

RACIAL AND ETHNIC DIFFERENCES IN HEART DISEASE

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INTRODUCTION

Despite its decline in the past few decades, cardiovascular disease remains the leading killer of Americans, regardless of race or ethnic background. While minorities—African-Americans in particular—may suffer as often as whites from heart disease and stroke, they do not seem to share equally in the medical progress against these conditions.

Lack of research on minority populations makes difficult any generalizations about racial and ethnic differences. The data gathered on heart disease among African-Americans, for example, constitute only a small fraction of that available on whites, at the time of this writing. It is expected that the National Institutes of Health will shortly undertake to provide new information on this issue.

Within the African-American population, the impact on health of regional, socioeconomic, and other distinctions has yet to be adequately explored. As for other ethnic groups, such as Hispanics or Asians, even less is known. Limited research has been done on Hispanics, and what little has been done varies. Mexican-Americans in Texas, for example, differ in

many ways from Cubans in Florida, who in turn are different from Puerto Ricans on the East Coast. Data from one Hispanic group, then, cannot be used to draw conclusions about the others.

QUESTIONS IN SEARCH OF ANSWERS

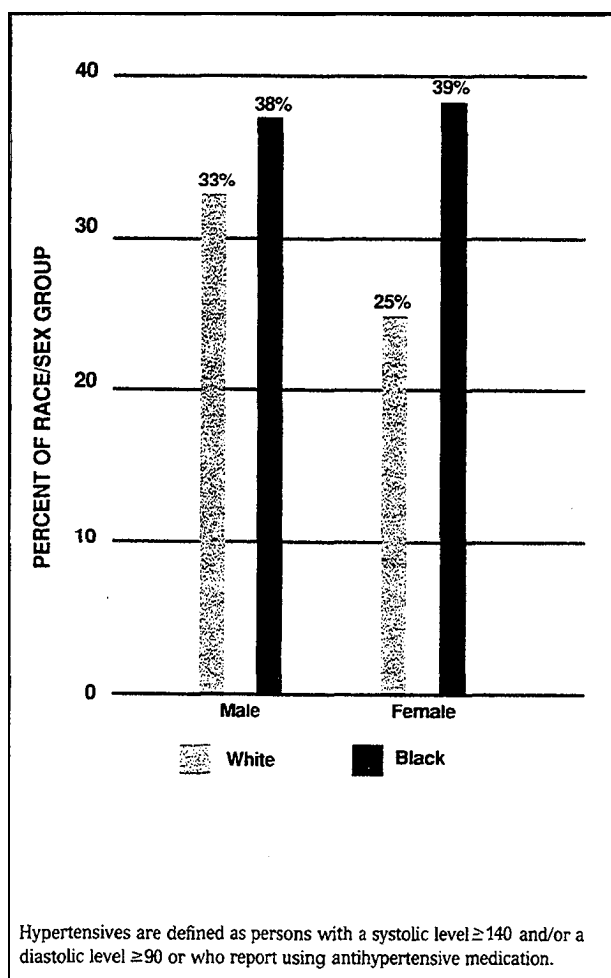
In 1984, a group of leading epidemiologists (scientists specializing in the comparison of disease rates among different population groups) outlined the most important gaps in knowledge of heart disease in U.S. minorities. These questions are guidelines for present and future research:

- Do rates of coronary heart disease in African-Americans differ from those in U.S. whites, independent of the effects of known risk factors?
- Specifically, do African-American men have lower heart disease rates than white men? If so, can this be explained by higher levels of HDL cholesterol ("good" cholesterol) or higher lev-

els of physical activity in African-American men than in white men?

- How valid are the data that suggest significantly higher rates of heart disease in African-American women than in white women? If the data are valid, is greater obesity among blacks the cause?
- Is socioeconomic status a risk factor for coronary heart disease among African-Americans? If so, is its effect independent of other known risk factors such as smoking and high blood pressure?
- What are the reasons for the higher rates of high blood pressure—particularly severe high blood pressure—in African-Americans than in whites? (See Figure 22.1.)

Figure 22.1
Estimated Percent of Population with Hypertension by Race and Sex, U.S. Adults Age 18-74



Source: National Health and Nutrition Examination Survey II 1976-80.

HEART DISEASE: A DIFFERENT PICTURE ?

In 1980, African-Americans constituted about 11.5 percent of the U.S. population. The prevalence of coronary heart disease (CHD)—that is, the number of people who have coronary heart disease during a given year divided by the total number of people at risk for it (30 million in this case)—among African-Americans in the United States is similar to that among whites.

African-Americans may have somewhat different forms of coronary heart disease, such as a higher rate of “silent” (undetected) heart attacks in which no obvious symptoms are reported. They also may show certain types of electrocardiographic abnormalities more often than whites. Although the chances of having a heart attack are similar among African-Americans and whites, in African-Americans a heart attack is more likely to be fatal.

Death rates from both heart attack and stroke have declined in the past 25 years among both blacks and whites in the United States, probably because of a combination of better prevention, detection, and treatment of certain risk factors and the attacks themselves. However, African-Americans have lagged in comparison to whites in the rate of that decline. (See Table 22.1 and Figure 22.2.)

Although the death rates from diseases of the heart have declined for African-American men and women, the drop has been less than in white Americans. In 1988, the last year for which there is published information, African-American heart disease death rates were much higher than those in whites.

Table 22.1
Racial Differences in Death Rates from Heart Diseases, Age-Adjusted

Race and Sex	Deaths per 100,000 resident population				
	1970	1980	1986	1987	1988
All groups	253.6	202.0	175.0	169.6	166.3
White male	347.6	277.5	234.8	225.9	220.5
Black male	375.9	327.3	294.3	287.1	286.2
White female	167.8	134.6	119.0	116.3	114.2
Black female	251.7	201.1	185.1	180.8	181.1

Source: National Center for Health Statistics, National Vital Statistics System.

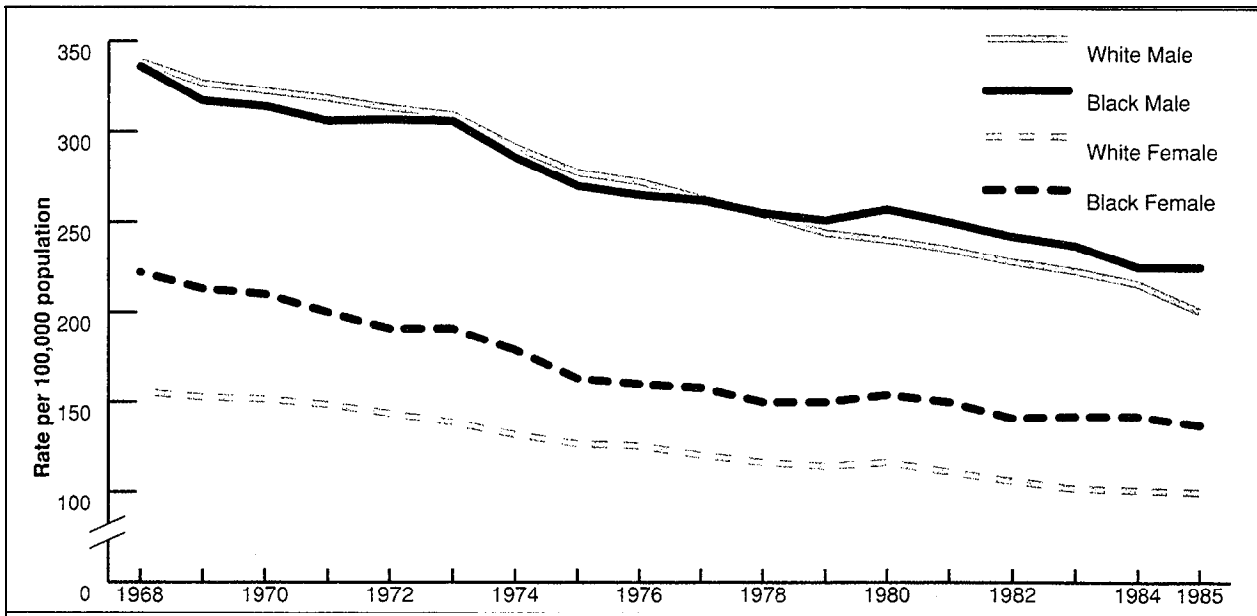


Figure 22.2
Rate of Coronary Heart Disease for All Ages, United States, 1968-1985

Source: National Center for Health Statistics, National Vital Statistic System,

In attempting to analyze the meaning of such trends, researchers first try to determine whether coronary heart disease occurs more or less often in minority groups and whether the disease itself is more severe. Also under scrutiny are the accepted risk factors for coronary heart disease. High blood cholesterol, smoking, and hypertension were identified as risks through research on overwhelmingly white populations, but they may not have the same effect on the heart health of other ethnic groups in the United States.

Possible reasons for variations include different risks for minorities, reduced access to medical care or limited ability to pay for it, and the possible stresses produced by disadvantage in education, jobs, and housing. The effects of “multiple jeopardy,” in the form of negative environmental, social, and economic conditions early in life, maybe reflected in the fact that African-Americans have higher levels of sickness, disability, and death than whites in every age group. There may also be genetic differences that could account for some varying disease patterns.

RISK FACTORS: HOW AFRICAN-AMERICANS COMPARE

Although some cardiovascular risk factors may be the same or less threatening in the African-American community, others are more marked. For instance, high blood pressure and diabetes may be even more

important coronary risks for African-Americans than for whites, and African-American women are at particularly high risk of obesity (which can lead to both high blood pressure and diabetes).

Rates of high blood pressure are the most important difference yet documented between African-Americans and whites. Not only do more African-Americans have high blood pressure, but they also suffer disproportionately from its adverse health effects.

As a rule, African-Americans and whites seem to have roughly equivalent levels of total and LDL (“bad,” or artery-clogging) cholesterol. African-Americans, however, have been shown in some (but not all) studies to have higher levels of HDL or “good cholesterol, which may serve to offset some of the risk from other factors, such as hypertension. Whether HDL really cancels out or modifies other risks among African-Americans, though, is unproved, and, of course, this does not appear to protect African-Americans from an increased incidence of strokes or kidney failure as a result of hypertension.

Smoking appears to have the same devastating effects on the cardiovascular system of African-Americans and whites. In past decades, smoking was believed to be less common among African-Americans, and those who did smoke were believed to use fewer cigarettes than white smokers. More recent data indicate a rising proportion of African-American smokers as quitting rates increase faster among whites than African-Americans. High alcohol consumption is another risk for high blood pressure and

stroke; available data indicate that African-Americans are more likely to be heavy drinkers (or total abstainers) than whites.

Obesity is a known risk for African-American women from middle age onward and may contribute significantly to the increased presence of hypertension. Excess weight has also been shown to be an independent risk factor for heart disease, regardless of other and possibly related risks like diet or lack of physical activity. One study found that 50 percent of African-American women aged 24 to 55 were obese (defined as 20 percent or more above desirable weight), compared to 22 percent of white women in the same age group. (Racial differences in obesity between African-American and white men are negligible.) In a 1982 survey done in New Haven, Connecticut, the average older African-American woman was about the same height as the average older white woman, but weighed 17 pounds more—a significant added burden for the heart and vascular system. Because African-American women report consuming fewer calories on average than white women, the possibility exists that a metabolic difference may contribute to their obesity.

Statistics on African-American/white differences regarding physical activity and type of diet are conflicting and confusing. Traditionally, it was believed that African-Americans were more active physically than whites because of their greater likelihood of having jobs that involved hard physical labor. This perception may be outdated.

Data on diet patterns by race are also somewhat inconclusive. The high-fat, high-salt diet of rural Southern African-Americans is no longer the standard; as African-Americans have become urbanized, their diet has more and more come to resemble that of other Americans. Some differences remain, however. Dietary surveys and market research suggest that African-Americans do not consume as much milk as whites, partly because of their higher rates of lactose intolerance, a condition that makes it difficult to digest milk sugar. African-Americans also are more likely to eat salty snacks and cook with hard (saturated) fats such as lard.

It seems logical that the effects of poverty might serve to erode good nutrition, even with government support programs; the kinds of “heart-healthy” diets often promoted by health authorities include large amounts of lean meat and fish, fresh fruits and vegetables, and complex carbohydrates, foods that may prove too expensive for many African-Americans.

Diabetes mellitus, another established risk for heart disease in whites, strikes African-Americans

even harder and may raise their cardiac risk accordingly. African-Americans make up 15 percent of all Americans who have diabetes; their prevalence rate of the disease per 1,000 people is about 32, compared to about 24 for whites. In both races, diabetes is more common with advancing age, and in most studies it is more common among women than men. But in all adult age/sex categories, diabetes is 33 percent higher among African-Americans than among whites. According to government statistics for 1979 to 1981, the rate of diabetes in African-American men was 16 percent higher than in white men, but the rate in African-American women was 50 percent higher than in white women. The high prevalence of obesity among African-American women is believed to account for at least some of these disparities. Diabetes is also a frequent companion to other cardiovascular risks, such as hypertension.

THE MEANING OF RACE

An enduring controversy in the study of racial health differences centers on the role of race itself, versus other factors closely linked to race—economic position, community stability, and life outlook. Is race nothing more than a set of genetically transmitted characteristics, such as skin color? Or is race, for the purposes of public health discussions, a more complex entity involving socioeconomic status, education, life-styles, beliefs, and culture?

How to separate these factors from purely genetic ones in evaluating medical research remains a difficult task. Confounding the issue is the changing effect of race over time—both positively (as in civil rights and occasional socioeconomic gains) and negatively (as reflected in urban ills like rising rates of crime, AIDS, and drug abuse). Furthermore, many African-Americans are descended at least in part from persons of both European and Native American ancestry, making genetic hypotheses tenuous.

The well-being of African-Americans has improved over the past half century, but remains significantly below that of whites. Life expectancy for both races has risen, but a gap persists.

To isolate the health effects of past and continuing inequality is difficult indeed. Are African-Americans more prone to die from heart disease because the disease follows a different and more severe course among them, or because they are exposed to more risk factors, or because they have poorer access to

medical care? Is health behavior by African-Americans a contributing factor? Investigators warn that these open questions, combined with the available statistics on minority health, make it unwise to attempt any sweeping generalizations about African-Americans and cardiovascular disease until more research has been completed.

THE MEANING OF ETHNICITY

The study of heart disease among various ethnic groups is complicated by many variables, not the least of which are diet and life-style changes undergone by many minority group members as they assimilate, over several generations, into the American “melting pot.” This process of assimilation may have positive implications for overall health, such as increasing affluence that allows better access to medical care and more adequate nutrition. But cardiovascular disease is a disease of affluent, industrialized societies, and minorities who partake of America’s characteristic diet, rich in fat and animal protein, and sedentary life-style may find their low “native” heart disease rates on the rise.

For example, one landmark study of the effect of diet on blood cholesterol and coronary heart disease compared Japanese people in Japan with Japanese who had moved to Hawaii and San Francisco. The Japanese have a typically low dietary intake of total fat, saturated fat, and dietary cholesterol, reflected in their low levels of blood cholesterol and low rates of coronary heart disease (the lowest, in fact of any industrialized nation). As the immigrant groups changed over to a typically American diet, however, their blood cholesterol levels and coronary heart disease death rates came to resemble the American average. Despite their similar genetic backgrounds, differences in environment-diet in particular—made them more “American” than “Japanese” in relation to heart disease.

While data are lacking, it is probable that many other ethnic minorities undergo changes in cardiovascular risk profile, not only when they enter American life, but as they make their way up the ladder of economic and social progress. The Chinese diet in China, for example, was shown in recent research to be very low in fat and cholesterol (and high in complex carbohydrates such as rice and vegetables) in many regions and associated with low rates of heart

disease. But Chinese food as prepared and consumed in most American restaurants is high in fatty meats that are less available to poorer, rural populations and emphasizes high-fat, high-calorie methods of preparation such as double-frying.

The diet of many Mediterranean countries, such as Italy and Greece, is associated with a relatively low rate of coronary heart disease, but it is unknown whether this protection has carried over into American life among families of Italian and Greek descent.

It does seem true, however, that while people who migrate from a country with low rates of heart disease to a country with higher rates may experience an increase in heart attacks, they still maintain a lower rate than natives of the new country. This has been reported in the cases of Norwegian-Americans and Yemenite Jews who migrated to Israel.

Many aspects of life-style and health among ethnic groups await further examination, including the effects of stress, alcohol use, levels of “good” and “bad” (HDL and LDL) blood cholesterol, and blood pressure. Some populations do seem genetically prone to obesity; but the easy availability of high-calorie foods in the United States, combined with almost universal access to television (with its combination of inactivity and junk-food advertising), make the impact of American life hard to separate from inherited susceptibility to weight gain and its associated risks. Some heart disease risks, including obesity and smoking, have been shown to decrease with a rise in education level and socioeconomic status—suggesting that after a certain period, the risks linked to America’s abundance may recede because of conscious behavioral change.

THE UNSOLVED CHALLENGE

The high rate and severe toll of high blood pressure among African-Americans remain a public-health priority. Because high blood pressure (hypertension) is the main cause of stroke, the best way to examine the effects of high blood pressure is to look at the death rates from stroke. (See Table 22.2.) Although death rates have fallen appreciably in recent years, the rates for African-Americans are nearly double those for whites.

Various theories about this difference between the races propose that the real answer may lie in a combination of factors. Lower socioeconomic position

Table 22.2
Racial Differences in Death Rates from Stroke,
Age-Adjusted

Race and Sex	Deaths per 100,000 resident population				
	1970	1980	1986	1987	1988
All groups	66.3	40.8	31.0	30.3	29.7
White male	68.8	41.9	31.1	30.3	30.0
Black male	122.5	77.5	58.9	57.1	57.8
White female	56.2	35.2	27.1	26.3	25.5
Black female	107.9	61.6	47.6	46.7	46.6

Source: National Center for Health Statistics, National Vital Statistic System.

and less education have tended to lead to higher blood pressure in either race, but do not explain all the differences. In studies that weeded out the statistical effects of income and education, the race gap in hypertension remained. According to 1977 data on 159,000 adults gathered by the federally supported Hypertension Detection and Follow-up Program, African-Americans were almost twice as likely as whites to have hypertension even after adjusting for age, weight, and education.

Physiologic factors have been studied for clues to African-American hypertension. It is possible that the levels of hormones regulating blood pressure (via the sympathetic nervous system) may differ somewhat between African-Americans and whites. The role of certain nutrients in the diet has been examined in regard to high blood pressure, and some evidence suggests African-American/white differences.

DIET AND LIFE STYLE

An excess of dietary sodium has been implicated as a suspect in raising high blood pressure, at least in those individuals sensitive to its effects on the vascular system. While dietary surveys show that African-Americans consume about as much sodium as whites in this country, research suggests that African-Americans may excrete sodium from their bodies more slowly and be more likely to retain it—characteristics that may increase blood pressure.

Another nutrient with a possible role in blood pressure is potassium. A low intake of potassium or

a high ratio of sodium to potassium in the body may contribute to hypertension. African-Americans do appear to consume less potassium than whites, a factor that may increase their sensitivity to the effects of salt. New research has also suggested a role for calcium in modifying blood pressure, and some dietary data also point to a lower calcium intake among African-Americans because of their increased prevalence of lactose (milk sugar) intolerance and reduced milk intake.

The role of stress in high blood pressure among African-Americans is intriguing. Tension or stress does not cause hypertension—at least not directly—in any racial group. Stress causes temporary rises in blood pressure, but *essential* hypertension—the constant elevation of blood pressure—is usually of unknown cause. There is, however, preliminary evidence suggesting that constant exposure to stress, such as that experienced by disadvantaged individuals in high-crime urban areas, may contribute to eventual sustained elevation of blood pressure.

Investigators have also continued to explore the so-called Type A hypothesis, which holds that time-driven, overly ambitious people with high levels of hostility may have an increased risk of heart disease. While no specific research has been performed on Type A behavior in African-Americans, it is reasonable to assume that the effects of racial prejudice and socioeconomic disadvantage could lead to a hostile attitude and behavior pattern in some people.

In a 1973 study by Ernest Harburg, Ph.D., people living in “high-stress” areas of Detroit (characterized by poverty, broken families, and crime) had higher blood pressure levels than residents of low-stress neighborhoods, with the association stronger among African-Americans than whites. Harburg also investigated the effects on blood pressure of an emotional response to being treated unfairly. Higher blood pressures were measured in those individuals who were most likely to hold anger in or feel guilty about showing it. As might be expected, men living in high-stress areas had higher levels of suppressed hostility. In another study, the higher the level of social instability in a given county (measured by yardsticks like single-parent families and men in prison), the higher the death rate from stroke.

An “active coping style” against formidable odds, a trait termed “John Henryism” by Sherman A. James, Ph.D., a researcher at the University of Michigan, is being investigated. According to folklore, John Henry was an African-American steel driver—that is, a tunnel driller—who challenged a steam-driven machine in a battle of speed and strength.

John Henry beat the machine, but then died of exhaustion. The response of African-Americans to residual disadvantage in every area of American life, James and some other scientists suggest, is likewise an intense and determined approach that musters few resources against great odds—and may take its toll in ways yet to be fully determined.

GENETIC THEORIES

Finally, scientists—who have traditionally been wary of racial and genetic theories in regard to the practice of medicine—have been cautiously examining possible explanations for African-American hypertension in light of the circumstances under which the African-American population came to the Americas. Perhaps, some speculate, the brutal conditions aboard slave ships led to the survival of only those individuals whose bodies were best adapted to conserving vital minerals such as sodium when food and water were scarce. The descendants of these survivors might then have passed along these traits in the form of salt-conserving kidneys. This could predispose African-Americans to high blood pressure, even under more favorable life conditions.

High blood pressure is most serious for blacks in the Western Hemisphere, although many blacks have blood pressure levels more like those of American whites. The blood pressure of rural African-Americans is lower than that of blacks living in African cities. This may, however, be related to a change in diet or a weight gain. Even urban African blacks, however, have lower blood pressures than their urban American counterparts.

Physiologic differences may also affect the success or failure of hypertension treatment in African-American communities. It appears, for example, that African-Americans respond better to treatment with diuretics, such as hydrochlorothiazide (Esidrix or Hydrodiuril), a first-line agent of antihypertensive drug therapy. African-Americans do not respond as easily to another class of blood-pressure-lowering agent, the ACE inhibitors, such as captopril (Capoten). (See Chapter 23.)

Drug treatment of other ethnic groups may also have results that differ from those in whites. There are some data suggesting that Chinese people are more sensitive to the effects on blood pressure and heart rate of propranolol (Inderal and others), one of

a group of drugs called beta blockers that are commonly used to treat angina and high blood pressure.

The results of public health efforts within the African-American community to detect and control hypertension have met with some success. Extensive screening programs have been conducted through churches and other community institutions. But much remains to be done. According to several studies, African-Americans are less likely to have their high blood pressure under medical control. Young African-American males in particular have proved difficult to reach, and health authorities continue to explore nontraditional routes for spreading the message.

THE GAP BETWEEN DIAGNOSIS AND TREATMENT

Data have shown that African-Americans are less likely to receive diagnosis and treatment in the same manner as whites once they show symptoms of coronary heart disease. Reasons for this are complicated.

According to a 1982 review, medical treatment of high blood pressure produces greater decreases in illness and death rates among African-Americans than whites, and greater efforts must be made to get more African-Americans under effective treatment. Access to medical care, and the ability to pay for it, are major concerns that may influence treatment in minority groups. In a 1989 survey, African-Americans were about twice as likely as whites to receive medical care in hospital clinics, emergency rooms, and other facilities with poor continuity of care (for example, patients are likely to see a different doctor on every visit).

Two researchers, Mark B. Wenneker, M.D., and Arnold M. Epstein, M. D., in a study of discharge data from Massachusetts hospitals in 1989, reported that white patients underwent significantly more angiography (to diagnose blockages in the coronary arteries) and more than twice as many bypass operations and angioplasty procedures (to clear blocked arteries). The differences, the researchers acknowledged, could stem from African-Americans having less severe heart disease than whites, or to a stronger tendency to refuse high-tech treatment options.

A very recent study of hospitals in New York State confirmed that African-Americans are less likely to

have angiography, bypass operations, and angioplasty. It also showed that differences in severity of heart disease could not account for the lesser rates of these procedures in African-Americans. Other studies have confirmed the disproportionately low use of coronary bypass and angioplasty in African-American patients with heart disease. There is also evidence that African-Americans are less likely to agree to such procedures, which may reflect a con-

tinuing distrust by some African-Americans of the medical establishment.

Better preventive health services, broader health insurance coverage, and improved continuity in the management of cardiovascular disease could lower deaths and disability in minority communities. Meanwhile, research specifically directed at African-Americans and other ethnic groups is needed in order to direct the continuing efforts most appropriately.