

# The Jackson Heart Study Data Book

A Report to the Cohort  
and Community

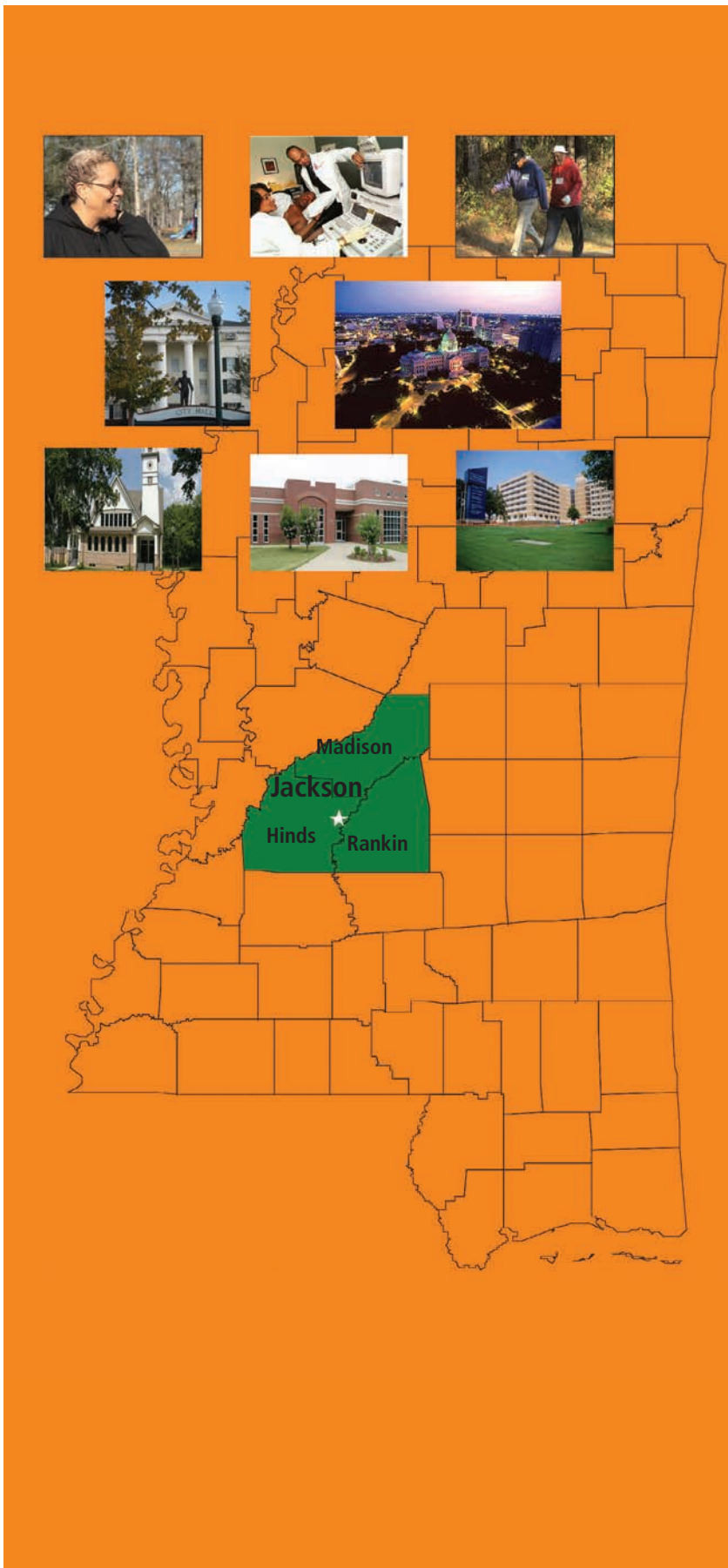


U.S. Department of Health and Human Services  
National Institutes of Health  
National Heart, Lung, and Blood Institute



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**U.S. Department of Health and Human Services**  
National Institutes of Health



NIH Publication No. 08-5848  
September 2008



## Preface

I am pleased to present the Jackson Heart Study (JHS) Report to the Jackson cohort and community. This report is one of several publications designed especially for the Jackson community. At the JHS, we believe in community participation in research throughout all aspects of the study. This feature of the Study demonstrates our recognition of the role of the community, along with that of the participating institutions, funding agencies, collaborators and consultants who collectively make the JHS a study for our time.

The JHS is a large-scale medical study undertaken to examine factors that influence the development of cardiovascular disease (CVD) in African American men and women. In addition, the JHS is empowering African Americans, in Mississippi and beyond, to reduce the risks associated with CVD such as obesity, hypertension, diabetes, smoking, high cholesterol, and lack of physical activity. The JHS is enhancing our overall knowledge of CVD, risk factors and related conditions. Furthermore, it is enabling minority students at undergraduate, graduate and post-graduate levels to pursue careers in public health, medicine, and epidemiology.

The JHS is an evolving example of community-centered public health research that may serve as a model to be used in other communities and with other populations. It responds to the call to action by the National Institutes of Health, the Centers for Disease Control and Prevention, and the American people to address national disparities in cardiovascular health. By translating and disseminating study results to the research community as well as to you, the Jackson community, the JHS aims to transform a history of heart disease in African Americans into a legacy of heart health through research.

Sincerely,



Herman Taylor  
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Shirley Professor for the Study of Health Disparities  
Director and Principal Investigator  
JHS  
University of Mississippi Medical Center  
Jackson State University  
Tougaloo College



# Acknowledgments

Special appreciation is extended to the participants of the JHS for their commitment to the study. It is only through their time and effort that the Study, and the knowledge obtained, is possible.

A successful study also requires the efforts of numerous dedicated staff to perform the daily efforts of the Study. In this regard, special appreciation is extended to the administrative assistants and receptionists, business and office managers, recruiters, clinic nurses, community liaison/outreach workers, health information service administrators, medical records abstractors, patient representatives, program manager and coordinator, research associates and technicians, social workers, statisticians, systems analysts, and the JHS Scholars (Tougaloo students and faculty) that all contribute to the Study.

Finally, special appreciation is also extended to the Jackson community of Hinds, Madison, and Rankin Counties for their continued support of this important study.

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**Artwork Acknowledgement:** Throughout this report, original artwork from Johnnie Mae Maberry Gilbert is presented. Ms. Gilbert is a native of Jackson, MS, an artist, a mother of four and a grandmother of five. She earned her Master of Art Education and Master of Fine Arts degrees from Mississippi College. She has been a professor of fine arts at Tougaloo College in Jackson for 19 years. Some of her awards include: Finalist, Mississippi Institute of Arts and Letters (1991); Creative Achiever Award (1992); Who's Who Among Teachers in Colleges and Universities (1999); Humanities Teacher of the Year; Mississippi Humanities Council (1999); and Excellence in Art, Upsilon Omega Chapter, Alpha Kappa Alpha Sorority, Inc. (2000). In addition, Ms. Gilbert was featured in a story in USA Today in 1995.

**Funding Acknowledgement:** The JHS is supported by the National Heart, Lung, and Blood Institute (NHLBI) and the National Center for Minority Health and Health Disparities (NCMHD), and is conducted by the NHLBI in collaboration with Jackson State University (N01-HC-95170), Tougaloo College (N01-HC-95172), and the University of Mississippi Medical Center (N01-HC-95171).





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## **Heart Healthy Recipes**

These heart healthy recipes were extracted from “Heart Healthy Home Cooking African American Style”, National Institutes of Health; National Heart, Lung, and Blood Institute and the Office of Research on Minority Health. The complete recipe book can be downloaded from the NHLBI Web site at: <http://www.nhlbi.nih.gov/health/public/heart/other/chdblack/cooking.htm>

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# Introduction

*“Family Faces are...mirrors. Looking at people who belong to us, we see the past, present, and future”*

Gail Lumet Buckley

Present day African Americans in Jackson, Mississippi have an extraordinary opportunity to learn, from their communities and families, ways to positively affect future generations. The opportunity to improve future health is provided by the JHS, a large-scale study to investigate cardiovascular disease (CVD) in African Americans.

The word “mississippi” comes from the Chippewa “mici zibi” meaning great river, which refers to the Mississippi River on the State’s western border. Great, indeed, is Mississippi with its deep roots of family, community pride and loyalty. Mississippians over the years have made tremendous contributions to society through politics, music, sports, and literature. The list includes Medgar Evers and Fannie Lou Hamer (civil rights activists), Robert Johnson and B.B. King (legendary blues musicians), Jerry Rice and Walter Payton (all-pro NFL players), James Earl Jones and Morgan Freeman (award-winning actors), and Richard Wright and Margaret Walker Alexander (award-winning authors). Mississippians are also well-known to be hardworking, friendly, and generous. This rich tradition and heritage of Mississippians must continue in the generations to come and is dependent, to a greater extent, on the health of its citizens. This livelihood is being threatened by a number of health concerns, most notably CVD for which Mississippi leads the Nation in number of deaths for its population size.

To highlight the seriousness of the situation, here are a few facts about CVD and its role within the community. CVD, which includes heart disease, stroke, and heart failure, is the leading cause of death for all Americans; however, data from 2002 show that CVD deaths in African American men and women in Mississippi, for its population size, were respectively, 12 percent and 22 percent higher than the rest of the United States.<sup>1</sup> The risk factors for CVD include high blood pressure, high cholesterol, overweight and obesity, and type 2 diabetes. There is growing

evidence of the disparities that exist between African Americans and other ethnic groups for CVD. For example, a national survey showed that between 1999-2002, 40 to 43 percent of African American men and women had high blood pressure compared to only 28 percent of White men and women.<sup>2</sup> Also, African Americans have almost double the risk of first ever stroke compared to Whites.<sup>3</sup> Among African American adults age 20 and older, 63 percent of men and 77 percent of women are overweight or obese.<sup>4</sup> These statistics overwhelmingly describe the disproportionate rates African Americans have in developing CVD and its risk factors.

The National Heart, Lung, and Blood Institute (NHLBI) and the National Center for Minority Health and Health Disparities (NCMHD) set out to address the burden of CVD within the African American community. Together they have funded the JHS, an investigation into the factors that influence the development of CVD in African American men and women. The study has examined and will follow 5,302 African American men and women throughout their lives to accurately observe risks for CVD. While there has been much research on CVD in the past, these studies have not focused on African Americans. The JHS is not only researching traditional risk factors for CVD, but also newly emerging risk factors such as genetics and discrimination.

The city of Jackson is an ideal location to conduct such an ambitious study. Mississippi’s population has the highest percentage of African Americans (37 percent) of any state.<sup>5</sup> The Jackson Metropolitan Area of Hinds, Madison, and Rankin counties, provides a large sample population for the study. Jackson is not new to the arena of research and study. For example, in 1987 Jackson was one of four locations nationwide chosen for the Atherosclerosis Risk in Communities Study (ARIC). ARIC was an investigation into the causes and origin of atherosclerosis and its natural progression by age, sex, race, and

location. A total of 3,728 African American participants from Jackson were enrolled in the ARIC study.

The JHS, recognizing the sense of family within the community, has become an integral part of the Jackson area. The JHS has established relationships with Tougaloo College and Jackson State University, two historically black institutions, traditionally called Historically Black Colleges and Universities (HBCUs), as well as the University of Mississippi Medical Center (UMMC) which is rated among the Thompson 100 top hospitals in the U.S. Tougaloo College has a long tradition of graduating health professionals; more than 40 percent of the African American physicians and dentists practicing in the State of Mississippi are Tougaloo graduates. Jackson State University, is known as Mississippi's urban university, is currently ranked No.1 among research intensive HBCUs and the fastest growing producer of African-American PhDs.

Tougaloo College is home to the JHS Undergraduate Training Center, which recruits selected students to train in public health and prepare for health-related careers. Jackson State University is responsible for

the statistical and computer support for the collection and analysis of JHS data. UMMC provides support for the recruitment and examination of the participants within the study.

Community outreach is a significant objective of the JHS. It is only with the trust and confidence of the community that the JHS can promote awareness and prevention of CVD, and succeed as a study. A Council of Elders, a group of respected community members and former ARIC participants, provides suggestions on JHS design and management. The Partnership for Community Awareness and Health Education, which includes other community members, initiates educational seminars and community celebrations.

There is an African proverb that says "it takes a village to raise a child." In other words, it takes an entire community to improve the lives of the next generation. This is an overarching goal of the JHS, to improve not only the health of Mississippians, but that of the Nation for years to come.

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  5. The Henry J. Kaiser Family Foundation. Individual State Profiles. Available at: [www.statehealthfacts.kff.org](http://www.statehealthfacts.kff.org)

# The JHS Participants

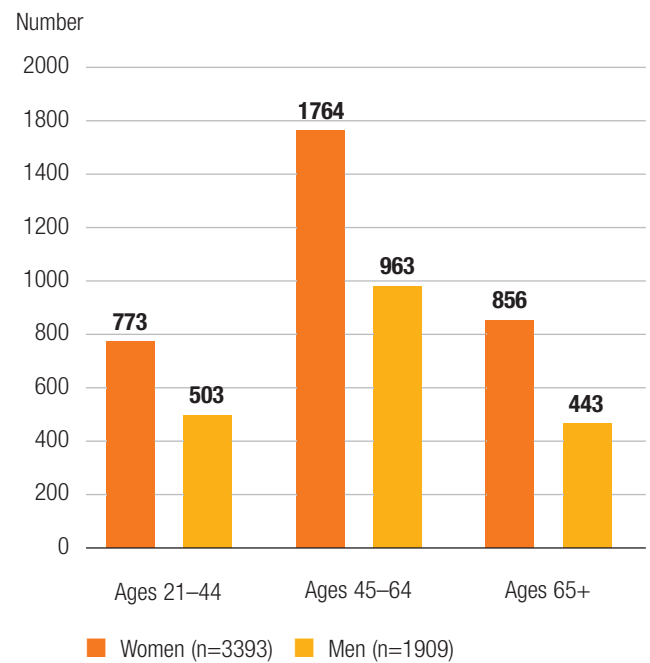


*A study of Colors, Tougaloo Art Student, reprinted with permission*

## Number of participants

The JHS consists of 5,302 participants recruited from the Jackson, Mississippi, metropolitan area (Hinds, Madison, and Rankin counties). Participants were between the ages of 21-84 when they enrolled in the study, and nearly two-thirds were women (64 percent). A total of 3,393 women and 1,909 men enrolled in the study, and about half of the participants were middle aged. Most of the participants were from Hinds County (see Figures 2 and 3).

**Figure 1. Number of women and men in the JHS by age group**



## How Participants were Recruited

JHS participants were recruited from four sources: 1) previous participants in the Atherosclerosis Risk in Communities Study (ARIC), 2) family members of participants, 3) random selection from the communities, and 4) volunteers from the communities. The ARIC study began in 1987 and Jackson was one of the sites and the only location that was exclusively African American. The family sample consisted of relatives of JHS participants who reported having at

least two siblings and four other first-degree relatives, all at least 21 years old, and living in the tricounty area. A volunteer sample was added to increase participation. ARIC participants accounted for 30 percent of the JHS cohort, followed by family participants (28 percent), volunteers (25 percent), and the random sample (17 percent) as shown in Figures 4 and 5.

Figure 2. Percent of women enrolled in JHS community

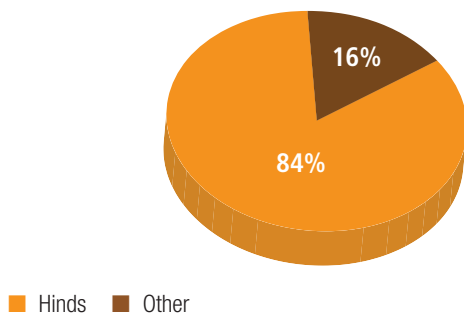


Figure 3. Percent of men enrolled in JHS community

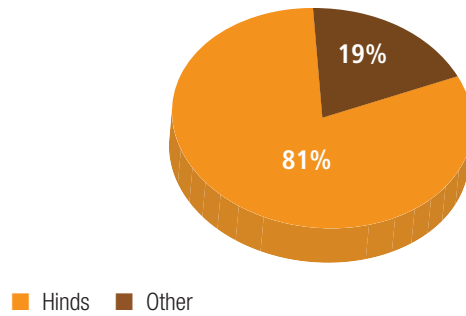


Figure 4. Percent of women by recruitment source

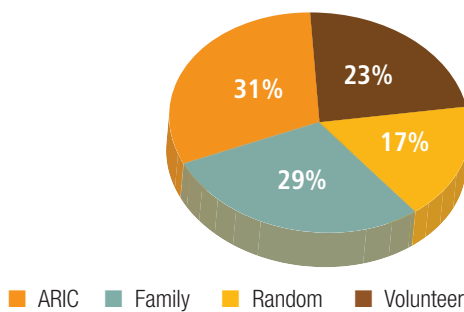
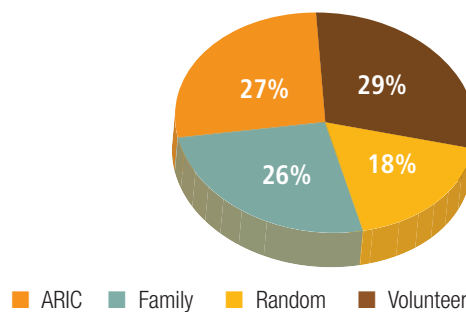


Figure 5. Percent of men by recruitment source

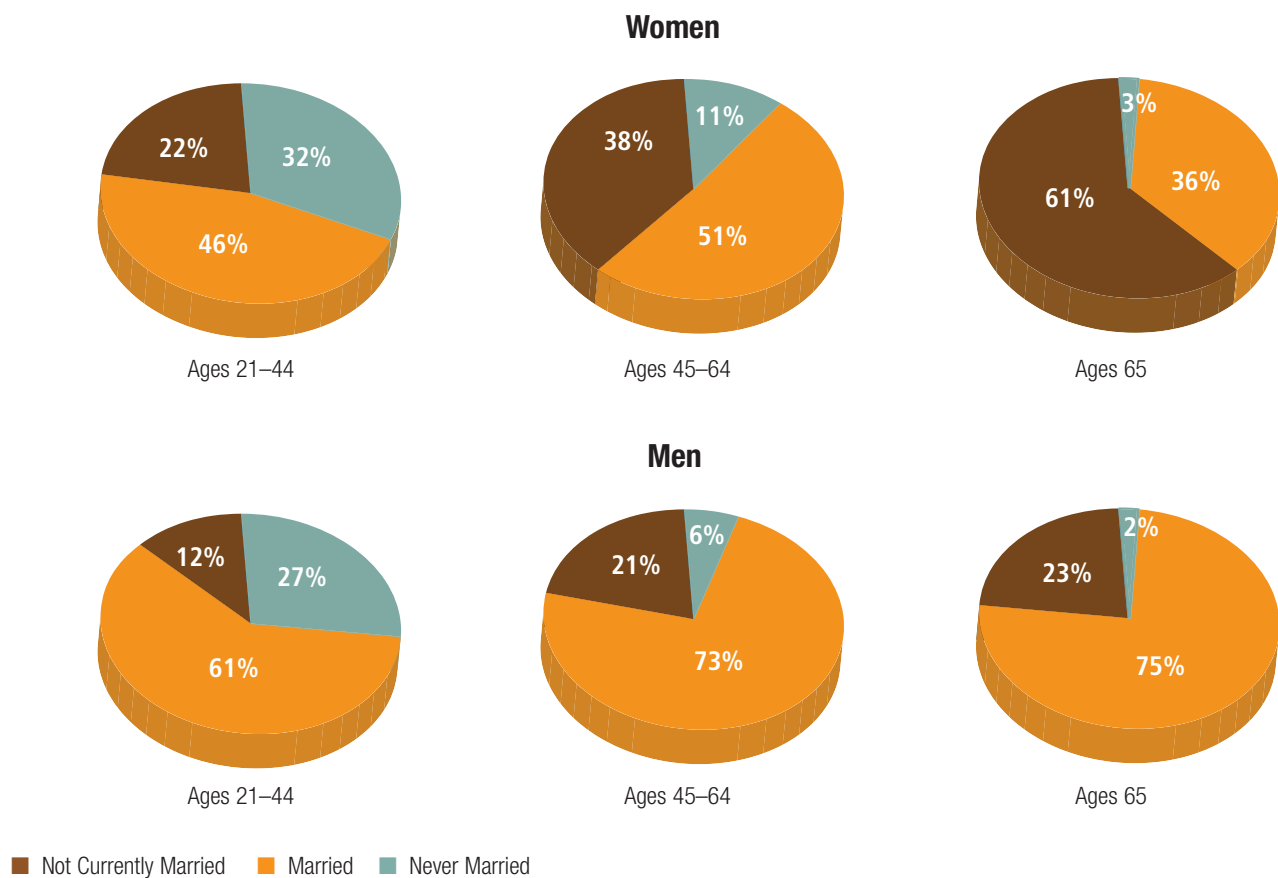


- JHS has 5,302 participants, 3,393 women and 1,909 men.
- Most participants live in Hinds County.
- Former ARIC participants account for 30 percent of the JHS cohort.

## Marital Status

Marital status of JHS participants was obtained by self-report as either married, never married, or not currently married. Those reported as not currently married included those who were separated, divorced, or widowed. At all ages, men were more likely than women to be married.

Figure 6. Marital status level among women and men by age group



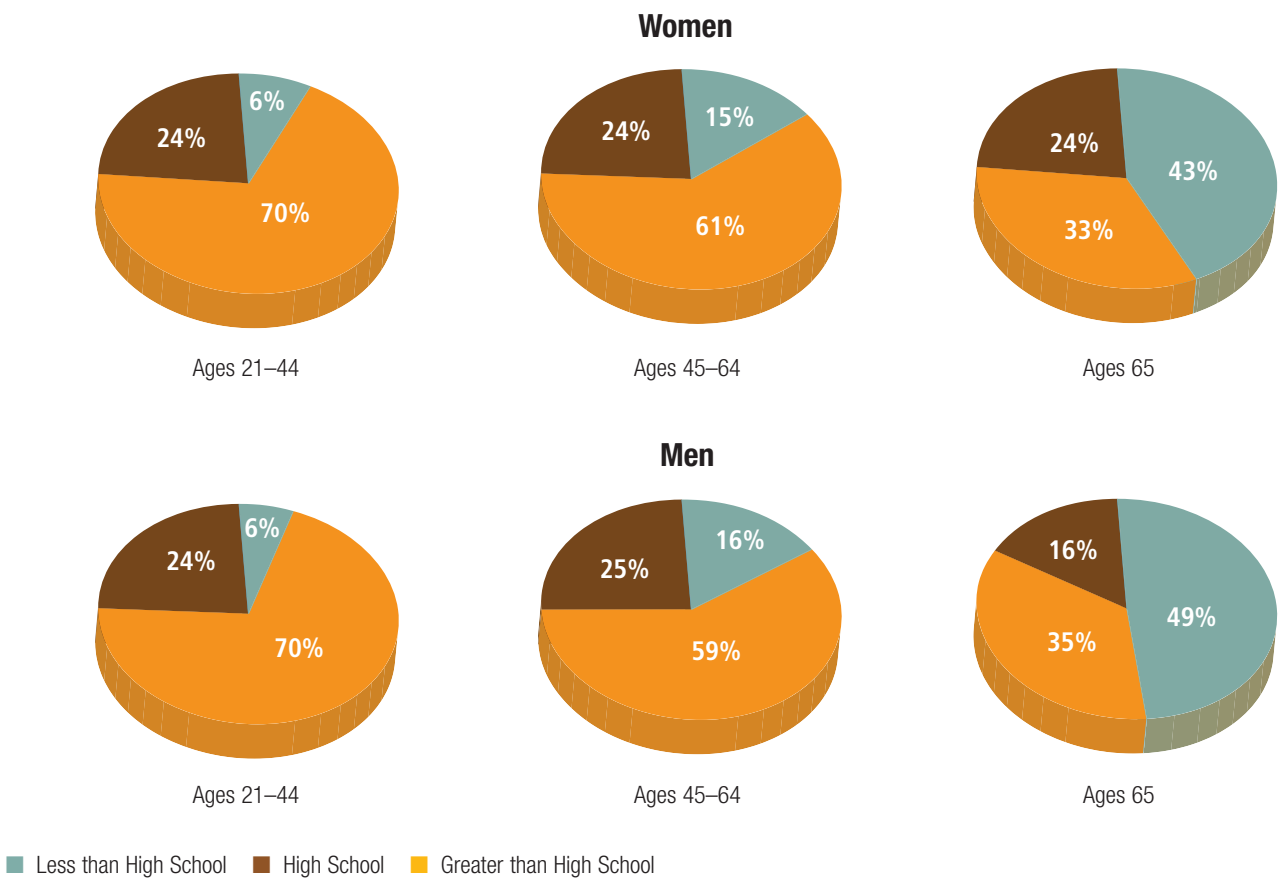
- With increasing age groups, the percentage of women not currently married increased.
- The majority of men in each age group were married.

## Education

Participants in the study, were grouped by education into three categories: less than high school, high school, and greater than high school. If the participant finished grade 12 of high school, or had some vocational or trade school training (with or without a certificate), or completed a GED, they were put into the “high school” education group. If a participant had less education than this they were grouped into “less than high school.” If a participant had at least

some college, they were grouped into the “greater than high school” group. Almost half of the 65+ age group had less than a high school education. The majority of women and men in the 21-44 year old and 45-64 year old age groups had greater than a high school education.

**Figure 7. Education level among women and men by age group**



- For women and men, the percentage of participants with greater than a high school education was highest in the youngest age group.
- Conversely, the percentage of those with less than a high school education was highest in the oldest age group.



## HEART HEALTHY RECIPE

Here's potato salad that's both traditional and new—with great taste and a low-fat twist.

### Savory Potato Salad

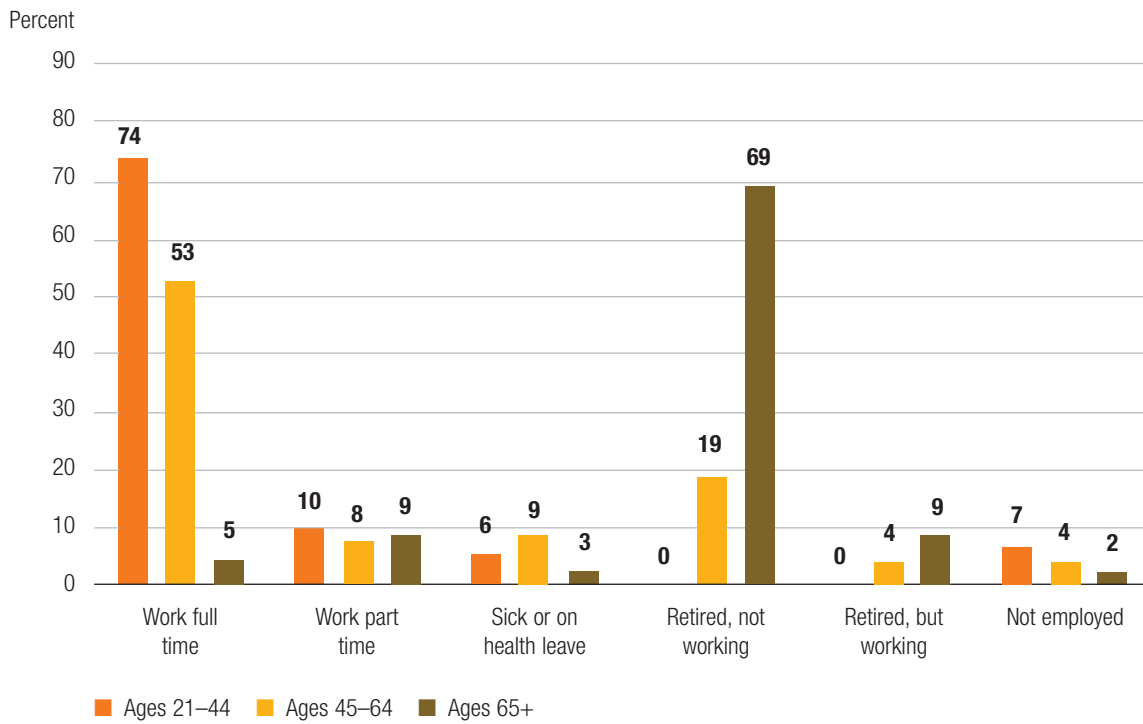
- |   |  |
|---|--|
| 6 medium potatoes (about 2 pounds)          | 1. Wash potatoes, cut in half, and place them in saucepan of cold water. |
| 2 stalks celery, finely chopped             | 2. Cook covered over medium heat for 25 to 30 minutes or until tender.   |
| 2 scallions, finely chopped                 | 3. Drain and dice potatoes when cool.                                    |
| 1/4 cup red bell pepper, coarsely chopped   | 4. Add vegetables and egg to potatoes and toss.                          |
| 1/4 cup green bell pepper, coarsely chopped | 5. Blend together mayonnaise, mustard, salt, pepper, and dill weed.      |
| 1 tablespoon onion, finely chopped          | 6. Pour dressing over potato mixture and stir gently to coat evenly.     |
| 1 egg, hard boiled, chopped                 | 7. Chill for at least 1 hour before serving.                             |
| 6 tablespoons mayonnaise, light             |  |
| 1 teaspoon mustard                          |  |
| 1/2 teaspoon salt                           |  |
| 1/4 teaspoon black pepper                   |  |
| 1/4 teaspoon dill weed, dried               |  |

Yield	10 servings	Saturated fat less than	0 g	Total Fiber	2 g
Serving size	1/2 cup	Cholesterol	21 mg	Protein	2 g
Calories	98	Sodium	212 mg	Carbohydrates	18 g
Total fat	2 g			Potassium	291 mg

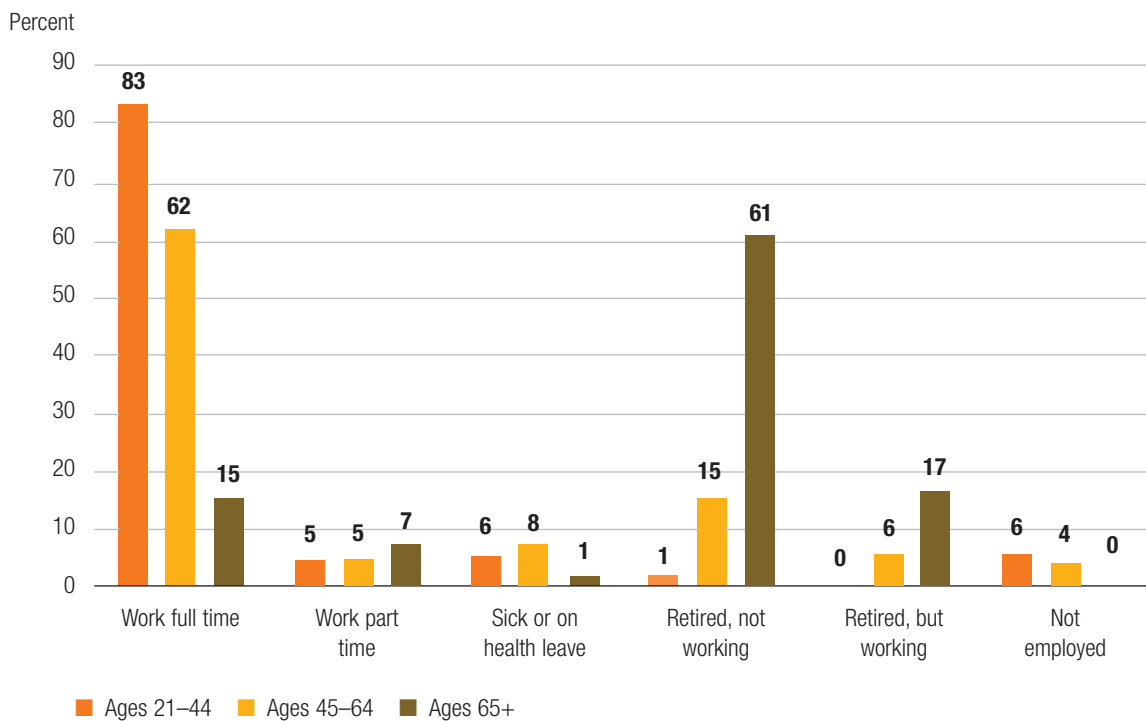
### Employment Status

Current employment status was based on a self report by the participant. Responses included working full time, working part time, not working due to health, temporarily laid off, unemployed, homemaker, retired from usual job, and not working or retired from usual job but working for pay. Women in the 21-44 and 45-64 year old age groups were more likely to be working full time or part time. Nearly 20 percent of women 45-64 were retired from their usual job and although most women 65 or more were retired and not working, nearly 10 percent continued to work for pay in a field other than their usual job (see Figure 8). Less than 3 percent of all women were homemakers and not working. Men were similar to women, however, in each age group men were slightly more likely to be working and slightly less likely to be retired or not employed (see Figure 9). Approximately 4 percent of men 21-44 and 5 percent of women 21-44 were unemployed and looking for work.

**Figure 8. Employment status among women**



**Figure 9. Employment status among men**

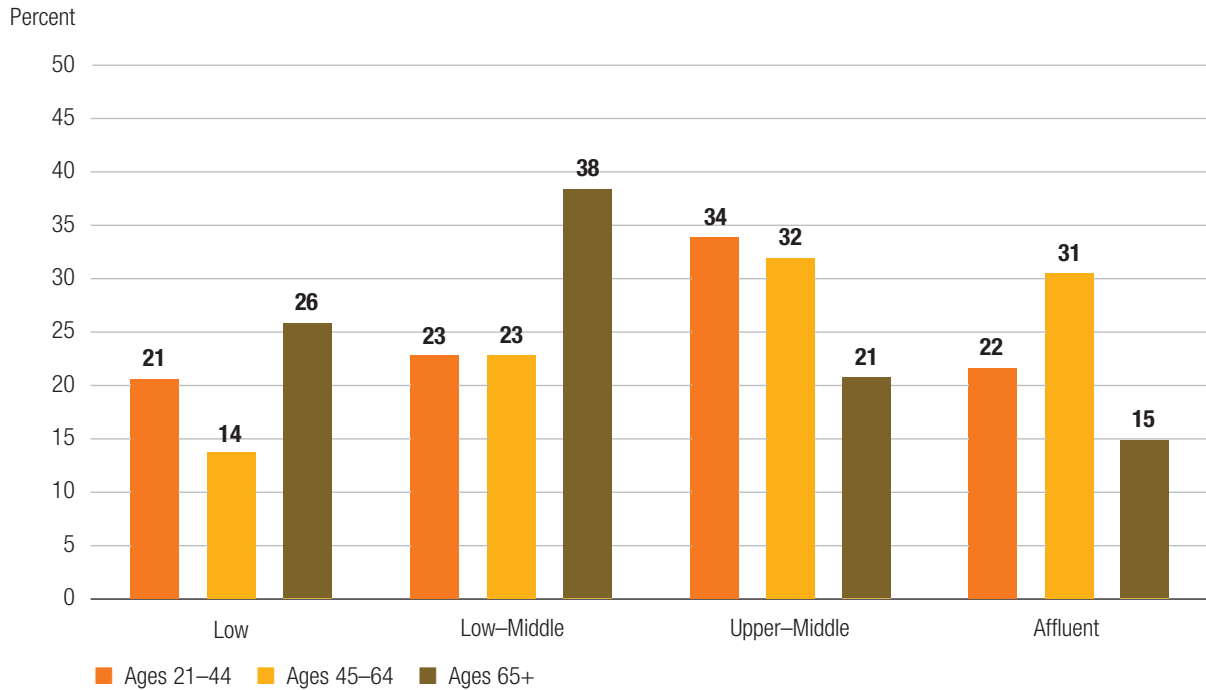


## Income Level

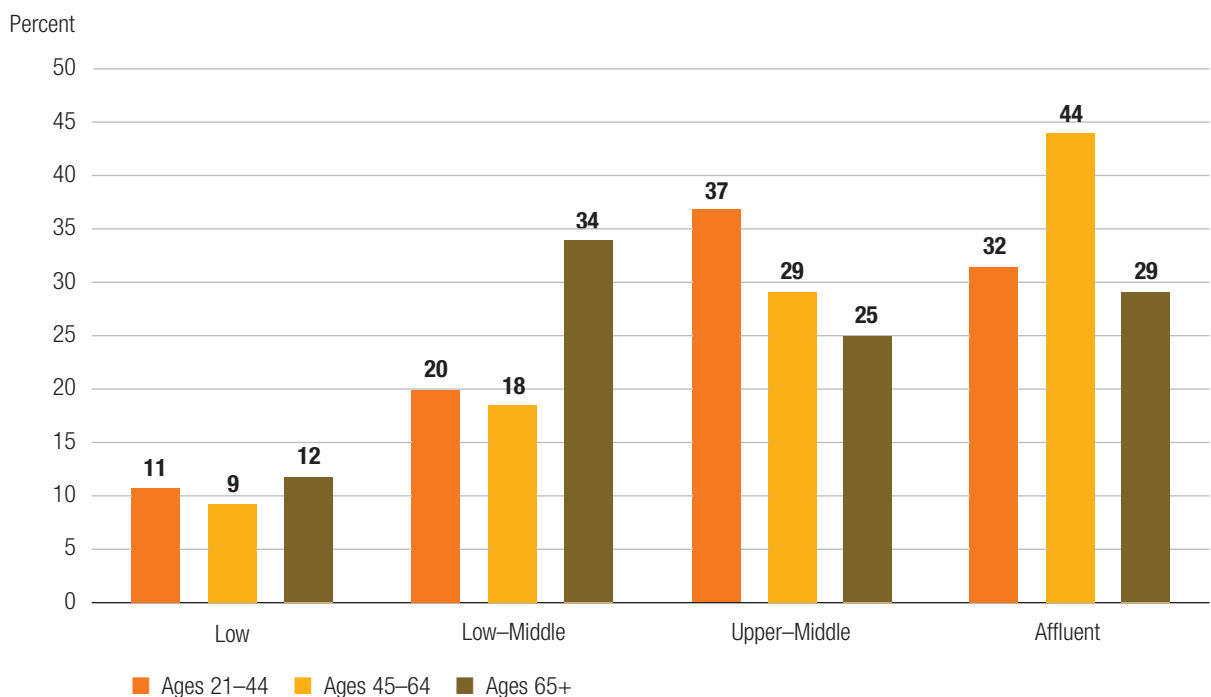
Based on a participant's reported income and the number of family members supported by that income, participants were categorized as either low, lower-middle, upper-middle, or affluent. Forty-four

percent of men in the 45-64 year old age group were in the affluent income level. Of particular attention is that 26 percent of the older women were in the lowest income group.

**Figure 10. Percent of women in income groups**



**Figure 11. Percent of men in income groups**



## Chronic Vascular Disease



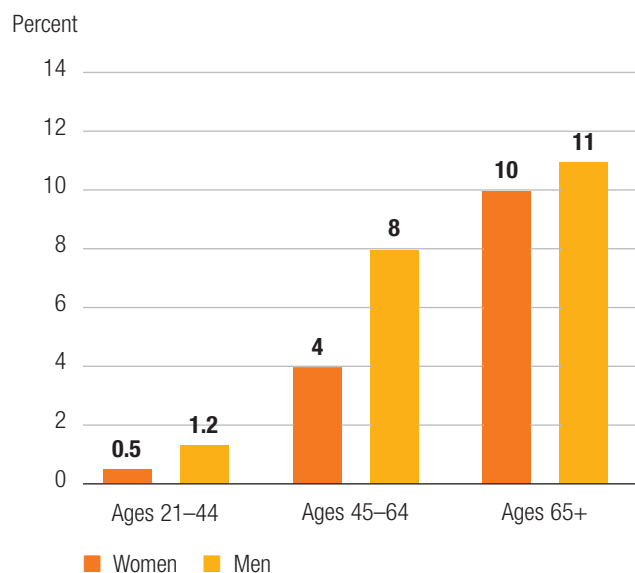
The vessels in the body that supply blood to the heart and brain tend to be prone to a process known as atherosclerosis. Atherosclerosis refers to areas within blood vessels that accumulate lipid (cholesterol) and other deposits. If this area becomes too thick, then blood flow can be reduced and insufficient to meet the needs of the heart or brain. The blood vessel can also become completely blocked, producing a heart attack or stroke. If this happens, prompt treatment and lifestyle changes are needed. This section of the Community Report provides information on participants who have already experienced symptoms or who have had a heart attack or stroke.

### Myocardial Infarction

A myocardial infarction (MI) is another name for a heart attack. A heart attack occurs when the supply of blood to the heart muscle is blocked and causes the heart to stop pumping blood efficiently. This results in pain, harm to the heart muscle and possibly death. A prior MI was most frequent among women and men aged 65+ (10 percent and 11 percent, respectively). Of participants 45-64 years old, men had double the percentage of prior MIs (8 percent) compared to women (4 percent).

- **Among 45-64 year old, men were twice as likely as women to report having a prior MI.**

**Figure 12. Percent of JHS participants who had MI before the first examination**



## Angina Pectoris

Angina is a chest pain that results when the heart does not receive a sufficient amount of blood. The pain of angina is brought on by physical exertion or emotional stress and is relieved by rest or medication. Angina is a symptom of coronary heart disease (CHD), and people with angina are at a greater risk for heart surgery and a heart attack. In the JHS, women were more likely to have angina than men. Three times as many women (3 percent) than men (1 percent) in the 21-44 year old group had symptoms of angina.

- **Among all age groups, women were more likely to have angina than men.**

## Coronary Revascularization

Coronary revascularization describes methods used to open or bypass (go around) an artery that has become blocked to restore blood flow to the heart. JHS participants were considered to have a coronary revascularization if they had a bypass surgery, angioplasty (a procedure where a balloon or stent is inserted into an affected artery to flatten the blockage against the artery wall), or both. In the 65+ age group, men were about twice as likely as women to have undergone a coronary revascularization procedure.

- **Coronary revascularization was more common in the older age groups.**

Figure 13. Percent with symptoms of angina pectoris

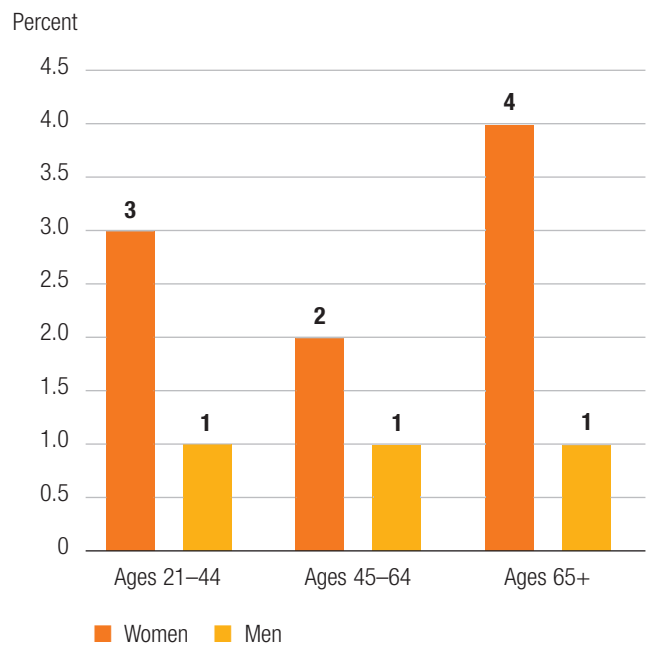
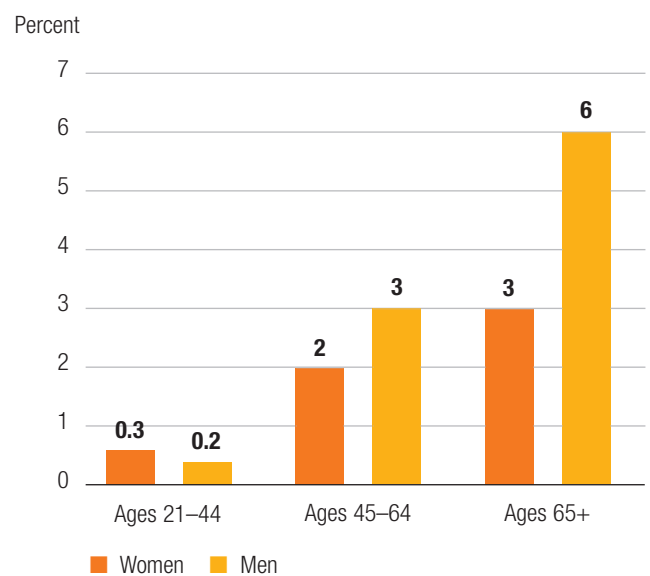


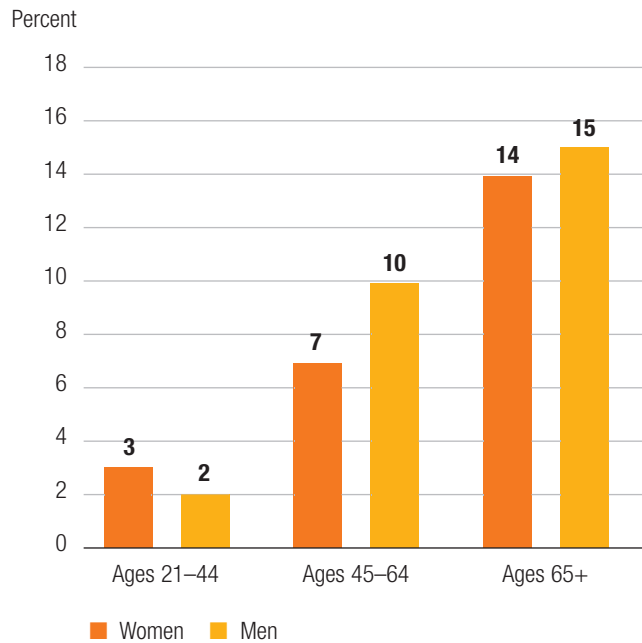
Figure 14. Percent with coronary revascularization



### Coronary Heart Disease (CHD)

Coronary Heart Disease occurs when the arteries that deliver blood to the heart muscle become narrowed due to the increase of plaque on the inner walls of the arteries. JHS participants were considered to have CHD if they had a myocardial infarction, angina, or coronary revascularization. In participants 45-64 years old, men were more likely to have CHD than women.

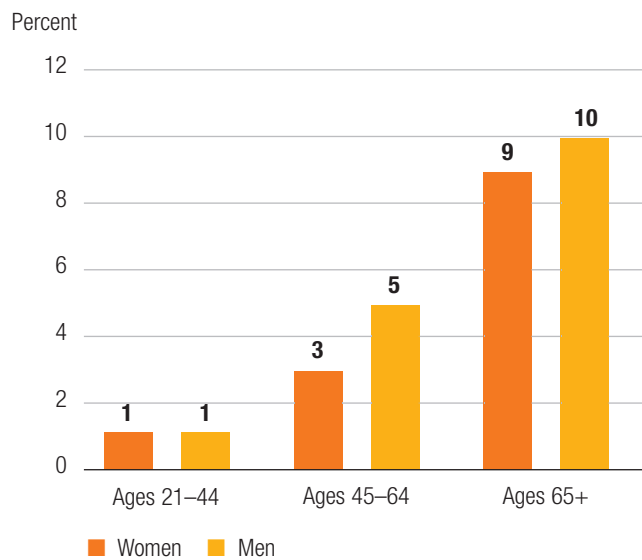
Figure 15. Percent with CHD



### Stroke

A stroke is the result of blockage or bleeding of blood vessels (arteries) leading into the brain. This can cause paralysis of limbs, loss of speech, and unconsciousness. Stroke was much more common in older than younger or middle age participants, and more common in men than women.

Figure 16. Percent with previous stroke



### Cardiovascular Disease (CVD)

Cardiovascular Disease refers to all of the diseases of the heart and blood vessels. JHS participants were considered to have CVD if they reported having a myocardial infarction, angina, coronary revascularization, or stroke. CVD is much more common in older participants, and in middle ages, and more common in men than women.

- Among 45-64 year old, men have a higher percentage of CVD (15 percent) than women (10 percent).

### Peripheral Arterial Disease (PAD)

Peripheral Arterial Disease is the buildup of plaque on the inside walls of the arteries that carry blood from the heart to the legs. Symptoms of PAD include pain in the legs while walking or climbing stairs, and cramping in the legs, thighs, calves, and feet. PAD was measured by comparing the blood pressure in the legs with the blood pressure in the arms. PAD was much more common in older participants, but not much different between men and women.

Figure 17. Percent with CHD

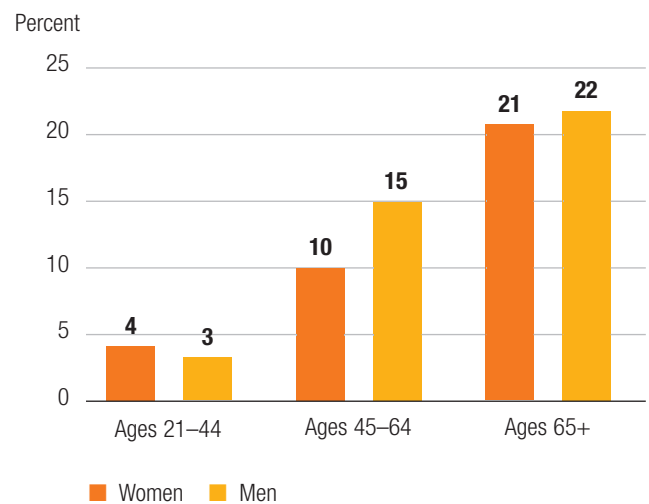
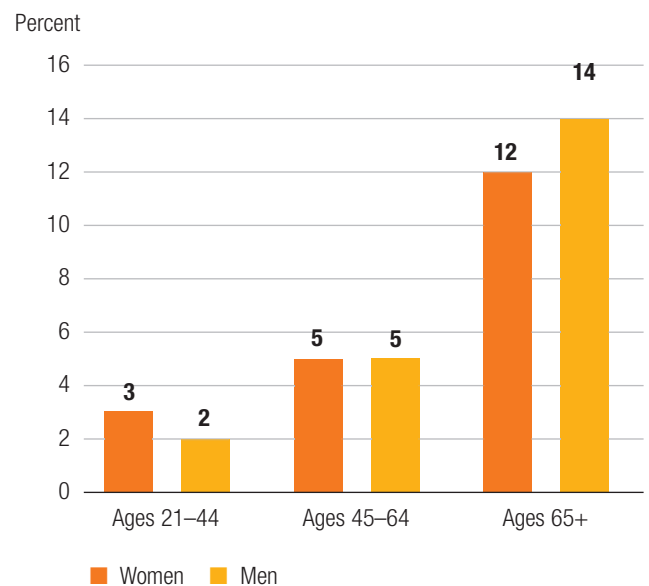


Figure 18. Percent with PAD



## HEART HEALTHY RECIPE

### Good-For-You Cornbread

- 1 cup cornmeal
- 1 cup flour
- 1/4 cup sugar
- 1 teaspoon baking powder
- 1 cup low-fat (1%) buttermilk
- 1 egg, whole
- 1/4 cup margarine, regular, tub
- 1 teaspoon vegetable oil (to grease baking pan)

1. Preheat oven to 350 °F.
2. Mix together cornmeal, flour, sugar, and baking powder.
3. In another bowl, combine buttermilk and egg. Beat lightly.
4. Slowly add buttermilk and egg mixture to the dry ingredients.
5. Add margarine and mix by hand or with mixer for 1 minute.
6. Bake for 20 to 25 minutes in an 8 x 8-inch, greased baking dish. Cool. Cut into 10 squares.

Yield	10 servings
Serving size	1 square
Calories	178
Total fat	6 g

Saturated fat	1 g
Cholesterol	22 mg
Sodium	94 mg

Total Fiber	1 g
Protein	4 g
Carbohydrates	27 g
Potassium	132 mg

### DID YOU KNOW

A heart attack can be prevented by healthy lifestyle choices which include:

- Following a low-fat diet, rich in fruits and vegetables.
- Lowering your salt intake.
- Losing weight if you are overweight or obese.
- Quit smoking.
- Doing physical activity to improve heart fitness.



# Cardiovascular Disease Risk Factors

3



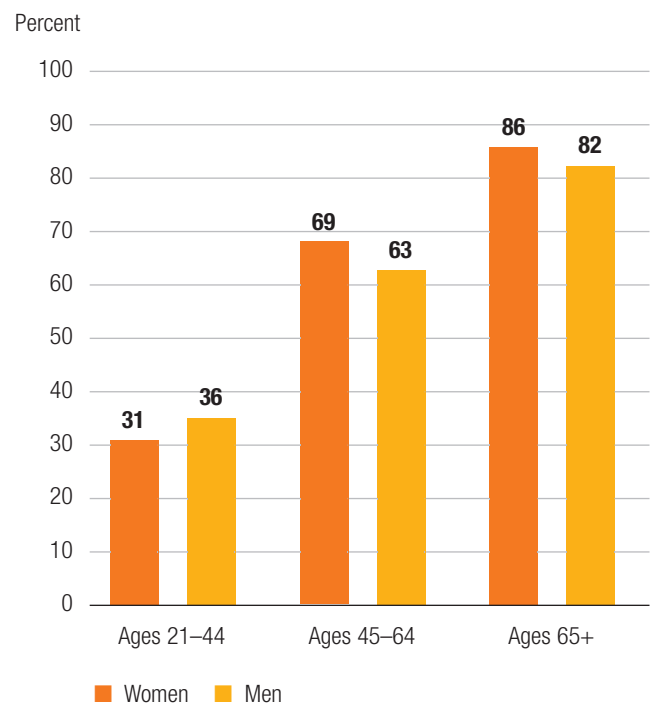
Risk factors are traits or characteristics of a person that have been shown to be associated with a disease outcome. In this section of the Community Report, information is presented on the major risk factors that have repeatedly been shown to be strongly associated with Cardiovascular Disease.

## Hypertension

Blood pressure is a measure of the pressure of the flow of blood (in millimeters of mercury, mmHg) due to the pumping of the heart. The first number is called systolic, and is the pressure when the heart is pumping. The second number is called diastolic, and is the pressure when the heart is relaxed. High pressure can damage the arterial walls, the kidneys and other parts of the body. Often, there are no symptoms with high blood pressure. Hypertension is defined in a person with blood pressure consistently above 140/90 (systolic blood pressure 140 mmHg / diastolic blood pressure 90 mmHg) or taking medications to control high blood pressure. More than half of women (69 percent) and men (63 percent) in the 45-64 year old age group have hypertension. In older persons, more than 8 out of 10 have hypertension.

- **More than 80 percent of 65+ year old and more than 50 percent of 45-64 year old have hypertension.**

Figure 19. Percent with hypertension

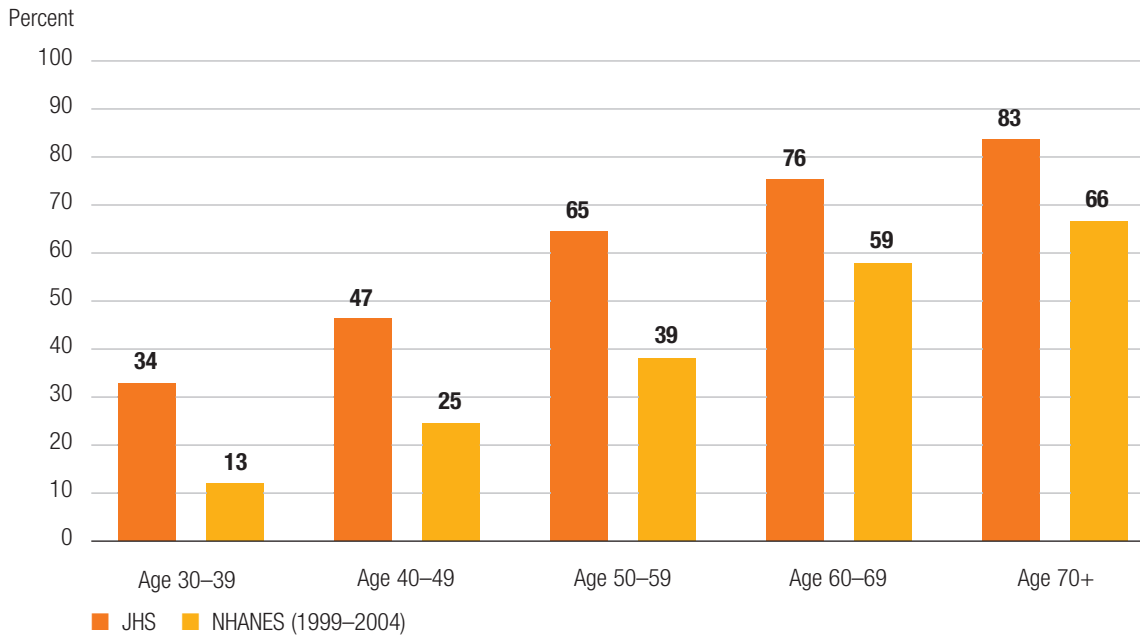


### Hypertension-JHS compared to the U.S.

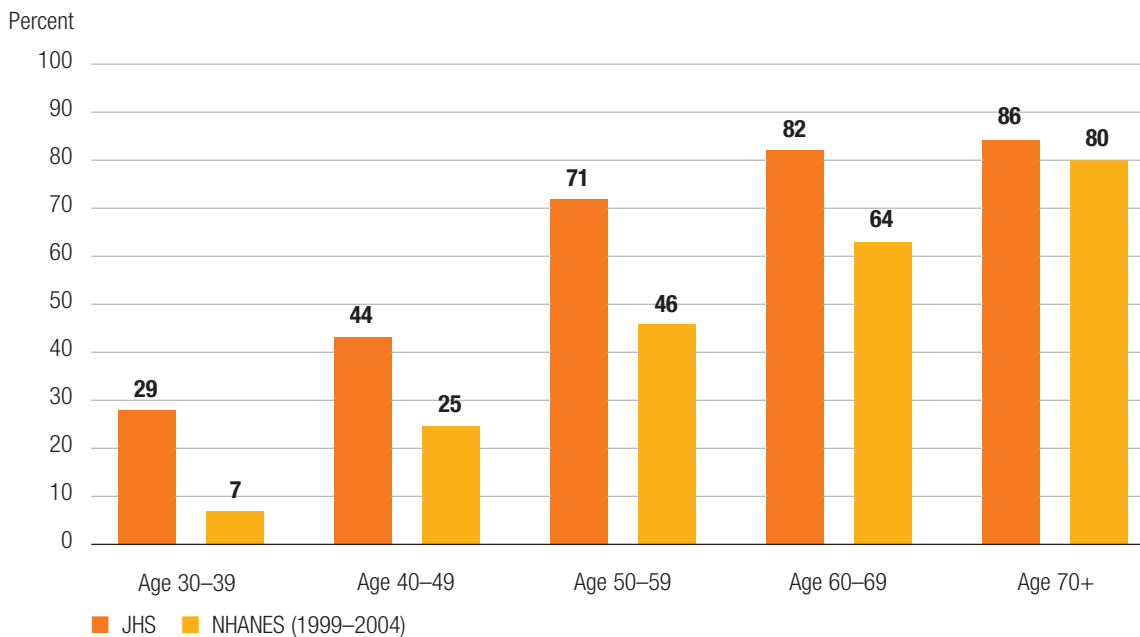
Participants in the JHS can be compared to persons in the whole U.S. by using a national survey called the National Health and Examination Survey (NHANES, 1999-2004). Comparing the percentages of hypertension in the U.S. to the JHS shows the large disparity

that affects the African American community. Figures 20 and 21 show that for each age group, men and women in the JHS have much higher percent with hypertension compared to the national average derived from NHANES.

**Figure 20. Percent with women with hypertension in JHS compared to the entire U.S.**



**Figure 21. Percent with men with hypertension in JHS compared to the entire U.S.**



■ **JHS hypertension percentages for men and women are greater than national hypertension percentages for each age group.**

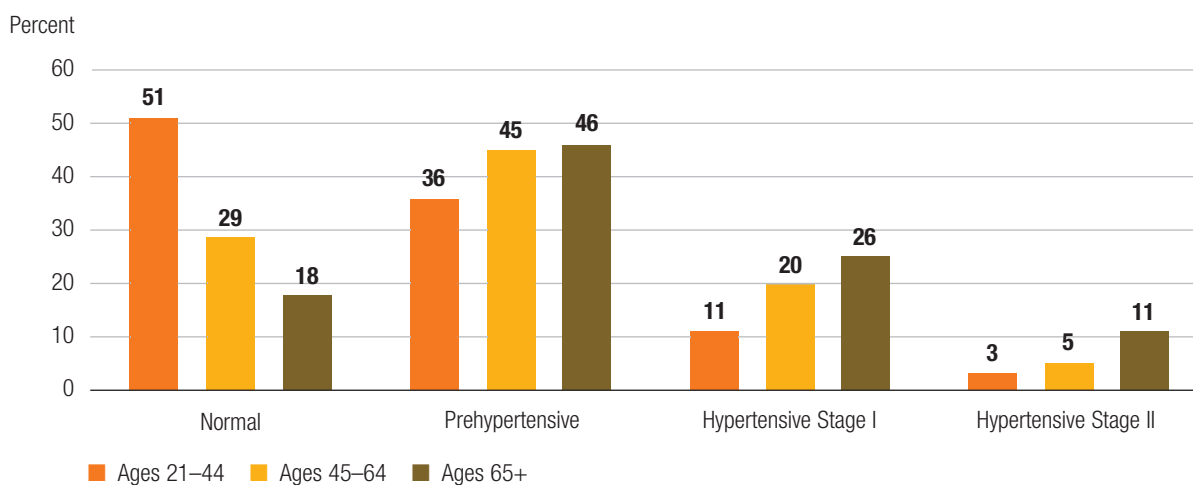
## Measured Blood Pressure

As blood pressure increases, the risk for CVD also increases. CVD risk tends to double with each 20 systolic or 10 diastolic mmHg increase in blood pressure. The JHS participants were grouped into one of the following groups (systolic blood pressure, [SBP] and diastolic blood pressure [DBP] in mmHg):

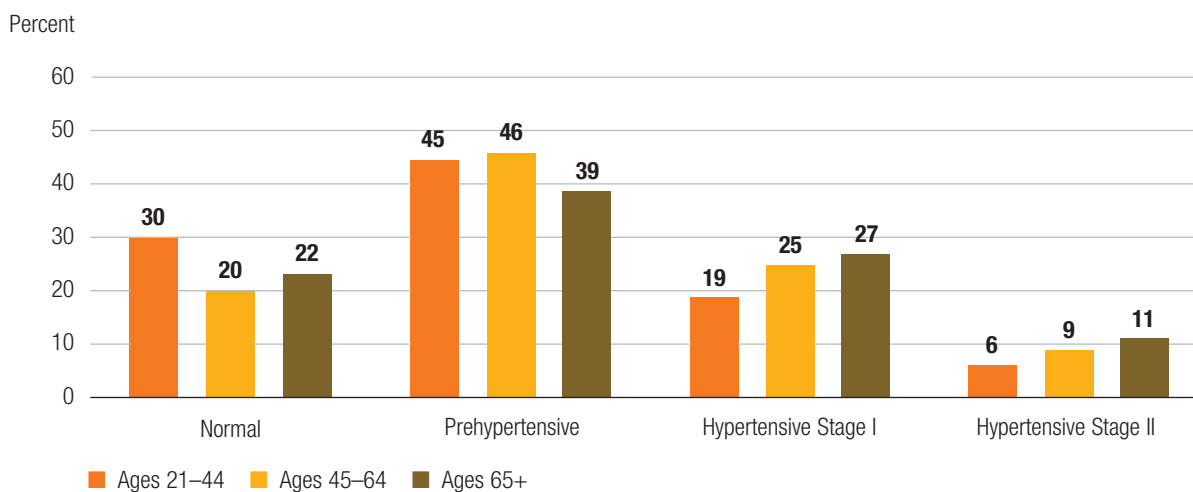
- Normal:** (SBP less than 120, DBP less than 80),
- Prehypertension:** (SBP 120-139 or DBP 80-89),
- Hypertension Stage 1:** (SBP 140-159 or DBP 90-99)
- Hypertension Stage 2:** (SBP 160 or more or DBP 100 or more).

Participants are always placed into the highest possible category (for example, a systolic pressure of 135 mmHg and diastolic of 95 mmHg defines someone as being Hypertensive Stage I). Most participants have blood pressure that is normal or high normal (note that this pressure may have been reached through medication); however, one out of four middle aged women and one out of three older women have an elevated blood pressure (see Figure 22). One out of three middle aged men and two out of five older men have elevated blood pressure (see Figure 23) even though they may be currently treated.

**Figure 22. Percent of women with blood pressures that are normal, prehypertensive and hypertensive**



**Figure 23. Percent of men with blood pressures that are normal, prehypertensive and hypertensive**



## HEART HEALTHY RECIPE

### Mouth-Watering Oven-Fried Fish

- 2 pounds fish fillets
- 1 tablespoon lemon juice, fresh
- 1/4 cup fat-free or 1 percent buttermilk
- 2 drops hot sauce
- 1 teaspoon fresh garlic, minced
- 1/4 teaspoon white pepper, ground
- 1/4 teaspoon salt
- 1/4 teaspoon onion powder
- 1/2 cup cornflakes, crumbled or regular bread crumbs
- 1 tablespoon vegetable oil (for greasing baking dish)
- 1 fresh lemon, cut in wedges

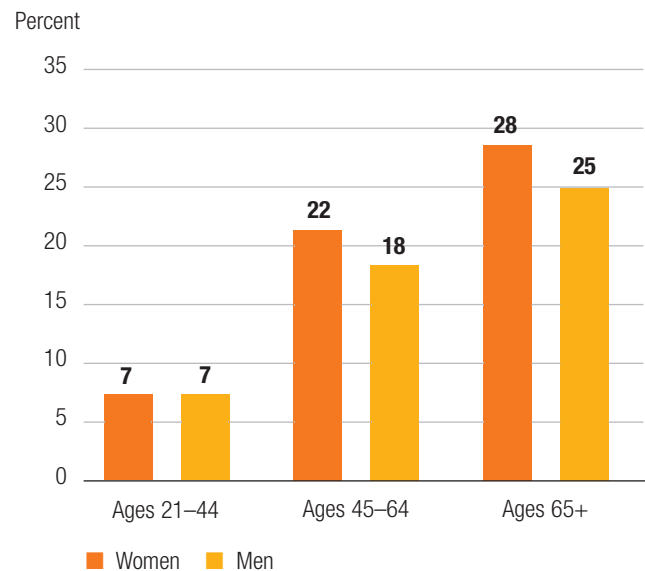
1. Preheat oven to 475°F.
2. Wipe fillets with lemon juice and pat dry.
3. Combine milk, hot pepper sauce, and garlic.
4. Combine pepper, salt, and onion powder with cornflake crumbs and place on a plate.
5. Let fillets sit in milk briefly. Remove and coat fillets on both sides with seasoned crumbs. Let stand briefly until coating sticks to each side of fish.
6. Arrange on lightly oiled shallow baking dish.
7. Bake 20 minutes on middle rack without turning.
8. Cut into 6 pieces. Serve with fresh lemon. For variety, try this heart healthy fish recipe with any kind of fish.

Yield	6 servings	Saturated fat less than	0 g	Total Fiber	1 g
Serving size	1 cut piece	Cholesterol	80 mg	Protein	30 g
Calories	183	Sodium	325 mg	Carbohydrates	10 g
Total fat	2 g			Potassium	453 mg

### Type 2 Diabetes

Diabetes occurs when the body is unable to produce insulin or use it properly to break down sugar (glucose) in the blood. Most diabetes is known as type 2 or adult onset diabetes (generally occurring after childhood). People are often unaware that they have diabetes until their blood glucose is measured. Data from National Heart, Lung, and Blood Institute studies has shown that diabetes can more than double the risk of a heart attack or stroke. The percent of JHS participants with diabetes increases with age, and is slightly higher in women than men in the older age groups.

Figure 24. Percent with type 2 diabetes



## HEART HEALTHY RECIPE

### Crispy Oven-Fried Chicken

- 1/2 cup fat-free milk or buttermilk
- 1 teaspoon poultry seasoning
- 1 cup cornflakes, crumbled
- 1 1/2 tablespoons onion powder
- 1 1/2 tablespoons garlic powder
- 2 teaspoons black pepper
- 2 teaspoons dried hot pepper, crushed
- 1 teaspoon ginger, ground
- 8 pieces chicken, skinless (4 breasts, 4 drumsticks)
- a few shakes paprika
- 1 teaspoon vegetable oil

1. Preheat oven to 350°F.
2. Add 1/2 teaspoon of poultry seasoning to milk.
3. Combine all other spices with cornflake crumbs and place in a plastic bag.
4. Wash chicken and pat dry. Dip chicken into milk, shake to remove excess, then quickly shake in bag with seasoning and crumbs and remove the chicken from the bag.
5. Refrigerate chicken for 1 hour.
6. Remove chicken from refrigerator and sprinkle lightly with paprika for color.
7. Space chicken evenly on greased baking pan.
8. Cover with aluminum foil and bake 40 minutes. Remove foil and continue baking for an additional 30 to 40 minutes or until the meat can be easily pulled away from the bone with a fork. The drumsticks may require less baking time than the breasts. Crumbs will form a crispy "skin."

**NOTE: Do not turn chicken during baking.**

Yield	10 servings
Serving size	1/2 breast or 2 small drumsticks
Calories	117
Total fat	3 g

Saturated fat	1 g
Cholesterol	49 mg
Sodium	67 mg

Total Fiber	1 g
Protein	17 g
Carbohydrates	6 g
Potassium	1 mg

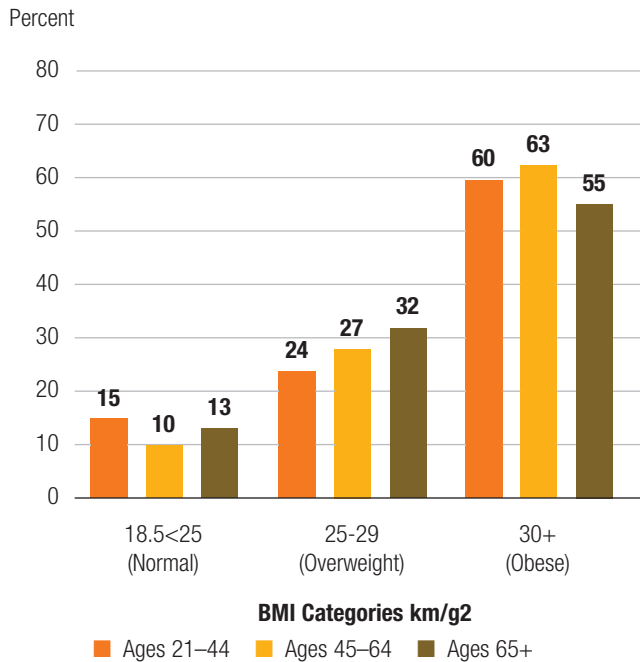
## Body Mass Index

The body mass index (BMI) is a measure of obesity and is calculated by dividing a person's weight in kilograms by their height in meters squared. BMI measurements can be grouped in categories as shown in table 1. Being overweight or obese is a risk factor for many adverse health conditions including hypertension, type 2 diabetes, as well as coronary heart disease and stroke. More than half of all women in the JHS at each age are considered obese. Among men, obesity is not as common as in women, but is highest in the younger age group.

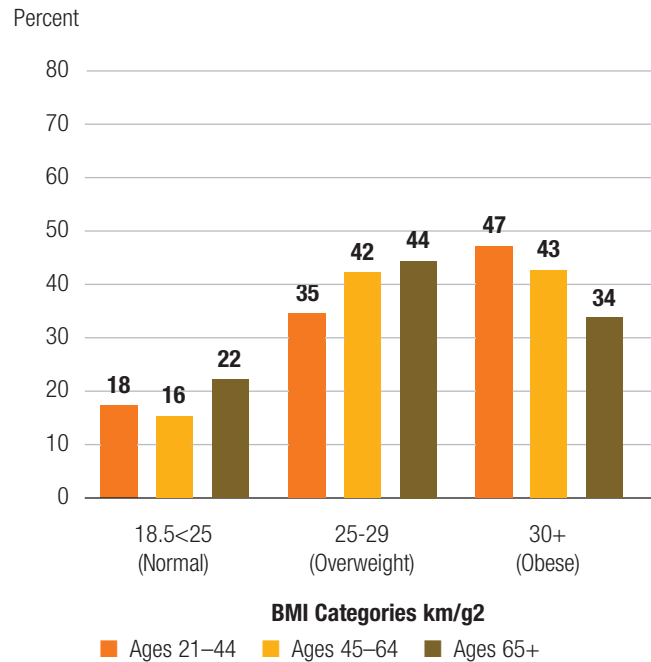
**Table 1 Body Mass Index Chart**

BMI	Weight Status
Below 18.5	Underweight
18.5–24.9	Normal
25.0–29.9	Overweight
30.0 and above	Obese

**Figure 25. Percent of women normal, overweight and obese**



**Figure 26. Percent of men normal, overweight and obese**



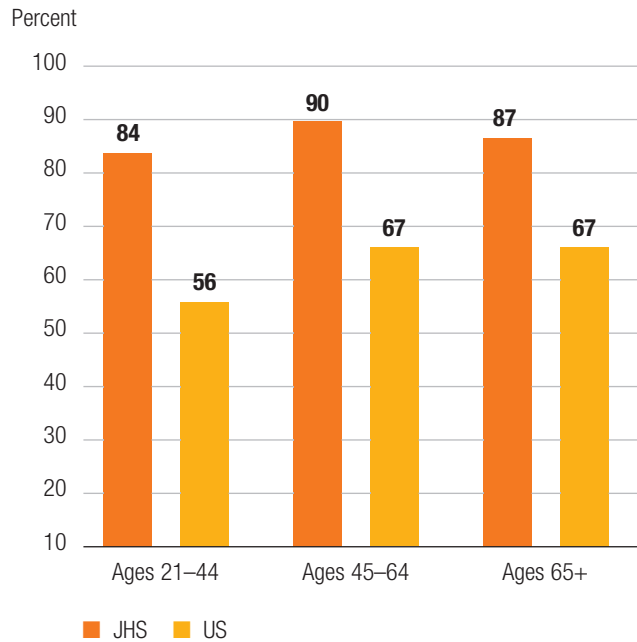
- The majority of women in all age groups are obese.
- In men, the 21-44 year old were the most likely to be obese.

## Overweight and Obesity-JHS compared to the U.S.

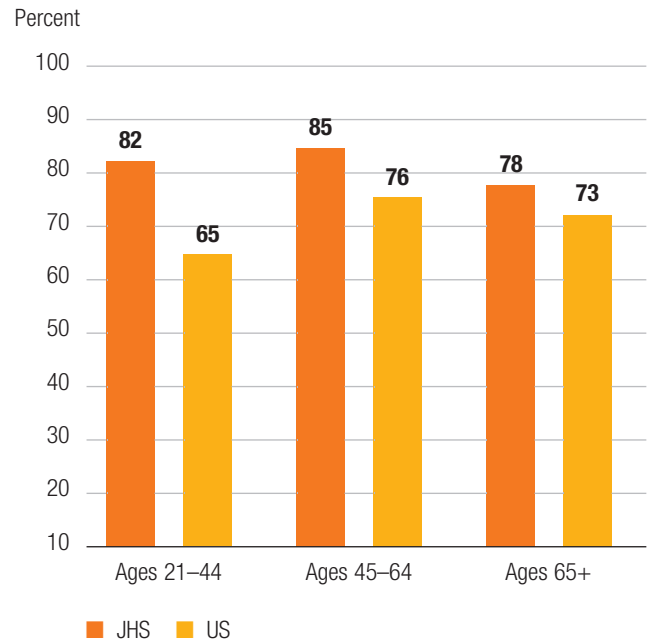
Comparing JHS to the general, U.S. population via the NHANES data (1999-2004), shows that women and men in the JHS are more likely to be overweight or obese compared to national averages.

- JHS participants showed a greater percentage of being overweight or obese compared to national data in all age groups.

**Figure 27. Percent of women overweight or obese in JHS compared to the rest of the U.S.**



**Figure 28. Percent of men overweight or obese in JHS compared to the rest of the U.S.**



Healthy People 2010 provides a set of health objectives for the Nation to achieve during the first decade of the new century.

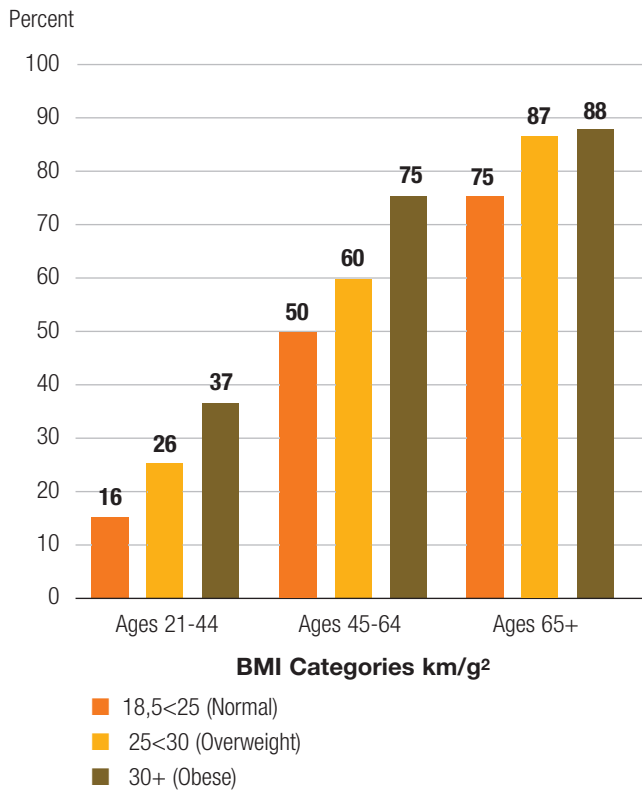
A few of the goals of Healthy People 2010 are to:

- Increase the proportion of adults who are at a healthy weight (Normal BMI) to 60 percent.
  - In the JHS, 14 percent are at a healthy weight (Normal BMI).
- Reduce the proportion of adults who are obese to 15 percent.
  - In the JHS, 53 percent are obese.
- Reduce the proportion of adults with high blood pressure to 16 percent.
  - In the JHS, 63 percent have high blood pressure.

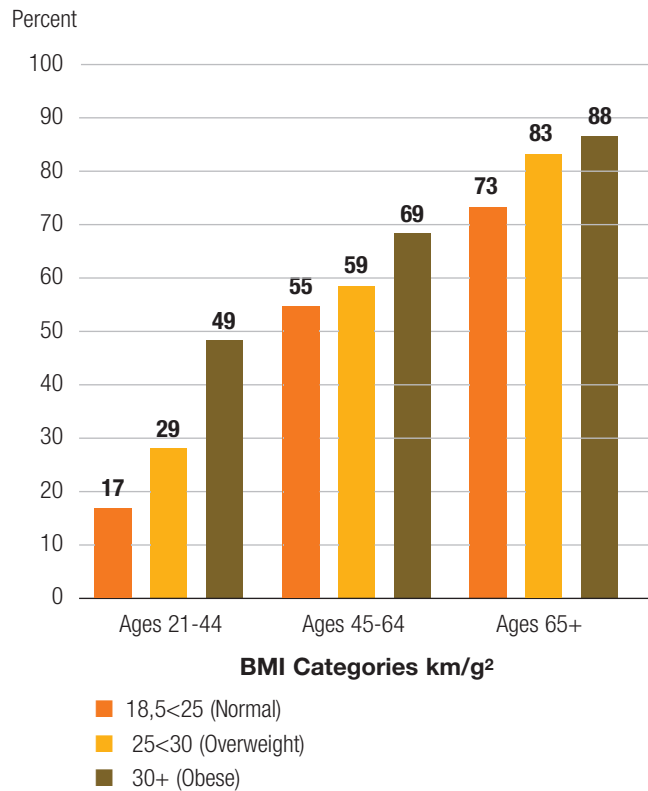
## Women and Men with Hypertension by BMI and Age Group

Being overweight or obese increases the likelihood of also having hypertension. Among all participants in the JHS, hypertension was most common in those with the highest BMI. Among the youngest women and men (21-44 years of age), participants that were obese were more than twice as likely to have hypertension as those with a normal BMI. Among middle aged women (45-64 years), obese participants were 1.5 times more likely to have hypertension than women with normal BMI. Obese, middle-aged men were about 1.3 times more likely to have hypertension than those with normal BMI.

**Figure 29. Percent of women with hypertension by BMI group**



**Figure 30. Percent of men with hypertension by BMI group**



- Participants who were obese had the highest percentage of hypertension.
- Among all participants in all age groups, the percentage of those with hypertension increased with increasing BMI level.



## HEART HEALTHY RECIPE

### Baked Pork Chops

6 lean center-cut pork chops, 1/2-inch thick  
 1 egg white  
 1 cup fat-free evaporated milk  
 3/4 cup cornflake crumbs  
 1/4 cup fine, dry bread crumbs  
 4 teaspoons paprika  
 2 teaspoons oregano  
 3/4 teaspoon chili powder  
 2 teaspoons garlic powder  
 1/8 teaspoon cayenne pepper  
 1/8 teaspoon dry mustard  
 2 teaspoons black pepper  
 2 teaspoons salt  
 nonstick cooking spray, as needed

1. Preheat oven to 375°F.
2. Trim fat from pork chops.
3. Beat egg white with fat-free evaporated milk. Place pork chops in milk mixture and let stand for 5 minutes, turning once.
4. Meanwhile, mix cornflake crumbs, bread crumbs, spices, and salt in small bowl.
5. Use nonstick cooking spray on 13 x 9-inch baking pan.
6. Remove pork chops from milk mixture and coat thoroughly with crumb mixture.
7. Place pork chops in pan and bake for 20 minutes. Turn pork chops and bake for an additional 15 minutes or until no pink remains.

**NOTE: Try the recipe with skinless, boneless chicken or turkey parts or fish—bake for just 20 minutes.**

Yield	6 servings
Serving size	1 pork chop
Calories	216
Total fat	10 g

Saturated fat	8 g
Cholesterol	62 mg
Sodium	346 mg

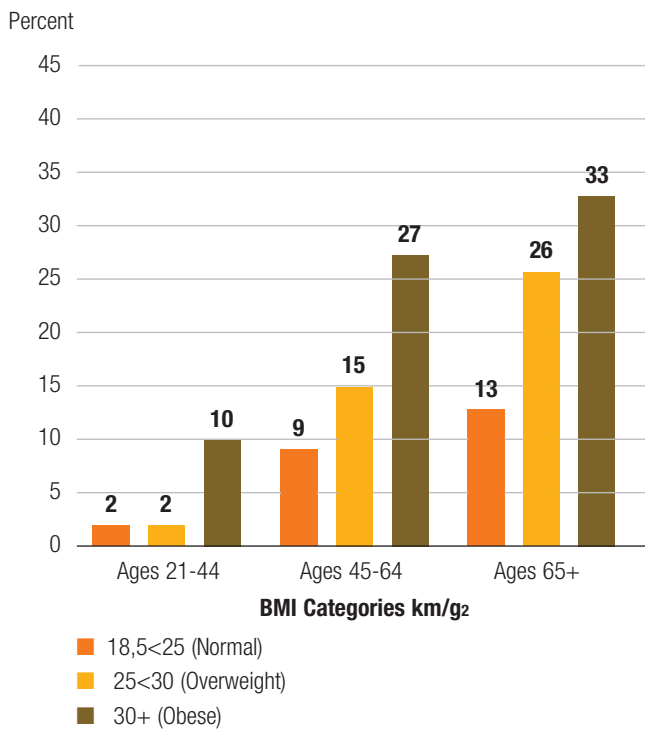
Total Fiber	1 g
Protein	25 g
Carbohydrates	10 g
Potassium	414 mg

## Women and Men with Type 2 Diabetes by BMI and Age Group

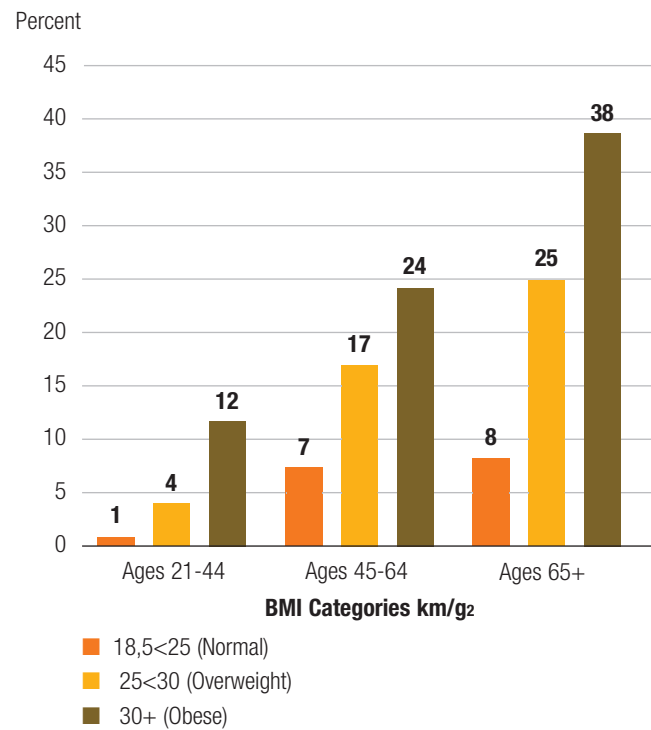
Obesity is also a strong risk factor for adult onset or type 2 diabetes. Among all participants in the JHS, type 2 diabetes was most common in the highest BMI group. Among the youngest women (21-44 years of age), participants who were obese were five times more likely to have diabetes as those with a normal BMI, while obese, middle aged women (45-64 years), were three times more likely to have diabetes compared to those with normal BMI.

In men, the risks were similar. Younger, obese men were 12 times more likely to have diabetes than men with a normal BMI. At middle-age, obese men were three times more likely to have diabetes than men with a normal BMI. Obese women and men over 65 years of age were also at a substantially greater risk of diabetes than those with a normal BMI.

**Figure 31. Percent of women with type 2 diabetes by BMI group**



**Figure 32. Percent of men with type 2 diabetes by BMI group**



- **With increasing BMI level, the percentage of participants with type 2 diabetes increases among all age groups**

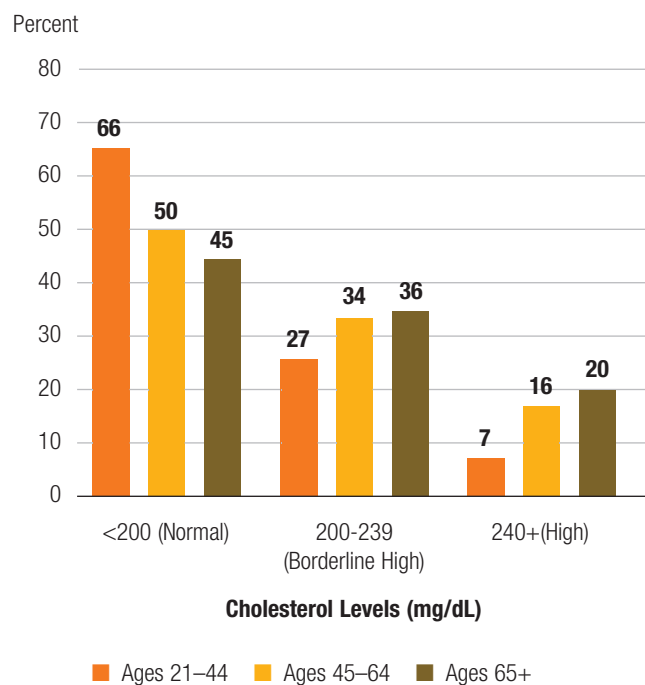
## Total Cholesterol

Cholesterol is necessary for the body and is used in many ways. Two kinds of lipoproteins carry cholesterol throughout the body. Low density lipoprotein (LDL) cholesterol is considered the bad cholesterol and can build up in the arteries and cause heart disease and atherosclerosis, the narrowing of arteries due to plaque. High density lipoprotein (HDL) cholesterol is considered beneficial because these particles carry cholesterol from parts of the body back to the liver where it can be removed. LDL and HDL are two components that make up total cholesterol within the body (along with Very Low Density or VLDL cholesterol). Total cholesterol levels less than 200 milligrams per deciliter (mg/dL) are desirable with those 200-239 mg/dL being borderline high and 240+ mg/dL considered high. Most of the 21-44 year old women had a normal blood cholesterol range. More than half of all men had normal total blood cholesterol levels.

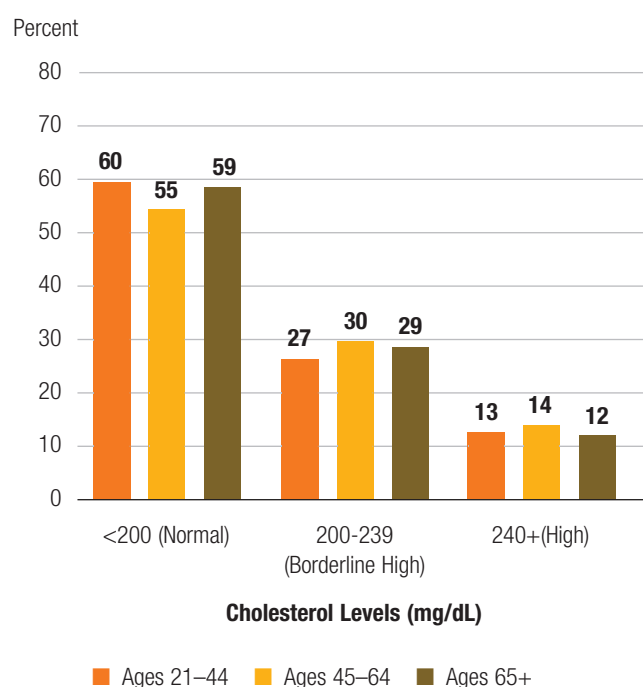
**Table 2 Total cholesterol**

Total Cholesterol Level (mg/dL)	Category
Less Than 200	Desirable (Normal)
200–239	Borderline High
240 and Above	High

**Figure 33. Percent of women with normal, borderline or high cholesterol**



**Figure 34. Percent of men with normal, borderline or high cholesterol**



■ More than half of all men had normal total blood cholesterol levels.

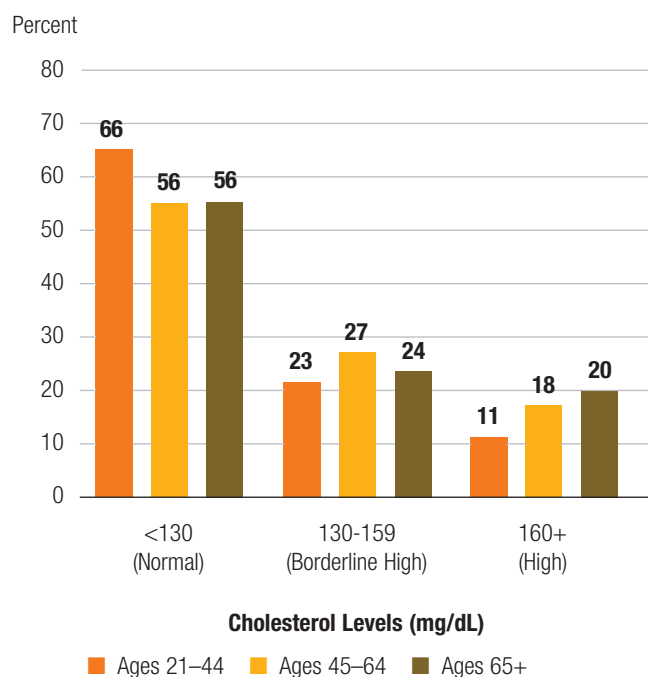
## LDL (Bad Cholesterol)

High levels of LDL cholesterol are considered harmful. JHS participants were grouped by LDL cholesterol levels as shown in table 3. More than half of all women and men have normal levels of LDL cholesterol. Two-thirds of the youngest women had LDL cholesterol in the normal range. Among middle-aged (45-64) and older women (65+), about one in five had high LDL cholesterol, and approximately one in every five of all men had LDL cholesterol in the high range.

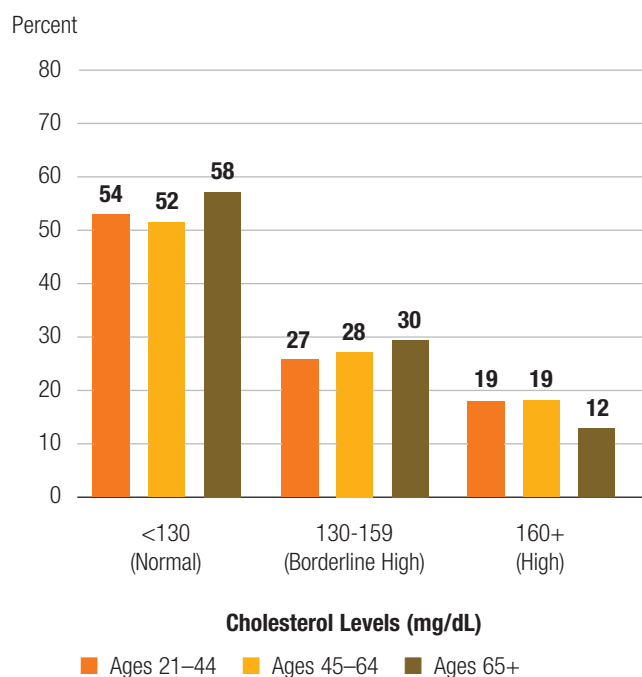
**Table 3 LDL Cholesterol Level Chart**

LDL Cholesterol Level (mg/dL)	Category
Less than 100	Optimal
100–129	Near Optimal/Above Optimal
130–159	Borderline High
160–189	High
190 and Above	Very High

**Figure 35. Percent of women with normal, borderline, or LDL cholesterol**



**Figure 36. Percent of men with normal, borderline, or LDL cholesterol**



One of the goals of Healthy People 2010 is to reduce the proportion of adults with high total blood cholesterol levels to 17 percent.

- In the JHS, 14 percent have a high total blood cholesterol level.

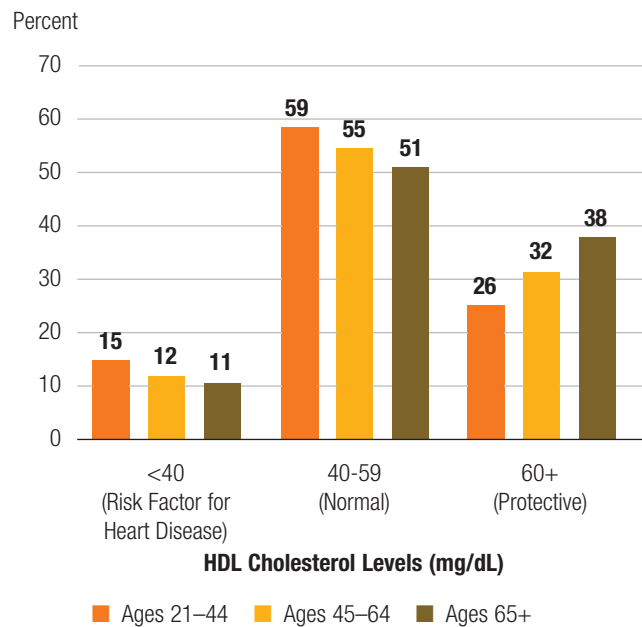
## HDL (Good Cholesterol)

High levels of HDL cholesterol are considered protective for CHD. JHS participants were grouped by HDL cholesterol levels as shown in table 4. Men were more likely than women to have HDL cholesterol lower than 40 mg/dL. There were at least twice as many women than men with an HDL level greater than 60 mg/dL. Older women and men (65 or more years of age) tended to have more favorable HDL cholesterol compared to younger women and men.

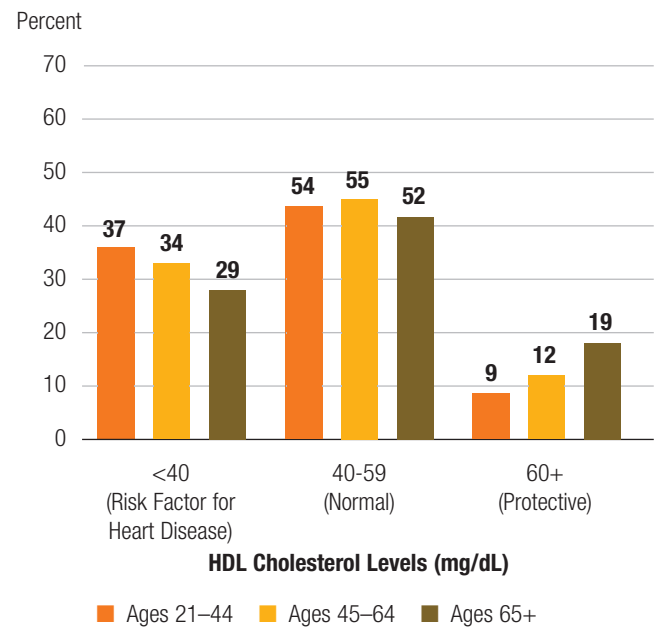
**Table 4 HDL Cholesterol Level Chart**

HDL Cholesterol Level (mg/dL)	Category
Less than 40	Risk Factor for Heart Disease
40–59	The Higher, The Better
60 and Above	Protective Against Heart Disease

**Figure 37. Percent of women with low, normal, or high levels of HDL cholesterol**



**Figure 38. Percent of men with low, normal, or high levels of HDL cholesterol**

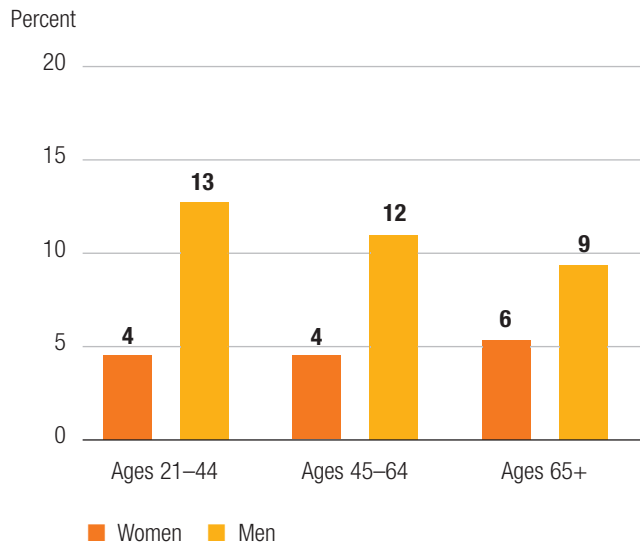


- There were a greater percentage of women in the 60+ (mg/dL) HDL cholesterol level than men.

## HDL and Total Cholesterol

Persons with both low HDL cholesterol and high total cholesterol are at a greater risk of a heart attack than persons just having one of these risk factors. In JHS, men were more than twice as likely as women to have this harmful lipid profile. The harmful lipid profile was only slightly higher in older women compared to younger women, but slightly lower in older men compared to younger men.

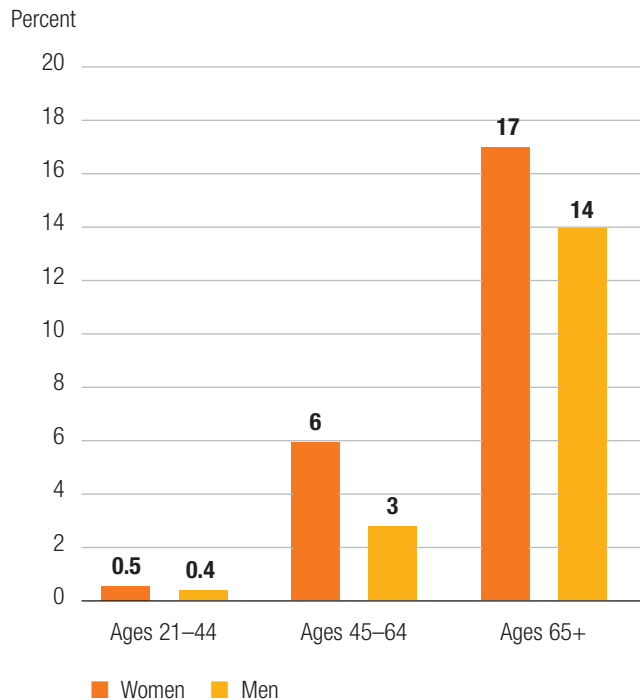
**Figure 39. Percent with an HDL cholesterol less than 40 mg/dL and total cholesterol greater than 200 mg/dL**



## Chronic Kidney Disease

There is emerging evidence that Chronic Kidney Disease (CKD) is a risk factor for heart disease. Persons with CKD have damage to the kidneys that decrease their ability to remove waste products from the body. For people with CKD, heart disease is the major cause of death. In this report, CKD is defined by abnormal levels of serum creatinine. In the 45-64 year old age group, women had twice the percentage of CKD than men. About one in six older participants (65 years of age or more) had CKD.

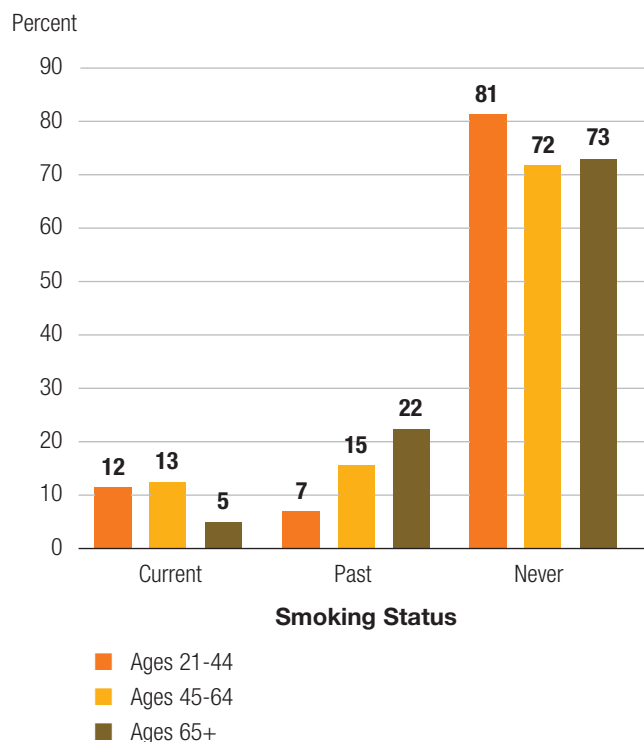
**Figure 40. Percent with chronic kidney disease**



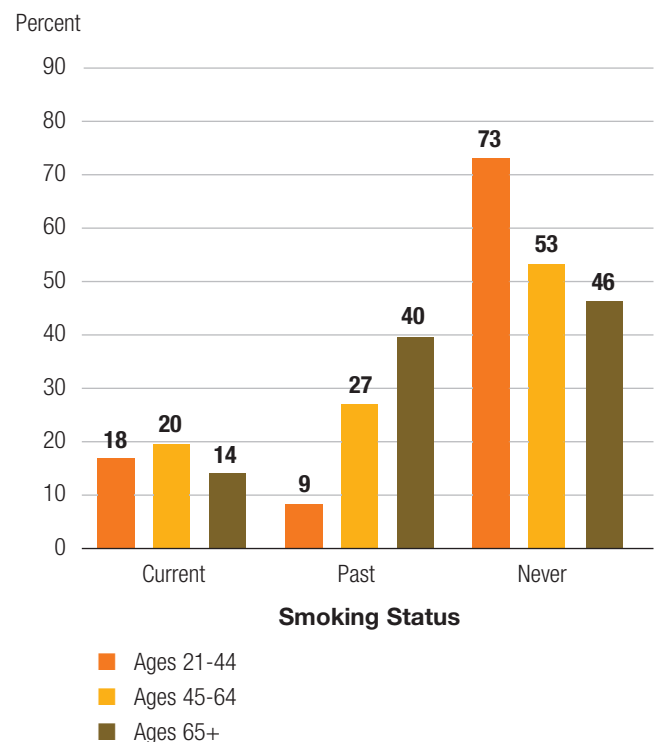
## Smoking Status

Smoking cigarettes can nearly double the risk of a heart attack; however, quitting smoking can dramatically reduce the risk of a heart attack within a few years. JHS participants were grouped into current smokers, past smokers, or never smokers. A current smoker was a participant who had smoked at least 400 cigarettes in their lifetime and answered yes to the question, “do you now smoke?” A past smoker was a participant who had smoked at least 400 cigarettes, but answered no to the question, “do you now smoke?” A never smoker was a participant who had not smoked at least 400 cigarettes. Comparing women and men in Figures 41 and 42, only about one in six women currently smoke while one in five men smoke.

**Figure 41. Percent current, past and never smokers in women**



**Figure 42. Percent current, past and never smokers in men**



- A greater percentage of men were current and past smokers than women for each age group.

# 4

## Awareness and Control of Risk Factors



The major risk factors for CVD include elevated blood pressure, high cholesterol, diabetes, smoking, and age. Some of these risk factors can be reduced or eliminated through lifestyle changes or drug therapy interventions. Since high blood pressure and high cholesterol do not typically present with any symptoms, the first step in reducing these risk factors is being aware that they are high and therefore in need of lifestyle changes or drug therapies. The second step is to reduce the risk factor to a point below a level considered high or, in other words, to bring the risk factor under control. In this section of the Community Report, data is presented on the proportion of participants that are aware of their high blood pressure or cholesterol and how many have achieved control of the risk factor.



### Awareness of High Blood Pressure

If a JHS participant reported that they were told by a doctor or health professional that they had high blood pressure, then that participant is aware of their high blood pressure. Among participants with hypertension, a majority (greater than 66 percent) in all age groups are aware that they have high blood pressure. Women showed a higher awareness than men for all age groups.

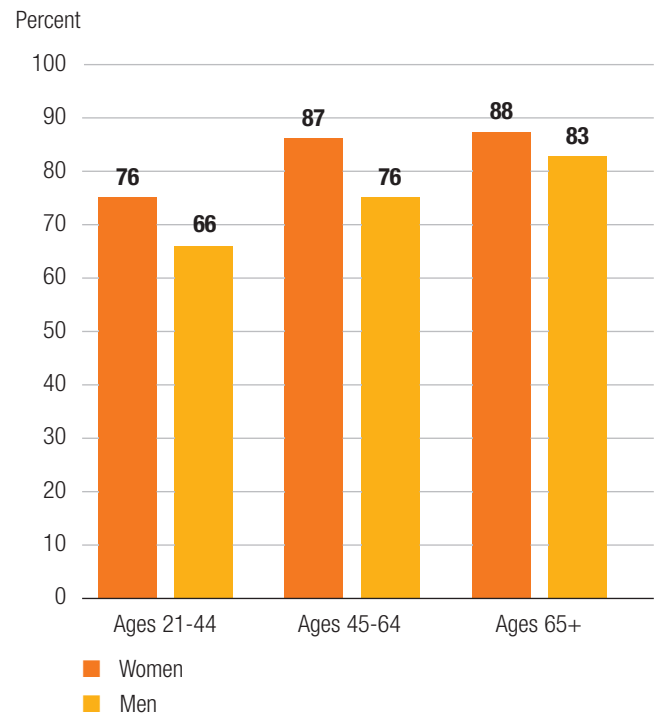
- **The majority of participants were aware of their high blood pressure.**
- **Women had a higher percentage of being aware of their high blood pressure.**

### Treatment for High Blood Pressure

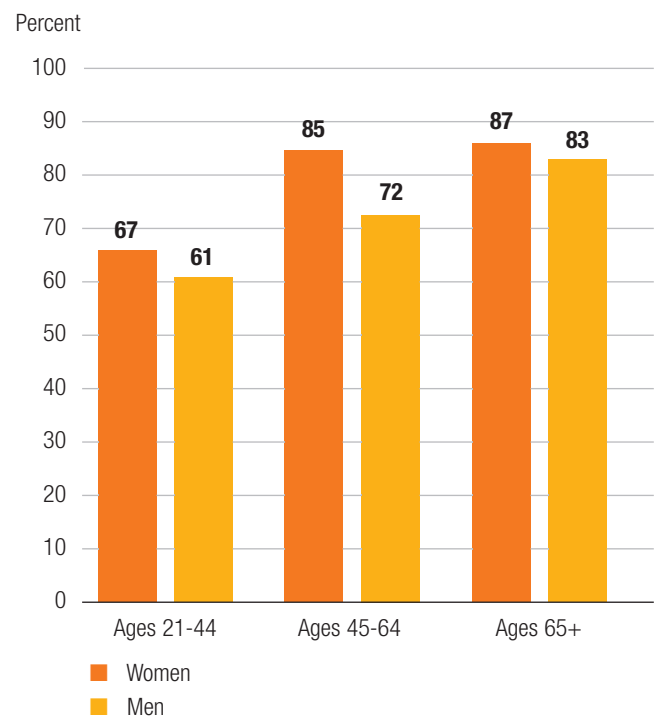
Among participants that were hypertensive, treatment for high blood pressure was defined as those participants who took blood pressure medications in the past 2 weeks before their exam. In the youngest age group, most participants, more than 61 percent, were treated for high blood pressure. In the middle-aged and older age groups, almost nine out of ten women and up to eight out of ten men were treated. In all age groups, women were slightly more likely than men to be treated.

- **The majority of hypertensive participants are being treated for their high blood pressure.**

**Figure 43. Percent of hypertensive women and men who were aware of their high blood pressure**



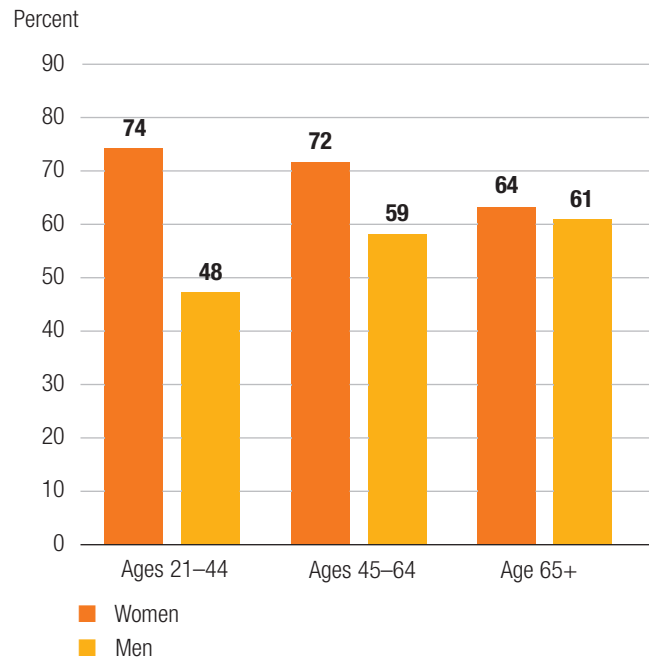
**Figure 44. Percent of hypertensive women and men treated for high blood pressure**



## Control for High Blood Pressure

JHS participants who had hypertension and were being treated for their high blood pressure and who had blood pressure levels less than 140/90 were considered controlled for high blood pressure. Women showed a greater percentage of being controlled compared to men in all age groups. Just less than 50 percent of men 21-44 years of age had their blood pressure under control compared to 74 percent of women 21-44. In the older age group (65 or more years of age), controlled blood pressure was about the same in both women and men.

**Figure 45. Percent of treated hypertensive women and men with their blood pressure under control**



One of the goals of Healthy People 2010 is to increase to 50 percent the proportion of adults with high blood pressure whose blood pressure is under control.

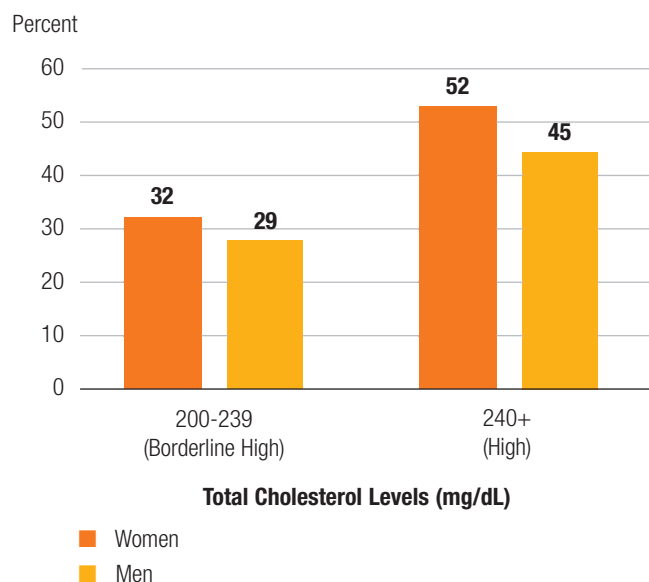
- In the JHS, 55 percent have their high blood pressure under control.

## Awareness of High Total Cholesterol

If a JHS participant reported that they were told by a doctor or health professional that they had high cholesterol, then that participant is aware of their high cholesterol. In women with blood cholesterol of 240 mg/dL or more, 52 percent were aware that they had high blood cholesterol. In men, the percentage was similar at 45 percent. However, roughly two-thirds of women and men with blood cholesterol of 200-239 mg/dL were not aware that their blood cholesterol was high.

- **More than half (52 percent) of all women in the highest total cholesterol level were aware of having high cholesterol.**

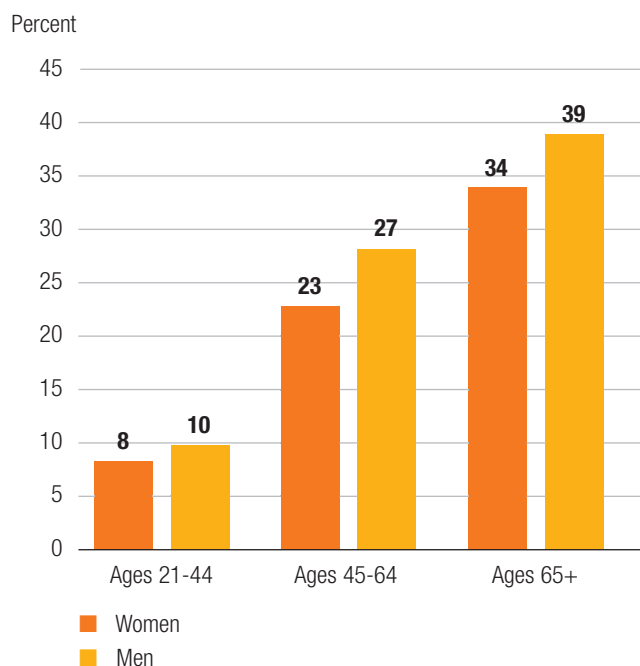
**Figure 46. Percent of women and men aware of their high cholesterol**



### Treatment for Total Cholesterol

JHS participants taking cholesterol-lowering medications were considered under treatment for their blood cholesterol. Cholesterol-lowering medications reduce or control high cholesterol levels. Among JHS participants with high total cholesterol (200 mg/dL or more), men were more likely to be treated than women, and older more likely than younger participants. Around 10 percent of participants 21-44 years of age with high cholesterol were treated whereas a little more than one-third of older participants (65 years of age or more) were treated. Compared to participants with hypertension (see Figure 44), significantly fewer participants with high cholesterol were treated.

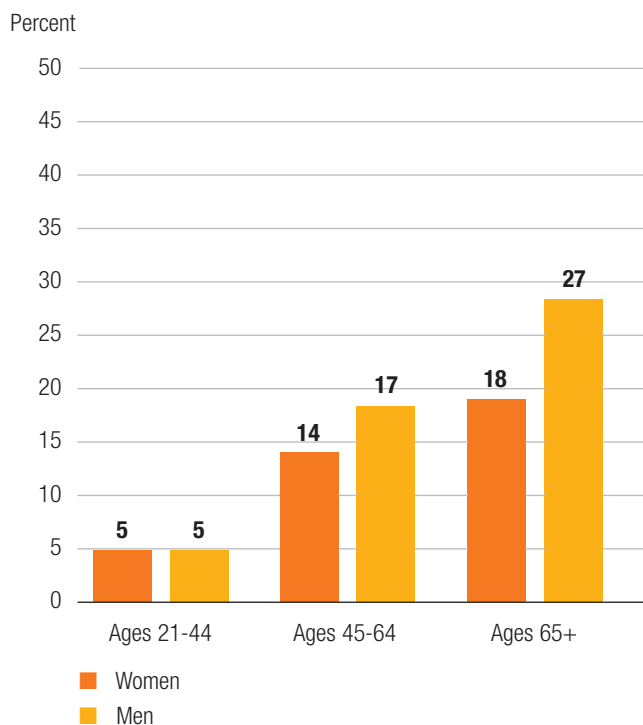
Figure 47. Percent of women and men with cholesterol over 200 mg/dL who were treated



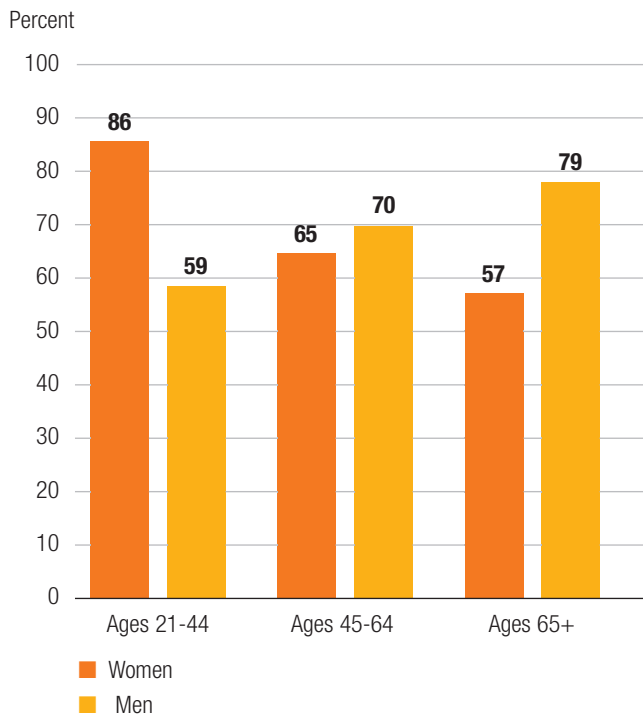
### Control of High Blood Cholesterol

Among all JHS participants with high blood cholesterol, control of the risk factor was fairly low since treatment rates were also low (see Figure 48). Control rates were similar in women and men, and increased with increasing age. Among JHS participants treated for high cholesterol, most had their cholesterol under control (see Figure 49). In women, control rates for those who were treated tended to decrease with increasing age. In women 21-44 years of age, control among those treated was 86 percent, while in women 65 or more years of age control was at 57 percent of those treated. Conversely, in men, control rates increased with increasing age. In men 21-44 years of age the control rate among those treated was 59 percent, and 79 percent percent in treated men 65 or more years of age.

Figure 48. Control of high cholesterol in women and men



**Figure 49 Control of high cholesterol in treated women and men**



## DID YOU KNOW

The United States Department of Health and Human Services' Agency for Healthcare Research and Quality recommends Five Steps to Safer Health Care:

1. Ask questions if you have doubts or concerns.
2. Keep and bring a list of all medicines you take to your doctor or pharmacist.
3. Get the results of any test or procedure.
4. Talk to your doctor about which hospital is best for your health needs.
5. Make sure you understand what will happen if you need surgery.

## Diet and Physical Activity



Improving diet and increasing physical activity are widely recognized as the two most important behaviors to improve risk factors. High blood pressure and high cholesterol are two strong risk factors for CVD and these can be lowered by changes in weight, fitness level and diet. An NHLBI-supported clinical trial, Dietary Approaches to Stop Hypertension (DASH), showed that a diet high in fruits and vegetables can reduce blood pressure even when a person's weight stays the same. Using the DASH diet with low sodium, systolic blood pressure was reduced by as much as 10 mmHg. A weight loss plan however, remains the most effective means to reducing high blood pressure, cholesterol and for lowering the risk of diabetes.

In this section of the Community Report, data on participant reported dietary and physical activity levels are presented based in relation to current recommended guidelines.

## Dietary Cholesterol

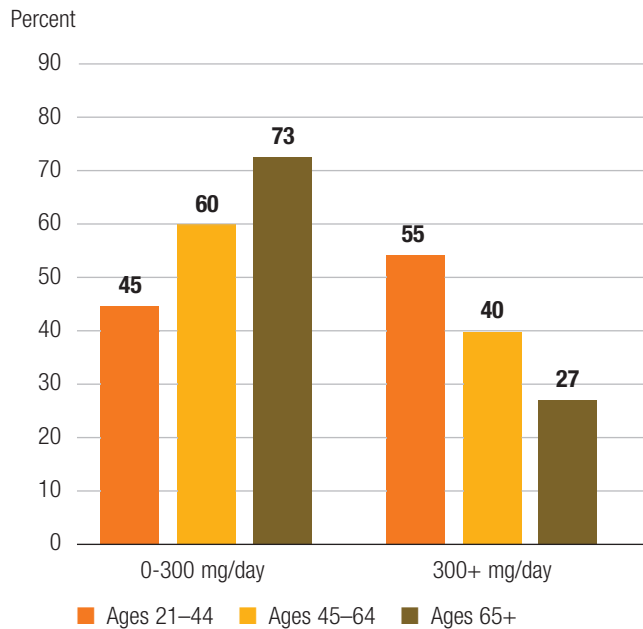
The American Heart Association 2006 Diet and Lifestyle Recommendations for CVD Risk Reduction recommends limiting dietary cholesterol to less than 300 mg per day. In JHS, women were more likely to reach targets for dietary cholesterol than men; however, in both women and men, the 21-44 age group showed the least compliance for reaching dietary cholesterol targets. The majority of men did not reach dietary cholesterol targets.

## DID YOU KNOW

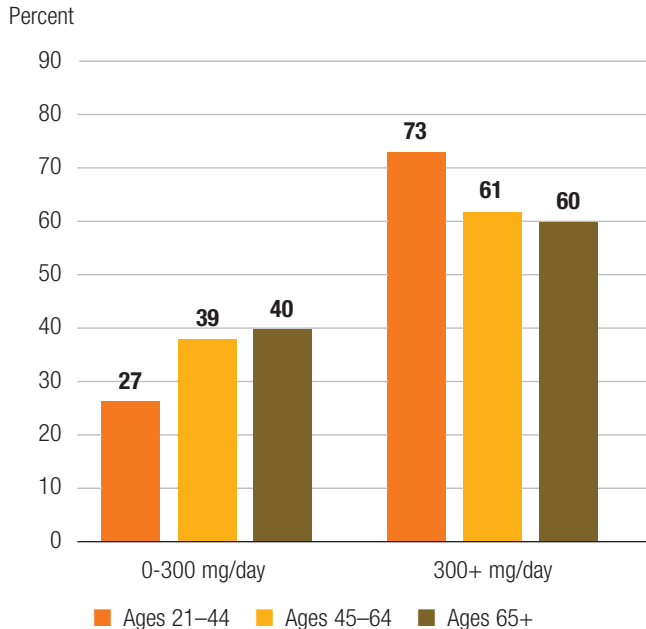
To achieve dietary cholesterol less than 300 mg/day, the American Heart Association recommends:

- Selecting lean meats and vegetable alternatives.
- Using fat-free (skim), 1 percent fat, and low-fat dairy products.
- Lowering the intake of partially hydrogenated fats.

**Figure 50. Percent of women with low and high dietary cholesterol**



**Figure 51. Percent of men with low and high dietary cholesterol**



- More than half of all men have a dietary cholesterol level greater than 300 mg per day.
- The 21-44 year old showed the greatest percentage in the greater than 300 mg per day dietary cholesterol level.

## Sodium Intake

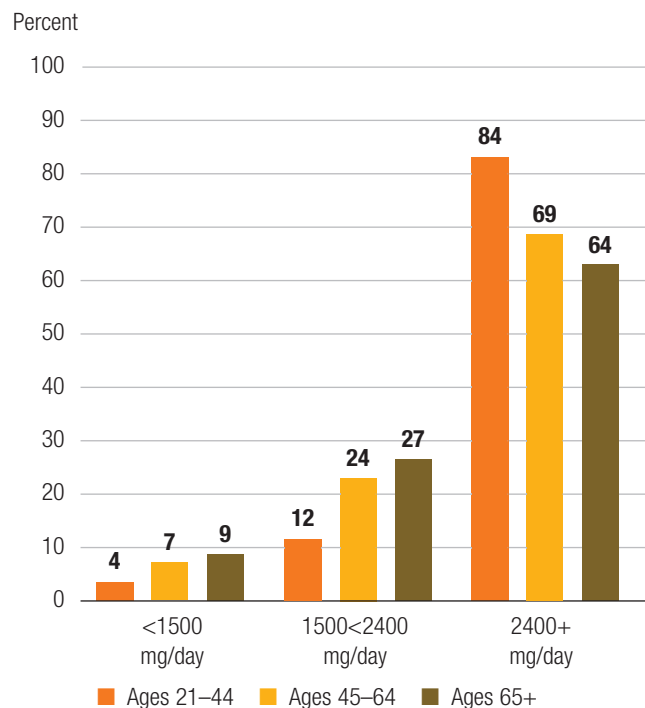
According to The National Heart, Lung, and Blood Institute, adults are recommended to consume less than 2,400 mg of sodium per day, which is equivalent to about 1 teaspoon of table salt. This includes all sodium used in cooking and at the table. For adults with high blood pressure, research has shown that reducing sodium intake to less than 1,500 mg per day has even better blood pressure lowering benefits. Women were more likely than men to meet targets for sodium; however, more than two-thirds consumed more than 2,400 mg of sodium per day. In men, more than 80 percent consumed more than 2,400 mg of sodium a day.

## DID YOU KNOW

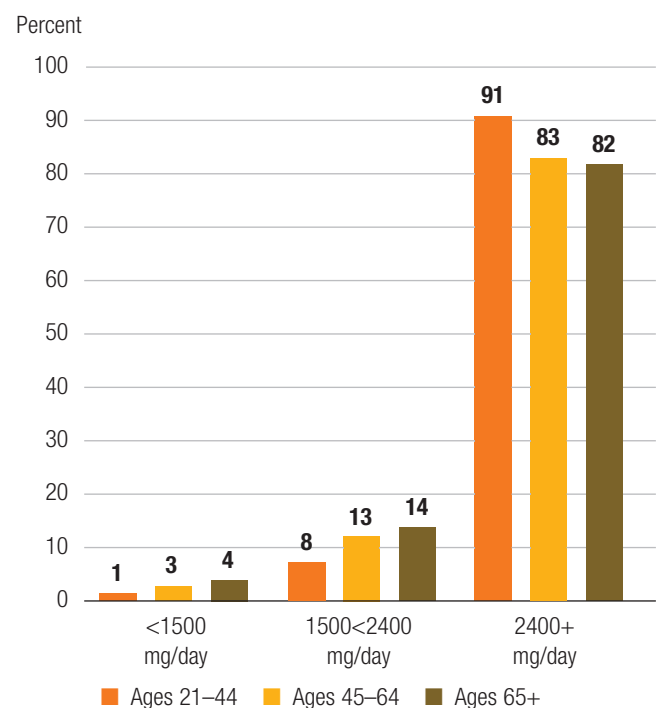
The NHLBI advises adults to lower the sodium in their diet:

- Buy fresh, plain frozen, or canned “with no-salt-added” vegetables.
- Use fresh poultry, fish, and lean meat rather than canned or processed types.
- Use herbs, spices, and salt-free seasoning blends in cooking and at the table.
- Cook rice, pasta, and hot cereals without salt. Cut back on instant or flavored rice, pasta, and cereal mixes, which usually have added salt.
- Choose convenience foods that are lower in sodium. Cut back on frozen dinners, pizza, packaged mixes, canned soups or broths, and salad dressings—these often have a lot of sodium.
- When available, buy low- or reduced-sodium, or no-salt-added versions of foods.

**Figure 52. Percent of women with low, medium and high sodium intake**



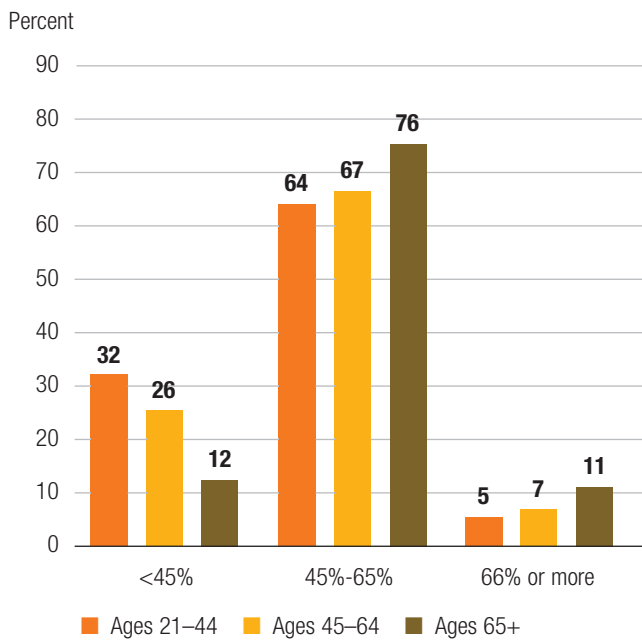
**Figure 53. Percent of men with low, medium and high sodium intake**



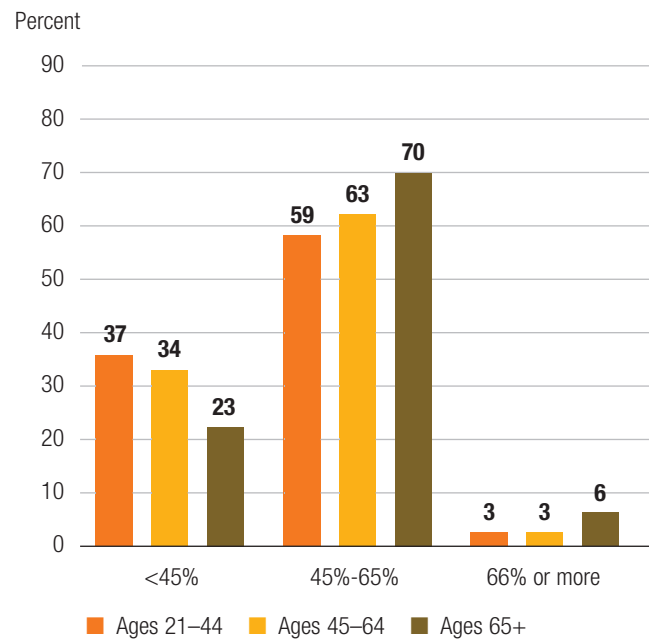
## Calories from Carbohydrates

The Institute of Medicine's 2002 Dietary Reference Intake indicates that adults should consume 45 to 65 percent of their total calories from carbohydrates to meet the body's daily nutritional needs while minimizing risk for chronic disease. The majority of JHS women and men did consume 45-65 percent of their calories from carbohydrates.

**Figure 54. Percent of calories from carbohydrates consumed by women**



**Figure 55. Percent of calories from carbohydrates consumed by men**

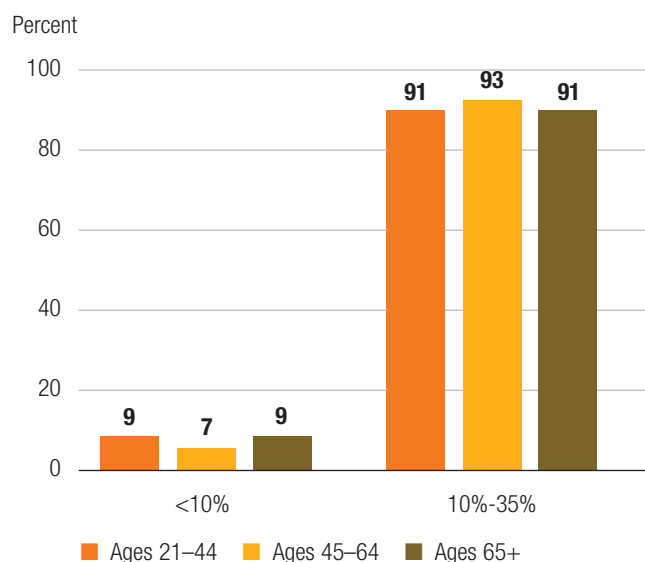




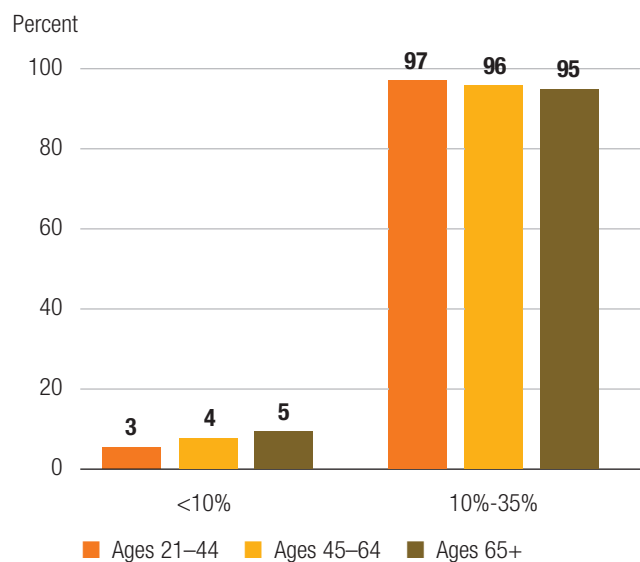
## Percent of Calories from Protein

The Institute of Medicine’s 2002 Dietary Reference Intake reports that adults should consume 10 to 35 percent of their total calories from protein to meet the body’s daily nutritional needs while minimizing risk for chronic disease. Nearly all (greater than 90 percent) participants met the 10 to 35 percent range for total calories from protein.

**Figure 56. Percent of calories from protein consumed by women**



**Figure 57. Percent of calories from protein consumed by men**



## HEART HEALTHY RECIPE

### Smothered Greens

- 3 cups water
- 1/4 pound smoked turkey breast, skinless
- 1 tablespoon fresh hot pepper, chopped
- 1/4 teaspoon cayenne pepper
- 1/4 teaspoon cloves, ground
- 2 cloves garlic, crushed
- 1/2 teaspoon thyme
- 1 scallion, chopped
- 1 teaspoon ginger, ground
- 1/4 cup onion, chopped
- 2 pounds greens (mustard, turnip, collard, kale, or mixture)

1. Place all ingredients except greens into large saucepan and bring to a boil.
2. Prepare greens by washing thoroughly and removing stems.
3. Tear or slice leaves into bite-size pieces.
4. Add greens to turkey stock. Cook 20 to 30 minutes until tender.

These healthy greens get their rich flavor from smoked turkey, instead of fatback.

Yield	5 servings
Serving size	1 cup
Calories	80
Total fat	2 g

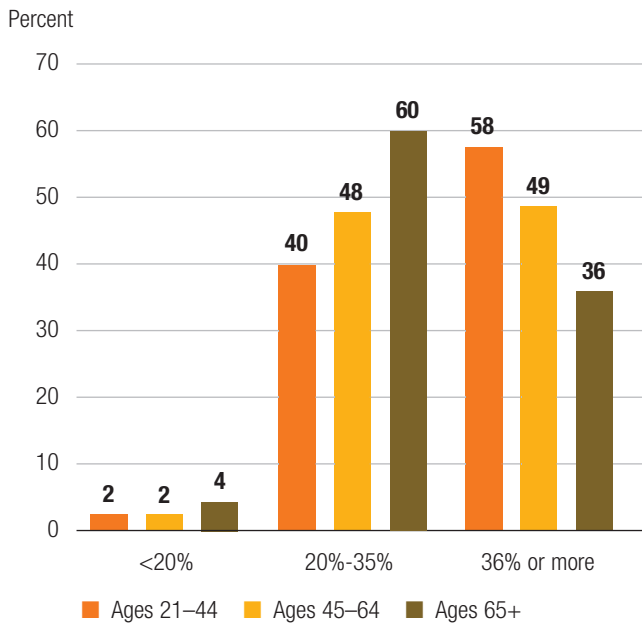
Saturated fat	0 g
Cholesterol	16 mg
Sodium	378 mg

Total Fiber	4 g
Protein	9 g
Carbohydrates	9 g
Potassium	472 mg

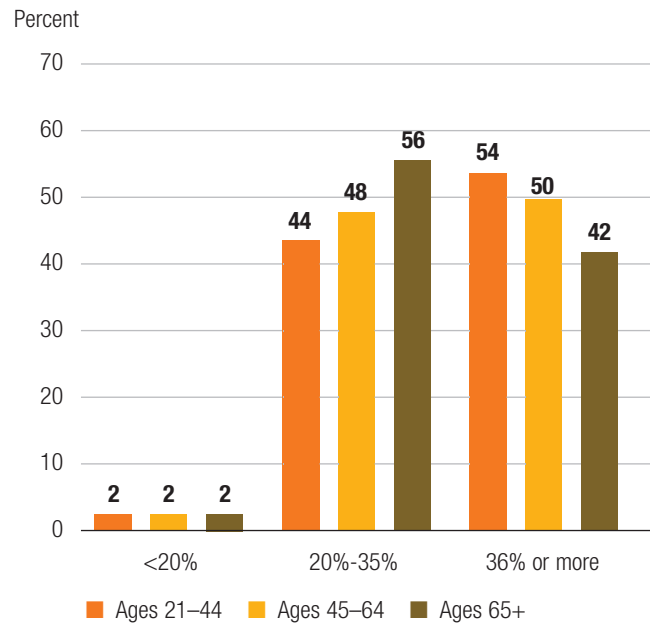
## Percent of Calories from Fat

Avoiding saturated fats and trans fatty acids can help reduce cardiovascular risk. Saturated fats can increase the LDL or bad cholesterol while trans fats can both raise LDL cholesterol and also lower the HDL or good cholesterol. The Institute of Medicine's 2002 Dietary Reference Intake suggests that adults should consume 20 to 35 percent of their total calories from fat to meet the body's daily nutritional needs while minimizing risk for chronic disease. In both women and men, younger participants (21-44 years of age) were more likely to consume more than 35 percent of their calories from fats. About half of middle aged participants (45-64 years of age) consumed 35 percent or more of calories from fats and the 65 or older age group were the most likely to consume less than 35 percent of their calories from fats.

**Figure 58. Percent of calories from fat consumed by women**



**Figure 59. Percent of calories from fat consumed by men**



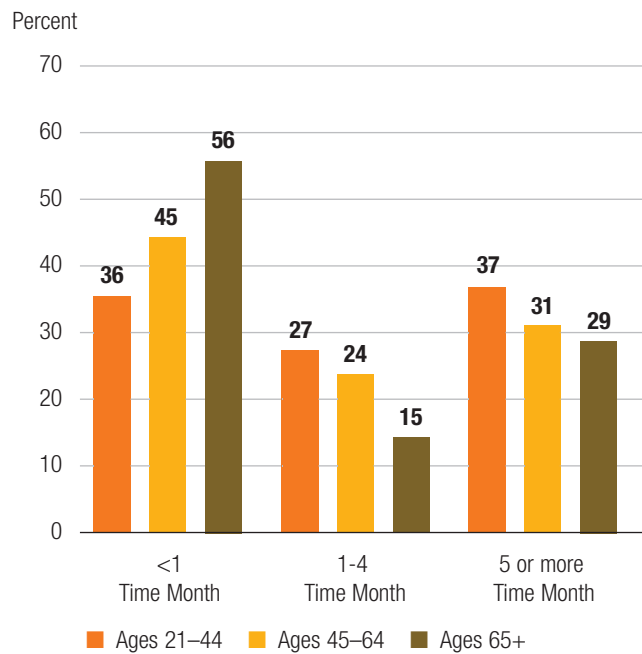
## Physical Activity

The 1996 publication “Physical Activity and Health: A report of the Surgeon General” concludes that, “The epidemiologic literature supports an inverse association and a dose-response gradient between physical activity level and CVD in general and coronary heart disease in particular.” The report therefore indicates that even with moderate amounts of low-intensity exercise, such as walking on a regular basis, there are benefits for lowering the risk of heart disease, but that increasing the amount or intensity of the exercise leads to even greater benefits.

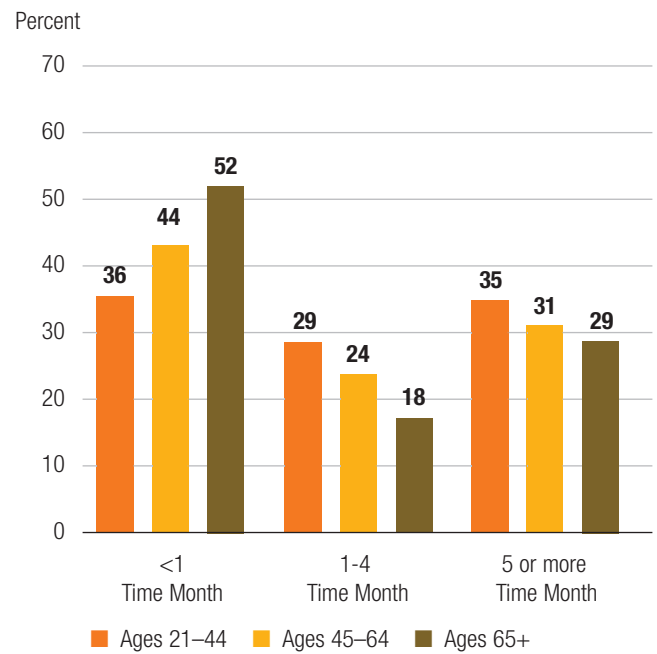
## Number of Leisure Walks Per Month

Physical activity was assessed by how often during leisure time a participant walked for at least 15 minutes. Participants could report either less than once a month, once a month, two-three times a month, once a week, or more than once a week. Participants were grouped into those who leisurely walked less than once a month, one to four times a month and 5 or more times a month. Engaging in leisure walking five or more times per month was less frequent in older persons.

**Figure 60. Percent of women walking rarely, moderately or frequently**



**Figure 61. Percent of men walking rarely, moderately or frequently**

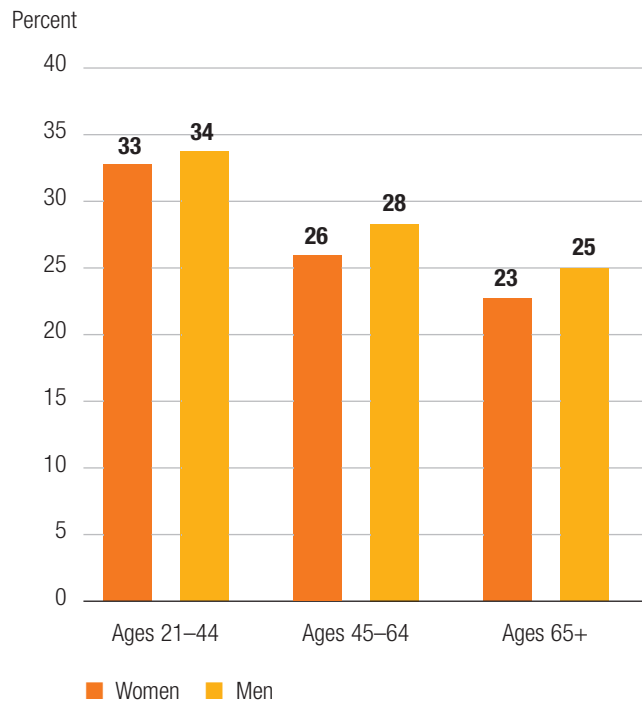


### Number of Times Exercised Per Week

Physical activity was collected from participants based on self-report. Participants were asked how often they exercised in their free time (at least 20 minutes without stopping that was hard enough to make their heart rate and breathing increase a large amount). Participants 21-44 years of age were most likely to exercise three or more times per week; however, the majority of all participants exercised less than three times per week. Approximately one-third of 21-44 year old participants exercised three or more times per week, while one-fourth of participants 65 years of age or more exercised three or more times per week.

- **The majority of participants exercised less than 3 times per week.**

**Figure 62. Percent of women and men exercising 3 or more times per week**



One of the goals of Healthy People 2010 is to 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 percent.

- In the JHS, 26 percent exercised vigorously for at least 20 minutes 3 or more times per week.

## HEART HEALTHY RECIPE

### Classic Macaroni and Cheese

2 cups macaroni  
2 cups onions chopped  
2 cups evaporated fat-free milk  
1 medium egg, beaten  
1/4 teaspoon black pepper  
1 1/4 cups low-fat sharp cheddar cheese,  
finely shredded  
nonstick cooking oil spray

1. Cook macaroni according to directions. (Do not add salt to the cooking water.) Drain and set aside.
2. Spray a casserole dish with nonstick cooking spray.
3. Preheat oven to 350 °F.
4. Lightly spray saucepan with nonstick cooking spray.
5. Add onions to saucepan and sauté for about 3 minutes.
6. In another bowl, combine macaroni, onions, and the remaining ingredients and mix thoroughly.
7. Transfer mixture into casserole dish.
8. Bake for 25 minutes or until bubbly. Let stand for 10 minutes before serving.

Yield	8 servings
Serving size	1/2 cup
Calories	200
Total fat	4 g

Saturated fat	2 g
Cholesterol	34 mg
Sodium	120 mg

Total Fiber	1 g
Protein	11 g
Carbohydrates	29 g
Potassium	119 mg

## DID YOU KNOW

Healthy People 2010 recommends that adults engage in a vigorous physical activity 3 or more days per week for 20 minutes or more per occasion.

According to the President's Council on Physical Fitness and Sports:

- Moderate daily physical activity can reduce substantially the risk of developing or dying from CVD and type 2 diabetes.
- Daily physical activity helps to lower blood pressure and cholesterol, reduce obesity, and symptoms of anxiety and depression.
- Physically inactive people are twice as likely to develop CHD as regularly active people.

# 6

## Sleep and Depression



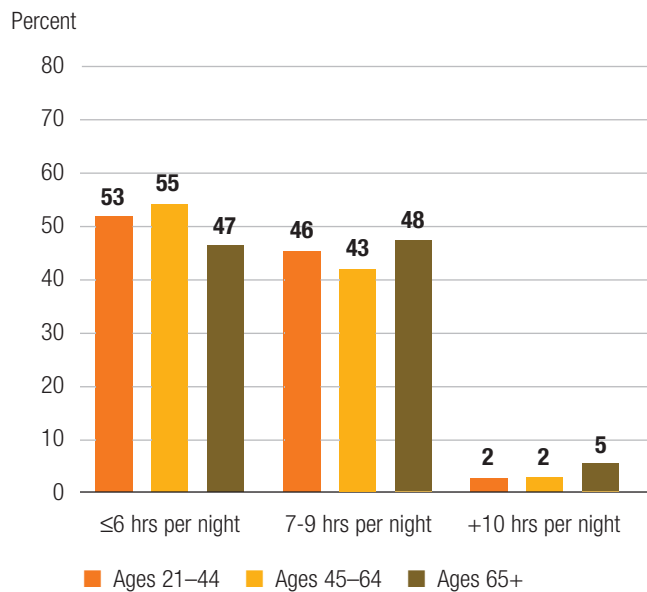
A chronic lack of sleep can lead to a variety of health and life quality problems. A chronic lack of sleep can lead to a depressed immune system, weight gain due to changes in metabolism, and changes in mood such as irritability and being unable to concentrate. A lack of sleep can also cause memory problems in that we store our memories, such as new tasks, during sleep. Serious sleep disorders have been linked to cardiovascular risk factors such as hypertension. One major cause of sleep problems and sleep disorders is obesity; however, studies also show that restricting sleep can lead to obesity in that the loss of sleep alters the way the body regulates appetite and makes people less likely to exercise.

Depression is a relatively common disorder that affects life quality, but can also be a risk factor for CVD. The manner in which depression may impact a person's risk for heart disease is still unclear; however, depression may affect the heart through chronically elevated stress hormones.

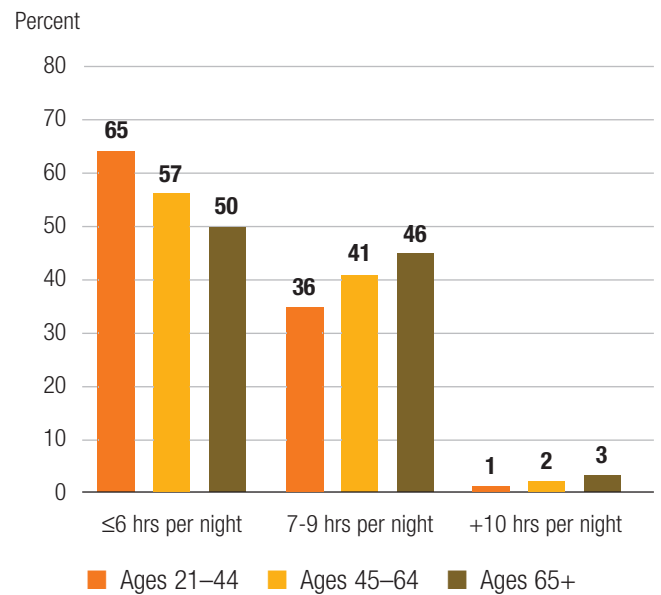
## Hours of Nightly Sleep by Age Group

Eight hours of sleep per night is the recommended duration for a person to become fully rested and refreshed from a day's worth of activities. However, individual needs vary and are determined by quality of sleep, sleep hygiene (daily activities you control like exercising or smoking), genetic need, and the circadian rhythm (24 hour daily cycle). Among all women, half reported receiving 6 hours or less of sleep each night. While greater than 40 percent slept 7-9 hours. In men, nearly two-thirds of those 21-44 years of age slept 6 or fewer hours each night and half of those 65 or more years of age slept for 6 hours or less.

**Figure 63. Percent of women with short, medium, or long sleep duration**



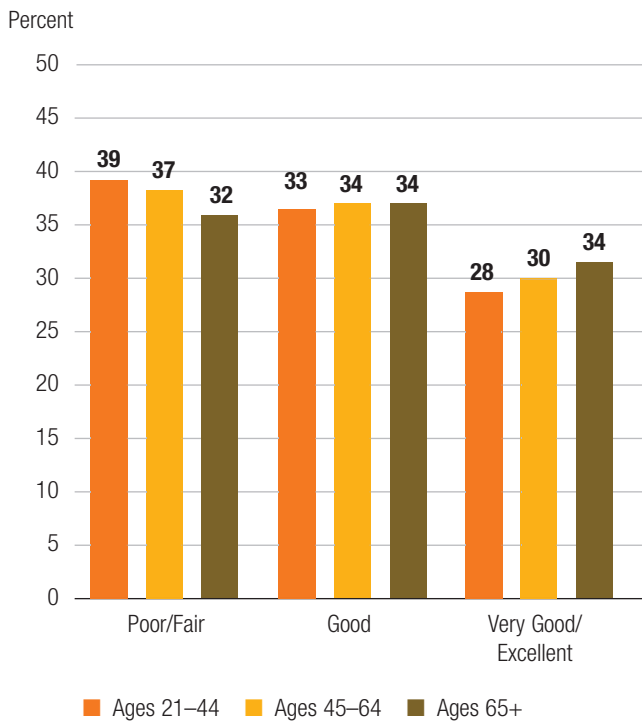
**Figure 64. Percent of men with short, medium, or long sleep duration**



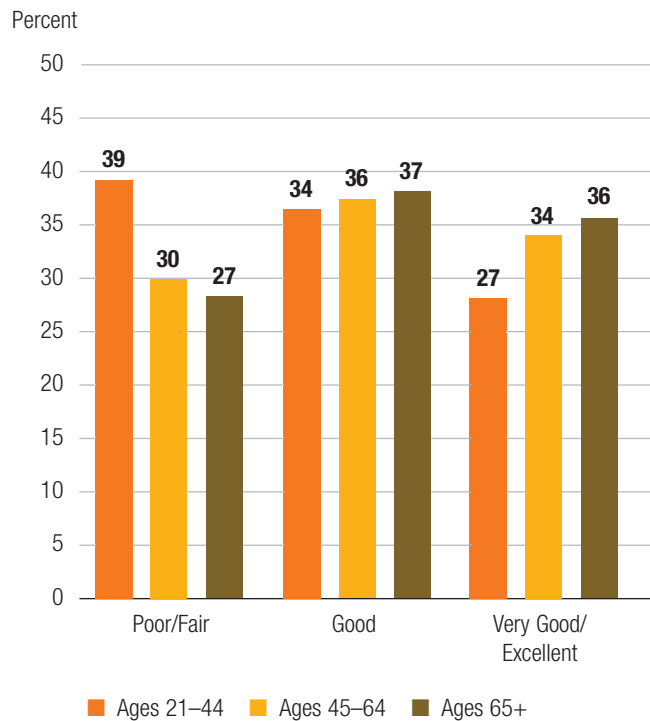
## Sleep Quality by Age Group

JHS participants rated their quality of sleep as either poor, fair, good, very good, or excellent. In both women and men 21-44 years of age, approximately two in five reported sleep quality that was fair or poor. Older participants (65 or more years of age) were slightly less likely to report fair or poor sleep quality. Men and women were mostly similar in their reported quality of sleep, though women 45 and older reported a little more poor quality sleep than men.

**Figure 65. Percent of women with poor to excellent sleep quality**



**Figure 66. Percent of men with poor to excellent sleep quality**

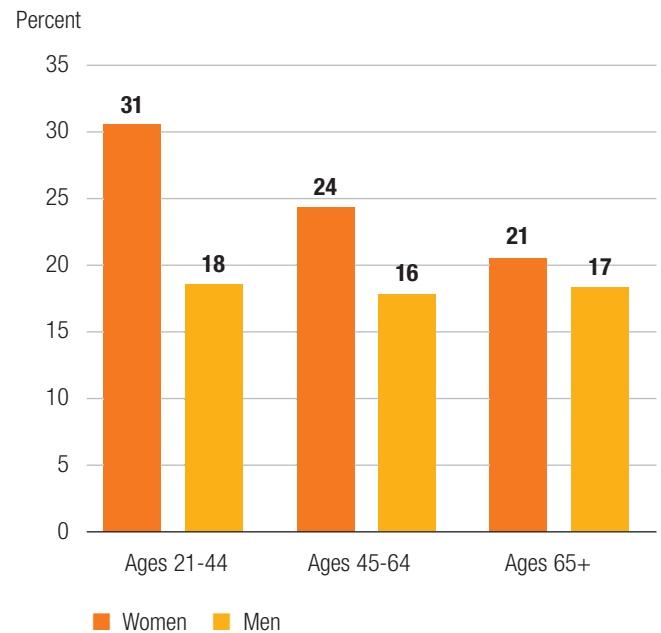




## Symptoms of Depression

Depression and heart disease tend to be two serious illnesses that go together. The National Institute of Mental Health reports that about 1 in 20 people will suffer major depression in the course of a year. For people with heart disease, about one in three will experience major depression. Other studies have found that those with depression are more likely to have a heart attack than those without depression. Only a doctor can diagnose depression, however, the Center for Epidemiologic Studies (CES) has developed a self-administered questionnaire designed to measure feelings and behaviors associated with depression. Based on the responses to the CES questionnaire, women were more likely than men to have feelings or behaviors associated with depression. About 3 in 10 women 21-44 years of age had feelings or behaviors associated with mild to severe depression compared to about 2 in 10 men 21-44 years of age. In older participants (65 or more years of age) women were only slightly more likely (21 percent in women compared to 17 percent in men) to have feelings or behaviors of depression. Although feelings or behaviors of depression tended to decline with age in women, the proportion of men with depressive feelings or behaviors was constant across all age groups.

**Figure 67. Percent of women and men with reported symptoms of depression**



# 7 Summary



*Paintings by Johnnie M. Gilbert*

Investigating the natural history and course of CVD in African Americans is a prominent feature of the JHS. CVD is the leading cause of death for African Americans and African Americans also tend to have high rates of hypertension, diabetes, and high total cholesterol which have been shown to be major risk factors for both heart attacks and strokes. Among JHS participants, three out of five have hypertension, one in five has diabetes, one in four has elevated LDL (or bad) cholesterol and one in three has a level of HDL (or good) cholesterol that is too low. Both genetics and the environment play important roles in governing the complex relationships between behaviors, risk factors and CVD. Therefore, investigators with the JHS have collected data on issues such as coping strategies, stressful situations, perceptions of discrimination, access to health care, medical history, and community characteristics to gain further knowledge on how the environment may affect the risk for CVD.

A second prominent feature of the JHS is a program for community outreach. Awareness that a risk factor is high is a critical first step in reducing the chance of

a heart attack or stroke. Among JHS participants with hypertension, nearly 9 in 10 were aware of their hypertension; however, only 2 in 5 participants with high cholesterol were aware that their cholesterol was high. Increasing knowledge at the community level on preventing CVD and promotion of healthy activities is a strong goal of the community outreach program. Through a network of health advisors, the JHS seeks to promote health awareness and deliver the crucial health information to the community.

A third feature of the JHS is a program designed to increase the number of African American health professionals. The undergraduate training center at Tougaloo College has a number of programs in place designed to increase the opportunities for undergraduate students to participate in health-related graduate activities.

Through the integrated components of research, community outreach, and training, investigators with the JHS will gain critical knowledge on the nature of CVD in African Americans while simultaneously positively affecting the community.

*“My first experience with cardiovascular disease was when my grandfather suffered a heart attack and died. I was too young at that time to fully understand what having a “heart attack” meant. It wasn’t until a few years ago that my neighbor died of a heart attack that I experienced the devastation of losing a loved one to heart disease. She looked so healthy. It was a shock when she died so suddenly. She was the first female that I had ever known to die from cardiovascular disease. I had always thought of cardiovascular disease mostly affecting men, but as I began to research the subject, I found out that women are also at risk. When I came to work here, I recognized that we have a unique opportunity through our research to help so many people. I feel blessed to be a part of the JHS family. My hope and daily prayer is for the continued success of the JHS and that we will be able to achieve all of our goals.”*

Debra Douglas, LMSW, JHS Social Worker

*“So many families have been affected by cardiovascular disease. Mine is no different.*

*I became acquainted with the JHS as the first graduate research assistant for the Coordinating Center. Today, I am so blessed to be a part of the JHS Family as both a participant and as an employee. At this point in my life, I could not have dreamed of a more exciting place to be that is also fulfilling so many needs in the African American Community. ”*

Wendy White, MPH, Co-Investigator UTC Training Center, Tougaloo College



Enter the Beginners by Johnnie M. Gilbert

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*“I became a member of the JHS family in 2004, working as an outreach specialist. This experience has been very rewarding. I have become more aware of the effects of CVD in our community. It has now become a mission to help my community, family and self become heart healthy. In Canton, we Community Health Advisors (CHAs) now have a health walk every quarter, during this time we encourage the community folks to come out and walk for a healthy heart.”*

Darcel E. Thigpen, Outreach Specialist, JHS



Greatest Bond by Johnnie M. Gilbert





**For More Information**

The NHLBI Health Information Center is a service of the National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health. The NHLBI Health Information Center provides information to health professionals, patients, and the public about the treatment, diagnosis and prevention of heart, lung, and blood diseases and sleep disorders. For more information, contact:

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National Institutes of Health



**National Heart  
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NIH Publication No. 08-5848  
September 2008