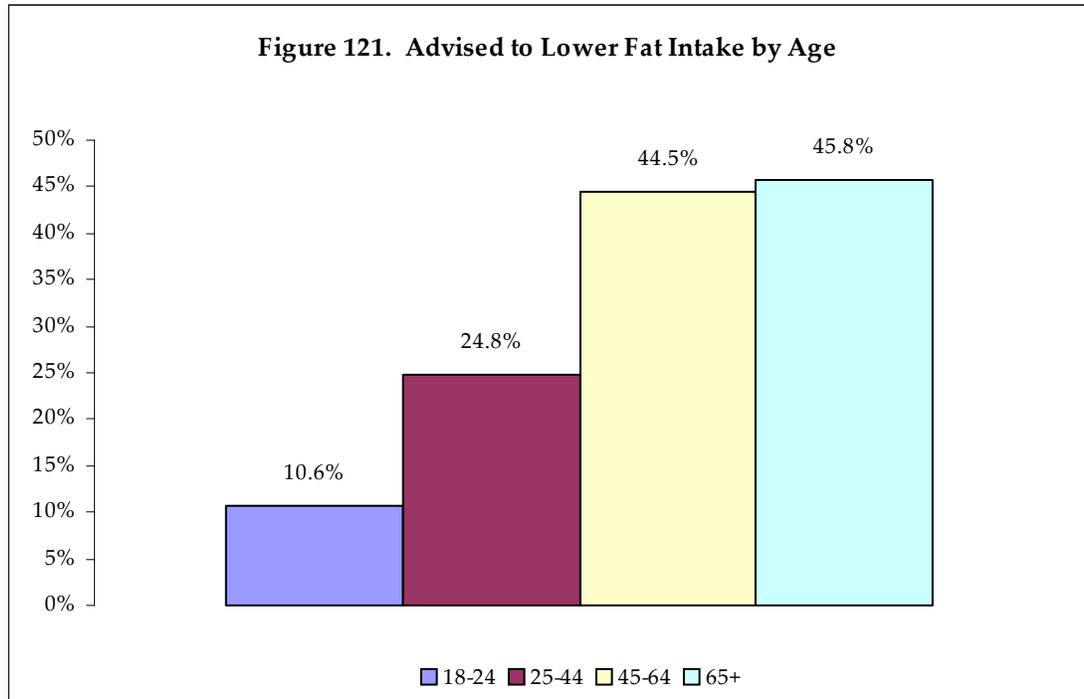
- Never-married respondents were least likely to have high cholesterol. Widowed respondents were most likely to have high cholesterol. (Figure 119)
- A higher percentage of respondents with health insurance were diagnosed with high cholesterol; 24.9% compared to 15.1% of uninsured. (Figure 120)



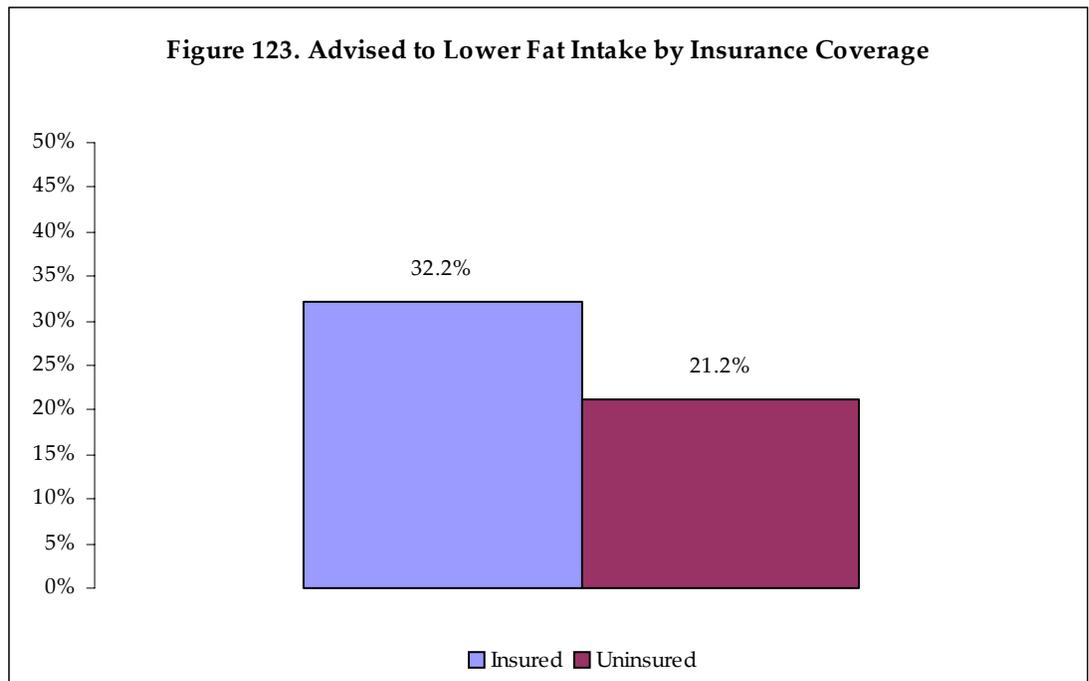
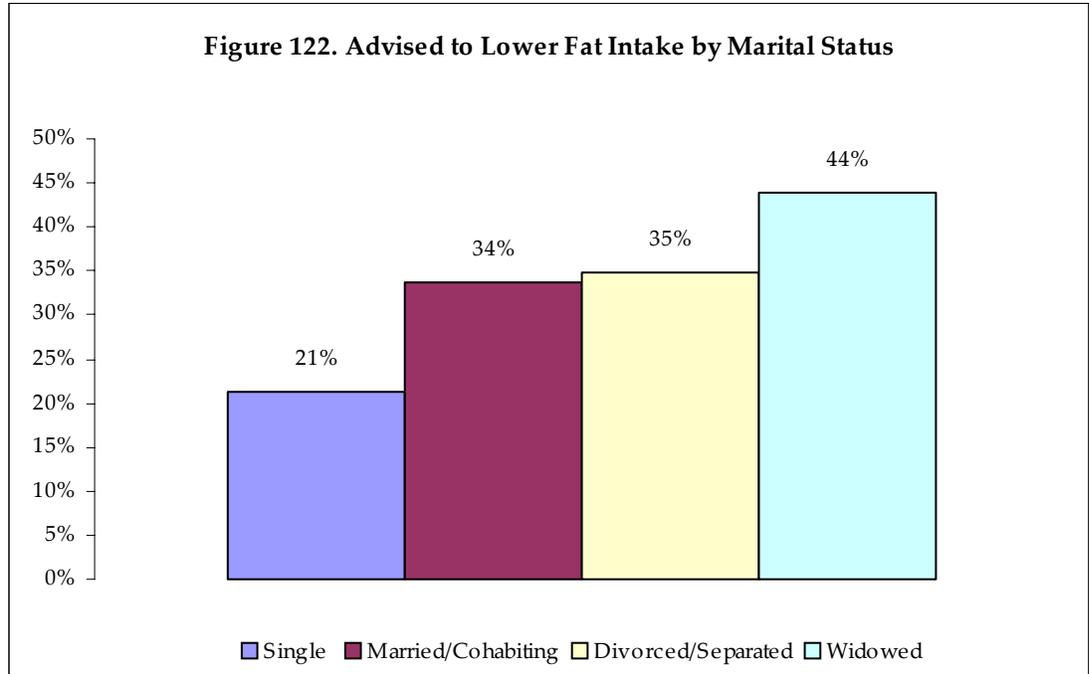
Preventive Counseling

Eating fewer high fat foods

- Nearly one third (31.0%, 95% confidence interval 32.7 – 34.7) of survey respondents said they had been advised to eat fewer high fat foods.
- Higher proportions of older respondents had been counseled to reduce intake of fat. (Figure 121)

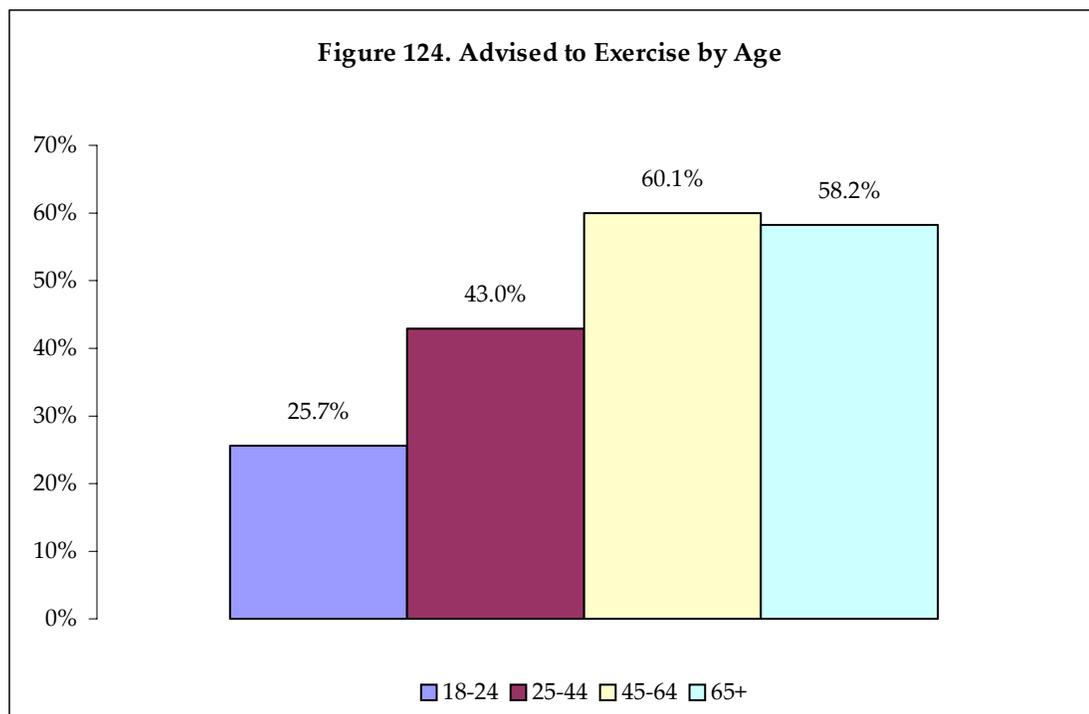


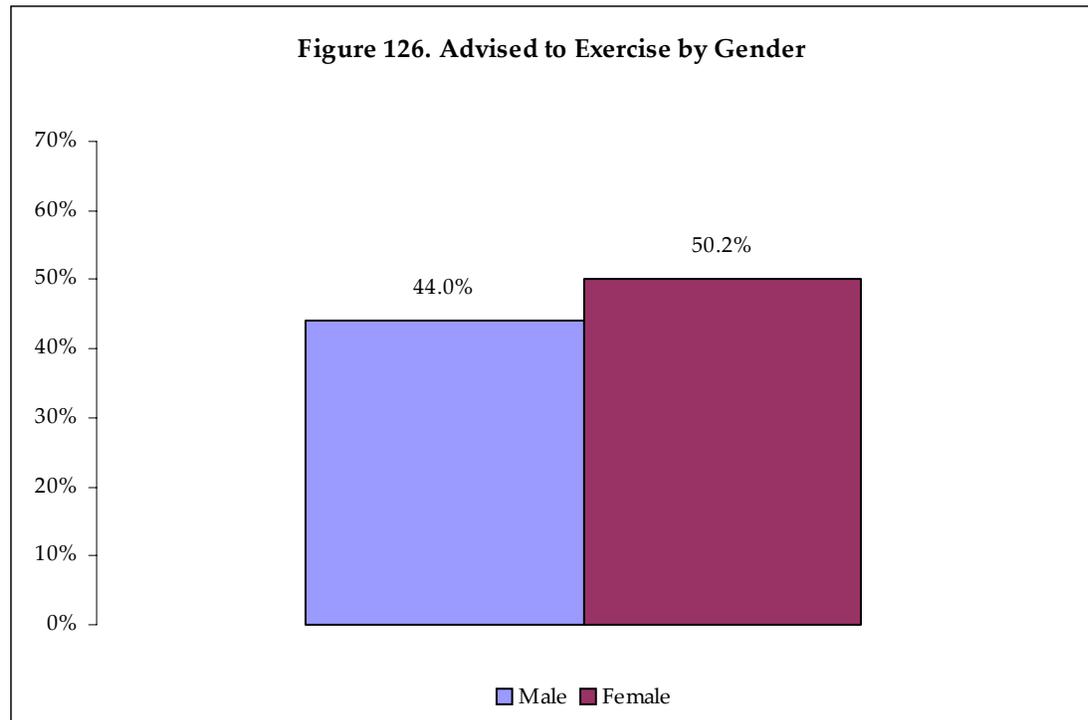
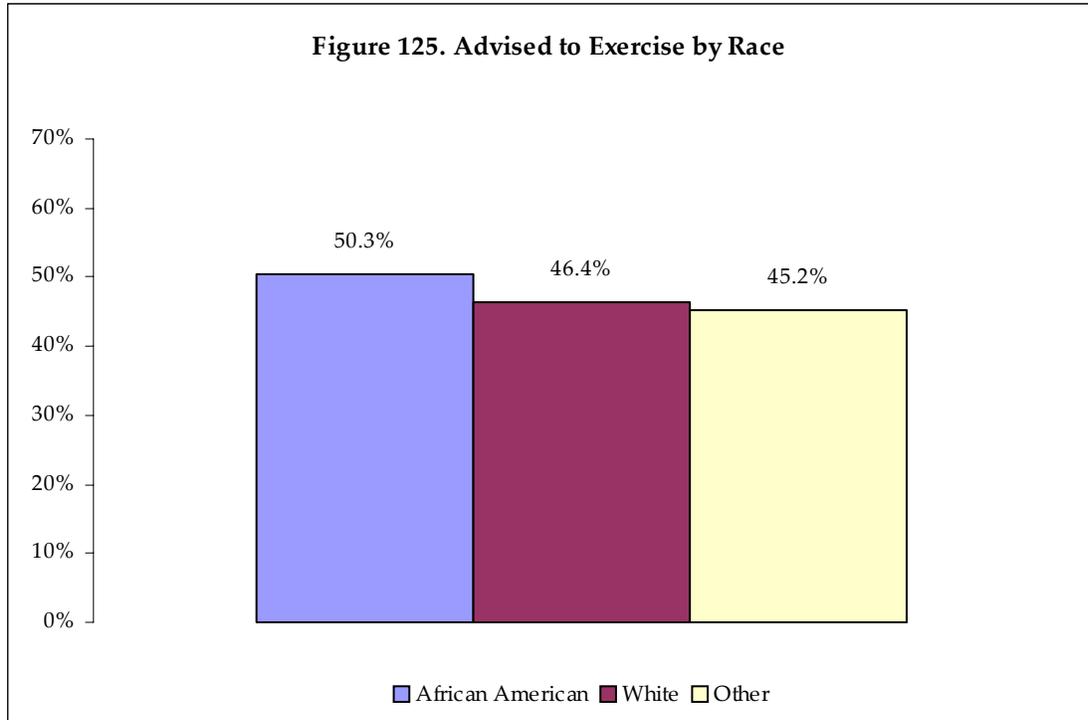
- Widowed persons were most likely to have been advised to lower their fat intake. Never-married persons were least likely to have received this advice. (Figure 122)
- A lower percentage of respondents without health insurance had been advised to lower fat consumption compared to those with insurance. (Figure 123)



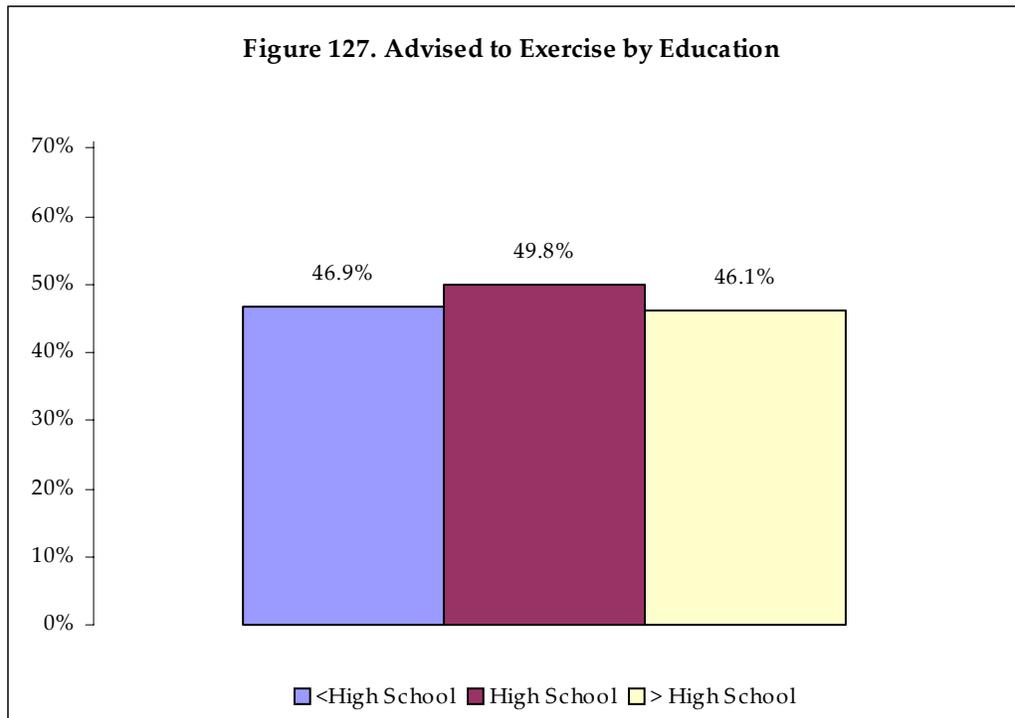
Exercise

- Half the survey respondents (50.0%, 95% confidence interval 49.0 – 51.0) said they had been advised by a doctor or health professional to exercise more to lower their risk of heart disease or stroke.
- Respondents age 45 or older were more likely to report being advised to exercise more. (Figure 124)
- More African American than White reported that they had been advised to exercise more. (Figure 125)
- More women than men had been advised to exercise more. (Figure 126)





- Respondents with a high school diploma or GED were most likely to say they had been advised to exercise more. (Figure 127)



References

1. Centers for Disease Control and Prevention. Preventing Heart Disease and Stroke: Addressing the Nation’s Leading Killers [web page]. April 3, 2003. Available at: http://www.cdc.gov/nccdphp/aag/aag_cvd.htm. Accessed June 23, 2003
2. Division of Epidemiology, Metropolitan Public Health Department of Nashville and Davidson County, TN. *Health, Nashville and Davidson County, TN, 2002*. Nashville, TN: 2002.
3. U.S. Department of Health and Human Services. *Healthy People 2010* (Conference Edition, in Two Volumes). Washington DC: January 2000.
4. Pradhan, A.D., P.J. Skerret, et al. (2002). Obesity, diabetes, and coronary risk in women. *Journal of Cardiac Risk* 9(6): 323-30.
5. Wong, M.D., M.F. Shapiro, et al. (2002). Contribution of major diseases to disparities in mortality. *New England Journal of Medicine*
6. Centers for Disease Control and Prevention. About Cardiovascular Disease [web page]. November 5, 2002. Available at: <http://cdc.gov/cvh/aboutcardio.htm>. Accessed June 23, 2003.
7. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System Prevalence Data [web page]. February 18, 2003. Available at <http://apps.nccd.cdc.gov/brfss/index.asp>. Accessed June 24, 2003.

Table 11a. Cardiovascular Disease Risk Factors: Have High Blood Pressure and Have High Blood Cholesterol. Results of the 2001 Community Health Behavior Survey in Davidson County, Tennessee Weighted by Council District (95% Confidence Interval)		
<i>Demographics</i>	Told You Have High Blood Pressure	Told You Have High Blood Cholesterol
<u>Total</u>	28.2% (27.2 - 29.2)	24.6% (22.6 - 26.6)
<u>Age</u>		
18-24	5.3% (3.5 - 7.0)	5.1% (3.4 - 6.9)
25-44	12.7% (11.5 - 13.9)	14.0% (12.8 - 15.2)
45-64	38.4% (36.3 - 40.5)	36.8% (34.7 - 38.9)
65+	55.9% (53.2 - 58.6)	42.3% (39.6 - 45.0)
<u>Race</u>		
African American	33.7% (31.5 - 36.0)	21.3% (19.3 - 23.2)
White	21.7% (20.5 - 22.8)	23.4% (22.3 - 24.6)
Other	25.5% (19.6 - 31.4)	23.0% (17.3 - 28.7)
<u>Gender</u>		
Male	23.6% (22.0 - 25.3)	24.0% (22.4 - 25.7)
Female	25.7% (24.0 - 27.4)	21.8% (20.2 - 23.4)
<u>Income</u>		
<\$10,000	38.5% (32.9 - 44.1)	28.3% (23.0 - 33.5)
\$10,000-\$24,999	30.8% (28.7 - 32.9)	23.9% (22.0 - 25.9)
\$25,000-\$49,999	21.0% (19.4 - 22.6)	20.7% (19.1 - 22.3)
\$50,000 or more	19.6% (17.7 - 21.5)	22.8% (20.8 - 24.7)
<u>Education</u>		
<High School	42.6% (39.3 - 45.9)	30.3% (27.2 - 33.3)
High School	24.9% (23.0 - 26.8)	24.9% (23.0 - 26.8)
> High School	20.9% (19.9 - 22.1)	20.9% (19.7 - 22.1)
<u>Marital Status</u>		
Single	13.3% (11.8 - 14.8)	11.5% (10.1 - 13.0)
Married/Cohabiting	24.0% (22.5 - 25.6)	24.9% (23.4 - 26.4)
Divorced/Separated	30.7% (28.3 - 33.1)	29.0% (26.6 - 31.4)
Widowed	57.3% (54.0 - 60.7)	40.6% (37.3 - 44.0)
<u>Insurance Coverage</u>		
Insured	25.7% (24.7 - 26.8)	23.8% (22.8 - 24.9)
Uninsured	16.7% (14.7 - 18.7)	15.1% (13.2 - 17.1)

Table 11b. Cardiovascular Disease Risk Factors: Advised to Eat Less Fat and Advised to Exercise More. Results of the 2001 Community Health Behavior Survey in Davidson County, Tennessee Weighted by Council District (95% Confidence Interval)

<i>Demographics</i>	Advised to Eat Less Fat	Advised to Exercise More
<u>Total</u>	33.7% (32.7 - 34.7)	50.0% (49.0 - 51.0)
<u>Age</u>		
18-24	10.6% (8.2 - 13.0)	25.7% (22.3 - 29.1)
25-44	24.8% (23.9 - 26.3)	43.0% (41.3 - 44.7)
45-64	44.5% (42.3 - 46.7)	60.1% (58.0 - 62.2)
65+	45.8% (43.1 - 48.5)	58.2% (55.5 - 60.9)
<u>Race</u>		
African American	33.5% (31.3 - 35.8)	50.3% (47.9 - 52.7)
White	30.6% (29.4 - 31.9)	46.4% (45.0 - 47.7)
Other	25.8% (19.9 - 31.8)	45.2% (38.5 - 51.9)
<u>Gender</u>		
Male	29.3% (27.6 - 31.1)	44.0% (42.1 - 45.9)
Female	32.5% (30.7 - 34.3)	50.2% (48.2 - 52.1)
<u>Income</u>		
<\$10,000	36.5% (30.9 - 42.1)	44.9% (39.2 - 50.7)
\$10,000-\$24,999	31.3% (29.1 - 33.4)	46.7% (44.4 - 49.0)
\$25,000-\$49,999	29.1% (27.3 - 30.9)	47.7% (45.8 - 49.7)
\$50,000 or more	31.9% (29.7 - 34.2)	47.4% (45.1 - 49.8)
<u>Education</u>		
<High School	34.9% (31.8 - 38.1)	46.9% (43.6 - 50.2)
High School	32.1% (30.0 - 34.1)	49.8% (47.6 - 52.0)
> High School	29.9% (28.6 - 31.3)	46.1% (44.6 - 47.5)
<u>Marital Status</u>		
Single	21.4% (19.5 - 23.2)	38.4% (36.1 - 40.6)
Married/Cohabiting	33.6% (32.0 - 35.3)	48.6% (46.8 - 50.4)
Divorced/Separated	34.8% (32.3 - 37.4)	52.9% (50.2 - 55.5)
Widowed	43.8% (40.5 - 47.2)	60.5% (57.2 - 63.8)
<u>Insurance Coverage</u>		
Insured	32.2% (31.0 - 33.3)	48.6% (47.4 - 49.8)
Uninsured	21.2% (19.0 - 23.5)	48.2% (45.5 - 51.0)