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Hypertension in Adults 25-74 Years of Age

United States, 1971-1975

The total prevalence of hypertension among U.S. adults from three blood pressure measures and history, associations with selected systemic diseases from history and the physician's examination, and associations with other physical findings by sociodemographic characteristics, showing comparisons with findings from the National Health Examination Survey of 1960-1962.

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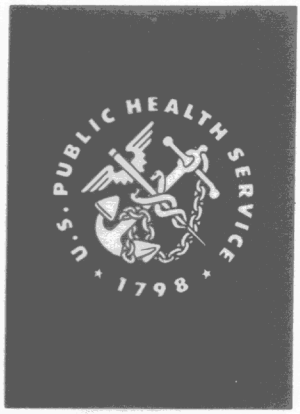

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HYPERTENSION IN ADULTS 25-74 YEARS OF AGE

Jean Roberts and Michael Rowland, Division of Health Examination Statistics

INTRODUCTION

Included in this report are national estimates of the total prevalence of hypertension among adults ages 25-74 years in 1971-1975 from three blood pressure measurements, normative distributions of these measurements in the U.S. population, associations with selected systemic diseases from medical history and the physician's examination, and associations with other physical findings.

National estimates of blood pressure levels and hypertension in this report, which are based on the average of the three blood pressure measurements obtained on adults in the detailed sample of the National Health and Nutrition Examination Survey who were examined in 1971-1975, will in general be similar to the corresponding ones published from the initial blood pressure measurements for all examinees in the 1971-1974 NHANES. The differences that occur are due in part to the slightly different time frame, sampling variability, and the fact that the average of the three measures will give a better approximation of the usual blood pressure because these levels may vary considerably over a short period even under relatively standard conditions. The three-measure average will consequently provide a more physiologically representative basis than the initial pressure alone for estimating the prevalence of hypertension and assessing its interrelation with cardiovascular and cerebrovascular risk factors.

These data are obtained from the National Health and Nutrition Examination Survey, which is one of the major programs of the National Center for Health Statistics authorized under the National Health Service Act of 1956 by the 84th Congress as a continuing Public Health Service activity to determine and monitor the health status of the population.

The intent of the National Health Survey[1] is carried out through the programs of the National Health Examination Survey; the National Health Interview Survey in which health information is collected from samples of persons by household interviews focused primarily on the impact of illness and disability within various population groups; the National Health Manpower and Facilities surveys in which data are obtained on hospitals, nursing homes and other resident institutions, and the entire range of personnel in the health occupations; and the National Health Resources Utilization surveys.

Only in the National Health Examination Survey programs are health data collected by direct standardized physical examinations, tests, and measurements performed on samples of the population. Hence it provides the best survey method for obtaining diagnostic data on the total prevalence of a medically defined illness. It is the only survey program of the National Center for Health Statistics in which information is secured on previously unrecognized or undiagnosed conditions as well as on a variety of physical, physiological, and psychological measures within the population. Medical history, demographic, and socioeconomic data with which the examination findings may be interrelated are also collected from the sample

population under study in these examination surveys.

Since 1960 the National Health Examination Survey has been conducted as a series of separate programs called "cycles," each of which is limited to some specific segment of the U.S. population and to specific aspects of health. During the first cycle in 1960-1962, the prevalence of certain chronic diseases, including heart disease and arthritis, and the distributions of various physical and physiological measures were determined among a cross-section of the defined adult population.[2,3] For that cycle, a national probability sample of 7,710 adults, of whom 6,672 (86.5 percent) were examined, was selected to represent the 111 million civilian noninstitutionalized adults ages 18-79 years in the U.S. population at that time.

The target populations for the second and third cycles in 1963-1965 and 1966-1970 were the Nation's noninstitutionalized children ages 6-11 years and youths ages 12-17 years, respectively.[4,5] In both cycles, the examination focused primarily on health factors related to growth and development. For the second cycle, a cross-sectional national probability sample of 7,417, of which 7,119 (96 percent) were examined, was selected to represent the nearly 24 million U.S. children ages 6-11 years in the noninstitutionalized population. For the third cycle, a cross-sectional national probability sample of 7,514, of whom 6,768 (90 percent) were examined, was selected to represent the 22.7 million youths 12-17 years of age in the civilian noninstitutionalized population.

The fourth examination program, the first designated as the National Health and Nutrition Examination Survey (NHANES I), was designed to measure the nutritional status of the U.S. civilian noninstitutionalized population ages 1-74 years, to obtain some limited information on the general health status of that entire age group, and to obtain more detailed information on the health status and medical care needs of the adults ages 25-74 years.[6,7] An extensive nutrition examination and examinations by dermatologists and dentists were given to every sample person ages 1-74 years who was examined from April 1971-June 1974. The examination that ophthalmologists also gave to sample persons in this entire age range was included from April 1971-October 1972. Additional examination components designed to obtain further information on health status—with particular concentration on cardiovascular, respiratory, hearing, and arthritic conditions—health-related behavior, and medical care needs of adults were administered to a subsample of adults ages 25-74 years beginning in April 1971 and extending through September 1975.

As in previous National Health Examination Surveys, the U.S. Bureau of the Census participated in the design of the cross-sectional samples and in the initial household visits and carried out interviews at the selected eligible households in the 100 primary sampling units (areas) throughout the United States. Additional household visiting, interviewing, history taking, and explaining the examination portion of the program were conducted by the National Health Examination Survey (NHES) representatives from the mobile examination center. The selected sample persons for whom appointments could be made were brought into the specially constructed mobile examination centers that were moved into a central location in each of the primary sampling areas. The survey teams that traveled to the various survey locations throughout the country included professional and paraprofessional medical and dental examiners, technicians, interviewers, and management staff.

The probability sample design used in the study provided for oversampling during the 1971-1974 period at the predetermined rates shown in appendix I among the poor, preschool children, women of childbearing ages, and the elderly so that the nutritional status of these "high-risk" groups could be more accurately estimated. It further provided for a nationally representative sample when adjusted for oversampling and nonresponse from 35 of the initially planned 65 primary sampling areas throughout the United States, making possible the publication of some preliminary national estimates on the nutritional status of the population before the data for the entire national probability sample from the 65 areas were available. This design also made it possible to obtain national estimates from those parts of the examination included only in this 35-stand

subsample. The subsampling of the adults for the detailed examination during 1971-1974 was performed at the predetermined rates shown in appendix I with a resultant slight oversampling of the elderly for the detailed sample during that period. In the extension of the detailed examination program from July 1974-September 1975, there was no oversampling for any age group.

For the first 35 examination locations in NHANES I, a national probability sample of 2,798 adults ages 25-74 years was selected for the detailed examination to represent the 103.0 million persons of those ages in the U.S. civilian noninstitutionalized population as of March 1, 1972. Of these adults, 1,892 were examined. The unadjusted response rate was 67.6 percent, or when adjustments were made for the differential sampling rates across age groups, it was 68.7 percent.

In April 1971-June 1974, for the first 65 locations, a national probability sample of 5,593 adults was selected for the detailed examination to represent the 104.1 million U.S. adults ages 25-74 years in the populaton as of November 1, 1972. From this sample, 3,854 were given the detailed examination; the unadjusted response rate was 68.9 percent, or when adjusted for the actual sampling ratios used, the rate was 70.2 percent.

In the last 15-month period from July 1974-September 1975, 3,059 adults were given the detailed examination out of a total national probability sample of 4,288 adults who were selected to represent 108.5 million persons ages 25-74 years in the U.S. civilian noninstitutionalized population on March 1, 1975 with a response rate of 71.3 percent.

During the entire period (April 1971-September 1975), a national probability sample of 9,881 adults was selected to represent an estimated 105 million persons ages 25-74 years in the U.S. population in June 1973. Of these persons, a total of 6,913 adults were given the detailed examination at 100 locations, with an unadjusted response rate of 70.0 percent, or a rate of 70.7 percent when adjustments were made for the age-specific sampling rates for the first 65 stands.

The findings in this report are shown as national estimates based on weighted observations, that is, the data obtained for each examined person are inflated to the size of the total population of which the sample was representative. The estimates have been calculated as though the examined persons in each of the age (at interview), sex, and income classes are a random subsample of all sample persons (examined and nonexamined) in the same class. Evidence from earlier examination surveys and medical history data from NHANES I shows that this conclusion is not an unreasonable approximation; however, some estimates are subject to considerable risk of bias when more than one-quarter of the sample persons in a particular age-sex-income class were not examined. All age-specific data in this report are shown as age at the time of examination.

Statistical notes on the sample design including sample size and national population estimates, reliability of the data, and sampling and measurement error are included in appendix I. Demographic and socioeconomic terms are defined in appendix II. Sources of variation affecting the reliability of the blood pressure measurements are discussed in appendix III.

DATA SOURCES

Medical History

The field representative from the mobile examination center, who visited the household of each person selected in the sample to make the appointment for the examination, obtained a medical history from all sample persons ages 12-74 years for the first 65 examination locations. This history included questions on whether the individual had ever been told by a doctor that he or she had high blood pressure or other selected chronic conditions including those commonly associated with long-term elevated blood pressure, on whether the individual had used any medication for high blood pressure within the preceding 6 months, and on other types of related health behavior. In the last 35 of the 100 locations for which the national probability sample of adults was selected for the detailed examination, the Census interviewer asked these questions in addition to a selection

of supplemental questions on hypertension from the supplement in the 1974 National Health Interview Survey.

Examination

The physicians in the first 65 examination locations were practitioners on detail from the Public Health Service hospitals; those for the remaining 35 locations were also practicing physicians, but were employed under contract. Medical histories, as described in the preceding section, were available for review before the examination. The examinations were structured to facilitate the gathering of data for statistical analysis on physical conditions relevant to nutrition and certain other chronic conditions by using predetermined standard procedures; however, no subsequent examinations were conducted to clarify the initial diagnostic impression.

Some additional findings from laboratory tests, X-rays, and other procedures were also available to the examining physician for use in determining the diagnostic impression. Basic hematology examinations including tests of hemoglobin, hematocrit, red and white cell counts, and sedimentation rates were performed on blood specimens obtained through venipuncture by the nurse or examining physician. This testing was done in the examination units by laboratory technicians carefully trained in the procedures recommended by the U.S. Public Health Service, Center for Disease Control (CDC). Abnormal test results, based on predetermined guidelines from CDC, were reported to the examining physician. The laboratory technicians also screened the urine specimens for sugar, albumin, and blood, and these findings were available to the examiner. Electrocardiograms and chest X-rays were obtained for all those given the detailed examination but would not generally have been available to the examining physician for an initial impression. Chest X-rays were omitted for women who indicated they were pregnant.

Sequencing for the physician's part of the examination components was varied to keep the time the examinee was in the examination center to a minimum and to permit the most efficient use of the examiner's time.

The physician's examination included an inspection of the head, eyes, ears, nose, and throat as well as thyroid, cardiovascular, abdominal, respiratory, musculoskeletal, neurological, and skin evaluations. In the detailed examination, somewhat more comprehensive cardiovascular, respiratory, and musculoskeletal evaluations were performed.

The cardiovascular component included a routine auscultation of the heart and an arterial evaluation. In addition to the initial blood pressure reading taken by the physician with the examinee seated at the beginning of the examination, two more readings were taken by the nurse at the end of the physician's examination—one with the examinee supine and the other immediately following with the examinee sitting on the examination table (see appendix III).

The musculoskeletal examination involved the recording of findings of abnormalities and various manifestations in the knees, hips, shoulders, elbows, wrists, phalanges, ankles, feet, and back.

Examinees who were given detailed examinations also received an examination of the ears, nose, and throat and an arterial evaluation. The ear examination consisted of a general inspection of the external ear and a routine otoscopic examination of the external ear and tympanic membrane. If the examining physician found in the detailed examination abnormal conditions that he or she judged to be significant, a tentative diagnosis was made with an evaluation of the degree of severity and certainty of the diagnosis by using a scale ranging from 0 to 9.

Blood Pressure Measurements

As indicated previously, three blood pressure measurements were obtained during the physicians' examination of adults who were given the complete detailed examination. For all three measurements, blood pressure was measured indirectly with a standard clinical sphygmomanometer. In 13 of the initial 16 examination locations an aneroid instrument was used; the standard mercury sphygmomanometer was employed in the remaining locations.

The following guidelines, based on the American Heart Association's "Recommenda-

tions for Human Blood Pressure Determinations by Sphygmomanometers,"[8] were observed:

1. The cuff was at least 20 percent wider than the diameter of the arm or covered approximately two-thirds of the arm.
2. The manometer was at eye level for the physician and the nurse.
3. The meniscus of the mercury instruments was checked weekly for zero-level calibration.
4. While measuring, the rate of fall in pressure was maintained at 2-3 mmHg per heartbeat, which was slow enough to detect the first and last sounds but sufficiently rapid to avoid the intermittent trapping of blood between systolic and diastolic levels.
5. For diastolic pressure, the level was recorded at the point of complete cessation of Korotkoff's sounds, or if no cessation occurred, at the point of muffling.
6. Measurements were recorded to the nearest 2 mm on the scale.

The middle of the cuff was placed over the bulge in the upper right arm. Using the bell of the stethoscope, the physician (the nurse on the second and third readings) noted and recorded the systolic pressure (when the sound was first heard) and the diastolic pressure (when the sounds disappeared or first became muffled).

Although results will generally be comparable with clinical findings, indirect blood pressure measurements may differ from "true" values, that is, those obtained by direct (intra-arterial) measurment. The direct and indirect methods of measurement have been found to agree closely for systolic pressure if the cuff size is appropriate to the examinee's height and arm girth. For diastolic pressure, however, the agreement is not good. Use of the American Heart Association criterion (the point of complete cessation of sound, or if no cessation occurs, the point at which sound first becomes muffled) will tend to underestimate intra-arterial diastolic blood pressure. However, if the point at which the sounds first became muffled had been used, a similar bias would have been introduced in the opposite direction.[9,10]

Less than one-third of the national probability sample examined in the first 35 locations had blood pressure measurements taken with aneroid instruments. Their blood pressure levels did not differ significantly from those for the two-thirds on whom measurements were obtained by using mercury instruments. Mean systolic pressures in the initial readings for the two groups differed by less than 1 mmHg (0.3); initial mean diastolic pressure differed by slightly more than 1 mmHg (1.2). These differences could have easily been due to sampling variability alone and are not statistically significant at the 5-percent probability level.[11]

Initial systolic and diastolic blood pressure measurements were obtained by the staff physician on 99.6 percent of the 6,913 adults ages 25-74 years examined in the total 100-stand probability sample. The second and third sets of measurements were obtained by the staff nurse for 99.2 and 99.1 percent of these examinees, respectively. Estimations of missing measurements were made as described in appendix I.

FINDINGS

The principal findings in this report regarding the distribution of systolic and diastolic blood pressure levels and the estimates for the prevalence of hypertension derived from them for U.S. adults ages 25-74 years are, as indicated, based on the three pressure measurements obtained on the detailed examinees in the 1971-1975 NHANES. These findings are in general similar to the corresponding ones previously published that are based on only the initial blood pressure measurements for all examinees 6-74 years of age in the 1971-1974 NHANES.[12] The differences that may occur are due at least in part to the slightly different time frame and sampling variability. However, the three-pressure averages used in this report will give a better approximation of "true" blood pressure levels than the single readings presented in the earlier report because blood pressure levels may vary considerably over a short period of time under even relatively standard conditions.

Blood Pressure Levels

Age and sex.—The mean systolic blood pressure levels of civilian noninstitutionalized adults in the United States, as estimated from the average of the three measurements obtained in the cross-sectional study of 1971-1975, increases significantly and consistently across successive age groups from 120.8 mmHg in ages 25-34 years to 150.6 mmHg in ages 65-74 years (table 1). The increase is least among adults from 25-34 years to 35-44 years of age (averaging 0.4 mmHg per year), then increases and maintains a fairly steady rate of increase from 35-44 years to 65-74 years of age (an average of 0.9 mmHg per year). The yearly increment in blood pressure levels across successive age groups is included as it was on the report on the initial pressure levels for those 6-74 years of age[12] to give some crude indication of the rate at which these levels were apparently increasing with age in the general population at the time of this survey.

For both men and women, mean systolic blood pressure levels increase significantly across successive age groups, although the increase is faster among women than among men 25 years of age and over. From ages 25-34 to 35-44 years, the average annual increment of 0.3 mmHg for men compares with 0.5 mmHg for women; from 35 years of age and over, the average annual increment in systolic blood pressure for women exceeds that for men by at least 0.4 mmHg.

Across age groups 25-44 years, the mean systolic pressure levels of men are significantly higher than those of women (differences of 8.4 mmHg for ages 25-34 years and 6.4 mmHg for ages 35-44 years). In ages 45-64 years, the differences in mean systolic pressure levels between men and women are not statistically significant. By 65-74 years the mean systolic blood pressure levels for women exceed those for men by 5.7 mmHg (a difference too large to reflect sampling variability alone).

The variability in systolic blood pressure levels of adults, as measured by the standard deviation, increases consistently with age from 13.0 mmHg among the young adults 25-34 years to 23.2 mmHg among the oldest age group 65-74 years.

From ages 35 years and over, there is greater variability among women than among men in these pressure levels. In relation to the size of the mean systolic blood pressures, the relative variability in these levels for both sexes ranges from 11 percent at ages 25-34 years to 15 percent at ages 45 years and over. The relative variability is negligibly less (10 percent at ages 25-34 years to 15 percent at ages 65-74 years) among men than among women of corresponding ages (11 percent at ages 25-34 years to 15 percent at ages 65-74 years).

The consistency of the increase in variability of systolic pressure levels across successive age groups is clearly evident in the percent distribution of these levels. At each of the selected percentile points in the distribution of systolic blood pressure among adults, there is a consistent increase across successive age groups from 25-34 years to 65-74 years and that increase becomes progressively greater across the distribution from 17.4 mmHg at the 5th percentile to 48.0 mmHg at the 95th percentile. Among men, the increase is from a difference (youngest to oldest) of only 6.3 mmHg in systolic pressure levels for those at the 5th percentile to 40.7 mmHg at the 95th percentile, while among women the increase is from 24.0 mmHg at the 5th percentile to 57.3 mmHg at the 95th percentile.

Among all adults ages 25-74 years, the mean systolic blood pressure for men (133.4 mmHg) significantly exceeds that for women (130.9 mmHg), but the variability among men is less than among women. The standard deviations are 18.8 mmHg and 23.1 mmHg, respectively.

Mean diastolic blood pressure levels of U.S. adults (as estimated from the average of three pressure measurements obtained in this cross-sectional study of 1971-1975) increase across successive age groups from 77.6 mmHg in ages 25-34 years to 86.0 mmHg in ages 55-64 years and then decrease slightly (table 1). The average yearly increment is greater in the age groups 25-44 years (0.4 mmHg) than from 45 years on, in contrast to the systolic pressure levels which increase more rapidly with age among the older than among younger adults.

Among men, *mean diastolic pressures* increase significantly with age to 45-54 years where they are at a maximum. For women, mean diastolic blood pressure levels increase significantly with age to 55-64 years. For both

sexes the rate of increase diminishes with age. In ages 25-54 years, the mean diastolic blood pressures of men are significantly greater than those of women; however, in the age group 55-74 years, the mean levels for both sexes are similar.

The variability in diastolic blood pressure, as measured by the standard deviation, is less among young adults 25-34 years of age than among those 35 years or older, for both men and women. In relation to the size of the mean values, the relative variability is similar (between 13 and 14 percent) across ages 25-74 years, in contrast to the increase with age shown for variability in systolic pressure. The variability, relative and absolute, in diastolic blood pressure levels among men is slightly less than among women.

The differences in diastolic blood pressure between young adults ages 25-34 years and older adults ages 55-74 years are greater at the upper than at the lower percentiles, ranging from 6 mmHg at the 5th through the 25th percentiles to over 10 mmHg at the 90th and 95th percentiles. The increases with age, from the youngest to the oldest adults, are greater for women than for men, but are greater for both sexes at the higher than the lower percentiles. These findings are similar to those for systolic pressure.

Similar to systolic blood pressure levels, the mean diastolic blood pressure level of men ages 25-74 years (84.3 mmHg) significantly exceeds that of women (81.1 mmHg); the variability among men is slightly less (standard deviations of 11.2 mmHg for men and 12.0 mmHg for women).

The bivariate distributions of the three-measure averages for systolic by diastolic blood pressures of adults in tables 2-11 reflect their greater variability among women (tables 7-11) than among men (tables 2-6) in ages 25-64 years. The proportion with substantially elevated pressures of at least 140 mmHg systolic or at least 90 mmHg diastolic increases with age for both sexes, but in ages 45-74 years, the increase is substantially more rapid for women than for men. Among men, these proportions increase steadily and significantly from 18.9 percent in ages 25-34 years to 61.6 percent in ages 65-74 years, however, among women the increase is from 7.4 percent to 69.1 percent. Among adults 25-54 years of age, the proportion with this degree of substantially elevated blood pressure is consistently greater among men than among women. Similarly, the proportion with both systolic and diastolic blood pressure levels substantially elevated (systolic pressure of at least 140 mmHg and diastolic of at least 90 mmHg) increases markedly with age. For men, the increase is from 8 percent in ages 25-34 years to 32 percent in ages 55-64 years, then decreases slightly to 28 percent in ages 65-74 years. Among women, the increase is from 3 percent in ages 25-34 years to 30.2 percent in ages 65-74 years. In ages 25-64 years, the proportion of men with both systolic and diastolic pressure substantially elevated exceeds that of women.

Individual measures.—The initial systolic pressures for U.S. adults as estimated from the findings in this survey tend to be slightly lower on the average than those from the second and third measurements; however, the initial diastolic pressure levels are higher than the second levels but not higher than the third levels (tables 12-14). This finding is in contrast to those in the previous NHES (all three measurements taken in a sitting position) and other studies where the initial blood pressures were somewhat higher than subsequent readings.[13-15] The variability among the population is generally similar for all three pressure measurements based on findings from the present study (appendix III).

Race.—Among white U.S. adults in 1971-1975, both men and women, the increase with age in mean systolic blood pressure (three-measurement average values) and the rates of increase over the 25-74-year age range are nearly identical to those for adults of all races. This finding was to be expected because 89 percent of all U.S. adults at the time of the survey were white. Mean systolic blood pressure levels of all white adults increase steadily and significantly with age from 120.4 mmHg in ages 25-34 years to 150.0 mmHg in ages 65-74 years. The average yearly increments range from a minimum of 0.3 mmHg between age groups 25-34 and 35-44 years to 0.9 mmHg across the remainder of the age range (table 15). The trends in variability and relative variability in systolic pressure among white adults are similar to those for adults of all races.

Among adults ages 25-44 years, the mean systolic pressure levels of white men significantly exceed those of white women, but from ages 55 years on, the mean levels for white women are the higher. The average rate of increase with age is greater among white women than among white men across the 25-74-year age range.

Diastolic blood pressure mean levels for white adults increase steadily with age from 77.1 mmHg in ages 25-34 years to 85.4 mmHg in ages 55-64 years. The maximum level for white men is reached in ages 45-54 years and for white women in ages 65-74 years (a finding similar to that for adults of all races). The mean diastolic blood pressure levels of white men are significantly greater than those of white women ages 25-54 years, however, among older adults, ages 55-74 years, the mean levels for both sexes are similar.

Among black adults, the extent of increase with age in both systolic and diastolic blood pressure means is about the same as that shown for white adults. Systolic blood pressure means for black men increase from 127.9 mmHg in ages 25-34 years to 153.4 mmHg at ages 65-74 years; those means for black women increase from 121.7 mmHg to 158.1 mmHg (table 16). The mean systolic blood pressure levels of black men exceed those of black women in ages 25-44 years; however, by ages 65-74 years, the level for black women exceeds that for black men although none of the differences are large enough to be statistically significant.

Diastolic blood pressure means of black adults also generally increase with age, reaching slightly higher values for men in ages 55-64 years (95.7 mmHg) and for women in ages 45-54 years (90.6 mmHg) than at the younger or older ages.

The mean systolic and diastolic blood pressures of black men ages 25-74 years are consistently higher than those of white men (figure 1). The mean differences in systolic pressure range from 2.9 mmHg in ages 25-34 years to 12.6 mmHg in ages 55-64 years and those in diastolic pressures range from 3.3 mmHg in ages 25-34 years to 9.6 mmHg in ages 55-64 years.

Racial differences in systolic and diastolic blood pressure levels between white and black women follow a pattern generally similar to that for men. Mean differences in systolic pressure range from 5.6 mmHg in ages 25-34 and 65-74 years to 13.4 mmHg in ages 35-44 years, and for diastolic pressure from 4.6 mmHg in ages 65-74 years to 10.3 mmHg in ages 35-44 years.

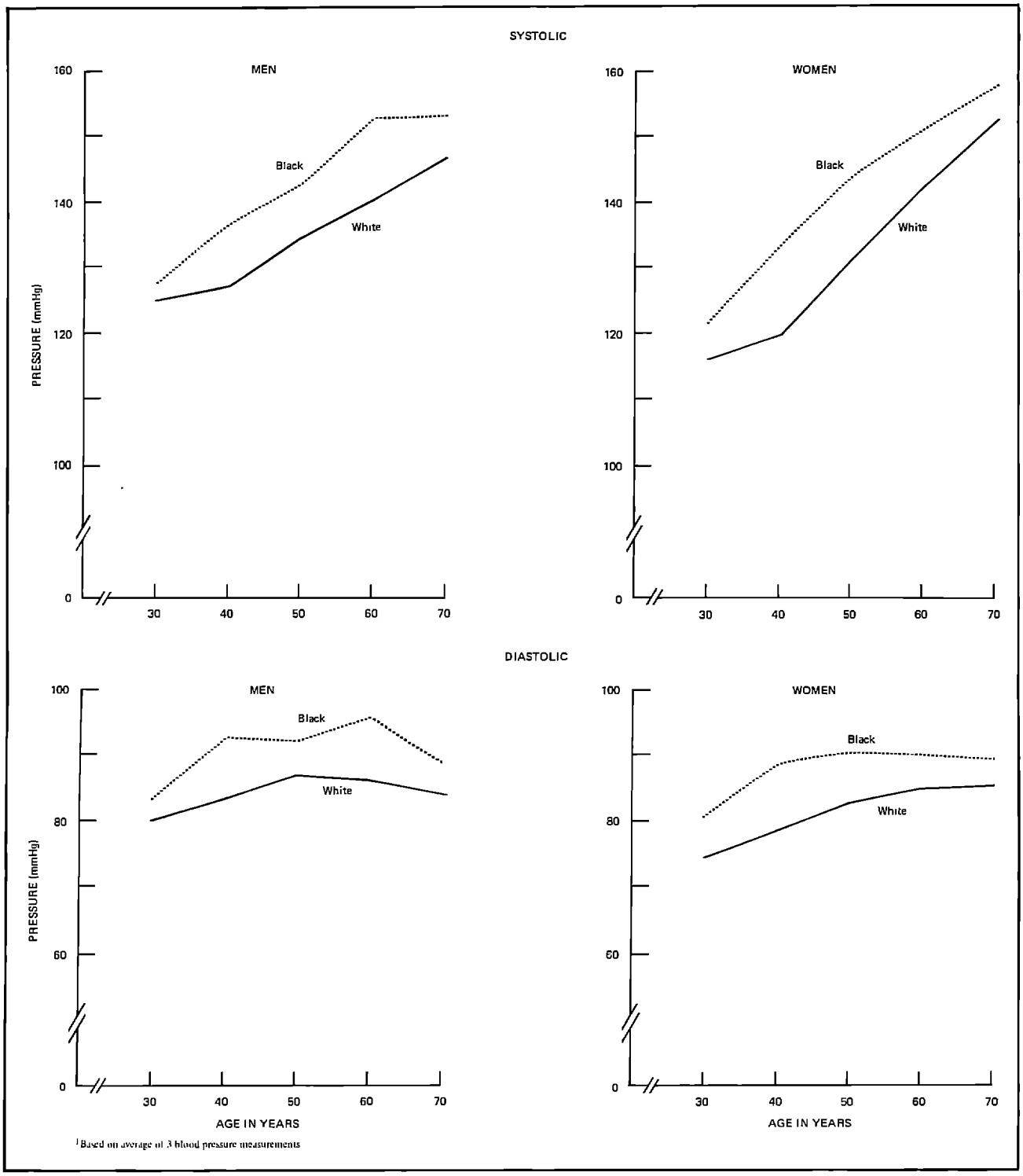
Across age groups 25-74 years for women and 35-74 years for men, the relative variability in the systolic and diastolic pressure levels (ratio of standard deviation to the mean value) among black adults exceeds that of white male adults.

Geographic region.—In the sample design used for this survey, the United States was divided into four broad geographic regions—the Northeast, Midwest, South, and West—approximately equal in population, as described in appendixes I and II. The sample size and design of the survey do not provide an adequate basis for reliably estimating blood pressure levels of the population in smaller geographic areas or in the individual States.

Across the 25-74-year age span, the mean systolic blood pressure of persons living in the South and Northeast are somewhat higher than those of persons in the other two regions (table 17), however, the differences are not large enough to be statistically significant. When adjustments are made for differences in age distribution among the adult population in the four regions, the age-adjusted mean systolic blood pressure levels among persons in the South and Northeast are 133.9 mmHg and 133.2 mmHg, respectively, compared with mean levels of 131.0 mmHg and 130.5 mmHg among persons in the Midwest and West, respectively. The variation in systolic blood pressure levels among adults in the West was slightly lower than the variation for adults in the other three regions. In each region, the age-adjusted mean systolic blood pressure levels of men slightly exceed those of women.

Diastolic blood pressure levels of adults in the four regions are similar. The mean, age-adjusted, values range from 81.8 mmHg in the West to 83.9 mmHg in the South and the variability as measured by the standard deviation is similar in the four regions, ranging from 11.2 mmHg in the West to 12.2 mmHg in the Northeast. In each of the four regions, the mean, age-adjusted, diastolic blood pressure levels of men exceed those of women.

Systolic and diastolic blood pressure levels of black adults (both men and women) on the



[1] Based on average of 3 blood pressure measurements

Figure 1. Mean systolic and diastolic blood pressure[1] among white and black men and women, by age: United States, 1971-1975

average exceed those of white adults in each of the four regions; however, the age-adjusted mean differences are not large enough to be statistically significant.

Because of the scheduling of the examination locations used in this survey—the North was avoided during the winter and the South during the summer—the effect of any seasonal or climatic fluctuations on blood pressure levels may have been either masked or accentuated in these regional findings.

Population density.—The mean, age-adjusted, systolic and diastolic blood pressure levels of adults 25-74 years of age living in rural areas are slightly but not significantly higher than levels of those living in urban communities (table 18). This pattern persists among men and women of both white and black racial groups, but the urban-rural differences in the means are negligible. Mean blood pressure levels for men exceed those for women in each area; however, the differences in the age-adjusted rates are not large enough to be significant. This pattern is evident among the white, but not among the black racial groups.

Income.—Mean systolic blood pressure levels tend to be inversely related to the size of the family income. As family income increases from less than $5,000 to $10,000 or more per year, the mean, age-adjusted, systolic pressure level decreases significantly from 135.9 mmHg to 130.9 mmHg (table 19).

Among both men and women 25-74 years of age, the mean systolic pressure levels decrease, but not significantly, with successively higher family incomes. However, within each income level group of $5,000 or more, the mean (age-adjusted) level for men exceeds that for women by a difference too great to be due to chance alone.

Mean diastolic blood pressure levels of U.S. adults 25-74 years of age also decrease significantly with an increase in the size of the family income; this trend is consistent only among women.

Among the white adults ages 25-74 years in the United States, age-adjusted systolic and diastolic blood pressure levels decrease with an increase in the size of the family income; the decrease is large enough to be statistically significant among white women but not among white men. Although age-adjusted mean blood pressure levels for white men exceed those for white women, in general, only at the highest income level for systolic and the two highest for diastolic are the differences large enough to be statistically significant.

Among the black adults, the relationship of blood pressure level to income is less consistent.

Education.—A second measure of socioeconomic status (the educational level of the examinees) also shows an inverse relationship to blood pressure levels of adults similar to that between income and blood pressure levels.

Among adults 25-74 years of age, mean, age-adjusted, systolic blood pressure decreases significantly and consistently from 138.8 mmHg for those with less than 5 years of formal schooling completed to 130.1 mmHg for those who had some college education (table 20). The inverse relationship between systolic blood pressure and level of schooling is consistent and significant for both men and women. The mean, age-adjusted, systolic blood pressure among men in the highest educational level is 7.6 mmHg less and among women 11.6 mmHg less than the level among those in the respective lowest educational level.

Diastolic blood pressure levels for adults 25-74 years of age also show a significant inverse association with educational level. The mean, age-adjusted, diastolic blood pressure level for adults at the highest educational level is 5.1 mmHg less for men and 6.0 mmHg less for women than the level among those in the corresponding group with the least education.

Among white adults, mean blood pressure levels decrease as educational levels increase, although the decreases are not large enough to be statistically significant. For black adults, the inverse association between blood pressure and educational level is generally stronger and more consistent than for white adults.

Hypertension

The three blood pressure measures for the adult examinees in the 1971-1975 NHANES provide a more physiologically representative basis than the initial pressure alone for estimating the prevalence of hypertension and for

assessing its interrelationships with other coronary disease and cerebrovascular risk factors in this cross-sectional sample of the U.S. adult population.

Epidemiologic studies have established that elevated systemic arterial blood pressure increases the risk of coronary artery disease and cerebrovascular accident.[16-22] Recent studies by the Veterans Administration have clearly demonstrated that this risk is reduced by lowering blood pressure.[23-24]

Prevalence estimates of the extent and distribution of hypertension in the U.S. adult population as determined from the average of the three blood pressure measures obtained in this study are shown in tables 21-34. The following criteria were used for these estimates irrespective of the present drug treatment:

- *Definite hypertension*—either systolic pressure of 160 mmHg or more *or* diastolic pressure of 95 mmHg or more. A subgroup of those with diastolic blood pressure of 105 mmHg or more is shown separately.
- *Borderline hypertension*—systolic pressure below 160 mmHg *and* diastolic pressure below 95 mmHg, *but not both* below 140 mmHg systolic and 90 mmHg diastolic.
- *Normotension*—both systolic pressure below 140 mmHg *and* diastolic pressure below 90 mmHg.

Definite hypertension.—An estimated 19.2 million or 18.0 per 100 adults ages 25-74 years in the U.S. civilian noninstitutionalized population have definite hypertension based on the average of the three blood pressure measurements from the 1971-1975 NHANES. The prevalence rate increases rapidly with age from 5.7 per 100 adults 25-34 years of age to 34.2 per 100 65-74 years of age (table 21). The average rate of change in this prevalence rate among adults increases slightly with age from 25-34 to 55-64 years and then declines negligibly between 55-64 and 65-74 years of age.

Definite hypertension is slightly more prevalent among men ages 25-74 years (19.7 per 100) than among women (16.5 per 100). The prevalence rates increase with age more rapidly among young men than among young women from 25-34 years to 35-44 years (figure 2). From ages 35-44 to 65-74 years the prevalence of this condition increases with age among men but at a decelerating rate, among women it increases rapidly up to ages 55-64 years, then slows somewhat between 55-64 and 65-74 years. In ages 25-34 years, definite hypertension is more than twice as prevalent among men as among women; then in ages 35-54 years, although the differences decrease, the rates among men continue to be significantly higher than those among women. By 65-74 years of age, the prevalence of definite hypertension is somewhat higher among women than among men, although the difference is too small to be of statistical significance.

Among white U.S. adults, as among those of all races, the prevalence of definite hypertension increases with age, and the rates are higher among young men than among young women through age 54 years. The rate of definite hypertension among white adults increases from 4.8 per 100 in ages 25-34 years to 33.1 per 100 in ages 65-74 years. Among white men and women, the rates increase from 7.5 per 100 men and 2.2 per 100 women, respectively, in ages 25-34 years to 30.8 per 100 men and 34.9 per 100 women, respectively, in ages 65-74 years. For white men ages 25-54 years, the rate is substantially greater than that for white women of the same ages. This pattern reverses until age 65-74 years when the prevalence is slightly, but not significantly, greater among women.

Among black U.S. adults, definite hypertension prevalence rates increase more rapidly with age than among white adults, from 14.1 per 100 adults 25-34 years to 51.5 per 100 ages 55-64 years. The rate for black men increases from 16.4 per 100 men 25-34 years to 58.6 per 100 men ages 55-64 years and then decreases to 43.3 per 100 at ages 65-74 years. Among black women, definite hypertension rates increase from 12.4 per 100 women in ages 25-34 years to 46.3 per 100 women in ages 65-74 years. Definite hypertension is more prevalent among black men than among black women ages 25-44 and 55-64 years, although the age-specific differences are too small to be of statistical significance.

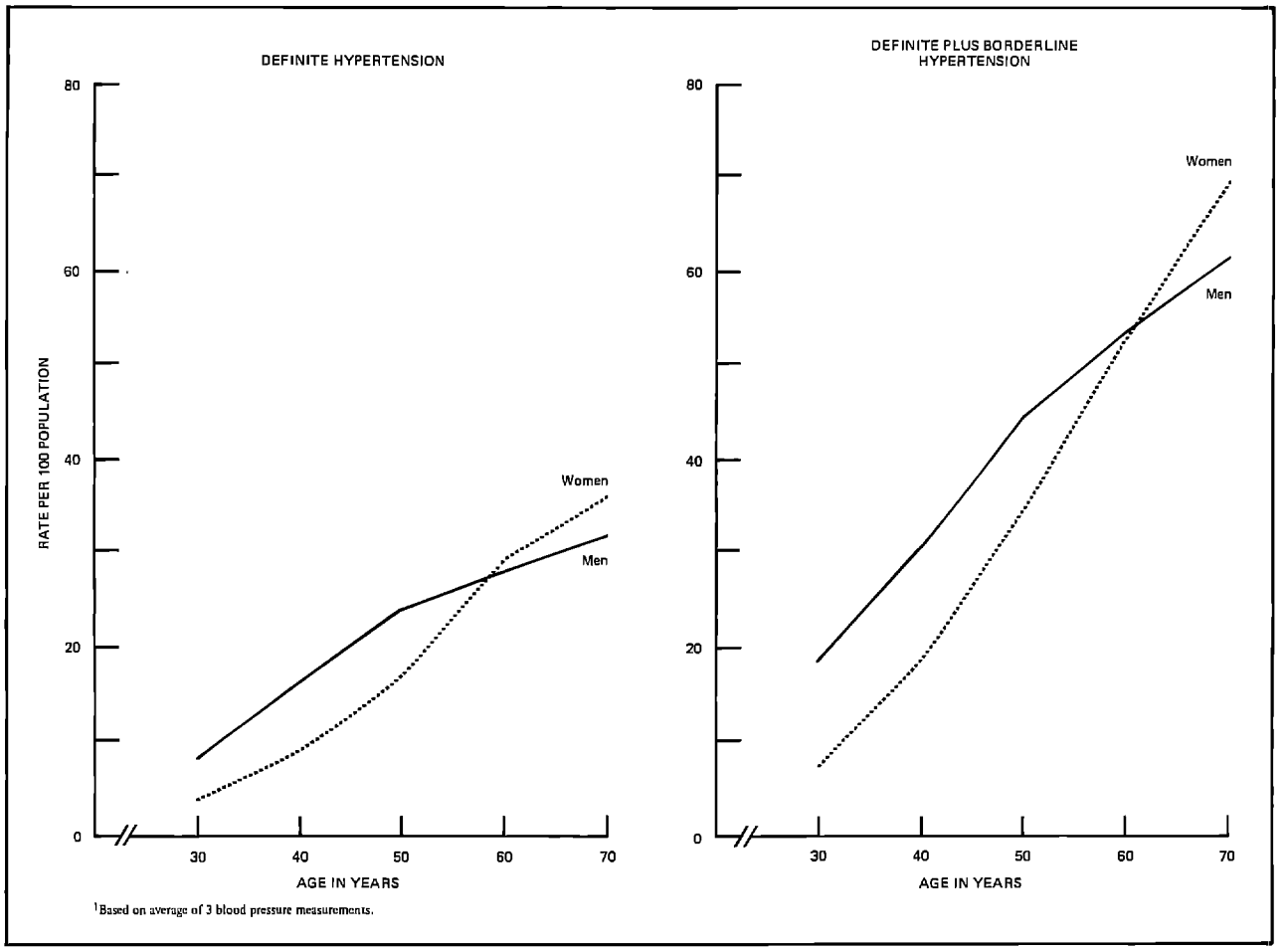


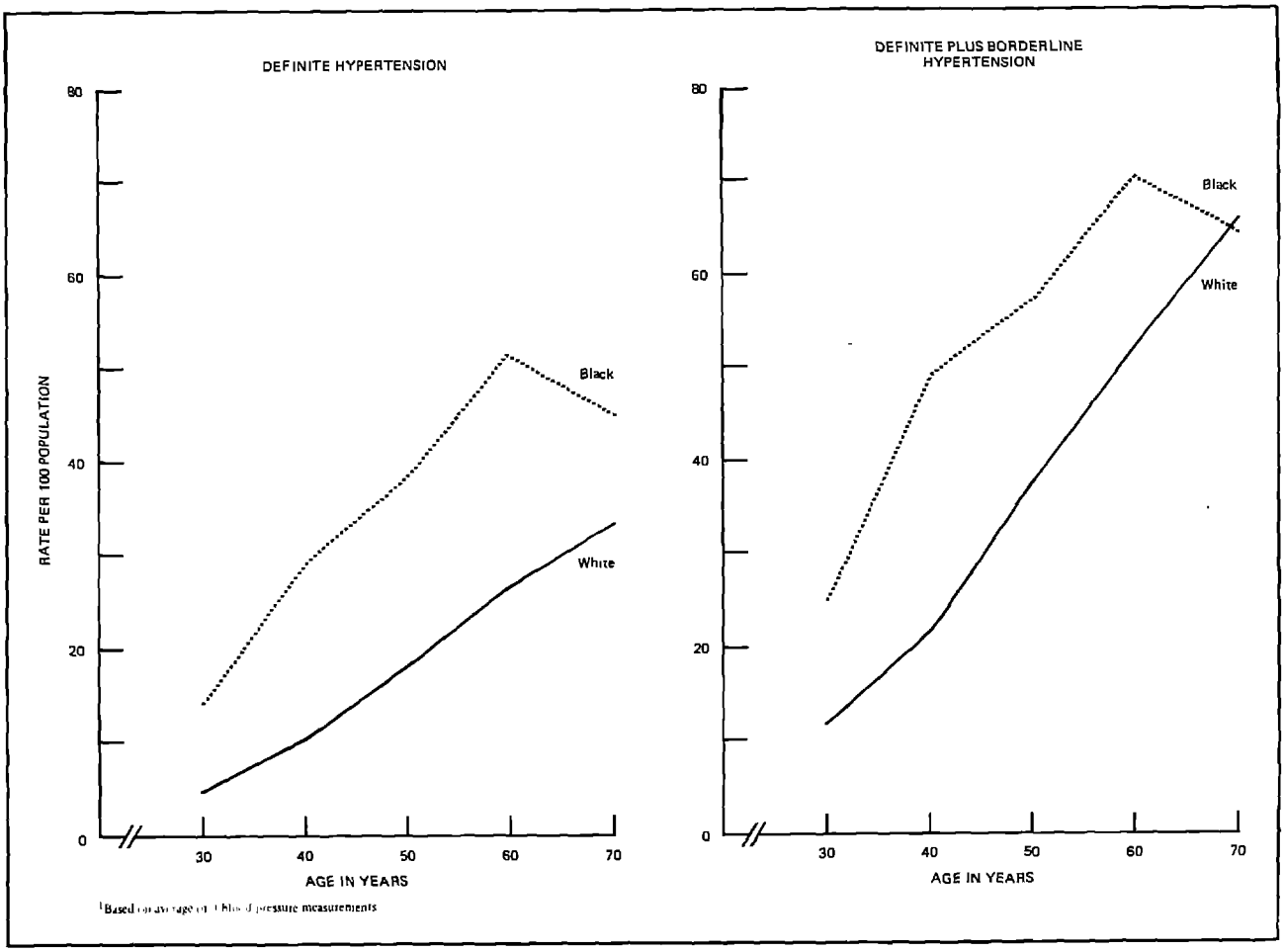
Figure 2. Prevalence of hypertension—definite and definite plus borderline[1]—among men and women, by age: United States, 1971-1975

Definite hypertension is more prevalent among black than among white adults across the 25-74-year age range (figures 3 and 4). When the effect of differences in the age distributions for the two races are eliminated, the age-adjusted rates are substantially less among white (16.3 per 100) than among black (33.2 per 100) adults ages 25-74 years (figure 5).

Among adults ages 25-74 years, the age-adjusted prevalence rates for black men (35.8 per 100) and black women (31.2 per 100) are significantly higher than those for white men (18.1 per 100) and white women (14.6 per 100) (table 21).

An estimated 4.9 million adults ages 25-74 years of all races—a rate of 4.6 per 100 population or about one-fourth (25.6 percent) of all those with definite hypertension—have substantially elevated diastolic blood pressure of 105 mmHg or greater (tables 21 and 22). The prevalence of this degree of elevation of diastolic pressure is significantly lower among young adults 25-34 years of age (1.3 per 100 population) than those 35-74 years. From 35 years on, the rate increases from 4.0 per 100 at age 35-44 years to 7.4 per 100 at 55-64 years, then drops off slightly to 5.9 per 100 at 65-74 years. This degree of elevation of diastolic pressure is about as prevalent among men (5.0 per 100) as among women (4.3 per 100), but is significantly more prevalent among black (12.2 per 100) than among white (3.8 per 100) adults (age-adjusted values).

Borderline hypertension.—In addition to the



[1]Based on average of three blood pressure measurements

Figure 3. Prevalence of hypertension-definite and definite plus borderline[1]—among white and black adults 25-74 years, by age: United States, 1971-1975

19.2 million adults ages 25-74 years with definite hypertension, there are 18.3 million adults of that age in the United States with borderline hypertension (as defined from the three-measurement average data), a rate of 17.1 per 100 adults (table 23). Prevalence rates increase consistently with age but more slowly than for definite hypertension, from 7.3 per 100 adults ages 25-34 years to 31.5 per 100 adults ages 65-74 years. Across age groups 35-74 years, the rates for borderline hypertension are consistently but not significantly lower than those for definite hypertension.

Except in the youngest age group, 25-34 years, where the rates for men significantly exceed those for women, the prevalence rates for borderline hypertension are similar for men and women. As with definite hypertension, the increase in the prevalence of this borderline condition with age is more rapid for women than for men, but for both sexes the increase with age is less than that for definite hypertension.

The prevalence of borderline hypertension among white and black adults ages 25-74 years (17.2 per 100 and 16.9 per 100, age-adjusted) are approximately equal. This finding is in contrast to the substantially higher prevalence of definite hypertension among black adults. For neither of these racial groups is the difference in prevalence rates for borderline hypertension between men and women large enough to be statistically significant.

Previously known conditions.—The medical

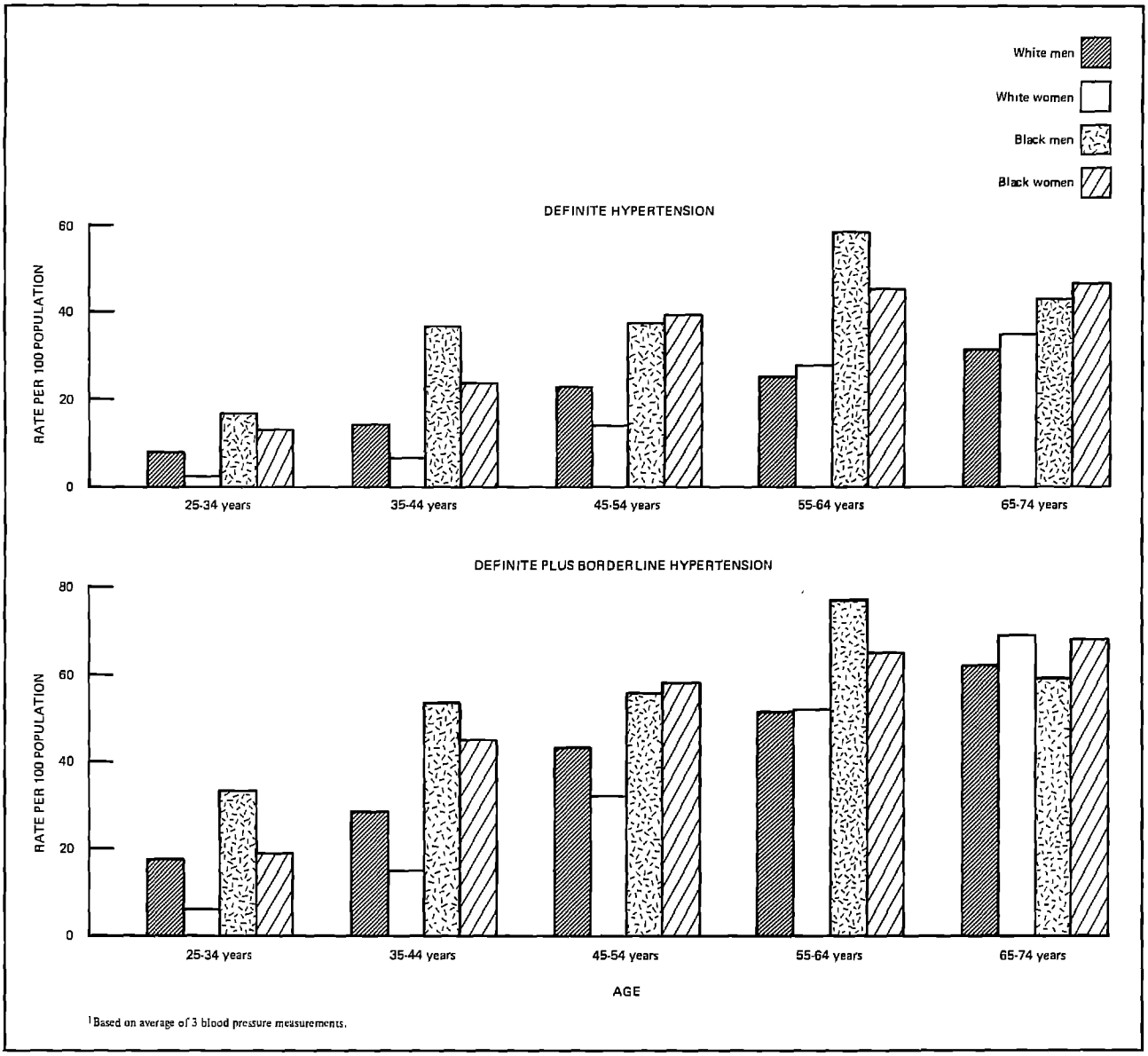


Figure 4. Prevalance of hypertension—definite and definite plus borderline[1]—among white and black men and women 25-74 years, by age: United States, 1971-1975

histories obtained before the examination included a question on whether the examinees had ever been told by a doctor that they had high blood pressure.

Among the estimated 19.2 million U.S. adults 25-74 years of age with definite hypertension (as estimated from the three blood pressure measurements in the 1971-1975 NHANES), 9.4 million or 49.0 percent reportedly had never been told by a doctor of their high blood pressure condition (table 24). The proportion decreased slightly but not significantly with age from 55.9 percent at ages 25-34 years to 44.2 percent at ages 55-64 years, and was higher among men (56.7 percent) than among women (40.6 percent). The age-adjusted percents are higher among white than among black adults (51.4 and 41.0 percent, respectively (figure 6)).

For the "high-risk" group with substantially elevated diastolic blood pressure of 105 mmHg or more, the proportion whose condition was

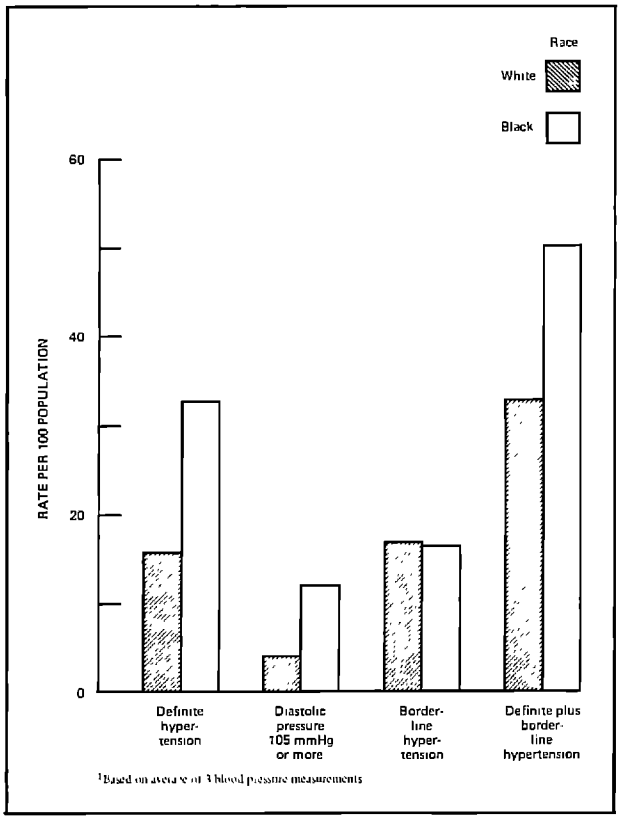


Figure 5. Prevalence rates (age-adjusted) for definite and/or borderline hypertension[1] among white and black adults 25-74 years of age: United States, 1971-1975

diagnosed (36.0 percent) is less than the proportion among the entire group with definite hypertension (49.0 percent) as would be expected (table 25). The percent never previously diagnosed among the high-risk group is only slightly greater among men (38.3 percent) than among women (33.5 percent) and shows no consistent trend with age. The age-adjusted percent for white adults never diagnosed (among the high-risk group) is greater than the percent for black adults (38.4 percent, compared with 29.7 percent).

Slightly more than two-thirds (69.0 percent) of the estimated 18.3 million adults with borderline hypertension at the time of this survey had never been previously diagnosed by a doctor as having high blood pressure (table 26). This proportion was higher among men (76.4 percent) than among women (61.2 percent). When age-adjusted, it was higher among white than among black adults (70.4 percent and 59.6 percent, respectively).

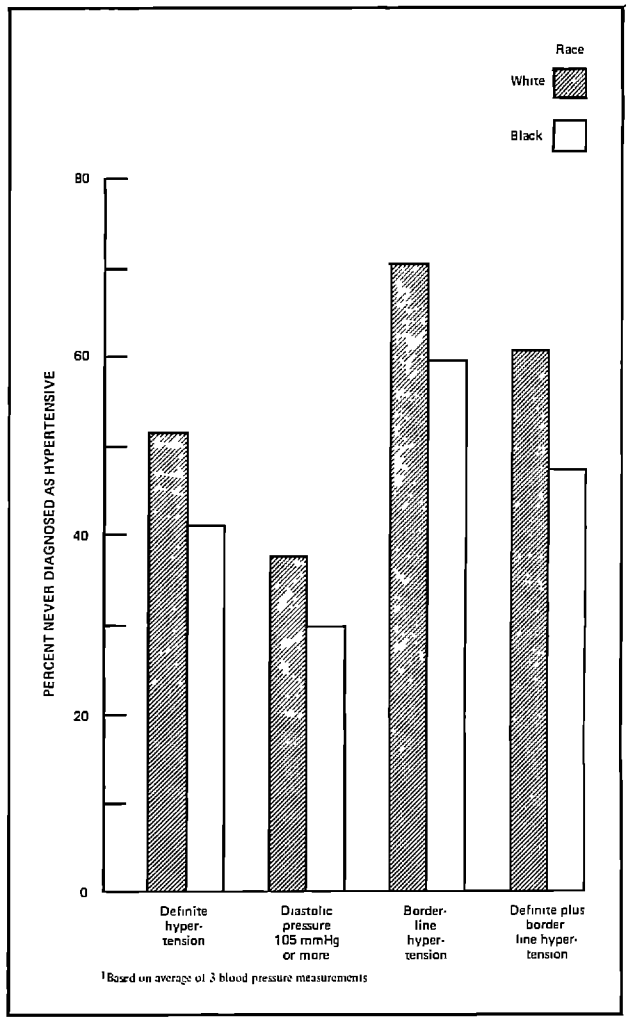


Figure 6. Percent (age-adjusted) never diagnosed by a doctor as having high blood pressure among white and black adults 25-74 years of age with definite and/or borderline hypertension[1]: United States, 1971-1975

Geographic region.—Across the 25-74-year age groups, the prevalence of hypertension in 1971-1975 (including the definite, the "high-risk" subgroup, and the borderline) is slightly but not significantly higher among persons living in the South and lower among those in the West than among adults in the other two regions of the country (table 27). This regional pattern in the prevalence of hypertension is not consistent for men and women, although definite hypertension is somewhat less prevalent among both men and women in the West than elsewhere.

The proportion of the hypertensive groups who have never had the condition diagnosed is

generally similar among the four regions of the country (table 28). About half of those with definite hypertension have reportedly never been told by a doctor that they had high blood pressure—the age-adjusted proportions range from 50.4 percent in the West to 47.5 percent in the Northeast. In each of the regions, this proportion is lower among women than among men (ranging from 46.8 percent in the West to 33.8 percent in the Northeast for women and from 61.7 percent in the South to 54.2 percent in the Midwest for men).

The proportion of adults with borderline hypertension who were never diagnosed as having high blood pressure is slightly lower in the South and West than elsewhere (66.4 percent compared with 72.2 and 70.4 percent in the Northeast and Midwest, respectively, after age-adjustment). In each of the four regions these proportions are lower among women than among men.

Population density.—The prevalence of definite hypertension among U.S. adults in 1971-1975 is generally similar for those in urban and rural areas (table 29). In urban places, the rates (age-adjusted) range from 19.1 per 100 among adults in urbanized communities with a population of less than one million to 16.0 per 100 adults in urban places not in urbanized communities, compared with the rate of 18.4 per 100 adults in rural areas. In each type of population density area the rates of definite hypertension are slightly but not significantly higher among men than among women.

Borderline hypertension rates are slightly but not significantly lower among adults in urban areas with a population of one million or more than in other urban communities or rural areas.

The proportion of adults with definite or borderline hypertension, who have never been diagnosed as having high blood pressure, is slightly but not significantly higher in rural than urban areas and is consistently somewhat lower among women than among men in each type of area (table 30). Among those with definite hypertension, these proportions (age-adjusted) are 52.0 percent for rural residents, compared with 46.5-48.5 percent in the three groupings of urban areas. For borderline hypertensives, the proportion (age-adjusted) never diagnosed is 71.0 percent among rural residents compared with urban percentages ranging from 66.5-71.3 percent.

Income.—Definite hypertension in 1971-1975 was substantially (significantly) more prevalent among adults in low income families than among the more affluent (table 31 and figure 7). The rates (age-adjusted) range from 25.0 per 100 adults among those in families with annual incomes of less than $5,000 to 16.0 per 100 adults for those in the $10,000-or-more income bracket. The income-related pattern in the prevalence of definite hypertension is found among men and women, and within each income level. The age-adjusted rates are higher among

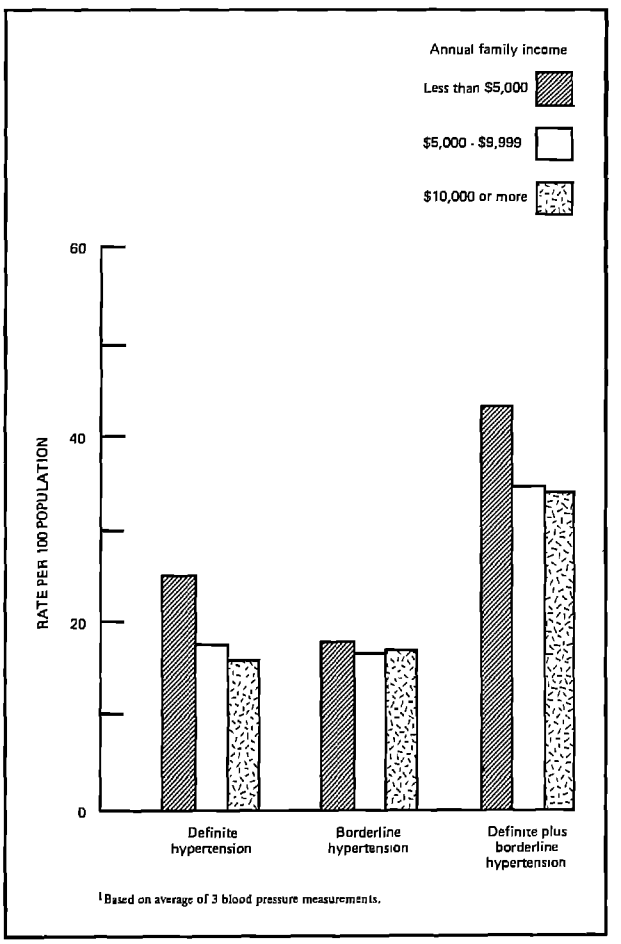


Figure 7. Prevalence rates (age-adjusted) for definite and/or borderline hypertension[1] among adults 25-74 years of age, by annual family income: United States, 1971-1975.

men than among women; however, these differences are not large enough to be statistically significant.

No consistent association was evident between the prevalence of borderline hypertension and income, although this condition was slightly more prevalent among adults in low income families. The rates (age-adjusted) among adults ranged from 17.0 per 100 adults in families with annual income of $5,000-$9,999 to 18.1 per 100 adults in the lowest income bracket of less than $5,000. In the lowest income levels of less than $5,000, the prevalence of borderline hypertension among women slightly exceeded that among men; the reverse of the findings in the two higher income level families.

The proportion of definite and borderline hypertensives who had never been previously diagnosed increased consistently (but not significantly with the size of the family income for all adults and for women but not for men (table 32).

Among the definite hypertension group, the percent of those never previously diagnosed as having high blood pressure increases slightly from 43.9 percent (age-adjusted values) among those in families with less than $5,000 a year to 54.5 percent in the $10,000-or-more bracket (figure 8). For those with borderline hypertension these percentages range from 65.9 percent in the lowest income level to 71.1 percent in the highest.

Education.—The pattern of association between the prevalence rates for definite hypertension and educational level is generally similar to that noted for family income (table 33). The rates (age-adjusted) for definite hypertension decrease from 30.6 per 100 adults with less than 5 years of formal schooling to 16.5 per 100 adults with at least some college education. For adults with borderline hypertension the age-adjusted rate is slightly lower among those with less than 5 years of schooling than among those with 5-8 years of schooling (18.6 per 100, compared with 19.9 per 100). This rate decreases slightly but consistently to 15.5 per 100 adults among those with some college education. In general, the hypertensive rates for men exceed those for women within each educational level.

As with family income, the age-adjusted proportion of adults with definite hypertension who had never been previously diagnosed (as having high blood pressure) increases (but not significantly) with educational level from 39.2 percent among those with less than 5 years schooling to 54.6 percent of those with some college education (table 34). A similar trend is evident for those with borderline hypertension

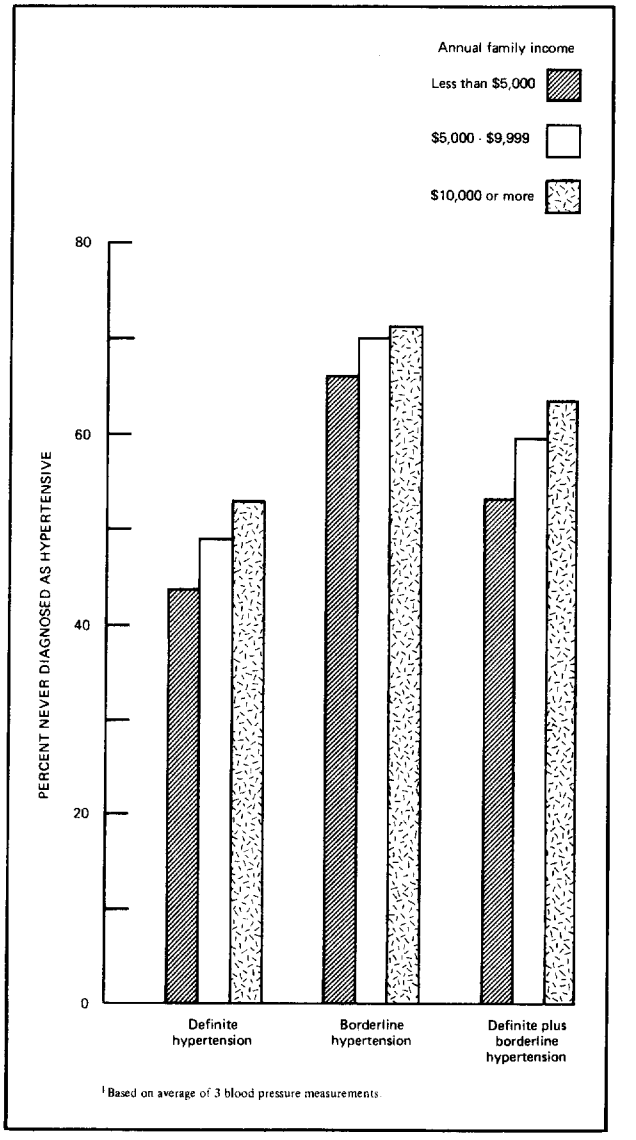


Figure 8. Percent (age-adjusted) never diagnosed by a doctor as having high blood pressure among adults 25-74 years of age with definite and/or borderline hypertension,[1] by annual family income: United States, 1971-1975

but extends only through those having 9-12 years of education. Across all educational groups for both those with definite and borderline hypertension, the proportion of adults never previously diagnosed (as having high blood pressure) is greater among men than among women.

Hypertension History

As previously indicated, information was obtained in the medical histories completed before the examination on whether the examinees had ever been told by a doctor that they had high blood pressure; if so, how many years ago they first were told and whether they still have it; on the frequency during the previous 6 months with which they used medication for high blood pressure. The association of this medical history for U.S. adults in 1971-1974 with their hypertensive status (as determined from the average of the three blood pressure measures at the time of the survey examination in the NHANES I) is shown in table 35 and figures 8 and 9.

Approximately half (50.8 percent) of those with definite hypertension had never been diagnosed by a doctor as having high blood pressure; more than one-third (36.5 percent) had been previously diagnosed and knew they still had the condition; the remainder either thought they no longer had it (8.5 percent) or did not know if they still had it (4.2 percent). For the high-risk group (diastolic pressure of 105 mmHg or higher), the proportion previously diagnosed was higher (61.2 percent) than for the entire group of definite hypertensives as was the proportion who knew they still had it (47.3 percent).

Among the borderline hypertensive group, more than one-fourth (27.6 percent) had been previously told by a doctor that they had high blood pressure and 17.9 percent knew they still had it. The normotensive group included 9.2 percent who had previously been diagnosed (as having high blood pressure) with 5.0 percent who knew they still had this condition.

Nearly half of the U.S. adults in 1971-1974 who were previously diagnosed as having high blood pressure had known this for 5 years or less—the proportions are 47.2 percent of those with definite hypertension, 60.1 percent of those with borderline hypertension, and 62.0 percent of the normotensives.

Each examinee was asked the question regarding the use of medication (medicine, pills, or drugs) for high blood pressure in the past 6 months irrespective of whether the condition had been previously diagnosed. The proportion taking such medication regularly is directly related to the severity of the hypertension condition—22.8 percent of those with definite hypertension report taking medication regularly, compared with 12.3 percent of those with borderline hypertension and 2.8 percent of the normotensive group from the 1971-1974 survey findings. Those with diastolic pressure of 105 mmHg or greater are more likely than the entire group with definite hypertension to have taken medication regularly for this condition (29.5 percent compared with 22.8 percent). Across all four groups, the proportion taking such medication regularly increases with age. Similarly, the proportion taking anti-hypertensive medication occasionally decreases from 3.8 percent among those classed as "definite hypertensive" to 0.5 percent among those with normal blood pressure.

Assuming that adults found to be borderline hypertensive or normotensive but taking medication regularly for high blood pressure are keeping their blood pressure below the critical level for definite hypertension by use of this medication, there would be an estimated 23.3 million adults 25-74 years of age in the United States in 1971-1974, a rate of 22.4 per 100, with definite hypertension—the 18.4 per 100 whose blood pressure is still elevated to that degree and the 4.0 per 100 taking medication that presumably controlled their blood pressure below that level.

If it could be further assumed that borderline hypertensive and normotensive adults at the time of the 1971-1974 survey who were taking anti-hypertensive medication regularly or otherwise maintaining their blood pressure below the definite hypertensive level through diet or lifestyle change would have otherwise been definite hypertensive, there would have been an estimated 25.8 million or 24.8 per 100 U.S. adults ages 25-74 years with definite hypertension based on findings from the 1971-1974 period of the survey. This is also assuming that those with borderline and normal blood pressure levels at the time of the survey who indicated that they

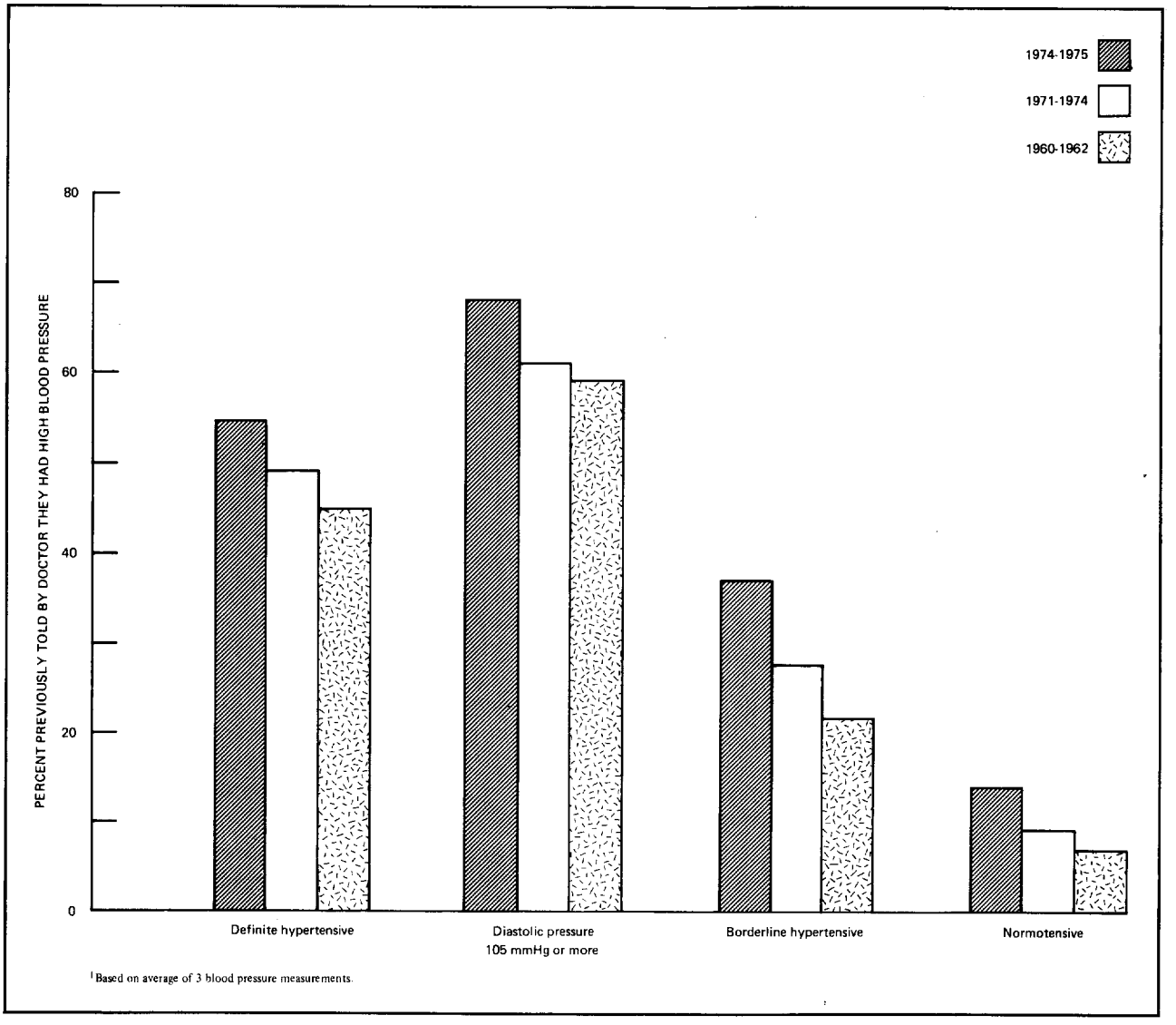


Figure 9. Percent (age-adjusted) told by a doctor that they had high blood pressure among adults 25-74 years of age who were hypertensive or normotensive[1]: United States, 1974-1975, 1971-1974, and 1960-1962

no longer had such a problem or were not sure, in reality did not. (These estimates for the total prevalence of definite hypertension would be just slightly lower if based on findings for the entire 1971-1975 survey period—approximately 24.3 per 100 adults). If one assumed that all those previously told by a doctor still (or potentially) did have definite hypertension, the total estimate would be 30.5 million adults or 29.3 per 100 adults ages 25-74 years from the 1971-1974 findings.

Information from the 1974-1975 period of the survey (the Augmentation Survey) shows a small but consistent increase over comparable findings from the 1971-1974 period in the proportion of U.S. adults 25-74 years of age who had previously been told by a doctor that they had high blood pressure, in the proportion told this within the past 5 years, and in the proportion taking medication regularly for hypertension among those that were classed as "definite hypertensive," "borderline hypertensive," or "normotensive" at the time of the respective surveys (tables 35 and 36). These increases while consistent over this time span are too small to be of statistical significance.

In comparison with the findings among U.S. adults in 1960-1962 from the first NHES, there is a consistent increase in the proportion of adults previously told by a doctor that they had high blood pressure. These proportions range from 45.1 percent in 1960-1962 to 49.2 percent in 1971-1974 among those with definite hypertension, from 21.6 percent to 27.6 percent among those with borderline hypertension, and from 6.9 percent to 9.2 percent among those with normotension (tables 35 and 37 and figure 9). Across the age groups, the increase is consistent only in young adults ages 25-44 years. However, both the proportion who had the hypertensive condition (definite and borderline) for 5 years or less and the proportion taking medication for high blood pressure was greater in 1971-1974 than in 1960-1962 (tables 35 and 37).

For further planning use in the National High Blood Pressure Education Program established in 1972, additional questions from the 1974 National Health Interview Survey supplement on hypertension[25] were included in the augmentation part of the NHANES of 1974-1975 (July 1974-September 1975). Additional questions that were included concerned the frequency and recency of the last blood pressure measurement, disability days from high blood pressure or hypertension, symptoms of high blood pressure, the extent to which the condition bothers, the frequency of talks with a doctor regarding hypertension, and information received from medical personnel on the problems caused by high blood pressure or hypertension, as well as advice on weight loss and salt use. National estimates based on these findings in relation to the hypertensive status at the time of the examination are summarized in table 36.

Nearly 40 percent of adults classified as "having definite hypertension" in 1974-1975 had talked with a doctor about problems caused by high blood pressure or hypertension, compared with 25 percent of those with borderline hypertension and 16 percent of the normotensives. However, this group talking with a doctor about their condition represents only about two-thirds of those reporting having been previously told by a doctor that they had high blood pressure among the definite hypertensive and borderline hypertensive groups, compared with the entire group of normotensives.

Among those previously diagnosed (as having high blood pressure or hypertension) nearly half of the definite hypertensives, compared with 44 percent of the borderline hypertensives and 36 percent of the normotensives had been advised by their doctor to lose weight. Slightly more than half of all definite, borderline, and normotensives had been advised by a doctor, nurse, or other medical person to use less salt.

Among those previously diagnosed as having high blood pressure, anti-hypertensive medication was prescribed by a doctor for about three-fourths of those with definite or borderline hypertension, compared with about half of the normotensives. The proportion of adults still taking prescribed anti-hypertensive medication is slightly higher among definite and borderline hypertensives (60 and 59 percent, respectively) than among the normotensives (52 percent).

Over 80 percent of those in each of the hypertension status groups now taking anti-hypertensive medication indicated that they were taking it as prescribed; the percent is slightly but not significantly higher for those taking such medication among borderline hypertensives and normotensives (90 percent) than among the definite hypertensives (83 percent).

The frequency with which adults reported being bothered by their hypertension shows some relation to severity of the condition. The "high-risk" group of the definite hypertensives—those with diastolic pressure of 105 mmHg or greater—were more likely to report being bothered by their high blood pressure and/or hypertension condition at least some of the time (40.3 percent) than those not being bothered (26.5 percent), while among the entire group of definite hypertensives nearly as many reported never being bothered (26.4 percent) as being bothered (28.3 percent). Borderline hypertensives and normotensives were somewhat less likely to report being bothered than not. Nearly all of those adults in each of the hypertensive groups who reported that they were able to discern when their blood pressure was high indicated that they were bothered by the condition.

About one-third (35.1 percent) of the defi-

About one-third (35.1 percent) of the definite hypertensives reported that they still had high blood pressure and/or hypertension and 5.5 percent indicated that the condition was cured.

Approximately one-half of U.S. adults 25-74 years of age in 1974-1975 reportedly had their blood pressure taken within the preceding 3 months—the percents range from 48 percent among definite and borderline hypertensives to 43 percent among the normotensives.

Other Related History

Information was also obtained in the medical histories for the entire 1971-1975 period concerning previous diagnoses of vascular and other diseases that could cause or otherwise be associated with elevated blood pressure, including kidney disease or other evidence of renal malfunction, thyroid trouble, diabetes, heart conditions, and stroke.[26] The prevalence rates for those previously diagnosed conditions across the four hypertension status groups—the definite hypertensives, "high-risk," borderline hypertensives, and normotensives (as determined from the blood pressure measurements at the time of the survey)—are shown in table 38.

As would be expected, one of the strongest associations with hypertensive status at the time of the NHANES survey in 1971-1975 is with the previous diagnosis of high blood pressure. The prevalence of such a previous diagnosis is more than five times greater among the definite hypertensives and more than three times greater among the borderline hypertensives than among the normotensives (figure 10). Similarly, the prevalence of a previous diagnosis of stroke is six times higher among the definite hypertensives and more than five times higher among borderline hypertensives than among normotensives.

Previous diagnoses of heart failure and heart attack are also three to four times more frequently reported among definite hypertensive than among normotensive adults, while those with previously diagnosed diabetes and kidney disease still present show no more than a two-fold differential, which is not great enough to be statistically significant. Previous diagnoses of low blood pressure were less frequently reported among definite or borderline hypertensive adults than among normotensives.

From the 1960-1962 NHES, among U.S. adults 25-74 years of age the proportion with previous diagnoses of high blood pressure was substantially greater among hypertensives than normotensives at the time of that survey (table 39) and the differentials are similar to the national estimates from the 1971-1975 NHANES (figure 10). Previous diagnoses of diabetes were reported slightly more frequently among the hypertensive than among the normotensive adults in 1960-1962; the differential is similar to that in 1971-1975.

The findings on the relationship of hypertension to previous diagnoses of stroke were less marked in the 1960-1962 than in the 1971-1975 survey. Essentially no association was found at either point in time with respect to all previously diagnosed kidney or thyroid conditions.

Reported practices concerning the use of special diets among the hypertensive and normotensive adults 25-74 years of age in 1971-1975 are also shown in table 38. Hypertensive adults are more likely than normotensive adults to be on special diets for heart trouble or high blood pressure (usually low salt) and for diabetes, but only slightly more of the hypertensives than normals are on diets for weight loss. Data on dietary practices were not obtained in the 1960-1962 NHES.

Diagnostic Impression

From the diagnostic impression of the medical examiners in the 1971-1975 NHANES I further crude estimates can be obtained of the association between vascular (circulatory) and kidney conditions and the hypertensive status of the adults. However, these diagnostic impressions will represent only the initial impression of the examiner (from the examination and medical history) without benefit of the more careful interpretation of the electrocardiograms and chest X-rays, which will be used in subsequent reports for final diagnoses of heart disease, or of the further followup studies that would normally be done in clinical practice.

As shown in table 40 and figure 11, the strongest association is between hypertensive heart disease (ICDA-8th Rev. 400-409)[27] and hypertension as determined from the blood pressure measurements. This association would

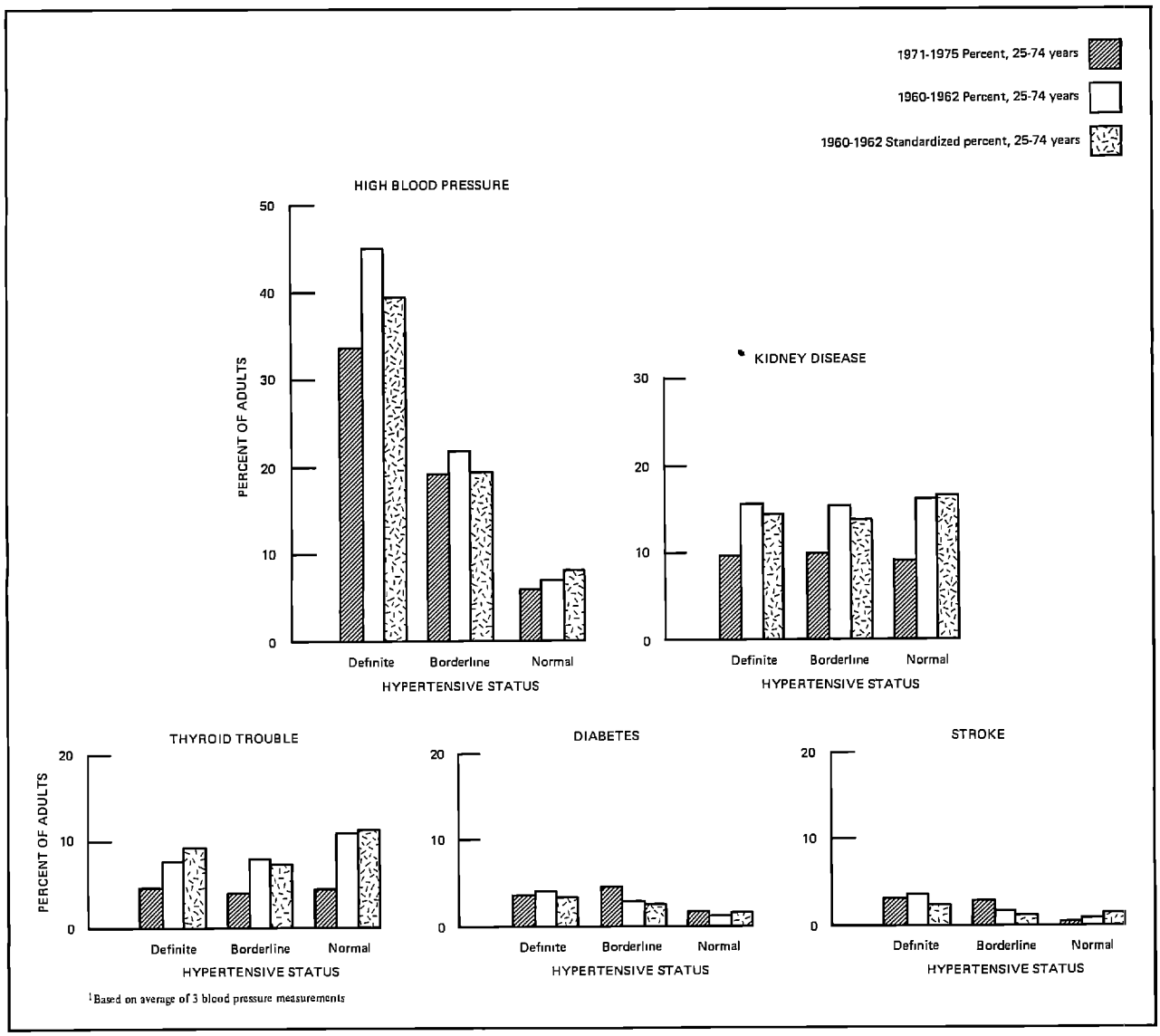


Figure 10. Percent previously told by a doctor that they had high blood pressure, kidney disease, thyroid trouble, diabetes, or stroke among adults 25-74 years of age found hypertensive or normotensive[1]: United States, 1971-1975 and 1960-1962

be expected because elevated blood pressures is one of the criteria for such diagnoses. Some slight association is apparent with other heart disease (ICDA-8th Rev. 420-429, 746, 747) and ischemic heart disease (ICDA-8th Rev. 410-414), although the difference in the prevalence rates between the hypertensive and normotensive adults are too small to be of statistical significance.

Comparison with diagnostic impression data from the 1960-1962 NHES is possible only for ischemic heart disease (table 40). The prevalence of diagnostic impressions of ischemic heart disease are slightly but not significantly higher among hypertensives than among normotensives in both points in time. The respective rates in 1971-1975 are similar to those in 1960-1962 when the latter are age adjusted to the more recent population distribution.

Risk Factor Associations

The national estimates for the degree of association between selected risk factors for

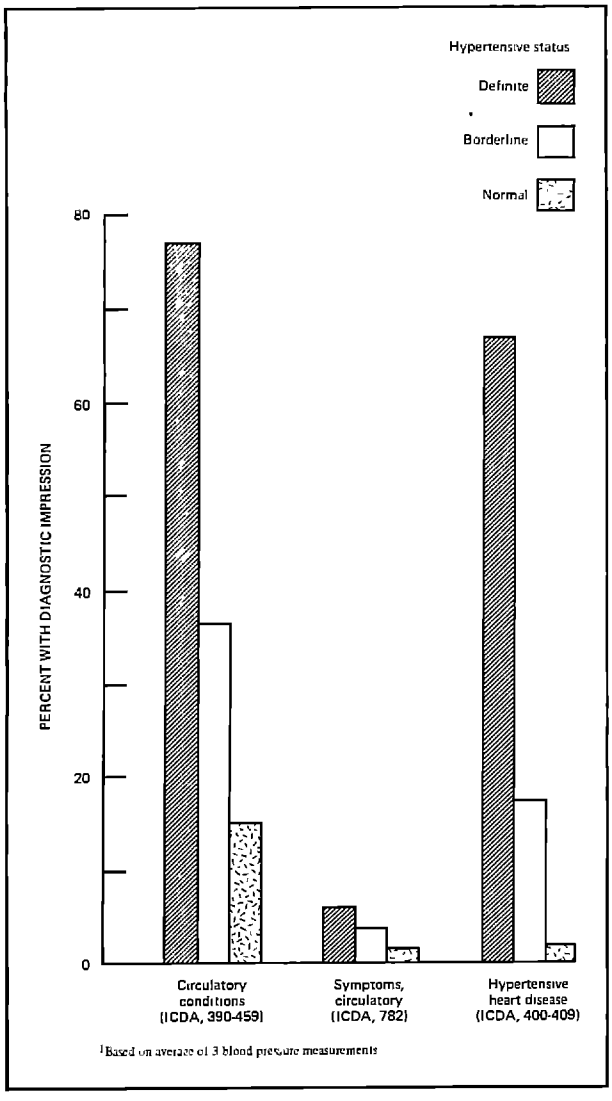


Figure 11. Percent of adults 25-74 years of age with diagnostic impression of selected circulatory condition on survey examination found hypertensive or normotensive[1]: United States, 1971-1975

coronary heart disease and blood pressure levels (three-measurement averages) among U.S. adults 25-74 years of age in 1971-1975 are shown in tables 41-44.

For the blood pressure measurements, the simple correlation between the systolic and diastolic blood pressure levels is significantly stronger among women (r = 0.772) than among men (r = 0.708) of all races and also stronger among black men (r = 0.783) than among white men (r = 0.688). When the effect of age is removed through partial correlation, the degree of association is reduced slightly for white but not for black adults, both men and women.

The degree of association of age is stronger with systolic than with diastolic blood pressure among both men (r = 0.405 and 0.191, respectively) and women (r = 0.553 and 0.336, respectively), as well as among white and black adults. This finding would be expected because of the greater variability in systolic pressures.

Weight and relative weight (weight/height) show positive correlations with blood pressure levels that are stronger with diastolic than with systolic blood pressures and for both pressures these associations are stronger among women than among men of all races as well as those of the white and black races. The degree of association of blood pressure with weight is increased slightly when the effect of age is controlled. As may be seen, the association of blood pressure with relative weight is somewhat stronger than with weight alone.

Systolic and diastolic blood pressure levels are more strongly associated with weight and relative weight than with triceps skinfold or arm girth; the correlations with triceps skinfold were stronger than those with arm girth. No significant relationship was found between total serum cholesterol levels and either systolic or diastolic blood pressure levels.

Secular Trends

Subsample data.—Within the total national sample of adults selected for the detailed examination in 1971-1975, three subsamples provide the basis from which national estimates may be derived and for which sampling variability may be estimated. These subsamples include the 1971-1972 period (April 1971-October 1972), the 1971-1974 period (April 1971-June 1974), and the "augmentation" period in 1974-1975 (July 1974-September 1975).

Because the sample of examinees for 1971-1972 is included in the sample of examinees for 1971-1974, the very close agreement between systolic and diastolic blood pressure levels—means, standard deviations, and the various percentiles—from these two periods (as shown in tables 45 and 46) is not unexpected.

The systolic blood pressure level estimates

from 1974-1975 for U.S. adults are lower and those for diastolic pressure higher than the corresponding estimates for the U.S. population in 1971-1974 both on the average across the age groups and at the indicated percentile points in the distribution (see figure 12 and tables 46 and 47). Differences between the mean blood pressure levels for adults 25-74 years of age at the two points in time—133.1 and 130.1 mmHg for systolic pressure, respectively; 82.1 and 83.3 mmHg for diastolic pressure, respectively, from the three-measure averages—are large enough to be statistically significant (at the 5-percent probability level.)

National estimates for the prevalence of hypertension among U.S. adults from the 1974-1975 period are slightly lower than those from the 1971-1974 period although the difference is not large enough to be statistically significant. Prevalence estimates for definite hypertension decreased from 18.4 per 100 adults ages 25-74 years to 16.9 per 100 adults, the rates for the diastolic pressure elevation of at least 105 mmHg declined from 4.9 to 3.8 per 100 adults, and the rates for borderline hypertension from 17.6 to 16.1 per 100 adults (tables 48, 49, and 50). White and black men and women all show a slight decrease in this period; however, none of the differences are large enough to be statistically significant and this downward trend is generally but not completely consistent across the age range.

The estimated proportion of adults with hypertension (from the three blood pressure measures in this examination) who reportedly have never been told by a doctor that they had high blood pressure showed a decrease from the 1971-1974 to the 1974-1975 period that was somewhat more marked than that shown for the prevalence of hypertension (tables 51-53).

Between these two time periods the decrease in the proportion of undiagnosed high blood pressure among men with definite hypertension is from 60.1 to 49.7 percent (a difference large enough to be statistically significant); however, the proportions for women remain essentially unchanged (40.8 and 40.6 percent). For white men there is a significant decrease in this proportion; however, for white women and black men the decrease is slight (not statistically significant) and for black women there is an increase (but not large enough to be statistically significant). The change over time in this proportion previously diagnosed among those with diastolic blood pressure of at least 105 mmHg is similar to that for the entire group with definite hypertension though none of the differences are statistically significant.

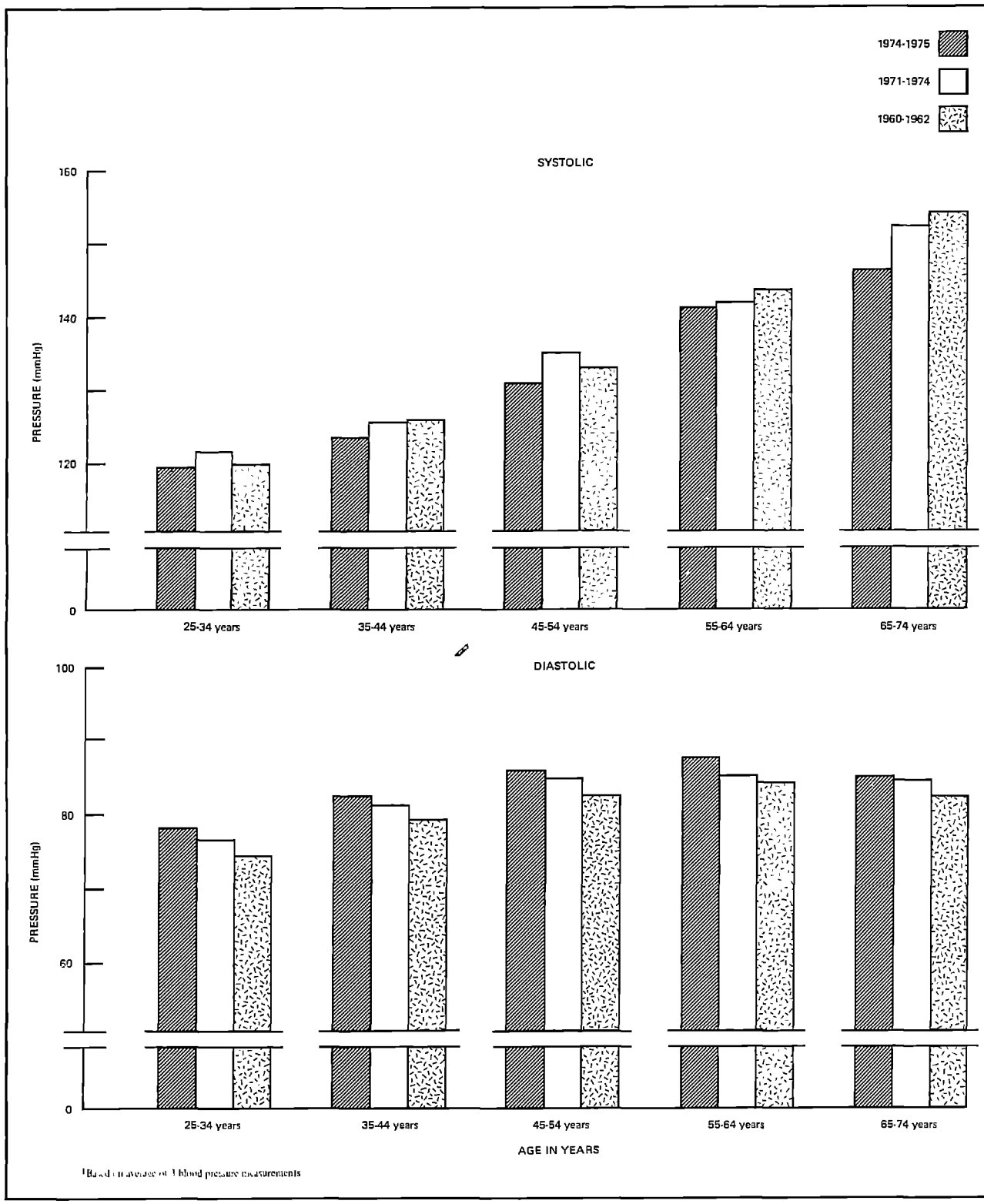
Among those with borderline hypertension, the proportion not previously diagnosed decreases between the 1971-1974 period and the 1974-1975 period for both men and women of all races as well as those of the white and black races, although only among women of all races and white women are the differences large enough to be statistically significant.

Further trends.—Mean systolic blood pressure levels (three-measure average) of older U.S. adults 55-74 years of age are significantly lower in 1971-1975 than the comparable estimate for 1960-1962; however, those for younger adults 25-54 years of age show essentially no change. If only initial pressure measurement is considered, mean systolic pressure levels of U.S. adults in 1971-1975 are consistently lower than those in 1960-1962 across the age range (figure 13). In contrast, diastolic pressure levels for U.S. adults in 1971-1975 are consistently (and significantly) higher on the average across the age range than those from 1960-1962. This trend is similar whether based on the three-measurement average or on the initial pressure measurements.

Among men, mean systolic pressure levels from the present study are nearly identical to the national estimates in 1960-1962, while their diastolic pressure levels in 1971-1975 on the average show a consistent elevation between 3 and 4 mmHg above the mean levels in 1960-1962 across the age ranges (figure 14).

In contrast, among women age 35 years and over, the mean systolic pressure levels from 1971-1975 are consistently lower than those in 1960-1962 and this difference increases with age, but their mean diastolic pressure levels are slightly higher than in 1960-1962 among younger and older women.

Comparison of the national estimates from these subsample findings for 1971-1974 and 1974-1975 with those from the 1960-1962 NHES shows mean systolic pressure levels (three-measurement averages) of older adults ages 55-74 years to be slightly lower than in



[1] Based on average of 3 blood pressure measurements

Figure 12. Mean systolic and diastolic blood pressure[1] among adults, by age: United States, 1974-1975, 1971-1974, and 1960-1962

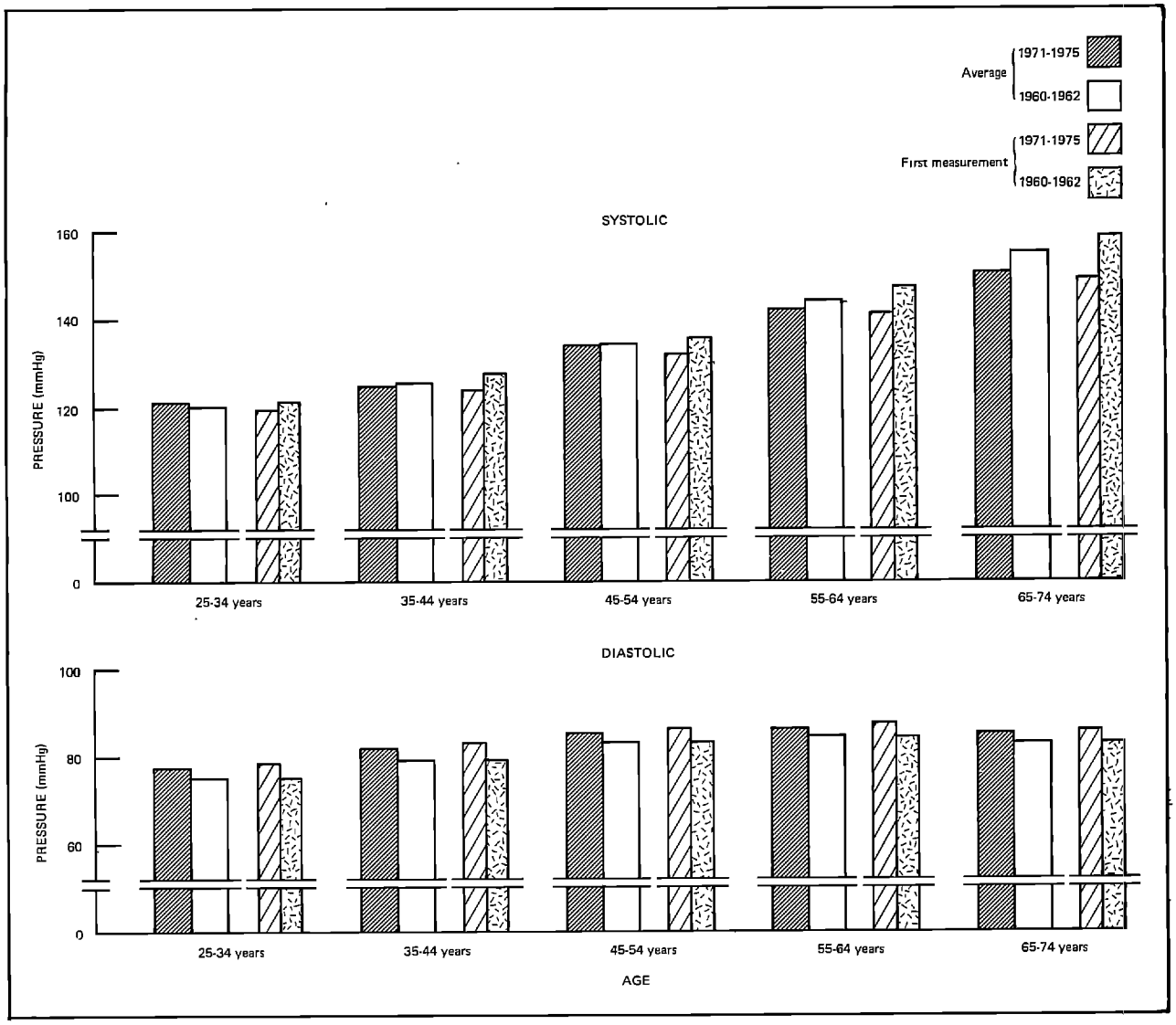
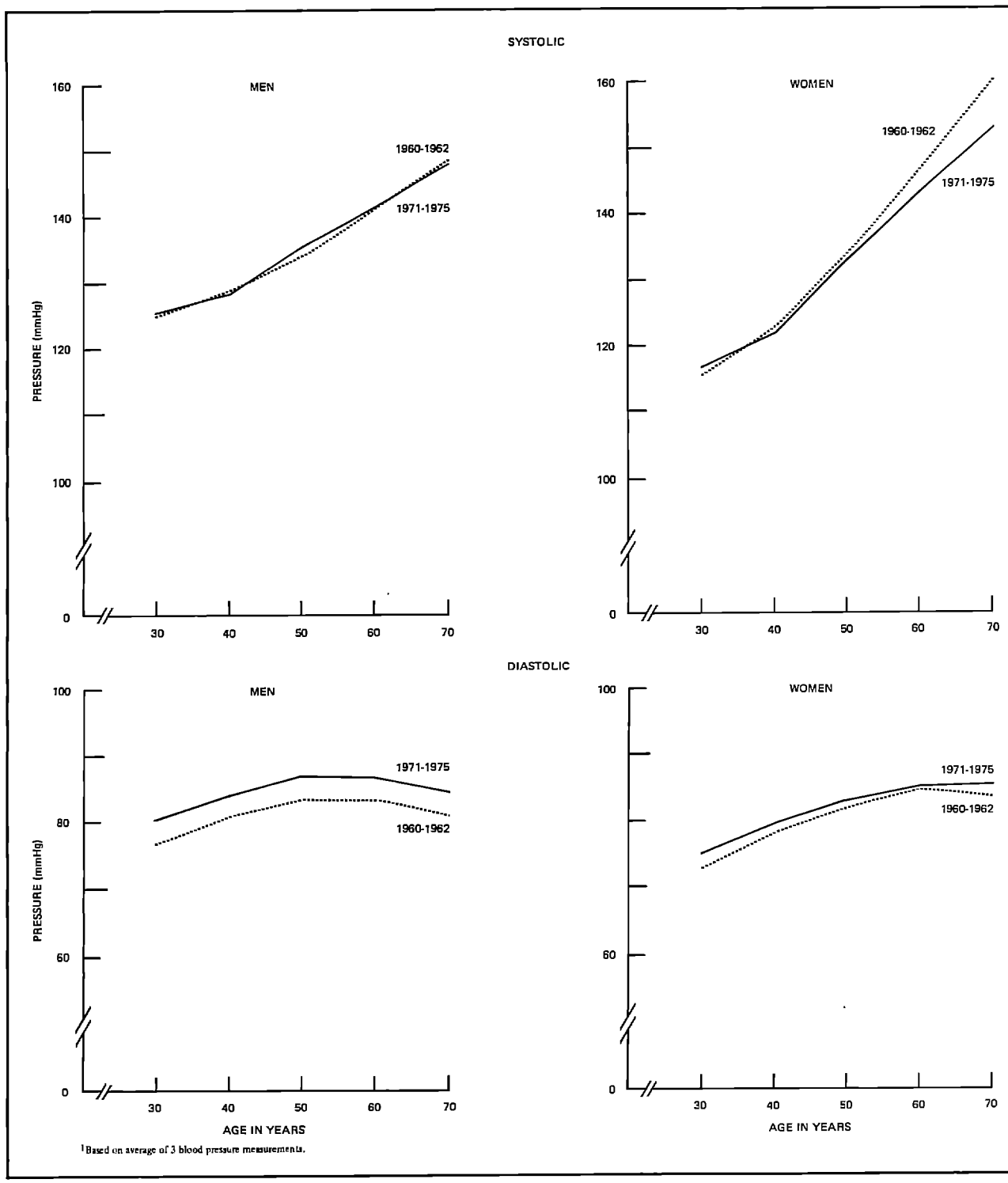


Figure 13. Mean systolic and diastolic blood pressure among adults by age from 3-measurement averages and first measurement: United States, 1971-1975 and 1960-1962

1960-1962, while at ages 25-34 years the levels for 1960-1962 are lower than those for 1971-1974 but not for 1974-1975. Diastolic pressure levels from both time periods in the present study on the average exceed those from 1960-1962 NHES across the age range, although the differences are not consistently large enough to be statistically significant (figures 12 and 13).

Definite hypertension (based on the three blood pressure measure averages at the time of the respective surveys) is slightly but not significantly more prevalent among U.S. adults in 1971-1975 than in 1960-1962. The respective rates are 18.0 per 100 adults 25-74 years of age in 1971-1975, compared with 17.0 per 100 adults of that age in 1960-1962 after the latter rate is age adjusted to a comparable population base.

Across ages 25-64 years, the prevalence rates for definite hypertension in 1971-1975 are consistently but not significantly higher than corresponding rates in 1960-1962, but at 65-74 years of age it is slightly lower than the

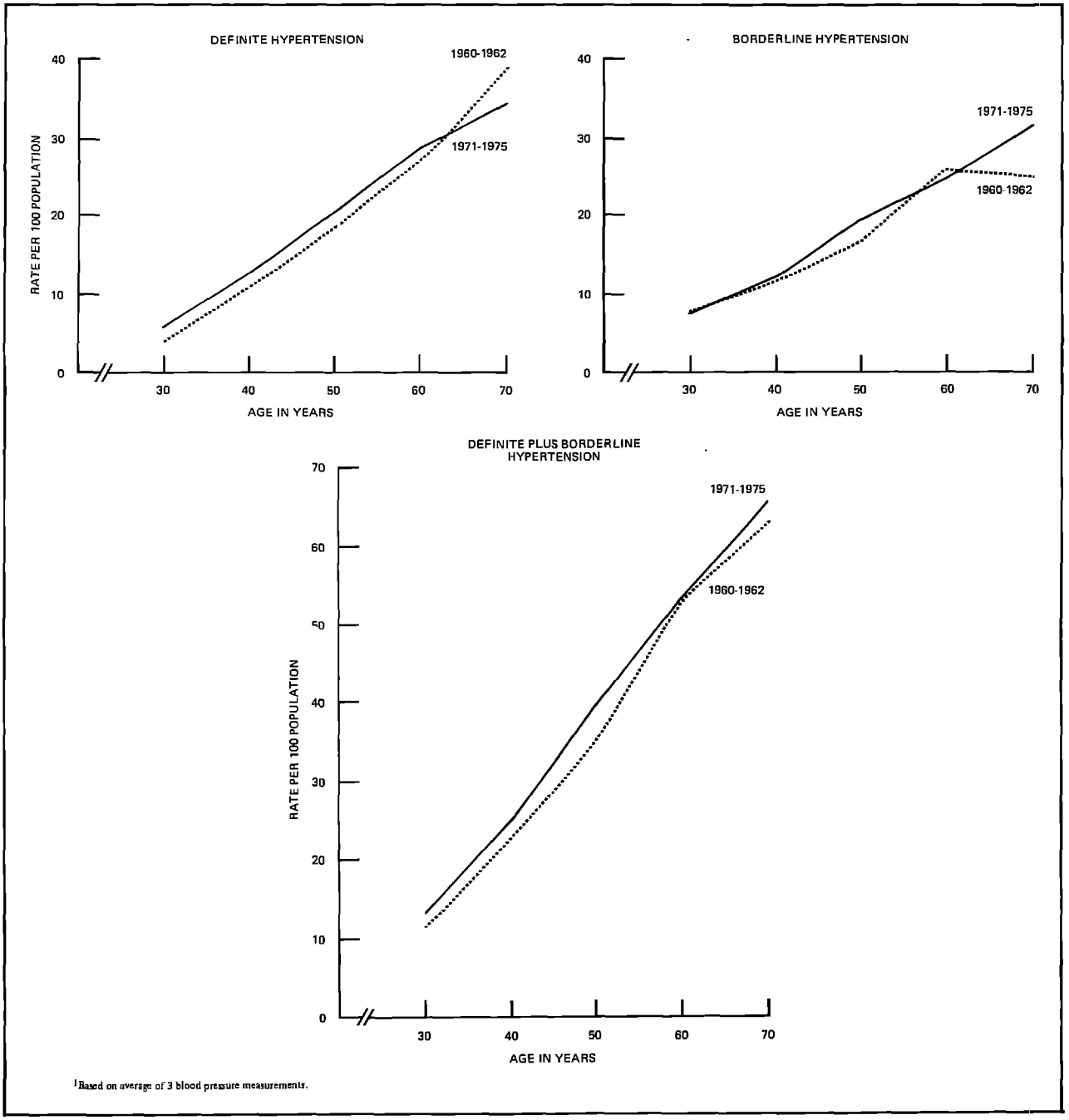


[1] Based on average of 3 blood pressure measurements.

Figure 14. Mean systolic and diastolic pressure[1] among men and women, by age: United States, 1971-1975 and 1960-1962

corresponding rates of 12 years ago. When the total prevalence of hypertension is considered (definite and borderline) the 1971-1975 rates are consistently higher across ages 25-74 years than those of 1960-1962 (figure 15).

There has been a consistent reduction in the proportions of adults with definite and borderline hypertension who had never been diagnosed from 1960-1962 to 1971-1975 across the age range, the difference in proportions being some-



[1] Based on average of 3 blood pressure measurements.

Figure 15. Prevalence rates for definite and/or borderline hypertension[1] among adults, by age: United States, 1971-1975 and 1960-1962

what greater among younger than older adults (figure 16).

The pattern of change in the prevalence of definite hypertension among U.S. adults between time periods (1971-1975 and 1960-1962) differs for men and women. For men, definite hypertension is slightly but consistently more prevalent than it was 12 years ago across the age range, with the differences in the rates being somewhat less among younger men 25-44 years of age than those 45-74 years of age (figure 17).

In contrast for women, the prevalence of definite hypertension in 1971-1975 is consistently lower than it was 12 years ago among those 45-74 years of age (with decreases large enough to be statistically significant at 65-74 years of age), but remains at about the same level as among younger women 25-44 years of age.

The total prevalence of hypertension (definite plus borderline) is consistently higher among U.S. men in 1971-1975 than in 1960-1962 across the age range while for women the change with time in these rates is negligible and

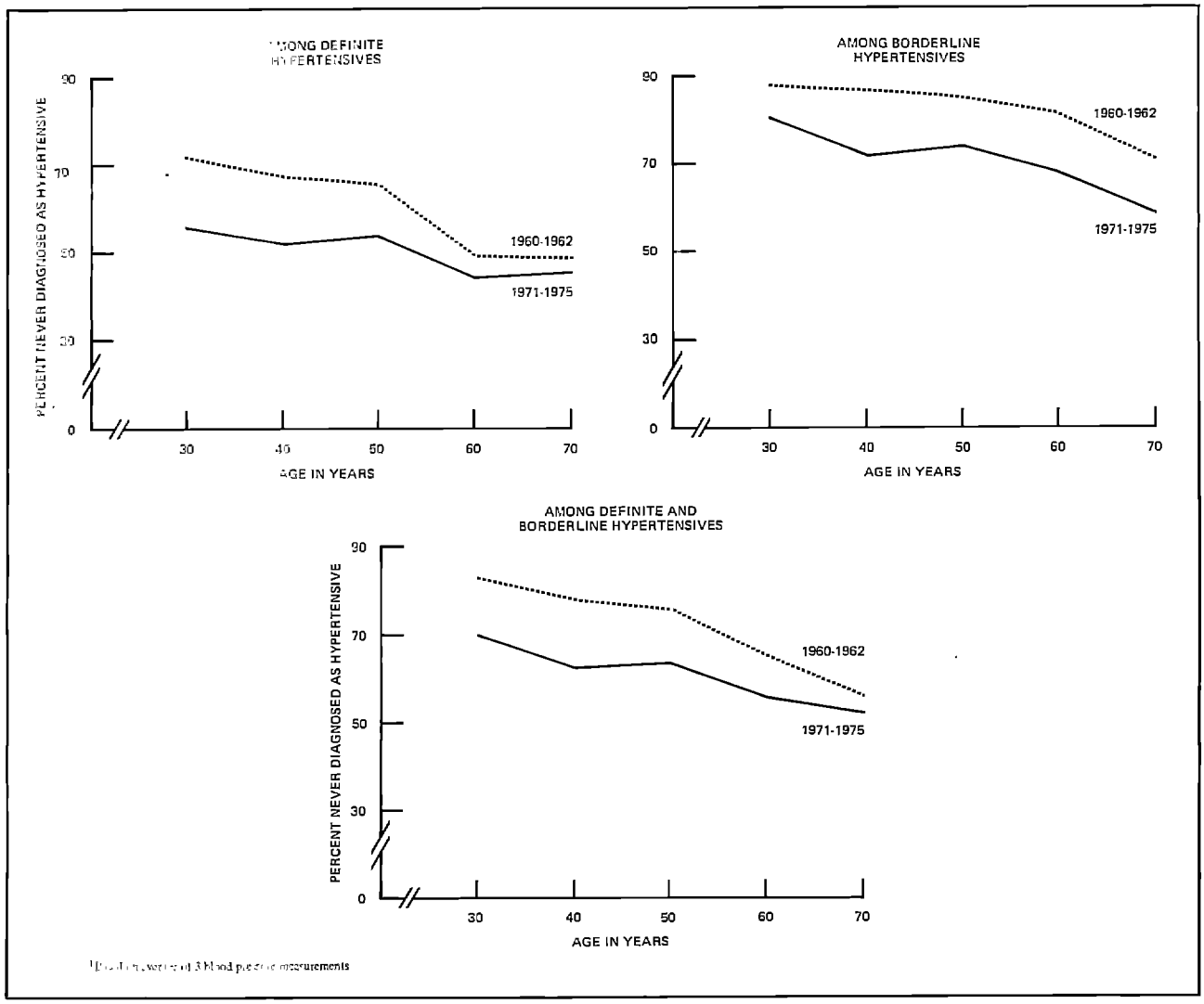


Figure 16. Percent of adults with definite and/or borderline hypertension[1] never diagnosed by a doctor as having high blood pressure or hypertension, by age: United States, 1971-1975 and 1960-1962

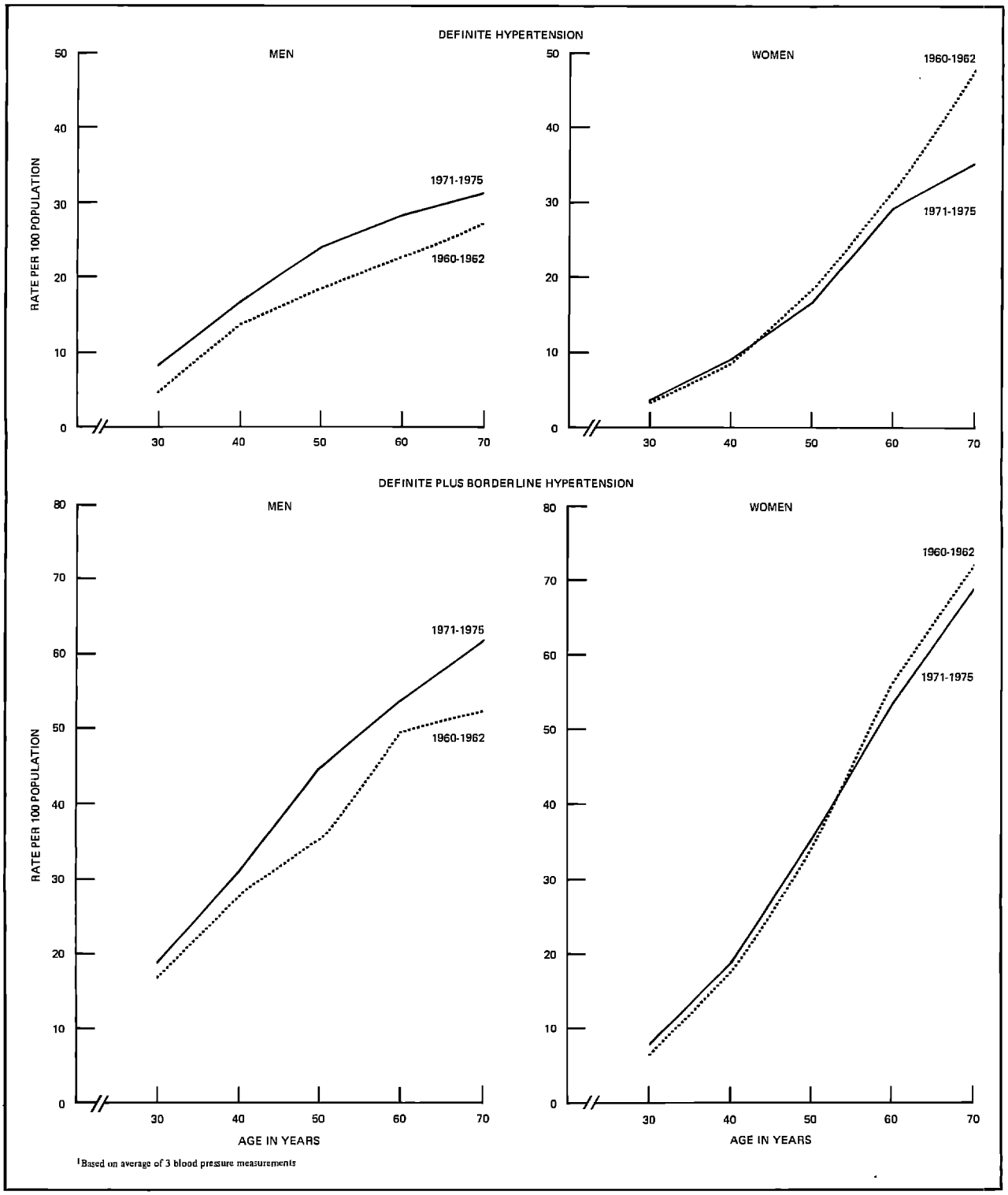


Figure 17. Prevalence rates for definite and definite plus borderline hypertension[1] among men and women, by age: United States, 1971-1975 and 1960-1962

less consistent—very slightly higher among young women 25-44 years of age and slightly lower among those 55-74 years of age.

Comparison of national prevalence estimates for definite hypertension in the U.S. adult population from the two time periods (1974-1975 and 1971-1974) in the present NHANES with those from the 1960-1962 NHES shows slightly higher rates across the age groups 25-64 years in the more recent periods with a slight nonsignificant decrease in the oldest age group 65-74 years (figure 18). If the total prevalence for hypertension (definite plus borderline) is considered, the age-related trends are even less consistent, indicating essentially no change in the total prevalence of hypertension between the 1960-1962 and the 1971-1974 or 1974-1975 periods.

Comparison With Other Studies

National estimates of blood pressure levels (average of three measures) from the 1971-1975 National Health and Nutrition Examination Survey and the 1960-1962 National Health Examination Survey of the National Center for Health Statistics (NCHS) are compared here (as was done for the initial blood pressure levels)[12] with findings from the following large-scale studies in which measurements were obtained by a large number of trained observers who used methods generally similar to those in the two national surveys:

- The 1959-1960 total community study of approximately 2,000 Tecumseh, Michigan, residents ages 25-74 years from the first round of examinations, as reported by Johnson et al.[28]
- The Society of Actuaries Build and Blood Pressure Study of 1959[29] (BBP) covering the experience of 26 large life insurance companies taken from about 4 million policies issued to men and women from 1935 through 1953.
- The nationwide Community Hypertension Evaluation Clinic (CHEC) program in 1973-1975, in which more than 1 million persons were screened at 1,171 sites, as reported by Stamler et al.[30]

The mean systolic blood pressure levels, based on the average of the three measures, of men ages 25-54 years and women ages 45-64 years from both NCHS surveys are about midway between the higher levels of the Tecumseh, Michigan, population and the lower levels of the insured population in the Society of Actuaries study (figure 19).

The mean diastolic levels (from the three-measure average) for men across the age range in the 1971-1975 NHANES are nearly identical to the levels from the Tecumseh, Michigan, study which exceed the national estimates of levels from the 1960-1962 National Health Examination Survey and the lower levels of the 1959 Society of Actuaries study. The mean diastolic levels for women ages 35-74 years in both NCHS surveys are about midway between the higher levels for the Tecumseh adults and the lower levels of the insured population.

Comparison with the findings from the CHEC program are possible among white and black adults, although this screening program was not done among an otherwise defined population.

Among white men, mean systolic pressure levels, as estimated from the NCHS surveys of 1971-1975 and 1960-1962 are nearly identical and both show slightly lower values across age groups 25-64 years than the mean levels for the CHEC participants. The diastolic mean levels for white men in the CHEC program are between the higher levels of 1971-1975 and the lower levels of 1960-1962 for white men in the United States and do not differ significantly from either (figure 20).

Systolic pressure levels of white women in the CHEC program are just slightly higher among the younger age groups 25-44 years and lower at ages 65-74 years than the estimates for white women from the two time periods of the NCHS surveys; the diastolic pressure levels from all three studies are similar.

Among black men the mean diastolic pressure estimates from the 1971-1975 NHANES are higher across age groups 25-64 years than those from either the 1960-1962 NHES or the CHEC program of 1973-1975; however, mean systolic pressure levels from the three studies do not differ significantly or consistently across this age range.

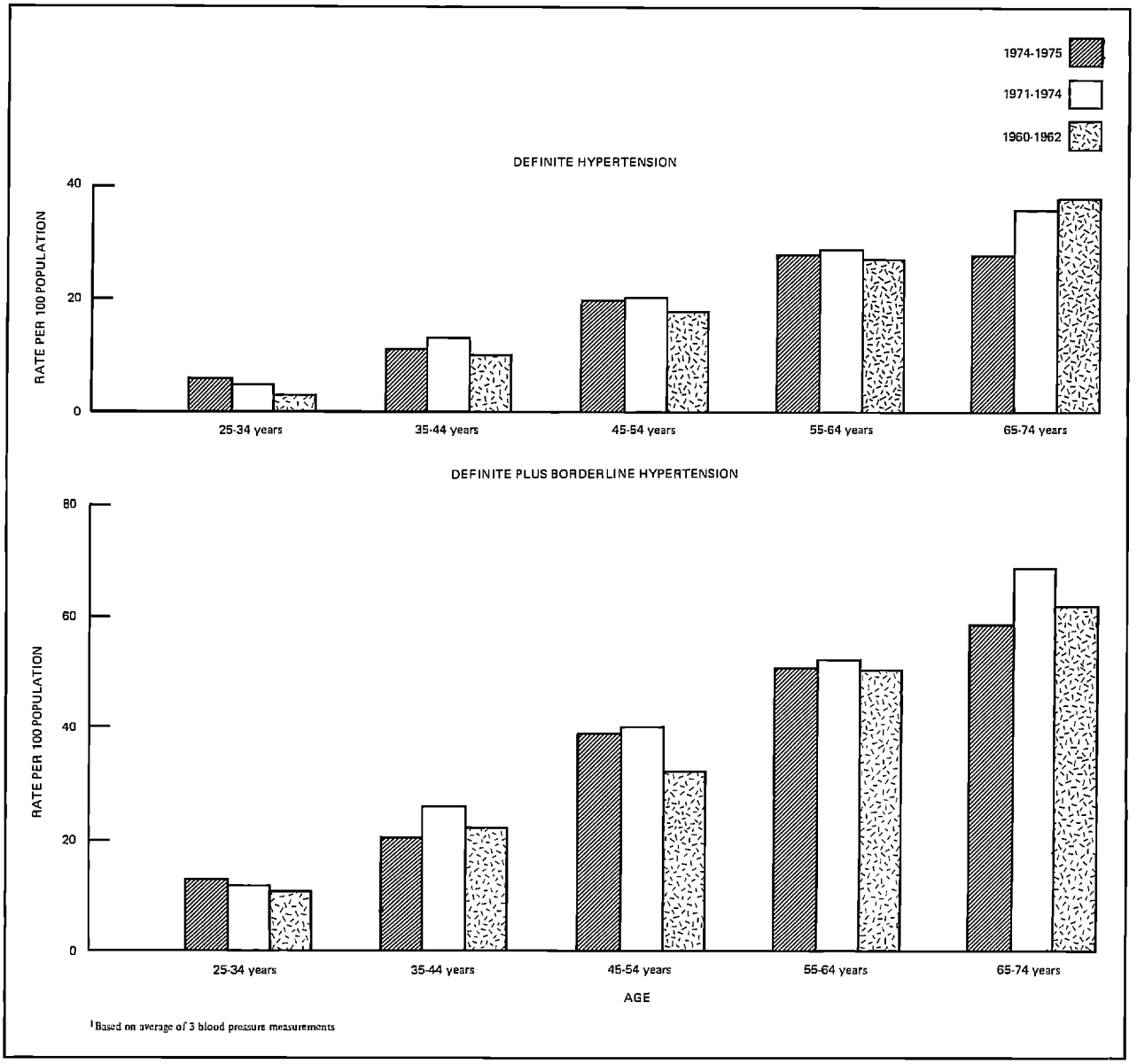


Figure 18. Prevalence rates for definite and definite plus borderline hypertension[1] among adults, by age: United States, 1974-1975, 1971-1974, and 1960-1962

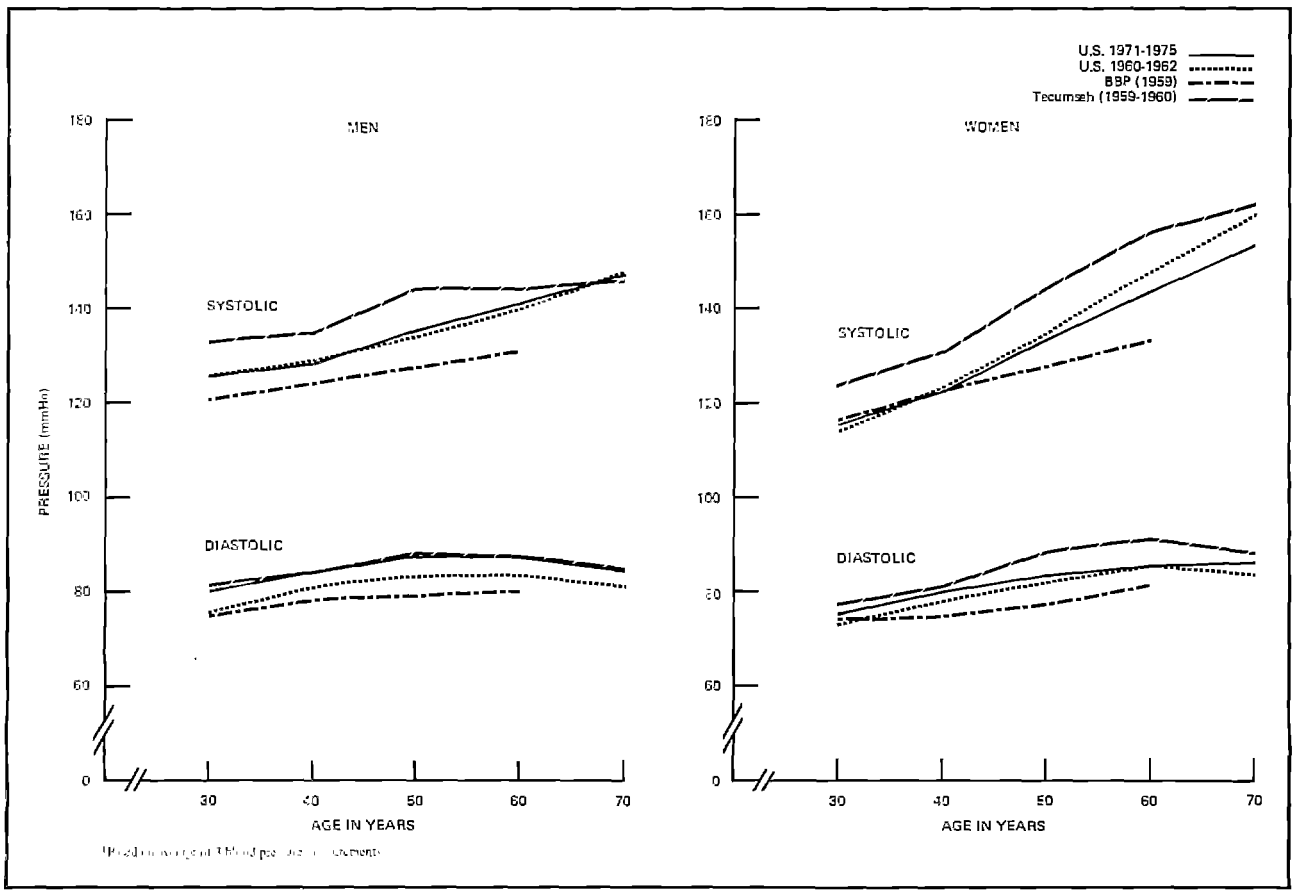
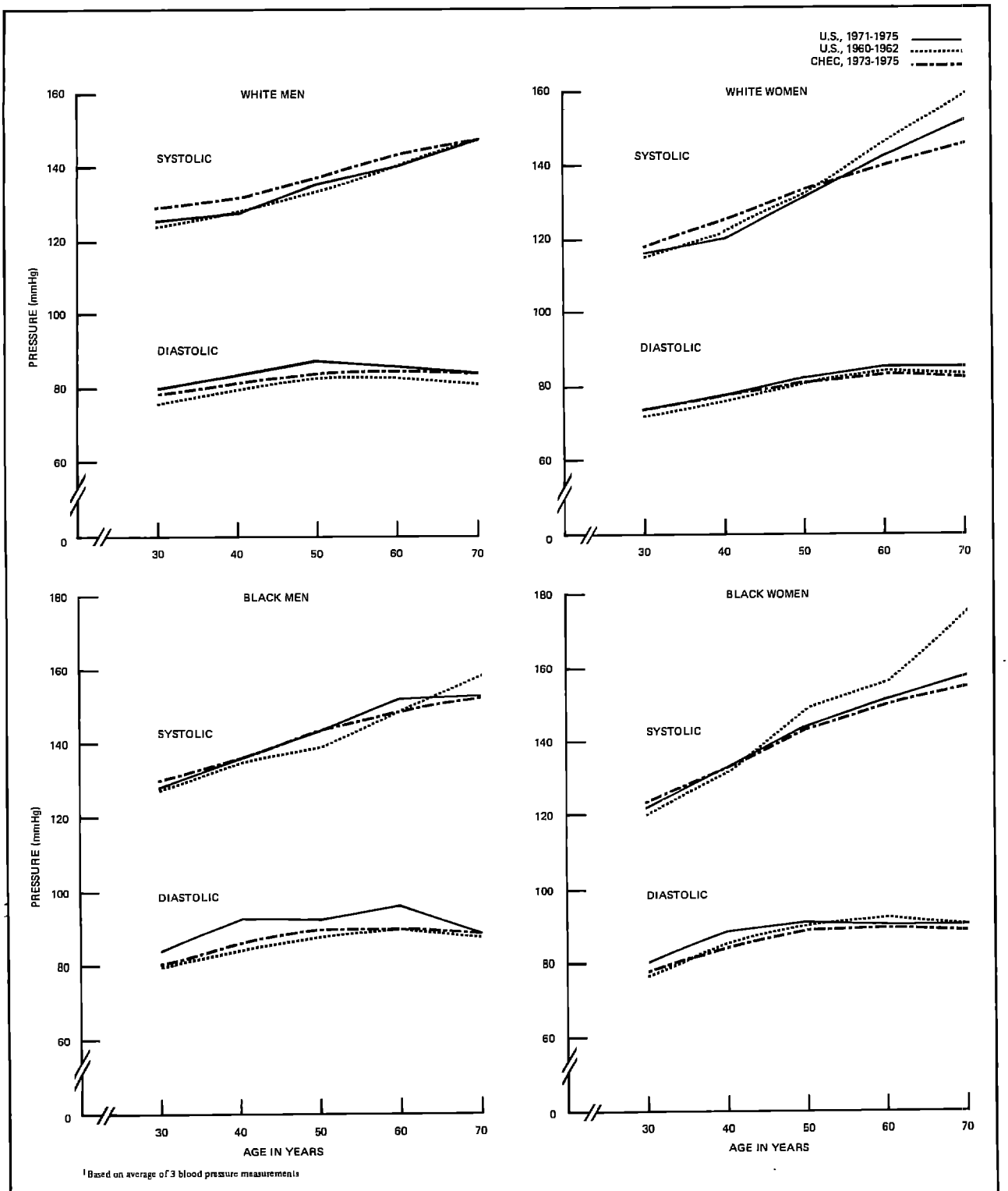


Figure 19. Mean systolic and diastolic blood pressure of men and women in the 1959 Society of Actuaries Build and Blood Pressure (BBP) Study; the 1960 Tecumseh, Michigan study; and estimates[1] for the U.S. population in 1960-1962 and 1971-1975, by age

Younger black women ages 25-44 years show slightly higher mean diastolic pressure levels from the 1971-1975 NHANES than those in either the CHEC program or the earlier national survey. From 45 years and over the diastolic pressure findings from all three studies are similar. Systolic pressure levels of black women as estimated from the 1971-1975 NHANES and among those in the CHEC program are generally similar across the age range and from 45-74 years of age are consistently lower on the average than those from the 1960-1962 NHES.

Prevalence rates for elevated blood pressure levels in the CHEC study were based on a diastolic pressure of at least 90 mmHg and a systolic pressure of at least 110 mmHg. If these CHEC rates are age-sex-race adjusted using the total 1971-1975 U.S. population as a base for comparison with the present national survey findings, the comparable national prevalence rates from NHANES would be less than 1 percent higher than rates based on the CHEC study.

More recently published findings[31] from the Hypertension Detection and Followup Program (HDFP)—a national cooperative effort initiated by the National Heart, Lung, and Blood Institute in 1971—show hypertension (defined here as diastolic pressure of at least 95 mmHg) prevalence rates among black men and women 30-69 years of age to be approximately twice as high as among white men and women, respectively. An inverse association with educational level similar to the findings from the 1971-1975 NHANES was also found. For the HDFP study, blood pressure measurements were obtained on defined populations, age 30-69 years, in 14 communities during 1973-1974.



[1] Based on average of 3 blood pressure measurements

Figure 20. Mean systolic and diastolic blood pressure of white and black men and women in the 1973-1975 Nationwide Community Hypertension Evaluation Clinic (CHEC) Program and estimates[1] for the U.S. population in 1960-1962 and 1971-1975, by age

SUMMARY

This report contains national estimates of the total prevalence of hypertension among adults 25-74 years of age from three blood pressure measurements (taken during the same examination), normative distributions of these measurements, associations with selected systemic diseases or disorders obtained from a medical history and the physicians' examination, and associations with other selected risk factors for coronary heart disease based on the findings from the first National Health and Nutrition Examination Survey of 1971-1975.

For the entire survey period (April 1971-September 1975), a national probability sample of 9,881 adults was selected to represent the estimated 105 million adults ages 25-74 years in the U.S. civilian noninstitutionalized population in June 1973, the midpoint of the survey. Of these sample persons, a total of 6,913 (70.0 percent, unadjusted, or 70.7 percent, if age-adjusted) were given the standardized single-time detailed examination supplemented by medical histories, physiological tests, and measurements.

- Mean systolic blood pressure levels (from the three-measurement averages) of U.S. adults and the variability in these levels among the population increases with age, more rapidly among women than among men. Across age groups 25-44 years, the mean values for men exceed those for women, a pattern that reverses by ages 65-74 years.
- Mean diastolic pressures also increase with age, but reach a maximum for men at ages 45-54 years and for women about 10 years later. Younger men ages 25-54 years have higher diastolic pressure levels on the average than women of comparable age.
- Systolic and diastolic mean blood pressure levels of black adults exceed those of white adults.
- An estimated 19.2 million or 18.0 per 100 civilian noninstitutionalized adults in the United States 25-74 years of age in 1971-1975 had definite hypertension as determined from the three blood pressure measurement mean at the time of the survey (i.e., either systolic blood pressure of at least 160 mmHg *or* diastolic blood pressures of at least 95 mmHg or both). The prevalence rate increases rapidly with age from 5.7 per 100 adults ages 25-34 years to 34.2 per 100 adults ages 65-74 years. In ages 25-54 years, definite hypertension is more prevalent among men than among women; however, by ages 65-74 years the rates are slightly (not statistically significant) greater among women.
- Hypertension, as determined from the blood pressure levels at the time of the survey, is about twice as prevalent among black as among white adults and the rates for both racial groups are slightly higher among men than among women.
- Definite hypertension is slightly more prevalent among adults living in the South and less among those in the West than adults living in the Northeast or Midwest. The proportion of adults with hypertension whose condition was never diagnosed is similar in all four regions.
- Both educational level and size of family income show inverse relationships to the prevalence of definite hypertension. However, among those adults with definite hypertension the proportion of adults never previously diagnosed increases consistently with the size of the family income for women, but not for men, and with the educational level for both men and women.
- About one-fourth of the adults with definite hypertension, as defined here, have elevated diastolic pressures of at least 105 mmHg.
- Nearly one-half of the adults with definite hypertension have never been told by a doctor that they had high blood pressure. This proportion decreases slightly with increasing age and is higher among men than among women and among white than among black adults.
- Adults with definite hypertension at the time of the survey were substantially

more likely than normotensives to have had a history of previously diagnosed stroke, heart failure, or heart attacks and are slightly more likely to have a history of diabetes or kidney disease. These associations are generally similar to those found in the 1960-1962 National Health Examination Survey.

- Weight and relative weight (weight/height) show positive correlations with blood pressure levels that are higher with diastolic than systolic pressure and that for both pressures are higher among women than among men and among white than among black adults. No significant correlations are found between total serum cholesterol levels and either systolic or diastolic blood pressure.
- National prevalence estimates for hypertension—definite, elevated diastolic pressures, and borderline—suggest a decrease from the 1971-1974 period to those from the 1974-1975 period. The proportion of those adults with definite hypertension who had never been diagnosed also shows a slight decrease during that period.

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LIST OF DETAILED TABLES

Table 1. Systolic and diastolic blood pressure of adults 25-74 years, by age and sex—mean, standard deviation, standard error of the mean, and selected percentiles: United States, 1971-1975 (Apr. 1971-Sept. 1975)

Blood pressure, age, and sex	Mean	Standard deviation	Standard error	Percentile						
				5th	10th	25th	50th	75th	90th	95th
Systolic	Blood pressure (mmHg)									
Both sexes, 25-74 years	132.1	21.2	0.50	104.7	109.3	117.3	128.0	143.3	160.0	171.3
25-34 years	120.8	13.0	0.54	101.3	105.3	112.0	119.3	128.0	137.7	144.0
35-44 years	124.8	16.4	0.68	102.0	106.0	114.0	122.7	132.7	145.3	155.3
45-54 years	134.0	20.1	0.91	107.3	112.0	120.7	130.7	144.0	159.3	171.3
55-64 years	142.1	21.7	1.11	111.3	117.3	126.7	139.3	154.7	170.0	179.3
65-74 years	150.6	23.2	1.33	118.7	124.0	133.7	147.3	164.7	182.0	192.0
Men, 25-74 years	133.4	18.8	0.75	109.3	113.3	120.0	130.0	142.7	158.0	169.3
25-34 years	125.1	12.0	0.92	108.0	110.7	117.3	123.7	132.0	140.7	147.3
35-44 years	128.1	14.7	0.98	106.7	110.0	118.0	126.7	135.3	146.0	155.3
45-54 years	135.2	18.9	1.37	110.7	114.7	122.0	131.3	145.3	159.3	171.3
55-64 years	141.0	20.4	1.70	110.0	116.7	126.0	139.0	153.3	168.0	176.0
65-74 years	147.4	22.2	1.92	114.3	120.7	132.0	146.0	160.7	175.0	188.0
Women, 25-74 years	130.9	23.1	0.57	102.0	106.3	114.7	126.0	143.3	162.0	174.7
25-34 years	116.7	12.5	0.69	99.3	102.7	108.7	115.3	123.3	132.0	140.0
35-44 years	121.7	17.3	1.03	100.0	102.7	110.0	118.7	130.0	144.0	155.3
45-54 years	132.9	21.1	1.29	105.3	109.7	118.7	130.0	143.3	158.7	172.0
55-64 years	143.2	22.8	1.27	111.7	118.0	127.3	140.0	158.0	171.3	181.3
65-74 years	153.1	23.7	1.77	123.3	126.7	136.0	148.7	167.3	185.3	197.3
Diastolic										
Both sexes, 25-74 years	82.6	11.7	0.35	66.0	69.3	74.7	81.3	89.3	97.3	103.3
25-34 years	77.6	09.8	0.44	63.3	66.0	71.3	76.7	83.0	90.0	94.7
35-44 years	81.8	11.4	0.61	64.7	68.7	74.0	80.0	88.0	96.0	102.0
45-54 years	85.2	11.9	0.63	68.7	72.0	77.3	84.0	91.3	99.3	106.0
55-64 years	86.0	11.8	0.65	69.3	72.0	78.0	84.7	93.3	101.3	107.3
65-74 years	85.1	11.7	0.62	68.7	71.3	76.7	84.0	91.3	100.7	105.3
Men, 25-74 years	84.3	11.2	0.44	68.0	71.3	76.7	83.3	90.7	98.0	104.3
25-34 years	80.3	09.2	0.66	66.7	69.3	74.0	80.0	85.3	92.3	96.7
35-44 years	84.1	10.5	0.78	68.7	71.3	76.7	83.3	90.0	97.3	102.0
45-54 years	87.3	12.0	0.88	71.3	74.0	80.0	86.0	93.3	101.0	108.0
55-64 years	86.9	11.6	0.81	70.0	73.3	78.7	85.3	93.3	102.3	108.0
65-74 years	84.4	11.3	0.96	67.3	70.7	76.7	84.0	90.7	99.3	105.3
Women, 25-74 years	81.1	12.0	0.45	64.7	67.3	72.7	80.0	87.3	96.7	103.3
25-34 years	75.0	09.6	0.58	61.3	64.3	68.7	74.0	80.0	86.0	91.0
35-44 years	79.6	11.8	0.83	63.3	66.7	71.3	78.7	85.3	93.0	101.3
45-54 years	83.3	11.5	0.79	68.0	70.7	76.0	82.0	89.3	97.3	104.3
55-64 years	85.3	11.8	0.79	68.0	71.3	76.7	84.0	92.7	100.0	105.3
65-74 years	85.7	12.0	0.93	69.3	72.0	77.3	84.7	92.0	101.7	105.3

NOTE: All blood pressures are the average of 3 measurements.

Table 2. Percent distribution of men 25-34 years of age, by specified systolic and diastolic blood pressures: United States, 1971-1975

Systolic blood pressure (mmHg)	Diastolic blood pressure (mmHg)										
	Total	Under 50	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130 and over
	Percent distribution										
Total	100.0	0.1	1.1	9.2	38.4	36.0	12.6	2.5	0.2	-	-
Under 100	0.8	-	0.1	0.6	-	0.1	-	-	-	-	-
100-109	5.6	0.1	0.4	1.7	2.8	0.6	-	-	-	-	-
110-119	27.2	-	0.4	4.7	17.0	5.0	0.1	-	-	-	-
120-129	34.6	-	0.2	1.7	13.8	16.9	2.0	-	-	-	-
130-139	20.7	-	-	-	4.1	10.7	5.3	0.4	0.1	-	-
140-149	7.0	-	0.1	0.5	0.4	2.0	2.8	1.4	-	-	-
150-159	3.3	-	-	-	0.2	0.6	1.8	0.6	0.1	-	-
160-169	0.7	-	-	-	-	-	0.6	0.1	-	-	-
170 and over	0.1	-	-	-	-	-	-	0.1	-	-	-

NOTE: All blood pressures are the average of 3 measurements. Cell values rounded, totals not adjusted to add to 100.0 percent.

Table 3. Percent distribution of men 35-44 years of age, by specified systolic and diastolic blood pressures: United States, 1971-1975

Systolic blood pressure (mmHg)	Diastolic blood pressure (mmHg)									
	Total	Under 60	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130 and over
	Percent distribution									
Total	100.0	0.2	5.7	31.1	37.3	18.1	5.3	1.6	0.5	0.1
Under 100	0.1	-	0.1	-	-	-	-	-	-	-
100-109	8.3	0.2	1.4	6.1	0.5	-	-	-	-	-
110-119	21.6	-	3.1	11.6	6.6	0.3	-	-	-	-
120-129	28.7	-	1.1	8.7	15.2	3.4	0.2	-	-	-
130-139	22.2	-	-	3.4	11.0	7.5	0.3	-	-	-
140-149	10.6	-	-	1.1	2.6	5.5	1.3	0.1	-	-
150-159	5.2	-	-	0.2	0.5	1.0	3.2	0.4	-	-
160-169	1.8	-	-	-	0.8	0.2	0.1	0.7	-	-
170-179	0.8	-	-	-	-	0.2	0.3	-	0.4	-
180 and over	0.7	-	-	-	-	-	-	0.4	0.1	0.1

NOTE: All blood pressures are the average of 3 measurements. Cell values rounded, totals not adjusted to add to 100.0 percent.

Table 4. Percent distribution of men 45-54 years of age, by specified systolic and diastolic blood pressures: United States, 1971-1975

Systolic blood pressure (mmHg)	Diastolic blood pressure (mmHg)									
	Total	Under 60	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130 and over
	Percent distribution									
Total	100.0	0.2	3.2	21.4	38.9	24.3	7.4	2.8	1.1	0.6
Under 100	0.2	0.1	0.0	-	-	-	-	-	-	-
100-109	3.4	-	1.4	1.9	0.1	-	-	-	-	-
110-119	15.1	0.0	1.0	8.7	5.1	0.3	-	-	-	-
120-129	25.9	-	0.3	7.7	15.5	2.3	0.1	-	-	-
130-139	22.7	-	0.5	2.2	11.0	8.2	0.9	-	-	-
140-149	13.8	-	-	0.8	4.3	7.0	1.6	0.1	-	-
150-159	9.3	-	-	-	1.4	4.6	2.2	1.0	-	-
160-169	4.5	-	-	0.1	1.2	1.3	1.2	0.6	0.2	-
170-179	1.6	-	-	-	0.4	0.2	0.7	0.2	0.1	-
180-189	1.9	-	-	-	-	0.4	0.3	0.8	0.4	-
190-199	1.1	-	-	-	-	0.1	0.2	0.1	0.4	0.4
200 and over	0.6	-	-	-	-	-	0.3	0.0	-	0.3

NOTE: All blood pressures are the average of 3 measurements. Cell values rounded, totals not adjusted to add to 100.0 percent.

Table 5. Percent distribution of men 55-64 years of age, by specified systolic and diastolic blood pressures: United States, 1971-1975

Systolic blood pressure (mmHg)	Diastolic blood pressure (mmHg)									
	Total	Under 60	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130 and over
	Percent distribution									
Total	100.0	0.4	4.0	23.4	35.9	22.4	10.5	3.1	0.1	0.2
Under 100	0.2	-	0.2	-	-	-	-	-	-	-
100-109	4.5	0.4	0.8	3.3	-	-	-	-	-	-
110-119	9.2	-	1.5	6.4	1.2	0.1	-	-	-	-
120-129	17.2	-	0.3	7.4	9.2	0.4	-	-	-	-
130-139	19.8	-	0.6	3.9	11.2	3.9	0.1	-	-	-
140-149	17.8	-	0.0	1.8	7.4	6.8	1.7	0.1	-	-
150-159	14.7	-	0.5	0.1	4.7	6.0	2.9	0.4	-	-
160-169	7.1	-	-	0.2	1.4	2.9	2.0	0.7	-	-
170-179	5.7	-	-	0.2	0.7	1.8	2.4	0.7	0.1	-
180-189	1.8	-	-	-	-	0.3	1.2	0.4	-	-
190-199	0.6	-	-	-	-	0.4	0.2	0.1	-	0.1
200-209	0.9	-	-	-	-	0.1	-	0.8	-	-
210 and over	0.4	-	-	-	0.1	-	0.2	-	-	0.1

NOTE: All blood pressures are the average of 3 measurements. Cell values rounded, totals not adjusted to add to 100.0 percent.

Table 6. Percent distribution of men 65-74 years of age, by specified systolic and diastolic blood pressures: United States, 1971-1975

Systolic blood pressure (mmHg)	Diastolic blood pressure (mmHg)									
	Total	Under 60	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130 and over
	Percent distribution									
Total	100.0	0.6	7.5	27.2	35.2	19.9	7.9	1.4	0.3	0.1
Under 100	0.2	-	0.2	-	-	-	-	-	-	-
100-109	2.2	0.2	1.1	0.7	0.2	-	-	-	-	-
110-119	6.8	0.2	1.7	4.0	0.9	-	-	-	-	-
120-129	12.8	-	1.5	6.3	4.6	0.5	-	-	-	-
130-139	18.5	-	1.4	7.1	8.4	1.6	-	-	-	-
140-149	17.2	-	1.0	4.3	8.3	3.6	0.1	-	-	-
150-159	15.0	-	0.1	3.4	4.7	4.7	1.7	0.2	-	-
160-169	12.9	-	0.5	0.4	3.9	5.7	2.2	0.3	-	-
170-179	6.0	-	-	0.2	2.4	1.8	1.4	0.0	0.0	0.1
180-189	4.6	0.2	-	0.5	1.7	1.4	0.8	-	-	-
190-199	2.2	-	-	0.3	0.2	0.5	1.0	0.4	-	-
200-209	0.6	-	-	-	-	0.0	0.4	-	0.1	-
210-219	0.4	-	-	-	0.0	0.1	0.1	0.1	0.1	-
220-229	0.2	-	-	-	-	-	-	0.2	-	-
230 and over	0.4	-	-	-	-	-	0.3	0.2	-	-

NOTE: All blood pressures are the average of 3 measurements. Cell values rounded, totals not adjusted to add to 100.0 percent.

Table 7. Percent distribution of women 25-34 years of age, by specified systolic and diastolic blood pressures: United States, 1971-1975

Systolic blood pressure (mmHg)	Diastolic blood pressure (mmHg)									
	Total	Under 50	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130 and over
	Percent distribution									
Total	100.0	0.5	2.6	25.6	43.1	22.5	3.6	1.7	0.3	0.1	0.1
Under 90	0.1	-	0.1	-	-	-	-	-	-	-	-
90-99	5.7	0.4	1.0	3.7	0.6	-	-	-	-	-	-
100-109	23.6	0.0	1.0	11.4	10.5	0.7	-	-	-	-	-
110-119	36.1	-	0.4	9.6	19.3	6.8	0.1	-	-	-	-
120-129	21.8	-	-	0.9	10.6	9.2	1.1	-	-	-	-
130-139	7.5	-	0.1	-	1.9	4.1	1.3	0.1	-	-	-
140-149	3.8	-	-	-	0.1	1.4	0.9	1.4	-	-	-
150-159	0.5	-	-	-	-	0.2	0.1	-	0.1	0.0	-
160-169	0.3	-	-	-	-	-	0.2	-	0.0	0.1	-
170-179	0.3	-	-	-	-	-	-	0.3	0.1	-	-
180 and over	0.1	-	-	-	-	-	-	-	0.1	-	0.1

NOTE: All blood pressures are the average of 3 measurements. Cell values rounded, totals not adjusted to add to 100.0 percent.

Table 8. Percent distribution of women 35-44 years of age, by specified systolic and diastolic blood pressures: United States, 1971-1975

Systolic blood pressure (mmHg)	Diastolic blood pressure (mmHg)									
	Total	Under 60	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130 and over
	Percent distribution									
Total	100.0	1.5	16.0	37.6	28.2	10.6	3.8	1.6	0.5	0.2
Under 100	4.8	0.6	3.2	1.0	-	-	-	-	-	-
100-109	18.6	0.8	7.9	8.7	1.2	-	-	-	-	-
110-119	28.8	0.1	2.8	18.5	7.1	0.2	-	-	-	-
120-129	22.3	-	1.4	6.5	12.7	1.6	-	-	-	-
130-139	13.2	0.1	0.3	2.3	5.8	4.2	0.5	-	-	-
140-149	4.9	-	0.3	0.4	0.8	1.9	1.5	-	-	-
150-159	3.1	-	-	-	0.5	1.8	0.7	0.1	-	-
160-169	1.9	-	-	-	-	0.9	0.6	0.5	-	-
170-179	1.6	-	-	-	0.1	-	0.5	0.7	0.3	-
180-189	0.3	-	-	-	-	-	-	0.3	-	-
190-199	0.2	-	-	-	-	-	-	0.1	0.1	0.1
200 and over	0.3	-	-	-	-	-	0.0	0.0	0.1	0.1

NOTE: All blood pressures are the average of 3 measurements. Cell values rounded, totals not adjusted to add to 100.0 percent.

Table 9. Percent distribution of women 45-54 years of age, by specified systolic and diastolic blood pressures: United States, 1971-1975

Systolic blood pressure (mmHg)	Diastolic blood pressure (mmHg)									
	Total	Under 60	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130 and over
	Percent distribution									
Total	100.0	0.2	7.2	33.1	36.6	14.8	5.5	1.2	1.1	0.3
Under 100	1.7	-	1.4	0.3	-	-	-	-	-	-
100-109	8.0	0.1	3.2	4.1	0.2	0.4	-	-	-	-
110-119	18.0	0.1	1.8	12.2	3.6	0.2	-	-	-	-
120-129	21.9	-	0.4	9.4	11.5	0.5	-	-	-	-
130-139	19.7	-	0.4	4.6	11.5	3.1	-	-	-	-
140-149	13.5	-	0.0	1.6	5.8	5.3	0.7	0.1	-	-
150-159	7.3	-	-	0.6	2.4	2.7	1.5	0.2	-	-
160-169	3.7	-	-	0.1	1.0	1.1	1.4	0.1	-	-
170-179	2.8	-	-	0.1	0.4	1.1	0.9	0.1	0.2	-
180-189	1.2	-	-	-	0.1	0.1	0.4	0.4	0.2	-
190-199	1.0	-	-	-	-	0.1	0.5	-	0.4	-
200-209	0.4	-	-	-	-	-	0.1	-	0.3	0.0
210-219	0.5	-	-	-	-	-	0.1	0.4	-	-
220 and over	0.4	-	-	-	-	-	-	-	0.1	0.3

NOTE: All blood pressures are the average of 3 measurements. Cell values rounded, totals not adjusted to add to 100.0 percent.

Table 10. Percent distribution of women 55-64 years of age, by specified systolic and diastolic blood pressures: United States, 1971-1975

Systolic blood pressure (mmHg)	Diastolic blood pressure (mmHg)								
	Total	Under 70	70-79	80-89	90-99	100-109	110-119	120-129	130 and over
	Percent distribution								
Total	100.0	7.3	27.2	34.3	20.3	7.5	2.3	1.0	0.2
Under 100	1.2	1.0	0.2	-	-	-	-	-	-
100-109	2.2	0.3	1.9	-	-	-	-	-	-
110-119	8.5	1.6	5.7	1.2	-	-	-	-	-
120-129	17.1	2.6	9.5	4.6	0.5	-	-	-	-
130-139	20.5	0.4	6.0	12.1	2.0	-	-	-	-
140-149	17.0	0.5	3.1	7.6	5.5	0.2	-	-	-
150-159	12.6	0.1	0.4	4.7	5.1	1.9	0.3	-	-
160-169	9.9	-	0.2	2.6	3.7	2.4	1.0	-	-
170-179	5.0	0.6	-	1.3	1.3	1.4	0.2	0.2	-
180-189	2.0	0.1	-	0.2	0.9	0.5	0.3	-	-
190-199	1.1	-	0.2	-	0.5	0.3	-	0.1	-
200-209	1.0	-	-	-	0.3	0.5	0.1	-	0.1
210-219	1.0	-	-	-	0.5	0.1	0.4	-	-
220-229	0.2	-	-	-	-	0.2	-	-	0.1
230 and over	0.6	-	-	-	-	-	-	0.6	-

NOTE: All blood pressures are the average of 3 measurements. Cell values rounded, totals not adjusted to add to 100.0 percent.

Table 11. Percent distribution of women 65-74 years of age, by specified systolic and diastolic blood pressures: United States, 1971-1975

Systolic blood pressure (mmHg)	Diastolic blood pressure (mmHg)								
	Total	Under 60	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130 and over
	Percent distribution								
Total	100.0	0.4	4.8	26.1	37.5	19.0	9.3	1.8	0.6	0.6
Under 100	0.3	0.3	-	-	-	-	-	-	-	-
100-109	1.1	-	0.6	0.5	-	-	-	-	-	-
110-119	1.5	-	-	1.0	0.5	-	-	-	-	-
120-129	10.4	0.1	1.5	6.6	2.1	0.1	-	-	-	-
130-139	18.8	-	2.1	6.6	9.3	0.6	0.2	-	-	-
140-149	19.0	0.0	0.5	4.3	10.3	3.6	0.3	-	-	-
150-159	15.2	-	-	4.1	6.5	4.2	0.4	-	-	-
160-169	12.8	-	0.1	1.2	5.3	4.8	1.4	0.0	-	-
170-179	7.1	-	-	1.2	1.2	1.9	2.3	0.5	-	-
180-189	6.0	-	-	0.2	1.1	2.1	2.1	0.3	-	-
190-199	3.8	-	-	0.3	0.8	1.1	1.3	0.2	0.1	-
200-209	2.1	-	-	0.0	0.1	0.3	1.1	0.4	0.2	-
210-219	0.7	-	-	0.0	0.3	-	0.2	0.2	-	-
220-229	0.8	-	-	-	-	0.2	0.1	0.0	0.2	0.2
230-239	0.3	-	-	-	-	0.0	-	0.2	-	0.1
240 and over	0.2	-	-	-	-	-	-	-	-	0.2

NOTE: All blood pressures are the average of 3 measurements. Cell values rounded, totals not adjusted to add to 100.0 percent.

Table 12. First sitting systolic and diastolic blood pressure of adults 25-74 years, by age and sex—mean, standard deviation, and selected percentiles: United States, 1971-1975 (Apr. 1971-Sept. 1975)

Blood pressure, age, and sex	Mean	Standard deviation	Percentile						
			5th	10th	25th	50th	75th	90th	95th
Systolic	Blood pressure (mmHg)								
Both sexes, 25-74 years	131.0	22.2	100.0	108.0	116.0	128.0	142.0	160.0	170.0
25-34 years	119.8	14.0	100.0	102.0	110.0	120.0	130.0	138.0	146.0
35-44 years	124.1	17.5	100.0	104.0	112.0	120.0	134.0	146.0	158.0
45-54 years	132.8	21.4	104.0	110.0	120.0	130.0	142.0	160.0	170.0
55-64 years	141.1	23.4	110.0	114.0	126.0	140.0	154.0	170.0	182.0
65-74 years	148.9	24.6	114.0	120.0	130.0	148.0	162.0	180.0	190.0
Men, 25-74 years	132.4	19.6	108.0	110.0	120.0	130.0	142.0	158.0	170.0
25-34 years	124.3	13.0	104.0	110.0	116.0	122.0	132.0	142.0	150.0
35-44 years	127.4	15.8	106.0	110.0	118.0	125.0	136.0	146.0	156.0
45-54 years	134.2	19.7	108.0	112.0	120.0	130.0	144.0	160.0	170.0
55-64 years	139.9	21.2	108.0	114.0	126.0	138.0	152.0	166.0	174.0
65-74 years	145.9	23.8	110.0	118.0	130.0	144.0	160.0	174.0	188.0
Women, 25-74 years	129.7	24.2	100.0	104.0	112.0	124.0	142.0	162.0	174.0
25-34 years	115.5	13.5	98.0	100.0	108.0	114.0	122.0	132.0	140.0
35-44 years	121.0	18.5	96.0	100.0	110.0	118.0	130.0	144.0	160.0
45-54 years	131.5	22.7	100.0	108.0	116.0	130.0	142.0	160.0	172.0
55-64 years	142.2	25.1	110.0	112.0	125.0	140.0	156.0	170.0	188.0
65-74 years	151.1	24.9	118.0	122.0	134.0	150.0	166.0	184.0	200.0
Diastolic									
Both sexes, 25-74 years	83.4	12.8	64.0	70.0	75.0	82.0	90.0	100.0	106.0
25-34 years	78.5	10.9	60.0	66.0	70.0	80.0	85.0	92.0	98.0
35-44 years	82.7	12.5	64.0	70.0	74.0	82.0	90.0	98.0	104.0
45-54 years	86.1	13.3	68.0	70.0	78.0	84.0	92.0	102.0	110.0
55-64 years	86.7	12.9	70.0	70.0	78.0	86.0	94.0	102.0	110.0
65-74 years	85.6	12.9	68.0	70.0	78.0	84.0	94.0	100.0	108.0
Men, 25-74 years	85.4	12.2	68.0	70.0	78.0	84.0	92.0	100.0	106.0
25-34 years	81.5	10.2	66.0	70.0	74.0	80.0	88.0	94.0	100.0
35-44 years	85.4	11.4	70.0	70.0	78.0	84.0	92.0	100.0	105.0
45-54 years	88.3	13.3	70.0	74.0	80.0	88.0	96.0	104.0	112.0
55-64 years	87.7	12.6	70.0	70.0	80.0	88.0	96.0	104.0	110.0
65-74 years	84.8	12.4	68.0	70.0	76.0	84.0	94.0	100.0	106.0
Women, 25-74 years	81.7	13.2	62.0	68.0	72.0	80.0	90.0	98.0	105.0
25-34 years	75.8	10.9	60.0	64.0	70.0	76.0	80.0	90.0	94.0
35-44 years	80.2	12.9	60.0	66.0	70.0	80.0	88.0	94.0	104.0
45-54 years	84.0	13.0	66.0	70.0	76.0	82.0	90.0	100.0	108.0
55-64 years	85.9	13.1	70.0	70.0	78.0	84.0	94.0	100.0	110.0
65-74 years	86.1	13.2	68.0	70.0	78.0	84.0	94.0	102.0	110.0

Table 13. Recumbent systolic and diastolic blood pressure of adults 25-74 years, by age and sex—mean, standard deviation, and selected percentiles: United States, 1971-1975 (Apr. 1971-Sept. 1975)

Blood pressure, age, and sex	Mean	Standard deviation	Percentile						
			5th	10th	25th	50th	75th	90th	95th
Systolic	Blood pressure (mmHg)								
Both sexes, 25-74 years	133.3	22.8	104.0	110.0	118.0	130.0	144.0	162.0	176.0
25-34 years	121.4	14.3	100.0	104.0	110.0	120.0	130.0	140.0	146.0
35-44 years	125.6	17.9	100.0	104.0	112.0	124.0	134.0	150.0	158.0
45-54 years	135.1	21.6	108.0	110.0	120.0	130.0	146.0	160.0	176.0
55-64 years	143.9	23.2	110.0	116.0	130.0	140.0	156.0	174.0	186.0
65-74 years	153.0	25.2	118.0	124.0	134.0	150.0	168.0	190.0	200.0
Men, 25-74 years	134.3	20.4	110.0	112.0	120.0	130.0	144.0	160.0	172.0
25-34 years	125.7	13.4	108.0	110.0	118.0	124.0	132.0	142.0	150.0
35-44 years	128.9	16.2	106.0	110.0	118.0	128.0	138.0	150.0	158.0
45-54 years	135.9	20.4	110.0	114.0	120.0	132.0	146.0	162.0	176.0
55-64 years	142.3	22.1	110.0	116.0	126.0	140.0	154.0	170.0	184.0
65-74 years	149.5	23.8	116.0	120.0	132.0	146.0	164.0	182.0	190.0
Women, 25-74 years	132.3	24.7	100.0	106.0	114.0	128.0	146.0	164.0	180.0
25-34 years	117.4	14.0	98.0	100.0	110.0	116.0	124.0	134.0	140.0
35-44 years	122.6	18.8	100.0	102.0	110.0	120.0	130.0	148.0	160.0
45-54 years	134.4	22.7	104.0	110.0	120.0	130.0	146.0	160.0	178.0
55-64 years	145.3	24.1	112.0	116.0	130.0	140.0	160.0	174.0	190.0
65-74 years	155.6	25.9	120.0	128.0	138.0	150.0	170.0	192.0	204.0
Diastolic									
Both sexes, 25-74 years	80.6	12.6	62.0	66.0	70.0	80.0	88.0	96.0	102.0
25-34 years	75.2	10.6	60.0	62.0	70.0	74.0	80.0	89.0	94.0
35-44 years	79.1	12.1	60.0	64.0	70.0	80.0	86.0	94.0	100.0
45-54 years	83.2	12.4	66.0	70.0	76.0	82.0	90.0	100.0	104.0
55-64 years	84.6	12.7	68.0	70.0	76.0	84.0	92.0	100.0	108.0
65-74 years	84.1	12.9	68.0	70.0	76.0	84.0	90.0	100.0	106.0
Men, 25-74 years	81.8	12.3	64.0	68.0	74.0	80.0	90.0	98.0	104.0
25-34 years	77.1	10.4	60.0	66.0	70.0	76.0	84.0	90.0	94.0
35-44 years	80.8	11.8	64.0	68.0	72.0	80.0	88.0	96.0	100.0
45-54 years	84.9	12.6	68.0	70.0	78.0	84.0	90.0	100.0	108.0
55-64 years	85.3	12.7	68.0	70.0	78.0	84.0	92.0	100.0	108.0
65-74 years	83.2	12.1	56.0	70.0	74.0	84.0	90.0	100.0	106.0
Women, 25-74 years	79.5	12.8	60.0	64.0	70.0	80.0	86.0	96.0	100.0
25-34 years	73.4	10.6	60.0	60.0	68.0	72.0	80.0	86.0	90.0
35-44 years	77.5	12.2	60.0	64.0	70.0	76.0	84.0	92.0	100.0
45-54 years	81.7	12.0	66.0	70.0	74.0	80.0	88.0	96.0	100.0
55-64 years	84.0	12.7	66.0	70.0	76.0	82.0	90.0	100.0	108.0
65-74 years	84.8	13.3	68.0	70.0	76.0	84.0	90.0	100.0	108.0

Table 14. Second sitting systolic and diastolic blood pressure of adults 25-74 years, by age and sex—mean, standard deviation, and selected percentiles: United States, 1971-1975 (Apr. 1971-Sept. 1975)

Blood pressure, age, and sex	Mean	Standard deviation	Percentile						
			5th	10th	25th	50th	75th	90th	95th
Systolic	Blood pressure (mmHg)								
Both sexes, 25-74 years	132.0	21.8	104.0	110.0	118.0	128.0	142.0	160.0	172.0
25-34 years	121.1	13.8	100.0	104.0	112.0	120.0	130.0	140.0	144.0
35-44 years	124.7	17.2	100.0	104.0	112.0	122.0	134.0	146.0	158.0
45-54 years	134.2	21.0	108.0	110.0	120.0	130.0	144.0	160.0	172.0
55-64 years	141.5	22.5	110.0	118.0	124.0	140.0	154.0	170.0	180.0
65-74 years	150.0	24.4	116.0	122.0	132.0	148.0	164.0	182.0	192.0
Men, 25-74 years	133.4	19.7	108.0	112.0	120.0	130.0	144.0	160.0	170.0
25-34 years	125.3	13.1	106.0	110.0	118.0	124.0	134.0	142.0	150.0
35-44 years	128.1	15.6	104.0	110.0	118.0	126.0	136.0	150.0	158.0
45-54 years	135.7	19.9	110.0	116.0	120.0	132.0	146.0	160.0	170.0
55-64 years	140.7	21.7	110.0	116.0	124.0	140.0	154.0	170.0	180.0
65-74 years	146.7	23.4	112.0	120.0	130.0	144.0	160.0	176.0	186.0
Women, 25-74 years	130.7	23.4	100.0	106.0	114.0	126.0	142.0	162.0	174.0
25-34 years	117.2	13.2	98.0	100.0	110.0	116.0	124.0	132.0	140.0
35-44 years	121.6	17.9	98.0	102.0	110.0	120.0	130.0	144.0	158.0
45-54 years	132.8	21.8	104.0	110.0	120.0	130.0	142.0	160.0	172.0
55-64 years	142.2	23.2	112.0	118.0	124.0	140.0	156.0	170.0	184.0
65-74 years	152.5	24.8	120.0	126.0	136.0	150.0	168.0	188.0	198.0
Diastolic									
Both sexes, 25-74 years	83.8	12.5	66.0	70.0	76.0	82.0	90.0	100.0	106.0
25-34 years	78.9	10.6	62.0	66.0	70.0	80.0	86.0	92.0	98.0
35-44 years	83.4	12.2	66.0	70.0	76.0	82.0	90.0	100.0	104.0
45-54 years	86.4	12.7	68.0	70.0	78.0	86.0	92.0	100.0	110.0
55-64 years	86.8	12.5	68.0	70.0	80.0	86.0	94.0	102.0	110.0
65-74 years	85.7	12.6	68.0	70.0	78.0	86.0	92.0	100.0	108.0
Men, 25-74 years	85.7	11.9	68.0	70.0	78.0	86.0	92.0	100.0	106.0
25-34 years	82.2	10.1	66.0	70.0	76.0	80.0	88.0	96.0	100.0
35-44 years	83.9	11.2	70.0	72.0	78.0	86.0	92.0	100.0	106.0
45-54 years	88.7	12.8	70.0	74.0	80.0	88.0	96.0	104.0	110.0
55-64 years	87.7	12.3	70.0	74.0	80.0	88.0	94.0	104.0	110.0
65-74 years	85.0	12.3	66.0	70.0	76.0	84.0	92.0	100.0	106.0
Women, 25-74 years	82.0	12.7	64.0	68.0	74.0	80.0	90.0	98.0	104.0
25-34 years	75.9	10.3	60.0	64.0	70.0	76.0	82.0	88.0	94.0
35-44 years	81.1	12.7	64.0	68.0	72.0	80.0	88.0	96.0	102.0
45-54 years	84.3	12.3	68.0	70.0	76.0	82.0	90.0	100.0	108.0
55-64 years	86.0	12.7	68.0	70.0	78.0	84.0	94.0	100.0	110.0
65-74 years	86.2	12.8	68.0	70.0	78.0	86.0	94.0	102.0	108.0

Table 15. Systolic and diastolic blood pressure of white adults 25-74 years, by age and sex—mean, standard deviation, standard error of the mean, and selected percentiles: United States, 1971-1975

Blood pressure, age, and sex	Mean	Standard deviation	Standard error	Percentile						
				5th	10th	25th	50th	75th	90th	95th
Systolic	Blood pressure (mmHg)									
Both sexes, 25-74 years	131.4	20.4	0.49	104.7	109.3	117.3	128.0	142.0	158.7	169.3
25-34 years	120.4	12.7	0.53	100.7	105.3	112.0	119.3	127.3	136.7	143.3
35-44 years	123.5	15.0	0.65	102.0	105.3	113.3	122.0	132.0	144.0	151.3
45-54 years	133.0	19.0	0.99	106.7	112.0	120.0	130.0	142.7	156.7	167.3
55-64 years	141.3	21.0	1.08	111.3	117.3	126.7	138.7	154.0	167.3	176.7
65-74 years	150.0	22.1	1.22	118.7	124.7	133.7	147.3	164.0	179.7	190.0
Men, 25-74 years	132.8	18.1	0.69	109.3	112.7	120.0	130.0	142.0	156.7	166.7
25-34 years	125.0	12.0	0.91	108.0	110.7	117.3	123.3	131.3	141.0	148.0
35-44 years	127.2	13.6	0.89	106.7	110.0	117.3	126.7	134.3	144.7	152.0
45-54 years	134.5	17.9	1.34	110.7	114.7	122.3	131.3	144.0	157.3	166.0
55-64 years	140.1	19.7	1.63	110.0	116.7	125.7	138.7	152.0	165.3	174.7
65-74 years	146.8	21.0	1.85	114.7	121.3	132.0	146.0	160.0	171.3	183.3
Women, 25-74 years	130.1	22.3	0.59	102.0	106.0	114.7	125.3	142.3	160.7	172.0
25-34 years	116.1	11.8	0.68	99.3	102.7	108.7	115.3	122.7	130.7	136.7
35-44 years	120.0	15.4	1.01	99.3	102.7	109.7	117.3	126.7	139.3	151.3
45-54 years	131.5	19.8	1.46	105.3	109.3	118.0	129.3	142.0	156.7	168.0
55-64 years	142.4	22.1	1.38	112.0	118.7	126.7	138.7	156.3	168.0	179.3
65-74 years	152.5	22.6	1.75	123.3	128.0	136.7	148.7	166.7	183.3	195.3
Diastolic										
Both sexes, 25-74 years	82.0	11.2	0.36	65.3	68.7	74.7	81.3	88.7	96.0	102.0
25-34 years	77.1	9.4	0.44	62.7	65.3	71.3	76.7	82.7	88.7	93.3
35-44 years	80.7	10.4	0.58	64.7	68.0	73.3	80.0	86.7	94.0	98.7
45-54 years	84.5	11.3	0.65	68.0	72.0	77.3	83.3	90.0	98.3	105.3
55-64 years	85.4	11.3	0.65	68.7	72.0	78.0	84.0	92.7	100.0	105.3
65-74 years	84.7	11.2	0.60	68.3	71.3	76.7	84.0	91.3	99.3	104.7
Men, 25-74 years	83.7	10.6	0.44	68.0	71.3	76.7	82.7	90.0	97.3	102.7
25-34 years	80.0	8.9	0.61	66.7	69.3	74.0	80.0	85.3	91.3	96.0
35-44 years	83.1	9.8	0.76	68.0	71.3	76.0	82.0	88.7	95.7	100.0
45-54 years	86.8	11.4	0.87	70.7	73.3	79.3	85.7	93.0	100.7	107.3
55-64 years	86.1	10.8	0.78	70.0	73.3	78.0	84.7	92.0	100.0	107.3
65-74 years	84.0	11.1	0.99	67.3	70.7	76.0	83.3	90.7	98.7	103.3
Women, 25-74 years	80.4	11.4	0.48	64.0	67.3	72.7	79.3	86.7	94.7	101.0
25-34 years	74.4	9.1	0.58	61.3	63.3	68.7	74.0	80.0	84.7	89.3
35-44 years	78.4	10.5	0.78	63.3	66.0	71.3	78.0	83.3	90.7	98.3
45-54 years	82.5	10.9	0.86	66.7	70.7	75.3	81.3	88.0	95.3	103.3
55-64 years	84.8	11.6	0.85	68.0	70.7	76.7	83.3	92.7	99.3	105.3
65-74 years	85.3	11.3	0.97	69.3	72.0	77.3	84.0	91.3	100.7	104.7

NOTE: All blood pressures are the average of 3 measurements.

Table 16. Systolic and diastolic blood pressure of black adults 25-74 years, by age and sex—mean, standard deviation, standard error of the mean, and selected percentiles: United States, 1971-1975

Blood pressure, age, and sex	Mean	Standard deviation	Standard error	Percentile						
				5th	10th	25th	50th	75th	90th	95th
Systolic	Blood pressure (mmHg)									
Both sexes, 25-74 years	138.8	26.2	1.46	106.7	110.0	121.3	132.7	152.0	174.7	190.0
25-34 years	124.4	14.9	2.03	101.3	108.8	112.7	123.7	132.7	142.7	147.3
35-44 years	134.7	22.4	3.95	105.3	108.7	120.7	130.0	143.3	170.0	180.7
45-54 years	143.5	26.8	3.30	109.3	116.0	124.0	138.0	158.0	182.3	195.3
55-64 years	151.9	26.3	3.56	113.3	118.7	134.0	148.7	168.7	184.0	196.0
65-74 years	156.1	31.7	6.30	113.3	120.7	131.3	149.3	178.7	195.3	228.7
Men, 25-74 years	140.0	23.7	2.44	112.0	116.7	124.0	134.7	151.3	172.0	186.0
25-34 years	127.9	11.4	2.70	110.7	113.3	121.3	125.7	134.7	140.7	146.7
35-44 years	136.5	20.5	5.33	108.7	115.7	124.7	132.0	144.0	172.0	185.0
45-54 years	142.6	25.6	5.47	114.0	116.0	122.7	138.0	158.3	176.7	190.0
55-64 years	152.7	23.3	4.75	123.3	126.0	137.3	149.3	168.0	177.3	186.0
65-74 years	153.4	31.1	8.92	113.3	118.7	131.3	148.0	180.7	192.7	208.0
Women, 25-74 years	137.8	27.9	1.96	102.7	108.7	117.3	130.7	152.0	178.7	195.3
25-34 years	121.7	16.6	2.93	99.3	104.0	110.0	119.3	132.0	142.7	155.3
35-44 years	133.4	23.7	4.84	101.3	106.7	120.0	130.0	141.3	170.0	180.7
45-54 years	144.2	27.9	4.64	109.3	112.7	124.0	140.0	157.3	183.3	195.3
55-64 years	151.3	28.6	5.27	110.0	115.3	129.3	148.7	170.0	188.0	203.7
65-74 years	158.1	32.0	7.57	110.0	123.3	134.0	151.3	178.7	196.7	228.7
Diastolic										
Both sexes, 25-74 years	88.3	14.6	0.87	69.3	71.3	78.0	86.7	96.7	106.7	114.0
25-34 years	81.6	11.6	1.84	65.3	67.3	73.3	80.0	87.3	97.3	104.7
35-44 years	90.3	14.5	2.51	71.3	72.7	80.0	89.3	96.0	113.3	118.7
45-54 years	91.3	14.8	1.81	72.0	75.3	82.0	89.3	97.3	110.0	120.0
55-64 years	92.6	14.7	2.22	70.7	76.7	83.3	91.3	101.3	110.7	113.3
65-74 years	89.2	15.4	2.64	70.7	73.3	78.7	87.0	98.0	106.7	116.3
Men, 25-74 years	89.9	14.4	1.42	70.3	74.0	80.0	88.7	97.3	106.7	113.3
25-34 years	83.3	11.1	2.85	68.7	70.0	74.7	81.3	90.7	97.3	106.7
35-44 years	92.5	13.0	3.32	71.3	76.7	84.7	92.0	100.0	113.3	121.3
45-54 years	92.1	15.6	3.08	73.3	78.7	82.7	89.3	97.3	112.7	124.0
55-64 years	95.7	15.8	2.90	76.7	76.7	85.3	96.0	102.7	110.7	113.3
65-74 years	88.2	12.5	2.69	71.7	74.7	80.0	87.0	92.7	104.7	114.7
Women, 25-74 years	87.0	14.6	1.20	66.7	70.7	76.7	85.3	95.3	106.0	114.3
25-34 years	80.4	11.9	2.30	65.3	66.7	72.7	78.7	86.0	103.3	104.7
35-44 years	88.7	15.2	3.26	68.7	71.3	78.0	88.0	94.0	114.0	118.7
45-54 years	90.6	14.0	2.22	71.7	74.0	80.0	89.3	98.0	109.3	118.0
55-64 years	90.1	13.1	2.72	70.0	74.0	80.7	87.7	98.7	111.3	111.3
65-74 years	89.9	17.2	3.90	70.7	73.3	76.7	88.0	102.7	106.7	117.3

NOTE: All blood pressures are the average of 3 measurements.

Table 17. Systolic and diastolic blood pressure of adults 25-74 years of age, by geographic region, race, and sex—means, standard error of means, standard deviations, and age-adjusted means: United States, 1971-1975

Blood pressure, geographic region, and race	Both sexes			Men			Women			Age-adjusted mean		
	Mean	Standard error	Standard deviation	Mean	Standard error	Standard deviation	Mean	Standard error	Standard deviation	Both sexes	Men	Women
	Blood pressure (mmHg)											
SYSTOLIC												
All races[1]												
Northeast	133.7	1.75	21.7	135.6	1.73	20.5	131.9	2.00	22.5	133.2	135.9	131.5
Midwest	130.4	1.16	21.3	131.7	1.43	17.3	129.3	1.72	24.3	131.0	131.9	128.9
South	134.4	1.15	21.6	135.5	1.63	19.4	133.5	1.31	23.3	133.9	135.3	133.7
West	130.2	1.22	19.9	131.2	1.62	17.5	129.3	1.38	21.8	130.5	131.7	128.6
White												
Northeast	133.3	2.02	21.0	135.1	1.93	19.7	131.5	2.36	22.0	132.9	135.4	131.0
Midwest	130.0	1.12	20.7	131.3	1.54	16.5	128.8	1.78	23.9	130.6	131.4	128.6
South	133.0	1.14	20.5	134.5	1.62	18.3	131.8	1.25	22.0	132.4	134.5	131.9
West	129.8	1.13	19.4	130.9	1.46	17.3	128.7	1.48	21.0	130.0	131.4	128.0
Black												
Northeast	138.7	5.71	27.0	144.8	7.34	27.2	135.3	22.36	26.2	138.5	143.6	135.4
Midwest	135.1	4.37	26.3	139.5	6.97	24.4	131.9	4.42	27.2	135.4	139.6	131.5
South	140.9	2.28	25.5	140.0	3.93	23.0	141.9	3.42	27.6	140.6	139.3	142.8
West	138.2	5.51	26.0	135.1	5.79	18.9	141.0	6.73	30.7	140.7	135.9	140.3
DIASTOLIC												
All races[1]												
Northeast	82.7	1.29	12.2	84.6	1.46	12.0	80.9	1.31	12.0	82.5	84.7	80.7
Midwest	82.2	0.72	11.7	84.1	0.81	10.9	80.5	1.01	12.2	82.4	84.0	80.5
South	84.0	0.59	11.7	85.7	0.84	11.2	82.6	0.77	11.9	83.9	85.6	82.7
West	81.7	0.83	11.2	83.0	0.99	10.4	80.4	0.97	11.7	81.8	83.1	80.2
White												
Northeast	82.1	1.49	11.6	84.0	1.65	11.3	80.3	1.52	11.6	81.9	84.2	80.1
Midwest	81.8	0.72	11.3	83.7	0.73	10.2	80.2	1.06	12.0	82.0	83.6	80.2
South	82.9	0.64	10.8	84.8	0.98	10.6	81.3	0.86	10.7	82.8	84.8	81.4
West	81.3	0.74	10.9	82.7	0.93	10.3	79.9	0.91	11.2	81.3	82.8	79.7
Black												
Northeast	88.1	3.40	15.6	92.7	4.44	17.1	85.7	14.02	14.1	88.2	91.9	85.6
Midwest	86.4	2.26	15.3	89.9	5.09	16.7	83.8	2.43	13.6	86.4	89.6	83.6
South	89.1	1.12	14.0	89.6	2.11	12.9	88.7	1.93	15.1	89.2	89.5	88.8
West	89.0	3.28	13.0	87.4	2.45	10.4	90.5	5.00	14.8	89.6	87.6	90.3

[1] Includes other racial groups in addition to white and black.

NOTE: All blood pressures are the average of 3 measurements.

Table 18. Systolic and diastolic blood pressure of adults 25-74 years of age, by population density of area of residence, race, and sex—means, standard deviations, and age-adjusted means: United States, 1971-1975

Blood pressure, population density of area of residence, and race	Both sexes			Men			Women			Age-adjusted mean		
	Mean	Standard error	Standard deviation	Mean	Standard error	Standard deviation	Mean	Standard error	Standard deviation	Both sexes	Men	Women
	Blood pressure (mmHg)											
SYSTOLIC												
All races[1]												
Urban areas—1 million persons or more	130.8	1.40	21.6	132.0	1.24	18.3	129.6	2.03	24.2	131.3	132.3	130.4
Urban areas—less than 1 million persons	132.6	1.31	21.3	134.4	1.44	19.2	131.0	1.59	22.9	132.8	134.7	131.0
Urban not in urbanized areas	132.4	1.33	20.9	132.9	1.71	19.0	132.0	1.89	22.6	131.7	132.5	131.0
Rural areas	132.8	0.96	20.8	134.2	1.27	18.7	131.6	1.23	22.3	132.6	133.9	131.5
White												
Urban areas—1 million persons or more	129.8	1.40	20.4	131.2	1.15	16.7	128.4	2.40	23.4	130.3	131.5	129.1
Urban areas—less than 1 million persons	132.0	1.36	20.7	134.1	1.48	19.4	130.1	1.67	21.7	132.1	134.3	130.0
Urban not in urbanized areas	132.1	1.37	20.7	132.3	1.76	18.0	132.0	1.97	22.8	131.3	131.8	130.7
Rural areas	132.0	0.84	20.0	133.4	1.20	18.0	130.8	1.08	21.6	131.9	133.3	130.8
Black												
Urban areas—1 million persons or more	137.3	2.81	26.4	139.9	4.55	25.8	135.6	3.15	26.6	137.6	140.9	135.4
Urban areas—less than 1 million persons	138.0	2.78	25.1	136.8	3.38	17.3	139.0	4.40	30.4	138.2	137.1	138.9
Urban not in urbanized areas	135.6	4.46	23.7	138.6	8.35	25.6	132.5	7.06	21.1	135.7	138.8	133.9
Rural areas	145.8	3.91	27.5	146.5	6.31	25.3	145.1	6.60	29.2	145.7	145.1	146.0
DIASTOLIC												
All races[1]												
Urban areas—1 million persons or more	82.2	0.88	21.6	83.8	1.12	18.3	80.7	0.85	24.2	82.3	83.8	80.8
Urban areas—less than 1 million persons	82.5	1.00	21.3	84.6	0.92	19.2	80.6	1.23	22.9	82.6	84.7	80.6
Urban not in urbanized areas	82.3	0.86	11.4	84.1	1.08	10.7	80.7	1.03	11.9	82.1	83.9	80.5
Rural areas	83.2	0.42	11.3	84.6	0.59	11.0	82.0	0.67	11.4	83.1	84.6	82.0
White												
Urban areas—1 million persons or more	81.3	1.06	11.2	83.0	1.18	9.9	79.6	1.17	12.1	81.4	83.0	79.8
Urban areas—less than 1 million persons	81.7	1.06	11.5	84.0	1.18	11.4	79.7	1.17	11.2	81.8	84.1	79.8
Urban not in urbanized areas	82.0	0.86	11.1	83.6	1.12	10.3	80.5	1.06	11.6	81.8	83.4	80.3
Rural areas	82.8	0.39	10.9	84.2	0.59	10.7	81.5	0.64	10.9	82.0	84.3	81.5
Black												
Urban areas—1 million persons or more	87.6	1.11	15.1	90.5	2.56	16.5	85.8	1.32	13.8	87.7	90.4	85.8
Urban areas—less than 1 million persons	88.9	1.79	13.0	89.5	1.95	10.9	88.3	2.99	14.6	88.6	89.3	88.1
Urban not in urbanized areas	85.5	3.24	13.6	87.4	5.10	13.1	83.5	3.71	13.9	85.3	86.1	84.4
Rural areas	90.9	1.64	15.7	91.3	3.57	14.8	90.5	3.89	16.5	91.9	92.1	91.6

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures are the average of 3 measurements.

Table 19. Systolic and diastolic blood pressure of adults 25-74 years of age, by annual family income, race, and sex—means, standard error of means, standard deviations, and age-adjusted means: United States, 1971-1975

Blood pressure, annual family income, and race	Both sexes			Men			Women			Age-adjusted mean		
	Mean	Standard error	Standard deviation	Mean	Standard error	Standard deviation	Mean	Standard error	Standard deviation	Both sexes	Men	Women
	Blood pressure (mmHg)											
SYSTOLIC												
All races[1]												
Less than $3,000	142.4	1.80	25.5	140.0	2.61	23.1	143.6	2.38	26.7	136.0	135.2	136.7
Less than $5,000	140.8	1.34	24.8	139.9	1.81	22.6	141.3	1.78	25.9	135.9	136.2	136.0
$5,000-$9,999	132.7	0.86	21.3	134.1	1.10	18.7	131.5	1.18	23.3	132.2	133.5	131.1
$10,000 or more	128.4	0.56	18.6	131.4	0.77	17.2	125.2	0.74	19.5	130.9	132.9	128.8
White												
Less than $3,000	142.2	1.95	24.1	139.1	2.67	21.6	143.7	2.71	25.1	134.6	133.9	135.1
Less than $5,000	140.4	1.38	23.6	139.3	2.04	21.7	141.0	1.79	24.6	134.4	135.1	134.2
$5,000-$9,999	132.2	0.96	20.9	133.3	1.05	18.1	131.2	1.35	23.1	131.4	132.5	130.4
$10,000 or more	128.1	0.57	18.1	131.2	0.78	16.7	124.8	0.76	18.9	130.7	132.8	128.6
Black												
Less than $3,000	144.2	3.99	29.4	144.7	5.99	26.2	144.0	4.93	31.0	139.9	140.2	140.4
Less than $5,000	142.9	3.07	28.6	143.7	3.89	25.5	142.5	4.10	30.2	140.8	141.0	141.1
$5,000-$9,999	137.3	2.41	23.2	141.8	4.28	21.0	133.6	3.65	24.3	137.6	142.1	133.9
$10,000 or more	134.4	2.78	25.7	134.8	3.84	24.5	133.8	5.52	27.3	136.4	136.2	134.9
DIASTOLIC												
All races[1]												
Less than $3,000	86.1	0.80	13.6	86.8	1.38	13.1	85.7	1.03	13.9	84.9	86.0	84.5
Less than $5,000	85.4	0.66	12.9	85.9	0.96	12.9	85.1	0.82	12.9	84.9	85.7	84.4
$5,000-$9,999	82.5	0.59	11.5	84.0	0.62	10.6	81.2	0.80	12.2	82.5	84.1	81.2
$10,000 or more	81.7	0.47	11.2	84.1	0.63	10.9	79.0	0.56	10.9	82.1	84.2	79.8
White												
Less than $3,000	85.4	0.99	12.7	86.0	1.63	12.6	85.1	1.21	12.7	83.9	84.9	83.6
Less than $5,000	84.5	0.74	11.9	84.9	1.07	12.2	84.2	0.91	11.7	83.5	84.6	83.0
$5,000-$9,999	81.7	0.62	11.1	83.1	0.65	10.0	80.5	0.84	11.8	81.6	83.2	80.3
$10,000 or more	81.4	0.47	10.9	83.8	0.62	10.5	78.8	0.57	10.7	81.9	84.0	79.7
Black												
Less than $3,000	88.8	2.05	15.8	90.3	3.39	14.0	88.0	2.32	16.7	87.7	89.5	87.1
Less than $5,000	89.4	1.45	15.6	90.4	2.25	14.6	88.8	1.86	16.1	89.2	90.1	88.7
$5,000-$9,999	88.5	1.52	12.8	91.3	2.09	11.9	86.2	2.40	13.2	88.2	91.1	85.8
$10,000 or more	86.1	1.88	15.2	88.1	2.90	16.5	83.5	2.33	12.8	86.6	88.7	83.2

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures are the average of 3 measurements.

Table 20. Systolic and diastolic blood pressure of adults 25-74 years of age, by education, race, and sex—means, standard error of means, standard deviations, and age-adjusted means: United States, 1971-1975

Blood pressure, education, and race	Both sexes			Men			Women			Age-adjusted mean		
	Mean	Standard error	Standard deviation	Mean	Standard error	Standard deviation	Mean	Standard error	Standard deviation	Both sexes	Men	Women
	Blood pressure (mmHg)											
SYSTOLIC												
All races[1]												
Less than 5 years	146.7	3.14	25.5	147.4	4.04	24.4	146.1	4.34	26.7	138.8	139.2	139.5
5-8 years	140.1	1.27	23.6	138.0	1.19	20.1	142.3	2.24	26.6	133.9	133.9	133.8
9-12 years	130.7	0.61	20.4	133.1	0.78	18.3	129.0	0.85	21.6	131.9	133.8	130.5
13 years or more	127.5	0.76	18.1	129.3	1.08	16.4	125.3	1.19	19.8	130.1	131.6	127.9
White												
Less than 5 years	142.7	2.88	22.8	146.1	3.91	22.3	138.7	3.45	22.8	133.9	136.9	131.9
5-8 years	139.6	1.39	22.6	137.2	1.35	18.7	142.2	2.56	25.8	133.2	133.1	133.2
9-12 years	130.4	0.62	20.0	132.7	0.75	17.9	128.7	0.85	21.2	131.4	133.3	130.0
13 years or more	127.3	0.78	17.8	129.3	1.09	16.3	124.8	1.16	19.2	129.9	131.6	127.5
Black												
Less than 5 years	155.0	5.64	28.4	150.4	8.17	28.5	159.7	7.92	27.4	152.8	105.2	157.8
5-8 years	144.2	4.03	28.9	144.1	4.80	26.3	144.2	5.14	31.1	138.0	139.3	136.5
9-12 years	134.2	2.06	23.5	137.6	3.38	21.6	132.3	2.76	24.4	137.3	141.4	134.7
13 years or more	132.8	3.16	22.0	132.2	4.59	17.7	133.5	5.70	25.7	136.9	136.2	135.9
DIASTOLIC												
All races[1]												
Less than 5 years	88.4	1.64	13.6	89.4	2.00	13.5	87.3	2.24	13.6	86.8	88.7	85.8
5-8 years	85.7	0.67	12.6	86.1	0.68	11.9	85.3	1.09	13.3	84.2	85.2	83.2
9-12 years	82.0	0.51	11.5	84.2	0.59	11.0	80.4	0.64	11.6	82.1	84.2	80.7
13 years or more	81.0	0.57	10.5	82.8	0.81	10.2	78.8	0.74	10.5	82.0	83.6	79.8
White												
Less than 5 years	85.6	1.75	12.1	88.1	2.32	12.7	82.8	2.13	10.6	83.5	87.1	80.8
5-8 years	85.0	0.76	11.8	85.1	0.82	10.9	84.9	1.22	12.7	83.6	84.4	82.7
9-12 years	81.5	0.54	11.1	83.7	0.61	10.5	79.8	0.66	11.2	81.6	83.7	80.1
13 years or more	80.8	0.57	10.4	82.6	0.85	10.2	78.5	0.74	10.2	81.7	83.4	79.5
Black												
Less than 5 years	94.2	2.69	14.9	92.6	3.53	14.6	95.9	4.00	14.9	95.4	66.9	96.8
5-8 years	90.1	1.93	16.0	92.4	3.02	15.7	87.9	2.28	16.0	87.9	89.9	85.9
9-12 years	87.1	1.30	14.0	89.1	2.16	14.2	85.9	1.76	13.7	87.3	89.7	85.8
13 years or more	84.8	2.40	12.3	85.7	3.54	11.6	83.8	3.32	12.9	86.9	87.5	85.1

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures are the average of 3 measurements.

Table 21. Prevalence rates and population estimates of adults 25-74 years with definite hypertension, by race, age, and sex with standard errors and age-adjusted rates: United States, 1971-1975 (Apr. 1971-Sept. 1975)

Age and sex	All races[1]			White			Black		
	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands
Both sexes, 25-74 years	18.0	0.94	19,184	16.4	0.96	15,568	32.1	2.54	3,425
25-34 years	5.7	1.01	1,620	4.8	0.88	1,191	*14.1	5.73	429
35-44 years	12.5	1.85	2,790	10.2	1.74	2,003	*29.1	7.51	703
45-54 years	20.1	1.75	4,741	18.1	1.74	3,806	38.3	7.06	904
55-64 years	28.6	2.23	5,538	26.4	2.40	4,625	51.5	7.05	863
65-74 years	34.2	2.64	4,496	33.1	2.79	3,943	45.0	7.08	527
Men, 25-74 years	19.7	1.35	9,959	18.1	1.37	8,211	35.3	5.33	1,656
25-34 years	8.2	1.70	1,120	7.5	1.70	907	*16.4	8.26	213
35-44 years	16.3	2.85	1,757	14.0	2.89	1,340	*36.3	13.38	372
45-54 years	23.9	2.87	2,703	22.6	2.64	2,285	*36.7	12.03	402
55-64 years	28.0	2.73	2,571	25.2	2.78	2,099	58.6	8.15	450
65-74 years	31.8	4.14	1,808	30.8	4.35	1,579	*43.3	11.17	218
Women, 25-74 years	16.5	1.06	9,226	14.8	1.10	7,358	29.7	3.52	1,770
25-34 years	*3.4	1.34	500	2.2	0.90	284	*12.4	7.75	216
35-44 years	9.0	2.05	1,033	*6.6	1.93	664	*23.8	7.67	331
45-54 years	16.6	2.06	2,037	13.9	2.14	1,521	39.7	8.50	501
55-64 years	29.2	3.05	2,967	27.6	3.39	2,525	45.6	11.06	413
65-74 years	36.0	3.46	2,688	34.9	3.85	2,364	46.3	8.48	308
Age-adjusted values:									
Both sexes, 25-74 years	-	...	...	16.3	...	...	33.2	...	...
Men, 25-74 years	-	...	...	18.1	...	...	35.8	...	...
Women, 25-74 years	-	...	...	14.6	...	...	31.2	...	...

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 22. Prevalence rates and population estimates of adults 25-74 years with diastolic blood pressure of 105 mmHg or more, by race, age, and sex with standard errors and age-adjusted rates: United States, 1971-1975 (Apr. 1971-Sept. 1975)

Age and sex	All races[1]			White			Black		
	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands
Both sexes, 25-74 years	4.6	0.51	4,904	3.8	0.50	3,615	12.0	2.24	1,275
25-34 years	*1.3	0.56	381	*0.7	0.28	172	*6.9	4.53	209
35-44 years	*4.0	1.03	881	2.9	0.82	569	*12.9	5.29	312
45-54 years	6.1	1.20	1,427	5.3	1.20	1,118	*13.0	4.72	306
55-64 years	7.4	1.35	1,434	6.5	1.35	1,137	*17.6	6.27	294
65-74 years	5.9	1.07	781	5.2	1.03	618	*13.2	4.57	154
Men, 25-74 years	5.0	0.70	2,521	4.2	0.71	1,925	*12.4	3.18	583
25-34 years	*1.4	0.70	191	*0.9	0.49	108	*6.4	5.40	83
35-44 years	*4.0	1.29	429	*3.1	1.14	299	*12.7	7.46	130
45-54 years	7.5	1.79	846	*6.9	1.78	701	*13.0	7.46	142
55-64 years	8.0	1.91	734	*6.8	1.96	566	*21.5	8.32	166
65-74 years	*5.6	1.79	321	*4.9	1.84	250	*12.2	6.18	61
Women, 25-74 years	4.3	0.62	2,383	3.4	0.57	1,690	11.6	3.31	692
25-34 years	*1.3	0.82	189	*0.5	0.29	64	*7.2	6.55	125
35-44 years	*3.9	1.53	452	*2.7	1.18	270	*13.0	6.74	181
45-54 years	*4.7	1.19	581	*3.8	1.20	417	*13.0	5.33	164
55-64 years	*6.9	1.74	699	*6.2	1.79	571	*14.2	8.20	129
65-74 years	6.2	1.33	461	*5.4	1.35	368	*13.9	5.44	93
Age-adjusted values:									
Both sexes, 25-74 years	-	...	...	3.8	...	...	12.2	...	...
Men, 25-74 years	-	...	...	4.2	...	...	12.6	...	...
Women, 25-74 years	-	...	...	3.4	...	...	11.8	...	...

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 23. Prevalence rates and population estimates of adults 25-74 years with borderline hypertension, by race, age, and sex with standard errors and age-adjusted rates: United States, 1971-1975 (Apr. 1971-Sept. 1975)

Age and sex	All races[1]			White			Black		
	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands
Both sexes, 25-74 years	17.1	0.79	18,257	17.3	0.89	16,386	16.7	1.98	1,781
25-34 years	7.3	1.29	2,077	7.0	1.34	1,739	*10.8	4.32	327
35-44 years	12.2	1.68	2,710	11.3	1.93	2,215	*19.7	5.10	476
45-54 years	19.4	1.88	4,571	19.4	1.92	4,094	*18.6	4.91	439
55-64 years	24.6	1.90	4,757	25.4	2.14	4,443	18.7	4.67	314
65-74 years	31.5	2.39	4,143	32.7	2.58	3,896	*19.2	5.09	225
Men, 25-74 years	18.6	1.33	9,394	18.8	1.47	8,514	17.6	3.98	828
25-34 years	10.7	2.38	1,467	10.2	2.43	1,238	*16.8	8.52	218
35-44 years	14.6	2.91	1,566	14.3	3.44	1,368	*17.4	9.74	179
45-54 years	20.6	2.69	2,320	20.8	2.82	2,111	*19.1	6.84	209
55-64 years	25.6	3.07	2,350	26.5	3.37	2,209	*18.3	7.64	141
65-74 years	29.8	3.86	1,692	31.0	4.03	1,589	*16.0	6.82	81
Women, 25-74 years	15.8	1.08	8,863	15.9	1.17	7,872	16.0	2.85	954
25-34 years	*4.2	1.13	609	*3.9	1.11	501	*6.3	3.69	109
35-44 years	9.9	2.16	1,144	*8.5	2.43	847	*21.3	8.06	297
45-54 years	18.4	2.76	2,251	18.2	2.96	1,983	*18.2	7.34	230
55-64 years	23.7	2.25	2,407	24.4	2.54	2,234	*19.1	8.07	173
65-74 years	32.8	3.33	2,451	34.0	3.59	2,307	*21.6	6.24	144
Age-adjusted values:									
Both sexes, 25-74 years	-	...	...	17.2	...	...	16.9	...	...
Men, 25-74 years	-	...	...	18.7	...	...	17.6	...	...
Women, 25-74 years	-	...	...	15.7	...	...	16.4	...	...

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 24. Percent and estimated number of adults 25-74 years never diagnosed as having high blood pressure among those with definite hypertension, by race, age, and sex with standard errors and age-adjusted percents: United States, 1971-1975 (Apr. 1971-Sept. 1975)

Age and sex	All races[1]			White			Black		
	Percent of adults with definite hypertension	Standard error of percent	Population in thousands	Percent of adults with definite hypertension	Standard error of percent	Population in thousands	Percent of adults with definite hypertension	Standard error of percent	Population in thousands
Both sexes, 25-74 years	49.0	2.28	9,393	51.1	2.57	7,953	41.6	6.30	1,424
25-34 years	55.9	10.11	905	58.3	11.81	694	*49.2	22.44	211
35-44 years	52.2	7.67	1,455	59.1	7.65	1,183	*37.0	16.96	260
45-54 years	53.5	4.79	2,535	54.8	5.59	2,086	49.7	10.35	449
55-64 years	44.2	4.02	2,448	46.5	4.33	2,148	34.5	8.69	297
65-74 years	45.6	3.88	2,049	46.7	4.10	1,841	*39.3	10.30	207
Men, 25-74 years	56.7	3.09	5,651	59.5	3.64	4,885	46.0	10.18	762
25-34 years	56.7	12.35	635	55.7	13.36	505	*60.7	30.44	129
35-44 years	60.5	9.28	1,063	70.7	9.35	947	*31.2	25.17	116
45-54 years	58.5	6.09	1,581	58.0	7.07	1,325	*63.5	18.21	256
55-64 years	50.8	6.94	1,306	54.5	7.78	1,144	*35.4	16.74	159
65-74 years	59.0	6.62	1,067	61.0	7.06	964	*46.6	17.98	102
Women, 25-74 years	40.6	3.46	3,742	41.7	3.81	3,068	37.4	7.51	662
25-34 years	*54.1	19.21	270	*66.5	22.75	189	*37.8	32.86	82
35-44 years	*38.0	9.56	393	*35.7	12.05	237	*43.5	21.62	144
45-54 years	46.8	6.38	954	50.0	7.98	760	*38.6	12.14	193
55-64 years	38.5	5.70	1,142	39.8	6.38	1,004	*33.4	13.63	138
65-74 years	36.6	5.00	983	37.1	5.32	877	*34.1	12.68	105
Age-adjusted values:									
Both sexes, 25-74 years	-	...	...	51.4	...	...	41.0	...	...
Men, 25-74 years	-	...	...	59.6	...	...	47.2	...	...
Women, 25-74 years	-	...	...	42.2	...	...	36.1	...	...

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 25. Percent and estimated number of adults 25-74 years never diagnosed as having high blood pressure among those with diastolic blood pressure of 105 mmHg or more, by race, age, and sex with standard errors and age-adjusted percents: United States, 1971-1975 (Apr. 1971–Sept. 1975)

Age and sex	All races[1]			White			Black		
	Percent of adults with diastolic pressure 105 mmHg+	Standard error of percent	Population in thousands	Percent of adults with diastolic pressure 105 mmHg+	Standard error of percent	Population in thousands	Percent of adults with diastolic pressure 105 mmHg+	Standard error of percent	Population in thousands
Both sexes, 25-74 years	36.0	5.07	1,766	38.1	5.93	1,376	30.6	9.27	390
25-34 years	*43.8	20.40	167	*47.3	22.79	81	*40.9	35.50	85
35-44 years	*35.2	11.50	310	*40.3	16.59	229	*25.8	20.90	81
45-54 years	40.1	9.33	572	*40.2	10.79	449	*40.1	13.86	123
55-64 years	*30.5	8.12	437	*33.3	9.83	379	*20.0	13.92	59
65-74 years	*35.8	9.32	279	*38.3	10.85	237	*27.5	16.02	42
Men, 25-74 years	38.3	7.25	967	41.7	8.71	804	*28.0	11.78	163
25-34 years	*38.8	24.58	74	*57.3	30.49	62	*14.8	43.61	12
35-44 years	*38.6	18.12	166	*46.9	23.11	140	*19.6	33.03	26
45-54 years	*44.1	13.22	373	*42.0	15.11	295	*55.2	28.23	78
55-64 years	*26.9	9.95	198	*30.8	14.08	175	*13.9	16.08	23
65-74 years	*48.5	16.17	156	*52.8	18.62	132	*38.4	26.19	24
Women, 25-74 years	33.5	6.71	799	33.8	7.96	572	*32.8	14.08	227
25-34 years	*48.8	35.51	92	*30.5	34.47	20	*58.2	50.03	73
35-44 years	*31.9	13.59	144	*33.0	25.08	89	*30.3	25.76	55
45-54 years	*34.3	12.96	199	*37.1	18.06	155	*27.1	16.56	45
55-64 years	*34.3	14.10	240	*35.7	17.53	204	*27.9	31.26	36
65-74 years	*26.9	11.94	124	*28.5	14.10	105	*20.3	19.30	19
Age-adjusted values:									
Both sexes, 25-74 years	-	...	...	38.4	...	...	29.7	...	...
Men, 25-74 years	-	...	...	42.1	...	...	31.9	...	...
Women, 25-74 years	-	...	...	33.7	...	...	29.1	...	...

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 26. Percent and estimated number of adults 25-74 years never diagnosed as having high blood pressure among those with borderline hypertension, by race, age, and sex with standard errors and age-adjusted percents: United States, 1971-1975 (Apr. 1971-Sept. 1975)

Age and sex	All races[1]			White			Black		
	Percent of adults with borderline hypertension	Standard error of percent	Population in thousands	Percent of adults with borderline hypertension	Standard error of percent	Population in thousands	Percent of adults with borderline hypertension	Standard error of percent	Population in thousands
Both sexes, 25-74 years	69.0	2.61	12,598	70.1	2.60	11,489	58.6	7.58	1,044
25-34 years	80.3	7.27	1,666	82.3	6.68	1,431	*69.9	18.71	229
35-44 years	71.7	6.99	1,944	78.0	6.17	1,726	*41.6	17.40	198
45-54 years	73.5	3.97	3,358	73.7	4.57	3,016	69.2	16.50	304
55-64 years	67.7	4.50	3,220	68.1	4.81	3,026	*61.5	18.15	193
65-74 years	58.2	4.15	2,410	58.8	4.14	2,289	*53.6	16.21	121
Men, 25-74 years	76.4	3.45	7,174	77.5	3.61	6,599	66.2	10.72	548
25-34 years	81.9	8.48	1,202	81.6	8.70	1,011	84.3	25.82	184
35-44 years	79.8	9.68	1,250	84.1	9.57	1,150	*44.9	36.09	80
45-54 years	77.2	5.21	1,790	79.2	5.25	1,672	*56.4	24.53	118
55-64 years	73.5	6.56	1,726	73.4	6.65	1,621	*74.6	19.84	105
65-74 years	71.3	6.36	1,207	72.1	6.98	1,146	75.3	13.93	61
Women, 25-74 years	61.2	3.45	5,423	62.1	3.62	4,890	52.0	11.60	496
25-34 years	76.2	9.87	465	83.9	9.51	420	*40.9	29.48	45
35-44 years	60.7	9.42	694	68.1	8.95	577	*39.6	24.47	118
45-54 years	69.7	6.65	1,568	67.8	7.22	1,344	80.8	20.37	186
55-64 years	62.0	5.45	1,493	62.9	5.94	1,405	*50.9	28.50	88
65-74 years	49.1	7.02	1,203	49.6	6.73	1,143	*41.4	24.16	60
Age-adjusted values:									
Both sexes, 25-74 years	-	. . .	. . .	70.4	. . .	. . .	59.6	. . .	. . .
Men, 25-74 years	-	. . .	. . .	77.7	. . .	. . .	66.8	. . .	. . .
Women, 25-74 years	-	. . .	. . .	62.6	. . .	. . .	53.7	. . .	. . .

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 27. Prevalence rates and estimated population with definite hypertension, diastolic pressure of 105 mmHg or more, and borderline hypertension among adults 25-74 years, by geographic region, age, and sex with standard errors and age-adjusted rates: United States, 1971-1975

Condition, age, and sex	Northeast			Midwest			South			West		
	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands
Definite hypertension												
Both sexes, 25-74 years...	19.8	2.04	5,117	17.0	2.00	4,664	21.0	1.84	5,341	14.5	1.99	4,062
25-34 years	*6.4	2.07	397	*3.8	1.74	293	9.1	2.80	608	*4.2	1.51	322
35-44 years	13.2	3.04	737	*11.1	4.16	649	17.0	3.10	826	*9.6	4.45	578
45-54 years	*21.7	5.83	1,310	22.1	2.51	1,314	19.7	3.14	1,074	17.1	2.85	1,042
55-64 years	30.7	4.31	1,475	30.7	5.95	1,497	29.9	3.57	1,437	23.3	4.13	1,129
65-74 years	36.9	6.48	1,198	30.9	5.11	912	38.5	4.53	1,396	29.8	6.05	991
Men, 25-74 years	23.4	1.91	2,858	18.0	2.37	2,367	23.4	2.81	2,773	14.6	2.99	1,961
Women, 25-74 years	16.6	2.80	2,259	16.1	2.58	2,298	18.9	1.97	2,568	14.4	2.31	2,102
Age-adjusted rates:												
Both sexes, 25-74 years	19.4	...	...	17.6	...	...	20.5	...	...	14.8	...	...
Men, 25-74 years	23.0	...	...	18.3	...	...	22.8	...	...	15.1	...	...
Women, 25-74 years	16.0	...	...	16.8	...	...	18.7	...	...	14.4	...	...
Diastolic pressure of 105 mmHg or more												
Both sexes, 25-74 years...	*4.5	1.20	1,168	4.7	1.07	1,296	5.9	0.98	1,507	*3.3	0.97	932
25-34 years	2.8	1.26	175	*0.2	0.24	12	*2.7	1.88	180	*0.2	0.16	14
35-44 years	3.4	1.58	192	3.4	1.98	198	*6.0	2.27	291	*3.3	2.64	201
45-54 years	6.0	3.27	361	*7.3	1.97	436	*7.3	2.46	399	*3.8	1.72	230
55-64 years	*6.0	2.99	291	*9.5	3.01	461	*7.5	2.26	362	*6.6	2.57	320
65-74 years	*4.6	1.54	149	*6.4	2.48	189	*7.6	2.35	276	*5.0	2.24	167
Men, 25-74 years	*5.9	1.89	715	*4.8	1.23	624	*5.8	1.54	688	*3.7	1.27	494
Women, 25-74 years	*3.3	0.84	453	*4.7	1.40	673	*6.0	1.41	819	*3.0	1.15	438
Age-adjusted rates:												
Both sexes, 25-74 years	4.4	...	...	4.9	...	...	5.9	...	...	3.4	...	...
Men, 25-74 years	5.8	...	...	4.8	...	...	5.8	...	...	3.9	...	...
Women, 25-74 years	3.2	...	...	4.9	...	...	6.0	...	...	3.0	...	...
Borderline hypertension												
Both sexes, 25-74 years	17.4	2.27	4,489	16.1	1.51	4,411	19.0	1.70	4,834	16.1	1.27	4,523
25-34 years	*6.1	2.88	378	*8.2	2.88	637	*7.6	2.56	503	*7.2	2.12	559
35-44 years	*13.4	4.19	746	*12.7	3.52	745	13.2	2.54	641	*9.6	3.62	578
45-54 years	20.3	3.95	1,226	14.3	2.81	853	24.3	4.92	1,321	19.2	3.35	1,171
55-64 years	21.7	3.65	1,043	23.3	4.87	1,134	27.7	3.81	1,335	25.6	3.63	1,245
65-74 years	33.8	6.03	1,097	35.3	4.52	1,042	28.5	4.16	1,033	29.2	5.31	970
Men, 25-74 years	17.0	3.28	2,082	18.5	3.10	2,421	21.3	2.37	2,517	17.7	2.51	2,375
Women, 25-74 years	17.7	2.89	2,408	13.9	1.55	1,990	17.1	2.67	2,317	14.7	1.99	2,148
Age-adjusted rates:												
Both sexes, 25-74 years	17.0	...	...	16.6	...	...	18.7	...	...	16.4	...	...
Men, 25-74 years	16.8	...	...	19.0	...	...	20.6	...	...	18.1	...	...
Women, 25-74 years	17.2	...	...	14.5	...	...	17.0	...	...	14.7	...	...

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 28. Percent of adults 25-74 years of age never diagnosed as having high blood pressure among those with definite hypertension, diastolic pressure of 105 mmHg or more, and borderline hypertension, by geographic region and sex with standard errors and age-adjusted percents: United States, 1971-1975

Condition and sex	Northeast		Midwest		South		West	
	Percent of adults	Standard error of percent	Percent of adults	Standard error of percent	Percent of adults	Standard error of percent	Percent of adults	Standard error of percent
Definite hypertension								
Both sexes, 25-74 years	47.5	4.38	49.2	6.36	49.2	4.71	50.3	3.72
Men, 25-74 years	58.1	4.83	52.8	8.59	60.7	7.36	53.9	5.26
Women, 25-74 years	34.1	7.25	45.4	7.51	36.7	8.49	46.9	5.90
Age-adjusted percents:								
Both sexes	47.5	. . .	49.0	. . .	49.4	. . .	50.4	. . .
Men	58.2	. . .	54.2	. . .	61.7	. . .	54.5	. . .
Women	33.8	. . .	44.6	. . .	35.7	. . .	46.8	. . .
Diastolic pressure 105 mmHg or more								
Both sexes, 25-74 years	31.6	9.01	*34.7	12.44	40.2	7.79	*36.6	10.62
Men, 25-74 years	*31.1	12.92	*37.6	18.47	*50.2	15.17	*33.2	13.59
Women, 25-74 years	*32.4	15.58	*31.9	12.02	*31.7	13.08	*40.6	15.94
Age-adjusted percents:								
Both sexes	31.7	. . .	32.2	. . .	39.9	. . .	37.7	. . .
Men	30.7	. . .	35.6	. . .	49.7	. . .	34.7	. . .
Women	30.4	. . .	30.5	. . .	30.9	. . .	40.0	. . .
Borderline hypertension								
Both sexes, 25-74 years	71.4	5.61	71.4	4.36	67.1	4.97	66.2	6.91
Men, 25-74 years	80.5	5.69	80.7	6.53	72.9	7.24	72.0	7.98
Women, 25-74 years	63.5	8.10	60.2	6.12	60.9	8.12	59.8	7.66
Age-adjusted percents:								
Both sexes	72.2	. . .	70.4	. . .	66.4	. . .	66.4	. . .
Men	80.8	. . .	79.3	. . .	71.5	. . .	71.0	. . .
Women	64.2	. . .	59.6	. . .	59.6	. . .	60.8	. . .

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 29. Prevalence rates and estimated population with definite hypertension, diastolic pressure of 105 mmHg or more, and borderline hypertension among adults 25-74 years, by population density of area of residence, age, and sex with standard errors and age-adjusted rates: United States, 1971-1975

Condition, age, and sex	Urban areas						Urban not in urbanized area			Rural area		
	1,000,000 persons or more			Less than 1,000,000 persons								
	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands
Definite hypertension												
Both sexes, 25-74 years...	17.1	2.52	5,417	18.9	2.18	5,344	16.7	2.25	2,215	18.6	1.55	6,209
25-34 years	*5.9	1.76	505	*5.5	2.02	432	*4.1	2.14	135	*6.4	2.23	548
35-44 years	*11.6	5.67	813	*16.0	4.41	927	*8.0	3.32	211	12.2	2.65	838
45-54 years	20.4	2.88	1,494	18.4	4.47	1,154	*19.4	5.02	554	21.7	2.42	1,538
55-64 years	28.6	6.71	1,565	31.9	4.36	1,461	*27.2	8.64	687	27.0	4.26	1,825
65-74 years	30.5	5.64	1,039	36.5	4.84	1,369	32.5	5.60	629	36.1	4.84	1,459
Men, 25-74 years	18.9	3.34	2,912	20.7	2.48	2,781	17.0	3.44	1,084	20.7	2.17	3,182
Women, 25-74 years	15.3	2.68	2,504	17.3	2.66	2,563	16.5	2.98	1,131	16.8	2.08	3,027
Age-adjusted rates:												
Both sexes, 25-74 years	17.4	...	...	19.1	...	...	16.0	...	...	18.4	...	...
Men, 25-74 years	19.1	...	...	21.1	...	...	16.5	...	...	20.6	...	...
Women, 25-74 years	15.8	...	...	17.3	...	...	15.6	...	...	16.8	...	...
Diastolic pressure of 105 mmHg or more												
Both sexes, 25-74 years...	*4.3	1.12	1,360	4.9	1.18	1,379	*3.9	1.25	518	4.9	0.78	1,647
25-34 years	*1.3	1.25	113	*0.7	0.56	56	*1.0	0.73	31	*2.1	1.45	180
35-44 years	*3.2	1.74	222	*6.5	3.17	379	*1.5	1.36	40	*3.5	1.54	241
45-54 years	*4.8	2.03	349	*7.2	2.80	449	*4.7	2.40	135	*6.9	1.90	493
55-64 years	*8.6	3.16	472	*6.4	2.53	295	*7.3	4.39	186	*7.1	2.13	481
65-74 years	*6.0	2.78	204	*5.3	1.67	200	*6.5	3.04	125	*6.2	1.73	252
Men, 25-74 years	*4.1	1.19	631	5.7	1.32	761	*3.8	1.72	245	5.8	1.31	885
Women, 25-74 years	*4.5	1.46	729	4.2	1.43	618	*4.0	1.75	273	4.2	0.92	762
Age-adjusted rates:												
Both sexes, 25-74 years	4.4	...	...	5.0	...	...	3.7	...	...	4.9	...	...
Men, 25-74 years	4.1	...	...	5.8	...	...	3.7	...	...	5.8	...	...
Women, 25-74 years	4.6	...	...	4.2	...	...	3.8	...	...	4.2	...	...
Borderline hypertension												
Both sexes, 25-74 years...	15.4	1.45	4,897	17.0	1.23	4,810	19.5	2.60	2,592	17.9	1.36	5,958
25-34 years	*5.6	2.30	480	*8.4	2.63	661	*8.3	3.22	272	*7.7	2.01	664
35-44 years	*10.8	3.20	759	*14.1	4.11	818	*13.7	4.30	365	*11.2	2.80	768
45-54 years	17.2	3.50	1,261	19.7	3.53	1,238	19.7	4.41	563	21.3	3.59	1,508
55-64 years	21.6	3.18	1,186	22.7	4.12	1,037	*30.3	8.05	765	26.2	3.51	1,768
65-74 years	35.5	4.46	1,211	28.1	4.07	1,056	32.4	5.98	627	30.9	3.81	1,249
Men, 25-74 years	15.5	2.32	2,385	20.7	2.53	2,790	22.3	3.87	1,426	18.2	2.09	2,792
Women, 25-74 years	15.4	2.35	2,512	13.6	1.95	2,020	17.0	3.10	1,165	17.6	1.87	3,165
Age-adjusted rates:												
Both sexes, 25-74 years	15.9	...	...	17.1	...	...	18.9	...	...	17.6	...	...
Men, 25-74 years	15.8	...	...	20.9	...	...	21.8	...	...	17.8	...	...
Women, 25-74 years	15.9	...	...	13.6	...	...	16.2	...	...	17.4	...	...

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 30. Percent of adults 25-74 years of age never diagnosed as having high blood pressure among those with definite hypertension, diastolic pressure of 105 mmHg or more, and borderline hypertension, by population density of area of residence and sex with standard errors and age-adjusted percents: United States, 1971-1975

Condition and sex	Urban areas				Urban not in urbanized area		Rural area	
	1,000,000 persons or more		Less than 1,000,000 persons					
	Percent of adults	Standard error of percent	Percent of adults	Standard error of percent	Percent of adults	Standard error of percent	Percent of adults	Standard error of percent
Definite hypertension								
Both sexes, 25-74 years	48.8	4.84	46.8	3.81	46.4	7.04	51.9	3.76
Men, 25-74 years	60.6	6.27	52.1	4.93	51.6	9.23	59.0	5.32
Women, 25-74 years	35.0	7.06	41.1	8.18	41.4	10.18	44.4	4.99
Age-adjusted percents:								
Both sexes	48.5	...	47.3	...	46.5	...	52.0	...
Men	61.0	...	52.1	...	51.4	...	58.9	...
Women	34.4	...	41.8	...	38.5	...	44.0	...
Diastolic pressure 105 mmHg or more								
Both sexes, 25-74 years	35.6	16.39	38.5	6.59	*34.3	10.71	34.8	8.22
Men, 25-74 years	*39.0	20.45	*43.2	13.41	*34.7	20.08	*34.7	10.18
Women, 25-74 years	*32.6	15.58	*32.7	13.90	*33.9	18.21	*34.9	12.31
Age-adjusted percents:								
Both sexes	36.3	...	40.7	...	30.8	...	34.6	...
Men	37.9	...	48.3	...	31.4	...	37.8	...
Women	33.5	...	32.9	...	25.3	...	32.8	...
Borderline hypertension								
Both sexes, 25-74 years	66.1	4.56	68.4	6.27	70.3	7.10	71.3	3.39
Men, 25-74 years	71.7	7.25	74.5	6.95	78.1	9.46	81.3	3.94
Women, 25-74 years	60.8	6.06	60.0	7.08	60.6	7.14	62.4	7.00
Age-adjusted percents:								
Both sexes	66.5	...	67.8	...	71.3	...	71.0	...
Men	71.4	...	73.2	...	78.9	...	81.5	...
Women	62.3	...	60.0	...	62.8	...	60.6	...

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 31. Prevalence rates and estimated population with definite hypertension, diastolic pressure of 105 mmHg or more, and borderline hypertension among adults 25-74 years, by annual family income, age, and sex with standard errors and age-adjusted rates: United States, 1971-1975

Condition, age, and sex	Less than $3,000			Less than $5,000			$5,000-$9,999			$10,000 or more		
	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands
Definite hypertension												
Both sexes, 25-74 years...	32.1	3.43	2,970	29.6	2.19	5,963	18.1	1.41	5,580	13.8	1.23	7,090
25-34 years	3.3	3.22	43	*7.1	3.70	268	*7.4	2.15	635	*4.7	1.41	708
35-44 years	*27.4	8.12	324	*22.5	5.42	515	15.3	3.52	862	*9.9	2.48	1,338
45-54 years	30.3	7.21	413	29.1	4.49	969	17.3	3.36	1,096	19.5	2.13	2,497
55-64 years	41.8	6.58	1,038	41.5	4.85	1,960	27.0	4.15	1,577	22.9	3.08	1,809
65-74 years	39.8	5.12	1,152	37.3	4.17	2,250	31.9	3.75	1,410	34.9	7.05	738
Men, 25-74 years	31.8	5.45	1,010	29.2	3.34	2,128	19.9	2.31	2,887	17.2	2.01	4,647
Women, 25-74 years	32.2	4.27	1,960	29.8	2.72	3,834	16.5	2.11	2,693	10.0	1.17	2,443
Age-adjusted rates:												
Both sexes, 25-74 years	25.7	...	...	25.0	...	...	17.8	...	...	16.0	...	...
Men, 25-74 years	27.5	...	...	26.4	...	...	19.7	...	...	18.8	...	...
Women, 25-74 years	25.0	...	...	24.4	...	...	16.2	...	...	13.0	...	...
Diastolic pressure of 105 mmHg or more												
Both sexes, 25-74 years...	9.7	1.66	898	8.4	1.18	1,698	4.4	0.90	1,359	3.3	0.59	1,686
25-34 years	*0.8	1.26	11	*3.0	2.86	112	*1.5	0.79	126	*0.9	0.58	142
35-44 years	*14.7	7.64	174	*10.5	4.44	240	*4.8	2.25	270	*2.6	0.94	358
45-54 years	*9.9	3.89	135	*9.8	2.75	328	*4.6	1.96	291	5.7	1.20	723
55-64 years	*10.8	3.78	268	*12.6	3.24	596	7.8	2.16	453	*4.3	1.52	340
65-74 years	*10.7	3.11	309	7.0	1.68	421	4.9	1.96	219	*5.8	2.99	123
Men, 25-74 years	*8.9	2.88	281	8.3	2.03	607	4.5	1.31	651	4.3	0.91	1,157
Women, 25-74 years	10.1	2.10	617	8.5	1.42	1,090	4.3	1.40	708	*2.2	0.57	529
Age-adjusted rates:												
Both sexes, 25-74 years	8.7	...	...	8.3	...	...	4.4	...	...	3.5	...	...
Men, 25-74 years	8.0	...	...	8.4	...	...	4.4	...	...	4.3	...	...
Women, 25-74 years	9.5	...	...	8.3	...	...	4.4	...	...	2.7	...	...
Borderline hypertension												
Both sexes, 25-74 years...	22.1	3.24	2,044	20.9	2.23	4,215	17.4	1.48	5,375	15.0	1.16	7,723
25-34 years	*5.2	3.59	69	*7.6	3.46	288	*6.5	2.34	557	7.7	1.81	1,151
35-44 years	17.8	6.63	211	*14.1	4.05	322	*10.5	2.82	594	11.8	2.31	1,601
45-54 years	*27.9	7.42	381	28.7	6.90	956	18.8	3.44	1,187	17.5	2.18	2,232
55-64 years	*19.9	5.07	495	17.4	3.37	822	29.3	3.61	1,709	25.1	3.18	1,979
65-74 years	30.7	4.91	888	30.3	3.92	1,827	30.0	4.03	1,328	35.9	5.86	760
Men, 25-74 years	20.0	4.38	635	20.2	2.94	1,471	18.5	2.24	2,685	18.0	1.71	4,842
Women, 25-74 years	23.1	4.24	1,409	21.3	2.83	2,744	16.5	1.92	2,690	11.8	1.49	2,881
Age-adjusted rates:												
Both sexes, 25-74 years	18.6	...	...	17.2	...	...	17.0	...	...	17.3	...	...
Men, 25-74 years	17.8	...	...	15.5	...	...	18.0	...	...	19.2	...	...
Women, 25-74 years	19.2	...	...	18.0	...	...	16.2	...	...	15.2	...	...

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 32. Percent of adults 25-74 years of age never diagnosed as having high blood pressure among those with definite hypertension, diastolic pressure of 105 mmHg or more, and borderline hypertension, by annual family income and sex with standard errors and age-adjusted percents: United States, 1971-1975

Condition and sex	Less than $3,000		Less than $5,000		$5,000-$9,999		$10,000 or more	
	Percent of adults	Standard error of percent	Percent of adults	Standard error of percent	Percent of adults	Standard error of percent	Percent of adults	Standard error of percent
Definite hypertension								
Both sexes, 25-74 years	40.5	5.87	42.7	3.69	49.0	4.24	54.7	3.96
Men, 25-74 years	62.1	11.31	56.3	7.36	55.1	6.61	58.1	4.83
Women, 25-74 years	29.3	7.28	35.1	5.26	42.4	6.08	48.3	5.15
Age-adjusted percents:								
Both sexes	45.4	...	43.9	...	49.0	...	54.5	...
Men	65.5	...	60.3	...	55.4	...	58.4	...
Women	30.8	...	35.2	...	42.2	...	47.0	...
Diastolic pressure 105 mmHg or more								
Both sexes, 25-74 years	*31.4	8.61	31.1	7.04	*32.0	9.17	43.9	7.92
Men, 25-74 years	45.1	17.30	36.6	10.18	*28.6	13.29	43.7	10.09
Women, 25-74 years	*25.2	9.61	28.0	9.80	*35.2	14.01	*44.1	12.12
Age-adjusted percents:								
Both sexes	31.8	...	32.0	...	33.6	...	45.2	...
Men	43.4	...	42.8	...	33.0	...	45.3	...
Women	24.6	...	27.0	...	37.6	...	47.7	...
Borderline hypertension								
Both sexes, 25-74 years	60.5	6.39	63.2	4.27	69.7	4.53	73.2	3.63
Men, 25-74 years	73.3	9.69	72.5	6.27	76.7	6.02	77.1	4.96
Women, 25-74 years	54.8	9.63	58.2	6.38	62.7	6.48	66.6	5.13
Age-adjusted percents:								
Both sexes	65.6	...	65.9	...	69.8	...	71.1	...
Men	81.3	...	75.1	...	77.0	...	75.6	...
Women	56.1	...	60.9	...	62.4	...	64.6	...

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 33. Prevalence rates and estimated population with definite hypertension, diastolic pressure of 105 mmHg or more, and borderline hypertension among adults 25-74 years, by education, age, and sex with standard errors and age-adjusted rates: United States, 1971-1975

Condition, age, and sex	Education											
	Less than 5 years			5-8 years			9-12 years			13 years or more		
	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands
Definite hypertension												
Both sexes, 25-74 years...	36.6	5.94	1,364	27.0	2.43	4,996	15.9	0.95	8,945	13.7	1.41	3,774
25-34 years	*22.8	21.30	66	*8.1	4.95	152	5.4	1.34	840	*5.3	1.89	553
35-44 years	*12.1	11.39	46	*17.3	4.60	393	11.8	2.17	1,534	*11.8	3.44	753
45-54 years	42.7	10.31	345	25.0	3.65	1,022	19.8	2.10	2,661	13.9	2.72	708
55-64 years	*43.2	12.33	383	32.4	4.48	1,717	25.1	2.80	2,414	29.7	4.49	1,024
65-74 years	38.5	8.29	525	34.4	3.83	1,713	33.0	4.73	1,496	33.9	6.67	735
Men, 25-74 years	38.3	7.33	745	26.5	2.77	2,497	18.0	1.53	4,234	15.7	2.48	2,389
Women, 25-74 years	34.7	7.42	619	27.5	3.30	2,499	14.4	1.35	4,711	11.3	1.85	1,384
Age-adjusted rates:												
Both sexes, 25-74 years	30.6	...	...	21.4	...	...	16.9	...	...	16.5	...	...
Men, 25-74 years	33.7	...	...	23.4	...	...	18.6	...	...	18.7	...	...
Women, 25-74 years	29.8	...	...	19.0	...	...	15.6	...	...	13.4	...	...
Diastolic pressure of 105 mmHg or more												
Both sexes, 25-74 years...	*12.2	3.37	453	7.6	1.58	1,401	4.3	0.60	2,431	*2.2	0.61	617
25-34 years	-	-	-	*1.6	1.88	30	1.8	0.86	286	*0.6	0.59	65
35-44 years	*6.5	6.79	24	*6.4	3.28	145	4.3	1.57	559	*2.4	1.10	152
45-54 years	*20.4	9.70	165	*5.9	2.26	243	6.0	1.58	811	*4.1	1.42	208
55-64 years	*19.9	9.56	177	*11.7	3.47	620	5.1	1.18	489	4.3	2.13	148
65-74 years	*6.4	3.00	87	*7.3	2.00	362	*6.3	1.90	286	2.0	1.43	44
Men, 25-74 years	*13.2	4.96	257	*6.4	1.70	605	4.9	0.92	1,164	3.3	1.13	496
Women, 25-74 years	*11.0	4.83	196	*8.7	2.43	796	3.9	0.76	1,267	1.0	0.48	122
Age-adjusted rates:												
Both sexes, 25-74 years	10.2	...	...	6.1	...	...	4.4	...	...	2.6	...	...
Men, 25-74 years	11.5	...	...	4.9	...	...	5.0	...	...	3.8	...	...
Women, 25-74 years	9.5	...	...	7.4	...	...	4.0	...	...	1.1	...	...
Borderline hypertension												
Both sexes, 25-74 years...	25.7	3.83	957	24.6	2.33	4,554	15.9	0.99	8,954	13.2	1.51	3,639
25-34 years	*3.8	7.74	11	*6.1	5.48	113	7.9	1.72	1,237	*6.9	1.82	715
35-44 years	*20.7	13.40	78	*20.9	5.53	475	11.7	1.78	1,524	*8.5	2.97	539
45-54 years	*17.3	4.57	140	24.2	4.54	989	18.6	2.55	2,489	*18.7	5.06	953
55-64 years	*28.4	9.52	252	24.2	4.41	1,282	25.3	3.02	2,434	22.2	4.96	764
65-74 years	34.9	6.62	476	34.1	3.98	1,694	28.0	4.11	1,270	30.8	5.65	667
Men, 25-74 years	24.8	5.26	482	25.1	3.37	2,359	18.5	1.52	4,352	13.7	2.21	2,084
Women, 25-74 years	26.6	5.36	475	24.1	2.79	2,195	14.1	1.47	4,603	12.7	2.04	1,555
Age-adjusted rates:												
Both sexes, 25-74 years	18.6	...	...	19.9	...	...	16.7	...	...	15.5	...	...
Men, 25-74 years	16.8	...	...	22.1	...	...	19.0	...	...	16.0	...	...
Women, 25-74 years	19.6	...	...	17.5	...	...	15.1	...	...	14.6	...	...

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 34. Percent of adults 25-74 years of age never diagnosed as having high blood pressure among those with definite hypertension, diastolic pressure of 105 mmHg or more, and borderline hypertension, by education and sex with standard errors and age-adjusted percents: United States, 1971-1975

Condition and sex	Education							
	Less than 5 years		5-8 years		9-12 years		13 years or more	
	Percent of adults	Standard error of percent	Percent of adults	Standard error of percent	Percent of adults	Standard error of percent	Percent of adults	Standard error of percent
Definite hypertension								
Both sexes, 25-74 years	41.4	7.03	42.3	4.85	51.9	3.35	53.3	6.10
Men, 25-74 years	55.4	12.67	57.7	7.76	58.0	4.52	54.0	7.13
Women, 25-74 years	*24.5	11.14	26.9	4.98	46.4	4.92	52.1	10.24
Age-adjusted percents:								
Both sexes	39.2	...	45.5	...	51.3	...	54.6	...
Men	49.8	...	59.6	...	57.1	...	56.2	...
Women	21.5	...	27.4	...	46.5	...	51.2	...
Diastolic pressure 105 mmHg or more								
Both sexes, 25-74 years	*28.4	13.35	*28.3	8.16	39.5	6.73	*45.4	14.78
Men, 25-74 years	*28.5	18.50	*32.0	11.56	41.3	9.95	*44.3	17.45
Women, 25-74 years	*28.2	20.67	*25.6	9.03	37.9	9.32	*49.8	34.36
Age-adjusted percents:								
Both sexes	22.4	...	26.1	...	39.4	...	43.3	...
Men	22.7	...	28.4	...	40.5	...	44.8	...
Women	22.5	...	23.4	...	38.3	...	26.6	...
Borderline hypertension								
Both sexes, 25-74 years	62.2	8.29	65.9	3.78	71.9	3.54	66.7	6.02
Men, 25-74 years	78.6	9.45	73.1	6.20	80.5	4.86	69.5	8.29
Women, 25-74 years	*45.5	16.90	58.1	6.16	63.7	4.77	63.0	8.85
Age-adjusted percents:								
Both sexes	62.4	...	67.9	...	70.5	...	65.1	...
Men	70.3	...	73.7	...	79.3	...	69.1	...
Women	53.7	...	55.4	...	62.4	...	60.8	...

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 35. Percent distribution of adults 25-74 years by response to selected medical history questions with estimated number of adults, according to hypertensive status and age: United States, 1971-1974

Hypertensive status and age	Population in thousands	Told by doctor had high blood pressure?				If told by doctor, years ago first had it				In past 6 months, ever used medicine, pills, or drugs for high blood pressure?		
		Yes, still have	Yes, not now	Yes, unknown	No or unknown	Less than 1 year	1-5 years	6 years or more	Unknown or not applicable	Regularly	Occasionally	No or unknown
		Percent distribution										
All ages												
Definite	19,180	36.5	8.5	4.2	50.8	0.8	22.4	25.1	51.7	22.8	3.8	73.3
High risk[1]	5,083	47.3	6.9	7.0	38.8	1.8	27.9	30.8	39.5	29.5	3.2	67.3
Borderline	18,370	17.9	6.6	3.1	72.4	0.5	16.1	10.6	72.8	12.3	1.2	86.5
Normotensive	66,570	5.0	3.7	0.5	90.8	0.0	5.7	3.5	90.8	2.8	0.5	96.7
25-44 years												
Definite	4,308	29.3	8.5	5.2	57.0	0.1	21.4	21.0	57.5	8.2	3.5	88.2
High risk[1]	1,330	37.3	9.8	12.9	40.0	0.0	33.5	26.4	40.1	14.7	2.8	82.5
Borderline	4,935	10.1	6.2	4.8	78.9	1.2	15.2	4.3	79.3	5.6	1.5	92.9
Normotensive	39,693	3.0	3.0	0.3	93.6	0.0	4.4	1.9	93.7	0.8	0.6	98.6
45-64 years												
Definite	10,190	37.8	8.7	3.8	49.7	1.3	23.7	24.3	50.7	26.2	3.4	70.4
High risk[1]	2,965	50.7	5.6	4.7	39.0	2.3	26.7	31.1	39.9	33.9	2.9	63.2
Borderline	9,356	18.2	4.6	2.3	75.0	0.1	14.5	9.9	75.5	11.3	1.0	87.7
Normotensive	22,958	6.7	4.6	1.1	87.6	0.0	7.0	5.3	87.7	5.1	0.1	94.7
65-74 years												
Definite	4,685	40.5	8.1	4.1	47.3	0.6	20.3	30.4	48.7	28.9	5.1	65.9
High risk[1]	789	51.9	6.8	5.5	35.7	3.0	23.1	36.9	37.0	38.0	4.9	57.0
Borderline	4,084	26.7	11.5	3.1	58.7	0.5	20.9	19.9	58.7	22.7	1.3	76.0
Normotensive	3,918	14.5	4.9	0.5	79.7	0.2	11.3	8.3	80.2	10.2	1.5	88.3

[1]Diastolic pressure of 105 mmHg or more.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 36. Percent of adults 25-74 years of age with specified responses to selected medical history items among those with definite hypertension, diastolic pressure of 105 mmHg or more, borderline hypertension, or normotension at time of examination, by sex: United States, 1974-1975

Medical history item	Definite hypertension			Diastolic pressure 105 mmHg or more			Borderline hypertension			Normotension		
	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women
	Percent of adults											
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
How long ago first told by doctor had high blood pressure and/or hypertension?												
Less than 1 year	7.1	8.0	6.2	6.2	5.1	7.4	3.9	5.1	2.8	2.1	1.5	2.7
1-5 years	22.4	22.1	22.7	30.6	36.3	24.1	16.5	12.7	20.1	6.2	5.4	6.8
6-9 years	6.2	5.6	6.9	6.7	8.7	4.5	6.0	3.0	8.9	3.0	3.0	3.0
More than 9 years	19.9	14.8	25.4	24.2	18.3	31.1	10.5	8.4	12.5	4.2	4.3	4.1
Times during past 12 months talked to doctor about high blood pressure and/or hypertension:												
None	58.6	67.2	49.2	53.6	58.7	47.7	72.3	79.1	65.9	90.4	91.8	89.2
1 time	11.3	10.2	12.5	9.4	4.6	14.9	7.2	4.5	9 7	3.4	3.0	3.8
2 times	9.3	8.0	10.7	14.2	15.1	13.2	5.3	5.0	5.6	1.4	1.6	1.3
3 times	3.2	2.7	3.8	5.5	6.0	4.9	3.3	1.8	4.7	1.5	1.3	1.7
4 times	3.6	1.6	5.7	2.5	1.9	3.3	3.7	3.7	3.8	1.1	0.7	1.4
5 times or more	14.0	10.2	18.1	14.7	13.6	16.0	8.2	5.9	10.3	2.2	1.6	2.6
Days during past 12 months high blood pressure and/or hypertension kept you in bed all or most of day:												
None	96.9	99.8	93.8	96.8	100.0	93.0	98.0	99.4	96.6	99.3	99.4	99.3
1-5 days	1.3	0.2	2.5	2.3	-	5.0	1.1	0.6	1.6	0.3	0.2	0.4
6-10 days	0.4	-	0.9	0.9	-	2.0	0.0	-	0.0	0.3	0.4	0.2
More than 10 days	1.3	-	2.7	-	-	-	0.5	-	0.9	0.1	-	0.1
How long since you last had blood pressure taken:												
Last 3 months	48.0	38.6	58.3	46.7	38.7	55.9	47.6	43.1	51.8	42.7	39.1	45.7
4-6 months	15.8	16.9	14.5	20.2	22.4	17.6	16.8	16.8	16.7	17.1	15.6	18.4
7-11 months	7.3	8.1	6.4	3.9	3.1	4.9	6.9	7.2	6.6	9.4	8.1	10.6
1-3 years	21.5	27.2	15.3	25.8	33.0	17.5	20.5	21.6	19.5	24.8	29.4	20.9
More than 3 years	7.4	9.1	5.6	3.4	2.9	4.0	8.3	11.3	5.4	6.0	7.8	4.4
During past 12 months, times your blood pressure was taken: (not counting times while a patient in hospital)												
None	30.8	37.8	23.4	29.8	35.9	22.8	30.3	35.4	25.5	32.3	39.0	26.6
1 time	17.5	19.2	15.7	13.4	13.1	13.6	22.8	24.3	21.4	26.0	26.9	25.3
2 times	12.1	14.9	9.0	11.9	16.0	7.1	14.1	14.0	14.2	15.1	13.8	16.3
3 times	6.3	5.4	7.4	9.2	6.1	12.8	7.9	7.9	7.9	8.3	8.0	8.6
4 times	9.3	6.0	12.9	9.5	7.2	12.2	7.8	8.3	7.4	5.3	4.7	5.8
5 times or more	23.9	16.7	31.6	26.2	21.6	31.5	17.1	10.1	23.7	12.9	7.6	17.4
Doctor ever talked to you about problems caused by high blood pressure and/or hypertension?	39.7	31.2	48.8	49.3	45.6	53.6	24.6	22.3	26.9	15.7	15.0	16.3
Nurse or other medical person ever talked to you about problems caused by high blood pressure and/or hypertension?	1.0	0.3	1.8	1.1	-	2.3	1.7	1.9	1.6	2.2	2.3	2.0
Type of medical person:												
Nurse	1.0	0.3	1.8	1.1	-	2.3	1.3	1.1	1.6	1.8	2.0	1.7
Other	-	-	-	-	-	-	0.4	0.8	-	0.3	0.3	0.3
Were you told that reading was:												
High	17.8	12.9	23.1	23.3	19.9	27.3	8.5	4.8	12.1	2.9	2.1	3.5
Low	1.2	1.2	1.2	1.8	3.4	-	2.0	0.4	3.5	3.4	2.0	4.6
Normal	35.9	37.6	34.2	28.4	26.7	30.3	42.8	42.9	42.7	42.3	44.2	40.7
Not told	11.8	9.7	14.0	13.5	11.3	16.0	14.0	15.8	12.3	19.2	12.8	24.7
Other	3.8	2.5	5.1	3.7	2.8	4.8	3.6	2.4	4.8	1.4	1.6	1.3
Not applicable, unknown	29.5	36.2	22.4	29.2	35.9	21.6	29.0	33.7	24.5	30.8	37.3	25.2
Ever been told by doctor you had:												
High blood pressure	54.6	50.3	59.4	68.1	67.4	69.0	37.0	29.0	44.5	13.8	12.8	14.6
Hypertension	2.6	1.2	4.0	1.5	1.0	2.2	0.8	0.8	0.9	1.8	1.6	2.0

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 36. Percent of adults 25-74 years of age with specified responses to selected medical history items among those with definite hypertension, diastolic pressure of 105 mmHg or more, borderline hypertension, or normotension at time of examination, by sex: United States, 1974-1975—Con.

Medical history item	Definite hypertension			Diastolic pressure 105 mmHg or more			Borderline hypertension			Normotension		
	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women
	Percent of adults											
Doctor ever advised you to lose weight because of high blood pressure and/or hypertension	27.9	22.7	33.4	35.1	26.0	45.6	16.6	13.4	19.7	5.6	5.7	5.5
Use of salt since learned of high blood pressure and/or hypertension:												
More	0.2	0.2	0.1	0.5	1.0	-	0.4	0.8	-	0.2	0.1	0.2
Less	28.5	22.5	35.0	29.8	22.6	38.0	21.1	15.8	26.1	6.8	5.6	7.8
Same	28.5	28.7	28.2	39.3	44.7	33.1	16.3	13.2	19.3	8.7	8.7	8.7
Not applicable	42.8	48.5	36.6	30.4	31.7	28.8	62.2	70.3	54.6	84.4	85.6	83.3
Ever advised by doctor, nurse, or other medical person to use less salt?	30.8	21.9	40.5	36.0	26.6	46.7	21.8	16.3	27.0	7.7	6.1	9.0
Doctor ever prescribed medicine for high blood pressure and/or hypertension?	43.0	33.7	53.0	53.4	50.0	57.3	27.5	20.7	34.0	8.0	6.9	8.8
Now taking doctor prescribed medicine for high blood pressure and/or hypertension?	25.7	17.0	35.1	29.2	25.7	33.3	16.1	11.2	20.8	4.2	3.7	4.6
How often prescribed medicine to be taken:	10.8	6.1	15.8	14.5	13.7	15.4	5.1	3.6	6.5	1.5	1.1	1.9
Once a day	12.3	8.4	16.5	12.9	8.5	17.9	10.5	7.3	13.5	1.8	2.2	1.5
Less than once a day	2.6	2.5	2.8	1.9	3.5	-	0.6	0.4	0.8	0.8	0.3	1.3
Not applicable	74.3	83.0	64.9	70.8	74.3	66.7	83.9	88.8	79.2	95.8	96.4	95.4
How often is prescribed medicine taken:												
All the time	21.3	14.3	28.9	25.6	22.2	29.5	14.5	10.4	18.3	3.8	3.5	4.1
Often	2.2	1.5	2.9	1.9	1.7	2.2	1.1	0.5	1.8	0.2	-	0.3
Once in a while	1.8	1.2	2.6	1.7	1.8	1.7	0.5	0.4	0.7	0.1	-	0.2
Never	0.4	-	0.7	-	-	-	-	-	-	0.0	0.1	-
Other	-	-	-	-	-	-	-	-	-	0.0	-	0.1
Not applicable	74.3	83.0	64.9	70.8	74.3	66.7	83.9	88.8	79.2	95.8	96.4	95.4
How often does high blood pressure and/or hypertension bother you:												
All the time	1.7	1.5	1.9	1.7	-	3.6	1.9	0.9	2.7	0.4	0.2	0.5
Often	3.7	1.4	6.2	4.4	6.0	2.5	1.1	1.0	1.2	0.7	0.6	0.7
Once in a while	22.9	18.5	27.7	34.2	32.4	36.3	11.3	6.1	16.3	4.1	2.8	5.3
Never	26.4	28.8	23.9	26.5	27.7	25.1	19.7	17.7	21.5	8.9	9.3	8.7
Other	0.4	0.2	0.6	1.6	0.7	2.6	0.2	-	0.4	0.2	0.1	0.3
Not applicable	44.9	49.7	39.7	31.6	33.2	29.8	65.9	74.4	57.8	85.7	87.1	84.6
Extent high blood pressure and/or hypertension bothers:												
Great deal	7.2	3.0	11.7	7.5	3.5	12.1	4.0	1.0	6.8	1.5	1.1	1.9
Some	9.1	5.8	12.7	14.3	12.7	16.0	3.9	2.9	4.8	1.6	1.2	2.0
Very little	11.8	11.9	11.6	19.1	22.2	15.5	6.2	4.3	8.0	2.1	1.3	2.8
Other	0.6	0.9	0.3	1.0	0.7	1.4	0.5	-	1.0	0.1	0.1	0.1
Not applicable	71.3	78.4	63.7	58.1	60.9	55.0	85.4	91.7	79.4	94.7	96.4	93.3
Still have high blood pressure and/or hypertension	35.1	28.9	41.9	46.3	41.5	51.9	17.4	12.8	21.7	5.7	4.4	6.7
Condition completely cured	5.5	5.0	6.1	4.6	1.4	8.2	6.7	5.4	8.0	4.1	3.1	4.9
Can tell when blood pressure is high	29.8	21.2	39.1	42.2	39.4	45.4	17.1	10.8	22.9	6.2	5.4	7.0

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 37. Percent distributions of adults 25-74 years by response to selected medical history questions with estimated number of adults, according to hypertensive status and age: United States, 1960-1962

Hypertensive status and age	Population in thousands	Ever think you had high blood pressure (HBP)?			How long ago first started having HBP?				Had HBP in last 12 months?		Take medicine or pills for HBP?	
		Yes, M.D. diagnosed	Yes, not M.D. diagnosed	No	1 year	1-5 years	6 years or more	Unknown or not applicable	Yes	No or unknown	Yes	No or unknown
		Percent distribution										
All ages												
Definite	15,681	45.1	2.6	52.3	7.2	16.3	23.0	53.5	67.9	32.1	22.8	77.2
High risk[1]	3,462	59.2	3.3	37.5	9.2	21.4	29.3	40.1	74.1	25.9	28.1	71.9
Borderline	14,488	21.6	3.8	74.6	5.2	9.5	10.3	75.0	63.2	36.8	9.1	90.9
Normotensive	62,463	6.9	2.3	90.8	2.1	3.5	3.4	91.0	48.7	51.3	2.8	91.2
25-44 years												
Definite	3,439	30.6	2.0	67.4	8.3	11.6	10.4	69.7	67.5	32.5	11.6	88.4
High risk[1]	854	44.3	1.3	54.4	13.1	9.2	17.7	60.0	65.8	34.2	17.0	83.0
Borderline	4,302	20.1	4.8	75.1	3.7	9.9	10.8	75.6	47.7	52.3	3.3	96.7
Normotensive	37,559	4.9	2.2	92.9	1.9	2.5	2.7	92.9	46.2	53.8	1.3	98.7
45-64 years												
Definite	7,930	44.1	2.3	53.6	6.4	16.7	22.5	54.4	65.1	34.9	21.9	78.1
High risk[1]	1,904	64.0	2.8	33.2	5.9	29.2	29.5	35.4	63.8	36.2	30.1	69.9
Borderline	7,439	20.4	3.7	75.9	7.4	8.3	8.1	76.2	71.0	29.0	10.1	89.9
Normotensive	20,789	7.7	2.5	89.8	2.3	3.9	3.8	90.0	53.3	46.7	3.5	96.5
65-74 years												
Definite	4,312	58.1	3.8	38.1	8.0	19.2	34.0	38.8	72.0	28.0	33.2	66.8
High risk[1]	704	64.3	7.1	28.6	13.4	15.3	42.7	28.6	69.5	30.5	36.3	63.7
Borderline	2,747	27.3	2.4	70.6	1.7	12.1	15.7	70.5	65.8	34.5	15.6	84.4
Normotensive	4,115	20.5	2.1	77.4	3.2	10.8	7.4	78.6	61.3	38.7	11.7	88.3

[1]Diastolic pressure of 105 mmHg or more.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 38. Percent of adults 25-74 years of age told by doctor they had selected chronic conditions, who still have them and who are on diet for selected conditions, among those with definite hypertension, diastolic pressure of 105 mmHg or more, borderline hypertension, or normotension at time of examination, by sex with standard errors and standardized percents for selected conditions: United States, 1971-1975

Condition ever told by doctor examinee had and still has, and special diet for condition	Total			Definite hypertension			Diastolic pressure of 105 mmHg or more			Borderline hypertension			Normotension		
	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women
Condition	Percent of adults														
Kidney disease:															
Ever told	9.2	8.6	9.8	9.7	8.0	11.4	10.3	10.2	10.4	9.9	9.2	10.7	8.9	8.6	9.2
Still has	2.3	1.8	2.8	3.5	3.1	3.9	3.5	4.2	2.8	2.8	2.5	3.1	1.9	1.1	2.5
Protein, albumin, blood, sugar in urine:															
Ever told	11.2	8.6	13.5	14.7	10.6	19.1	18.5	17.2	20.0	11.3	8.2	14.6	10.2	8.1	11.9
Thyroid trouble:															
Ever told	4.3	1.1	7.2	4.5	0.6	8.7	6.5	1.3	12.1	4.0	1.1	7.2	4.3	1.2	6.9
Still has	2.4	0.6	4.0	2.7	0.1	5.5	3.6	0.4	7.1	2.1	0.7	3.5	2.4	0.8	3.7
Diabetes:															
Ever told	2.5	2.0	2.9	3.7	3.0	4.5	2.9	1.3	4.6	4.4	2.4	6.4	1.6	1.6	1.6
Still has	2.1	1.7	2.4	3.1	2.3	4.0	2.4	1.3	3.6	4.1	2.0	6.3	1.2	1.4	1.1
Heart murmur:															
Ever told	7.6	6.4	8.6	6.4	5.2	7.6	6.9	7.2	6.6	8.8	8.9	8.7	7.6	6.0	8.9
Still has	4.0	3.3	4.5	4.0	3.5	4.5	4.9	4.6	5.2	5.4	5.3	5.6	3.6	2.7	4.3
Heart failure:															
Ever told	1.2	1.0	1.3	2.2	1.9	2.6	3.0	3.2	2.7	2.2	1.8	2.7	0.6	0.5	0.7
Still has	0.6	0.6	0.6	1.3	1.3	1.3	2.0	3.2	0.8	1.0	0.7	1.3	0.3	0.4	0.3
Heart attack:															
Ever told	4.1	5.0	3.3	8.4	9.0	7.7	8.7	9.5	7.8	5.8	6.5	5.0	2.5	3.3	1.8
High blood pressure:															
Ever told	13.2	11.2	15.0	33.6	27.4	40.3	44.8	42.5	47.3	19.2	15.0	23.6	5.9	4.9	6.8
Still has	8.7	7.8	9.5	24.6	21.6	27.9	34.0	34.9	33.1	12.5	9.3	15.9	3.2	2.9	3.5
Stroke:															
Ever told	1.4	1.4	1.4	3.3	3.0	3.5	4.6	3.7	5.7	2.8	3.1	2.5	0.5	0.4	0.6
Low blood pressure:															
Ever told	10.8	5.0	16.1	7.7	4.3	11.5	8.8	2.9	14.7	8.6	4.4	13.2	12.3	5.4	17.9
Still has	4.3	2.5	6.0	2.5	1.9	3.1	3.4	1.0	5.9	2.6	1.8	3.4	5.3	2.9	7.3
On diet															
For:															
Weight loss	4.9	3.0	6.5	5.9	4.0	7.9	6.2	4.0	8.5	4.7	3.3	6.2	4.2	2.2	5.8
Diabetes	2.5	2.0	3.0	3.6	2.4	5.0	3.0	2.0	4.0	4.7	2.6	7.0	1.4	1.6	1.3
Heart trouble or high blood pressure	3.8	3.9	3.8	7.3	6.2	8.5	9.8	9.4	10.2	4.6	5.1	4.1	2.0	2.0	1.9
Kind:															
Low salt	3.9	3.1	4.7	6.9	5.4	8.5	9.7	9.0	10.5	4.5	3.9	5.3	2.2	1.4	2.9
Low calorie	4.6	2.7	6.2	5.5	2.3	8.9	5.5	4.3	6.8	4.9	2.7	7.1	3.8	2.5	4.9
Selected conditions	Standard errors for selected percents														
Kidney disease—ever told	---	---	---	1.21	1.52	1.98	1.96	3.26	3.96	1.65	2.01	2.51	0.96	1.42	1.19
Thyroid trouble—still has	---	---	---	0.86	0.14	1.81	2.31	0.55	4.79	0.76	0.58	1.44	0.66	0.35	1.12
Heart failure—ever told	---	---	---	0.66	0.99	0.90	1.63	2.98	1.66	0.73	0.86	0.99	0.16	0.22	0.24
High blood pressure—ever told	---	---	---	4.21	4.27	5.49	6.53	8.66	8.01	2.85	3.22	4.00	0.99	1.11	1.22

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 39. Percent of adults 25-74 years of age told by doctor they had selected chronic conditions among those with definite hypertension, diastolic pressure of 105 mmHg or more, borderline hypertension, or normotension at time of examination, by sex with percents standardized against 1971-1975 population: United States, 1960-1962

Condition told by doctor examinee ever had	Total			Definite hypertension			Diastolic pressure of 105 mmHg or more			Borderline hypertension			Normotension		
	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women
	Percent of adults (in 1960-1962)														
Kidney trouble	15.6	10.6	20.1	15.5	14.3	16.3	13.1	11.9	14.1	15.4	9.8	22.2	15.7	10.0	20.7
Thyroid trouble	9.8	3.2	15.7	7.6	3.3	11.0	10.7	6.0	14.7	7.8	2.3	14.4	10.7	3.4	17.3
Diabetes	2.0	1.7	2.3	4.2	2.5	5.5	2.6	3.1	2.1	3.0	2.5	3.7	1.3	1.4	1.2
Heart trouble	6.8	6.3	7.2	8.9	7.2	10.3	10.8	9.0	12.4	9.2	6.8	12.2	5.7	5.9	5.4
High blood pressure	15.6	11.9	19.0	45.0	35.6	52.3	59.2	55.5	62.4	21.6	15.2	29.2	6.9	5.5	8.1
Stroke	1.6	1.3	1.8	3.7	2.2	4.8	4.4	3.9	4.8	1.6	0.4	3.0	1.1	1.4	0.8
	Standardized percents (using 1971-1975 population)														
Kidney trouble	---	---	---	14.2	11.5	17.7	13.2	11.3	12.5	13.5	8.4	22.1	16.2	10.4	21.4
Thyroid trouble	---	---	---	9.1	4.2	14.3	14.0	7.9	22.5	7.3	2.6	13.6	11.0	3.6	18.0
Diabetes	---	---	---	3.5	2.0	4.8	2.4	2.8	1.9	2.5	2.1	3.2	1.5	1.6	1.5
Heart trouble	---	---	---	7.2	6.4	8.1	9.2	8.6	8.9	7.3	6.0	8.4	6.8	6.5	7.3
High blood pressure	---	---	---	39.4	31.2	47.7	52.8	50.0	58.2	19.3	14.3	25.4	8.1	6.1	10.3
Stroke	---	---	---	2.4	1.6	2.9	3.2	3.3	2.9	1.3	0.4	2.2	1.4	1.6	1.4

NOTES: All blood pressures on which hypertensive status is based are the average of 3 measurments.

National estimates from the 1960-1962 National Health Examination Survey were for:

Definite hypertension	– 20.7 ± 0.82 per 100 population 25-74 years
Diastolic pressure of 105 mmHg or more	– 4.2 ± 0.39 per 100 population 25-74 years
Borderline hypertension	– 19.9 ± 0.88 per 100 population 25-74 years
Normotensive	– 59.4 ± 1.22 per 100 population 25-74 years

Table 40. Percent of adults 25-74 years of age with diagnostic impression of selected types of circulatory and related conditions on survey examination among those with definite hypertension, diastolic pressure of 105 mmHg or more, borderline hypertension, or normotension at time of examination, by sex with standardized percents: United States, 1971-1975 and 1960-1962

Diagnostic impression and ICDA code[1]	Total			Definite hypertension			Diastolic pressure of 105 mmHg or more			Borderline hypertension			Normotension		
	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women
1971-1975	Percent of adults														
Circulatory conditions 390-459	29.8	30.6	29.1	76.9	75.1	78.8	94.2	93.8	94.7	36.4	32.5	40.5	15.0	15.8	14.3
Congenital heart condition....746, 747	0.2	0.1	0.3	0.2	0.1	0.4	0.2	0.3	-	0.3	0.2	0.4	0.2	0.1	0.3
Symptoms, circulatory....782	2.7	1.7	3.7	6.0	4.2	7.9	8.5	9.0	8.0	3.8	1.6	6.1	1.6	1.0	2.1
Rheumatic heart disease....393-398	1.8	1.5	2.1	2.0	1.6	2.5	1.8	1.9	1.8	2.4	1.9	3.0	1.6	1.3	1.8
Hypertensive heart disease 400-409	16.1	17.3	15.0	66.7	65.3	68.1	92.1	93.4	90.7	17.3	16.2	18.5	1.7	2.2	1.3
Ischemic heart disease 410-414	2.3	3.1	1.6	3.4	3.3	3.5	2.0	2.1	1.9	3.2	4.0	2.3	1.7	2.7	1.0
Other heart disease....420-429, 746, 747	6.2	6.2	6.3	10.2	8.9	11.6	11.5	8.2	15.0	6.8	6.1	7.6	4.9	5.3	4.7
Kidney condition 580-599	0.3	0.3	0.2	0.1	0.2	0.1	0.2	0.3	0.2	0.2	0.1	0.3	0.3	0.4	0.2
1960-1962															
Circulatory conditions 390-459	2.6	2.4	2.8	12.5	12.2	12.8	23.5	22.0	24.8	2.1	2.3	1.8	0.2	0.2	0.3
Ischemic heart disease 410-414	1.8	2.2	1.5	4.5	5.3	3.9	4.5	7.6	2.0	2.5	2.6	2.4	1.0	1.3	0.7
1960-1962	Standardized percents														
Circulatory conditions 390-459	---	---	---	7.2	8.1	6.7	15.8	17.6	14.9	1.4	1.7	1.1	0.4	0.2	0.6
Ischemic heart disease 410-414	---	---	---	3.6	4.9	2.6	4.4	8.0	1.4	1.7	2.0	1.5	1.6	1.7	1.5

[1]Based on *Eighth Revision International Classification of Diseases, Adapted for Use in the United States* (ICDA).

NOTES: All blood pressures on which hypertensive status is based are the average of 3 measurements.

See tables 21-23 for the respective population estimates and standard errors of estimate by hypertensive status in 1971-1975. Those for the 1960-1962 national estimates may be approximated from the ones shown in the footnote for table 39.

Table 41. Correlation coefficients for systolic blood pressure with diastolic blood pressure, weight, triceps skinfold, arm girth, cholesterol, weight/height, and age for adults 25-74 years, by race and sex with standard errors: United States, 1971-1975

Race and sex	Systolic blood pressure						
	Diastolic blood pressure	Weight	Triceps skinfold	Arm girth	Cholesterol	Weight/height	Age
	Correlation coefficient						
All races[1]							
Both sexes, 25-74 years	0.744	0.248	0.129	*0.015	0.010	0.293	0.487
Men, 25-74 years	0.708	0.168	0.131	*0.026	0.017	0.205	0.405
Women, 25-74 years	0.772	0.293	0.244	*0.008	0.010	0.339	0.553
White							
Both sexes, 25-74 years	0.732	0.238	0.117	*0.018	0.015	0.287	0.500
Men, 25-74 years	0.688	0.175	0.142	*0.035	0.019	0.215	0.412
Women, 25-74 years	0.765	0.268	0.227	*0.006	0.017	0.319	0.573
Black							
Both sexes, 25-74 years	0.788	0.269	0.170	*–0.014	0.016	0.282	0.448
Men, 25-74 years	0.783	*0.093	*0.110	*–0.054	*0.095	0.126	0.400
Women, 25-74 years	0.796	0.368	0.300	*0.013	0.017	0.386	0.480
	Standard error						
All races[1]							
Both sexes, 25-74 years	0.0054	0.0113	0.0118	0.0120	0.0120	0.0110	0.0092
Men, 25-74 years	0.0089	0.0173	0.0175	0.0177	0.0178	0.0170	0.0148
Women, 25-74 years	0.0066	0.0149	0.0154	0.0163	0.0163	0.0145	0.0114
White							
Both sexes, 25-74 years	0.0060	0.0122	0.0128	0.0129	0.0129	0.0119	0.0097
Men, 25-74 years	0.0100	0.0185	0.0187	0.0191	0.0191	0.0182	0.0159
Women, 25-74 years	0.0073	0.0163	0.0167	0.0176	0.0176	0.0158	0.0118
Black							
Both sexes, 25-74 years	0.0128	0.0314	0.0329	0.0338	0.0338	0.0311	0.0270
Men, 25-74 years	0.0196	0.0502	0.0500	0.0505	0.0502	0.0498	0.0425
Women, 25-74 years	0.0167	0.0393	0.0414	0.0453	0.0455	0.0387	0.0350

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures are the average of 3 measurements.

Table 42. Correlation coefficients for diastolic blood pressure with systolic blood pressure, weight, triceps skinfold, arm girth, cholesterol, weight/height, and age for adults 25-74 years, by race and sex with standard errors: United States, 1971-1975

Race and sex	Diastolic blood pressure						
	Systolic blood pressure	Weight	Triceps skinfold	Arm girth	Cholesterol	Weight/height	Age
	Correlation coefficient						
All races[1]							
Both sexes, 25-74 years	0.744	0.367	0.118	*0.026	*0.009	0.389	0.264
Men, 25-74 years	0.708	0.289	0.167	*0.033	*0.027	0.307	0.191
Women, 25-74 years	0.773	0.384	0.307	*0.022	*0.008	0.417	0.336
White							
Both sexes, 25-74 years	0.732	0.355	0.101	*0.038	*0.019	0.381	0.279
Men, 25-74 years	0.688	0.295	0.184	*0.045	*0.033	0.318	0.195
Women, 25-74 years	0.765	0.349	0.283	*0.035	*0.020	0.386	0.364
Black							
Both sexes, 25-74 years	0.788	0.395	0.178	*−0.062	*0.003	0.382	0.227
Men, 25-74 years	0.783	0.255	*0.135	*−0.055	*0.035	0.245	0.201
Women, 25-74 years	0.796	0.474	0.378	*−0.071	*0.007	0.483	0.245
	Standard error						
All races[1]							
Both sexes, 25-74 years	0.0054	0.0104	0.0119	0.0120	0.0120	0.0102	0.0112
Men, 25-74 years	0.0089	0.0163	0.0173	0.0177	0.0177	0.0161	0.0171
Women, 25-74 years	0.0066	0.0139	0.0148	0.0163	0.0163	0.0135	0.0145
White							
Both sexes, 25-74 years	0.0060	0.0113	0.0128	0.0129	0.0129	0.0111	0.0119
Men, 25-74 years	0.0100	0.0176	0.0184	0.0191	0.0191	0.0172	0.0184
Women, 25-74 years	0.0073	0.0155	0.0162	0.0176	0.0176	0.0150	0.0163
Black							
Both sexes, 25-74 years	0.0128	0.0286	0.0328	0.0337	0.0338	0.0289	0.0321
Men, 25-74 years	0.0196	0.0473	0.0497	0.0505	0.0506	0.0476	0.0486
Women, 25-74 years	0.0167	0.0353	0.0390	0.0453	0.0455	0.0349	0.0428

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures are the average of 3 measurements.

Table 43. Coefficients of partial correlation for systolic blood pressure with diastolic blood pressure, weight, triceps skinfold, arm girth, cholesterol, and weight/height holding age constant for adults 25-74 years, by race and sex: United States, 1971-1975

Race and sex	Systolic blood pressure					
	Diastolic blood pressure	Weight	Triceps skinfold	Arm girth	Cholesterol	Weight/ height
	Partial correlation coefficient					
All races[1]						
Both sexes, 25-74 years	0.731	0.278	0.115	0.008	−0.003	0.299
Men, 25-74 years	0.703	0.222	0.155	0.002	0.007	0.238
Women, 25-74 years	0.747	0.287	0.222	0.024	−0.005	0.309
White						
Both sexes, 25-74 years	0.712	0.271	0.096	0.008	0.001	0.291
Men, 25-74 years	0.680	0.233	0.166	0.008	0.010	0.249
Women, 25-74 years	0.729	0.253	0.195	0.019	0.000	0.278
Black						
Both sexes, 25-74 years	0.788	0.284	0.183	0.005	0.004	0.288
Men, 25-74 years	0.783	0.148	0.152	−0.057	0.022	0.175
Women, 25-74 years	0.798	0.354	0.296	0.005	0.005	0.358

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures are the average of 3 measurements.

Table 44. Coefficients of partial correlation for diastolic blood pressure with systolic blood pressure, weight, triceps skinfold, arm girth, cholesterol, and weight/height holding age constant for adults 25-74 years, by race and sex: United States, 1971-1975

Race and sex	Diastolic blood pressure					
	Systolic blood pressure	Weight	Triceps skinfold	Arm girth	Cholesterol	Weight/ height
	Partial correlation coefficient					
All races[1]						
Both sexes, 25-74 years	0.731	0.378	0.106	0.022	0.002	0.386
Men, 25-74 years	0.703	0.312	0.175	0.022	0.022	0.319
Women, 25-74 years	0.748	0.374	0.289	0.031	−0.001	0.393
White						
Both sexes, 25-74 years	0.712	0.368	0.086	0.033	0.012	0.377
Men, 25-74 years	0.680	0.320	0.183	0.033	0.029	0.330
Women, 25-74 years	0.729	0.334	0.259	0.044	0.010	0.355
Black						
Both sexes, 25-74 years	0.788	0.398	0.179	−0.054	−0.003	0.380
Men, 25-74 years	0.783	0.283	0.153	−0.055	−0.003	0.268
Women, 25-74 years	0.798	0.462	0.370	−0.056	0.000	0.464

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures are the average of 3 measurements.

Table 45. Systolic and diastolic blood pressure of adults 25-74 years, by age and sex—mean, standard deviation, standard error of the mean, and selected percentiles: United States, 1971-1972 (Apr. 1971-Oct. 1972)

Blood pressure, age, and sex	Mean	Standard deviation	Standard error	Percentile						
				5th	10th	25th	50th	75th	90th	95th
	Blood pressure (mmHg)									
Systolic										
Both sexes, 25-74 years	133.6	21.5	0.51	105.3	110.0	118.7	130.0	144.7	162.0	173.3
25-34 years	122.6	14.2	1.15	102.3	106.7	113.3	122.0	130.0	139.3	149.3
35-44 years	124.8	16.8	1.45	100.0	104.7	114.7	124.0	133.3	145.3	151.3
45-54 years	135.5	20.1	1.17	110.0	115.7	122.0	132.0	145.3	160.0	171.3
55-64 years	143.7	20.7	1.23	114.0	120.0	129.0	140.7	156.7	170.0	181.3
65-74 years	153.1	23.3	1.62	120.7	126.0	136.0	150.7	167.3	185.3	193.3
Men, 25-74 years	135.2	18.6	0.85	110.0	114.7	122.7	131.3	145.3	168.0	169.3
25-34 years	127.2	12.9	2.02	110.0	112.0	118.7	125.3	132.7	144.0	154.0
35-44 years	128.8	12.9	1.68	109.7	112.0	120.0	128.0	136.0	145.3	150.7
45-54 years	136.9	18.6	1.76	111.3	118.0	123.3	134.7	148.0	160.0	165.3
55-64 years	143.6	19.0	2.00	109.3	122.7	132.0	142.0	154.0	164.7	181.0
65-74 years	149.1	23.4	1.96	114.7	122.0	132.7	147.3	164.0	183.3	189.3
Women, 25-74 years	132.1	23.7	0.65	100.7	106.0	116.0	126.7	144.0	164.0	178.3
25-34 years	118.4	13.9	1.03	96.7	104.0	109.3	117.3	125.3	133.3	143.3
35-44 years	121.0	19.0	2.06	98.0	100.0	106.3	117.7	130.0	144.7	158.7
45-54 years	134.3	21.3	1.45	106.7	114.7	120.7	131.3	142.7	158.7	175.0
55-64 years	143.7	22.2	1.65	114.7	118.7	127.3	140.0	159.3	172.7	185.3
65-74 years	156.2	22.8	2.44	126.0	130.0	140.0	152.7	168.0	186.0	196.7
Diastolic										
Both sexes, 25-74 years	*81.4	11.9	0.43	64.3	67.3	73.3	80.0	88.7	96.7	103.0
25-34 years	76.7	10.3	0.61	61.3	65.3	70.0	76.0	82.7	89.3	96.7
35-44 years	79.8	12.5	1.26	63.3	64.7	71.3	78.0	86.7	95.0	103.0
45-54 years	84.1	12.0	0.78	66.7	70.7	76.0	83.3	90.0	100.0	106.0
55-64 years	84.8	10.9	0.58	68.0	70.7	77.0	84.7	92.7	99.3	103.3
65-74 years	83.6	11.3	0.61	67.3	71.3	75.3	82.7	90.0	99.3	103.3
Men, 25-74 years	83.7	10.8	0.61	67.3	70.7	76.7	83.0	90.0	96.7	102.7
25-34 years	80.0	9.2	1.07	66.0	68.3	74.0	79.3	85.3	91.3	96.7
35-44 years	82.9	10.5	1.42	67.3	71.3	76.0	82.0	89.3	95.3	100.0
45-54 years	86.6	11.6	1.21	70.0	73.0	79.3	85.3	92.7	101.0	106.7
55-64 years	86.2	10.7	0.89	70.0	73.3	78.7	86.0	93.3	100.0	104.7
65-74 years	83.4	10.5	0.85	67.3	71.7	75.3	83.3	90.0	97.0	101.0
Women, 25-74 years	79.3	12.4	0.48	62.7	65.3	70.7	77.3	86.0	96.0	103.3
25-34 years	73.6	10.3	0.65	60.0	63.3	68.0	72.7	78.0	84.7	91.7
35-44 years	77.0	13.5	1.57	61.3	63.3	67.7	74.7	82.7	93.3	104.7
45-54 years	81.8	12.0	0.81	66.7	70.0	74.7	80.0	86.7	94.7	104.3
55-64 years	83.6	10.9	0.77	67.3	69.3	74.0	84.0	90.7	98.3	101.3
65-74 years	83.8	11.9	1.12	66.7	70.7	75.3	82.0	90.7	100.7	105.3

NOTE: All blood pressures are the average of 3 measurements.

Table 46. Systolic and diastolic blood pressure of adults 25-74 years, by age and sex—mean, standard deviation, standard error of the mean, and selected percentiles: United States, 1971-1974 (Apr. 1971-June 1974)

Blood pressure, age, and sex	Mean	Standard deviation	Standard error	Percentile						
				5th	10th	25th	50th	75th	90th	95th
Systolic	Blood pressure (mmHg)									
Both sexes, 25-74 years	133.1	21.6	0.40	105.3	109.7	118.0	129.3	144.7	161.3	173.3
25-34 years	121.5	13.1	0.46	101.3	106.0	112.7	120.7	129.0	138.0	144.7
35-44 years	125.4	16.5	0.70	102.0	106.0	114.7	123.3	133.3	148.0	155.3
45-54 years	135.4	21.0	0.82	108.7	112.7	121.3	131.3	146.0	160.7	175.3
55-64 years	142.6	21.5	0.96	110.7	117.3	128.0	140.0	156.3	170.0	179.3
65-74 years	152.7	23.6	1.12	120.0	126.0	136.0	150.0	166.7	184.7	193.3
Men, 25-74 years	134.7	19.0	0.50	110.0	113.7	121.3	130.7	144.7	160.0	170.7
25-34 years	126.0	11.7	0.64	110.0	112.0	118.7	124.7	132.0	140.7	149.3
35-44 years	129.0	14.0	1.04	107.3	112.0	119.0	128.0	137.3	148.7	154.0
45-54 years	137.1	19.9	1.07	112.0	115.3	122.7	134.0	148.0	161.3	176.7
55-64 years	141.8	19.7	1.49	109.3	116.7	128.0	140.0	154.0	168.0	176.7
65-74 years	149.8	23.1	1.44	113.7	121.3	134.0	148.7	164.0	179.7	189.3
Women, 25-74 years	131.7	23.6	0.51	101.3	106.7	115.3	126.0	144.0	163.3	176.0
25-34 years	117.3	13.0	0.74	98.7	102.7	109.3	116.0	123.3	132.7	142.7
35-44 years	122.1	17.8	0.93	100.0	102.7	110.0	118.7	130.0	148.0	157.3
45-54 years	133.8	21.9	1.38	106.0	110.0	118.7	130.0	144.0	160.3	175.3
55-64 years	143.3	22.9	1.26	111.7	118.0	126.7	140.0	159.3	172.0	182.7
65-74 years	154.9	23.8	1.38	125.3	128.7	138.0	151.3	168.0	186.7	197.3
Diastolic										
Both sexes, 25-74 years	82.1	12.0	0.36	65.3	68.0	74.0	80.7	88.7	97.3	104.0
25-34 years	76.9	9.7	0.44	62.7	65.3	70.7	76.0	82.0	89.3	94.0
35-44 years	81.2	11.6	0.59	64.0	67.3	72.7	80.0	88.0	96.0	102.0
45-54 years	84.9	12.6	0.61	68.0	71.3	76.7	83.3	90.7	100.7	108.0
55-64 years	85.3	11.9	0.54	68.0	73.7	76.7	84.0	92.7	100.0	107.3
65-74 years	84.9	12.2	0.57	68.0	71.3	76.0	83.3	91.3	100.7	105.7
Men, 25-74 years	84.3	11.2	0.40	68.0	71.3	76.7	83.3	90.7	98.7	104.7
25-34 years	80.0	8.8	0.58	66.7	69.3	74.0	80.0	85.3	91.3	96.0
35-44 years	83.9	10.4	0.77	70.0	71.3	76.0	82.7	90.0	97.3	102.0
45-54 years	87.5	12.5	0.75	71.3	74.0	80.0	86.0	93.3	102.3	110.7
55-64 years	86.6	11.4	0.79	70.0	73.3	78.0	86.0	93.3	102.0	108.7
65-74 years	84.9	11.4	0.56	67.3	71.3	76.7	84.0	91.3	100.0	106.0
Women, 25-74 years	80.2	12.4	0.43	63.3	66.7	72.0	78.7	86.7	96.7	103.3
25-34 years	74.0	9.6	0.57	60.7	63.3	68.0	73.3	79.3	85.0	90.0
35-44 years	78.8	12.2	0.78	62.7	64.7	70.7	78.0	84.0	93.3	103.3
45-54 years	82.6	12.3	0.83	66.7	70.0	74.7	81.3	88.0	97.3	105.3
55-64 years	84.1	12.2	0.63	67.3	70.0	75.3	82.7	91.3	100.0	105.3
65-74 years	84.9	12.7	0.86	68.7	71.3	76.0	83.0	91.3	101.3	105.3

NOTE: All blood pressures are the average of 3 measurements.

Table 47. Systolic and diastolic blood pressure of adults 25-74 years, by age and sex—mean, standard deviation, standard error of the mean, and selected percentiles: United States, 1974-1975 (July 1974-Sept. 1975)

Blood pressure, age, and sex	Mean	Standard deviation	Standard error	Percentile						
				5th	10th	25th	50th	75th	90th	95th
Systolic	Blood pressure (mmHg)									
Both sexes, 25-74 years	130.1	20.2	0.53	104.0	108.0	116.0	126.7	139.3	156.0	168.0
25-34 years	119.3	12.6	0.54	101.3	104.7	110.7	118.0	126.7	136.7	142.0
35-44 years	123.4	16.1	0.82	101.3	105.3	113.3	121.3	132.0	140.7	152.0
45-54 years	131.6	18.5	0.99	106.7	110.7	119.3	129.3	140.0	154.0	166.0
55-64 years	141.1	21.7	1.33	112.0	118.0	126.0	138.0	152.0	168.0	180.0
65-74 years	146.0	21.6	1.25	116.7	122.0	130.7	143.3	159.3	176.0	186.0
Men, 25-74 years	130.8	18.2	0.77	108.0	111.3	118.7	128.0	138.7	153.3	164.7
25-34 years	123.2	12.2	0.94	104.7	109.3	114.7	121.3	131.3	140.0	146.0
35-44 years	126.6	15.7	0.97	105.3	108.7	116.7	125.3	133.3	144.0	156.7
45-54 years	131.7	16.9	1.38	110.0	114.7	121.3	130.0	138.0	150.7	162.7
55-64 years	139.2	21.7	1.56	110.7	116.7	123.3	134.0	152.0	167.3	176.0
65-74 years	142.3	19.6	1.90	114.7	119.3	127.7	139.3	156.0	167.3	179.3
Women, 25-74 years	129.4	21.9	0.72	102.0	105.3	113.3	125.3	140.7	158.7	171.3
25-34 years	115.6	11.8	0.56	100.0	102.7	108.0	114.0	121.3	131.3	138.0
35-44 years	120.5	16.0	1.24	99.3	102.7	110.0	118.7	128.7	137.3	146.0
45-54 years	131.5	19.9	1.16	104.0	108.7	118.0	128.0	142.0	158.7	168.0
55-64 years	142.9	21.5	1.69	114.7	119.3	128.7	139.3	152.7	168.7	180.7
65-74 years	148.8	22.7	2.14	121.3	123.3	132.7	145.3	164.0	181.3	196.7
Diastolic										
Both sexes, 25-74 years	83.3	11.1	0.41	67.3	70.7	76.0	82.0	89.3	97.3	102.7
25-34 years	78.4	9.8	0.50	63.3	66.7	72.7	78.0	84.0	90.7	95.3
35-44 years	82.5	10.9	0.45	68.0	70.3	74.7	81.3	88.0	95.3	101.3
45-54 years	85.8	10.6	0.81	71.0	73.3	78.7	84.7	92.0	98.7	104.0
55-64 years	87.4	11.2	0.52	71.3	75.3	79.3	86.0	94.0	102.0	105.3
65-74 years	85.3	10.5	0.75	70.0	72.0	78.0	85.3	91.0	99.3	103.3
Men, 25-74 years	84.2	11.3	0.64	68.0	71.3	76.7	83.3	90.7	98.0	103.3
25-34 years	80.2	9.9	0.78	64.7	68.7	74.0	80.0	85.3	94.0	97.0
35-44 years	84.2	10.8	0.88	68.0	70.7	77.3	84.0	89.3	96.7	103.3
45-54 years	86.9	11.3	1.11	70.7	74.0	79.3	86.0	93.3	100.7	106.7
55-64 years	87.7	12.1	0.85	71.3	76.0	79.3	86.0	94.3	102.7	105.3
65-74 years	83.1	10.9	1.20	66.0	70.7	74.7	83.0	90.0	97.3	103.3
Women, 25-74 years	82.5	10.8	0.34	66.7	70.0	75.3	81.3	88.7	96.0	102.0
25-34 years	76.7	9.4	0.41	62.7	65.3	70.7	76.7	82.0	88.0	91.3
35-44 years	80.8	10.6	0.62	67.3	70.0	74.0	79.3	86.0	92.0	100.0
45-54 years	84.7	9.9	0.71	71.0	73.3	78.0	82.7	90.0	97.3	103.0
55-64 years	87.2	10.4	0.68	71.3	75.3	80.0	85.7	94.0	100.0	106.7
65-74 years	87.0	9.8	0.97	71.3	76.0	80.7	86.0	92.0	101.3	104.7

NOTE: All blood pressures are the average of 3 measurements.

Table 48. Prevalence rates and population estimates of adults 25-74 years with definite hypertension, by race, age, and sex with standard errors and age-adjusted rates: United States, 1971-1972, 1971-1974, and 1974-1975

Time period, age, and sex	All races[1]			White			Black		
	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands
1971-1972 (Apr. 1971-Oct. 1972)*									
Both sexes, 25-74 years	18.0	0.92	18,505	15.7	0.94	14,413	38.0	3.63	3,868
25-34 years	*7.0	1.80	1,806	*4.3	1.93	970	*29.5	7.68	836
35-44 years	10.9	1.93	2,436	*7.9	2.12	1,544	*32.2	9.25	774
45-54 years	17.8	2.19	4,164	16.1	2.15	3,375	*32.6	8.59	777
55-64 years	28.8	2.36	5,455	26.6	2.78	4,593	54.1	8.40	770
65-74 years	37.2	3.61	4,644	34.8	4.07	3,931	61.9	6.46	711
Men, 25-74 years	18.8	1.68	9,203	16.4	1.82	7,211	41.6	7.94	1,866
Women, 25-74 years	17.2	1.01	9,302	15.0	1.05	7,202	35.1	4.02	2,002
1971-1974 (Apr. 1971-June 1974)									
Both sexes, 25-74 years	18.4	0.81	19,180	16.7	0.82	15,554	33.6	2.74	3,443
25-34 years	5.4	0.93	1,449	4.1	0.73	965	*16.5	5.18	485
35-44 years	12.9	1.95	2,855	10.4	1.85	2,027	*31.1	7.91	739
45-54 years	20.2	1.73	4,706	18.7	1.82	3,899	34.7	6.23	795
55-64 years	28.6	2.10	5,484	26.4	2.03	4,602	54.8	7.76	832
65-74 years	36.9	1.98	4,685	35.3	2.09	4,061	53.0	5.58	593
Men, 25-74 years	20.1	1.05	9,937	18.4	1.21	8,154	37.8	5.23	1,692
Women, 25-74 years	16.9	1.08	9,243	15.2	0.98	7,400	30.4	4.53	1,751
1974-1975 (July 1974-Sept. 1975)									
Both sexes, 25-74 years	16.9	1.05	18,342	15.7	0.96	15,162	28.7	3.74	3,042
25-34 years	6.1	1.17	1,795	6.0	1.13	1,558	*8.6	4.68	237
35-44 years	11.4	1.64	2,566	10.0	1.67	1,963	23.8	9.70	568
45-54 years	20.0	2.40	4,719	17.4	2.12	3,662	43.0	8.90	1,000
55-64 years	28.0	1.86	5,464	25.7	1.74	4,524	48.1	11.70	895
65-74 years	28.2	2.69	3,797	28.3	2.73	3,455	*27.1	9.48	342
Men, 25-74 years	18.5	1.82	9,516	17.4	1.92	8,020	30.9	5.73	1,425
Women, 25-74 years	15.5	1.07	8,827	14.2	0.99	7,142	27.0	4.44	1,617
Age-adjusted rates									
1971-1972:									
Both sexes, 25-74 years	-	...	...	15.5	...	...	39.3	...	...
Men, 25-74 years	-	...	...	16.3	...	...	42.4	...	...
Women, 25-74 years	-	...	...	14.8	...	...	36.6	...	...
1971-1974:									
Both sexes, 25-74 years	-	...	...	16.6	...	...	35.2	...	...
Men, 25-74 years	-	...	...	18.3	...	...	39.0	...	...
Women, 25-74 years	-	...	...	15.0	...	...	32.3	...	...
1974-1975:									
Both sexes, 25-74 years	-	...	...	15.6	...	...	28.6	...	...
Men, 25-74 years	-	...	...	17.4	...	...	30.4	...	...
Women, 25-74 years	-	...	...	14.0	...	...	27.6	...	...

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 49. Prevalence rates and population estimates of adults 25-74 years with diastolic blood pressure of at least 105 mmHg, by race, age, and sex with standard errors and age-adjusted rates: United States, 1971-1972, 1971-1974, and 1974-1975

Time period, age, and sex	All races[1]			White			Black		
	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands
1971-1972 (Apr. 1971-Oct. 1972)									
Both sexes, 25-74 years	4.2	0.60	4,292	2.9	0.55	2,669	15.9	3.29	1,620
25-34 years	*2.2	1.13	568	*0.1	0.12	27	*19.1	10.49	541
35-44 years	*4.1	1.27	916	*2.5	1.25	494	*17.5	6.83	422
45-54 years	5.8	1.37	1,351	*5.0	1.40	1,061	*12.1	4.30	288
55-64 years	*4.5	1.19	844	*3.9	1.14	667	*12.4	3.92	176
65-74 years	*4.9	1.26	614	*3.7	1.20	420	*16.9	5.91	194
Men, 25-74 years	4.1	0.92	2,023	*2.9	0.79	1,287	*16.4	4.80	734
Women, 25-74 years	4.2	1.00	2,269	*2.9	0.88	1,382	*15.6	5.38	887
1971-1974 (Apr. 1971-June 1974)									
Both sexes, 25-74 years	4.9	0.41	5,083	4.0	0.42	3,758	12.7	1.67	1,305
25-34 years	*1.3	0.52	354	*0.4	0.22	93	*8.9	4.43	261
35-44 years	*4.4	1.13	976	*3.3	0.98	648	*13.8	4.81	327
45-54 years	6.8	1.05	1,579	6.3	1.11	1,316	11.3	2.43	259
55-64 years	7.2	1.17	1,386	6.4	1.14	1,122	*17.1	6.16	260
65-74 years	6.2	0.94	789	5.0	0.92	578	17.6	3.54	197
Men, 25-74 years	5.3	0.65	2,612	4.6	0.69	2,021	12.7	2.94	570
Women, 25-74 years	4.5	0.48	2,472	3.6	0.41	1,737	12.7	2.87	735
1974-1975 (July 1974-Sept. 1975)									
Both sexes, 25-74 years	3.8	0.48	4,152	3.2	0.36	3,098	9.9	3.22	1,053
25-34 years	*1.3	0.35	376	1.3	0.32	330	*1.7	1.62	46
35-44 years	2.9	0.65	653	*2.1	0.53	405	*10.4	4.44	248
45-54 years	*4.8	1.37	1,129	*3.4	1.11	726	*17.3	8.24	403
55-64 years	6.9	1.12	1,348	5.8	0.94	1,020	*17.6	8.38	328
65-74 years	*4.8	1.24	646	*5.1	1.37	618	*2.2	2.28	28
Men, 25-74 years	4.3	0.69	2,221	3.7	0.66	1,701	*11.3	5.22	519
Women, 25-74 years	3.4	0.54	1,931	2.8	0.47	1,397	*8.9	3.08	534
Age-adjusted rates									
1971-1972:									
Both sexes, 25-74 years	-	...	...	2.9	...	...	15.7	...	...
Men, 25-74 years	-	...	...	2.9	...	...	16.4	...	...
Women, 25-74 years	-	...	...	2.9	...	...	15.0	...	...
1971-1974:									
Both sexes, 25-74 years	-	...	...	4.0	...	...	13.0	...	...
Men, 25-74 years	-	...	...	4.5	...	...	12.9	...	...
Women, 25-74 years	-	...	...	3.5	...	...	13.1	...	...
1974-1975:									
Both sexes, 25-74 years	-	...	...	3.2	...	...	9.8	...	...
Men, 25-74 years	-	...	...	3.7	...	...	10.9	...	...
Women, 25-74 years	-	...	...	2.7	...	...	8.8	...	...

[1] Includes other racial groups in addition to white and black.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 50. Prevalence rates and population estimates of adults 25-74 years with borderline hypertension, by race, age, and sex with standard errors and age-adjusted rates: United States, 1971-1972, 1971-1974, and 1974-1975

Time period, age, and sex	All races[1]			White			Black		
	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands	Rate per 100 adults	Standard error of rate	Population in thousands
1971-1972 (Apr. 1971-Oct. 1972)									
Both sexes, 25-74 years	17.6	0.89	18,108	18.3	0.99	16,829	11.8	1.78	1,198
25-34 years	*5.5	1.81	1,411	*5.4	2.04	1,224	*5.2	3.14	147
35-44 years	12.4	2.53	2,775	12.0	2.99	2,353	*17.6	6.16	423
45-54 years	20.9	2.37	4,899	21.9	2.36	4,607	*12.3	3.64	292
55-64 years	25.7	2.16	4,868	27.2	2.50	4,690	12.5	2.96	178
65-74 years	33.3	3.86	4,154	35.0	4.18	3,955	*13.7	4.14	157
Men, 25-74 years	20.1	1.80	9,822	20.8	2.09	9,140	13.4	3.10	601
Women, 25-74 years	15.3	1.21	8,287	16.0	1.32	7,690	10.5	1.85	597
1971-1974 (Apr. 1971-June 1974)									
Both sexes, 25-74 years	17.6	0.70	18,376	17.9	0.79	16,667	15.9	1.71	1,627
25-34 years	7.2	1.18	1,927	7.3	1.31	1,725	*6.3	2.64	185
35-44 years	13.6	1.51	3,008	12.7	1.81	2,483	22.1	4.72	525
45-54 years	19.8	1.81	4,608	19.6	1.95	4,089	20.9	4.60	480
55-64 years	24.7	1.90	4,748	26.0	2.12	4,530	14.4	4.33	218
65-74 years	32.2	1.80	4,084	33.4	1.98	3,839	19.5	4.11	218
Men, 25-74 years	19.6	1.22	9,647	20.1	1.36	8,901	15.7	3.10	702
Women, 25-74 years	15.9	0.91	8,728	16.0	0.96	7,766	16.0	2.54	924
1974-1975 (July 1974-Sept. 1975)									
Both sexes, 25-74 years	16.1	0.75	17,481	16.0	0.89	15,466	18.1	2.24	1,917
25-34 years	7.0	0.93	2,075	5.9	0.88	1,519	*20.1	5.49	556
35-44 years	9.2	1.32	2,061	8.0	1.42	1,580	*17.0	5.53	405
45-54 years	19.1	1.63	4,495	19.9	1.66	4,190	*12.2	3.96	283
55-64 years	24.9	1.97	4,872	25.2	2.05	4,432	*23.7	7.44	440
65-74 years	29.5	2.51	3,978	30.7	2.80	3,745	*18.4	9.89	233
Men, 25-74 years	16.5	1.12	8,492	16.1	1.39	7,403	21.9	4.04	1,012
Women, 25-74 years	15.8	1.14	8,989	16.0	1.31	8,062	15.1	3.45	904
Age-adjusted rates									
1971-1972:									
Both sexes, 25-74 years	-	...	...	18.2	...	...	11.9	...	...
Men, 25-74 years	-	...	...	20.7	...	...	13.3	...	...
Women, 25-74 years	-	...	...	15.8	...	...	10.8	...	...
1971-1974:									
Both sexes, 25-74 years	-	...	...	17.8	...	...	16.0	...	...
Men, 25-74 years	-	...	...	20.0	...	...	15.6	...	...
Women, 25-74 years	-	...	...	15.8	...	...	16.5	...	...
1974-1975:									
Both sexes, 25-74 years	-	...	...	15.9	...	...	18.2	...	...
Men, 25-74 years	-	...	...	16.0	...	...	22.1	...	...
Women, 25-74 years	-	...	...	15.8	...	...	15.2	...	...

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 51. Percent of adults 25-74 years of age never diagnosed as having high blood pressure among those with definite hypertension, by race and sex showing standard errors and age-adjusted percents: United States, 1971-1972, 1971-1974, and 1974-1975

Time period and sex	All races[1]	White	Black	All races[1]	White	Black	All races[1]	White	Black
	Percent of adults			Standard error of percent			Age-adjusted percent		
1971-1972 (Apr. 1971-Oct. 1972)									
Both sexes, 25-74 years	53.8	56.0	48.4	3.13	4.47	7.32	-	57.3	49.7
Men, 25-74 years	64.6	68.5	53.6	5.36	6.40	8.58	-	69.2	57.1
Women, 25-74 years	43.1	43.6	*43.5	4.72	5.06	13.63	-	45.9	41.8
1971-1974 (Apr. 1971-June 1974)									
Both sexes, 25-74 years	50.8	53.2	42.4	2.39	2.54	5.20	-	53.6	41.8
Men, 25-74 years	60.1	63.1	48.5	3.45	3.51	7.73	-	63.3	49.4
Women, 25-74 years	40.8	42.3	36.4	3.10	3.32	7.82	-	43.0	33.7
1974-1975 (July 1974-Sept. 1975)									
Both sexes, 25-74 years	45.4	46.2	42.2	2.22	2.13	8.30	-	46.4	42.7
Men, 25-74 years	49.7	51.4	*42.6	3.17	3.00	12.75	-	51.4	45.0
Women, 25-74 years	40.6	40.3	41.8	3.29	3.27	10.34	-	40.9	45.0

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 52. Percent of adults 25-74 years of age never diagnosed as having high blood pressure among those with diastolic blood pressure of 105 mmHg or more, by race and sex showing standard errors and age-adjusted percents: United States, 1971-1972, 1971-1974, and 1974-1975

Time period and sex	All races[1]	White	Black	All races[1]	White	Black	All races[1]	White	Black
	Percent of adults			Standard error of percent			Age-adjusted percent		
1971-1972 (Apr. 1971-Oct. 1972)									
Both sexes, 25-74 years	45.6	48.8	*40.4	6.83	9.66	11.74	-	43.1	42.6
Men, 25-74 years	51.6	*63.0	*31.9	11.91	16.25	15.21	-	58.4	43.1
Women, 25-74 years	*40.2	*35.5	*47.4	13.24	16.43	23.60	-	30.2	42.9
1971-1974 (Apr. 1971-June 1974)									
Both sexes, 25-74 years	39.0	40.5	35.4	4.52	5.69	7.38	-	40.8	36.4
Men, 25-74 years	41.8	44.7	32.8	6.94	8.59	8.14	-	46.2	37.4
Women, 25-74 years	36.1	35.6	*37.3	5.74	6.19	12.97	-	33.7	35.2
1974-1975 (July 1974-Sept. 1975)									
Both sexes, 25-74 years	31.9	35.0	*22.7	4.51	4.83	6.41	-	35.0	15.6
Men, 25-74 years	32.6	36.4	*20.3	6.64	8.60	12.13	-	36.0	19.8
Women, 25-74 years	31.0	33.3	*24.9	6.05	5.84	11.72	-	33.6	11.8

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

Table 53. Percent of adults 25-74 years of age never diagnosed as having high blood pressure among those with borderline hypertension, by race and sex showing standard errors and age-adjusted values for percents: United States, 1971-1972, 1971-1974, and 1974-1975

Time period and sex	All races[1]	White	Black	All races[1]	White	Black	All races[1]	White	Black
	Percent of adults			Standard error of percent			Age-adjusted percent		
1971-1972 (Apr. 1971-Oct. 1972)									
Both sexes, 25-74 years	75.1	76.1	64.4	2.95	3.16	9.14	-	76.3	67.8
Men, 25-74 years	81.4	82.6	69.2	4.15	4.34	12.90	-	82.7	72.8
Women, 25-74 years	67.7	68.3	*59.5	4.09	4.48	15.03	-	68.7	58.4
1971-1974 (Apr. 1971-June 1974)									
Both sexes, 25-74 years	72.4	73.7	60.3	2.24	2.37	7.47	-	73.9	61.9
Men, 25-74 years	79.1	80.7	62.2	3.11	3.19	13.87	-	80.8	67.6
Women, 25-74 years	65.1	65.7	58.9	3.51	3.80	10.36	-	66.1	54.3
1974-1975 (July 1974-Sept. 1975)									
Both sexes, 25-74 years	63.0	63.4	58.6	2.56	2.44	10.17	-	63.9	59.8
Men, 25-74 years	71.0	70.7	71.2	4.27	4.21	11.99	-	71.2	70.2
Women, 25-74 years	55.5	56.6	*44.4	2.02	2.44	14.30	-	56.7	54.6

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures on which hypertensive status is based are the average of 3 measurements.

APPENDIXES

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LIST OF APPENDIX TABLES

APPENDIX I

STATISTICAL NOTES

The Survey Design

The sample design for the first National Health and Nutrition Examination Survey (NHANES I) is basically a three-stage, stratified probability sample of loose clusters of persons in land-based segments. The sample was designed to be representative of the civilian noninstitutionalized population within designated age ranges, in the coterminous United States excluding persons residing on lands set aside for use by American Indians. Successive elements dealt with in the process of sampling were the primary sampling units (PSU), census enumeration district (ED), segment (a cluster of households), household, eligible persons, and finally sample persons.

For the 1971-1974 period (April 1971-June 1974) the design provided for the selection of a representative sample of the target population 1-74 years of age to be given the nutrition and certain related components, with a subsampling among adults 25-74 years of age who would also receive a more detailed examination that was focused on other aspects of health and health care needs. To increase the size for this subsampling and consequently the usefulness of the data obtained, the design further provided for the selection of an additional nationally representative sample of adults 25-74 years of age in 1974-1975 (July 1974-September 1975) to be given the detailed examination. This extension of NHANES I is also referred to as the "Augmentation Survey."

The starting points in the first stage of this design were the 1960 decennial census lists of addresses and the nearly 1,900 primary sampling units (PSU's) into which the entire United States was divided. Each PSU is either a standard metropolitan statistical area (SMSA), a county, or two or three contiguous counties. The PSU's were grouped into 357 strata as they were for use in the National Health Interview Survey during 1963-1972, and subsequently collapsed into 40 superstrata for use in the NHANES I.

During April 1971-June 1974, 15 of the 40 superstrata which contained a single large metropolitan area of more than 2 million population were chosen in the sample with certainty. The remaining 25 noncertainty strata were classified into four broad geographic regions of approximately equal population (when the large metropolitan areas selected with certainty were included) and cross-classified into four broad population density groups in each region. Then a modified Goodman-Kish controlled-selection technique was used to select two PSU's from each of the 25 noncertainty superstrata with the probability of selection of a PSU proportionate to its 1960 population and so that proportionate representation of specified State groups and rate of population change classes were maintained in the sample. In this manner a total first-stage sample of 65 PSU's was selected. These 65 sample PSU's are the areas within which a cluster sample of persons was selected for examination at the particular examination location designated within each area. The mobile examining units were moved from one location to the next during this 39-month period (1971-1974) to permit administering those single-time examinations to the cross-sectional sample of the target population.

The 1960 census data were used as the frame for selecting the sample within PSU's for the first 44 of the 65 examination locations in NHANES I; the then-available 1970 census data were used for the remainder. The ED's in each

PSU were divided into segments of an expected six housing units each. For large urban ED's, the segments were clusters of six addresses from the 1960 Census Listing Books (later the corresponding books for 1970). For other ED's, area sampling was employed and consequently some variation in the segment size occurred. To make the sample representative of the then-current population of the United States, the address or list segments were supplemented by a sample of housing units that had been constructed since 1960 as described.[6]

Within each PSU a systematic sample of segments was selected. The enumeration districts that fell into the sample were coded into one of two economic classes. The first class, identified as the "poverty stratum," was composed of "current poverty areas" that had been identified by the Bureau of the Census in 1970 (pre-1970 Census), plus other ED's in the PSU with a mean income of less than $3,000 in 1959 (based on 1960 Census). The second economic class, the "nonpoverty stratum," included all ED's not designated as belonging to the "poverty stratum." All sample segments classified as being in the "poverty stratum" were retained in the sample. For those sample segments in "nonpoverty stratum" ED's, the selected segments were divided into eight random subgroups and one of the subgroups was chosen to remain in the NHANES I sample. This procedure permits separate analyses with adequate reliability of those classified as being "below the poverty level" and those classified as being "above the poverty level."

After identifying the sample segments, a list of all current addresses within the segment boundaries was made, and the households were interviewed to determine the age and sex of each household member, as well as other demographic and socioeconomic information.

To select the persons in the sample segments to be examined in NHANES I, all household members ages 1-74 years in each segment were listed on a sample selection worksheet, with each household in the segment listed serially. The number of household members in each of the six age-sex groups shown below were listed on the worksheet under the appropriate age-sex group column. The sample selection worksheets were then put in segment number order and a systematic random sample of persons in each age-sex group was selected to be examined using the following sampling rates:

Age	*Sampling rate*
1-5 years	1/2
6-19 years	1/4
20-44 years (men)	1/4
20-44 years (women)	1/2
45-64 years	1/4
65-74 years	1

The persons selected in the 65-stand sample of NHANES I comprise a representative sample of the target population and included 28,043 sample persons 1-74 years of age.

For those to also receive the detailed health examination at the first 65 stands of NHANES I, a subsample of those adults 25-74 years of age in the total or "nutrition" sample was then chosen systematically after a random start using the sampling rates shown below:

Age	*Subsampling rate*
25-44 years (men)	2/5
25-44 years (women)	1/5
45-64 years	3/5
65-74 years	1/4

As a result, adults 45-74 years of age in the first 65 PSU's were subsampled for the detailed examination at a somewhat higher rate than those 25-44 years of age.

During the Augmentation period in 1974-1975 (July 1974-September 1975), the sample of adults 25-74 years of age selected for examination in locations 66-100 constitute a national probability sample of the target population. Also, when considered jointly with those selected for the NHANES I detailed examinations in locations 1-65, the entire 100-PSU sample is also nationally representative of the target population at that time.

Note: A list of references follows the text.

The starting point for the selection of the Augmentation sample was the 1970 decennial census list of addresses and PSU's. The sampling methods for establishing the sample frame were generally similar to those used in the first 65 PSU's. However, only 5 of the 15 superstrata composed of only one very large metropolitan area of more than 2 million population were drawn into the sample for locations 66-100 with certainty. The remaining 10 of these superstrata were collapsed into 5 groups of 2 each, only 1 which was chosen for the Augmentation Survey with a probability of selection of 0.5. When these latter five locations are considered a part of the 100-PSU design they are selected with certainty.

In this Augmentation Survey, there was no economic axis of stratification and no oversampling among special groups. One of every two eligible persons within sample households (using a random start among those 25-74 years of age) was selected for participation in the survey.

Nonresponse

In any health examination survey, after the sample is identified and the sample persons are requested to participate in the examination, the survey meets one of its more severe problems. Usually a sizable number of sample persons who are willing to complete the household information and possibly some of the medical history will not participate in the examination. Individual participation is determined by many factors, some of which are uncontrollable; therefore, it may be treated as a random event with a particular probability of occurrence. In this situation, the effect of nonparticipation would only reduce the sample size, thereby increasing the sampling variability of examination findings. In practice, however, a potential for bias due to nonresponse exists if nonparticipation is not a random event and if nonparticipants differ from participants. Because of the possibility of bias, intensive efforts are made in NHANES to develop and implement procedures and inducements that would reduce the number of nonrespondents, thereby reducing the potential of bias due to nonresponse. These procedures are discussed in *Vital and Health Statistics,* Series 1-No. 10a.[6]

During the early stages of NHANES I when it became apparent that the response rate for the examinations was lower than in the preceding health examination surveys, a study of the effect of remuneration on response in NHANES was undertaken. The findings published in *Vital and Health Statistics,* Series 2-No. 67[32] were considered sufficient to include remuneration as a routine procedure in NHANES I starting with the 21st and 22nd examination locations.

Despite response rates at the household interview stage of over 98 percent and intensive efforts of persuasion, 21.1 percent of the sample persons from the first full 65 stands and 28.7 percent from stands 66-100 (or 30.0 percent from the entire 100 locations for the detailed examinations) were not examined. Consequently, the potential for a sizable bias does exist in the estimates in this publication. However, from what is known about the nonrespondents and the nature of nonresponse, the likelihood of sizable bias is believed to be small. For instance, only a small proportion of sample persons from the first 65 examination locations gave reasons for nonparticipation that would lead to the belief that they would never agree to participate in examination surveys and that they may differ from examined persons with respect to the characteristics under examination. Only 15 percent of nonrespondents gave personal illness, physically unable, pregnancy, anti-doctor, or a fear of finding something wrong as their reasons for nonparticipation. Typical among the reasons given by the other nonrespondents were: unable because of work, school, or household duties; suspicious or skeptical of the program; just not interested in participating; and private medical care sufficient, or just visited doctor.

An analysis of the medical history data obtained for most nonexaminees as well as for examinees also supports the belief that the likelihood of sizable bias due to nonresponse is small. No large differences were found between the examined and the nonexamined group for

Note: A list of references follows the text.

the statistics compared. For example, the percent of persons examined who reported ever being told by a doctor that they had arthritis was 20 percent; the percent reporting high blood pressure was 18 percent and the percent for diabetes, 4 percent. The corresponding percents for nonexamined persons were: arthritis, 17 percent; high blood pressure, 21 percent; and diabetes, 4 percent.

A procedure (similar to that used in previous National Health Examination Surveys) was used in which the reciprocal of the probability of selection of the sample persons is multiplied by a factor that brings estimates based on sample persons up to a level that would have been attained if all sample persons had been examined. This factor is the ratio of the sum of sample weights for all sample persons with a relatively homogeneous class defined by age, sex, and five income groups (under $3,000; $3,000-$6,999; $7,000-$9,999; $10,000-$14,999 and $15,000 or more) within each stand to the sum of sampling weights for all responding sample persons within the same homogeneous class for the same stand. To the degree that homogeneous groups can be defined which are also homogeneous with respect to the characteristics under study, this procedure can be effective in reducing the potential bias from nonresponse. Overall the extent of adjustment for nonresponse among the detailed examinees was 1.45 during the 1971-1974 period and 1.40 in the Augmentation Survey of 1974-1975.

Missing Data

Examination surveys lose information not only through the failure to examine all sample persons, but also through the failure to obtain and record all items of information for those examined. When data are found missing for some of the examinees, imputation for these values becomes necessary to minimize the effect on population estimates. The extent to which such imputations were needed is shown by age, sex, and race in tables I-III.

Of the 6,913 examinees age 25-74 years in the detail sample, only 28 (0.4 percent) had missing measurements of either systolic or diastolic blood pressure or both in the first sitting position. For the recumbent position, 59 (0.9 percent) had missing measurements of either systolic or diastolic blood pressure or both. For the second sitting position, 64 (0.9 percent) had missing measurements of either or both blood

Table I. Total number of examinees and number of examinees with missing systolic and diastolic blood pressure measurements in the first sitting position, by race, sex, and age of the examinee: United States, 1971-1975

Blood pressure and age at examination	Total number of examinees	All races	White		Black		Other	
			Men	Women	Men	Women	Men	Women
Systolic		Number with missing measurement						
All ages, 25-74 years	6,913	26	8	11	4	3	-	-
25-34 years	1,563	8	1	4	3	0	-	-
35-44 years	1,216	3	2	0	0	1	-	-
45-54 years	1,613	7	1	4	1	1	-	-
55-64 years	1,288	4	1	2	0	1	-	-
65-74 years	1,233	4	3	1	0	0	-	-
Diastolic								
All ages, 25-74 years	6,913	28	11	12	2	3	-	-
25-34 years	1,563	6	1	4	1	0	-	-
35-44 years	1,216	4	3	0	0	1	-	-
45-54 years	1,613	7	2	3	1	1	-	-
55-64 years	1,288	5	1	3	0	1	-	-
65-74 years	1,233	6	4	2	0	0	-	-

Table II. Total number of examinees and number of examinees with missing systolic and diastolic blood pressure measurements in the recumbent position, by race, sex, and age of the examinee: United States, 1971-1975

Blood pressure and age at examination	Total number of examinees	All races	White		Black		Other	
			Men	Women	Men	Women	Men	Women
Systolic		Number with missing measurement						
All ages, 25-74 years	6,913	55	22	21	4	8	-	-
25-34 years	1,563	8	2	3	1	2	-	-
35-44 years	1,216	6	3	3	-	-	-	-
45-54 years	1,613	13	4	6	1	2	-	-
55-64 years	1,288	12	4	5	2	1	-	-
65-74 years	1,233	16	9	4	-	3	-	-
Diastolic								
All ages, 25-74 years	6,913	59	22	23	5	9	-	-
25-34 years	1,563	10	2	4	2	2	-	-
35-44 years	1,216	6	3	3	-	-	-	-
45-54 years	1,613	13	4	6	1	2	-	-
55-64 years	1,288	13	4	5	2	2	-	-
65-74 years	1,233	17	9	5	-	3	-	-

Table III. Total number of examinees and number of examinees with missing systolic and diastolic blood pressure measurements in the second sitting position, by race, sex, and age of the examinee: United States, 1971-1975

Blood pressure and age at examination	Total number of examinees	All races	White		Black		Other	
			Men	Women	Men	Women	Men	Women
Systolic		Number with missing measurement						
All ages, 25-74 years	6,913	60	21	26	5	8	-	-
25-34 years	1,563	11	2	6	1	2	-	-
35-44 years	1,216	5	2	3	-	-	-	-
45-54 years	1,613	15	6	6	1	2	-	-
55-64 years	1,288	12	2	7	2	1	-	-
65-74 years	1,233	17	9	4	1	3	-	-
Diastolic								
All ages, 25-74 years	6,913	64	22	27	6	9	-	-
25-34 years	1,563	13	2	7	2	2	-	-
35-44 years	1,216	5	2	3	-	-	-	-
45-54 years	1,613	16	7	6	1	2	-	-
55-64 years	1,288	13	2	7	2	2	-	-
65-74 years	1,233	17	9	4	1	3	-	-

pressures. In no case was a diastolic measurement present without an accompanying systolic measurement.

When systolic and diastolic blood pressures were both missing, replacement values were randomly selected from other examinees of the same age, sex, and race with similar arm girth, weight, and height. When only the diastolic pressure was missing, the systolic pressure was taken into account when a random selection was made along with the age, sex, and race of examinees.

Small Numbers

In some tables magnitudes are shown for cells for which the sample size is so small that the sampling error may be several times as great as the statistic itself. Obviously in such instances the numbers, if shown, have been included to convey an impression of the overall story of the table.

Estimation Methods

All data in the text and detailed tables of this report are based on "weighted" observations (i.e., data recorded for each sample person are inflated to characterize the subuniverse from which that sample person was drawn). The weight, as previously indicated, for each examined person is a product of the reciprocal of the probability of selecting the person, an adjustment for nonresponse (persons not examined), and a poststratified ratio adjustment that increases precision by making the final sample estimates for the population agree approximately with independent controls prepared by the U.S. Bureau of the Census for the civilian noninstitutionalized population of the United States as of March 1, 1972 for the 1971-1972 sample (locations 1-35), November 1, 1972 for the 1971-1974 sample (locations 1-65), February 1, 1974 for the 1971-1975 sample (locations 1-100), and March 1, 1975 for the 1974-1975 Augmentation sample (locations 66-100), as shown in tables IV-VII.

A more complete description of the survey design is included in *Vital and Health Statistics*, Series 1, Nos. 10a and 14.[6,7]

Note: A list of references follows the text.

Because the design for NHANES I is a multistage probability sample, complex procedures are required to produce the "weights" needed to inflate the findings for the individual examinees so that they can be used for national or other broad population group estimates. The following three basic operations are involved:

1. Inflation by the reciprocal of the probability of selection.—The probability of selection is the product of the probabilities of selection from each step of inflation in the design (PSU, segment, and sample person). The "weights" from this stage are the reciprocal of the resultant probability of selection.
2. Nonresponse adjustment.—The "weights" or estimates as obtained at step one above are then inflated by a multiplication factor calculated within each PSU for each of the five selected income groups. The numerator consists of the sum of the "weights" for sample persons (obtained from the reciprocal of their probability of selection), and the denominator consists of the sum of the weights of the examined persons (the latter weights being the reciprocal of the probability of selection for those actually examined).
3. Poststratification by age-sex-race.—The final estimates or "weights" are obtained by ratio adjusting within each of 60 age-sex-race cells to an independent estimate, provided by the U.S. Bureau of the Census, of the population in each cell as of the midpoint of the survey. The effect of the ratio-adjusting process is to make the examined sample data more closely representative of that for the total civilian noninstitutionalized population by age, sex, and race and thereby reduce the sampling variance.

Sampling and Measurement Error

In the present report, reference has been made to efforts to minimize bias and variability of measurment techniques. The potential for residual bias due to the high nonresponse rate has also been discussed.

Table IV. Number of examined persons and estimated population,[1] by race, age, and sex of examinee: United States, 1971-1972

Age at examination and sex	All races[2]		White		Black	
	Examined persons	Population in thousands	Examined persons	Population in thousands	Examined persons	Population in thousands
Both sexes						
25-74 years	1,891	102,979	1,462	92,025	411	10,186
25-34 years	337	25,819	268	22,794	65	2,830
35-44 years	309	22,310	243	19,665	61	2,404
45-54 years	460	23,406	356	21,015	102	2,380
55-64 years	368	18,955	282	17,257	82	1,424
65-74 years	417	12,490	313	11,294	101	1,148
Male						
25-74 years	907	48,878	701	43,960	194	4,487
25-34 years	153	12,443	121	11,098	28	1,151
35-44 years	141	10,847	119	9,684	20	1,039
45-54 years	228	11,063	176	9,971	51	1,090
55-64 years	184	9,100	138	8,314	44	722
65-74 years	201	5,425	147	4,893	51	485
Female						
25-74 years	984	54,100	761	48,065	217	5,699
25-34 years	184	13,376	147	11,695	37	1,680
35-44 years	168	11,463	124	9,981	41	1,365
45-54 years	232	12,343	180	11,043	51	1,290
55-64 years	184	9,855	144	8,943	38	701
65-74 years	216	7,064	166	6,402	50	663

[1] As of the midpoint of the survey—Mar. 1, 1972.
[2] Includes other racial groups in addition to white and black.

The probability design of the survey makes possible the calculation of sampling errors. Traditionally the role of the sampling error has been the determination of how imprecise the survey results may be because they come from a sample rather than from the measurement of all elements in the universe.

The estimation of sampling errors for a study of the type of the National Health and Nutrition Examination Survey is difficult for at least three reasons: (1) measurement error and "pure" sampling error are confounded in the data—it is not easy to find a procedure which will either completely include both or treat one or the other separately; (2) the survey design and estimation procedure are complex, and, accordingly, require computationally involved techniques for the calculation of variances; and (3) hundreds of statistics are presented in the tables in this report, many for subclasses of the population for which there are a small number of sample cases. Estimates of sampling error are obtained from the sample data and are themselves subject to sampling error which can be large when the number of cases in a cell is small or, even occasionally, when the number of cases is substantial.

Estimates of the standard errors for selected statistics used in this report are presented in most of the tables in this report. These estimates have been prepared by a replication technique which yields overall variability through observation of variability among random subsamples of the total sample.[33,34] Again, readers are reminded that these estimated sampling errors do not reflect any residual bias which might still be

Note: A list of references follows the text.

Table V. Number of examined persons and estimated population,[1] by race, age, and sex of the examinee: United States, 1971-1974

Age at examination and sex	All races[2]		White		Black	
	Examined persons	Population in thousands	Examined persons	Population in thousands	Examined persons	Population in thousands
Both sexes						
25-74 years	3,854	104,125	3,208	93,030	612	10,243
25-34 years	724	26,740	609	23,615	109	2,936
35-44 years	598	22,193	497	19,573	93	2,376
45-54 years	931	23,317	781	20,906	144	2,294
55-64 years	747	19,187	621	17,440	119	1,518
65-74 years	854	12,688	700	11,497	147	1,118
Male						
25-74 years	1,839	49,332	1,541	44,358	277	4,478
25-34 years	337	12,894	288	11,505	44	1,249
35-44 years	264	10,685	230	9,544	31	998
45-54 years	452	11,145	376	10,025	73	1,067
55-64 years	369	9,130	307	8,336	58	690
65-74 years	417	5,478	340	4,948	71	474
Female						
25-74 years	2,015	54,793	1,667	48,672	335	5,764
25-34 years	387	13,846	321	12,110	65	1,687
35-44 years	334	11,508	267	10,029	62	1,378
45-54 years	479	12,172	405	10,881	71	1,227
55-64 years	378	10,057	314	9,104	61	829
65-74 years	437	7,209	360	6,549	76	645

[1] As of the midpoint of the survey—Nov. 1, 1972.
[2] Includes other racial groups in addition to white and black.

present after the attempted correction for nonresponse. The standard error is primarily a measure of sampling variability, that is, the variations that might occur by chance because only a sample of the population is surveyed. As calculated for this report, the standard error also reflects part of the variation which arises in the measurement process. It does not include estimates of any biases which might lie in the data. The chances are about 68 out of 100 that an estimate from the sample would differ from a complete census by less than the standard error. The chances are about 95 out of 100 that the difference would be less than twice the standard error and about 99 out of 100 that it would be less than two and half times as large.

Tests of Significance

The procedure used in this report for testing the significance of the difference between the two means consisted of dividing the difference between the two means by the standard error of the difference; that is, a Z-statistic was computed. An approximation of the standard error of a difference $d = x - y$ of the two statistics x and y is given by the formula $S_d = (S_x^2 + S_y^2)^{1/2}$ where S_x and S_y are the sampling errors, respectively, of the actual standard error. Of course, where the two groups or measures are positively or negatively correlated, this will give an overestimate or underestimate, respectively, of the actual standard error of the difference.

If more than one test is implied (such as regional differences—six implied tests) then the Bonferroni test[35] was used to test for significance. In the Bonferroni test the Z-statistic is also computed; but for the difference between the two means to be considered significant at

NOTE: A list of references follows the text.

Table VI. Number of examined persons and estimated population,[1] by race, age, and sex of the examinee: United States, 1971-1975

Age at examination and sex	All races[2]		White		Black	
	Examined persons	Population in thousands	Examined persons	Population in thousands	Examined persons	Population in thousands
Both sexes						
25-74 years	6,913	106,639	5,968	94,886	873	10,656
25-34 years	1,563	28,297	1,362	24,835	175	3,039
35-44 years	1,216	22,302	1,048	19,582	149	2,415
45-54 years	1,613	23,549	1,396	21,053	206	2,358
55-64 years	1,288	19,346	1,118	17,500	161	1,674
65-74 years	1,233	13,145	1,044	11,915	182	1,170
Male						
25-74 years	3,171	50,587	2,744	45,303	390	4,693
25-34 years	672	13,663	587	12,123	72	1,303
35-44 years	528	10,761	469	9,579	52	1,024
45-54 years	746	11,288	642	10,131	99	1,095
55-64 years	626	9,192	544	8,336	76	768
65-74 years	599	5,682	502	5,134	91	504
Female						
25-74 years	3,741	56,052	3,224	49,583	483	5,963
25-34 years	891	14,634	775	12,713	103	1,736
35-44 years	688	11,541	579	10,003	97	1,392
45-54 years	867	12,260	754	10,922	107	1,263
55-64 years	662	10,154	574	9,164	85	906
65-74 years	634	7,463	542	6,781	91	667

[1]As of the midpoint of the survey—Feb. 1, 1974.
[2]Includes other racial groups in addition to white and black.

the 95-percent confidence level, the Z-statistic must be greater than or equal to 2.64 when six tests are implied. Statements of statistical significance or substantial differences in the text will be based on one of these two types of tests.

In addition, a further less rigorous test was used to assess general trends or tendencies that might have been more definite or significant had the sample size been larger. For this, tables of the binomial probability distribution were used to establish whether a trend of high or low rates or means occurred more frequently than expected.

To test for a positive relationship between variables a regression line was fitted to the data and then the slope of the line tested to determine if the slope was significantly different from zero. To apply this test the data from a complex survey such as NHANES present certain very basic problems which make the use of classical regression procedures difficult. Among these problems are the lack of complete independence among the original observations, lack of complete homoscedasticity, that is, unequal variances of the dependent variable within each category of the independent variable, and possibly lack of normality in the distribution, etc. The following is a description of a modified regression model that was used in this report which makes no assumptions about the original observations and which makes no stronger assumptions about the sample estimates than are made in testing whether two means are equal when the estimated means and their standard errors are obtained from complex surveys. Estimates of the standard errors of the dependent

Table VII. Number of examined persons and estimated population,[1] by race, age, and sex of the examinee: United States, 1974-1975

Age at examination and sex	All races[2]		White		Black	
	Examined persons	Population in thousands	Examined persons	Population in thousands	Examined persons	Population in thousands
Both sexes						
25-74 years	3,059	108,494	2,760	94,406	261	10,595
25-34 years	839	29,524	753	25,868	66	2,765
35-44 years	618	22,411	551	19,643	56	2,382
45-54 years	682	23,540	615	21,083	62	2,324
55-64 years	541	19,550	497	17,606	42	1,860
65-74 years	379	13,469	344	12,206	35	1,264
Male						
25-74 years	1,332	51,440	1,203	46,016	113	4,613
25-34 years	335	14,236	299	12,614	28	1,168
35-44 years	264	10,874	239	9,660	21	987
45-54 years	294	11,214	266	10,126	26	1,042
55-64 years	257	9,264	237	8,325	18	854
65-74 years	182	5,852	162	5,290	20	562
Female						
25-74 years	1,727	57,054	1,557	50,390	148	5,982
25-34 years	504	15,288	454	13,254	38	1,597
35-44 years	354	11,536	312	9,983	35	1,394
45-54 years	388	12,326	349	10,957	36	1,282
55-64 years	284	10,286	260	9,281	24	1,006
65-74 years	197	7,618	182	6,916	15	702

[1]As of the midpoint of the survey—Mar. 1, 1975.
[2]Includes other racial groups in addition to white and black.

variable used in this modified regression model for analysis in the section on race and blood pressure levels were obtained from the half-sample replication technique previously discussed.[33,34] This same program was used for computing the correlations and appropriate standard errors shown in tables 41-44.

The proposed model is as follows:

1. Let $\overline{Y}_i$ be the estimated mean and $S_{\overline{x}}$ be its estimated standard error for the ith group.
2. Let X_i be the midpoint of the independent variable for the group.
3. Assume $S_{\overline{Y}_i}$ is based on a number of observations large enough that it can be assumed it is, in fact, equal to $\sigma_{\overline{Y}_i}$ and thus has no sampling error.
4. Further assume that

$$E(\overline{Y}_i) = \alpha + \beta X_i$$
$$V(\overline{Y}_i) = S^2_{\overline{Y}_i}$$

for $i = 1, 2, \ldots, K$, where K is the number of groups.

5. Finally, it is assumed that the $\overline{Y}_i$'s are normally distributed and are statistically independent of each other.

The proposed weighting procedure weights all observations by the reciprocal of the variance. That is,

$$W_i = \frac{1}{S^2_{\overline{Y}_i}}$$

NOTE: A list of references follows the text.

and the mean

$$\bar{X} = \frac{\sum w_i X_i}{\sum w_i}$$

and the mean

$$\bar{\bar{Y}} = \frac{\sum w_i \bar{Y}_i}{\sum w_i}$$

The slope is computed in a manner similar to the classical least square regression, by the following formula:

$$b = \frac{\sum w_i \left(X_i - \bar{X}\right) \bar{Y}_i}{\sum w_i \left(X_i - \bar{X}\right)^2}$$

Computationally, this is easily computed by

$$b = \frac{\sum w_i X_i \bar{Y}_i - \left(\sum w_i\right)\left(\bar{X}\right)\left(\bar{\bar{Y}}\right)}{\sum w_i X_i^2 - \left(\sum w_i\right)\bar{X}^2}$$

The variance of the slope is

$$\sigma_{\bar{b}} = \frac{\sum w_i \left(X_i - \bar{X}\right)^2 \sigma_{\bar{Y}}^2}{\left[\sum w_i \left(X_i - \bar{X}^2\right)\right]^2}$$

Now, because

$$W_i = \frac{1}{\sigma_{\bar{Y}_i}^2}$$

This formula can be simplified to

$$\sigma_b^2 = \frac{\sum w_i \left(X_i - \bar{X}\right)^2}{\left[\sum w_i \left(X_i - \bar{X}\right)^2\right]^2} = \frac{1}{\sum w_i \left(X_i - \bar{X}\right)^2}$$

and computationally

$$S_b = \sqrt{\frac{1}{\sum w_i X_i^2 - \left(\sum w_i\right)\bar{X}^2}}$$

An approximate normal deviate test can now be performed by

$$Z = \frac{b}{S_b}$$

This would test the hypothesis that $\beta = 0$ or, alternatively, compute confidence intervals for β.

Standardized Values

In detailed tables 17-34 and 48-52 both the actual and the standardized rates or mean values are shown for the various sociodemographic subgroups. Hypertension rates or mean blood pressure levels may be elevated in a specific subgroup more than the others solely because the subgroup contains a disproportionate number of older persons. To remove the effect that differences in the age-sex distribution may have in the rates or means, the age-sex specific values (rates or means) for the particular subgroup have been applied against the number within the age-sex group in the total U.S. (civilian noninstitutionalized) population and the rates or means for the subgroup recalculated.

For example, if within an income class (e.g., $15,000 and over) estimates from NHANES I show a definite hypertension rate of

$$p_i = \frac{a_i}{n_i}$$

for men in the ith age group (where a_i = national estimates for the number of men with hypertension of that age in the income group, n_i = population estimates for men of that age in the income group) then the standardized or age-adjusted hypertension rate for men in the $15,000-and-over income bracket is

$$P_n = \frac{\sum p_i N_i \times 100}{\sum N_i}$$

where N_i = the number of men in that age group of the total U.S. (civilian noninstitutionalized) population.

The standard error of the difference between an actual and a standardized rate (or mean) may be approximated by the standard error of the actual value.

In detailed tables 39 and 40 and in sections of the text where comparison is made with the NHES findings from 1960-1962, the standardized rates have been calculated by applying the age-sex specific rate (or means) from 1960-1962 against the corresponding population estimates at the midpoint of the 1971-1975 period.

APPENDIX II

DEMOGRAPHIC AND SOCIOECONOMIC TERMS

Age.—Two ages were recorded for each examinee: the age at last birthday at the time of examination and at the time of the census interview. The age criterion for inclusion in the sample used in this survey was defined as age at the time of the census interview. The adjustment and weighting procedures used to produce national estimates were based on the age at interview. Data in the detailed tables and text of the report are shown by age at the time of the examination, except that those few who became 75 years of age by the time of the examination are included in the 65-74 year age group.

Race.—Race was recorded as "white," "Negro," or "other." "Other" includes Japanese, Chinese, American Indian, Korean, Eskimo, and all races other than white and black. Mexicans were included with "white" unless definitely known to be American Indian or other nonwhite race. Black persons and those of mixed black and other parentage were recorded as "Negro." When a person of mixed racial background was uncertain about his race, the race of his father was recorded.

Geographic region.—The 48 contiguous States and the District of Columbia (excluding Alaska and Hawaii) were stratified into four broad geographic regions, each of about the same population size. With a few exceptions the compositions of the regions were as follows:

Region	*States included*
Northeast	Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania
Midwest	Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri
South	Delaware, Maryland, Virginia, West Virginia, Kentucky, Arkansas, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, District of Columbia
West	Washington, Oregon, Idaho, Montana, Wyoming, Colorado, Utah, Nevada, California, Arizona, New Mexico, Texas, Oklahoma, Kansas, Nebraska, South Dakota, North Dakota

In a few instances the actual boundaries of the regions did not follow State lines. Some strata in the Midwest and South include PSU's actually located in the West. Similarly, some strata in the West contain PSU's located in the Midwest and South.

Family income.—The income recorded was the total income received during the 12 months prior to the interview by the head of the household and all other household members related to the head. This income was the gross cash income (excluding pay in kind) except in the case of a family with its own farm or business. In that instance net income was recorded. Also included was the income of a member of the Armed Forces living at home with his family (even though he was not considered a household member). If he was not living at home, allotments and other money received by the family from him were included in the family income figure.

Education.—The only grades counted were those attended in a regular graded public or private school where persons were given formal education, whether during the day or at night, on a full-time or part-time attendance basis. A "regular" school is one that advances a person toward an elementary or high school diploma, or a college, university, or professional school degree. Education received in vocational, trade, or business schools outside the regular school system was not counted in determining the highest grade of school completed. If a person attended school in a foreign country, at an ungraded school, under a tutor, or under other special circumstances, the nearest equivalent of his highest grade attended was given.

Population density.—The classification of urban-rural areas was that used in the 1960 census. According to the 1960 definition, those areas considered urban are: (a) places of 2,500 inhabitants or more incorporated as cities, boroughs, villages, and towns (except towns in New England, New York, and Wisconsin); (b) the densely settled urban fringe, whether incorporated or unincorporated, of urbanized areas; (c) towns in New England and townships in New Jersey and Pennsylvania that contain no incorporated municipalities as subdivisions and have either 2,500 inhabitants or more, or a population of 2,500 to 25,000 and a density of 1,500 persons per square mile; (d) counties in States other than the New England States, New Jersey, and Pennsylvania that have no incorporated municipalities within their boundaries and have a density of 1,500 persons or more per square mile; and (e) unincorporated places of 2,500 inhabitants or more which are not included in any urban fringe. The remaining population is classified as rural.

By means of the first digit of the identification code on the household questionnaire, the urban and rural population was divided into the following categories according to population: (1) urban, 3,000,000 or more; (2) urban, 1,000,000-2,999,999; (3) urban 250,000-999,999; (4) urban, under 250,000; (5) urban not in urbanized area, 25,000 or more; (6) urban, not in urbanized area, 10,000-24,999; (7) urban not in urbanized area, 2,500-9,999; and (8) rural.

———— ooo ————

APPENDIX III

SOURCES OF VARIATION IN BLOOD PRESSURE MEASUREMENTS

Order of Measurement

The examinee's first blood pressure determination in the NHANES of 1971-1975 was made before the physical examination with the examinee sitting, the second at the end of the examination with the examinee supine, and the third immediately after the second with the examinee sitting on the edge of the examination table. In the NHES of 1960-1962, the order of the measurements in relation to the examination was similar to that in the present study, but all three were taken in a sitting position.

Initial blood pressure of examinees on whom more than one reading was obtained in previous National Health Examination Surveys has generally been higher than the subsequent ones. In contrast blood pressure levels from all three measurements in the 1971-1975 NHANES are quite similar as shown in detailed tables 12-14.

The consistency in these three NHANES measurements at the 100 examination locations may be seen in table VIII which shows the proportion (age-adjusted) of adults with systolic pressure of at least 120 mmHg and diastolic pressure of at least 80 mmHg. The distribution of these proportions on all three readings is generally similar except for the second diastolic measurement where somewhat lower levels were obtained at a disproportionate number of locations.

Venipuncture

At some convenient time during the examination a venipuncture was done on the examinees by the nurse with the assistance of the doctor. This procedure may have had some effect on the examinee's blood pressure either elevating it because of apprehension or lowering it because of the removal of 55 cm^3 of blood.

To determine the effect of the venipuncture on the blood pressures, the examinees from the first 65 examination locations were divided into two groups: those with blood pressure measurement taken first and those with venipuncture

Table VIII. Proportion (age-adjusted) of adults with systolic pressure of 120 mmHg or more and diastolic pressure of 80 mmHg or more on the 3 blood pressure measurements at the 100 examination locations in the National Health and Nutrition Examination Survey of 1971-1975

Proportion (age-adjusted) of adults with designated blood pressure levels	Systolic pressure ⩾ 120 mmHg			Diastolic pressure ⩾ 80 mmHg		
	First	Second	Third	First	Second	Third
	Number of stands					
Less than 51	2	2	0	4	36	6
51-60	13	7	8	18	30	30
61-70	39	34	35	48	25	32
71-80	33	27	37	23	7	31
81-90	11	25	18	7	2	9
91-100	2	5	2	0	0	2

done first. Both groups were further subdivided by the amount of time that elapsed between the venipuncture and the initial blood pressure determination. The results of this analysis are presented in table IX. Because of the substantial variation in blood pressure with age, the effect of age was removed by age adjusting the mean blood pressures. The direct method of adjustment was used for this purpose with the weighted population of the United States (November 1972) as the reference population.

It might be expected that some if not all of those who had their blood pressure taken before the venipuncture might be apprehensive about the procedure and consequently show some elevation in pressure if they were aware that they were soon to have the venipuncture done. However, as may be seen in table IX the age-adjusted mean systolic and diastolic pressures of those who had their blood pressures taken less than 20 minutes before they had the venipuncture are, respectively, 1.0 mmHg and 3.0 mmHg lower, not higher than the systolic and diastolic pressures of those who had 30 minutes or more elapse before having the venipuncture done. The difference between the age-adjusted mean systolic pressures is statistically significant but that for diastolic pressures is not. Therefore, apprehension about the venipuncture was apparently not a significant factor affecting the blood pressures of those who had their blood pressures taken before the venipuncture. The significant elevation in systolic mean pressures among examinees who had their blood

Table IX. Systolic and diastolic blood pressure of examinees 7-74 years, by time between initial blood pressure reading and venipuncture and age—mean, standard error of the mean, age-adjusted values, and sample size: United States, 1971-1974

Blood pressure and age	Blood pressure taken before venipuncture						Blood pressure taken after venipuncture					
	30 minutes or more		20-29 minutes		Less than 20 minutes		Less than 20 minutes		20-29 minutes		30 minutes or more	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Systolic	Blood pressure (mmHg)											
Age-adjusted values	125.9	---	126.5	---	122.9	---	124.7	---	123.4	---	123.8	---
All ages, 7-74 years	120.2	0.74	123.7	1.14	119.6	0.91	124.0	0.54	123.3	0.61	126.3	0.55
7-11 years	103.6	0.99	104.3	1.08	103.9	1.63	103.5	0.93	103.3	1.66	102.3	1.09
12-17 years	115.4	1.19	115.8	1.37	113.8	1.58	114.0	0.94	112.4	1.13	112.6	0.81
18-24 years	121.4	1.13	119.2	1.87	118.6	1.50	120.0	0.87	117.7	1.34	118.6	0.68
25-34 years	120.4	1.39	122.4	1.46	120.4	1.92	121.5	0.72	120.8	1.54	120.7	0.60
35-44 years	126.5	1.88	127.3	2.53	123.4	1.14	124.7	1.18	124.7	1.24	126.0	0.76
45-54 years	138.0	2.61	132.6	3.38	130.3	2.83	133.5	1.53	132.2	2.41	133.6	1.17
55-64 years	143.7	4.02	150.2	4.13	136.4	6.55	142.6	1.97	141.8	2.58	141.2	0.97
65-74 years	151.7	1.72	157.7	3.00	149.2	2.91	151.6	1.52	147.4	2.16	148.9	1.14
Diastolic												
Age-adjusted values	78.1	---	77.8	---	77.1	---	77.6	---	77.3	---	78.0	---
All ages, 7-74 years	74.6	0.59	75.8	0.65	75.0	0.51	77.2	0.44	77.3	0.43	79.5	0.39
7-11 years	64.4	1.03	64.5	0.87	65.0	1.22	65.1	0.87	64.4	1.66	65.2	0.82
12-17 years	69.9	0.79	68.7	1.27	70.0	1.21	69.8	0.63	69.2	0.59	70.0	0.63
18-24 years	74.9	1.16	73.3	1.50	74.3	0.96	74.4	0.61	73.0	0.72	73.8	0.62
25-34 years	76.5	0.83	77.2	1.32	76.9	1.27	78.2	0.59	77.8	1.11	78.0	0.42
35-44 years	82.7	1.27	83.8	1.72	81.8	1.12	80.7	0.84	82.7	0.68	83.0	0.52
45-54 years	86.7	1.19	83.9	2.22	83.7	1.35	85.3	0.92	84.0	1.21	85.7	0.71
55-64 years	88.2	1.87	88.5	1.74	84.6	2.35	85.4	1.08	87.1	1.56	86.8	0.55
65-74 years	86.1	1.07	88.3	1.24	84.5	1.33	86.6	0.77	84.0	1.11	85.3	0.65
Sample size	1,939	---	929	---	750	---	3,170	---	1,695	---	8,395	---

pressures taken 30 minutes or more before the venipuncture may be a reflection of the fact that many were measured near the beginning of the examination. In previous National Health Examination Surveys the initial blood pressure of an examinee on whom more than one reading was obtained has generally been higher than the subsequent ones, possibly because of apprehension about the examination when the examinees first arrived. Because the time of day each examinee began the examination is not readily available, it is not possible to separate effects of normal variation in blood pressure during the day from those due to apprehension, if any, about the examination.

Although apprehension about the examination or the venipuncture appears not to bias the estimates in this report, the venipuncture could have caused a hypotensive effect on the blood pressures of those who had their blood pressure taken shortly after having the venipuncture done. If such a hypotensive effect existed, the mean blood pressure of those on whom these measurements were taken less than 20 minutes after the venipuncture should be lower than those taken 30 minutes or longer afterward. In fact, no significant difference in the age-adjusted mean systolic or diastolic pressures between the two groups was found. Hence, venipuncture apparently did not significantly bias the blood pressure measurements in this examination, whether taken before or afterward.

End-Digit Preference

An analysis of end-digit preference in a survey such as NHANES is an important one because such an analysis indicates the accuracy with which the blood pressures were being recorded by the examiners. In the National Health and Nutrition Examination Survey of 1971-1974 and the National Health Examination Surveys of 1960-1962, 1963-1965, and 1966-1970, the examiners were instructed to measure and record the blood pressures of the examinees to the nearest 2 mmHg. Any departure from those instructions could be detected by an analysis of the end-digits that were recorded. If the end-digits were randomly distributed among the even digits, as they should be, then each even end-digit should have a frequency of 20 percent of the total. Table X contains the percent distribution of the end-digits of the first systolic and diastolic blood

Table X. Percent distribution of end-digits of systolic and diastolic blood pressure measurements in the National Health and Nutrition Examination Survey of 1971-1974 and the National Health Examination Surveys of 1960-1962, 1963-1965, and 1966-1970

End-digit	NHANES, 1971-74, ages 6-74 years		NHES, 1960-62, ages 18-79 years		NHES, 1963-65, ages 6-11 years		NHES, 1966-70, ages 12-17 years	
	Systolic	Diastolic	Systolic	Diastolic	Systolic	Diastolic	Systolic	Diastolic
	Percent distribution							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
0	46.9	43.9	32.5	34.9	24.7	24.8	24.0	37.1
1	0.0	0.0	-	0.0	-	-	0.0	0.0
2	10.9	10.1	16.1	13.6	20.3	18.5	19.4	11.3
3	0.0	0.0	-	0.0	-	0.0	0.0	0.0
4	13.7	14.0	18.0	14.1	21.6	17.1	22.0	19.1
5	4.7	4.9	1.0	1.0	0.1	0.1	0.2	0.3
6	10.1	12.3	15.1	16.8	14.7	13.4	20.0	19.9
7	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0
8	13.6	14.7	17.3	19.6	18.6	26.1	14.4	12.3
9	0.1	0.1	0.0	0.0	0.0	-	-	0.0

NOTE: Percent distribution of end-digits for all 4 of the surveys are for the first reading.

pressure reading for each of the four surveys mentioned previously.

In the NHANES of 1971-1974 the most commonly recorded end-digit was the zero; 46.9 percent of the systolic blood pressure measurements and 43.9 percent of the diastolic blood pressure measurements were recorded with an end-digit of zero. Because a zero should have been recorded as an end-digit only 20 percent of the time, more than twice as many end-digits of zero were recorded as were expected. This fact indicates the blood pressures were apparently recorded with less accuracy than they should have been. That is, many of the systolic and diastolic blood pressures were recorded accurately only to the nearest 10 mmHg rather than to the nearest 2 mmHg as was instructed. In the previous three National Health Examination Surveys the end-digit of zero was also recorded more often than was expected but in none of those surveys was the end-digit of zero recorded as frequently as it was in NHANES.

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