

Texas Department of Health

CARDIOVASCULAR DISEASE IN TEXAS: A Risk Factor Report 1999 Survey Data

Introduction

Cardiovascular disease (CVD) refers to a group of diseases that target the blood vessels and heart. Common forms of CVD include heart disease, stroke, and congestive heart failure. Risks for CVD involve complex interactions between multiple inherited traits, environmental factors, and personal behaviors; and include diet, exercise, body weight, blood pressure, and smoking.¹

In 1999, CVD was responsible for nearly 40 percent of all deaths in Texas, as heart disease claimed 43,335 lives (29.6% of all deaths) and stroke caused 10,395 deaths (7.1%).² CVD is also the number one cause of emergency room visits. More money is spent treating heart disease and stroke than any other cause of hospitalization.¹

Highlights of this Issue

- *The prevalence of cardiovascular disease (CVD) increases with age and is likely to be higher among men and individuals with low socioeconomic status.*
- *Individuals with CVD have a high prevalence of cardiovascular risk factors such as hypertension, high blood cholesterol, diabetes, and overweight.*
- *Individuals with CVD are significantly more likely to have smoked at least 100 cigarettes in their lifetime than individuals without CVD.*
- *Many individuals with CVD appear motivated to make life extending changes in behavior such as quitting smoking, eating less dietary fat, increasing exercise, abstaining from acute alcohol consumption, and receiving routine preventive medical services.*

Methods

The data presented in this report are from the Behavioral Risk Factor Surveillance System (BRFSS), an ongoing telephone survey sponsored by the Texas Department of Health in partnership with the Centers for Disease Control and Prevention (CDC). Each month, 500 randomly selected Texans 18 years of age or older are asked questions about their health habits. Included in the 1999 survey were questions such as: “Have you ever been told by a doctor that you had a heart attack or myocardial infarction?”, “Have you ever been told by a doctor that you had angina or coronary heart disease?”, and “Have you ever been told by a doctor that you had a stroke?” If a respondent answered “yes,” the person was then asked an additional set of questions relating to the onset and treatment of heart disease.

The BRFSS uses disproportionate stratified random sampling (DSS),³ a special type of probability cluster sampling.⁴ Data are weighted to reflect the age and sex distribution in Texas as well as the probability of being selected in the survey. All statistical analyses included in this report were run using SUDAAN software. References to “significance” and “confidence intervals” in this paper refer to the probability of the association being due to random chance less than five times out of one hundred. This is expressed as $P < 0.05$.

Analysis

Individuals with CVD are defined as all respondents told by a doctor that they have ever had a heart attack or myocardial infarction, angina, coronary heart disease, or stroke. The prevalence of CVD among Texas residents is reported by age, race, sex, household income, and education according to the following groupings:

- *Age* (six categories): 18 to 24 years old, 25 to 34 years old, 35 to 44 years old, 45 to 54 years old, 55 to 64 years old, and 65 years and older
- *Race/Ethnicity* (three categories): non-Hispanic White, African American, and Hispanic
- *Sex* (two categories): male and female
- *Annual household income* (three categories): less than \$25,000, \$25,000-\$74,999, and \$75,000 or more
- *Education* (three categories): less than high school graduate, high school graduate or some college, and college graduate.

In addition, persons who were diagnosed with CVD are compared to those who have not been told they have this condition to examine the following heart disease related risk factors:

- *High blood cholesterol*: defined by the question, “Have you ever been told by a doctor or other health professional that your blood cholesterol is high?”
- *Lifetime cigarette smoking*: defined as individuals who have smoked at least 100 cigarettes in their entire life.

- *Current cigarette smoking*: defined as individuals who have smoked at least 100 cigarettes in their entire life and smoked during some or all of the past 30 days.
- *Hypertension*: defined by the question, “Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?”
- *Diabetes*: defined by the question, “Have you ever been told by a doctor that you have diabetes?”
- *Overweight and obesity*: defined by body mass index (BMI) as calculated from self-reported height and weight. The formula for BMI is weight (Kg) over squared height (m). Overweight includes BMI greater than or equal to 25, while obesity is defined as BMI greater than or equal to 30.
- *Acute alcohol consumption*: defined as having consumed five or more alcoholic beverages on at least one occasion in the past month.

The prevalence of CVD-related preventive health practices are also analyzed using the following variables:

- *Routine exam*: defined as having seen a health professional for a routine exam during the preceding year.
- *Cholesterol checked*: defined as the last time the respondent had his or her blood cholesterol checked.
- *Blood pressure check-up*: defined as the last time respondent had his or her blood pressure checked.
- *Eating habits*: defined as “Are you eating fewer high fat or high cholesterol foods?”
- *Exercise*: defined as “Are you exercising more?”

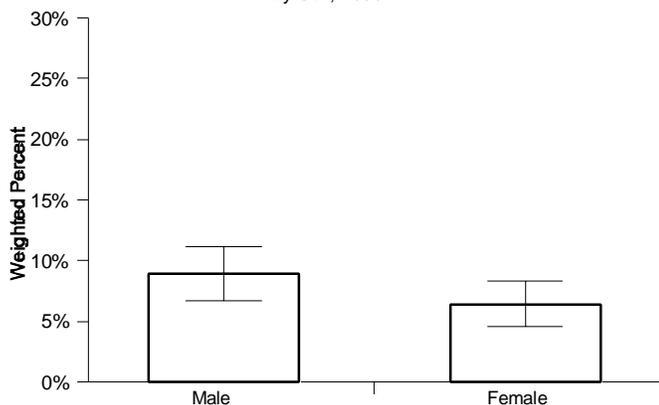
Survey Results

Prevalence – Data obtained from the 1999 BRFSS indicate that approximately 7.6 percent (95% CI, 6.2-9.1) of adult Texans have been told by a doctor at some time during their life that they have CVD.

The prevalence of CVD by age, race, sex, household income, education, and other demographic characteristics are shown in Figures 1-5.

Sex – Men reported having CVD more often (8.9%) than women (6.4%), although the difference is not statistically significant (Figure 1).

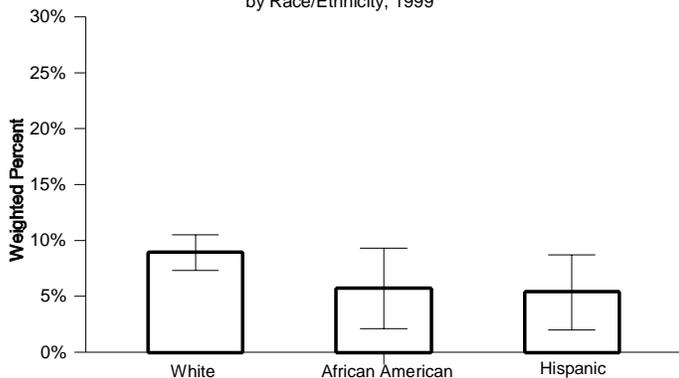
Fig.1. Percent of Adult Texans with Diagnosed CVD or Heart Diseases* by Sex, 1999



* Told they have CVD or heart disease by doctor.

Race/Ethnicity – The prevalence of CVD for non-Hispanic whites was 8.9 percent, African Americans was 5.7 percent, and Hispanics was 5.4 percent (Figure 2). These differences are not statistically significant.

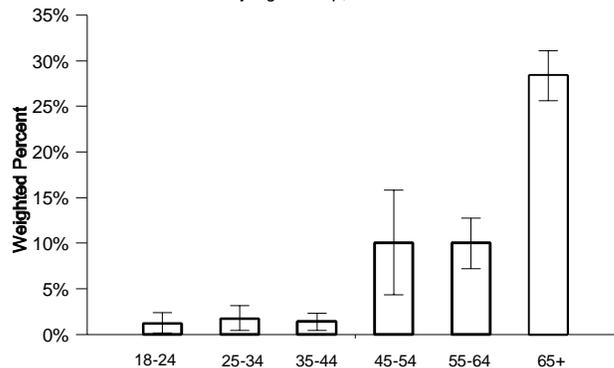
Fig.2. Percent of Adult Texans with Diagnosed CVD or Heart Diseases* by Race/Ethnicity, 1999



*Told they have CVD or heart disease by doctor

Age – The prevalence of CVD increased with age. Texans 65 years of age or older had the highest prevalence (29%) in 1999 (Figure 3).

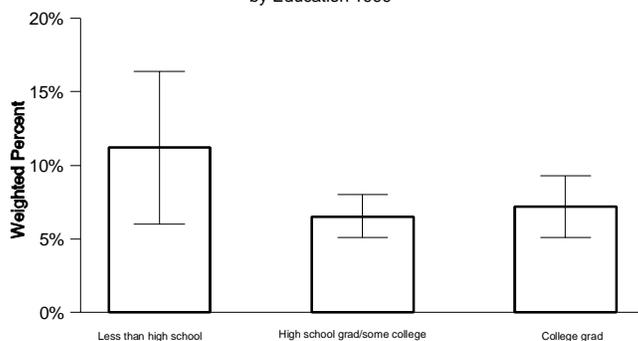
Fig.3. Percent of Adult Texans with Diagnosed CVD or Heart Diseases * by Age Group, 1999



*Told they have CVD or heart disease by doctor

Education – For 1999, the prevalence of CVD was highest among Texans reporting less than high school education (Figure 4), although the differences are not statistically significant.

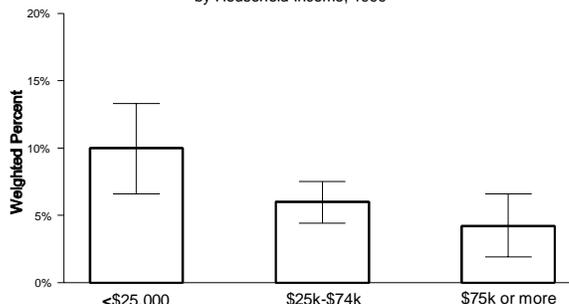
Fig. 4. Percent of Adult Texans with Diagnosed CVD or heart diseases * by Education 1999



*Told they have CVD or heart disease by doctor

Income – The prevalence of CVD was 10 percent for Texans reporting a household income of less than \$25,000 compared to 4.2 percent for Texans reporting a household income of \$75,000 or greater. This difference between the lowest and highest income groups is suggestive but not statistically significant (P=0.06) (Figure 5).

Fig. 5. Percent of Adult Texans with Diagnosed CVD or Heart Diseases * by Household Income, 1999

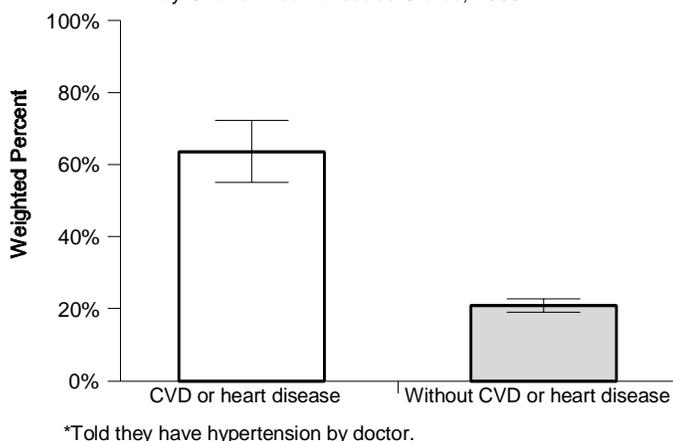


*Told they have CVD or heart disease by doctor

Cardiovascular Disease Related Risk Factors

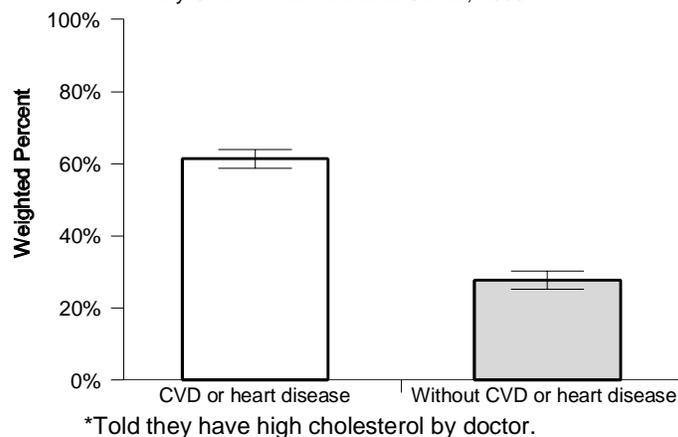
Hypertension (High Blood Pressure) is one of the major risk factors for heart and cerebrovascular disease.⁵ Almost two-thirds (63.6%) of Texans with CVD reported having high blood pressure compared to 21 percent without CVD.

Fig.6. Percent of Adult Texans told they have Hypertension*
By CVD or Heart Disease Status, 1999



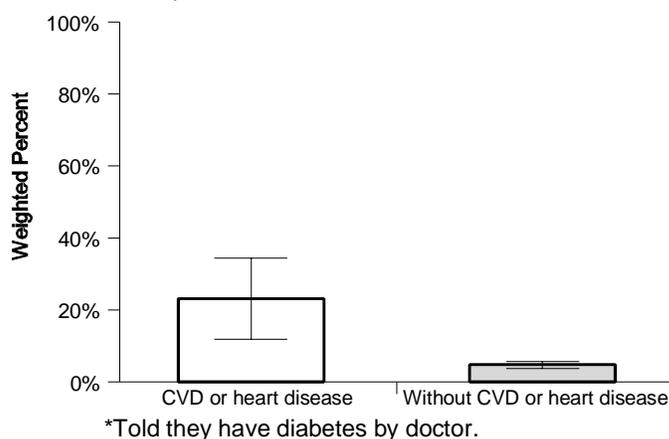
High Cholesterol - As blood cholesterol rises, so does the risk of CVD. Among adult Texans, 61.4 percent with CVD reported having high blood cholesterol, compared to 27.7 percent without CVD (Figure 7).

Fig.7. Percent of Adult Texans told they have High Cholesterol*
By CVD or Heart Disease Status, 1999

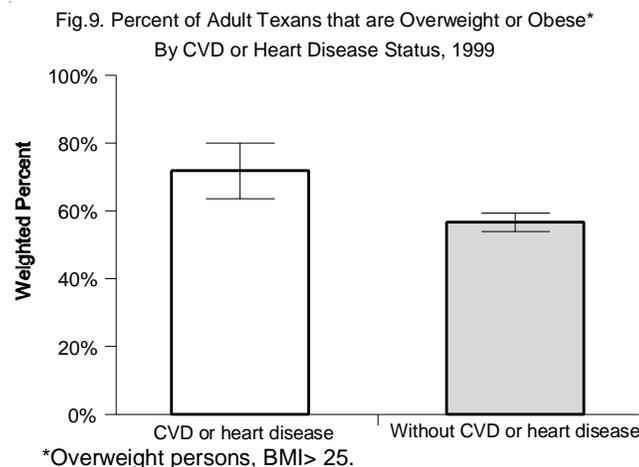


Diabetes is a major risk factor for CVD or heart disease. Individuals with diabetes often have high blood pressure, high blood cholesterol, and are overweight, increasing the risk of CVD.⁶ Almost a quarter (23.1%) of Texans who reported having CVD also reported having diabetes compared to 4.8 percent without CVD (Figure 8).

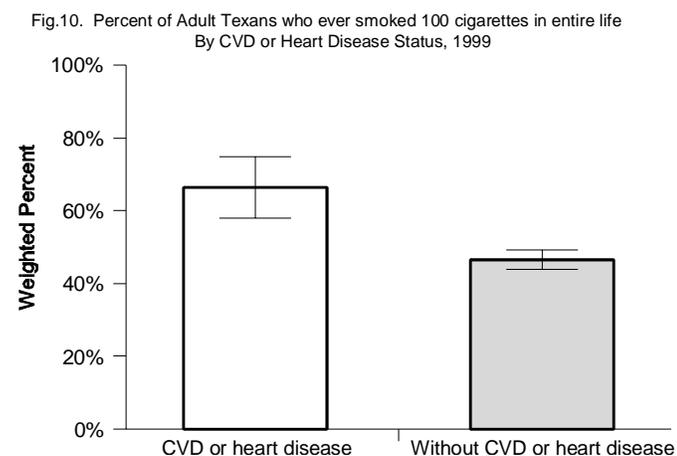
Fig.8. Percent of Adult Texans told they have Diabetes*
By CVD or Heart Disease Status, 1999



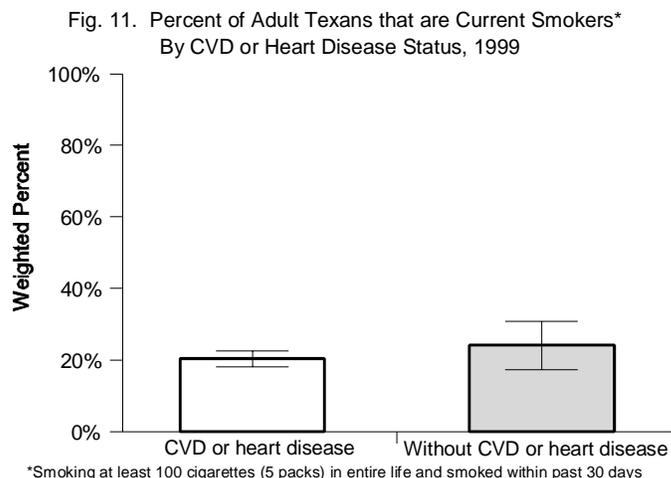
Adult Overweight and Obesity is known to increase the risk for CVD even if no other risk factors are present.⁶ A gain of 10 to 20 pounds results in an increased risk of coronary heart disease of 1.25 times in women and 1.6 times in men.⁷ A high percent (71.9% - Figure 9) of Texans with CVD report being overweight.



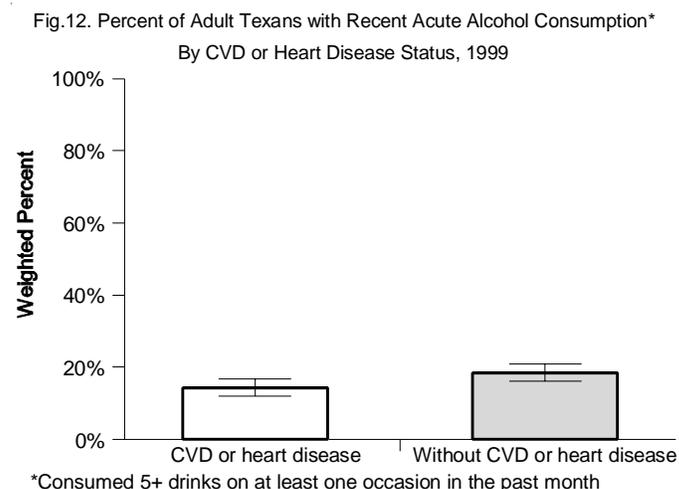
Smoking accounts for about 1 in 5 deaths from CVD. A year after quitting smoking, the risk for CVD decreases by 50 percent.⁶ Lifetime smoking is significantly higher among individuals with CVD than among individuals without the disease. Among adult Texans with CVD, 66.4 percent reported ever smoking 100 cigarettes within their entire life (regardless of when), compared to 46.5 percent without CVD (Figure 10). This difference is statistically significant.



Rates of current smoking, however, are no different between the two groups, indicating that many individuals with CVD stop smoking upon learning of their disease (Figure 11).



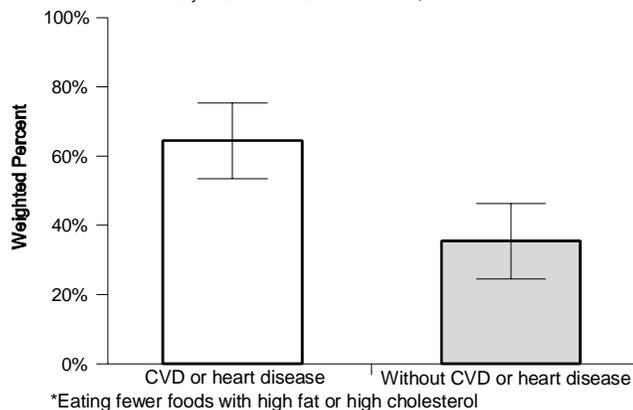
Alcohol – Drinking too much alcohol can raise blood pressure, cause heart failure, and lead to stroke.⁶ Data from the 1999 Texas BRFSS suggests that individuals with CVD are less likely than other Texans to drink heavily. Fourteen percent of Texans with CVD reported consuming five or more alcoholic beverages on at least one occasion in the past month, compared to 18.5 percent of Texans without CVD (Figure 12).



Preventive Health Practices

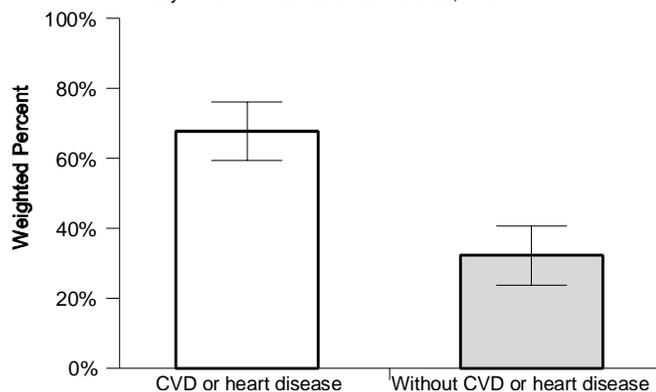
Lower Fat Diet – Approximately 65 percent of adult Texans with CVD reported that they eat foods with less fat or cholesterol compared with 35.5 percent of those not having CVD. This difference is statistically significant (Figure 13).

Fig.13. Percent of Adult Texans who Eat Foods with Less Fat or Cholesterol*
By CVD or Heart Disease Status, 1999



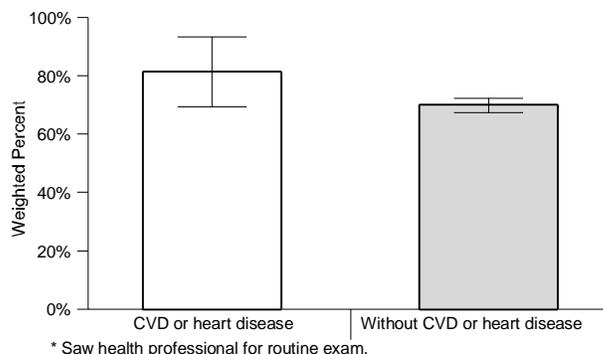
Physical Activity – Around 68 percent of Texans with CVD reported performing more physical activity (exercising) compared to 32.3 percent of Texans without CVD (Figure 14).

Fig.14. Percent of Adult Texans who Perform More Exercise*
By CVD or Heart Disease Status, 1999



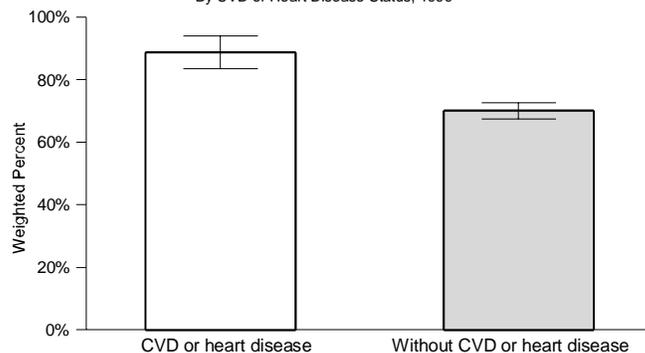
Routine Exam – Eighty-one percent of Texans with CVD reported having a routine physical examination within the past year compared to 69.8 percent without CVD (Figure 15).

Fig. 15. Percent of Adult Texans that had a Routine Exam within past year*
By CVD or Heart Disease Status, 1999



Cholesterol Checked – Eighty-nine percent of Texans with CVD and 70.0 percent without reported having their cholesterol checked within the past year (Figure 16).

Fig. 16. Percent of Adult Texans that had a Cholesterol Check within past year*
By CVD or Heart Disease Status, 1999



* Saw health professional for cholesterol checkup.

Blood Pressure Checked – Ninety percent of Texans with CVD and 72.4 percent without reported having their blood pressure checked within the past 6 months (Figure 17).

Fig. 17. Percent of Adult Texans that had a Blood Pressure Check within the past 6 months - By CVD or Heart Disease Status, 1999

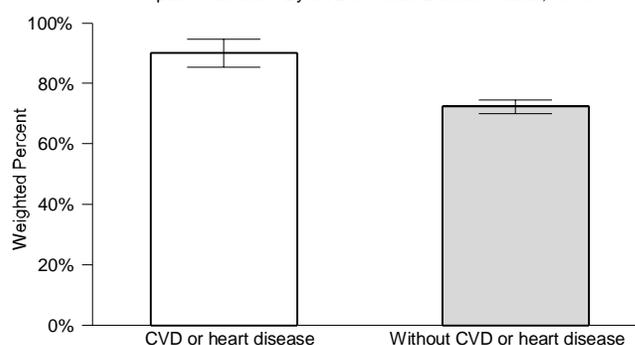


Table 1. Prevalence of CVD by Sex, Race, Age, Education, and Income Among Texans Aged 18 Years and Older, Texas BRFSS, 1999.

Percentage of respondents who answered "Yes" to the question, "Have you ever been told by a doctor that you have had a heart attack, angina pectoris, or stroke?"

	%	95% CI	
		Prevalence	Lower Upper
Total (n=2,686)	7.6	6.2	9.1
Sex			
Male	8.9	6.7	11.1
Female	6.4	4.6	8.3
Race/Ethnicity			
Whites	8.9	7.3	10.5
Hispanics	5.4	2.0	8.7
African Americans	5.7	2.1	9.3
Age Group			
18-24	1.2	0.1	2.4
25-34	1.7	0.4	3.1
35-44	1.4	0.4	2.3
45-54	10.0	4.3	15.8
55-64	10.0	7.2	12.7
65+	28.4	25.6	31.1
Education			
Less than high school	11.2	6.0	16.4
H.S. grad/some college	6.5	5.1	8.0
College graduate	7.2	5.1	9.3
Household Income			
<\$25,000	10.0	6.6	13.3
\$25,000-\$74,999	6.0	4.4	7.5
Over \$75,000	4.2	1.9	6.6

Table 2. Cardiovascular Disease vs. Non-Cardiovascular Disease by Selected Variables Among Texans Aged 18 Years and Older, Texas BRFSS, 1999.

	CVD	No CVD
	(n=194)	(n=2,475)
	% [95% CI]	% [95% CI]
CVD Related Risk Factors		
*Hypertension	63.6 [55.0-72.3]	21.0 [19.1-22.9]
*High Cholesterol	61.4 [58.7-64.0]	27.7 [25.2-30.2]
*Diabetes	23.1 [11.8-34.4]	4.8 [3.8-5.7]
*Overweight or Obese	71.9 [63.6-80.1]	56.7 [54.0-59.4]
Cigarette Smoking		
*Lifetime	66.4 [57.9-74.8]	46.5 [43.9-49.1]
*Current	20.4 [18.2-22.5]	24.2 [17.4-30.9]
Acute Alcohol Use	14.3 [11.9-16.7]	18.5 [16.1-20.9]
Preventive Health Practices		
*Lower fat diet	64.5 [53.6-75.4]	35.5 [24.6-46.4]
*Physical activity	67.8 [59.4-76.1]	32.3 [23.9-40.6]
Routine Examination		
Within past year	81.3 [69.3-93.3]	69.8 [67.4-72.3]
*Cholesterol Checked		
Within past year	88.7 [83.6-93.9]	70.0 [67.4-72.6]
*Blood Pressure checked		
Within the past 6 months	90.0 [85.3-94.7]	72.4 [70.0-74.7]

*statistically significant at P<0.05

Conclusions

- Texans with CVD follow the national pattern of elevated CVD prevalence with age, male sex, and lower socioeconomic status.
- Texans with CVD are more likely to have hypertension, high blood cholesterol, and diabetes.
- Seventy-two percent of Texans with CVD are overweight and 66 percent report a history of smoking.
- Texans with CVD eat less fat or cholesterol in their diet and perform more physical activity.
- Texans with CVD receive routine physical examinations, cholesterol checks, and blood pressure checks more frequently than those without CVD.

Although more people die from cardiovascular disease than for any other reason, public health experts believe that most cases of CVD can be prevented. According to the CDC, modification of three health related behaviors—tobacco use, physical activity, and nutrition—is essential for reducing the risk of cardiovascular disease. This profile of CVD in Texas is a first step towards identifying specific population groups that would most benefit from interventions that promote healthy changes in lifestyles, exercise habits, and diet.



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