

Cholesterol and Blood Pressure Among Adults with Diabetes in Florida, 2002



Bureau of Epidemiology
May 2005

Diabetes is associated with high blood pressure and high cholesterol, which are linked with heart disease and stroke. In fact, people who have diabetes are 2-4 times as likely to develop heart disease than people who don't have diabetes¹, and 2 out of 3 people with diabetes die from heart disease and stroke. Most of the cardiovascular complications related to diabetes have to do with the way the heart pumps blood through the body. Diabetes can change the chemical makeup of blood components and this can cause blood vessels to narrow or clog up. There are many things people with diabetes can do to lower their risk of developing heart disease or a stroke. Lowering blood pressure and cholesterol levels if they are too high are important first steps.

The focus of this report is cholesterol² and blood pressure³ among adults with diagnosed diabetes⁴ in Florida. Data from the 2002 Florida County Behavioral Risk Factor Surveillance System (BRFSS) survey were used for this analysis and are based on a sample size of 34,551 respondents, of whom 3,582 reported being told by their doctors that they have diabetes.

Cholesterol: The prevalence of having blood cholesterol checked among adults with diagnosed diabetes (94.9 percent) is significantly higher than among adults without diabetes (82.0 percent). Among those adults with diabetes, 98.1 percent had their cholesterol checked in the past 2 years.

Among all adults, those diagnosed with diabetes were significantly more likely to be told they had high cholesterol (57.6 percent) than were adults without diabetes (32.8 percent).

Cholesterol among adults with diagnosed diabetes. The only significant differences in the prevalence of high cholesterol among adults with diagnosed diabetes were observed for educational attainment, such that adults with a high school education or less were more likely to have high cholesterol (64.9 percent) than those with some college (51.5 percent; see Figure 1.) No significant differences were observed by sex, race/ethnicity, age, marital status or income (see Table 1.)

Blood pressure: The prevalence of being told by a health professional that one has high blood pressure is significantly higher among adults with diagnosed diabetes (62.5 percent) than for adults without diabetes (24.5 percent).

High blood pressure among adults with diagnosed diabetes. Among adults with diagnosed diabetes, significant differences were observed by age, educational attainment and income. Adults with diabetes ages 18-44 years were significantly less likely to have been told that they have high blood pressure (44.1 percent) than were adults age 65 and older (71.3 percent). Those with less than a high school education were more likely to have high blood pressure (75.1 percent) than those with some college (56.5 percent). Adults with diabetes and incomes exceeding \$50,000 are less likely to have been told they have high blood pressure (51.6 percent) than are adults with incomes less than \$25,000 (69.9 percent). (see Figure 2.) No significant differences in the prevalence of high blood pressure among adults with diabetes are observed by sex, race/ethnicity, or marital status (see Table 2.)

Figure 1: Prevalence of Having High Cholesterol Among Adults with Diabetes by Education, Florida, 2002

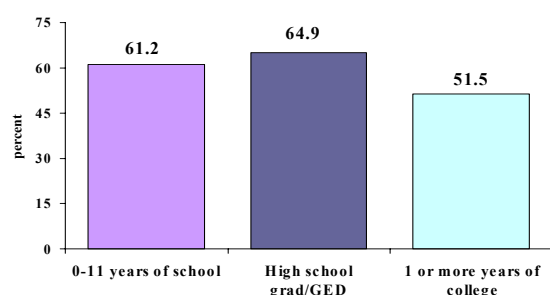
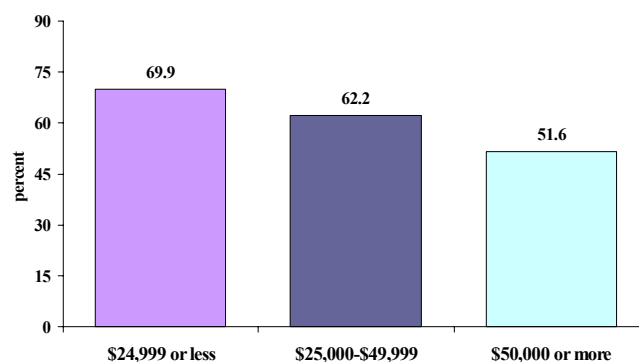


Figure 2: Prevalence of Having High Blood Pressure Among Adults with Diabetes by Income, Florida, 2002



Conclusion: High cholesterol mostly relates to diet and biological factors, while high blood pressure relates to biological and social factors. The prevalence of having blood cholesterol checked is significantly higher among adults with diabetes than among adults without diabetes. Adults with diabetes were more likely to have high cholesterol than those without diabetes. Among adults with diabetes, those with a high school diploma were more likely to have high cholesterol than those with some college. The prevalence of high blood pressure is significantly higher among adults with diabetes than adults without diabetes. Among adults with diabetes, those age 18-44, with some college, or incomes exceeding \$50,000 are less likely to have high blood pressure than adults age 65 and older, less than a high school education, or incomes less than \$25,000.

The Behavioral Risk Factor Surveillance System (BRFSS)

The BRFSS survey is a telephone survey of civilian, non-institutionalized adults (age 18 and older) with telephones, designed to monitor trends in risk behaviors related to preventable chronic diseases and conditions. Respondents are asked about health status, including diabetes and blood pressure; health behaviors, such as nutrition, physical activity, tobacco, and alcohol use; use of screening services, such as mammography; and access to health insurance and health care.

The BRFSS data are weighted. Because the BRFSS is a random survey, the results from the county survey are slightly different than results from the state survey. For more information about the Florida BRFSS, please visit our web site at http://www.doh.state.fl.us/disease_ctrl/epi/brfss/index.htm. For more information about the strengths and limitations of the BRFSS, please visit The Centers for Disease Control and Prevention web site at www.cdc.gov/brfss/.

¹ For more information about diabetes and heart disease, please visit the American Diabetes Association web site at <http://www.diabetes.org>.

² Among those who responded “yes” to having blood cholesterol checked, those with high cholesterol were identified by their response to the following question, “Have you ever been told that your blood cholesterol is high?”

*Confidence intervals for Table 1 are constructed utilizing the Statistical Analysis Software (SAS) 9.1 version.

Table 1: Prevalence of having high cholesterol among adults without and with diabetes, Florida, 2002

	Adults Without Diabetes			Adults With Diabetes		
	%	95% CI*	95% CI*	%	95% CI*	95% CI*
All	32.8	31.4	34.3	57.6	53.7	61.5
Sex						
Male	34.5	32.1	36.8	55.4	49.6	61.3
Female	31.5	29.7	33.3	59.9	54.7	65.1
Age group						
18-44	19.1	17.4	20.9	47.2	34.7	59.7
45-64	40.6	37.8	43.5	58.6	52.1	65.0
65+	46.9	44.3	49.5	59.7	54.3	65.0
Race/ethnicity						
White, non-Hispanic	35.7	34.3	37.1	57.8	53.9	61.7
Black, non-Hispanic	21.0	16.8	25.3	59.9	47.9	72.0
Hispanic	27.5	21.0	33.9	54.2	29.1	79.3
Marital status						
Never Married	22.5	16.4	28.6	61.9	48.4	75.3
Married/cohabitating	33.5	31.9	35.1	55.5	50.2	60.8
Divorced/ widowed/ separated	37.4	34.8	39.9	59.2	53.2	65.2
Education						
Less than high school	41.5	33.6	49.4	61.2	51.0	71.4
High School, GED	35.5	32.9	38.0	64.9	58.5	71.3
More than high school	30.6	29.0	32.2	51.5	46.2	56.9
Annual household income						
Less than \$25,000	35.7	31.6	39.8	57.6	51.2	64.0
\$25,000—\$50,000	30.9	28.6	33.1	56.1	48.3	63.8
More than \$50,000	31.5	29.4	33.7	56.4	47.2	65.7

The Behavioral Risk Factor Surveillance System (BRFSS)

³Blood pressure is assessed by the following question, “Have you ever been told by a doctor, nurse or other health professional that you have high blood pressure?”

⁴Diabetes is assessed by the following question, “Have you ever been told by a doctor that you have diabetes?”

*Confidence intervals for Table 2 are constructed utilizing the Statistical Analysis Software (SAS) 9.1 version.

Table 2: Prevalence of having high blood pressure among adults without and with diabetes, Florida, 2002

	Adults Without Diabetes			Adults With Diabetes		
	%	95% CI*		%	95% CI*	
All	24.5	23.5	25.6	62.5	58.6	66.3
Sex						
Male	25.5	23.9	27.1	63.1	57.7	68.5
Female	23.8	22.3	25.2	61.9	56.4	67.3
Age Group						
18-44	10.9	9.6	12.1	44.1	32.6	55.6
45-64	30.0	27.9	32.0	61.0	54.3	67.6
65+	49.5	47.0	52.0	71.3	66.7	75.8
Race/Ethnicity						
White, non-Hispanic	25.7	24.5	26.8	63.1	59.4	66.9
Black, non-Hispanic	28.1	23.8	32.3	66.6	55.1	78.2
Hispanic	16.7	12.4	21.0	60.3	37.3	83.3
Marital status						
Never Married	12.7	10.3	15.2	63.8	50.1	77.5
Married/cohabitating	24.5	23.2	25.9	61.1	55.8	66.3
Divorced/ widowed/ separated	34.0	31.8	36.2	63.7	57.9	69.4
Education						
Less than high school	33.2	28.6	37.9	75.1	66.3	83.9
High school, GED	26.7	24.8	28.6	65.3	58.7	71.9
More than high school	22.1	20.7	23.4	56.5	51.1	61.9
Annual Household Income						
Less than \$25,000	29.4	26.7	32.1	69.9	64.7	75.2
\$25,000—\$50,000	23.2	21.3	25.1	62.2	54.7	69.6
More than \$50,000	19.9	18.3	21.6	51.6	42.5	60.8

**For more information about the BRFSS survey,
please contact:**

Marie A. Bailey, M.A., M.S.W.
Florida Department of Health
Bureau of Epidemiology
850-245-4444 extension 2434
marie_bailey@doh.state.fl.us

**For more information about this report,
please contact:**

Regan N. Glover, M.S.
Florida Department of Health
Bureau of Epidemiology
850-245-4444 extension 2424
Regan_Glover@doh.state.fl.us