# Vital and Health Statistics

## Advance Data From Vital and Health Statistics: Numbers 1-10

### Series 16: Compilations of Advance Data From Vital and Health Statistics No. 1

Data in this report from health and demographic surveys present statistics by age and other variables on hypertension; height and weight; dermatological disease; cholesterol levels; dietary intake; wanted and unwanted births; and expected family size among currently married women. Estimates are based on the civilian noninstitutionalized population of the United States. These reports were originally published in 1976 and 1977.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
National Center for Health Statistics

Hyattsville, Maryland
May 1989
DHHS Publication No. (PHS) 89-1860

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**Suggested citation**

National Center for Health Statistics. Advance data from vital and health statistics: nos 1–10. National Center for Health Statistics. Vital Health Stat 16(1). 1989.

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FROM VITAL & HEALTH STATISTICS OF THE NATIONAL CENTER FOR HEALTH STATISTICS

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE | No. 1 October 18, 1976 | Public Health Service • Health Resources Administration

# Blood Pressure of Persons 6-74 Years of Age in the United States[a]

Single blood pressure measurements were obtained among a national probability sample of persons representative of the U.S. civilian noninstitutionalized population 6-74 years of age in the Health and Nutrition Examination Survey (HANES) from April 1971 through June 1974.

This first Health and Nutrition Examination Survey program, in which these data were obtained, was designed to measure the nutritional status of the U.S. population as well as certain aspects of the general health status and medical care needs of the U.S. population. This is the fourth of the Health Examination Survey programs that obtain information on the prevalence of medically defined illness, on unrecognized or undiagnosed conditions, and on a variety of physical, physiological, and psychological measures within the population through direct examinations, tests, and measurements, as described in previous publications.[1-4]

Blood pressure measurements of the persons in this HANES sample were made at 65 preselected locations throughout the country by the survey examining physicians using standardized methods based on the 1951 recommendations of the American Heart Association.[5] Of the 24,513 sample persons selected to represent the 131.4 million persons 6-74 years of age in the U.S. population, 17,796 (or 72.6 percent) were examined. This corresponds to an effective response rate of 74.4 percent when adjustment is made for the effect of oversampling among the poor, preschool children, women of childbearing age, and the elderly. National estimates of the distribution of blood pressure levels, prevalence of hypertension, and related medical history among the U.S. population based on findings from this HANES program have been described and analyzed in the report "Blood Pressure Levels of Persons 6-74 Years: United States, 1971-1974," *Vital and Health Statistics*, Series 11, No. 203[6] (in preparation). Selected data and findings from that report are included here in tables 1-6.

## Highlights

Mean systolic blood pressure of the U.S. population increases with age from 103.3 mm.

[a]This report prepared by Jean Roberts and Kurt Maurer, Division of Health Examination Statistics.

*Advance Data from Vital and Health Statistics* replaces the supplements to the *Monthly Vital Statistics Report* as the means for early release of selected findings from the health and demographic surveys conducted by the NCHS. Most of these releases will be followed by detailed reports in the *Vital and Health Statistics* series.

Provisional vital statistics as well as advance reports of final data for a year will continue to be published in the *Monthly Vital Statistics Report.*

*Advance Data* is being distributed on the mailing keys for the *Vital and Health Statistics* series, and people who now receive reports from a particular series will also receive all *Advance Data* releases for that series. Temporarily, the mailing list for the *Monthly Vital Statistics Report (MVSR)* is also being used. *MVSR* readers who wish to continue to receive *Advance Data* issues, as well as other persons who wish to receive all issues, should contact: National Center for Health Statistics, Room 8-20, 5600 Fishers Lane, Rockville, Maryland 20852, Phone: (301) 443-1200.

Hg among children age 7-11 years to 150.1 mm. Hg among the oldest adults in the study, those ages 65-74 years. From 12 through 54 years of age the mean levels of systolic pressure among males exceed those for females, but from 55 through 74 years, the mean levels of women are the higher.

Diastolic pressure (mean values) of males increases with age and significantly exceeds mean levels of women from 18 through 54 years then decreases slowly through 74 years, while among women diastolic pressure levels off at ages 65-74 years but does not decrease significantly.

At 25-74 years of age, systolic and diastolic mean pressures for Negro men exceed those for white men, and those for Negro women exceed the mean levels for white women.

Mean systolic and diastolic blood pressures among the population decrease significantly with an increase in family income and education.

While no regional differences in mean diastolic blood pressure is evident, mean systolic blood pressure of persons living in the South is significantly higher for both white and Negro men and women than for those living in the Northeast or West.

There were an estimated 23.4 million persons 12-74 years of age, including 23.2 million or 18.1 per 100 adults ages 18-74 years, in the United States with definite hypertension—that is either systolic blood pressure of at least 160 mm. Hg *or* diastolic blood pressure of at least 95 mm. Hg. The prevalence rate of definite hypertension, as defined here, increases rapidly with age from 0.8 per 100 at ages 12-17 years to 40.7 per 100 at ages 65-74 years. At ages 18-54 years, definite hypertension is more prevalent among men than among women, but at ages 65-74 years the condition is more prevalent among women than among men. About one-fourth of the adults with definite hypertension have diastolic blood pressure of at least 105 mm. Hg.

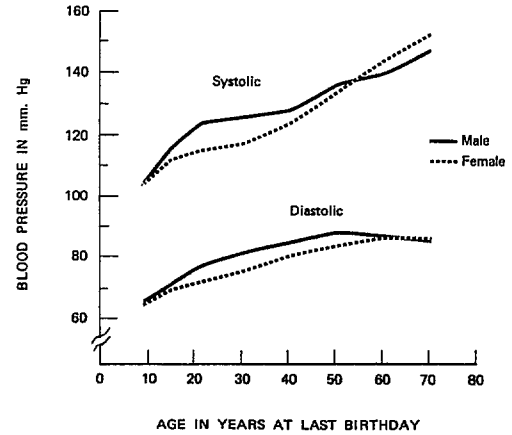
Hypertension is substantially more prevalent among Negro adults than among white adults in the United States.

More than half of the adults with definite hypertension have never been told by their doctors that they have this condition or high blood pressure. One-fourth of those with definite hypertension have been taking medication regularly or occasionally for high blood pressure within the preceding 6 months.

Mean systolic blood pressure levels of U.S. children and youths as determined in the present 1971-74 study are substantially lower and the mean diastolic pressures somewhat lower than those national estimates for children from the Health Examination Survey of 1963-65 and for youths from the Health Examination Survey of 1966-70, apparently because of survey differences that have been analyzed in detail.[6]

Among adults 18-74 years, national estimates of mean systolic and diastolic blood pressure levels from the Health and Nutrition Examination Survey of 1971-74 are in closer agreement with those from the Health Examination Survey of 1960-62 than with those for children and youths at the two available points in time. Mean systolic blood pressure level estimates for U.S. adults ages 18-54 years are nearly identical from both surveys, but from 55 through 74 years they are lower by an average of 4-8 mm. Hg in 1971-74 than in 1960-62. The diastolic pressure levels from the more recent survey are consistently higher (by an average of 3 mm. Hg) across the age range 18-74 years.

MEAN SYSTOLIC AND DIASTOLIC BLOOD PRESSURE OF PERSONS 7-74 YEARS BY AGE AND SEX: UNITED STATES, 1971-74



## TECHNICAL NOTES

The sampling plan for the 65 examination locations in the Health and Nutrition Examination Survey of 1971-74 followed a stratified, multistage probability design in which a sample of the civilian noninstitutionalized population of the conterminous United States 1-74 years of age was selected. The sample was stratified by geographic region, population density, and rate of population change between 1960 and 1970. Within each stratum, cluster type sampling was used for selecting households and sample persons to be included in each examination location. The sample design provided for oversampling among persons living in poverty areas, preschool age children, and women 20-44 years of age.

The blood pressure level and related data in this report are shown as population estimates, that is, the examination findings for each individual have been "weighted" by the reciprocal of the probability of selecting the person. An adjustment for persons in the sample who were not examined and a poststratified ratio adjustment were also made so that the final sample estimates of the population size agree exactly with independent U.S. Bureau of Census estimates for the civilian noninstitutionalized population of the United States as of November 1, 1972, by color, sex, and age.

The tables in this report contain, for the various statistics presented, estimates of their sample variability (standard or sampling errors of the mean) which have been specially derived by a pseudoreplication method adapted specifically to the sample design used in the Health and Nutrition Examination Survey.[7] Data in the tables exclude 6-year-olds because no measurements were obtained for about one-fourth of this group, and the estimates for them are consequently less reliable than for those 7-74 years of age.[6]

## REFERENCES

[1]National Center for Health Statistics: Plan and initial program of the Health Examination Survey. *Vital and Health Statistics.* PHS Pub. No. 1000-Series 1-No. 4. Public Health Service. Washington. U.S. Government Printing Office, July 1965.

[2]National Center for Health Statistics: Plan, operation, and response results of a program of children's examinations. *Vital and Health Statistics.* PHS Pub. No. 1000-Series 1-No. 5. Public Health Service. Washington. U.S. Government Printing Office, Oct. 1967.

[3]National Center for Health Statistics: Plan and operation of a Health Examination Survey of U.S. youths 12-17 years of age. *Vital and Health Statistics.* PHS Pub. No. 1000-Series 1-No. 8. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1969.

[4]National Center for Health Statistics: Plan and operation of the Health and Nutrition Examination Survey, United States, 1971-73. *Vital and Health Statistics.* Series 1-Nos. 10a and 10b. DHEW Pub. No. (HSM) 73-1310. Washington. U.S. Government Printing Office, Feb. 1973.

[5]Committee to Revise Standardization of High Blood Pressure Readings: Recommendations for human blood pressure determinations by sphygmomanometers. New York. American Heart Association. Oct. 1951.

[6]National Center for Health Statistics: Blood pressure levels of persons 6-74 years of age in the United States. *Vital and Health Statistics.* Series 11-No. 203. DHEW, Rockville, Md. In preparation.

[7]National Center for Health Statistics: Replication: An approach to the analyses of data from complex surveys. *Vital and Health Statistics.* PHS Pub. No. 1000-Series 2-No. 14. Public Health Service. Washington. U.S. Government Printing Office, Apr. 1966.

Table 1. Systolic and diastolic blood pressure of persons 7-74 years by age and sex, with means, standard deviations, and standard error of means: United States, 1971-74

| Blood pressure and age | Both sexes | | | Male | | | Female | | |
|---|---|---|---|---|---|---|---|---|---|
| | Mean | Standard deviation | Standard error of mean | Mean | Standard deviation | Standard error of mean | Mean | Standard deviation | Standard error of mean |
| SYSTOLIC | Blood pressure in mm. Hg | | | | | | | | |
| 7-11 years | 103.3 | 12.1 | 0.68 | 103.3 | 12.0 | 0.65 | 103.3 | 12.3 | 0.93 |
| 12-17 years | 113.4 | 13.7 | 0.55 | 114.9 | 13.8 | 0.65 | 111.9 | 13.4 | 0.57 |
| 18-24 years | 119.0 | 13.8 | 0.47 | 123.5 | 13.0 | 0.67 | 114.8 | 13.1 | 0.59 |
| 25-34 years | 120.9 | 14.7 | 0.46 | 125.5 | 13.9 | 0.64 | 116.7 | 14.1 | 0.45 |
| 35-44 years | 125.6 | 17.6 | 0.57 | 127.7 | 15.4 | 0.81 | 123.6 | 19.2 | 0.64 |
| 45-54 years | 134.1 | 22.7 | 1.03 | 135.3 | 20.7 | 1.23 | 132.9 | 24.4 | 1.28 |
| 55-64 years | 142.0 | 23.5 | 0.79 | 139.7 | 20.8 | 1.16 | 144.0 | 25.6 | 0.94 |
| 65-74 years | 150.1 | 25.2 | 0.83 | 146.9 | 24.7 | 1.05 | 152.5 | 25.2 | 0.98 |
| DIASTOLIC | | | | | | | | | |
| 7-11 years | 64.7 | 9.8 | 0.61 | 65.1 | 9.6 | 0.57 | 64.3 | 10.0 | 0.78 |
| 12-17 years | 69.8 | 9.9 | 0.40 | 70.5 | 10.0 | 0.38 | 69.0 | 9.7 | 0.58 |
| 18-24 years | 73.8 | 10.4 | 0.41 | 76.3 | 10.0 | 0.52 | 71.5 | 10.2 | 0.52 |
| 25-34 years | 77.8 | 10.9 | 0.30 | 81.1 | 10.3 | 0.48 | 74.9 | 10.6 | 0.30 |
| 35-44 years | 82.4 | 12.2 | 0.39 | 84.8 | 11.5 | 0.55 | 80.2 | 12.5 | 0.46 |
| 45-54 years | 85.7 | 13.6 | 0.60 | 87.9 | 13.1 | 0.68 | 83.6 | 13.7 | 0.67 |
| 55-64 years | 86.7 | 12.5 | 0.47 | 86.8 | 12.3 | 0.68 | 86.6 | 12.7 | 0.55 |
| 65-74 years | 85.7 | 13.0 | 0.50 | 85.4 | 13.2 | 0.57 | 85.9 | 12.9 | 0.57 |

Table 2. Systolic and diastolic blood pressure of white and Negro persons 7-74 years by age and sex, with means and standard error of means: United States, 1971-74

| Blood pressure and age | White | | | | | | Negro | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Both sexes | | Male | | Female | | Both sexes | | Male | | Female | |
| | Mean | Standard error of mean | Mean | Standard error of mean | Mean | Standard error of mean | Mean | Standard error of mean | Mean | Standard error of mean | Mean | Standard error of mean |
| SYSTOLIC | Blood pressure in mm. Hg | | | | | | | | | | | |
| 7-11 years | 103.3 | 0.70 | 103.6 | 0.67 | 103.1 | 0.99 | 103.2 | 1.18 | 102.1 | 1.32 | 104.2 | 1.34 |
| 12-17 years | 113.6 | 0.54 | 115.1 | 0.67 | 112.0 | 0.59 | 112.0 | 1.17 | 112.5 | 1.46 | 111.6 | 1.22 |
| 18-24 years | 119.3 | 0.51 | 123.7 | 0.75 | 115.1 | 0.61 | 117.5 | 1.26 | 122.9 | 2.20 | 113.2 | 1.11 |
| 25-34 years | 120.4 | 0.49 | 125.2 | 0.67 | 116.2 | 0.51 | 125.2 | 0.88 | 129.3 | 1.61 | 121.5 | 0.96 |
| 35-44 years | 124.8 | 0.61 | 127.0 | 0.88 | 122.6 | 0.68 | 132.8 | 1.19 | 136.7 | 2.29 | 130.5 | 1.52 |
| 45-54 years | 132.8 | 1.04 | 134.7 | 1.15 | 131.1 | 1.30 | 146.4 | 4.24 | 141.7 | 4.23 | 150.8 | 5.69 |
| 55-64 years | 141.3 | 0.78 | 139.6 | 1.08 | 143.0 | 1.00 | 149.7 | 2.97 | 144.2 | 3.57 | 153.4 | 4.44 |
| 65-74 years | 149.2 | 0.85 | 146.0 | 1.06 | 151.6 | 1.07 | 159.3 | 2.69 | 156.6 | 3.57 | 161.3 | 2.88 |
| DIASTOLIC | | | | | | | | | | | | |
| 7-11 years | 64.8 | 0.64 | 65.3 | 0.57 | 64.2 | 0.86 | 64.3 | 0.83 | 63.8 | 1.20 | 64.8 | 0.89 |
| 12-17 years | 69.7 | 0.40 | 70.4 | 0.43 | 69.0 | 0.60 | 70.2 | 0.82 | 71.1 | 0.95 | 69.3 | 1.02 |
| 18-24 years | 73.8 | 0.43 | 76.4 | 0.57 | 71.3 | 0.53 | 74.2 | 0.78 | 76.2 | 1.03 | 72.7 | 1.02 |
| 25-34 years | 77.5 | 0.35 | 80.8 | 0.57 | 74.6 | 0.31 | 81.0 | 0.86 | 84.3 | 1.60 | 78.0 | 0.95 |
| 35-44 years | 81.7 | 0.40 | 84.2 | 0.57 | 79.3 | 0.51 | 88.5 | 0.97 | 91.2 | 1.43 | 86.9 | 1.29 |
| 45-54 years | 84.9 | 0.61 | 87.5 | 0.68 | 82.6 | 0.68 | 92.7 | 1.82 | 91.9 | 2.45 | 93.5 | 2.20 |
| 55-64 years | 86.3 | 0.45 | 86.4 | 0.66 | 86.2 | 0.53 | 91.7 | 1.77 | 93.4 | 2.23 | 90.6 | 2.23 |
| 65-74 years | 85.2 | 0.55 | 84.9 | 0.61 | 85.4 | 0.64 | 90.6 | 0.96 | 90.9 | 1.20 | 90.4 | 1.31 |

Table 3. Systolic and diastolic blood pressure of persons 7-74 years by geographic region, annual family income, and sex, with means, age-adjusted means, and standard error of means: United States, 1971-74

| Blood pressure, region, and annual family income | Both sexes 7-74 years | | | Male 7-74 years | | | Female 7-74 years | | |
|---|---|---|---|---|---|---|---|---|---|
| | Mean | Age-adjusted mean | Standard error of mean | Mean | Age-adjusted mean | Standard error of mean | Mean | Age-adjusted mean | Standard error of mean |
| GEOGRAPHIC REGION | Blood pressure in mm. Hg | | | | | | | | |
| Systolic: | | | | | | | | | |
| Northeast | 123.4 | 123.1 | 0.91 | 124.0 | 124.1 | 0.81 | 122.8 | 122.0 | 1.15 |
| Midwest | 124.2 | 124.7 | 0.65 | 125.8 | 126.0 | 0.75 | 122.5 | 123.2 | 0.79 |
| South | 127.6 | 127.0 | 0.86 | 127.5 | 127.2 | 1.12 | 127.7 | 127.0 | 0.89 |
| West | 122.5 | 122.7 | 0.94 | 124.4 | 124.4 | 1.14 | 120.7 | 121.3 | 0.99 |
| Diastolic: | | | | | | | | | |
| Northeast | 77.3 | 77.2 | 0.72 | 78.3 | 78.4 | 0.62 | 76.3 | 75.9 | 0.95 |
| Midwest | 78.2 | 78.4 | 0.37 | 79.7 | 79.7 | 0.34 | 76.6 | 77.0 | 0.51 |
| South | 78.8 | 78.5 | 0.57 | 79.7 | 79.6 | 0.69 | 77.9 | 77.6 | 0.62 |
| West | 77.0 | 77.2 | 0.80 | 78.8 | 78.8 | 0.79 | 75.3 | 75.7 | 0.97 |
| ANNUAL FAMILY INCOME | | | | | | | | | |
| Systolic: | | | | | | | | | |
| Less than $5,000 | 130.4 | 126.4 | 0.74 | 128.6 | 126.6 | 1.23 | 131.6 | 126.3 | 0.82 |
| $5,000-$9,999 | 124.2 | 124.7 | 0.63 | 125.4 | 125.6 | 0.60 | 123.1 | 124.0 | 0.84 |
| $10,000 or more | 122.0 | 123.3 | 0.40 | 124.3 | 124.8 | 0.46 | 119.5 | 121.8 | 0.54 |
| Diastolic: | | | | | | | | | |
| Less than $5,000 | 79.6 | 78.5 | 0.53 | 79.6 | 79.5 | 0.77 | 79.7 | 77.9 | 0.55 |
| $5,000-$9,999 | 77.9 | 78.3 | 0.41 | 79.1 | 79.4 | 0.40 | 76.8 | 77.2 | 0.56 |
| $10,000 or more | 77.1 | 77.3 | 0.31 | 79.1 | 78.8 | 0.35 | 74.9 | 75.6 | 0.41 |

Table 4. Prevalence rates of definite hypertension among persons 18-74 years by age and sex, with standard errors, population estimates, and proportion with this condition not previously diagnosed: United States, 1971-74

| Condition and age | Both sexes | | | Men | | | Women | | |
|---|---|---|---|---|---|---|---|---|---|
| | Rate per 100 population | Standard error of rate | Population estimate in thousands | Rate per 100 population | Standard error of rate | Population estimate in thousands | Rate per 100 population | Standard error of rate | Population estimate in thousands |
| DEFINITE HYPERTENSION, TOTAL[1] | 18.1 | 0.58 | 23,171 | 19.2 | 0.77 | 11,656 | 17.1 | 0.76 | 11,515 |
| 18-24 years | 3.1 | 0.58 | 738 | 4.8 | 1.10 | 544 | 1.6 | 0.31 | 194 |
| 25-34 years | 6.6 | 0.67 | 1,777 | 9.1 | 1.34 | 1,159 | 4.4 | 0.51 | 618 |
| 35-44 years | 15.5 | 1.12 | 3,492 | 18.9 | 1.92 | 2,043 | 12.3 | 1.01 | 1,449 |
| 45-54 years | 24.2 | 1.64 | 5,702 | 26.8 | 2.12 | 3,022 | 21.9 | 1.91 | 2,680 |
| 55-64 years | 33.2 | 1.66 | 6,257 | 32.3 | 2.18 | 2,875 | 34.0 | 2.08 | 3,382 |
| 65-74 years | 40.7 | 1.60 | 5,205 | 36.6 | 1.74 | 2,014 | 43.9 | 2.03 | 3,191 |
| DEFINITE HYPERTENSION NOT PREVIOUSLY DIAGNOSED, TOTAL[2] | 54.9 | 1.29 | 12,712 | 62.9 | 1.76 | 7,333 | 46.7 | 1.67 | 5,379 |
| 18-24 years | 68.5 | 9.45 | 505 | 69.5 | 12.62 | 378 | 65.5 | 9.27 | 127 |
| 25-34 years | 65.5 | 5.24 | 1,165 | 66.9 | 7.57 | 776 | 63.0 | 5.33 | 389 |
| 35-44 years | 57.9 | 3.13 | 2,021 | 61.6 | 5.18 | 1,258 | 52.6 | 4.03 | 763 |
| 45-54 years | 60.6 | 3.22 | 3,458 | 65.1 | 3.82 | 1,967 | 55.6 | 4.42 | 1,491 |
| 55-64 years | 48.6 | 3.10 | 3,039 | 60.4 | 4.13 | 1,738 | 38.5 | 4.49 | 1,301 |
| 65-74 years | 48.5 | 1.76 | 2,525 | 60.5 | 2.24 | 1,216 | 41.0 | 2.30 | 1,308 |

[1] Systolic blood pressure of at least 160 mm. Hg or diastolic blood pressure of at least 95 mm. Hg.
[2] Proportion of persons with definite hypertension, as defined in footnote 1, who have never been told by their doctors that they had high blood pressure; standard error of proportions and population estimates.

Table 5. Prevalence rates of definite hypertension among white and Negro persons 18-74 years by age and sex, with standard errors and proportion with this condition not previously diagnosed: United States, 1971-74

| Condition and age | White | | | | | | Negro | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Both sexes | | Men | | Women | | Both sexes | | Men | | Women | |
| | Rate per 100 population | Standard error of rate | Rate per 100 population | Standard error of rate | Rate per 100 population | Standard error of rate | Rate per 100 population | Standard error of rate | Rate per 100 population | Standard error of rate | Rate per 100 population | Standard error of rate |
| DEFINITE HYPERTENSION, TOTAL[1] | 17.0 | 0.57 | 18.5 | 0.84 | 15.7 | 0.72 | 28.2 | 1.75 | 27.8 | 2.33 | 28.6 | 2.28 |
| 18-24 years | 3.1 | 0.65 | 4.9 | 1.29 | 1.4 | 0.30 | 3.7 | 1.06 | 4.6 | 1.77 | 2.9 | 1.06 |
| 25-34 years | 5.8 | 0.65 | 8.2 | 1.28 | 3.7 | 0.57 | 13.7 | 2.86 | 17.7 | 5.98 | 10.2 | 1.95 |
| 35-44 years | 13.6 | 1.09 | 17.3 | 1.97 | 10.1 | 0.94 | 32.0 | 3.85 | 38.2 | 6.55 | 28.3 | 4.71 |
| 45-54 years | 22.2 | 1.59 | 25.8 | 2.06 | 18.9 | 1.86 | 44.0 | 6.31 | 36.8 | 7.95 | 50.9 | 7.69 |
| 55-64 years | 31.4 | 1.59 | 31.1 | 2.14 | 31.7 | 2.02 | 52.6 | 5.24 | 49.9 | 7.86 | 54.5 | 7.11 |
| 65-74 years | 39.3 | 1.72 | 35.3 | 1.85 | 42.3 | 2.26 | 55.1 | 3.87 | 50.1 | 4.28 | 58.8 | 4.73 |
| DEFINITE HYPERTENSION NOT PREVIOUSLY DIAGNOSED, TOTAL[2] | 56.6 | 1.51 | 64.5 | 2.00 | 48.2 | 1.86 | 47.2 | 3.87 | 54.9 | 5.13 | 41.2 | 4.66 |
| 18-24 years | 66.9 | 10.86 | 67.0 | 13.68 | 66.4 | 12.00 | 78.1 | 8.91 | 90.4 | 16.94 | 62.6 | 18.33 |
| 25-34 years | 69.1 | 6.02 | 71.1 | 8.84 | 65.0 | 6.67 | 54.0 | 11.52 | 52.0 | 18.35 | 57.0 | 12.55 |
| 35-44 years | 63.3 | 4.02 | 66.8 | 6.48 | 57.5 | 4.57 | 39.6 | 4.94 | 38.2 | 8.82 | 40.8 | 6.79 |
| 45-54 years | 61.9 | 3.22 | 64.3 | 3.74 | 58.9 | 4.71 | 55.6 | 8.45 | 71.8 | 10.26 | 44.3 | 10.03 |
| 55-64 years | 50.4 | 3.18 | 62.1 | 4.34 | 39.9 | 4.71 | 39.2 | 7.35 | 48.9 | 12.99 | 33.0 | 8.36 |
| 65-74 years | 49.2 | 1.95 | 61.9 | 2.32 | 41.2 | 2.56 | 43.7 | 4.67 | 51.0 | 4.70 | 39.1 | 5.58 |

[1]Systolic blood pressure of at least 160 mm. Hg or diastolic blood pressure of at least 95 mm. Hg.
[2]Proportion of persons with definite hypertension, as defined in footnote 1, who have never been told by their doctors that they had high blood pressure; standard error of proportions and population estimates.

NOTE: There are an estimated 19.4 million white persons at ages 18-74 years out of 113.6 million and 3.7 million Negro persons at ages 18-74 years out of 13.0 million that have definite hypertension as defined in footnote 1.

Table 6. Responses to selected medical history items by hypertensive status for persons 18-74 years; population in thousands and percent: United States, 1971-74

| Medical history items | Definite hypertension | | Borderline hypertension | | Normotension | | At least 105 mm. Hg diastolic | |
|---|---|---|---|---|---|---|---|---|
| | Population in thousands | Percent | Population in thousands | Percent | Population in thousands | Percent | Population in thousands | Percent |
| Total 18-74 years | 23,171 | 100.0 | 23,413 | 100.0 | 81,353 | 100.0 | 6,172 | 100.0 |
| Has a Doctor Ever Told You That You Have High Blood Pressure? | | | | | | | | |
| Yes, still have it | 7,701 | 33.2 | 3,421 | 14.6 | 2,997 | 3.7 | 2,731 | 44.2 |
| Yes, not now | 1,846 | 8.0 | 1,598 | 6.8 | 2,371 | 2.9 | 444 | 7.2 |
| Yes, don't know now | 904 | 3.9 | 562 | 2.4 | 596 | 0.7 | 277 | 4.5 |
| No | 12,712 | 54.9 | 17,810 | 76.1 | 75,282 | 92.5 | 2,716 | 44.0 |
| Unknown | 7 | 0.0 | 21 | 0.1 | 107 | 0.1 | 4 | 0.1 |
| If Yes, How Many Years Ago Did You First Have It? | | | | | | | | |
| Less than 1 year | 177 | 0.8 | 65 | 0.3 | 54 | 0.1 | 97 | 1.6 |
| 1-5 years | 5,343 | 23.0 | 3,241 | 13.8 | 3,616 | 4.4 | 1,550 | 25.1 |
| 6-70 years | 4,874 | 21.0 | 2,241 | 9.6 | 2,259 | 2.8 | 1,793 | 29.0 |
| Not applicable, unknown | 12,777 | 55.1 | 17,866 | 76.3 | 75,424 | 92.7 | 2,732 | 44.3 |
| During the Past 6 Months, Have You Ever Used Any Medicine, Pills, or Drugs for High Blood Pressure? | | | | | | | | |
| Regularly | 4,893 | 21.1 | 2,084 | 8.9 | 1,670 | 2.0 | 1,471 | 23.8 |
| Occasionally | 831 | 3.6 | 309 | 1.3 | 233 | 0.3 | 307 | 5.0 |
| No | 17,421 | 75.2 | 20,992 | 89.7 | 79,338 | 97.5 | 4,390 | 71.1 |
| Unknown | 27 | 0.1 | 28 | 0.1 | 112 | 0.1 | 4 | 0.1 |

Prevalence estimates of hypertension in the civilian noninstitutionalized population 17 years of age and over in 1974, based on household interview findings from a special supplement used in the Health Interview Survey, will be reported in *Advance Data* (HRA) 77-1250, No. 2.

**SYMBOLS**

| | |
|---|---|
| Data not available | - - - |
| Category not applicable | . . . |
| Quantity zero | - |
| Quantity more than 0 but less than 0.05 | 0.0 |
| Figure does not meet standards of reliability or precision | * |

advancedata
FROM VITAL & HEALTH STATISTICS OF THE NATIONAL CENTER FOR HEALTH STATISTICS

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE | No. 2 November 8, 1976 | Public Health Service • Health Resources Administration

# HYPERTENSION: UNITED STATES, 1974[a]

During 1974 the Division of Health Interview Statistics obtained hypertension prevalence estimates for the U.S. civilian noninstitutionalized population 17 years of age and over. While hypertension data have been collected by this Division in the past, this was the first year for earmarking this condition as a supplemental topic, enabling the collection of more detailed information than had been obtained previously.

Special interest in this disease was generated in 1972 with the establishment of the National High Blood Pressure Education Program. The long-range goal of this program is to lower the morbidity and mortality associated with high blood pressure existing in this country today through improved detection and treatment of this disease. A more immediate program objective, however, is the education of both the public and the medical community about high blood pressure.

This report contains population estimates for four hypertension status categories, "ever had hypertension," "now have hypertension," "no longer have hypertension," and "never had hypertension," by seven demographic characteristics—age, sex, race, family income, education of individual, and geographic region and place of residence. Data on a limited number of supplemental items are also included. A more detailed report containing further analysis of these and other related data is being prepared.

The following criteria were used to classify persons into four hypertension status categories which were developed for the purpose of presenting the hypertension data obtained by the Division of Health Interview Statistics.

Persons comprising the category "ever had hypertension" reported that they were told by a medical doctor that they had either hypertension or high blood pressure. These persons are also classified according to their current hypertension status: (1) persons who "now have hypertension" reported that they still had hypertension (high blood pressure) at the time of the interview, that it was under control, or that they were taking medicine prescribed by a doctor for it; (2) persons who "no longer have hypertension" reported that this condition was cured and

[a]This report prepared by Abigail Moss and Geraldine Scott, Division of Health Interview Statistics.

*Advance Data from Vital and Health Statistics* replaces the supplements to the *Monthly Vital Statistics Report* as the means for early release of selected findings from the health and demographic surveys conducted by the NCHS. Most of these releases will be followed by detailed reports in the *Vital and Health Statistics* series.

Provisional vital statistics as well as advance reports of final data for a year will continue to be published in the *Monthly Vital Statistics Report.*

*Advance Data* is being distributed on the mailing keys for the *Vital and Health Statistics* series, and people who now receive reports from a particular series will also receive all *Advance Data* releases for that series. Temporarily, the mailing list for the *Monthly Vital Statistics Report (MVSR)* is also being used. *MVSR* readers who wish to continue to receive *Advance Data* issues, as well as other persons who wish to receive all issues, should contact:

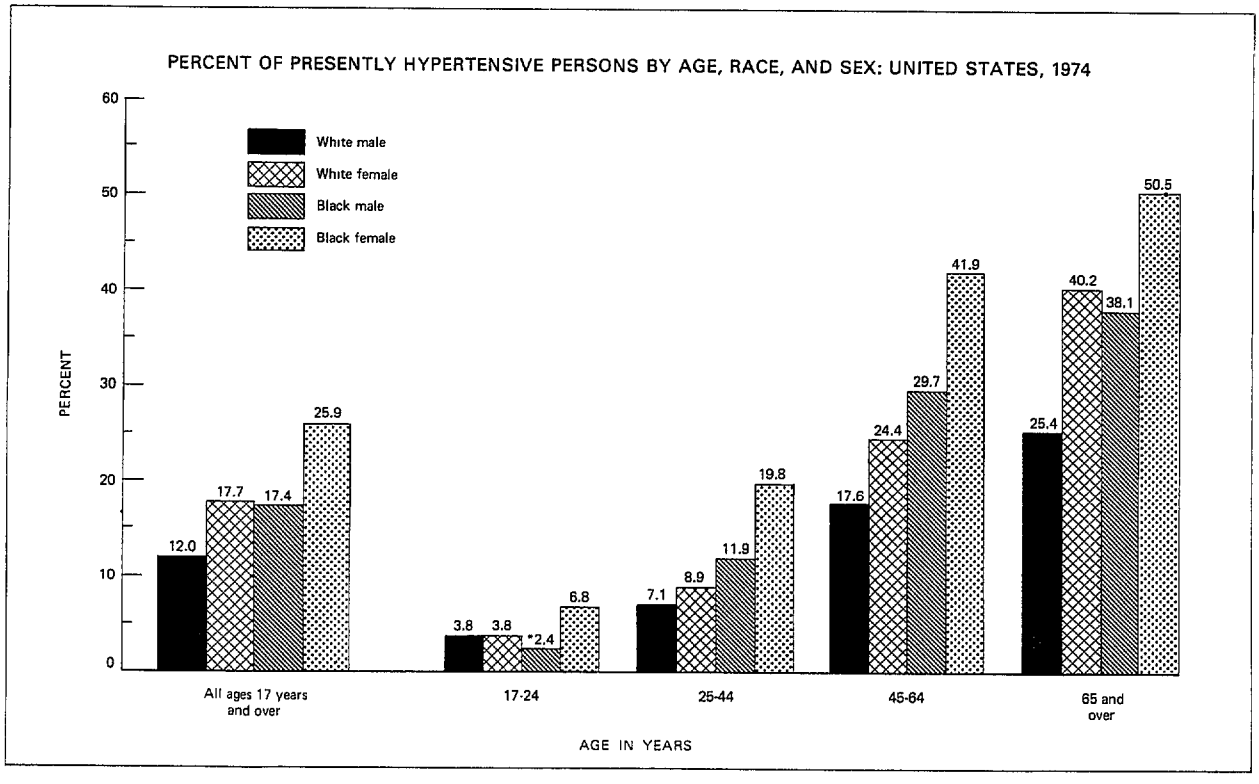
National Center for Health Statistics
Room 8-20
5600 Fishers Lane
Rockville, Maryland 20852
Phone: (301) 443-1200

that they were not presently taking medicine prescribed by a doctor for it. Note that to be classified to either category "now have hypertension" or "no longer have hypertension" a person also had to have been told at some time by a medical doctor that he had high blood pressure or hypertension. The category "never had hypertension" comprises persons who were never told by a medical doctor that they had hypertension or high blood pressure.

According to data obtained in 1974 by the Division of Health Interview Statistics, one in five persons comprising the civilian noninstitutionalized population of the United States 17 years of age and over (20.6 percent) has been told by a doctor that he has hypertension, and an estimated 22.6 million Americans at these ages (15.7 percent) still have this condition (table 1). There are marked differences in the percents of persons that now have hypertension for specific sex, age, and race groups.

Proportionately more women (18.5 percent) than men (12.5 percent) currently have hypertension. This sex difference was apparent among every age group shown in table 1 except those aged 17-24 years, where the percents of young hypertensive men and women were about the same. The likelihood of having this condition also increased with advancing age. Whereas about 4 percent of all persons aged 17-24 years now have hypertension, this proportion rose to 35 percent of all persons 65 years of age and over.

Proportionately more black persons (22.2 percent) than white (15.0 percent) currently have hypertension. This pattern was evident for each age group except those aged 17-24 years; differences between white persons and black of these ages were within sampling variation. Among all persons 17 years of age and over, white males had the lowest proportion (12.0 percent) of hypertensives, and black females had the highest proportion (25.9 percent) of hypertensives, as shown in the chart, while similar proportions with hypertension were found for white females (17.7 percent) and black males (17.4 percent). Percent differences between white females and black males with hypertension for the age groups 25-44, 45-64, and 65 years and over may be due to sampling variability.



When hypertension data are displayed by family income, education of the individual, and geographic region and place of residence the following patterns are found. As family income rose, the percent of persons with hypertension declined—from 25.7 percent of those with incomes of less than $5,000 to 11.8 percent when income reached $10,000 or more (table 2). A disproportionate number of older persons and black persons in the lower income bracket, however, account for some of this difference. For example, when these data were age-adjusted to the age distribution of the United States population 17 years and over (see Technical Notes), the percent changed as follows:

| | Percent | |
|---|---|---|
| | *Unadjusted* | *Age-adjusted* |
| Less than $5,000 . . . | 25.7 | 22.0 |
| $5,000-$9,999 . . . . | 17.2 | 17.1 |
| $10,000 or more . . . | 11.8 | 13.3 |

Likewise, as level of education increased the percent of persons with hypertension decreased. An estimated 22 percent of all persons who were not high school graduates now have hypertension compared with about 13 percent of high school graduates and about 10 percent of persons completing 1 year or more of college.

The South had the highest proportion of persons with hypertension (16.9 percent) of any geographic region in the country. A slightly greater percent of persons residing outside of standard metropolitan statistical areas (SMSA's) (16.9 percent) currently had hypertension than did those living within SMSA's (15.1 percent). Within SMSA's, the proportion of hypertensives was more than 20 percent higher among people living in the central city (16.8 percent) than those living in adjacent areas (13.8 percent).

Most health practitioners agree that all persons should have a blood pressure test periodically. Based on 1974 Health Interview Survey findings, almost two-thirds of all persons aged 17 years and over were given a test of this kind within the 12-month period preceding the interview (table 3).

The percent of persons with a 12-month blood pressure test gradually increased with each older age group, from 62.6 percent of those 17-44 years to 70.4 percent of persons 65 years and over. Proportionately more females (71.8 percent) than males (56.5 percent) had a test within the year, while about the same proportion of white persons and black were given a blood pressure test during this period. An estimated 1.4 million people 17 years of age or older (about 1 percent of the U.S. civilian noninstitutionalized adult population) reported they had never had a blood pressure test.

The percents of persons having a blood pressure test during the previous year were somewhat higher for the currently hypertensive population than for the general population. About 86 percent of the currently hypertensive population had their blood pressure taken within 12 months of the date of interview, and three out of every four persons with high blood pressure had a test as recently as within 6 months of the interview.

Proportionately more females than males now with hypertension had a blood pressure test within the past 6 months (76.3 compared with 70.4 percent) and within the past 12 months (87.8 compared with 83.5 percent). The proportion of currently hypertensive persons with a blood pressure test during the 6-month period also rose with each older age group, from 66.9 percent of those aged 17-44 years to 78.6 percent of those aged 65 years and over. However for the 12-month period preceding the interview, although proportionately more persons 45 years and over had a blood pressure test than did younger persons, the percents with a test during this period for the two age groups 45-64 and 65 years and over were about the same.

Of persons with a blood pressure test within the year, the proportion having multiple tests during this period rose as age increased—from 58.2 percent of persons 17-44 years to 73.6 percent of those 65 years or older. The percent with two tests or more was higher for females (65.7 percent) than it was for males (56.9 percent), and it was higher for black persons (67.3 percent) than it was for white persons (61.5 percent). Proportionately more persons now having hypertension had multiple blood pressure tests during the year than did the total U.S. civilian noninstitutionalized population (81.4 percent compared with 62.1 percent).

Persons whose blood pressure was taken in the past year are classified according to the last test result (table 4). Of the total United States

civilian noninstitutionalized population 17 years of age and over with blood pressure taken in the past year, a little more than half (53.1 percent) were told their last blood pressure reading was normal. Males had a higher percent of normal readings than did females (57.3 percent compared with 50.2 percent). About the same percent of males and females had a blood pressure reading that was high (7.1 and 7.8 percent, respectively), while females had almost twice as high a percentile of blood pressure results that were low as did males (4.8 compared with 2.6 percent).

By race, proportionately more black persons (10.7 percent) than white (7.1 percent) 17 years and over had a blood pressure reading that was high.

About the same proportion of white persons (4.0 percent) and black (3.2 percent) had a blood pressure reading that was low. Overall, the proportion of persons having a blood pressure reading that was high was much greater among persons now having hypertension (29.7 percent) than among the total United States adult population (7.5 percent).

Data on doctor visits and bed days for hypertension which occurred during the 12-month period preceding the interview are presented in table 5. About three-fourths of the currently hypertensive population saw a doctor for this condition at least once during the year, while 26.9 percent reported five doctor visits or more. The percent of currently hypertensive persons with one doctor visit or more of this kind increased somewhat for two broad age groups—from about 62 percent of persons aged 17-44 years to about 77 percent of all persons aged 45 years and over. Over one-third of all persons comprising the oldest age category had five doctor visits or more for hypertension within this period compared with only about 9 percent of persons 17-24 years of age.

The percent of persons reporting one doctor visit or more for hypertension was higher for presently hypertensive females (76.4 percent) than it was for males (68.7 percent). Differences in the percents of white and black persons now with hypertension having one doctor visit or more during the year, however, were within sampling variation.

Only a small proportion of persons now with hypertension (8.3 percent) had to stay in bed all or most of the day for 1 day or more during the year because of this condition. Furthermore, the number of days spent in bed for this condition in the 12-month period totaled less than 1 week for more than one-half of those persons reporting any bed days because of their high blood pressure.

The percent of currently hypertensive women with bed days for this condition was slightly higher than was the percent of men with bed days (9.6 compared with 6.3 percent). And proportionately more hypertensive black individuals (18.9 percent) reported 1 bed day or more for this condition than did the white population (6.5 percent).

Data on interval since last doctor visit (for any reason) are included in table 6. Highlighted below are some of the differences noted in this table among certain population groups.

Proportionately more persons now with hypertension than persons comprising the general population had a doctor visit within the past 6 months (79.2 compared with 61.4 percent) and within the past 12 months (89.5 compared with 77.1 percent).

Currently hypertensive females were somewhat more likely to have had a recent doctor visit than were hypertensive males; within 6 months, 81.5 percent and 75.3 percent, respectively, and within the year, 91.7 percent and 85.9 percent, respectively.

In general, as age increased, the proportion of currently hypertensive persons that saw a doctor within 6 months and 12 months prior to the interview also rose. Whereas about 74 percent of hypertensive persons aged 17-44 years saw a doctor within 6 months, about 82 percent of those 65 years or older had a visit within this period. Similarly, 87.7 percent of the hypertensive population aged 17-44 visited a doctor during the year compared with 90.7 percent of persons comprising the age group 65 years and over.

No racial differences were found between the proportion of white persons and black with hypertension that saw a doctor either within 6 or 12 months of the date of interview.

Table 1. Number and percent distribution of persons 17 years of age and over by hypertension status, according to race, sex, and age; based on data collected in health interviews: United States, 1974

| Race, sex, and age | All persons 17 years and over | Hypertension status | | | | | All persons 17 years and over | Hypertension status | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total ever with hypertension[1] | Now has hypertension | | Never had hypertension | Unknown | | Total ever with hypertension[1] | Now has hypertension | | Never had hypertension | Unknown |
| | | | Yes | No | | | | | Yes | No | | |
| ALL RACES[2] | Number in thousands | | | | | | Percent distribution | | | | | |
| Both sexes | | | | | | | | | | | | |
| All ages 17 years and over | 144,380 | 29,789 | 22,626 | 5,345 | 105,004 | 9,587 | 100.0 | 20.6 | 15.7 | 3.7 | 72.7 | 6.6 |
| 17-24 years | 29,562 | 2,069 | 1,147 | 675 | 24,966 | 2,527 | 100.0 | 7.0 | 3.9 | 2.3 | 84.5 | 8.5 |
| 25-44 years | 51,216 | 7,235 | 4,560 | 2,129 | 40,590 | 3,391 | 100.0 | 14.1 | 8.9 | 4.2 | 79.3 | 6.6 |
| 45-64 years | 42,862 | 11,960 | 9,652 | 1,657 | 27,977 | 2,926 | 100.0 | 27.9 | 22.5 | 3.9 | 65.3 | 6.8 |
| 65 years and over | 20,740 | 8,525 | 7,267 | 884 | 11,471 | 744 | 100.0 | 41.1 | 35.0 | 4.3 | 55.3 | 3.6 |
| Male | | | | | | | | | | | | |
| All ages 17 years and over | 67,947 | 11,562 | 8,479 | 2,156 | 49,784 | 6,601 | 100.0 | 17.0 | 12.5 | 3.2 | 73.3 | 9.7 |
| 17-24 years | 14,252 | 837 | 507 | 205 | 11,744 | 1,672 | 100.0 | 5.9 | 3.6 | 1.4 | 82.4 | 11.7 |
| 25-44 years | 24,696 | 2,989 | 1,869 | 837 | 19,135 | 2,574 | 100.0 | 12.1 | 7.6 | 3.4 | 77.5 | 10.4 |
| 45-64 years | 20,419 | 4,953 | 3,829 | 774 | 13,468 | 1,998 | 100.0 | 24.3 | 18.8 | 3.8 | 66.0 | 9.8 |
| 65 years and over | 8,578 | 2,784 | 2,273 | 339 | 5,437 | 357 | 100.0 | 32.5 | 26.5 | 4.0 | 63.4 | 4.2 |
| Female | | | | | | | | | | | | |
| All ages 17 years and over | 76,433 | 18,228 | 14,147 | 3,189 | 55,220 | 2,986 | 100.0 | 23.8 | 18.5 | 4.2 | 72.2 | 3.9 |
| 17-24 years | 15,310 | 1,232 | 640 | 470 | 13,223 | 855 | 100.0 | 8.0 | 4.2 | 3.1 | 86.4 | 5.6 |
| 25-44 years | 26,518 | 4,247 | 2,691 | 1,291 | 21,455 | 816 | 100.0 | 16.0 | 10.1 | 4.9 | 80.9 | 3.1 |
| 45-64 years | 22,443 | 7,007 | 5,823 | 884 | 14,509 | 927 | 100.0 | 31.2 | 25.9 | 3.9 | 64.6 | 4.1 |
| 65 years and over | 12,163 | 5,742 | 4,993 | 545 | 6,033 | 388 | 100.0 | 47.2 | 41.1 | 4.5 | 49.6 | 3.2 |
| WHITE | | | | | | | | | | | | |
| Both sexes | | | | | | | | | | | | |
| All ages 17 years and over | 127,787 | 25,598 | 19,143 | 4,871 | 93,930 | 8,259 | 100.0 | 20.0 | 15.0 | 3.8 | 73.5 | 6.5 |
| 17-24 years | 25,464 | 1,789 | 959 | 611 | 21,557 | 2,117 | 100.0 | 7.0 | 3.8 | 2.4 | 84.7 | 8.3 |
| 25-44 years | 44,934 | 6,037 | 3,614 | 1,936 | 36,024 | 2,873 | 100.0 | 13.4 | 8.0 | 4.3 | 80.2 | 6.4 |
| 45-64 years | 38,514 | 10,194 | 8,132 | 1,501 | 25,708 | 2,612 | 100.0 | 26.5 | 21.1 | 3.9 | 66.7 | 6.8 |
| 65 years and over | 18,875 | 7,578 | 6,438 | 822 | 10,640 | 657 | 100.0 | 40.1 | 34.1 | 4.4 | 56.4 | 3.5 |
| Male | | | | | | | | | | | | |
| All ages 17 years and over | 60,482 | 10,063 | 7,244 | 1,990 | 44,707 | 5,712 | 100.0 | 16.6 | 12.0 | 3.3 | 73.9 | 9.4 |
| 17-24 years | 12,375 | 761 | 468 | 191 | 10,218 | 1,397 | 100.0 | 6.1 | 3.8 | 1.5 | 82.6 | 11.3 |
| 25-44 years | 21,922 | 2,617 | 1,564 | 790 | 17,092 | 2,213 | 100.0 | 11.9 | 7.1 | 3.6 | 78.0 | 10.1 |
| 45-64 years | 18,414 | 4,252 | 3,236 | 688 | 12,377 | 1,784 | 100.0 | 23.1 | 17.6 | 3.7 | 67.2 | 9.7 |
| 65 years and over | 7,771 | 2,433 | 1,976 | 321 | 5,019 | 319 | 100.0 | 31.3 | 25.4 | 4.1 | 64.6 | 4.1 |
| Female | | | | | | | | | | | | |
| All ages 17 years and over | 67,305 | 15,535 | 11,898 | 2,881 | 49,223 | 2,547 | 100.0 | 23.1 | 17.7 | 4.3 | 73.1 | 3.8 |
| 17-24 years | 13,088 | 1,029 | 491 | 420 | 11,339 | 721 | 100.0 | 7.9 | 3.8 | 3.2 | 86.6 | 5.5 |
| 25-44 years | 23,012 | 3,421 | 2,050 | 1,147 | 18,932 | 660 | 100.0 | 14.9 | 8.9 | 5.0 | 82.3 | 2.9 |
| 45-64 years | 20,100 | 5,941 | 4,896 | 813 | 13,331 | 828 | 100.0 | 29.6 | 24.4 | 4.0 | 66.3 | 4.1 |
| 65 years and over | 11,104 | 5,145 | 4,461 | 501 | 5,621 | 338 | 100.0 | 46.3 | 40.2 | 4.5 | 50.6 | 3.0 |
| BLACK | | | | | | | | | | | | |
| Both sexes | | | | | | | | | | | | |
| All ages 17 years and over | 14,865 | 3,943 | 3,294 | 439 | 9,725 | 1,197 | 100.0 | 26.5 | 22.2 | 3.0 | 65.4 | 8.1 |
| 17-24 years | 3,725 | 270 | 179 | *64 | 3,084 | 372 | 100.0 | 7.2 | 4.8 | *1.7 | 82.8 | 10.0 |
| 25-44 years | 5,415 | 1,114 | 887 | 176 | 3,847 | 454 | 100.0 | 20.6 | 16.4 | 3.3 | 71.0 | 8.4 |
| 45-64 years | 3,982 | 1,668 | 1,441 | 137 | 2,016 | 299 | 100.0 | 41.9 | 36.2 | 3.4 | 50.6 | 7.5 |
| 65 years and over | 1,743 | 890 | 787 | *62 | 779 | 74 | 100.0 | 51.1 | 45.2 | *3.6 | 44.7 | 4.2 |
| Male | | | | | | | | | | | | |
| All ages 17 years and over | 6,614 | 1,377 | 1,154 | 148 | 4,423 | 814 | 100.0 | 20.8 | 17.4 | 2.2 | 66.9 | 12.3 |
| 17-24 years | 1,668 | 76 | *40 | *14 | 1,341 | 251 | 100.0 | 4.6 | *2.4 | *0.8 | 80.4 | 15.0 |
| 25-44 years | 2,343 | 327 | 279 | *37 | 1,687 | 329 | 100.0 | 14.0 | 11.9 | *1.6 | 72.0 | 14.0 |
| 45-64 years | 1,853 | 650 | 550 | 79 | 1,004 | 199 | 100.0 | 35.1 | 29.7 | 4.3 | 54.2 | 10.7 |
| 65 years and over | 749 | 324 | 285 | *19 | 391 | *35 | 100.0 | 43.3 | 38.1 | *2.5 | 52.2 | *4.7 |
| Female | | | | | | | | | | | | |
| All ages 17 years and over | 8,252 | 2,566 | 2,140 | 290 | 5,302 | 384 | 100.0 | 31.1 | 25.9 | 3.5 | 64.3 | 4.7 |
| 17-24 years | 2,057 | 194 | 140 | *49 | 1,742 | 120 | 100.0 | 9.4 | 6.8 | *2.4 | 84.7 | 5.8 |
| 25-44 years | 3,072 | 787 | 607 | 139 | 2,160 | 125 | 100.0 | 25.6 | 19.8 | 4.5 | 70.3 | 4.1 |
| 45-64 years | 2,129 | 1,018 | 891 | *59 | 1,012 | 100 | 100.0 | 47.8 | 41.9 | *2.8 | 47.5 | 4.7 |
| 65 years and over | 994 | 567 | 502 | *44 | 388 | *39 | 100.0 | 57.0 | 50.5 | *4.4 | 39.0 | *3.9 |

[1]Includes unknown present hypertension status.

[2]Includes other races.

Table 2. Number and percent distribution of persons 17 years of age and over by hypertension status, according to selected characteristics; based on data collected in health interviews: United States, 1974

| Characteristic | All persons 17 years and over | Hypertension status | | | | | All persons 17 years and over | Hypertension status | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total ever with hypertension[1] | Now has hypertension | | Never had hypertension | Unknown | | Total ever with hypertension[1] | Now has hypertension | | Never had hypertension | Unknown |
| | | | Yes | No | | | | | Yes | No | | |
| | Number in thousands | | | | | | Percent distribution | | | | | |
| All persons 17 years and over[2] | 144,380 | 29,789 | 22,626 | 5,345 | 105,004 | 9,587 | 100.0 | 20.6 | 15.7 | 3.7 | 72.7 | 6.6 |
| FAMILY INCOME | | | | | | | | | | | | |
| Less than $5,000 | 24,753 | 7,665 | 6,350 | 913 | 16,140 | 948 | 100.0 | 31.0 | 25.7 | 3.7 | 65.2 | 3.8 |
| $5,000-$9,999 | 32,881 | 7,228 | 5,655 | 1,219 | 23,945 | 1,708 | 100.0 | 22.0 | 17.2 | 3.7 | 72.8 | 5.2 |
| $10,000-$14,999 | 33,881 | 5,542 | 3,923 | 1,174 | 26,084 | 2,255 | 100.0 | 16.4 | 11.6 | 3.5 | 77.0 | 6.7 |
| $15,000 or more | 43,629 | 7,442 | 5,214 | 1,759 | 32,926 | 3,261 | 100.0 | 17.1 | 12.0 | 4.0 | 75.5 | 7.5 |
| EDUCATION OF INDIVIDUAL | | | | | | | | | | | | |
| Less than 9 years | 27,132 | 8,871 | 7,402 | 993 | 17,015 | 1,246 | 100.0 | 32.7 | 27.3 | 3.7 | 62.7 | 4.6 |
| 9-11 years | 27,184 | 5,815 | 4,443 | 965 | 19,435 | 1,935 | 100.0 | 21.4 | 16.3 | 3.5 | 71.5 | 7.1 |
| 12 years | 50,548 | 8,979 | 6,632 | 1,888 | 38,341 | 3,228 | 100.0 | 17.8 | 13.1 | 3.7 | 75.9 | 6.4 |
| 13 years or more | 37,512 | 5,791 | 3,866 | 1,470 | 29,083 | 2,638 | 100.0 | 15.4 | 10.3 | 3.9 | 77.5 | 7.0 |
| GEOGRAPHIC REGION | | | | | | | | | | | | |
| Northeast | 34,985 | 7,228 | 5,469 | 1,321 | 25,110 | 2,646 | 100.0 | 20.7 | 15.6 | 3.8 | 71.8 | 7.6 |
| North Central | 38,430 | 7,737 | 5,749 | 1,489 | 28,081 | 2,612 | 100.0 | 20.1 | 15.0 | 3.9 | 73.1 | 6.8 |
| South | 45,121 | 9,824 | 7,646 | 1,556 | 32,448 | 2,848 | 100.0 | 21.8 | 16.9 | 3.4 | 71.9 | 6.3 |
| West | 25,845 | 5,000 | 3,761 | 980 | 19,364 | 1,480 | 100.0 | 19.3 | 14.6 | 3.8 | 74.9 | 5.7 |
| PLACE OF RESIDENCE | | | | | | | | | | | | |
| SMSA | 99,807 | 19,966 | 15,092 | 3,566 | 72,956 | 6,885 | 100.0 | 20.0 | 15.1 | 3.6 | 73.1 | 6.9 |
| Central city | 44,504 | 9,541 | 7,471 | 1,469 | 32,001 | 2,962 | 100.0 | 21.4 | 16.8 | 3.3 | 71.9 | 6.7 |
| Outside central city | 55,304 | 10,425 | 7,621 | 2,097 | 40,955 | 3,923 | 100.0 | 18.9 | 13.8 | 3.8 | 74.1 | 7.1 |
| Outside SMSA | 44,573 | 9,824 | 7,534 | 1,779 | 32,048 | 2,702 | 100.0 | 22.0 | 16.9 | 4.0 | 71.9 | 6.1 |
| Nonfarm | 39,370 | 8,729 | 6,671 | 1,597 | 28,182 | 2,460 | 100.0 | 22.2 | 16.9 | 4.1 | 71.6 | 6.2 |
| Farm | 5,203 | 1,095 | 863 | 181 | 3,866 | 242 | 100.0 | 21.0 | 16.6 | 3.5 | 74.3 | 4.7 |

[1] Includes unknown present hypertension status.
[2] Includes unknown income and education.

## SYMBOLS

| | |
|---|---|
| Data not available | - - - |
| Category not applicable | . . . |
| Quantity zero | - |
| Quantity more than 0 but less than 0.05 | 0.0 |
| Figure does not meet standards of reliability or precision (more than 30 percent relative standard error) | * |

Table 3. Number of persons 17 years of age and over and percent distribution by interval since last blood pressure test, and number of persons with blood pressure taken during year and percent distribution by times blood pressure taken, according to hypertension status, age, sex, and race; based on data collected in health interviews: United States, 1974

| Hypertension status, age sex, and race | All persons 17 years and over in thousands | Interval since last blood pressure test | | | | | Persons with blood pressure taken in past year in thousands | Times blood pressure taken in past year | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total[1] | Less than 6 months | 6-11 months | 1 year | 2 years or more | | Total[2] | 1 time | 2-4 times | 5-9 times | 10 times or more |
| ALL STATUSES[3] | | Percent distribution | | | | | | Percent distribution | | | | |
| All persons 17 years and over[4] | 144,380 | 100.0 | 47.1 | 17.6 | 11.8 | 15.8 | 133,599 | 100.0 | 33.9 | 39.0 | 11.7 | 11.4 |
| Age: | | | | | | | | | | | | |
| 17-44 years | 80,778 | 100.0 | 43.4 | 19.2 | 12.9 | 15.5 | 73,795 | 100.0 | 38.1 | 39.6 | 9.8 | 8.8 |
| 45-64 years | 42,862 | 100.0 | 48.6 | 17.1 | 11.1 | 15.8 | 39,859 | 100.0 | 32.7 | 38.4 | 12.4 | 12.3 |
| 65 years and over | 20,740 | 100.0 | 58.4 | 12.1 | 8.8 | 16.5 | 19,945 | 100.0 | 21.5 | 38.1 | 16.6 | 18.8 |
| Sex: | | | | | | | | | | | | |
| Male | 67,947 | 100.0 | 39.8 | 16.7 | 12.5 | 19.9 | 60,729 | 100.0 | 38.8 | 39.8 | 8.7 | 8.4 |
| Female | 76,433 | 100.0 | 53.6 | 18.3 | 11.1 | 12.1 | 72,870 | 100.0 | 30.4 | 38.4 | 13.7 | 13.5 |
| Race: | | | | | | | | | | | | |
| White | 127,787 | 100.0 | 46.7 | 17.8 | 11.9 | 16.1 | 118,625 | 100.0 | 34.5 | 39.0 | 11.5 | 11.0 |
| Male | 60,482 | 100.0 | 39.8 | 16.8 | 12.7 | 20.1 | 54,300 | 100.0 | 38.6 | 40.1 | 8.7 | 8.1 |
| Female | 67,305 | 100.0 | 52.8 | 18.7 | 11.3 | 12.4 | 64,324 | 100.0 | 31.5 | 38.3 | 13.5 | 13.1 |
| Black | 14,865 | 100.0 | 51.2 | 15.3 | 10.7 | 12.4 | 13,418 | 100.0 | 28.4 | 38.9 | 13.6 | 14.9 |
| Male | 6,614 | 100.0 | 40.3 | 16.1 | 12.3 | 16.0 | 5,671 | 100.0 | 39.3 | 38.3 | 9.5 | 10.1 |
| Female | 8,252 | 100.0 | 60.0 | 14.6 | 9.4 | 9.5 | 7,747 | 100.0 | 21.8 | 39.2 | 16.1 | 17.8 |
| EVER HAD HYPERTENSION[5] | | | | | | | | | | | | |
| All persons 17 years and over[4] | 29,789 | 100.0 | 68.3 | 14.3 | 7.7 | 8.2 | 29,401 | 100.0 | 19.0 | 38.0 | 18.9 | 20.3 |
| Age: | | | | | | | | | | | | |
| 17-44 years | 9,304 | 100.0 | 60.9 | 17.7 | 10.7 | 9.4 | 9,182 | 100.0 | 25.7 | 39.4 | 15.2 | 16.1 |
| 45-64 years | 11,960 | 100.0 | 69.6 | 14.5 | 6.9 | 7.4 | 11,787 | 100.0 | 18.0 | 37.7 | 20.0 | 20.4 |
| 65 years and over | 8,525 | 100.0 | 74.6 | 10.3 | 5.7 | 8.1 | 8,432 | 100.0 | 13.8 | 36.9 | 21.1 | 24.3 |
| Sex: | | | | | | | | | | | | |
| Male | 11,562 | 100.0 | 63.8 | 15.5 | 9.2 | 10.5 | 11,462 | 100.0 | 22.1 | 40.4 | 15.5 | 17.9 |
| Female | 18,228 | 100.0 | 71.1 | 13.6 | 6.8 | 6.8 | 17,939 | 100.0 | 17.2 | 36.6 | 20.9 | 21.7 |
| Race: | | | | | | | | | | | | |
| White | 25,598 | 100.0 | 68.3 | 14.6 | 7.8 | 7.9 | 25,286 | 100.0 | 19.6 | 38.0 | 19.1 | 19.5 |
| Male | 10,063 | 100.0 | 63.9 | 15.6 | 9.3 | 10.3 | 9,987 | 100.0 | 22.1 | 40.6 | 15.7 | 17.4 |
| Female | 15,535 | 100.0 | 71.2 | 14.0 | 6.8 | 6.4 | 15,299 | 100.0 | 18.1 | 36.5 | 21.1 | 20.8 |
| Black | 3,943 | 100.0 | 68.4 | 11.5 | 7.8 | 10.4 | 3,875 | 100.0 | 15.2 | 37.8 | 18.0 | 25.1 |
| Male | 1,377 | 100.0 | 63.3 | 13.9 | 9.7 | 12.2 | 1,362 | 100.0 | 22.2 | 40.0 | 13.9 | 21.5 |
| Female | 2,566 | 100.0 | 71.1 | 10.2 | 6.9 | 9.5 | 2,513 | 100.0 | 11.6 | 36.7 | 20.1 | 27.0 |
| NOW HAVE HYPERTENSION | | | | | | | | | | | | |
| All persons 17 years and over[4] | 22,626 | 100.0 | 74.1 | 12.1 | 6.5 | 6.1 | 22,352 | 100.0 | 15.0 | 38.3 | 20.7 | 22.4 |
| Age: | | | | | | | | | | | | |
| 17-44 years | 5,708 | 100.0 | 66.9 | 14.3 | 9.0 | 8.5 | 5,636 | 100.0 | 20.2 | 40.6 | 16.9 | 18.9 |
| 45-64 years | 9,652 | 100.0 | 74.9 | 12.3 | 6.2 | 5.1 | 9,513 | 100.0 | 14.0 | 38.0 | 22.0 | 22.4 |
| 65 years and over | 7,267 | 100.0 | 78.6 | 10.0 | 4.9 | 5.5 | 7,203 | 100.0 | 12.5 | 37.0 | 21.8 | 25.0 |
| Sex: | | | | | | | | | | | | |
| Male | 8,479 | 100.0 | 70.4 | 13.0 | 7.9 | 7.7 | 8,401 | 100.0 | 16.7 | 41.0 | 17.5 | 20.8 |
| Female | 14,147 | 100.0 | 76.3 | 11.5 | 5.7 | 5.1 | 13,951 | 100.0 | 14.0 | 36.7 | 22.6 | 23.4 |
| Race: | | | | | | | | | | | | |
| White | 19,143 | 100.0 | 74.3 | 12.3 | 6.5 | 5.6 | 18,912 | 100.0 | 15.3 | 38.3 | 21.0 | 21.7 |
| Male | 7,244 | 100.0 | 70.4 | 13.1 | 8.1 | 7.3 | 7,174 | 100.0 | 16.6 | 41.0 | 17.7 | 20.2 |
| Female | 11,898 | 100.0 | 76.7 | 11.8 | 5.5 | 4.6 | 11,738 | 100.0 | 14.5 | 36.8 | 23.0 | 22.5 |
| Black | 3,294 | 100.0 | 72.8 | 10.6 | 6.7 | 8.6 | 3,250 | 100.0 | 13.1 | 37.9 | 18.9 | 26.7 |
| Male | 1,154 | 100.0 | 70.0 | 12.6 | 6.6 | 10.1 | 1,146 | 100.0 | 17.7 | 42.2 | 15.5 | 23.2 |
| Female | 2,140 | 100.0 | 74.3 | 9.5 | 6.7 | 7.8 | 2,104 | 100.0 | 10.6 | 35.6 | 20.7 | 28.6 |
| NEVER HAD HYPERTENSION | | | | | | | | | | | | |
| All persons 17 years and over[4] | 105,004 | 100.0 | 44.5 | 19.8 | 13.8 | 19.0 | 102,458 | 100.0 | 39.3 | 39.4 | 9.1 | 8.2 |
| Age: | | | | | | | | | | | | |
| 17-44 years | 65,556 | 100.0 | 44.2 | 20.9 | 14.2 | 17.5 | 63,713 | 100.0 | 40.2 | 39.7 | 8.9 | 7.6 |
| 45-64 years | 27,977 | 100.0 | 43.7 | 19.7 | 13.8 | 20.6 | 27,519 | 100.0 | 41.2 | 38.8 | 8.1 | 7.6 |
| 65 years and over | 11,471 | 100.0 | 48.4 | 14.0 | 11.5 | 23.4 | 11,226 | 100.0 | 29.4 | 39.7 | 12.2 | 13.3 |
| Sex: | | | | | | | | | | | | |
| Male | 49,784 | 100.0 | 38.8 | 19.0 | 14.8 | 24.3 | 48,496 | 100.0 | 44.1 | 39.6 | 6.6 | 5.4 |
| Female | 55,220 | 100.0 | 49.7 | 20.5 | 12.9 | 14.2 | 53,962 | 100.0 | 35.8 | 39.3 | 10.9 | 10.2 |
| Race: | | | | | | | | | | | | |
| White | 93,930 | 100.0 | 44.0 | 20.0 | 14.0 | 19.4 | 91,844 | 100.0 | 39.8 | 39.4 | 8.8 | 8.0 |
| Male | 44,707 | 100.0 | 38.8 | 19.0 | 14.9 | 24.6 | 43,668 | 100.0 | 43.7 | 40.0 | 6.5 | 5.3 |
| Female | 49,223 | 100.0 | 48.8 | 20.9 | 13.1 | 14.7 | 48,175 | 100.0 | 36.8 | 39.0 | 10.5 | 10.0 |
| Black | 9,725 | 100.0 | 49.6 | 18.3 | 12.7 | 14.2 | 9,315 | 100.0 | 34.7 | 39.5 | 11.5 | 10.2 |
| Male | 4,423 | 100.0 | 39.5 | 19.2 | 15.4 | 19.4 | 4,199 | 100.0 | 46.4 | 37.3 | 8.0 | 5.7 |
| Female | 5,302 | 100.0 | 58.1 | 17.6 | 10.5 | 10.0 | 5,116 | 100.0 | 27.1 | 41.0 | 13.7 | 13.1 |

[1] Includes never and unknown intervals.
[2] Includes unknown times.
[3] Includes unknown hypertension status.
[4] Includes persons of other races.
[5] Includes now have hypertension, no longer have hypertension, and unknown if now have hypertension.

Table 4. Number of persons 17 years of age and over with blood pressure taken in past year and percent distribution by last test results, according to hypertension status, sex, and race; based on data collected in health interviews: United States, 1974

| Hypertension status, sex, and race | Persons with blood pressure taken in past year in thousands | Told blood pressure was— | | | | | Not told |
|---|---|---|---|---|---|---|---|
| | | Total[1] | Normal | High | Low | Other | |
| | | Percent distribution | | | | | |
| ALL STATUSES[2] | | | | | | | |
| All persons 17 years and over[3] | 93,342 | 100.0 | 53.1 | 7.5 | 3.9 | 3.2 | 30.9 |
| Sex: | | | | | | | |
| Male | 38,425 | 100.0 | 57.3 | 7.1 | 2.6 | 3.3 | 28.3 |
| Female | 54,917 | 100.0 | 50.2 | 7.8 | 4.8 | 3.2 | 32.8 |
| Race: | | | | | | | |
| White | 82,423 | 100.0 | 53.1 | 7.1 | 4.0 | 3.4 | 31.1 |
| Male | 34,265 | 100.0 | 57.4 | 6.9 | 2.8 | 3.4 | 28.1 |
| Female | 48,157 | 100.0 | 50.0 | 7.3 | 4.9 | 3.4 | 33.2 |
| Black | 9,892 | 100.0 | 53.5 | 10.7 | 3.2 | 2.0 | 29.3 |
| Male | 3,731 | 100.0 | 56.7 | 9.7 | *1.1 | 2.3 | 29.4 |
| Female | 6,161 | 100.0 | 51.6 | 11.2 | 4.5 | 1.8 | 29.2 |
| EVER HAD HYPERTENSION[4] | | | | | | | |
| All persons 17 years and over[3] | 24,606 | 100.0 | 45.5 | 25.3 | 1.3 | 6.1 | 20.4 |
| Sex: | | | | | | | |
| Male | 9,167 | 100.0 | 48.6 | 25.4 | 1.4 | 6.2 | 16.9 |
| Female | 15,439 | 100.0 | 43.7 | 25.3 | 1.3 | 6.0 | 22.5 |
| Race: | | | | | | | |
| White | 21,235 | 100.0 | 45.9 | 24.6 | 1.4 | 6.4 | 20.3 |
| Male | 7,998 | 100.0 | 48.7 | 24.8 | 1.6 | 6.4 | 16.6 |
| Female | 13,237 | 100.0 | 44.1 | 24.4 | 1.3 | 6.5 | 22.6 |
| Black | 3,150 | 100.0 | 43.0 | 30.9 | *0.5 | 3.3 | 21.1 |
| Male | 1,062 | 100.0 | 45.9 | 30.7 | - | *4.1 | 19.3 |
| Female | 2,088 | 100.0 | 41.6 | 30.9 | *0.8 | *2.8 | 22.0 |
| NOW HAVE HYPERTENSION | | | | | | | |
| All persons 17 years and over[3] | 19,499 | 100.0 | 40.9 | 29.7 | 1.2 | 6.8 | 19.8 |
| Sex: | | | | | | | |
| Male | 7,078 | 100.0 | 44.1 | 29.9 | 1.6 | 6.9 | 15.9 |
| Female | 12,421 | 100.0 | 39.2 | 29.6 | 1.0 | 6.8 | 22.0 |
| Race: | | | | | | | |
| White | 16,582 | 100.0 | 41.0 | 28.9 | 1.3 | 7.4 | 19.8 |
| Male | 6,049 | 100.0 | 43.7 | 29.4 | 1.9 | 7.4 | 15.6 |
| Female | 10,532 | 100.0 | 39.5 | 28.7 | 0.9 | 7.3 | 22.2 |
| Black | 2,746 | 100.0 | 40.7 | 34.3 | *0.6 | 3.5 | 19.5 |
| Male | 953 | 100.0 | 45.8 | 32.9 | - | *3.8 | 17.5 |
| Female | 1,793 | 100.0 | 38.0 | 35.1 | *0.9 | *3.3 | 20.6 |
| NEVER HAD HYPERTENSION | | | | | | | |
| All persons 17 years and over[3] | 67,538 | 100.0 | 55.9 | 1.0 | 4.9 | 2.2 | 34.7 |
| Sex: | | | | | | | |
| Male | 28,753 | 100.0 | 60.2 | 1.2 | 3.1 | 2.4 | 32.0 |
| Female | 38,785 | 100.0 | 52.8 | .8 | 6.3 | 2.1 | 36.8 |
| Race: | | | | | | | |
| White | 60,129 | 100.0 | 55.7 | 1.0 | 5.0 | 2.3 | 34.9 |
| Male | 25,841 | 100.0 | 60.1 | 1.3 | 3.2 | 2.5 | 31.7 |
| Female | 34,288 | 100.0 | 52.3 | .8 | 6.3 | 2.2 | 37.3 |
| Black | 6,609 | 100.0 | 58.7 | 1.0 | 4.6 | 1.3 | 33.1 |
| Male | 2,597 | 100.0 | 61.4 | *1.1 | *1.6 | *1.4 | 33.8 |
| Female | 4,012 | 100.0 | 57.0 | *1.0 | 6.6 | *1.2 | 32.7 |

[1]Includes unknown status of blood pressure reading.
[2]Includes unknown hypertension status.
[3]Includes persons of other races.
[4]Includes now have hypertension, no longer have hypertension, and unknown if now have hypertension.

Table 5. Number of hypertensive persons 17 years of age and over and percent distribution by number of doctor visits and bed days for hypertension in past year, according to hypertension status, age, sex, and race; based on data collected in health interviews: United States, 1974

| Hypertension status, age, sex, and race | All persons 17 years and over in thousands | Number of doctor visits for hypertension in past year | | | | | Number of bed days for hypertension in past year | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total[1] | None | 1 | 2-4 | 5 or more | Total[2] | None | Less than 1 week | 1 week or more |
| EVER HAD HYPERTENSION[3] | | Percent distribution | | | | | Percent distribution | | | |
| All persons 17 years and over[4] | 29,789 | 100.0 | 34.9 | 16.6 | 25.1 | 21.9 | 100.0 | 92.8 | 3.8 | 2.9 |
| Age: | | | | | | | | | | |
| 17-24 years | 2,069 | 100.0 | 48.4 | 23.9 | 18.7 | 7.3 | 100.0 | 92.2 | *4.2 | *2.2 |
| 25-44 years | 7,235 | 100.0 | 48.8 | 19.2 | 18.2 | 12.7 | 100.0 | 93.8 | 3.7 | 1.8 |
| 45-64 years | 11,960 | 100.0 | 30.7 | 16.2 | 28.0 | 23.8 | 100.0 | 91.9 | 4.3 | 3.5 |
| 65 years and over | 8,525 | 100.0 | 25.8 | 13.3 | 28.6 | 30.5 | 100.0 | 93.4 | 3.0 | 2.9 |
| Sex: | | | | | | | | | | |
| Male | 11,562 | 100.0 | 40.2 | 16.0 | 24.4 | 18.0 | 100.0 | 94.6 | 2.6 | 2.4 |
| Female | 18,228 | 100.0 | 31.6 | 17.0 | 25.6 | 24.4 | 100.0 | 91.7 | 4.6 | 3.2 |
| Race: | | | | | | | | | | |
| White | 25,598 | 100.0 | 35.2 | 16.8 | 25.3 | 21.4 | 100.0 | 94.3 | 3.0 | 2.2 |
| Male | 10,063 | 100.0 | 40.6 | 16.2 | 24.5 | 17.6 | 100.0 | 95.7 | 2.1 | 1.8 |
| Female | 15,535 | 100.0 | 31.7 | 17.2 | 25.8 | 23.9 | 100.0 | 93.3 | 3.7 | 2.4 |
| Black | 3,943 | 100.0 | 33.4 | 15.6 | 23.7 | 25.2 | 100.0 | 83.3 | 8.7 | 7.4 |
| Male | 1,377 | 100.0 | 38.9 | 14.6 | 23.5 | 20.0 | 100.0 | 86.1 | *6.6 | *6.7 |
| Female | 2,566 | 100.0 | 30.4 | 16.2 | 23.7 | 28.0 | 100.0 | 81.9 | 9.7 | 7.8 |
| NOW HAVE HYPERTENSION | | | | | | | | | | |
| All persons 17 years and over[4] | 22,626 | 100.0 | 25.2 | 16.8 | 29.8 | 26.9 | 100.0 | 91.5 | 4.7 | 3.6 |
| Age: | | | | | | | | | | |
| 17-24 years | 1,147 | 100.0 | 39.2 | 27.4 | 24.3 | 8.7 | 100.0 | 90.7 | *5.8 | *3.1 |
| 25-44 years | 4,560 | 100.0 | 36.5 | 21.4 | 23.4 | 17.3 | 100.0 | 91.5 | 5.6 | 2.8 |
| 45-64 years | 9,652 | 100.0 | 22.3 | 15.8 | 32.5 | 28.2 | 100.0 | 90.5 | 5.1 | 4.3 |
| 65 years and over | 7,267 | 100.0 | 19.7 | 13.6 | 31.1 | 34.1 | 100.0 | 93.1 | 3.4 | 3.3 |
| Sex: | | | | | | | | | | |
| Male | 8,479 | 100.0 | 30.1 | 15.9 | 29.8 | 23.0 | 100.0 | 93.6 | 3.2 | 3.1 |
| Female | 14,147 | 100.0 | 22.3 | 17.3 | 29.9 | 29.3 | 100.0 | 90.2 | 5.6 | 3.9 |
| Race: | | | | | | | | | | |
| White | 19,143 | 100.0 | 24.9 | 17.0 | 30.3 | 26.7 | 100.0 | 93.3 | 3.8 | 2.8 |
| Male | 7,244 | 100.0 | 30.1 | 16.1 | 30.2 | 22.7 | 100.0 | 95.1 | 2.5 | 2.3 |
| Female | 11,898 | 100.0 | 21.8 | 17.5 | 30.4 | 29.1 | 100.0 | 92.3 | 4.6 | 3.0 |
| Black | 3,294 | 100.0 | 26.7 | 16.0 | 26.9 | 28.3 | 100.0 | 80.8 | 10.0 | 8.8 |
| Male | 1,154 | 100.0 | 30.7 | 15.2 | 27.5 | 23.8 | 100.0 | 84.1 | *7.9 | *8.0 |
| Female | 2,140 | 100.0 | 24.5 | 16.4 | 26.5 | 30.7 | 100.0 | 79.1 | 11.1 | 9.3 |

[1]Includes unknown doctor visits.
[2]Includes unknown bed days.
[3]Includes now have hypertension, no longer have hypertension, and unknown if now have hypertension.
[4]Includes persons of other races.

Table 6. Number of persons 17 years of age and over and percent distribution by interval since last doctor visit, according to hypertension status, age, sex, and race; based on data collected in health interviews: United States, 1974

| Hypertension status, age, sex, and race | All persons 17 years and over in thousands | Interval since last doctor visit | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Total[1] | In past 2 weeks | 2 weeks to less than 6 months | 6 months to less than 1 year | 1 year | 2-4 years | 5 years or more |
| ALL STATUSES[2] | | Percent distribution | | | | | | |
| All persons 17 years and over[3] | 144,380 | 100.0 | 15.7 | 45.7 | 15.8 | 8.8 | 9.4 | 4.2 |
| Age: | | | | | | | | |
| 17-44 years | 80,778 | 100.0 | 14.2 | 46.0 | 17.7 | 9.7 | 9.0 | 2.9 |
| 45-64 years | 42,862 | 100.0 | 16.3 | 44.1 | 14.9 | 8.3 | 10.5 | 5.6 |
| 65 years and over | 20,740 | 100.0 | 20.2 | 47.9 | 9.9 | 6.7 | 8.5 | 6.5 |
| Sex: | | | | | | | | |
| Male | 67,947 | 100.0 | 12.6 | 41.2 | 16.7 | 10.7 | 12.8 | 5.5 |
| Female | 76,433 | 100.0 | 18.4 | 49.7 | 14.9 | 7.2 | 6.4 | 3.1 |
| Race: | | | | | | | | |
| White | 127,787 | 100.0 | 15.6 | 45.7 | 15.9 | 8.8 | 9.4 | 4.2 |
| Male | 60,482 | 100.0 | 12.6 | 41.3 | 16.9 | 10.6 | 12.7 | 5.4 |
| Female | 67,305 | 100.0 | 18.4 | 49.7 | 14.9 | 7.2 | 6.4 | 3.1 |
| Black | 14,865 | 100.0 | 16.8 | 45.8 | 14.6 | 8.8 | 8.7 | 4.6 |
| Male | 6,614 | 100.0 | 12.7 | 40.7 | 15.6 | 10.9 | 12.7 | 6.1 |
| Female | 8,252 | 100.0 | 20.1 | 49.8 | 13.7 | 7.2 | 5.5 | 3.3 |
| EVER HAD HYPERTENSION[4] | | | | | | | | |
| All ages 17 years and over[3] | 29,789 | 100.0 | 23.0 | 52.1 | 12.4 | 5.8 | 4.7 | 1.9 |
| Age: | | | | | | | | |
| 17-44 years | 9,304 | 100.0 | 20.8 | 49.5 | 16.1 | 6.9 | 4.9 | 1.8 |
| 45-64 years | 11,960 | 100.0 | 22.9 | 53.0 | 11.8 | 5.4 | 4.8 | 2.0 |
| 65 years and over | 8,525 | 100.0 | 25.7 | 53.6 | 9.1 | 5.3 | 4.4 | 1.8 |
| Sex: | | | | | | | | |
| Male | 11,562 | 100.0 | 20.7 | 49.5 | 13.0 | 7.9 | 6.5 | 2.3 |
| Female | 18,228 | 100.0 | 24.6 | 53.7 | 12.0 | 4.5 | 3.5 | 1.6 |
| Race: | | | | | | | | |
| White | 25,598 | 100.0 | 22.8 | 52.2 | 12.6 | 5.7 | 4.9 | 1.7 |
| Male | 10,063 | 100.0 | 20.4 | 49.4 | 13.5 | 7.8 | 6.5 | 2.3 |
| Female | 15,535 | 100.0 | 24.4 | 54.0 | 12.1 | 4.3 | 3.8 | 1.4 |
| Black | 3,943 | 100.0 | 24.7 | 50.7 | 10.8 | 6.9 | 3.8 | 2.7 |
| Male | 1,377 | 100.0 | 21.9 | 50.5 | 9.1 | 8.8 | 7.3 | *2.0 |
| Female | 2,566 | 100.0 | 26.2 | 50.9 | 11.7 | 5.8 | *1.9 | 3.0 |
| NOW HAVE HYPERTENSION | | | | | | | | |
| All persons 17 years and over[3] | 22,626 | 100.0 | 25.1 | 54.1 | 10.4 | 5.2 | 3.8 | 1.4 |
| Age: | | | | | | | | |
| 17-44 years | 5,708 | 100.0 | 23.7 | 50.3 | 13.8 | 6.2 | 4.6 | 1.3 |
| 45-64 years | 9,652 | 100.0 | 24.5 | 55.4 | 9.8 | 5.2 | 3.6 | 1.4 |
| 65 years and over | 7,267 | 100.0 | 27.0 | 55.2 | 8.4 | 4.5 | 3.3 | 1.5 |
| Sex: | | | | | | | | |
| Male | 8,479 | 100.0 | 22.4 | 52.9 | 10.6 | 7.2 | 5.3 | 1.7 |
| Female | 14,147 | 100.0 | 26.7 | 54.8 | 10.2 | 4.1 | 2.9 | 1.2 |
| Race: | | | | | | | | |
| White | 19,143 | 100.0 | 24.8 | 54.5 | 10.4 | 5.1 | 3.8 | 1.4 |
| Male | 7,244 | 100.0 | 22.1 | 52.9 | 11.0 | 7.3 | 5.1 | 1.7 |
| Female | 11,898 | 100.0 | 26.4 | 55.5 | 10.1 | 3.7 | 3.0 | 1.2 |
| Black | 3,294 | 100.0 | 26.9 | 51.6 | 10.1 | 5.9 | 3.6 | *1.7 |
| Male | 1,154 | 100.0 | 22.9 | 54.7 | 8.1 | 6.5 | 6.3 | *1.6 |
| Female | 2,140 | 100.0 | 29.1 | 50.0 | 11.1 | 5.7 | *2.1 | *1.7 |
| NEVER HAD HYPERTENSION | | | | | | | | |
| All persons 17 years and over[3] | 105,004 | 100.0 | 13.8 | 44.4 | 16.8 | 9.4 | 10.5 | 4.8 |
| Age: | | | | | | | | |
| 17-44 years | 65,556 | 100.0 | 13.5 | 46.0 | 18.1 | 9.6 | 9.3 | 3.0 |
| 45-64 years | 27,977 | 100.0 | 13.6 | 41.0 | 16.3 | 9.5 | 12.6 | 6.8 |
| 65 years and over | 11,471 | 100.0 | 16.1 | 43.8 | 10.5 | 7.7 | 11.6 | 9.9 |
| Sex: | | | | | | | | |
| Male | 49,784 | 100.0 | 10.9 | 39.7 | 17.8 | 11.0 | 14.1 | 6.1 |
| Female | 55,220 | 100.0 | 16.4 | 48.7 | 15.9 | 8.0 | 7.2 | 3.6 |
| Race: | | | | | | | | |
| White | 93,930 | 100.0 | 13.8 | 44.4 | 16.9 | 9.4 | 10.4 | 4.8 |
| Male | 44,707 | 100.0 | 11.1 | 39.8 | 17.9 | 10.9 | 14.0 | 6.1 |
| Female | 49,223 | 100.0 | 16.4 | 48.6 | 16.0 | 8.0 | 7.1 | 3.6 |
| Black | 9,725 | 100.0 | 14.0 | 44.4 | 16.3 | 9.0 | 10.5 | 5.1 |
| Male | 4,423 | 100.0 | 9.7 | 38.7 | 18.0 | 10.8 | 14.7 | 7.1 |
| Female | 5,302 | 100.0 | 17.6 | 49.2 | 14.9 | 7.6 | 7.0 | 3.5 |

[1]Includes never and unknown doctor visits.
[2]Includes unknown hypertension status.
[3]Includes persons of other races.
[4]Includes now have hypertension, no longer have hypertension, and unknown if now have hypertension.

## TECHNICAL NOTES

SOURCE OF DATA. The data presented in this report were obtained from household interviews in the Health Interview Survey. These interviews were conducted throughout 1974 in a probability sample of the civilian noninstitutionalized population of the United States. During that year approximately 116,000 persons living in about 40,000 households were included in the sample. The hypertension questions were asked of each household member 17 years of age and over who was identified as a "sample person." This subsample included approximately 26,000 persons.

SAMPLING. The sampling pattern for sample person selection was based on the total number of related and unrelated household members. Sample persons (approximately a one-third subsample of the actual Health Interview Survey sample) were selected by the interviewer at the time of interview. To determine which household member(s) to designate as a sample person, the interviewer referred to a preselected flashcard after listing all related and unrelated persons in the household on the questionnaire. The flashcard contained, for each household size, one or more person numbers that were to be identified as the sample person(s).

Since the estimates shown are based on a sample of the population rather than on the entire population, they are subject to sampling error. Standard errors appropriate for the estimates of the number of persons are shown in table I; standard errors appropriate for percentages are shown in table II.

Table I. Standard errors of estimates of aggregates

| Size of estimate in thousands | Standard error in thousands |
|---|---|
| 70 | 20 |
| 100 | 24 |
| 300 | 42 |
| 500 | 54 |
| 700 | 64 |
| 1,000 | 77 |
| 5,000 | 170 |
| 10,000 | 238 |
| 20,000 | 329 |
| 30,000 | 394 |
| 50,000 | 485 |
| 100,000 | 593 |

Table II. Standard errors, expressed in percentage points, of estimated percentages

| Base of percentage in thousands | Estimated percentage | | | | |
|---|---|---|---|---|---|
| | 2 or 98 | 5 or 95 | 10 or 90 | 20 or 80 | 50 |
| 70 | 4.1 | 6.3 | 8.7 | 11.6 | 14.5 |
| 100 | 3.4 | 5.3 | 7.3 | 9.7 | 12.1 |
| 300 | 2.0 | 3.1 | 4.2 | 5.6 | 7.0 |
| 500 | 1.5 | 2.4 | 3.3 | 4.3 | 5.4 |
| 700 | 1.3 | 2.0 | 2.8 | 3.7 | 4.6 |
| 1,000 | 1.1 | 1.7 | 2.3 | 3.1 | 3.8 |
| 5,000 | 0.5 | 0.7 | 1.0 | 1.4 | 1.7 |
| 10,000 | 0.3 | 0.5 | 0.7 | 1.0 | 1.2 |
| 20,000 | 0.2 | 0.4 | 0.5 | 0.7 | 0.9 |
| 30,000 | 0.2 | 0.3 | 0.4 | 0.6 | 0.7 |
| 50,000 | 0.2 | 0.2 | 0.3 | 0.4 | 0.5 |
| 100,000 | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 |

LIMITATIONS AND QUALIFICATIONS OF DATA. When the 1974 Health Interview Survey hypertension prevalence estimates for the U.S. civilian noninstitutionalized population 17 years of age and over are compared with the 1972 Health Interview Survey hypertension estimates, marked differences are found (15.7 percent and 11.9 percent, respectively). Some of this variation can be attributed to improved data collection procedures implemented in 1974 as well as to definitional differences between the 2 years. These differences will be described in detail in a forthcoming report. However, evidence from other sources also indicates that some of the increase reflects a real difference resulting from a greater awareness of this condition among some respondents.

In this report, terms such as "similar" and "the same" mean that no statistical significance exists between the statistics being compared. Terms relating to differences (i.e., "greater," "less," etc.) indicate that differences are statistically significant. The *t* test with a critical value of 1.96 (0.05 level of significance) was used to test all comparisons which are discussed. Lack of comment regarding the difference between any two statistics does *not* mean the difference was tested and found to be not significant.

Age adjustment is computed by multiplying the specific rate for each age group in the total

U.S. civilian noninstitutionalized population 17 years and over in 1974. The rate is obtained by dividing the cumulative figures previously computed by the total population 17 years and over.

For a more detailed discussion of the limitations and qualifications of data collected in the Health Interview Survey, see an earlier report entitled "Current Estimates from the Health Interview Survey, United States, 1974, *Vital and Health Statistics,* Series 10, No. 100, DHEW Publication No. (HRA) 76-1527.

Blood pressure measurements of persons in the civilian noninstitutionalized population 6-74 years of age collected in the Health and Nutrition Examination Survey from April 1971 through June 1974 have been reported in *Advance Data* (HRA) 77-1250, No. 1, Oct. 18, 1976.

advancedata

FROM VITAL & HEALTH STATISTICS OF THE NATIONAL CENTER FOR HEALTH STATISTICS

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE | No. 3 November 19, 1976 | Public Health Service • Health Resources Administration

# Height and Weight of Adults 18-74 Years of Age in the United States[1]

The height and weight measurements in this report were obtained as a part of the Health and Nutrition Examination Survey (HANES). HANES is a program in which measures of nutritional status are collected for a scientifically designed sample representative of the civilian noninstitutionalized population of the United States in a broad range of ages, 1-74 years.[2]

The HANES findings are based on examinations of the 13,671 persons aged 18-74 years from a total group of 20,749 examined persons aged 1-74 years in the 65 primary sampling units (PSU's) which make up the total sample. A nationwide probability sample of 28,043 persons was selected to be examined in 65 PSU's, which were visited between April 1971 and June 1974. The HANES nutrition examination included a general medical examination for indicators of nutritional deficiencies by a physician, a skin examination by a dermatologist, and a dental examination by a dentist. Body measurements were taken by a trained technician; a dietary interview, consisting of a 24-hour recall of food consumption and a food frequency questionnaire, was administered; and numerous laboratory tests were performed on whole blood, serum, plasma, and urine. A description of the sampling process, HANES operation, and response rates has been published.[2]

Estimates in this report are based on weighted observations. The data obtained for the examined persons were inflated to the level of the total population using the appropriate weights to account for both sampling fractions and response results. National estimates of the distribution of height and weight among the U.S. population based on findings from the HANES program will be analyzed and discussed in a future report: "Height and Weight Measurements of Adults 18-74 Years: United States, 1971-74," *Vital and Health Statistics,* Series 11. Selected data from that report are discussed here and shown in tables 1-7.

[1]This report prepared by Sidney Abraham, Clifford L. Johnson, and Matthew F. Najjar, Division of Health Examination Statistics.

[2]National Center for Health Statistics: Plan and operation of the Health and Nutrition Examination Survey, United States, 1971-1973. *Vital and Health Statistics.* Series 1-Nos. 10a and 10b. DHEW Pub. Nos. (HRA) 76-1310 (10a) and (HSM) 73-1310 (10b). Health Resources Administration. Washington. U.S. Government Printing Office, Feb. 1973.

*Advance Data from Vital and Health Statistics* replaces the supplements to the *Monthly Vital Statistics Report* as the means for early release of selected findings from the health and demographic surveys conducted by the NCHS. Most of these releases will be followed by detailed reports in the *Vital and Health Statistics* series.

Provisional vital statistics as well as advance reports of final data for a year will continue to be published in the *Monthly Vital Statistics Report.*

*Advance Data* is being distributed on the mailing keys for the *Vital and Health Statistics* series, and people who now receive reports from a particular series will also receive all *Advance Data* releases for that series. Temporarily, the mailing list for the *Monthly Vital Statistics Report (MVSR)* is also being used. *MVSR* readers who wish to continue to receive *Advance Data* issues, as well as other persons who wish to receive all issues, should contact:

National Center for Health Statistics
Room 8-20
5600 Fishers Lane
Rockville, Maryland 20852
Phone: (301) 443-1200

## PRINCIPAL FINDINGS

The mean weight of men aged 18-74 years was 172 pounds. The mean weight of men increased from 165 pounds in age group 18-24 years to 178 pounds in age group 35-44 years. Thereafter, it decreased with age to 175 pounds in age group 45-54 years, 171 pounds at 55-64 years, and a low of 164 pounds in the oldest age group measured, 65 years and over.

The mean weight of women was 143 pounds, 29 pounds less than that for men. The mean weight increased with age from a low of 132 pounds at 18-24 years to a high of 149 pounds at ages 45-64 years and then declined to 146 pounds in the oldest age group.

The cross-sectional data on body measurements of adults were obtained on different age cohorts. The age trends show the mean body measurements for successive cohorts of persons of different age groups and reflect the effect of different environmental as well as hereditary influences. The limitations of cross-sectional data are recognized in considering group age changes.

The mean height for men aged 18-74 was 69.0 inches. The highest mean height, 69.7 inches, was found in the youngest age group, 18-24 years, and is 2.4 inches taller than the height in age group 65 years and over, 67.3 inches. This corresponds with a small decrease in height with increasing age, which averages less than one-half inch per decade of age over the range 18-74 years.

Among women the mean height was 63.6 inches, 5.4 inches less than the mean height among men. The mean height for women was highest (64.3 inches), in the youngest age group, as it was for men. The mean height decreased slightly to 64.1 inches at 25-34 years, remained constant at 35-44 years, and then declined to 63.6 inches at 45-54 years, 62.8 inches at 55-64 years, and 62.3 inches in the oldest age group, 65 years and over. The difference between the youngest and oldest age groups is 2.0 inches. The decrease in height with age averages less than one-half inch per decade over the age range of 18-74 years.

In each of the five age groups in the range 18-64 years white men were taller than Negro men. The average difference between heights of white and Negro men in the same age group was about one-half inch. At age group 65 years and over, however, the mean height for Negro and white men was the same. This pattern by age and race is not observed for women. At age groups 18-24 and 25-34 years, white women were, on the average, 0.25 inches taller than Negro women. At ages 35-44, Negro women were

Figure 1. MEAN HEIGHT IN INCHES OF U.S. ADULTS 18-74 YEARS BY AGE AND SEX.

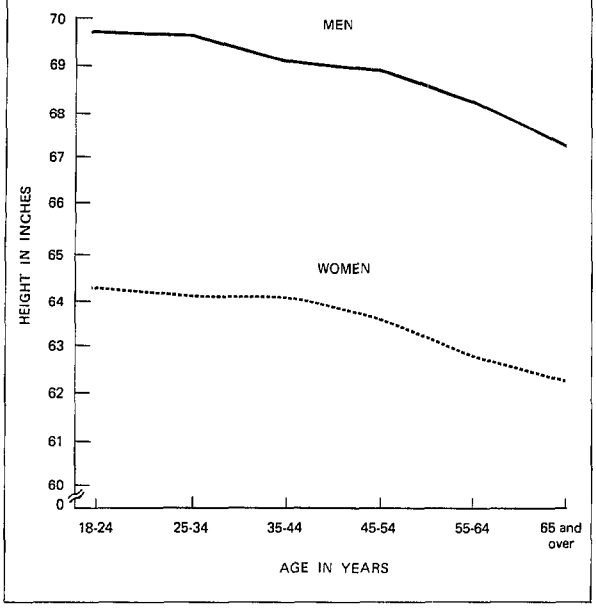
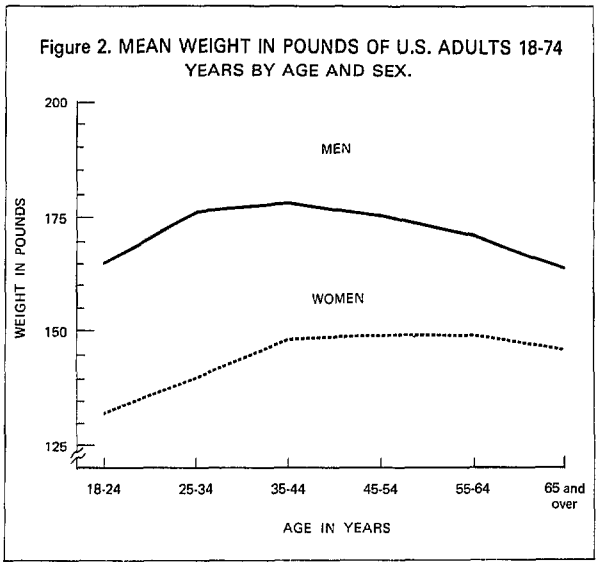



Figure 2. MEAN WEIGHT IN POUNDS OF U.S. ADULTS 18-74 YEARS BY AGE AND SEX.



0.1 inch taller than white women; at ages 45-54, they were 0.2 inch taller; and at ages 65 and over, they were 0.3 inch taller. At ages 55-64 years, the mean height for both races was the same.

Mean weights increased among white men from a low of 165 pounds at 18-24 years to a high of 178 pounds at 35-44 years. Among Negro men, mean weight increased consistently with age from 166 pounds at ages 18-24 years to 182 pounds at ages 35-44 years. The mean weights of both Negro and white men decreased with age from the group 45-54 years on. Negro and white men showed little consistent difference in mean weights among the different age groups.

Data on weight by age for Negro and white women tend to parallel those seen for men, with the exception that the increase in mean weight of women continued up to the age group 45-54 years and then declined. However, at each age Negro women had larger mean weights than white women, with the differences between races being very large, averaging about 20 pounds heavier for the age groups 35-64 years.

Although heights of U.S. adults as measured from the Health and Nutrition Examination Survey, 1971-74, were taller than those from the Health Examination Survey (HES), 1960-62,[3] the differences are numerically small. HANES data for men's heights range from less than one-half inch to an inch taller than the HES data. Corresponding values for women are from less than one-half inch to slightly more than three-quarters of an inch taller.

U.S. adults in HANES were heavier than those in HES. The HANES data on weights for men are consistently higher by an average of 6 pounds across the age range 18-74 years; for women they are higher by an average of 3 pounds for this age range.

Relatively more men and women in the most recent survey, 1971-74, are taller than those in HES, 1960-62. Fifty-one percent of the men in HANES were 69 inches or taller as compared to 38 percent in HES across the age range of 18-74 years. The corresponding values for HANES and HES for heights of 70 inches or more are 36 percent and 28 percent, respectively. In this age range, 45 percent of the women in HANES were 64 inches or taller as

[3]National Center for Health Statistics: Weight, height, and selected body dimensions of adults, United States, 1960-1962. *Vital and Health Statistics.* Series 11-No. 8. DHEW Pub. No. (HRA) 76-1074. Health Resources Administration. Washington. U.S. Government Printing Office, June 1965.

Figure 3. MEAN HEIGHT IN INCHES OF U.S. ADULTS 18-74 YEARS BY AGE, SEX, AND RACE.

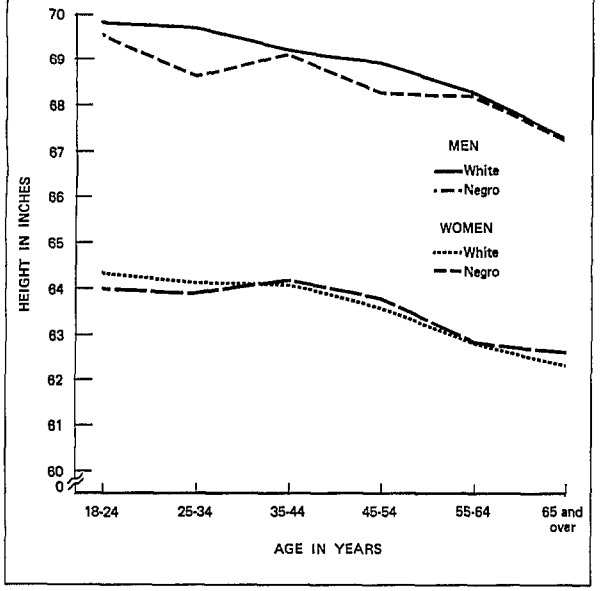



Figure 4. MEAN WEIGHT IN POUNDS OF U.S. ADULTS 18-74 YEARS BY AGE, SEX, AND RACE.

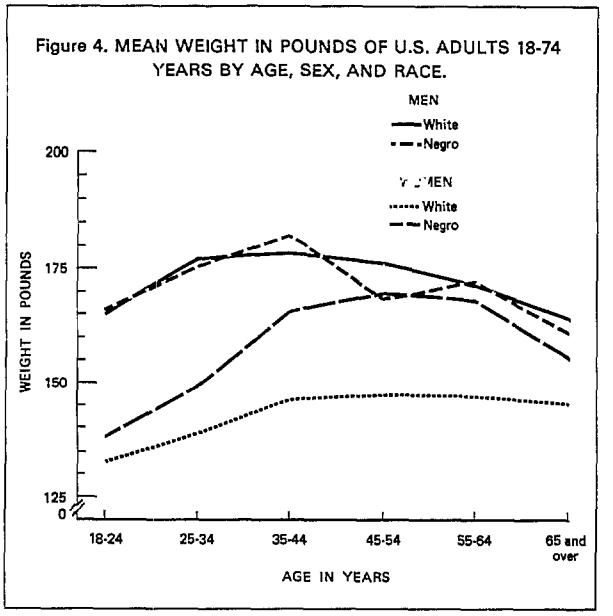
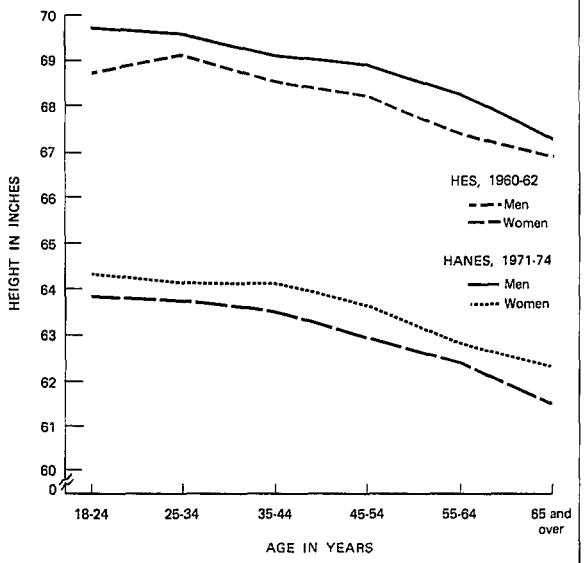


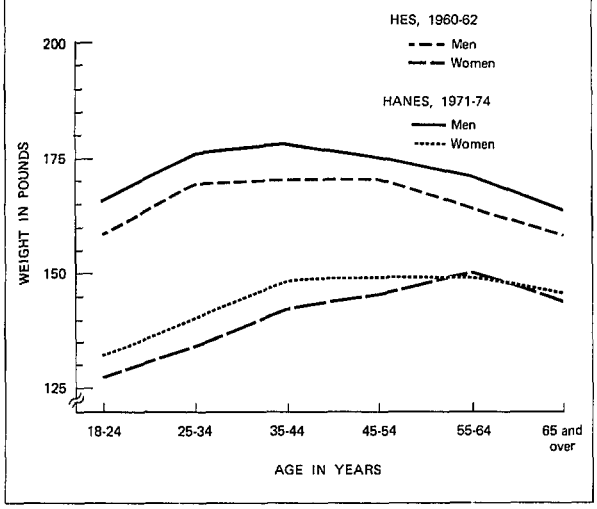
Figure 5. MEAN HEIGHT IN INCHES OF U.S. ADULTS 18-74 YEARS IN HES (1960-62) AND HANES (1971-74).




compared to 37 percent for HES. The corresponding values for HANES and HES for 65 inches and more are 30 percent and 21 percent, respectively.

The proportions of men and women whose height exceeded any other specified height may be found from the data presented in tables 4 and 6.

Figure 6. MEAN WEIGHT IN POUNDS OF U.S. ADULTS 18-74 YEARS IN HES (1960-62) AND HANES (1971-74).




## TECHNICAL NOTES

The sampling plan of the Health and Nutrition Examination Survey (HANES) followed a highly stratified multistage probability design in which a sample was selected of the civilian noninstitutionalized population of the coterminous United States 1-74 years of age. Successive elements dealt with in the process of sampling were the primary sampling unit (PSU), census enumeration district (ED), segment (cluster of households), household, eligible person, and finally, sample person. The sampling design focused special attention on groups of people known to be at greater risk of malnutrition by oversampling these groups—the poor, preschool children, women of childbearing ages, and the elderly.

All height and weight data presented are based on "weighted" observations. That is, data recorded for each sample person were inflated to characterize the subuniverse from which that sample person was drawn. For each examined person, this is a product of the reciprocal of the probability of selecting the person, an adjustment for nonresponse cases (i.e., persons not examined), and a poststratified ratio adjustment which increases precision by bringing survey results into closer alignment with known U.S. population figures for 20 age, race, and sex groups as of November 1, 1972, the approximate midpoint of HANES.

### SYMBOLS

| | |
|---|---|
| Data not available | - - - |
| Category not applicable | . . . |
| Quantity zero | - |
| Quantity more than 0 but less than 0.05 | 0.0 |
| Figure does not meet standards of reliability or precision | * |

Table 1. Height in inches of adults aged 18-74 years, by sex and age: sample size, estimated population in thousands, mean, standard deviation, standard error of the mean, and selected percentiles, United States, 1971-74

| Sex and age | Sample size | Estimated population in thousands | Mean | Standard deviation | Standard error of the mean | Percentile | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 5th | 10th | 25th | 50th | 75th | 90th | 95th |
| Men | | | Height in inches | | | | | | | | | |
| 18-74 years- | 5,260 | 60,565 | 69.0 | 2.8 | 0.07 | 64.4 | 65.5 | 67.1 | 69.0 | 70.8 | 72.6 | 73.6 |
| 18-24 years------- | 772 | 11,351 | 69.7 | 2.8 | 0.18 | 65.1 | 66.1 | 67.8 | 69.7 | 71.5 | 73.4 | 74.4 |
| 25-34 years------- | 804 | 12,766 | 69.6 | 2.9 | 0.12 | 64.8 | 66.0 | 67.6 | 69.5 | 71.5 | 73.4 | 74.3 |
| 35-44 years------- | 665 | 10,804 | 69.1 | 2.7 | 0.13 | 64.7 | 65.8 | 67.3 | 69.2 | 71.1 | 72.6 | 73.4 |
| 45-54 years------- | 765 | 11,260 | 68.9 | 2.6 | 0.13 | 64.7 | 65.6 | 67.1 | 68.8 | 70.6 | 72.4 | 73.2 |
| 55-64 years------- | 597 | 8,888 | 68.3 | 2.6 | 0.16 | 64.1 | 65.1 | 66.7 | 68.2 | 70.1 | 71.7 | 72.5 |
| 65 years and over- | 1,657 | 5,496 | 67.3 | 2.6 | 0.08 | 63.2 | 64.2 | 65.6 | 67.3 | 69.1 | 70.6 | 71.6 |
| Women | | | | | | | | | | | | |
| 18-74 years- | 844 | 67,372 | 63.6 | 2.5 | 0.04 | 59.5 | 60.5 | 62.0 | 63.7 | 65.3 | 66.8 | 67.8 |
| 18-24 years------- | 1,524 | 12,111 | 64.3 | 2.5 | 0.08 | 60.2 | 61.2 | 62.6 | 64.3 | 65.8 | 67.4 | 68.4 |
| 25-34 years------- | 1,896 | 13,996 | 64.1 | 2.4 | 0.08 | 60.2 | 61.2 | 62.4 | 64.0 | 65.7 | 67.3 | 68.2 |
| 35-44 years------- | 1,663 | 11,772 | 64.1 | 2.5 | 0.09 | 59.9 | 60.8 | 62.3 | 64.1 | 65.7 | 67.3 | 68.4 |
| 45-54 years------- | 836 | 12,264 | 63.6 | 2.3 | 0.10 | 59.9 | 60.6 | 62.1 | 63.7 | 65.2 | 66.7 | 67.3 |
| 55-64 years------- | 670 | 9,953 | 62.8 | 2.4 | 0.10 | 58.6 | 59.6 | 61.2 | 62.8 | 64.5 | 65.6 | 66.6 |
| 65 years and over- | 1,822 | 7,277 | 62.3 | 2.4 | 0.08 | 58.2 | 59.3 | 60.8 | 62.3 | 63.9 | 65.3 | 66.2 |

NOTE: Height was measured without shoes.

Table 2. Weight in pounds of adults aged 18-74 years, by sex and age: sample size, estimated population in thousands, mean, standard deviation, standard error of the mean, and selected percentiles, United States, 1971-74

| Sex and age | Sample size | Estimated population in thousands | Mean | Standard deviation | Standard error of the mean | Percentiles | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 5th | 10th | 25th | 50th | 75th | 90th | 95th |
| Men | | | Weight in pounds | | | | | | | | | |
| 18-74 years- | 5,260 | 60,565 | 172 | 31.1 | 0.64 | 128 | 137 | 152 | 170 | 189 | 211 | 225 |
| 18-24 years------- | 772 | 11,351 | 165 | 29.6 | 1.64 | 124 | 132 | 145 | 161 | 180 | 204 | 222 |
| 25-34 years------- | 804 | 12,766 | 176 | 35.0 | 1.45 | 132 | 140 | 153 | 172 | 193 | 217 | 233 |
| 35-44 years------- | 665 | 10,804 | 178 | 30.0 | 1.56 | 132 | 143 | 160 | 176 | 196 | 213 | 225 |
| 45-54 years------- | 765 | 11,260 | 175 | 29.2 | 1.12 | 130 | 139 | 157 | 175 | 192 | 215 | 225 |
| 55-64 years------- | 597 | 8,888 | 171 | 30.0 | 1.28 | 125 | 137 | 152 | 170 | 187 | 208 | 222 |
| 65 years and over- | 1,657 | 5,496 | 164 | 27.0 | 0.88 | 122 | 130 | 147 | 163 | 180 | 198 | 211 |
| Women | | | | | | | | | | | | |
| 18-74 years- | 8,411 | 67,372 | 143 | 32.3 | 0.53 | 104 | 110 | 122 | 137 | 159 | 185 | 203 |
| 18-24 years------- | 1,524 | 12,111 | 132 | 27.4 | 0.69 | 100 | 106 | 114 | 128 | 142 | 163 | 181 |
| 25-34 years------- | 1,896 | 13,996 | 140 | 32.0 | 0.82 | 103 | 109 | 119 | 132 | 152 | 181 | 202 |
| 35-44 years------- | 1,663 | 11,772 | 148 | 35.0 | 1.14 | 109 | 114 | 124 | 139 | 163 | 195 | 215 |
| 45-54 years------- | 836 | 12,264 | 149 | 32.0 | 1.39 | 109 | 114 | 127 | 145 | 164 | 191 | 213 |
| 55-64 years------- | 670 | 9,953 | 149 | 33.3 | 1.26 | 104 | 111 | 128 | 144 | 166 | 191 | 203 |
| 65 years and over- | 1,822 | 7,277 | 146 | 29.1 | 1.07 | 105 | 112 | 126 | 142 | 163 | 183 | 195 |

NOTE: Total weights of all clothing ranged from 0.20 to 0.62 lb.,which is not deducted from weights shown in table.

Table 3. Height in inches of adults aged 18-74 years, by sex, race, and age: sample size, estimated population in thousands, mean, standard deviation, standard error of the mean, and selected percentiles, United States, 1971-74

| Sex, race, and age | Sample size | Estimated population in thousands | Mean | Standard deviation | Standard error of the mean | Percentile | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 5th | 10th | 25th | 50th | 75th | 90th | 95th |
| MEN | | | | | | | | | | | | |
| White | | | | | | Height in inches | | | | | | |
| 18-74 years---- | 4,343 | 54,109 | 69.1 | 2.8 | 0.08 | 64.6 | 65.6 | 67.2 | 69.1 | 70.9 | 72.7 | 73.6 |
| 18-24 years---------- | 625 | 9,849 | 69.8 | 2.8 | 0.20 | 65.3 | 66.3 | 67.9 | 69.8 | 71.4 | 73.4 | 74.5 |
| 25-34 years---------- | 672 | 11,191 | 69.7 | 2.8 | 0.13 | 65.3 | 66.3 | 67.7 | 69.7 | 71.7 | 73.4 | 74.3 |
| 35-44 years---------- | 570 | 9,857 | 69.2 | 2.6 | 0.13 | 64.8 | 65.9 | 67.5 | 69.3 | 71.1 | 72.6 | 73.4 |
| 45-54 years---------- | 628 | 10,117 | 68.9 | 2.6 | 0.14 | 64.7 | 65.6 | 67.2 | 68.9 | 70.7 | 72.5 | 73.3 |
| 55-64 years---------- | 504 | 8,125 | 68.3 | 2.6 | 0.17 | 64.2 | 65.1 | 66.7 | 68.2 | 70.1 | 71.7 | 72.5 |
| 65 years and over---- | 1,344 | 4,970 | 67.3 | 2.6 | 0.09 | 63.2 | 64.2 | 65.6 | 67.3 | 69.1 | 70.6 | 71.7 |
| Negro | | | | | | | | | | | | |
| 18-74 years---- | 847 | 5,730 | 68.6 | 2.8 | 0.16 | 64.1 | 64.8 | 66.8 | 68.6 | 70.6 | 72.4 | 73.3 |
| 18-24 years---------- | 132 | 1,287 | 69.5 | 2.8 | 0.45 | 64.6 | 65.3 | 67.4 | 69.8 | 71.7 | 72.9 | 73.6 |
| 25-34 years---------- | 119 | 1,377 | 68.6 | 2.9 | 0.38 | 64.1 | 64.4 | 66.6 | 68.6 | 70.6 | 72.6 | 73.7 |
| 35-44 years---------- | 87 | 820 | 69.1 | 3.1 | 0.44 | 62.4 | 65.6 | 67.2 | 69.2 | 71.3 | 72.8 | 74.3 |
| 45-54 years---------- | 130 | 1,087 | 68.2 | 2.4 | 0.26 | 64.5 | 65.4 | 66.6 | 67.9 | 69.5 | 71.3 | 72.3 |
| 55-64 years---------- | 85 | 672 | 68.2 | 2.3 | 0.32 | 64.1 | 64.4 | 66.6 | 68.1 | 70.1 | 70.9 | 71.8 |
| 65 years and over---- | 294 | 486 | 67.3 | 2.4 | 0.18 | 63.1 | 64.2 | 65.6 | 67.5 | 69.1 | 70.2 | 70.9 |
| WOMEN | | | | | | | | | | | | |
| White | | | | | | | | | | | | |
| 18-74 years---- | 6,758 | 59,482 | 63.7 | 2.5 | 0.05 | 59.5 | 60.6 | 62.0 | 63.7 | 65.3 | 66.8 | 67.8 |
| 18-24 years---------- | 1,165 | 10,298 | 64.3 | 2.5 | 0.09 | 60.3 | 61.3 | 62.7 | 64.3 | 65.9 | 67.4 | 68.4 |
| 25-34 years---------- | 1,539 | 12,338 | 64.1 | 2.5 | 0.08 | 60.2 | 61.2 | 62.4 | 64.1 | 65.8 | 67.3 | 68.3 |
| 35-44 years---------- | 1,301 | 10,250 | 64.1 | 2.5 | 0.09 | 60.1 | 60.9 | 62.4 | 64.1 | 65.7 | 67.3 | 68.4 |
| 45-54 years---------- | 705 | 11,091 | 63.6 | 2.4 | 0.11 | 59.9 | 60.6 | 62.0 | 63.7 | 65.2 | 66.7 | 67.3 |
| 55-64 years---------- | 552 | 8,905 | 62.8 | 2.4 | 0.11 | 58.6 | 59.7 | 61.2 | 62.8 | 64.5 | 65.6 | 66.6 |
| 65 years and over---- | 1,496 | 6,601 | 62.3 | 2.4 | 0.09 | 58.2 | 59.2 | 60.7 | 62.3 | 63.9 | 65.3 | 66.2 |
| Negro | | | | | | | | | | | | |
| 18-74 years---- | 1,557 | 7,268 | 63.7 | 2.5 | 0.09 | 59.6 | 60.6 | 62.1 | 63.7 | 65.3 | 66.8 | 67.8 |
| 18-24 years---------- | 329 | 1,618 | 64.0 | 2.4 | 0.20 | 60.2 | 60.9 | 62.4 | 64.0 | 65.4 | 66.9 | 68.1 |
| 25-34 years---------- | 335 | 1,540 | 63.9 | 2.3 | 0.20 | 60.2 | 61.2 | 62.3 | 63.7 | 65.3 | 67.1 | 67.8 |
| 35-44 years---------- | 334 | 1,354 | 64.2 | 2.5 | 0.19 | 59.8 | 60.7 | 62.8 | 64.3 | 65.6 | 67.7 | 68.8 |
| 45-54 years---------- | 126 | 1,131 | 63.8 | 2.2 | 0.30 | 60.2 | 60.7 | 62.3 | 63.6 | 65.6 | 66.8 | 67.6 |
| 55-64 years---------- | 115 | 971 | 62.8 | 2.6 | 0.24 | 58.4 | 59.5 | 61.3 | 62.8 | 64.7 | 66.2 | 66.9 |
| 65 years and over---- | 318 | 654 | 62.6 | 2.4 | 0.18 | 58.7 | 59.6 | 61.2 | 62.5 | 64.1 | 65.5 | 66.2 |

NOTE: Height was measured without shoes.

Table 4. Cumulative percent distribution of height in inches of adult males, according to age: United States, HES (1960-62) and HANES (1971-74)

| Height in inches | Age | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 18-74 years | | 18-24 years | | 25-34 years | | 35-44 years | | 45-54 years | | 55-64 years | | 65 years and over | |
| | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 |
| | Cumulative percent distribution | | | | | | | | | | | | | |
| Under 60------ | 0.1 | 0.1 | - | - | - | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | - | 0.2 | 0.7 | 0.6 |
| Under 61------ | 0.3 | 0.4 | - | 0.4 | 0.1 | 0.2 | 0.2 | 0.4 | 0.4 | 0.2 | 0.5 | 0.5 | 1.1 | 1.3 |
| Under 62------ | 1.0 | 0.7 | 0.2 | 0.4 | 0.2 | 0.3 | 0.5 | 0.9 | 0.7 | 0.5 | 2.8 | 0.6 | 3.2 | 2.1 |
| Under 63------ | 2.6 | 1.7 | 1.5 | 1.7 | 1.5 | 0.4 | 1.9 | 1.6 | 1.8 | 1.7 | 5.2 | 2.1 | 5.7 | 4.4 |
| Under 64------ | 5.6 | 3.7 | 3.7 | 2.7 | 3.1 | 2.5 | 3.8 | 3.4 | 4.8 | 3.6 | 12.3 | 4.2 | 9.0 | 8.4 |
| Under 65------ | 12.4 | 7.3 | 7.7 | 4.5 | 7.8 | 5.6 | 8.7 | 6.2 | 11.4 | 6.2 | 23.1 | 9.6 | 23.4 | 17.5 |
| Under 66------ | 19.1 | 13.6 | 12.8 | 9.2 | 12.2 | 9.8 | 14.8 | 11.1 | 19.1 | 13.1 | 30.3 | 18.0 | 35.7 | 30.7 |
| Under 67------ | 32.1 | 23.5 | 28.6 | 16.9 | 22.1 | 19.2 | 27.0 | 20.4 | 31.5 | 22.7 | 43.1 | 30.1 | 54.2 | 44.3 |
| Under 68------ | 44.0 | 35.9 | 41.3 | 26.4 | 33.0 | 29.3 | 38.6 | 31.8 | 44.3 | 37.1 | 55.4 | 46.1 | 65.4 | 59.3 |
| Under 69------ | 62.1 | 49.5 | 56.1 | 39.0 | 50.4 | 40.1 | 57.8 | 47.0 | 65.0 | 52.6 | 72.9 | 60.7 | 82.0 | 74.1 |
| Under 70------ | 72.5 | 63.7 | 68.7 | 53.2 | 62.4 | 55.8 | 69.6 | 61.4 | 74.3 | 66.9 | 81.3 | 74.5 | 88.4 | 84.3 |
| Under 71------ | 84.5 | 76.0 | 81.0 | 68.5 | 76.6 | 69.2 | 84.0 | 74.1 | 86.4 | 78.9 | 89.8 | 83.8 | 95.4 | 92.6 |
| Under 72------ | 90.8 | 85.0 | 86.2 | 80.1 | 84.4 | 78.4 | 92.9 | 84.7 | 91.5 | 86.2 | 94.3 | 93.1 | 99.0 | 95.9 |
| Under 73------ | 96.2 | 92.0 | 94.7 | 87.5 | 92.4 | 87.1 | 97.3 | 92.9 | 96.7 | 94.0 | 98.4 | 96.7 | 99.6 | 99.2 |
| Under 74------ | 98.4 | 96.6 | 97.8 | 93.9 | 95.7 | 94.2 | 98.9 | 97.3 | 99.0 | 97.8 | 99.6 | 98.9 | 100.0 | 99.7 |
| Under 75------ | 99.5 | 98.4 | 99.2 | 96.8 | 98.8 | 97.0 | 99.8 | 99.0 | 99.6 | 99.4 | 99.8 | 99.7 | 100.0 | 100.0 |
| Under 76------ | 99.7 | 99.1 | 99.8 | 97.7 | 99.0 | 98.4 | 100.0 | 99.7 | 99.9 | 99.8 | 99.8 | 99.7 | 100.0 | 100.0 |
| 76 and over--- | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Table 5. Weight in pounds of adults aged 18-74 years, by sex, race, and age: sample size, estimated population in thousands, mean, standard deviation, standard error of the mean, and selected percentiles, United States, 1971-74

| Sex, race, and age | Sample size | Estimated population in thousands | Mean | Standard deviation | Standard error of the mean | Percentile | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 5th | 10th | 25th | 50th | 75th | 90th | 95th |
| MEN | | | | | | | | | | | | |
| White | | | | | | Weight in pounds | | | | | | |
| 18-74 years---- | 4,343 | 54,109 | 173 | 30 | 0.75 | 129 | 138 | 153 | 171 | 190 | 211 | 224 |
| 18-24 years---------- | 625 | 9,849 | 165 | 28 | 1.89 | 125 | 133 | 146 | 162 | 182 | 205 | 222 |
| 25-34 years---------- | 672 | 11,191 | 177 | 32 | 1.40 | 134 | 142 | 155 | 173 | 194 | 217 | 232 |
| 35-44 years---------- | 570 | 9,857 | 178 | 29 | 1.66 | 133 | 145 | 160 | 177 | 195 | 211 | 224 |
| 45-54 years---------- | 628 | 10,117 | 176 | 29 | 1.23 | 129 | 141 | 158 | 176 | 193 | 214 | 225 |
| 55-64 years---------- | 504 | 8,125 | 171 | 29 | 1.49 | 125 | 136 | 153 | 171 | 187 | 208 | 220 |
| 65 years and over---- | 1,344 | 4,970 | 164 | 27 | 0.99 | 123 | 131 | 148 | 164 | 180 | 198 | 210 |
| Negro | | | | | | | | | | | | |
| 18-74 years---- | 847 | 5,730 | 171 | 40 | 2.54 | 125 | 134 | 145 | 163 | 189 | 217 | 239 |
| 18-24 years---------- | 132 | 1,287 | 166 | 37 | 4.04 | 123 | 131 | 142 | 159 | 176 | 202 | 227 |
| 25-34 years---------- | 119 | 1,377 | 175 | 51 | 8.17 | 124 | 134 | 148 | 162 | 193 | 219 | 235 |
| 35-44 years---------- | 87 | 820 | 182 | 37 | 4.59 | 130 | 137 | 151 | 180 | 201 | 236 | 255 |
| 45-54 years---------- | 130 | 1,087 | 168 | 32 | 3.75 | 135 | 136 | 145 | 162 | 185 | 220 | 230 |
| 55-64 years---------- | 85 | 672 | 172 | 41 | 6.34 | 119 | 138 | 145 | 163 | 186 | 237 | 249 |
| 65 years and over---- | 294 | 486 | 161 | 30 | 2.31 | 121 | 127 | 137 | 156 | 179 | 205 | 218 |
| WOMEN | | | | | | | | | | | | |
| White | | | | | | | | | | | | |
| 18-74 years---- | 6,758 | 59,482 | 142 | 31 | 0.59 | 104 | 110 | 121 | 136 | 157 | 182 | 199 |
| 18-24 years---------- | 1,165 | 10,298 | 132 | 26 | 0.82 | 100 | 106 | 115 | 128 | 142 | 162 | 177 |
| 25-34 years---------- | 1,539 | 12,338 | 138 | 31 | 1.02 | 104 | 109 | 118 | 131 | 150 | 179 | 201 |
| 35-44 years---------- | 1,301 | 10,250 | 146 | 34 | 1.29 | 109 | 114 | 124 | 137 | 159 | 191 | 213 |
| 45-54 years---------- | 705 | 11,091 | 147 | 30 | 1.32 | 109 | 113 | 126 | 143 | 162 | 188 | 204 |
| 55-64 years---------- | 552 | 8,905 | 147 | 30 | 1.35 | 103 | 111 | 127 | 143 | 164 | 187 | 201 |
| 65 years and over---- | 1,496 | 6,601 | 145 | 28 | 1.08 | 105 | 113 | 126 | 142 | 162 | 180 | 192 |
| Negro | | | | | | | | | | | | |
| 18-74 years---- | 1,557 | 7,268 | 156 | 41 | 1.53 | 104 | 111 | 129 | 148 | 176 | 207 | 228 |
| 18-24 years---------- | 329 | 1,618 | 138 | 34 | 2.47 | 100 | 107 | 114 | 130 | 150 | 184 | 203 |
| 25-34 years---------- | 335 | 1,540 | 149 | 37 | 3.20 | 100 | 108 | 127 | 141 | 170 | 190 | 226 |
| 35-44 years---------- | 334 | 1,354 | 165 | 39 | 2.68 | 112 | 121 | 136 | 158 | 185 | 216 | 238 |
| 45-54 years---------- | 126 | 1,131 | 169 | 42 | 4.53 | 115 | 128 | 139 | 162 | 186 | 215 | 244 |
| 55-64 years---------- | 115 | 971 | 168 | 48 | 6.37 | 104 | 118 | 139 | 156 | 191 | 215 | 297 |
| 65 years and over---- | 318 | 654 | 155 | 36 | 3.28 | 94 | 109 | 133 | 153 | 177 | 202 | 219 |

NOTE: Total weights of all clothing ranged from 0.20 to 0.62 lb., which is not deducted from weights shown in table.

Table 6. Cumulative percent distribution of height in inches of adult females, according to age: United States, HES (1960-62) and HANES (1971-74)

| Height in inches | Age | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 18-74 years | | 18-24 years | | 25-34 years | | 35-44 years | | 45-54 years | | 55-64 years | | 65 years and over | |
| | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 |
| | Cumulative percent distribution | | | | | | | | | | | | | |
| Under 55------ | 0.2 | 0.1 | - | 0.1 | - | 0.0 | 0.1 | 0.0 | 0.2 | 0.0 | 0.6 | 0.0 | - | 0.2 |
| Under 56------ | 0.4 | 0.3 | - | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.5 | 0.0 | 1.0 | 1.0 | 1.3 | 0.6 |
| Under 57------ | 0.7 | 0.6 | 0.1 | 0.3 | 0.3 | 0.2 | 0.5 | 0.3 | 0.5 | 0.4 | 1.6 | 1.8 | 2.0 | 1.2 |
| Under 58------ | 2.3 | 1.4 | 0.3 | 0.8 | 0.9 | 0.8 | 1.3 | 0.6 | 2.2 | 0.6 | 3.3 | 3.0 | 8.3 | 4.0 |
| Under 59------ | 4.4 | 3.0 | 2.1 | 2.1 | 1.6 | 1.9 | 2.2 | 1.5 | 4.0 | 1.0 | 7.3 | 6.2 | 13.9 | 8.1 |
| Under 60------ | 10.8 | 6.8 | 5.1 | 4.1 | 6.7 | 4.0 | 6.9 | 5.2 | 11.5 | 5.1 | 14.9 | 11.8 | 27.5 | 14.8 |
| Under 61------ | 18.5 | 13.5 | 12.0 | 8.5 | 12.2 | 7.8 | 14.1 | 11.2 | 20.8 | 13.4 | 22.9 | 20.7 | 38.4 | 27.2 |
| Under 62------ | 32.8 | 24.6 | 24.6 | 16.6 | 22.4 | 18.2 | 27.2 | 19.5 | 34.0 | 23.7 | 43.5 | 36.7 | 58.0 | 43.3 |
| Under 63------ | 50.7 | 39.6 | 40.1 | 29.8 | 42.0 | 33.1 | 43.8 | 32.9 | 55.2 | 39.9 | 62.2 | 52.3 | 72.1 | 61.3 |
| Under 64------ | 63.2 | 54.8 | 51.3 | 45.0 | 53.5 | 49.3 | 57.6 | 47.2 | 68.1 | 55.0 | 76.3 | 67.9 | 82.9 | 75.5 |
| Under 65------ | 78.8 | 69.7 | 70.6 | 60.3 | 71.7 | 63.2 | 75.4 | 63.6 | 82.5 | 72.4 | 87.0 | 82.1 | 92.6 | 86.2 |
| Under 66------ | 87.1 | 83.0 | 81.2 | 76.7 | 83.1 | 77.9 | 83.9 | 79.4 | 89.4 | 84.4 | 92.4 | 92.4 | 97.5 | 94.0 |
| Under 67------ | 94.8 | 90.8 | 91.9 | 86.5 | 93.9 | 87.8 | 94.6 | 87.8 | 94.4 | 92.9 | 96.4 | 96.7 | 99.0 | 97.4 |
| Under 68------ | 97.2 | 95.4 | 95.3 | 93.3 | 97.2 | 93.9 | 97.0 | 93.3 | 97.2 | 96.8 | 98.1 | 98.6 | 99.2 | 98.7 |
| Under 69------ | 99.3 | 98.1 | 98.8 | 96.6 | 99.0 | 97.7 | 99.1 | 97.3 | 99.8 | 98.7 | 99.4 | 99.4 | 99.8 | 99.8 |
| Under 70------ | 99.6 | 99.2 | 99.5 | 98.4 | 99.3 | 98.9 | 99.8 | 99.0 | 99.9 | 99.5 | 99.4 | 99.8 | 99.8 | 100.0 |
| Under 71------ | 99.9 | 99.7 | 99.9 | 99.3 | 99.6 | 99.7 | 99.9 | 99.6 | 99.9 | 99.7 | 100.0 | 100.0 | 100.0 | 100.0 |
| 71 and over--- | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Table 7. Comparison of mean heights and weights in HES (1960-62) and HANES (1971-74), by sex and age: United States

| Age | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | HES, 1960-62 | HANES, 1971-74 | Excess of HANES over HES | HES, 1960-62 | HANES, 1971-74 | Excess of HANES over HES |
| | Height in inches | | | | | |
| 18-74 years | 68.3 | 69.0 | +0.7 | 63.1 | 63.6 | +0.5 |
| 18-24 years | 68.7 | 69.7 | +1.0 | 63.8 | 64.3 | +0.5 |
| 25-34 years | 69.1 | 69.6 | +0.5 | 63.7 | 64.1 | +0.4 |
| 35-44 years | 68.5 | 69.1 | +0.6 | 63.5 | 64.1 | +0.6 |
| 45-54 years | 68.2 | 68.9 | +0.7 | 62.9 | 63.6 | +0.7 |
| 55-64 years | 67.4 | 68.3 | +0.9 | 62.4 | 62.8 | +0.4 |
| 65 years and over | 66.9 | 67.3 | +0.4 | 61.5 | 62.3 | +0.8 |
| | Weight in pounds | | | | | |
| 18-74 years | 166 | 172 | +6 | 140 | 143 | +3 |
| 18-24 years | 158 | 165 | +7 | 127 | 132 | +5 |
| 25-34 years | 169 | 176 | +7 | 134 | 140 | +6 |
| 35-44 years | 170 | 178 | +8 | 142 | 148 | +6 |
| 45-54 years | 170 | 175 | +5 | 145 | 149 | +4 |
| 55-64 years | 164 | 171 | +7 | 150 | 149 | -1 |
| 65 years and over | 158 | 164 | +6 | 144 | 146 | +2 |

NOTE: Height was measured without shoes. 2 lb. are deducted from HES data to allow for weight of clothing; total weights of all clothing for HANES ranged from 0.20 to 0.62 lb., which is not deducted from weights shown.

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FROM VITAL & HEALTH STATISTICS OF THE NATIONAL CENTER FOR HEALTH STATISTICS
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE | No. 4 January 26, 1977 | Public Health Service • Health Resources Administration

# Prevalence of Dermatological Disease Among Persons 1-74 Years of Age: United States [a]

This report presents national estimates of the prevalence of skin pathology, or dermatological disease, among the civilian noninstitutionalized population 1-74 years of age in the United States, based on examination findings from the Health and Nutrition Examination Survey of 1971-74

The Health and Nutrition Examination Survey program in which these data were obtained was designed to measure the nutritional status of the U.S. population as well as certain aspects of general health status and medical care needs in the U.S. population. This is the fourth of the Health Examination Survey programs authorized by the 84th Congress under the National Health Survey Act of 1956. These programs secure information on the prevalence of medically defined illness, including previously unrecognized and undiagnosed conditions, as well as on a variety of physical, physiological, and psychological measures within the population through direct examinations, tests, and measurements, as described in previous publications.[1-4]

The dermatology component of the Health and Nutrition Examination Survey (HANES) was planned at the request of and in cooperation with the Committee on Planning for the National Program for Dermatology of the National Academy of Dermatology. Dr. Marie-Louise T. Johnson, Chairman of the Data Collection Unit for the National Program, was primarily responsible for planning the content of the examination, recruiting the dermatologists, and training them in the examination methodology so as to minimize interobserver variation. This part of the HANES examination included a complete clinical examination of the skin and surrounding tissue that considered normal variations in texture and color, certain manifestations of aging, and all pathological changes. Significant diagnoses were documented by tissue biopsy to determine malignancy or culture to identify fungi whenever possible. Estimates were made of actinic exposure experienced, as well as actinic damage sustained, and of occupational risk from irritant and allergic contractants. For an examinee with a significant hand, foot, or generalized problem, the dermatologist made a judgment about the burden to the examinee in terms of discomfort or disability, about care sought, and about the effect expected from current best care possible.

The examinations of persons in this HANES sample were made at 65 preselected locations throughout the country. Of the 28,043 sample persons selected to represent the 194 million persons 1-74 years of age in the U.S. population, there were 20,749, or 74.0 percent, examined. This corresponds to an effective response rate of 75.2 percent after adjustment is made for the effect of oversampling among the poor, preschool children, women of childbearing age (20-44 years), and the elderly.

This summary is limited to national estimates by age and sex of the prevalence of skin disorders and the principal types of skin disease. The *Code of Skin Diseases* of the Department of Dermatology, New York University (NYU) School of Medicine[5] was used for identifying and classifying skin disorders. Further information on the geographic and socioeconomic distribution of skin pathology, the extent of dis-

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ability or handicap caused by skin conditions, and the extent to which medical care has been sought or needed among the U.S. population will be presented in a forthcoming Series 11 report in the *Vital and Health Statistics* series.[6]

## TRENDS

Among persons 1-74 years of age in the United States, nearly one-third (31.2 percent), or an estimated 60.6 million, have one or more significant skin conditions (table 1). These include 3.2 percent, or an estimated 6.1 million, who have three different types of skin conditions; 6.4 percent, or 12.4 million, with two; and 21.6 percent, or 42.0 million, with only one condition. Since the examiner was limited to the identification of no more than three conditions, only the three most serious were recorded. Hence the estimates obtained may somewhat underestimate the true prevalence of specific skin conditions in the population.

The pattern of increase in skin pathology with age is shown in figures 1 and 2 and table 2. The prevalence rates are lowest among children, more than double by ages 12-24 years, decrease slightly by 25-34 years, then steadily increase with age to a maximum at 65-74 years.

Figure 1. PREVALENCE RATES FOR SIGNIFICANT SKIN PATHOLOGY AND PREVALENCE RATES OF SIGNIFICANT SKIN CONDITIONS AMONG PERSONS 1-74 YEARS BY AGE: UNITED STATES, 1971-74.

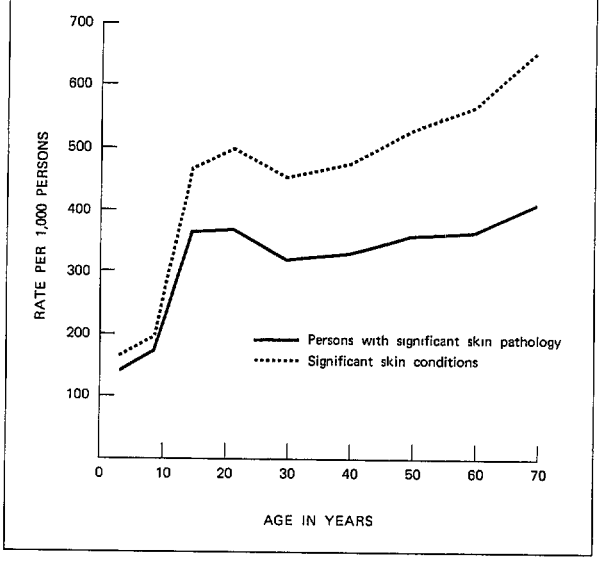
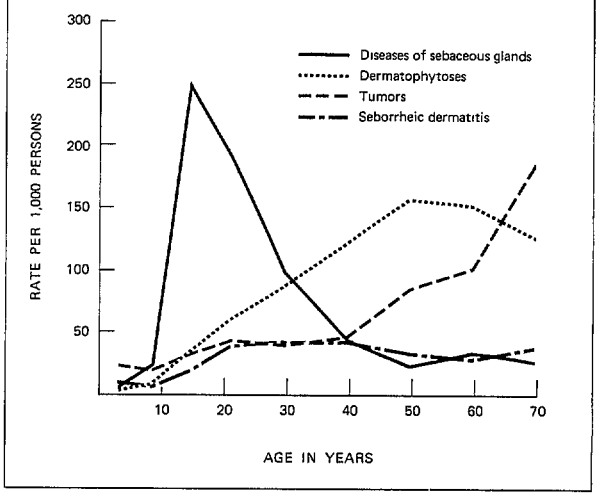


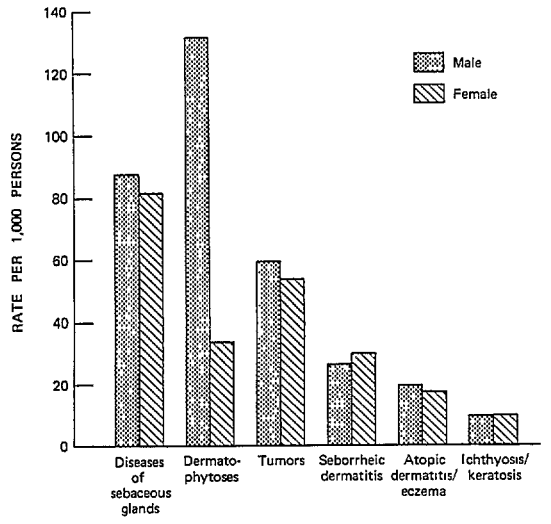

Figure 2. PREVALENCE RATES FOR THE FOUR LEADING TYPES OF SIGNIFICANT SKIN PATHOLOGY AMONG PERSONS 1-74 YEARS BY AGE: UNITED STATES, 1971-74.




The most frequently occurring groups of skin conditions are those affecting the sebaceous glands (84.8 per 1,000 persons); dermatophytoses, or fungal diseases (81.1 per 1,000); malignant or benign tumors (56.5 per 1,000); and seborrheic dermatitis (28.2 per 1,000). Among the individual conditions diagnosed, the most prevalent is acne vulgaris (68.1 per 1,000); followed by benign tumors (38.2 per 1,000); fungal conditions of the feet, tinea pedis (38.7 per 1,000); seborrheic dermatitis (28.2 per 1,000); fungal conditions of the nails, tinea unguium (21.8 per 1,000); precancerous and unspecified tumors (12.4 per 1,000); folliculitis (8.0 per 1,000); verruca vulgaris (8.5 per 1,000); and atopic dermatitis (6.9 per 1,000).

One-third of those persons with significant skin pathology (36.4 percent, or an estimated 22.0 million persons 1-74 years of age) are concerned about their skin problem, and 3.4 percent, or an estimated 2.1 million persons, have a disability severe enough to be a handicap to gainful employment or housework. The principal skin conditions of concern are those affecting the sebaceous glands (28.2 per 1,000); dermatophytoses, or fungal diseases (21.6 per 1,000); the atopic dermatitis/eczema group (10.8 per 1,000); and tumors (8.1 per 1,000) (table 3). However, among those with significant skin pathology diagnosed, persons are most

Figure 3. PREVALENCE RATES FOR THE SIX LEADING TYPES OF SKIN PATHOLOGY AMONG PERSONS 1-74 YEARS OF AGE BY SEX: UNITED STATES, 1971-74.




likely to be concerned if they have psoriasis (69 percent of those with this diagnosis), atopic dermatitis/eczema (58 percent), diseases of the sebaceous glands (33 percent), vitiligo (28 percent), and fungal conditions (dermatophytoses, 27 percent).

Skin pathology is more prevalent among males than among females (34 percent compared with 29 percent), and the proportion with the major types of skin conditions is generally greater among males than among females (figure 3). Of the most frequently occurring skin conditions, males are substantially more likely than females to have a fungal condition or folliculitis, the prevalence being about three times as great in males.

## REFERENCES

[1]National Center for Health Statistics: Plan and initial program of the Health Examination Survey. *Vital and Health Statistics.* PHS Pub. No. 1000-Series 1-No. 4. Public Health Service. Washington. U.S. Government Printing Office, July 1965.

[2]National Center for Health Statistics: Plan, operation, and response results of a program of children's examinations. *Vital and Health Statistics.* PHS Pub. No. 1000-Series 1-No. 5. Public Health Service. Washington. U.S. Government Printing Office, Oct. 1967.

[3]National Center for Health Statistics: Plan and operation of a Health Examination Survey of U.S. youths 12-17 years of age. *Vital and Health Statistics.* PHS Pub. No. 1000-Series 1-No. 8. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1969.

[4]National Center for Health Statistics: Plan and operation of the Health and Nutrition Examination Survey, United States, 1971-73. *Vital and Health Statistics.* Series 1-Nos. 10a and 10b. DHEW Pub. Nos. (HRA) 76-1310 (10a) and (HSM) 73-1310 (10b). Health Resources Administration. Washington. U.S. Government Printing Office, Feb. 1973.

[5]The Department of Dermatology, New York University School of Medicine: *Code of Skin Diseases,* 1st rev. New York. New York University, Feb. 1968.

[6]National Center for Health Statistics: Skin conditions and need for medical care among persons 1-74 years of age, United States, 1971-74. *Vital and Health Statistics.* Series 11. Health Resources Administration, DHEW, Rockville, Md. To be published.

Table 1. Prevalence of significant skin pathology, all types and the most frequently occurring types of conditions, among persons 1-74 years, by sex: United States, 1971-74

| Condition and NYU code | Both sexes | Male | Female | Both sexes | Male | Female |
|---|---|---|---|---|---|---|
| | Rate per 1,000 persons | | | Number in thousands | | |
| Persons with one or more significant skin conditions | 312.4 | 339.8 | 286.6 | 60,601 | 31,988 | 28,613 |
| All types of significant skin conditions | 439.7 | 499.4 | 383.4 | 85,287 | 47,018 | 38,269 |
| Diseases of sebaceous glands---7141-7149 | 84.8 | 87.9 | 81.9 | 16,465 | 8,279 | 8,186 |
| Acne vulgaris---714150 | 68.1 | 70.5 | 65.9 | 13,217 | 6,638 | 6,579 |
| Cystic acne---714180 | 1.9 | 3.3 | 0.6 | 375 | 312 | 63 |
| Acne scars---714190 | 1.7 | 2.0 | 1.3 | 321 | 192 | 129 |
| Xerosis---714930 | 6.5 | 5.3 | 7.7 | 1,260 | 497 | 763 |
| Dermatophytoses---131 | 81.1 | 131.4 | 33.7 | 15,733 | 12,372 | 3,361 |
| Tinea pedis---13100- | 38.7 | 68.4 | 10.7 | 7,509 | 6,438 | 1,071 |
| Tinea unguium---1312-- | 21.8 | 30.3 | 13.9 | 4,232 | 2,856 | 1,376 |
| Tinea versicolor---131910 | 8.4 | 10.9 | 6.0 | 1,623 | 1,022 | 601 |
| Tinea cruris---13131- | 6.7 | 12.9 | 0.9 | 1,301 | 1,214 | 87 |
| Tumors---19x,22x,23x,23y | 56.5 | 59.6 | 53.7 | 10,968 | 5,606 | 5,362 |
| Malignant---19x | 5.9 | 6.4 | 5.3 | 1,136 | 602 | 534 |
| Basal cell (nodular-ulcerative-solid)---19x14x | 0.6 | 0.6 | 0.7 | 119 | 52 | 67 |
| Basal cell epithelioma---19x18x | 1.3 | 1.6 | 1.0 | 247 | 147 | 100 |
| Benign[1]---22x | 38.2 | 35.8 | 40.5 | 7,412 | 3,372 | 4,040 |
| Lipoma---22x959 | 2.1 | 2.6 | 1.6 | 401 | 244 | 157 |
| Precancerous and not specified---23x,23y | 12.4 | 17.4 | 7.9 | 2,420 | 1,632 | 788 |
| Actinic keratosis---23x081 | 9.6 | 13.9 | 5.5 | 1,858 | 1,306 | 552 |
| Seborrheic dermatitis---700010 | 28.2 | 26.4 | 29.9 | 5,476 | 2,490 | 2,986 |
| Atopic dermatitis/eczema---701,708300,708310,708320 | 18.4 | 19.5 | 17.4 | 3,575 | 1,837 | 1,738 |
| Atopic dermatitis---708310 | 6.9 | 8.2 | 5.6 | 1,332 | 771 | 561 |
| Lichen simplex chronicus---708320 | 4.5 | 4.7 | 4.4 | 882 | 441 | 441 |
| Hand eczema---701000 | 1.6 | 1.1 | 2.1 | 311 | 105 | 206 |
| Nummular---701010 | 1.7 | 1.0 | 2.4 | 332 | 92 | 240 |
| Dyshidrotic---701030 | 2.1 | 3.1 | 1.2 | 405 | 288 | 117 |
| Ichthyosis/keratosis---710130,710150 | 9.5 | 9.3 | 9.6 | 1,835 | 880 | 955 |
| Folliculitis---713908 | 8.0 | 12.3 | 4.0 | 1,553 | 1,154 | 399 |
| Verruca vulgaris---696030 | 8.5 | 10.3 | 7.2 | 1,684 | 967 | 717 |
| Psoriasis---706090 | 5.5 | 5.9 | 5.1 | 1,070 | 556 | 514 |
| Seborrheic keratosis---22x44x | 5.2 | 4.6 | 5.8 | 1,010 | 431 | 579 |
| Vitiligo---716210 | 4.9 | 3.6 | 6.2 | 957 | 341 | 616 |
| Herpes simplex---096 | 4.2 | 4.0 | 4.5 | 824 | 376 | 448 |
| All other skin conditions | 124.9 | 124.6 | 124.4 | 24,137 | 11,729 | 12,408 |

[1]Excludes seborrheic keratosis (22x44x), which in the NYU classification is grouped with benign tumors.

Table 2. Prevalence of significant skin pathology, all types and the most frequently occurring types of conditions, among persons 1-74 years, by age: United States, 1971-74

| Condition and NYU code | 1-5 years | 6-11 years | 12-17 years | 18-24 years | 25-34 years | 35-44 years | 45-54 years | 55-64 years | 65-74 years |
|---|---|---|---|---|---|---|---|---|---|
| | Rate per 1,000 persons | | | | | | | | |
| Persons with one or more significant skin conditions | 142.3 | 174.2 | 362.0 | 365.1 | 318.0 | 328.2 | 356.8 | 361.9 | 409.5 |
| All types of significant skin conditions | 166.4 | 195.4 | 468.5 | 499.9 | 452.9 | 475.2 | 529.7 | 563.9 | 654.8 |
| Diseases of sebaceous glands--7141-7149 | 6.3 | 21.4 | 249.9 | 191.1 | 99.6 | 44.1 | 21.5 | 32.0 | 25.5 |
| Acne vulgaris--714150 | 0.4 | 11.9 | 231.9 | 172.2 | 83.6 | 25.4 | 8.7 | 2.5 | 0.7 |
| Cystic acne--714180 | - | - | 2.0 | 5.4 | 5.2 | 2.6 | - | - | 0.1 |
| Acne scars--714190 | - | - | 4.5 | 5.2 | 0.9 | 1.7 | 0.9 | - | - |
| Xerosis--714930 | 2.8 | 6.7 | 3.9 | 3.7 | 4.0 | 6.8 | 5.4 | 15.3 | 14.9 |
| Dermatophytoses--131 | 3.4 | 8.4 | 33.2 | 61.7 | 87.7 | 121.5 | 155.7 | 150.8 | 126.8 |
| Tinea pedis--13100- | 0.4 | 4.0 | 14.1 | 24.9 | 49.1 | 62.0 | 80.9 | 57.9 | 59.6 |
| Tinea unguium--1312-- | - | 0.9 | 1.9 | 7.0 | 13.4 | 24.9 | 46.2 | 68.5 | 54.7 |
| Tinea versicolor--131910 | 1.1 | 1.5 | 10.2 | 17.8 | 9.9 | 13.0 | 7.2 | 7.3 | 2.3 |
| Tinea cruris--13131- | - | - | 4.7 | 6.7 | 10.2 | 11.7 | 13.1 | 8.9 | 1.3 |
| Tumors--19x,22x,23x,23y | 21.7 | 18.9 | 31.3 | 43.0 | 39.6 | 46.8 | 84.9 | 100.2 | 184.1 |
| Malignant--19x | - | - | 0.5 | 0.1 | 0.1 | 3.2 | 9.5 | 18.9 | 36.4 |
| Basal cell (nodular-ulcerative-solid)--19x14x | - | - | - | - | - | 0.2 | 1.1 | 2.1 | 3.8 |
| Basal cell epithelioma--19x18x | - | - | - | - | - | 0.8 | 3.4 | 3.9 | 5.9 |
| Benign[1]--22x | 21.7 | 18.9 | 30.7 | 40.7 | 38.9 | 38.2 | 52.9 | 44.9 | 68.1 |
| Lipoma--22x959 | - | 0.8 | - | 0.9 | 0.6 | 1.6 | 5.3 | 4.4 | 7.7 |
| Precancerous and not specified--23x,23y | - | - | 0.1 | 2.2 | 0.6 | 5.4 | 22.5 | 36.4 | 79.6 |
| Actinic keratosis--23x081 | - | - | - | - | - | 1.5 | 15.9 | 32.8 | 65.1 |
| Seborrheic dermatitis--700010 | 9.6 | 6.7 | 18.5 | 38.7 | 41.9 | 41.1 | 31.9 | 27.4 | 36.3 |
| Atopic dermatitis/eczema--701,708300,708310,708320 | 24.9 | 20.0 | 17.0 | 15.4 | 28.0 | 14.7 | 13.9 | 12.8 | 18.3 |
| Atopic dermatitis--708310 | 19.3 | 13.8 | 10.7 | 5.1 | 6.0 | 1.4 | 2.4 | 1.0 | 1.7 |
| Lichen simplex chronicus--708320 | - | 1.7 | 4.1 | 1.2 | 5.8 | 5.5 | 5.2 | 9.4 | 10.3 |
| Hand eczema--701000 | - | - | 0.2 | 0.3 | 4.9 | 3.7 | 1.5 | 1.9 | 0.9 |
| Nummular--701010 | 1.9 | 1.3 | 0.6 | 4.9 | 2.5 | 0.1 | 0.7 | 0.6 | 3.2 |
| Dyshidrotic--701030 | - | 1.9 | 0.4 | 2.6 | 5.9 | 1.3 | 4.0 | - | 0.4 |
| Ichthyosis/keratosis--710130,710150 | 8.6 | 15.5 | 16.7 | 8.8 | 11.5 | 7.7 | 2.7 | 7.0 | 1.5 |
| Folliculitis--713908 | 1.2 | 3.2 | 5.3 | 18.9 | 15.4 | 12.8 | 5.5 | 2.1 | 1.1 |
| Verruca vulgaris--696030 | 4.7 | 13.1 | 15.5 | 12.4 | 6.3 | 6.2 | 8.9 | 2.4 | 3.6 |
| Psoriasis--706090 | 3.1 | 1.9 | 2.5 | 1.5 | 6.2 | 4.9 | 11.4 | 10.9 | 9.5 |
| Seborrheic keratosis--22x44x | 0.2 | - | - | 0.4 | 0.4 | 4.5 | 9.7 | 18.3 | 24.4 |
| Vitiligo--716210 | 0.6 | 5.5 | 1.0 | 3.6 | 3.0 | 3.4 | 5.9 | 12.6 | 13.6 |
| Herpes simplex--096 | 3.4 | 5.3 | 5.1 | 3.2 | 5.2 | 4.8 | 2.8 | 3.3 | 4.? |
| All other skin conditions | 78.7 | 75.5 | 72.5 | 101.2 | 108.1 | 162.7 | 174.9 | 184.1 | 205.? |

[1] Excludes seborrheic keratosis (22x44x), which in the NYU classification is grouped with benign tumors.

## SYMBOLS

| | |
|---|---|
| Data not available | - - - |
| Category not applicable | . . . |
| Quantity zero | - |
| Quantity more than 0 but less than 0.05 | 0.0 |
| Figure does not meet standards of reliability or precision | * |

Table 3. Prevalence of skin conditions of concern, all types and the most frequently occurring types of conditions, among persons 1-74 years, by part of body affected and sex: United States, 1971-74

| Condition and NYU code | Both sexes | | | | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Hand | Foot | Other | Total | Hand | Foot | Other | Total | Hand | Foot | Other |
| | Rate per 1,000 persons | | | | | | | | | | | |
| All types of skin conditions of concern--- | 113.6 | 10.8 | 17.9 | 84.9 | 127.7 | 12.6 | 27.6 | 87.5 | 100.3 | 9.0 | 8.8 | 82.5 |
| Diseases of sebaceous glands----------7141-7149 | 28.2 | 0.1 | 0.1 | 28.0 | 29.0 | - | 0.0 | 29.0 | 27.5 | 0.2 | 0.2 | 27.1 |
| Acne vulgaris----------714150 | 23.6 | 0.1 | 0.1 | 23.4 | 23.1 | - | - | 23.1 | 24.1 | 0.2 | 0.1 | 23.8 |
| Cystic acne----------714180 | 1.7 | - | 0.0 | 1.7 | 3.1 | - | 0.0 | 3.1 | 0.3 | - | - | 0.3 |
| Acne scars----------714190 | 0.3 | - | - | 0.3 | - | - | - | - | 0.7 | - | - | 0.7 |
| Xerosis----------714930 | 0.9 | 0.0 | 0.1 | 0.8 | 0.8 | - | 0.0 | 0.8 | 0.9 | 0.0 | 0.1 | 0.8 |
| Dermatophytoses----------131 | 21.6 | 1.1 | 12.5 | 8.0 | 35.9 | 1.8 | 21.3 | 12.8 | 8.2 | 0.4 | 4.4 | 3.4 |
| Tinea pedis----------13100- | 9.7 | 0.1 | 9.3 | 0.3 | 17.8 | 0.2 | 17.1 | 0.5 | 2.0 | 0.0 | 2.0 | 0.0 |
| Tinea unguium----------1312-- | 4.5 | 0.2 | 3.1 | 1.2 | 5.7 | 0.3 | 3.8 | 1.6 | 3.2 | 0.2 | 2.3 | 0.7 |
| Tinea versicolor----------131910 | 2.7 | - | - | 2.7 | 3.5 | - | - | 3.5 | 2.0 | - | - | 2.0 |
| Tinea cruris----------13131- | 3.2 | - | - | 3.2 | 6.3 | - | - | 6.3 | 0.2 | - | - | 0.2 |
| Tumors----------19x,22x,23x,23y | 8.1 | 0.6 | 0.4 | 7.1 | 8.3 | 0.5 | 0.2 | 7.6 | 8.1 | 0.8 | 0.5 | 6.8 |
| Malignant----------19x | 2.0 | 0.0 | 0.1 | 1.9 | 2.3 | - | 0.2 | 2.1 | 1.8 | 0.1 | - | 1.7 |
| Basal cell (nodular-ulcerative-solid)-19x14x | 0.3 | - | - | 0.3 | 0.3 | - | - | 0.3 | 0.3 | - | - | 0.3 |
| Basal cell epithelioma----------19x18x | 0.8 | - | - | 0.8 | 1.3 | - | - | 1.3 | 0.3 | - | - | 0.3 |
| Benign[1]----------22x | 2.4 | 0.1 | 0.2 | 2.1 | 1.5 | - | - | 1.5 | 3.4 | 0.3 | 0.4 | 2.7 |
| Lipoma----------22x959 | 0.1 | - | 0.0 | 0.1 | 0.2 | - | - | 0.2 | 0.0 | - | 0.0 | 0.0 |
| Precancerous and not specified---------23x,23y | 3.7 | 0.5 | 0.1 | 3.1 | 4.5 | 0.5 | - | 4.0 | 2.9 | 0.4 | 0.1 | 2.4 |
| Actinic keratosis----------23x081 | 3.1 | 0.5 | - | 2.6 | 3.8 | 0.5 | - | 3.3 | 2.4 | 0.4 | - | 2.0 |
| Seborrheic dermatitis----------700010 | 5.4 | 0.1 | 0.0 | 5.3 | 4.8 | 0.2 | 0.1 | 4.5 | 5.9 | - | - | 5.9 |
| Atopic dermatitis/ eczema----------701,708300,708310,708320 | 10.8 | 3.1 | 1.3 | 6.4 | 11.7 | 3.4 | 1.9 | 6.4 | 10.0 | 3.0 | 0.6 | 6.4 |
| Atopic dermatitis----------708310 | 4.5 | 0.6 | 0.1 | 3.8 | 5.1 | 0.8 | 0.1 | 4.2 | 3.8 | 0.3 | 0.1 | 3.4 |
| Lichen simplex chronicus----------708320 | 1.9 | 0.1 | 0.2 | 1.6 | 2.1 | - | 0.4 | 1.7 | 1.8 | 0.1 | 0.0 | 1.7 |
| Hand eczema----------701000 | 1.1 | 1.1 | - | - | 1.0 | 1.0 | - | - | 1.2 | 1.2 | - | - |
| Nummular----------701010 | 0.8 | 0.2 | 0.2 | 0.4 | 0.8 | 0.3 | 0.3 | 0.2 | 0.8 | - | - | 0.8 |
| Dyshidrotic----------701030 | 1.6 | 1.0 | 0.5 | 0.1 | 2.1 | 1.0 | 1.1 | - | 1.2 | 1.0 | 0.0 | 0.2 |
| Ichthyosis/keratosis----------710130,710150 | 1.3 | - | - | 1.3 | 1.3 | - | - | 1.3 | 1.3 | - | - | 1.3 |
| Folliculitis----------713908 | 1.8 | - | - | 1.8 | 2.7 | - | - | 2.7 | 0.9 | - | - | 0.9 |
| Verruca vulgaris----------696030 | 1.4 | 0.8 | 0.2 | 0.4 | 0.9 | 0.3 | 0.1 | 0.5 | 1.8 | 1.3 | 0.2 | 0.3 |
| Psoriasis----------706090 | 3.8 | 0.5 | 0.0 | 3.3 | 3.8 | 0.7 | - | 3.1 | 3.8 | 0.2 | 0.1 | 3.5 |
| Seborrheic keratosis----------22x44x | 0.7 | - | - | 0.7 | 0.4 | - | - | 0.4 | 1.1 | - | - | 1.1 |
| Vitiligo----------716210 | 1.4 | 0.1 | 0.0 | 1.3 | 0.7 | 0.1 | 0.1 | 0.5 | 2.0 | 0.0 | 0.0 | 2.0 |
| Herpes simplex----------096 | 0.8 | - | - | 0.8 | 0.6 | - | - | 0.6 | 0.9 | - | - | 0.9 |
| All other skin conditions---------- | 28.3 | 4.4 | 3.4 | 20.5 | 27.6 | 5.6 | 3.9 | 18.1 | 28.8 | 3.1 | 2.8 | 22.9 |

[1]Excludes seborrheic keratosis (22x44x), which in the NYU classification is grouped with benign tumors.

## TECHNICAL NOTES

The sampling plan for the 65 examination locations in the Health and Nutrition Examination Survey from April 1971 through June 1974 followed a stratified multistage probability design in which a sample of the civilian noninstitutionalized population of the coterminous United States 1-74 years of age was selected. The sample was stratified by geographic region, population density, and rate of population change between 1960 and 1970. Within each stratum, cluster-type sampling was used for selecting households and sample persons to be included in each examination location. The sample design provided for oversampling among persons living in poverty areas, preschool-age children, and women 20-44 years of age.

Prevalence rates of skin conditions are shown as population estimates; that is, the examination findings for each individual have been "weighted" by the reciprocal of the probability of selecting the person. An adjustment for persons in the sample who were not examined and a poststratified ratio adjustment were also made so that the final sample estimates of the population size agree exactly with independent U.S. Bureau of the Census estimates for the civilian noninstitutionalized population of the United States as of November 1, 1972, by color, sex, and age.

Previous issues of *Advance Data from Vital and Health Statistics*

No. 1 Blood Pressure of Persons 6-74 Years of Age in the United States (Issued: October 18, 1976)

No. 2 Hypertension: United States, 1974 (Issued: November 8, 1976)

No. 3 Height and Weight of Adults 18-74 Years of Age in the United States (Issued: November 19, 1976)

advancedata
FROM VITAL & HEALTH STATISTICS OF THE NATIONAL CENTER FOR HEALTH STATISTICS

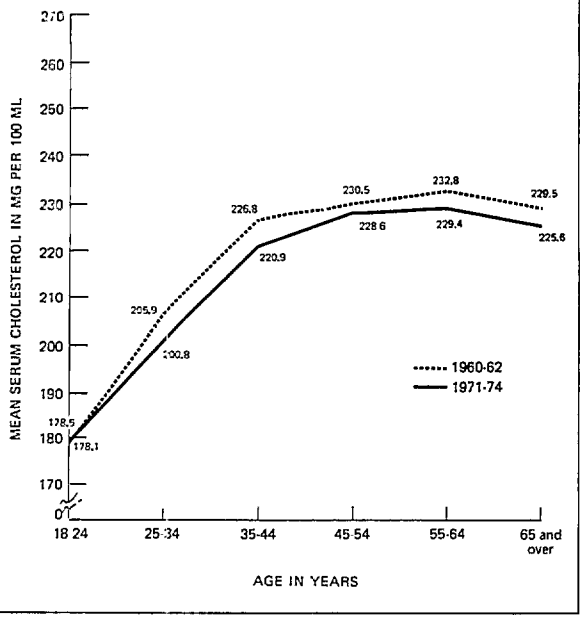
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE | No. 5. February 22, 1977 | Public Health Service • Health Resources Administration

# A Comparison of Levels of Serum Cholesterol of Adults 18-74 Years of Age in the United States in 1960-62 and 1971-74[a]

Serum cholesterol data obtained from the findings of the Health and Nutrition Examination Survey (HANES), 1971-74, present an opportunity to reexamine the level of serum cholesterol of the U.S. population aged 18-74 years.[1] Earlier determinations of serum cholesterol levels were made in the first cycle of the Health Examination Survey (HES), 1960-62, in order to provide reference data for the general population of the United States.[2] This was prompted by the epidemiologic studies associating levels of total blood cholesterol with the risk of development of coronary heart disease.[3-5]

Field data collection operations for the first HANES survey were started in April 1971 and completed in June 1974. Of the 28,043 persons aged 1-74 years who were selected in the national probability sample to represent the 194 million persons in that age group in the civilian noninstitutionalized population, 20,749, or 74.0 percent, were examined. When adjustments were made for the differential sampling ratios used for the effect of oversampling among the poor, preschool children, women of childbearing age, and the elderly, this corresponds to an effective response rate of 75 percent. Among those 18-74 years of age at interview for whom serum cholesterol determinations were made, there were 13,645 examined out of the probability sample of 19,572 selected to represent the 128 million of that age in the population. This is an unadjusted response rate of 70 percent and an effective adjusted response of 70 percent. A detailed description of the sample and response of the Health Examination Survey of 1960-62 has been published.[6] Detailed estimates of the distribution of serum cholesterol levels will be described and analyzed in a forthcoming report in Series 11[7] of *Vital and Health Statistics*. Selected data and findings from that report on the comparison of levels of serum cholesterol in the United States in 1960-62 and 1971-74 are presented here (tables 1-3 and figures 1-4).

Figure 1. MEAN SERUM CHOLESTEROL LEVEL OF MEN 18-74 YEARS BY AGE: UNITED STATES, 1960-62 AND 1971-74




[a]This report prepared by Sidney Abraham, Clifford L. Johnson, and Margaret D. Carroll, Division of Health Examination Statistics.

## CHOLESTEROL DETERMINATIONS—HES AND HANES

Serum cholesterol determinations for HES were made using a modified ferric-chloride technique at the Lipid Standardization Laboratory of the (then) Communicable Disease Center (CDC), Public Health Service, Atlanta, Georgia. A comparative study of cholesterol methods which was conducted by CDC during the course of the Health Examination Survey determined that the ferric- sulfuric method in use was positively biased with respect to the method of Abell, Levy, Brodie, and Kendall, which was chosen as a basis of reference for its close approximation to "true" serum cholesterol values.[2] The data in the HES report presented here are therefore the original ferric-chloride values reduced by a factor of 7.6 percent to approximate Abell et al. determinations.

All serum cholesterol determinations for HANES were made in the Lipid Standardization Laboratory of what is now the Center for Disease Control, Public Health Service, Atlanta, Georgia. The analytical method was based on that of Abell et al.[8] but was modified for a semiautomated production line. The method, described in detail by Eavenson et al.[9] was made possible by the development of a relatively stable Liebermann color reagent and was designed for automatic pipetting units.

The Lipid Laboratory at the Center for Disease Control compared the results obtained with this semiautomated Abell et al. method and those obtained from their standardized version of Abell et al.[8] For examining the bias of the semiautomated method, data were obtained from pools of sera analyzed by the reference method and the semiautomated method. For pools ranging from 134 to 343 mg per 100 ml, there was in 1972 an average positive bias of 4.07 percent for the semiautomated method compared with the standard method; for the 1973-74 period, the corresponding figure was a positive bias of 4.9 percent. The weighted average bias was 4.5 percent. Therefore the data presented here are the original values produced by the semiautomated method diminished by 4.5 percent to approximate Abell et al. determinations.

Figure 2. MEAN SERUM CHOLESTEROL LEVEL OF WOMEN 18-74 YEARS BY AGE: UNITED STATES, 1960-62 AND 1971-74

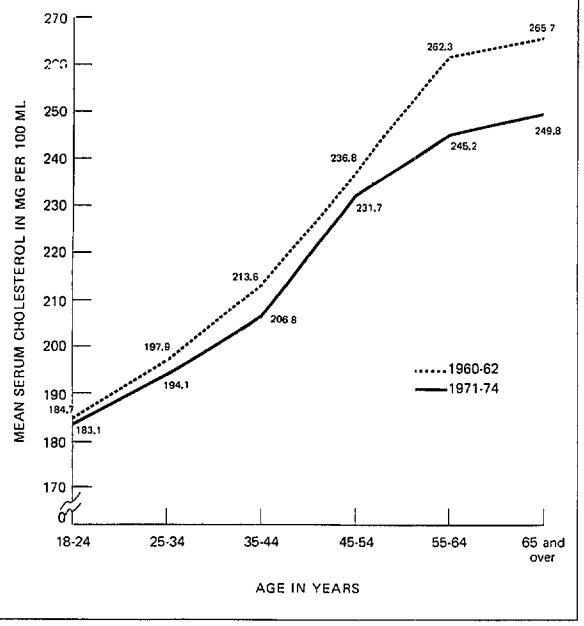
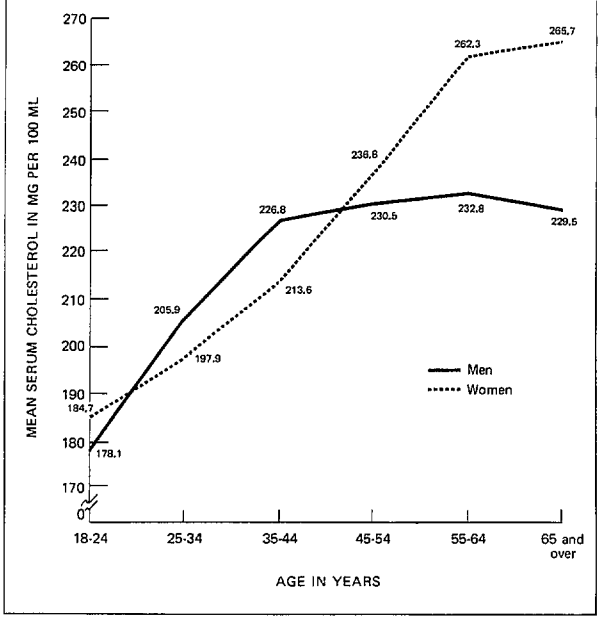



Figure 3. MEAN SERUM CHOLESTEROL LEVEL OF ADULTS 18-74 YEARS BY AGE AND SEX: UNITED STATES, 1960-62



However, in the later report,[7] HANES 1971-74 serum cholesterol data will be presented without correction for bias when no comparisons are made between HANES data and the data from HES, 1960-62. Those data will thus provide population reference standards for determinations made by the semiautomated methodology now in use.

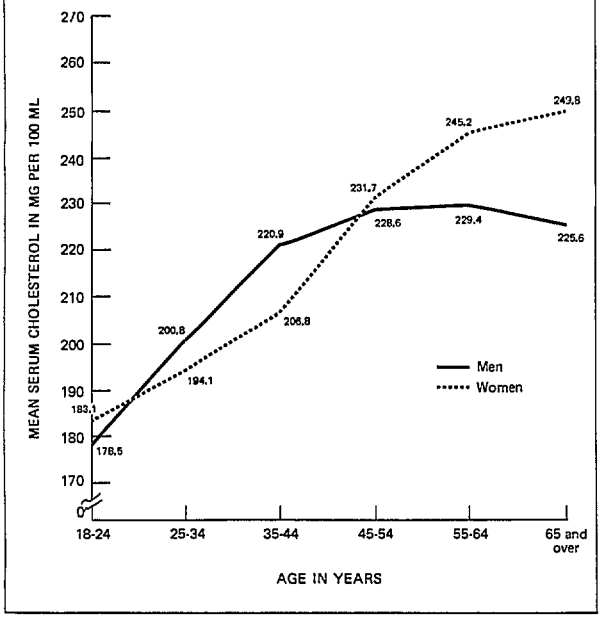
## FINDINGS

Figure 1 and table 2 show that in all age groupings mean serum cholesterol levels for men in the HES sample are slightly higher than those for men in the HANES sample except for the age group 18-24 years, when the HANES sample is 0.4 mg per 100 ml higher than that for the HES sample. In other age groups the differences range from 1.9 to 5.9 mg per 100 ml, and are not significant ($P>.05$). The mean levels for men in both data sets increase rapidly to the age group 35-44 years and increase less rapidly to the age groups 45-54 and 55-64 years. A slight decline occurs in the age group 65-74 years.

Figure 2 and table 1 show that the mean levels for women in the HES sample are higher than the levels for women in the HANES sample in all age groups. In the age groups under 55 years, with the exception of ages 35-44 years, the differences are small, 1.6 to 5.1 mg per 100 ml, and are not significant ($P>.05$). In age group 35-44 and in the older age groups 55 years and over the mean levels in the HES sample are significantly higher than those in the HANES sample. The differences in mean levels are 17.1 and 15.9 mg per 100 ml, respectively, for age groups 55-64 and 65-74 years and 6.8 mg per 100 ml for the age group 35-44 years.

The mean levels for women from HES and HANES sets of data increase with age but in a slightly different pattern. The mean levels for women in the HES sample increase to the age group 55-64 years, with the rate of increase more rapid for those in the midfifties and midsixties than for those in the earlier ages. The rate of increase then diminishes substantially, with the levels attaining a peak in the oldest age group 65-74 years. The rate of increase in the mean levels in the HANES sample show a similar pattern before age 55. However, the mean levels increase less rapidly in the midsixties, and then flatten out, with the levels also attaining a peak in the age group 65-74 years.

Figure 4. MEAN SERUM CHOLESTEROL LEVEL OF ADULTS 18-74 YEARS BY AGE AND SEX: UNITED STATES, 1971-74




### Sex Differences by Age—HES and HANES

Figure 3 shows that in the HES sample in each sex group the mean level increases with age but in different patterns. Levels for men increase rapidly to the decade 35-44 years. The rate of increase then flattens out, with levels reaching a peak in the decade 55-64 years and declining slightly thereafter. Mean levels for women are higher than those for men in the youngest age group, 18-24 years. They increase less rapidly than those for men in the midthirties and midforties but increase much more rapidly than men's levels after age 45. Thus the mean levels for women exceed those for men in the age group 45-54 years and at all ages thereafter.

Figure 4 shows the mean serum cholesterol levels in the HANES sample of adults. As in the HES sample, mean levels for women are higher than those for men in the youngest age group, 18-24 years. After age 25, the mean levels in the HANES sample generally show the same pattern as observed in the HES sample for women and

men. The mean levels for women increase less rapidly than those for men in the age groups 25-34 and 35-44 years but increase much more rapidly than men's levels after age 45. Here the levels for women exceed those for men in the age group 45-54 years and at all older ages. The levels for men peak at the age group 55-64 years and then decline, while the levels for women continue to rise.

A comparison of proportions of persons in HES and HANES whose serum cholesterol values exceed any specified level may be found in table 2 for men and in table 3 for women.

## SUMMARY AND CONCLUSION

Prospective as well as cross-sectional epidemiologic studies associate the level of serum cholesterol with risk of developing coronary heart disease. The two surveys conducted in representative samples of the U.S. population by the National Center for Health Statistics were presented and analyzed by age and sex. They provide cross-sectional data of serum cholesterol determinations of adults obtained on different age cohorts. The age trends present the mean levels for successive cohorts of persons of different age groups reflecting the effect of environmental as well as hereditary influences. The mean level of serum cholesterol of men in each age group for the HANES sample shows a slight decrease over that obtained for the HES sample. The percent decrease in mean levels ranges from 0.8 percent in the age group 45-54 years to 2.6 percent in the age group 35-44 years.

The actual differences in means of the levels of serum cholesterol of men from the two surveys at corresponding ages are numerically small. Maximum differences are 5.9 mg per 100 ml at age 35-44 years. At other ages the HES data range from 1.9 mg per 100 ml to 5.1 mg per 100 ml greater than the HANES data.

For women in the age groups under 55 years with the exception of ages 35-44 years, the mean levels of serum cholesterol in the HANES sample show a slight decrease over the levels of the HES sample. The maximum difference is 5.1 mg per 100 ml at ages 45-54 years. At ages 18-24 and 25-34 years, the differences are 1.6 and 3.8 mg per 100 ml, respectively. The differences at ages 35-44, 55-64, and 65-74 years are 6.8, 17.1, and 15.9 mg per 100 ml. Only at these ages were the differences significant at the 0.05 level.

Both laboratory methods (1960-62 and 1971-74) show positive biases relative to a common reference method. These biases can be compared and corrected for comparisons between the 1960-62 and 1971-74 surveys. This has been done in this report. The 1971-74 data are diminished by 4.5 percent to make them comparable to the 1960-62 data which were presented already corrected by 7.6 percent to the reference method. The reference method may be presumed to be stable over time, but there were no pools of sera which were analyzed in both study periods to assure that a shift in the accuracy of this reference method did not occur because such pools are not available.

## REFERENCES

[1] National Center for Health Statistics: Plan and operation of the Health and Nutrition Examination Survey, United States, 1971-1973. *Vital and Health Statistics.* Series 1-Nos. 10a and 10b. DHEW Pub. No. (HSM) 73-1310. Health Services and Mental Health Administration. Washington. U.S. Government Printing Office, Feb. 1973.

[2] National Center for Health Statistics: Serum Cholesterol Levels of Adults, United States, 1960-1962. *Vital and Health Statistics.* PHS Pub. No. 1000-Series 11-No. 22. Public Health Service. Washington. U.S. Government Printing Office, Mar. 1967.

[3] Keys, A.: The diet and plasma lipids in the etiology of coronary heart disease, in Russek, H. I., and Zohman, B. L., eds., *Coronary Heart Disease.* Philadelphia. J. B. Lippincott Co., 1971. p. 59.

[4] Keys, A,, Taylor, H. L., Blackburn, H., Brozek, J., Anderson, J. T., and Simonson, E.: Coronary heart disease among Minnesota business and professional men followed fifteen years. *Circulation* 28: 381, 1963.

[5] Gordon, T., and Verter, J. I.: The Framingham Study: An epidemiological investigation of cardiovascular disease. Section 23. Serum cholesterol, systolic blood pressure, and Framingham relative weight as discrimina-

tors of cardiovascular disease. Bethesda, Md. National Institutes of Health, 1969.

[6]National Center for Health Statistics: Cycle I of the Health Examination Survey, Sample and Response, United States, 1960-1962. *Vital and Health Statistics.* PHS Pub. No. 1000-Series 11-No. 1. Public Health Service. Washington. U.S. Government Printing Office, Apr. 1964.

[7]National Center for Health Statistics: Serum cholesterol levels of adults 18-74 years, United States, 1971-74. *Vital and Health Statistics.* Series 11. Health Resources Administration, DHEW, Rockville, Md. To be published.

[8]Abell, L. L., Levy, G. B., Brodie, B. B., and Kendall, F. E.: A simplified method for the estimation of total cholesterol in serum and demonstration of its specificity. *J. Biol. Chem.* 195: 357, 1952.

[9]Eavenson, D., Grier, O. T., Cisson, J. G., and Witter, R. F.: A semiautomated procedure for the determination of serum cholesterol using the Abell-Kendall method. *J. Amer. Oil Chem. Soc.* 43: 652. 1966.

**SYMBOLS**

| | |
|---|---|
| Data not available | - - - |
| Category not applicable | . . . |
| Quantity zero | - |
| Quantity more than 0 but less than 0.05 | 0.0 |
| Figure does not meet standards of reliability or precision | * |

Table 1. Serum cholesterol level of adults aged 18-74 years by sex and age, with number of examined persons, mean, and standard deviation: United States, 1960-62 (HES) and 1971-74 (HANES)

| Age | Men | | | | | | Women | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1960-62 | | | 1971-74 | | | 1960-62 | | | 1971-74 | | |
| | $n$[1] | Mean | $s$[2] | $n$[1] | Mean | $s$[2] | $n$[1] | Mean | $s$[2] | $n$[1] | Mean | $s$[2] |
| 18-24 years.. | 406 | 178.1 | 40.7 | 772 | 178.5 | 35.0 | 515 | 184.7 | 47.9 | 1,524 | 183.1 | 39.1 |
| 25-34 years.. | 661 | 205.9 | 44.6 | 804 | 200.8 | 42.0 | 729 | 197.9 | 41.9 | 1,896 | 194.1 | 40.3 |
| 35-44 years.. | 691 | 226.8 | 49.4 | 665 | 220.9 | 43.9 | 762 | 213.6 | 45.3 | 1,663 | 206.8 | 41.5 |
| 45-54 years.. | 533 | 230.5 | 45.6 | 765 | 228.6 | 44.9 | 679 | 236.8 | 50.0 | 836 | 231.7 | 49.6 |
| 55-64 years.. | 410 | 232.8 | 49.0 | 597 | 229.4 | 48.9 | 426 | 262.3 | 63.0 | 670 | 245.2 | 46.0 |
| 65-74 years.. | 262 | 229.5 | 47.3 | 1,657 | 225.6 | 51.3 | 289 | 265.7 | 58.8 | 1,822 | 249.8 | 49.6 |

[1]$n$ denotes number of examined persons.
[2]$s$ denotes standard deviation.

NOTE: The distribution of the number of persons examined by age and sex is different for HES and HANES because different sampling rates were applied to the subgroups, but within subgroups sampling rates are representative of the U.S. population at the time of the survey.

Table 2. Cumulative percent distribution of serum cholesterol levels of adult males by age: United States, 1960-62 (HES) and 1971-74 (HANES)

| Serum cholesterol level (mg/100ml) | 18-74 years | | 18-24 years | | 25-34 years | | 35-44 years | | 45-54 years | | 55-64 years | | 65-74 years | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 |
| | Cumulative percent distribution | | | | | | | | | | | | | |
| Under 100 | 0.1 | 0.2 | 0.4 | 0.1 | - | 0.1 | 0.1 | - | - | 0.7 | 0.2 | 0.1 | - | 0.2 |
| Under 120 | 0.8 | 0.9 | 2.9 | 2.4 | 0.6 | 1.1 | 0.6 | 0.1 | 0.1 | 0.7 | 0.7 | 0.1 | - | 0.7 |
| Under 140 | 3.3 | 4.1 | 14.4 | 11.8 | 2.6 | 4.1 | 1.5 | 1.7 | 0.3 | 1.4 | 1.5 | 1.7 | 1.3 | 2.7 |
| Under 160 | 9.6 | 12.2 | 33.1 | 31.1 | 10.2 | 14.7 | 5.3 | 6.2 | 3.7 | 6.0 | 4.4 | 3.3 | 4.1 | 6.2 |
| Under 180 | 21.2 | 25.7 | 57.9 | 55.1 | 27.5 | 32.7 | 14.1 | 17.6 | 9.4 | 11.8 | 11.1 | 12.4 | 10.3 | 14.6 |
| Under 200 | 35.7 | 42.3 | 73.8 | 76.6 | 47.7 | 53.6 | 25.4 | 32.8 | 22.6 | 24.2 | 22.1 | 24.2 | 26.5 | 29.8 |
| Under 220 | 53.4 | 59.0 | 86.8 | 87.5 | 66.5 | 70.8 | 45.8 | 51.6 | 42.6 | 41.8 | 36.4 | 42.9 | 43.3 | 47.9 |
| Under 240 | 70.4 | 74.5 | 93.6 | 94.1 | 81.4 | 84.3 | 66.1 | 68.5 | 60.8 | 62.6 | 58.3 | 63.2 | 62.0 | 65.5 |
| Under 260 | 82.4 | 85.3 | 96.1 | 97.2 | 89.6 | 91.8 | 79.8 | 82.9 | 74.3 | 75.9 | 76.5 | 79.8 | 78.4 | 79.1 |
| Under 280 | 90.6 | 91.8 | 99.1 | 98.6 | 95.5 | 96.3 | 88.3 | 90.0 | 86.3 | 86.4 | 87.8 | 87.3 | 86.7 | 88.8 |
| Under 300 | 95.3 | 95.9 | 99.4 | 99.8 | 98.0 | 97.9 | 93.0 | 93.8 | 94.7 | 94.4 | 93.0 | 93.3 | 93.9 | 94.3 |
| Under 320 | 97.9 | 97.8 | 99.6 | 99.8 | 99.8 | 98.7 | 96.9 | 97.8 | 98.6 | 96.5 | 96.4 | 96.2 | 96.5 | 96.9 |
| Under 340 | 98.9 | 99.0 | 99.8 | 100.0 | 99.8 | 99.0 | 97.9 | 99.3 | 99.4 | 98.9 | 98.6 | 97.9 | 98.3 | 97.8 |
| Under 360 | 99.4 | 99.4 | 99.8 | 100.0 | 99.8 | 99.4 | 99.0 | 99.4 | 99.9 | 99.7 | 99.1 | 98.8 | 98.9 | 98.9 |
| Under 380 | 99.6 | 99.6 | 99.8 | 100.0 | 99.8 | 99.4 | 99.6 | 99.7 | 99.9 | 100.0 | 99.3 | 99.1 | 99.5 | 99.1 |

Table 3. Cumulative percent distribution of serum cholesterol levels of adult females by age: United States, 1960-62 (HES) and 1971-74 (HANES)[1]

| Serum cholesterol level (mg/100ml) | 18-74 years | | 18-24 years | | 25-34 years | | 35-44 years | | 45-54 years | | 55-64 years | | 65-74 years | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 | 1960-62 | 1971-74 |
| | Cumulative percent distribution | | | | | | | | | | | | | |
| Under 100 | 0.1 | 0.2 | 0.3 | 0.4 | - | 0.6 | - | 0.3 | - | - | - | - | 0.3 | - |
| Under 120 | 0.8 | 1.1 | 2.9 | 2.9 | 0.8 | 1.6 | 0.6 | 0.7 | - | 0.3 | - | 0.1 | 0.7 | 0.6 |
| Under 140 | 2.8 | 4.5 | 9.2 | 11.5 | 4.4 | 7.1 | 1.8 | 3.2 | 0.6 | 0.7 | - | 0.4 | 1.1 | 1.7 |
| Under 160 | 9.3 | 12.3 | 28.3 | 28.9 | 15.1 | 17.4 | 6.5 | 11.0 | 2.7 | 4.8 | 0.1 | 2.7 | 1.5 | 3.1 |
| Under 180 | 20.9 | 24.3 | 49.4 | 49.7 | 33.8 | 36.3 | 19.6 | 23.5 | 7.9 | 11.6 | 3.5 | 6.3 | 6.0 | 6.0 |
| Under 200 | 35.2 | 41.4 | 69.8 | 69.5 | 55.8 | 60.4 | 38.3 | 46.3 | 18.1 | 25.7 | 7.7 | 15.3 | 8.8 | 13.0 |
| Under 220 | 51.9 | 57.9 | 84.9 | 83.5 | 74.5 | 77.5 | 62.1 | 67.0 | 35.0 | 43.7 | 17.9 | 29.8 | 17.6 | 24.9 |
| Under 240 | 64.9 | 71.8 | 91.0 | 92.1 | 86.5 | 88.3 | 76.8 | 80.7 | 53.0 | 61.8 | 29.9 | 47.3 | 31.4 | 42.5 |
| Under 260 | 77.3 | 82.5 | 95.4 | 97.0 | 92.6 | 94.4 | 87.1 | 90.4 | 72.0 | 75.5 | 50.3 | 64.7 | 49.0 | 59.3 |
| Under 280 | 85.5 | 89.4 | 97.5 | 97.9 | 95.7 | 97.5 | 93.0 | 94.7 | 84.7 | 85.0 | 64.1 | 76.9 | 64.8 | 76.0 |
| Under 300 | 91.8 | 94.3 | 98.2 | 99.3 | 98.6 | 98.8 | 97.1 | 97.8 | 93.7 | 90.8 | 79.1 | 88.1 | 73.3 | 86.1 |
| Under 320 | 95.4 | 97.1 | 99.0 | 99.8 | 99.3 | 99.1 | 98.4 | 98.9 | 96.3 | 95.3 | 88.3 | 94.4 | 84.7 | 92.2 |
| Under 340 | 97.8 | 98.2 | 99.7 | 99.8 | 99.6 | 99.7 | 98.9 | 99.5 | 98.6 | 96.5 | 95.3 | 96.4 | 91.8 | 96.2 |
| Under 360 | 98.8 | 99.2 | 99.9 | 99.8 | 99.7 | 99.8 | 99.3 | 99.6 | 99.5 | 98.4 | 98.3 | 98.9 | 94.2 | 98.3 |
| Under 380 | 99.4 | 99.5 | 99.9 | 99.9 | 99.9 | 99.8 | 99.5 | 99.7 | 99.6 | 99.0 | 99.6 | 99.4 | 97.0 | 99.1 |

## TECHNICAL NOTES

The sampling plan for the 65 preselected examination locations in the Health and Nutrition Examination Survey followed a highly stratified multistage probability design in which a sample of the civilian, noninstitutionalized population of the conterminous United States 1 to 74 years of age was selected. Successive elements dealt with in the process of sampling were the primary sampling unit, census enumeration district, segment (a cluster of households), household, eligible person, and sample person. The sampling design provided for oversampling among persons living in poverty areas, preschool children, women of childbearing age, and the elderly.

The serum cholesterol determinations are shown as population estimates, that is, the serum cholesterol findings for each individual have been "weighted" by the reciprocal of the probability of selecting the person. An adjustment for persons in the sample who were not examined and poststratified ratio adjustments were also made and so the final sampling estimates of the population size agree exactly with the U.S. Bureau of the Census independent estimates for the civilian, noninstitutionalized population of the United States as of November 1, 1972, by race, sex, and age.

Previous issues of *Advance Data From Vital and Health Statistics*

No. 1 Blood Pressure of Persons 6-74 Years of Age in the United States (Issued: October 18, 1976)

No. 2 Hypertension: United States, 1974 (Issued: November 8, 1976)

No. 3 Height and Weight of Adults 18-74 Years in the United States (Issued: November 19, 1976)

No. 4 Prevalence of Dermatological Diseases Among Persons 1-74 Years of Age, United States (Issued: January 26, 1977)

advancedata
FROM VITAL & HEALTH STATISTICS OF THE NATIONAL CENTER FOR HEALTH STATISTICS
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE | No. 6 March 30, 1977 | Public Health Service • Health Resources Administration

# Dietary Intake of Persons 1-74 Years of Age in the United States[a]

Information on food intake for 1 day was obtained during the Health and Nutrition Examination Survey (HANES) conducted by the National Center for Health Statistics April 1971 through June 1974 from a national probability sample of persons 1-74 years of age in the U.S. civilian noninstitutional population.

Dietary intake data in HANES were obtained at 65 primary sampling units on 28,043 sample persons selected to represent 194 million persons aged 1-74 years in the U.S. population. The program examined 20,749 persons, or 74 percent of the sample. This represents an effective response rate of 75 percent when adjustment is made for the effect of oversampling among the poor, preschool children, women of childbearing age, and the elderly. Detailed estimates of the distribution of calories and selected nutrient intakes ingested on a single day and the proportions of persons who did not ingest on that day the levels of nutrients necessary to meet the recommended daily allowance will be described and analyzed in a forthcoming report in the *Vital and Health Statistics* series.[1] Selected means as they relate to the recommended daily allowances from that report are presented here in tables 1-8 and in figures 1-3.

Information on food intake was obtained by the 24-hour recall method for the day, midnight to midnight, preceeding the interview. The 24-hour period accounted for all regular meals eaten as well as for between-meal foods or snacks. Food recall included foods eaten on Monday through Friday but excluded foods eaten on weekends which may pertain to unusual food intakes.

Individual nutrient intakes for the single day reported are evaluated in relation to recommended dietary allowances. The mean of the percentages of the nutrient standard is presented. This mean is a crude estimate of desirable or expected nutrient intakes, and it proves useful for comparisons of dietary intake data between population subgroups. However, percents of standard below 100 do not necessarily mean inadequate nutrient intakes. The recommended allowances are designed for the maintenance of good nutrition in healthy persons in the United States. They allow for some margin above what is really needed by most individuals with the objective of maintaining good health in all. As a guideline to interpreting the dietary data, a set of recommended daily allowances for the evaluation of HANES dietary data was developed with advice from an *ad hoc* advisory group. The groups considered recommended daily allowances from the World Health Organization,[2] the Interdepartmental Committee on Nutrition for National Defense Manual,[3] the National Research Council Food and Nutrition Board Recommended Dietary Allowances,[4] and from those used in the Ten-State Nutrition Survey.[5] Except for protein and calories, the recommended daily allowances as presented in table A are all related to age, physiological state, or to caloric intake.

Standards for assessing caloric and protein allowances for adults are based on expected median body weight for sex and height at ages 20-29 years. More specifically, an expected body weight at ages 20-29 years was computed for each individual adult based on height and sex. The median of the distribution of expected

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[a]This report prepared by Sidney Abraham, Margaret D. Carroll, M.S.P.H., Connie M. Dresser, R.D., and Clifford L. Johnson, M.S.P.H., *Division of Health Examination Statistics.*

weight for each height and sex group was determined. The standardized allowance for each individual 20 years and over was then calculated by multiplying the median expected weight for height and sex by the recommended nutrient allowance per kilogram of body weight (table A). The resultant product was then taken as that individual's sex-height-standardized allowance. The reported caloric or protein intake for each individual was then divided by this standardized allowance to arrive at the "percent of recommended daily allowance." Height-sex-specific weight at ages 20-29 is used because at these ages it is thought to most closely approximate the body's cell mass. Cell mass, the metabolically active part of the body, is the major determinant of adult nutrient needs. Weight gain after 20-29 years is presumed to be fat, with little

Figure 1. Mean intake of calories and selected nutrients as a percent below recommended dietary allowance, by income level, sex, and age: United States, 1971-74.

[Based on 1-day diet; 24-hour recall]

| Sex and age | Calories | | | Protein (gm) | | | Calcium (mg) | | | Iron (mg) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | All incomes | Below poverty level[1] | Above poverty level[1] | All incomes | Below poverty level[1] | Above poverty level[1] | All incomes | Below poverty level[1] | Above poverty level[1] | All incomes | Below poverty level[1] | Above poverty level[1] |
| Male | | | | | | | | | | | | |
| 1 year | | | | | | | | | | xxxx | xxxx | xxxx |
| 2-3 years | | | | | | | | | | xxxx | xxxx | xxxx |
| 4-5 years | | | | | | | | | | x | x | x |
| 6-7 years | | | | | | | | | | | | |
| 8-9 years | x | x | x | | | | | | | | | |
| 10-11 years | x | xxx | x | | | | | | | | | |
| 12-14 years | xx | xxx | xx | | | | | | | x | x | x |
| 15-17 years | xx | xxx | xx | | | | | | | x | xxx | x |
| 18-19 years | x | xx | x | | | | | | | x | xx | x |
| 20-24 years | x | xx | x | | | | | | | | | |
| 25-34 years | x | xx | x | | | | | | | | | |
| 35-44 years | x | x | x | | | | | | | | | |
| 45-54 years | xx | xxx | xx | | | | | | | | | |
| 55-64 years | xx | xxxx | xx | | x | | | | | | | |
| 65 years and over | xxx | xxxx | xxx | x | x | | | | | | | |
| Female | | | | | | | | | | | | |
| 1 year | | | | | | | | | | xxxx | xxxx | xxxx |
| 2-3 years | | | | | | | | | | xxxx | xxxx | xxxx |
| 4-5 years | | | | | | | | | | xx | xx | xx |
| 6-7 years | x | x | x | | | | | | | x | xx | x |
| 8-9 years | xxx | xx | xxx | | | | | | | x | | x |
| 10-11 years | xx | xx | xx | | | | | | | xxxx | xxxx | xxxx |
| 12-14 years | xxx | xxx | xxx | | | | | | | xxxx | xxxx | xxxx |
| 15-17 years | xxxx | xxxx | xxxx | x | xx | | | | | xxxx | xxxx | xxxx |
| 18-19 years | xx | xx | xx | | | | | | | xxxx | xxxx | xxxx |
| 20-24 years | xxx | xxx | xxx | | x | | | | | xxxx | xxxx | xxxx |
| 25-34 years | xx | xx | xx | | x | | | x | | xxxx | xxxx | xxxx |
| 35-44 years | xx | xxx | xx | | x | | | xx | | xxxx | xxxx | xxxx |
| 45-54 years | xx | xx | xx | | x | | x | x | x | xxxx | xxxx | xxxx |
| 55-64 years | xx | xxx | xx | x | xx | x | x | x | x | x | xx | x |
| 65 years and over | xxx | xxx | xxx | x | xx | x | x | xx | x | x | xx | x |

KEY

x = Below by 1-10 percent
xx = Below by 11-20 percent
xxx = Below by 21-29 percent
xxxx = Below by 30 percent or more

[1]Excludes persons with unknown income.

NOTE: There was no one observed below the recommended dietary allowance for vitamins A and C, thiamine, and riboflavin.

increase of the body's cell mass. In fact, cell mass tends to decrease with age even as weight increases,[6] which indicates that these standardized allowances tend to overstate the nutrient needs of older people as compared with younger. This bias is much less, however, than the presentation of nutrient intake per kilogram of body weight. Those who weigh less than the height-sex-specific weight at 20-29 years of age are presumed to be underweight, and their nutrient needs may be presumed to be greater than their weight implied.

A similar method was used to obtain height-standardized allowances for assessing caloric and protein dietary intakes of children. The expected median body weight for age, sex, and height was derived from anthropometric data collected in HANES.

In addition to age and race, income status is another population characteristic considered when nutritional data are presented because quantity and quality of dietary intake have been known to be associated with level of income.

Table A. Standards for evaluation of daily dietary intake used in the Health and Nutrition Examination Survey, by age, sex, and physiological state: United States, 1971-74

| Age, sex, and physiological state | Calories (per kg) | Protein (gm per kg) | Calcium (mg) | Iron (mg) | Vitamin A[1] (I.U.) | Vitamin C (mg) | B vitamins (all ages) |
|---|---|---|---|---|---|---|---|
| **Age and sex** | | | | | | | |
| 1-5 years: | | | | | | | Thiamine 0.4 mg per 1,000 calories |
| 12-23 months, male and female | 90 | 1.9 | 450 | 15 | 2,000 | 40 | |
| 24-47 months, male and female | 86 | 1.7 | 450 | 15 | 2,000 | 40 | Riboflavin 0.55 mg per 1,000 calories |
| 48-71 months, male and female | 82 | 1.5 | 450 | 10 | 2,000 | 40 | |
| 6-7 years, male and female | 82 | 1.3 | 450 | 10 | 2,500 | 40 | Niacin 6.6 mg per 1,000 calories |
| 8-9 years, male and female | 82 | 1.3 | 450 | 10 | 2,500 | 40 | |
| 10-12 years Male | 68 | 1.2 | 650 | 10 | 2,500 | 40 | |
| Female | 64 | 1.2 | 650 | 18 | 2,500 | 40 | |
| 13-16 years Male | 60 | 1.2 | 650 | 18 | 3,500 | 50 | |
| Female | 48 | 1.2 | 650 | 18 | 3,500 | 50 | |
| 17-19 years Male | 44 | 1.1 | 550 | 18 | 3,500 | 55 | |
| Female | 35 | 1.1 | 550 | 18 | 3,500 | 50 | |
| 20-29 years Male | 40 | 1.0 | 400 | 10 | 3,500 | 60 | |
| Female | 35 | 1.0 | 600 | 18 | 3,500 | 55 | |
| 30-39 years Male | 38 | 1.0 | 400 | 10 | 3,500 | 60 | |
| Female | 33 | 1.0 | 600 | 18 | 3,500 | 55 | |
| 40-49 years Male | 37 | 1.0 | 400 | 10 | 3,500 | 60 | |
| Female | 31 | 1.0 | 600 | 18 | 3,500 | 55 | |
| 50-54 years Male | 36 | 1.0 | 400 | 10 | 3,500 | 60 | |
| Female | 30 | 1.0 | 600 | 18 | 3,500 | 55 | |
| 55-59 years Male | 36 | 1.0 | 400 | 10 | 3,500 | 60 | |
| Female | 30 | 1.0 | 600 | 10 | 3,500 | 55 | |
| 60-69 years Male | 34 | 1.0 | 400 | 10 | 3,500 | 60 | |
| Female | 29 | 1.0 | 600 | 10 | 3,500 | 55 | |
| 70 years and over Male | 34 | 1.0 | 400 | 10 | 3,500 | 60 | |
| Female | 29 | 1.0 | 600 | 10 | 3,500 | 55 | |
| **Physiological state** | | | | | | | |
| Pregnancy (5th month and beyond), add to basic standard | 200 | 20 | 200 | | 1,000 | [2]5 | |
| Lactating, add to basic standard | 1,000 | 25 | 500 | | 1,000 | 5 | |

[1] Assumed 70 percent carotene, 30 percent retinol.
[2] For all pregnancies.

The income status for each examined person is expressed by the Poverty Income Ratio (table B). Families and unrelated individuals are classified as being above or below the low income or poverty level, using the poverty level index adopted by the Federal Interagency Committee in 1969. This index, in contrast with total family income, reflects the different consumption requirements of families based on their size, composition, sex, age of the family head, and farm-nonfarm residence.

For analysis, two groups of income levels are presented—income below poverty level, a ratio of less than one, and income at and above poverty level, a ratio of one or more. A later, more detailed analysis may show differences not apparent here. There were 723 persons (3.5 percent of the total) examined whose income was

Figure 2. Mean intake of calories and selected nutrients as a percent below recommended

[Based on 1-day diet;

| Sex and age | Calories | | | Protein (gm) | | |
|---|---|---|---|---|---|---|
| | All incomes | Below poverty level[1] | Above poverty level[1] | All incomes | Below poverty level[1] | Above poverty level[1] |
| White male | | | | | | |
| 1 year | | | | | | |
| 2-3 years | | | | | | |
| 4-5 years | | | | | | |
| 6-7 years | | | | | | |
| 8-9 years | x | x | x | | | |
| 10-11 years | x | xx | x | | | |
| 12-14 years | xx | xxx | xx | | | |
| 15-17 years | xx | xx | xx | | | |
| 18-19 years | x | xx | x | | | |
| 20-24 years | x | xx | x | | | |
| 25-34 years | x | xx | x | | | |
| 35-44 years | x | x | x | | | |
| 45-54 years | xx | xx | xx | | | |
| 55-64 years | xx | xxxx | xx | | x | |
| 65 years and over | xxx | xxx | xxx | | x | |
| Negro male | | | | | | |
| 1 year | | | | | | |
| 2-3 years | | | | | | |
| 4-5 years | | | | | | |
| 6-7 years | | | | | | |
| 8-9 years | xx | xx | xxx | | | |
| 10-11 years | xxx | xxxx | xx | | | |
| 12-14 years | xxx | xxxx | xxx | | | |
| 15-17 years | xxx | xxxx | xxx | | | |
| 18-19 years | xx | xx | xx | | | |
| 20-24 years | xx | xxx | xx | | | |
| 25-34 years | x | xx | x | | | |
| 35-44 years | xx | xx | xx | | | |
| 45-54 years | xxx | xxxx | xxx | | | |
| 55-64 years | xxxx | xxxx | xxx | | xx | |
| 65 years and over | xxxx | xxxx | xxxx | xx | xx | xx |

[1] Excludes persons with unknown income.

NOTE: There was no one observed below the recommended dietary allowance for thiamine and riboflavin.

unknown. These persons were excluded from the two income classification groups, but they were included in the total group.

The mean nutritive content of diets consumed by different age, sex, race, and income groups was compared with the recommended dietary allowances for calories, protein, calcium, iron, vitamins A and C, thiamine, and riboflavin.

Iron, on the basis of mean intakes, was the nutrient most often found below the recommended dietary allowance in population groups. This was shown in nearly all age groups for white and Negro females in both income groups. Children of ages 1-3 years had means that were 41 to 68 percent below the recommended dietary allowance; adolescents 12-17 years had means that were 35 to 55 percent below the recommended allowance; and women of child-

dietary allowance for males, by income level, race, and age: United States, 1971-74.

24-hour recall]

| Calcium (mg) | | | Iron (mg) | | | Vitamin A (I.U.) | | | Vitamin C (mg) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| All incomes | Below poverty level[1] | Above poverty level[1] | All incomes | Below poverty level[1] | Above poverty level[1] | All incomes | Below poverty level[1] | Above poverty level[1] | All incomes | Below poverty level[1] | Above poverty level[1] |
| | | | xxxx<br>xxxx<br>x | xxxx<br>xxxx<br>x | xxxx<br>xxxx<br>x | | | | | | |
| | | | | | | | | | | | |
| | | | x<br>x<br>x | x<br>xxx<br>xx | x<br>x<br>x | | | | | | |
| | | | | | | | | | | xx | |
| | | | | | | | x | | | xx<br>x | |
| | | | xxxx<br>xxxx<br>x | xxxx<br>xxxx<br>xx | xxxx<br>xxxx<br>x | | | | | | |
| | | | x | x<br>x | | | | | | | |
| | | | x<br>xxx<br>xx | x<br>xxxx<br>x | x<br>xxx<br>xxx | | | x | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

KEY

x = Below by 1-10 percent
xx = Below by 11-20 percent
xxx = Below by 21-29 percent
xxxx = Below by 30 percent or more

bearing ages, 18-44 years, had means that were 41 to 53 percent below the recommended allowance.

White females aged 65 years and over in the upper income group approached the recommended allowance (96 percent of the recommended allowance), but white females in the lower income group and Negro females in both income groups had means ranging from 16 to 26 percent below the recommended allowance.

White and Negro males in most age groups for both income levels had iron intakes that either approached or were above the recommended allowance. The exceptions were boys aged 1-3 years who had means consistently below the recommended allowances for all race and income groups, 41 to 56 percent. White male youths 15-19 years in the lower income group had means that averaged 17 percent below the recommended allowance. Negro boys 4-5 years in the lower income group had means 13 percent below the recommended allowance. Ne-

Figure 3. Mean intake of calories and selected nutrients as a percent below recommended

[Based on 1-day diet;

| Sex and age | Calories | | | Protein (gm) | | |
|---|---|---|---|---|---|---|
| | All incomes | Below poverty level[1] | Above poverty level[1] | All incomes | Below poverty level[1] | Above poverty level[1] |
| White female | | | | | | |
| 1 year | | | | | | |
| 2-3 years | | | | | | |
| 4-5 years | | | | | | |
| 6-7 years | x | | x | | | |
| 8-9 years | xxx | xx | xxx | | | |
| 10-11 years | x | x | x | | | |
| 12-14 years | xxx | xxx | xxx | | | |
| 15-17 years | xxxx | xxxx | xxxx | x | xx | |
| 18-19 years | xx | xxx | xx | | x | |
| 20-24 years | xxx | xxx | xxx | | x | |
| 25-34 years | xx | xx | xx | | | |
| 35-44 years | xx | xxx | xx | | x | |
| 45-54 years | xx | xx | xx | | x | |
| 55-64 years | xx | xxx | xx | | xx | |
| 65 years and over | xxx | xxx | xxx | x | xx | x |
| Negro female | | | | | | |
| 1 year | | | | | | |
| 2-3 years | | | | | | |
| 4-5 years | | | | | | |
| 6-7 years | x | xx | x | | | |
| 8-9 years | xxxx | xxx | xxxx | | | |
| 10-11 years | xxx | xxx | xx | | | |
| 12-14 years | xxx | xxx | xxx | | | |
| 15-17 years | xxx | xxxx | xxx | x | x | |
| 18-19 years | xx | xx | xxx | | | |
| 20-24 years | xxx | xxx | xxx | | x | |
| 25-34 years | xx | xx | xxx | x | x | x |
| 35-44 years | xxx | xxx | xxxx | xx | xx | xx |
| 45-54 years | xxx | xxx | xxx | x | x | x |
| 55-64 years | xxx | xxxx | xxx | xx | xxx | xx |
| 65 years and over | xxxx | xxxx | xxx | xx | xx | xx |

[1] Excludes persons with unknown income.

NOTE: There was no one observed below the recommended dietary allowance for thiamine and riboflavin.

gro male youths 15-17 years in the lower income group had means 30 percent below the recommended allowance, and those 15-19 years in upper income groups had means that averaged 26 percent below the recommended allowance.

Higher density iron food sources are needed, especially by women, if the recommended dietary allowances for iron are to be attained. The desirability of meeting these recommended dietary allowances cannot, however, be determined from data presented in this report, but must depend upon finding physiological and health related evidence of inadequate iron nutrition in the population. The second Health and Nutrition Examination Survey (HANES II), now in operation, will provide some additional data relevant to making such a determination.

White boys 1-9 years in both income groups had mean caloric intakes that approached or exceeded the recommended dietary allowances. This was also true for white girls and Negro boys 1-7 years. For Negro girls, however, the corre-

dietary allowance for females, by income level, race, and age: United States, 1971-74.

24-hour recall]

| Calcium (mg) | | | Iron (mg) | | | Vitamin A (I.U.) | | | Vitamin C (mg) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| All incomes | Below poverty level[1] | Above poverty level[1] | All incomes | Below poverty level[1] | Above poverty level[1] | All incomes | Below poverty level[1] | Above poverty level[1] | All incomes | Below poverty level[1] | Above poverty level[1] |
| | | | xxxx | xxxx | xxxx | | | | | x | |
| | | | xxxx | xxxx | xxxx | | | | | | |
| | | | xx | xx | xx | | | | | | |
| | | | x | xx | x | | | | | | |
| | | | x | | x | | | | | | |
| | | | xxxx | xxxx | xxxx | | | | | | |
| | | | xxxx | xxxx | xxxx | | x | | | | |
| | | | xxxx | xxxx | xxxx | | x | | | | |
| | | | xxxx | xxxx | xxxx | | xx | | | | |
| | x | | xxxx | xxxx | xxxx | | x | | | | |
| | | | xxxx | xxxx | xxxx | | x | | | | |
| x | | x | | xx | x | | | | | | |
| x | x | x | x | xx | x | | | | | | |
| | | | xxxx | xxxx | xxxx | | | | | | |
| | | | xxxx | xxxx | xxxx | | | | | | |
| | | | xx | x | xx | | | | | | |
| | | | x | x | x | | | | | | |
| | | | xx | x | xxx | | | | | | |
| | | | xxxx | xxxx | xxxx | | | | | | |
| | | | xxxx | xxxx | xxxx | | | | | | |
| | x | | xxxx | xxxx | xxxx | x | xxx | xx | | | |
| x | | xxx | xxxx | xxxx | xxxx | | | | | | |
| xx | xx | xx | xxxx | xxxx | xxxx | | | | | | |
| xxxx | xxx | xxxx | xxxx | xxxx | xxxx | | | | | | |
| xxxx | xxxx | xxx | xxxx | xxxx | xxxx | | | | | | |
| xxxx | xxx | xxxx | xxxx | xxxx | xxxx | | | | | | |
| xxx | xxxx | xxx | xx | xxx | xx | | | | | | |
| xxx | xxx | xxx | xxx | xxx | xx | | | | | | |

KEY

x = Below by 1-10 percent
xx = Below by 11-20 percent
xxx = Below by 21-29 percent
xxxx = Below by 30 percent or more

sponding pattern was evident only at ages 1-5 years for those in the lower income group and at ages 1-7 years for those in the upper income group.

White boys and men 10 through 74 years in the lower income group generally had mean caloric intakes below the recommended dietary allowances. In the upper income group, this observation was evident only at ages 12-17 and 45-74 years. For those in the upper income group at ages 10-11 and 18-44, the mean caloric intake approached the standards.

Negro males and white and Negro females at all ages from 8 through 74 years and in both income groups had mean caloric intakes below the standards.

The distribution of the mean caloric intake as a percent of the recommended dietary allowances in population subgroups does not correspond to the distribution of the lean and obese persons across similar population subgroups. Various possible explanations for this discrepancy range from reporting biases in the 24-hour recall method of dietary interview to differences in physical activity that are not reflected in the recommended dietary allowances or to the allowances themselves. The National Center for Health Statistics is presently collecting data for the purpose of examining the caloric-exercise-obesity relationship.

Mean protein intake for white boys and men approached or exceeded the recommended dietary allowances for all income groups. Negro boys and men 1-54 years in both income groups also had high protein in relation to the recommended dietary allowances, but at ages 55-64 years men in the lower income group and those 65 years and over in both income groups had mean protein intakes that averaged about 13 percent below the recommended dietary allowances.

Mean protein intake for white girls and women in the income group above poverty level approached or exceeded the recommended dietary allowances at all ages. Corresponding values for white girls and women in the lower income group were similar except for those aged 15-17 and 55 years and over whose mean values averaged about 16 percent below the recommended dietary allowances.

Table B. Weighted average thresholds at the low income level in 1971, by farm-nonfarm residence, sex of family head, and size of family: United States, 1971

| Size of family | Total | Nonfarm | | | Farm | | |
|---|---|---|---|---|---|---|---|
| | | Total | Male head[1] | Female head[1] | Total | Male head[1] | Female head[1] |
| All unrelated individuals | $2,033 | $2,040 | $2,136 | $1,978 | $1,727 | $1,783 | $1,669 |
| Under 65 years | 2,093 | 2,098 | 2,181 | 2,017 | 1,805 | 1,853 | 1,715 |
| 65 years and over | 1,931 | 1,940 | 1,959 | 1,934 | 1,652 | 1,666 | 1,643 |
| All families | 3,700 | 3,724 | 3,764 | 3,428 | 3,235 | 3,242 | 3,079 |
| 2 persons | 2,612 | 2,633 | 2,641 | 2,581 | 2,219 | 2,224 | 2,130 |
| Head under 65 years | 2,699 | 2,716 | 2,731 | 2,635 | 2,317 | 2,322 | 2,195 |
| Head 65 years and over | 2,424 | 2,448 | 2,450 | 2,437 | 2,082 | 2,081 | 2,089 |
| 3 persons | 3,207 | 3,229 | 3,246 | 3,127 | 2,745 | 2,749 | 2,627 |
| 4 persons | 4,113 | 4,137 | 4,139 | 4,116 | 3,527 | 3,528 | 3,513 |
| 5 persons | 4,845 | 4,880 | 4,884 | 4,837 | 4,159 | 4,159 | 4,148 |
| 6 persons | 5,441 | 5,489 | 5,492 | 5,460 | 4,688 | 4,689 | 4,656 |
| 7 persons or more | 6,678 | 6,751 | 6,771 | 6,583 | 5,736 | 5,749 | 5,516 |

[1] For unrelated individuals, sex of the individual.

Source: U.S. Bureau of the Census: Characteristics of the low-income population, 1971, *Current Population Reports*, Series P-60, No. 86. U.S. Government Printing Office, Washington, 1972.

Negro girls and women also had average protein intakes above the recommended dietary allowances in both income groups except for those women aged 35-44 and 55 years and over in both income groups whose values averaged about 16 percent below the recommended dietary allowances.

Other nutrients examined showed even less evidence of any inadequacy in the general diet.

White and Negro males and white females of all ages (1-74 years) and in both income groups had mean calcium intakes that approached or were above the recommended dietary allowances. Only Negro females at ages 20-74 years in the lower income group and at ages 18-74 years in the upper income group had calcium intakes that ranged from 12 to 39 percent, on the average, below the recommended dietary allowances.

Males had mean vitamin A intakes at all ages in both race and income groups that approached or exceeded the recommended allowances. This was also true for females in almost all age, race, and income groups. The exceptions were white females 20-24 years in the lower income group whose means were 12 percent below the recommended allowances, and Negro females 12-14 years in the upper income group and those 15-17 years in the lower income group whose means were 15 and 27 percent, respectively, below the recommended allowances.

Mean nutrient intakes of thiamine and riboflavin were above the recommended allowances for all age, race, sex, and income groups. Mean nutrients for vitamin C intakes were above the recommended allowances for all age, race, sex, and income groups, except for white males 25-34 and 45-54 years in the lower income group whose intakes averaged 15 percent below the recommended allowances.

## CONCLUSION AND SUMMARY

The mean percent of dietary intake relative to recommended dietary allowances has been presented for calories, protein, calcium, iron, vitamins A and C, thiamine, and riboflavin. These data, however, did not consider the distribution of nutrient intakes because only the mean was presented. The mean intake has limited value in light of the variability of some nutrient distributions. High mean intakes can mask the fact that a substantial proportion of individuals within a group may have usual nutrient intakes far below the recommended dietary allowances. However, this habitual intake of individuals cannot be estimated from knowledge of a single-day's intake as collected in HANES I.[7] Single-day intake data, in contrast with intake data over larger periods of time, result in greater variability of nutrient intakes that leads to a higher prevalence of low intake when compared with the recommended dietary allowances, thus overestimating the prevalence of habitual low nutrient intakes.

In spite of the limitations of the single-day intake data to estimate individual habitual intake, the distributions of the means across population subsamples are useful in identifying influences on the diet related to population characteristics. The presentation of dietary intakes relative to the recommended daily allowances of nutrients permits a comparison across age and sex groups, which have different dietary requirements.

Some nutrients, namely riboflavin and thiamine, show adequate or more than adequate mean intake for all population subgroups defined by two levels of poverty, race, sex, and age. Other nutrients, namely protein, calcium, and vitamins A and C revealed some, but not most, population subgroups with lower mean intake than the recommended dietary allowance. Calcium mean intake was consistently lower than recommended allowances only for adult Negro women regardless of income. Vitamin A mean intake was below recommended daily allowance in white adolescents and young adult women in low income groups and among adolescent Negro women regardless of income. Protein mean intake was also below the recommended allowances for adolescents, adult women, and older men in the low income group. This pattern was also observed for adult Negro females and Negro older men and for older white females in the upper income group.

The mean dietary intakes of calories and iron were below the recommended daily allowances for most of the population subgroups. Caloric intake was below the recommended daily allowances for all except the younger child regardless of sex, race, and income group. Iron intake was below the recommended daily allow-

ance for all the female income, race, and age groups and for males in the preschool years and adolescence.

There is such a discrepancy between these patterns of nutrition adequacy of iron and calories as measured by the mean intake relative to recommended daily allowances, as compared with the much smaller extent of inadequacy as measured by physiological measures,[8,9] that one must reserve judgment about the relationships of income, race, sex, and age to malnutrition until these measures are interpreted together.

## REFERENCES

[1]National Center for Health Statistics: Calorie and Selected Nutrient Intake Values of Persons, 1-74 Years, United States, 1971-1974. *Vital and Health Statistics.* Series 11. Health Resources Administration, DHEW, Rockville, Md. To be published.

[2]Caloric Requirements, FAO Nutr. Stud. No. 15, Rome (1957); Protein Requirements, FAO/WHO, FAO Nutr. Meetings Rep. Ser. No. 37, WHO Tech Rep. Ser. No. 301, Rome (1965); Calcium Requirements, FAO/WHO. FAO Nutr. Meet. Rep. Ser. No. 30. WHO Tech. Rep. Ser. No. 230, Rome (1962); Requirements of Vitamin A, Thiamine, Riboflavin, and Niacin. FAO/WHO FAO Nutr. Rep. No. 41. WHO Tech. Rep. Ser. No. 362, Rome (1967); and Requirements of Ascorbic Acid, Vitamin D. Vitamin $B_{12}$, Folate and Iron, FAO Nutr. Meet. Rep. Ser. 47. WHO Tech. Rep. Ser. No. 452, Geneva (1970).

[3]Inter-departmental Committee on Nutrition for National Defense: *Manual for Nutrition Surveys,* 2d. ed. National Institutes of Health. Bethesda, Md., 1963.

[4]National Academy of Sciences-National Research Council: Recommended Dietary Allowances. National Research Council Pub. 1694, 7th ed. Washington, D.C., 1968.

[5]Center for Disease Control: "Ten-State Nutrition Survey in the United States," 1968-1970. V-Dietary, DHEW Pub. No. (HSM) 72-8133. Atlanta, Ga. Health Services and Mental Health Administration, 1972.

[6]Keys, A., and Grande, F.: Body weight, body composition, and calorie status in R. S. Goodhart and M. E. Shils, eds., *Modern Nutrition in Health and Disease.* Philadelphia. Lea and Febiger, 1973. p. 20.

[7]Hegsted, D. M.: Dietary Standards. *J.Am. Dietetic Association,* p. 13-21, 1974.

[8]National Center for Health Statistics: Preliminary findings of the First Health and Nutrition Examination Survey, United States, 1971-1972, Dietary Intake and Biochemical Findings. DHEW Pub. No. (HRA) 74-1219-1. Health Resources Administration. Washington. U.S. Government Printing Office, Jan. 1974.

[9]National Center for Health Statistics: Preliminary findings of the First Health and Nutrition Examination Survey, United States, 1971-72, Anthropometric and Clinical Findings. DHEW Pub. No. (HRA) 75-1229. Health Resources Administration. Washington. U.S. Government Printing Office, Apr. 1975.

Table 1. Mean caloric intake as a percent of recommended dietary allowance, by race, sex, and age for income levels: United States, 1971-74 (HANES I)

| Age | White male | | Negro male | | White female | | Negro female | |
|---|---|---|---|---|---|---|---|---|
| | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level |
| | Mean caloric intake | | | | | | | |
| 1 year | 139 | 125 | 115 | 116 | 126 | 125 | 117 | 126 |
| 2-3 years | 132 | 124 | 126 | 128 | 116 | 119 | 111 | 116 |
| 4-5 years | 124 | 121 | 103 | 120 | 124 | 109 | 104 | 111 |
| 6-7 years | 127 | 112 | 107 | 108 | 104 | 98 | 88 | 91 |
| 8-9 years | 99 | 95 | 87 | 77 | 87 | 78 | 72 | 65 |
| 10-11 years | 87 | 95 | 68 | 82 | 94 | 98 | 78 | 81 |
| 12-14 years | 78 | 84 | 69 | 74 | 75 | 72 | 74 | 76 |
| 15-17 years | 80 | 88 | 66 | 71 | 66 | 69 | 69 | 71 |
| 18-19 years | 81 | 94 | 87 | 82 | 79 | 85 | 89 | 71 |
| 20-24 years | 86 | 97 | 78 | 84 | 78 | 78 | 78 | 79 |
| 25-34 years | 80 | 93 | 87 | 94 | 81 | 83 | 81 | 79 |
| 35-44 years | 98 | 90 | 83 | 85 | 78 | 85 | 74 | 70 |
| 45-54 years | 82 | 85 | 67 | 75 | 89 | 86 | 71 | 72 |
| 55-64 years | 70 | 81 | 57 | 78 | 77 | 81 | 66 | 74 |
| 65 years and over | 71 | 75 | 67 | 64 | 72 | 79 | 68 | 71 |

Table 2. Mean protein intake as a percent of recommended dietary allowance, by race, sex, and age for income levels: United States, 1971-74 (HANES I)

| Age | White male | | Negro male | | White female | | Negro female | |
|---|---|---|---|---|---|---|---|---|
| | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level |
| | Mean protein intake | | | | | | | |
| 1 year | 256 | 236 | 224 | 224 | 254 | 244 | 217 | 224 |
| 2-3 years | 243 | 228 | 238 | 214 | 232 | 221 | 203 | 225 |
| 4-5 years | 232 | 235 | 195 | 222 | 247 | 214 | 206 | 214 |
| 6-7 years | 293 | 265 | 237 | 249 | 243 | 226 | 197 | 209 |
| 8-9 years | 233 | 216 | 187 | 162 | 214 | 180 | 164 | 142 |
| 10-11 years | 192 | 200 | 135 | 179 | 185 | 172 | 161 | 154 |
| 12-14 years | 156 | 164 | 127 | 135 | 126 | 119 | 110 | 125 |
| 15-17 years | 142 | 159 | 120 | 123 | 85 | 101 | 93 | 101 |
| 18-19 years | 147 | 161 | 138 | 122 | 99 | 119 | 124 | 106 |
| 20-24 years | 124 | 148 | 122 | 119 | 95 | 105 | 92 | 106 |
| 25-34 years | 137 | 142 | 149 | 142 | 100 | 107 | 94 | 97 |
| 35-44 years | 154 | 134 | 110 | 134 | 97 | 104 | 88 | 87 |
| 45-54 years | 113 | 126 | 114 | 122 | 98 | 109 | 95 | 91 |
| 55-64 years | 92 | 116 | 87 | 115 | 85 | 100 | 73 | 87 |
| 65 years and over | 92 | 103 | 88 | 85 | 83 | 92 | 85 | 85 |

Table 3. Mean calcium intake as a percent of recommended dietary allowance, by race, sex, and age for income levels: United States, 1971-74 (HANES I)

| Age | White male | | Negro male | | White female | | Negro female | |
|---|---|---|---|---|---|---|---|---|
| | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level |
| | Mean calcium intake | | | | | | | |
| 1 year | 234 | 213 | 174 | 160 | 252 | 207 | 134 | 182 |
| 2-3 years | 218 | 196 | 160 | 159 | 181 | 199 | 152 | 162 |
| 4-5 years | 207 | 234 | 152 | 206 | 214 | 204 | 157 | 166 |
| 6-7 years | 219 | 260 | 204 | 242 | 248 | 234 | 163 | 172 |
| 8-9 years | 238 | 276 | 205 | 194 | 243 | 132 | 155 | 164 |
| 10-11 years | 189 | 192 | 115 | 158 | 135 | 183 | 119 | 124 |
| 12-14 years | 181 | 211 | 120 | 140 | 144 | 156 | 118 | 108 |
| 15-17 years | 250 | 239 | 139 | 144 | 109 | 139 | 99 | 114 |
| 18-19 years | 209 | 242 | 148 | 164 | 119 | 143 | 112 | 79 |
| 20-24 years | 238 | 294 | 247 | 162 | 106 | 116 | 88 | 85 |
| 25-34 years | 210 | 276 | 157 | 198 | 100 | 113 | 74 | 69 |
| 35-44 years | 331 | 228 | 146 | 194 | 99 | 104 | 66 | 72 |
| 45-54 years | 207 | 217 | 161 | 145 | 104 | 102 | 74 | 61 |
| 55-64 years | 204 | 198 | 134 | 160 | 102 | 98 | 68 | 76 |
| 65 years and over | 155 | 188 | 140 | 135 | 91 | 98 | 78 | 72 |

Table 4. Mean iron intake as a percent of recommended dietary allowance, by race, sex, and age for income levels: United States, 1971-74 (HANES I)

| Age | White male | | Negro male | | White female | | Negro female | |
|---|---|---|---|---|---|---|---|---|
| | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level |
| | Mean iron intake | | | | | | | |
| 1 year | 49 | 51 | 44 | 59 | 32 | 51 | 43 | 46 |
| 2-3 years | 53 | 56 | 58 | 52 | 49 | 47 | 45 | 58 |
| 4-5 years | 92 | 95 | 87 | 97 | 86 | 82 | 93 | 89 |
| 6-7 years | 124 | 112 | 94 | 105 | 89 | 97 | 90 | 98 |
| 8-9 years | 116 | 112 | 107 | 111 | 111 | 98 | 98 | 74 |
| 10-11 years | 130 | 128 | 94 | 133 | 66 | 57 | 61 | 59 |
| 12-14 years | 95 | 97 | 105 | 90 | 65 | 56 | 56 | 61 |
| 15-17 years | 78 | 95 | 70 | 77 | 45 | 53 | 49 | 59 |
| 18-19 years | 88 | 94 | 95 | 71 | 51 | 58 | 57 | 51 |
| 20-24 years | 143 | 171 | 132 | 140 | 52 | 56 | 54 | 59 |
| 25-34 years | 174 | 168 | 174 | 159 | 53 | 58 | 54 | 53 |
| 35-44 years | 174 | 160 | 136 | 149 | 52 | 59 | 47 | 49 |
| 45-54 years | 129 | 148 | 123 | 133 | 54 | 59 | 48 | 50 |
| 55-64 years | 111 | 140 | 108 | 139 | 86 | 99 | 75 | 84 |
| 65 years and over | 113 | 125 | 112 | 104 | 81 | 96 | 74 | 84 |

Table 5. Mean vitamin A intake as a percent of recommended dietary allowance, by race, sex, and age for income levels: United States, 1971-74 (HANES I)

| Age | White male | | Negro male | | White female | | Negro female | |
|---|---|---|---|---|---|---|---|---|
| | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level |
| | Mean vitamin A intake | | | | | | | |
| 1 year | 276 | 187 | 179 | 138 | 138 | 175 | 181 | 266 |
| 2-3 years | 190 | 179 | 213 | 154 | 144 | 147 | 195 | 464 |
| 4-5 years | 196 | 186 | 198 | 239 | 187 | 178 | 171 | 160 |
| 6-7 years | 174 | 164 | 203 | 243 | 145 | 141 | 176 | 153 |
| 8-9 years | 183 | 191 | 139 | 194 | 258 | 153 | 138 | 108 |
| 10-11 years | 167 | 211 | 151 | 196 | 184 | 165 | 138 | 129 |
| 12-14 years | 161 | 157 | 170 | 112 | 126 | 167 | 129 | 85 |
| 15-17 years | 133 | 178 | 101 | 97 | 95 | 108 | 73 | 108 |
| 18-19 years | 109 | 174 | 105 | 106 | 94 | 117 | 139 | 126 |
| 20-24 years | 113 | 148 | 215 | 159 | 88 | 106 | 134 | 103 |
| 25-34 years | 148 | 151 | 149 | 158 | 96 | 127 | 121 | 104 |
| 35-44 years | 195 | 149 | 126 | 166 | 98 | 121 | 100 | 133 |
| 45-54 years | 121 | 148 | 167 | 158 | 260 | 150 | 142 | 141 |
| 55-64 years | 109 | 165 | 257 | 197 | 136 | 180 | 164 | 170 |
| 65 years and over | 97 | 167 | 167 | 170 | 125 | 157 | 128 | 160 |

Table 6. Mean vitamin C intake as a percent of recommended dietary allowance, by race, sex, and age for income levels: United States, 1971-74 (HANES I)

| Age | White male | | Negro male | | White female | | Negro female | |
|---|---|---|---|---|---|---|---|---|
| | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level |
| | Mean vitamin C intake | | | | | | | |
| 1 year | 109 | 191 | 163 | 148 | 97 | 161 | 139 | 242 |
| 2-3 years | 195 | 220 | 177 | 147 | 167 | 189 | 152 | 154 |
| 4-5 years | 173 | 226 | 194 | 199 | 153 | 198 | 220 | 238 |
| 6-7 years | 158 | 214 | 203 | 260 | 166 | 203 | 190 | 227 |
| 8-9 years | 183 | 200 | 165 | 211 | 275 | 207 | 223 | 123 |
| 10-11 years | 133 | 232 | 118 | 180 | 178 | 213 | 215 | 208 |
| 12-14 years | 163 | 200 | 175 | 247 | 126 | 176 | 170 | 194 |
| 15-17 years | 156 | 203 | 190 | 130 | 149 | 147 | 127 | 142 |
| 18-19 years | 170 | 228 | 151 | 106 | 181 | 192 | 164 | 136 |
| 20-24 years | 147 | 185 | 138 | 185 | 151 | 155 | 138 | 140 |
| 25-34 years | 88 | 155 | 107 | 139 | 107 | 140 | 123 | 139 |
| 35-44 years | 115 | 139 | 164 | 150 | 111 | 150 | 127 | 135 |
| 45-54 years | 82 | 143 | 156 | 129 | 107 | 155 | 106 | 118 |
| 55-64 years | 112 | 163 | 122 | 203 | 124 | 182 | 123 | 199 |
| 65 years and over | 95 | 158 | 148 | 128 | 130 | 174 | 132 | 167 |

Table 7. Mean thiamine intake as a percent of recommended dietary allowance, by race, sex, and age for income levels: United States, 1971-74 (HANES I)

| Age | White male | | Negro male | | White female | | Negro female | |
|---|---|---|---|---|---|---|---|---|
| | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level |
| | Mean thiamine intake | | | | | | | |
| 1 year | 158 | 175 | 173 | 193 | 163 | 198 | 163 | 205 |
| 2-3 years | 168 | 173 | 195 | 163 | 175 | 173 | 163 | 188 |
| 4-5 years | 168 | 165 | 193 | 208 | 163 | 163 | 180 | 188 |
| 6-7 years | 165 | 163 | 165 | 163 | 150 | 163 | 168 | 163 |
| 8-9 years | 145 | 152 | 152 | 170 | 180 | 163 | 168 | 165 |
| 10-11 years | 175 | 163 | 165 | 163 | 167 | 150 | 175 | 173 |
| 12-14 years | 170 | 150 | 165 | 163 | 170 | 158 | 160 | 165 |
| 15-17 years | 152 | 152 | 158 | 143 | 135 | 158 | 152 | 198 |
| 18-19 years | 147 | 145 | 163 | 140 | 167 | 157 | 150 | 163 |
| 20-24 years | 155 | 145 | 152 | 145 | 160 | 160 | 172 | 170 |
| 25-34 years | 163 | 156 | 162 | 150 | 160 | 163 | 167 | 155 |
| 35-44 years | 157 | 147 | 165 | 147 | 163 | 163 | 157 | 165 |
| 45-54 years | 145 | 155 | 172 | 172 | 147 | 170 | 198 | 170 |
| 55-64 years | 160 | 165 | 177 | 163 | 172 | 180 | 167 | 177 |
| 65 years and over | 167 | 172 | 182 | 172 | 180 | 185 | 190 | 170 |

Table 8. Mean riboflavin intake as a percent of recommended dietary allowance, by race, sex, and age for income levels: United States, 1971-74 (HANES I)

| Age | White male | | Negro male | | White female | | Negro female | |
|---|---|---|---|---|---|---|---|---|
| | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level | Income below poverty level | Income above poverty level |
| | Mean riboflavin intake | | | | | | | |
| 1 year | 256 | 242 | 233 | 222 | 293 | 260 | 200 | 247 |
| 2-3 years | 215 | 207 | 193 | 175 | 218 | 215 | 211 | 180 |
| 4-5 years | 185 | 200 | 173 | 218 | 198 | 205 | 176 | 180 |
| 6-7 years | 169 | 202 | 196 | 189 | 198 | 196 | 173 | 167 |
| 8-9 years | 181 | 202 | 162 | 175 | 202 | 195 | 156 | 173 |
| 10-11 years | 196 | 195 | 164 | 167 | 167 | 193 | 164 | 160 |
| 12-14 years | 184 | 187 | 189 | 145 | 178 | 187 | 165 | 142 |
| 15-17 years | 185 | 175 | 149 | 142 | 158 | 181 | 142 | 185 |
| 18-19 years | 173 | 169 | 129 | 145 | 149 | 173 | 140 | 149 |
| 20-24 years | 167 | 158 | 169 | 132 | 158 | 167 | 156 | 136 |
| 25-34 years | 162 | 160 | 145 | 140 | 162 | 175 | 149 | 134 |
| 35-44 years | 181 | 158 | 129 | 153 | 178 | 167 | 142 | 163 |
| 45-54 years | 162 | 163 | 154 | 156 | 222 | 178 | 193 | 158 |
| 55-64 years | 180 | 173 | 205 | 154 | 191 | 196 | 153 | 171 |
| 65 years and over | 169 | 178 | 158 | 200 | 194 | 196 | 176 | 165 |

## TECHNICAL NOTES

The sampling plan for the 65 preselected examination locations in the Health and Nutrition Examination Survey (HANES) followed a highly stratified multistage probability design in which a sample of the civilian noninstitutionalized population of the conterminous United States 1-74 years of age was selected. Successive elements dealt with in the process of sampling were the primary sampling unit, census enumeration district, segment (a cluster of households), household, eligible person, and finally, sample person. The sampling design provided for oversampling among persons living in poverty areas, preschool children, women of childbearing age, and the elderly.

The caloric and selected nutrient intake values are shown as population estimates, that is, the dietary intake findings for each individual have been "weighted" by the reciprocal of the probability of selecting the person. An adjustment for persons in the sample who were not examined and poststratified ratio adjustments were also made, so that the final sampling estimates of the population size agree exactly with the independent U.S. Bureau of the Census estimates for the civilian noninstitutionalized population of the United States as of November 1, 1972, by race, sex, and age.

Previous issues of *Advance Data From Vital and Health Statistics*

No. 1. Blood Pressure of Persons 6-74 Years of Age in the United States (Issued: October 18, 1976)

No. 2. Hypertension: United States, 1974 (Issued: November 8, 1976)

No. 3. Height and Weight of Adults 18-74 Years in the United States (Issued: November 19, 1976)

No. 4. Prevalence of Dermatological Diseases Among Persons 1-74 Years of Age, United States (Issued: January 26, 1977)

No. 5. A Comparison of Levels of Serum Cholesterol of Adults 18-74 Years of Age in the United States in 1960-62 and 1971-74

advancedata
FROM VITAL & HEALTH STATISTICS OF THE NATIONAL CENTER FOR HEALTH STATISTICS

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE | No. 7 May 25, 1977 | Public Health Service • Health Resources Administration

# Total Serum Cholesterol Level of Adults 18-74 Years of Age, United States, 1971-74[a]

The serum cholesterol level in this report were obtained as a part of the Health and Nutrition Examination Survey (HANES). HANES is a program of the National Center for Health Statistics in which measures of nutritional status are collected for a scientifically designed sample representative of the civilian, noninstitutionalized population of the United States in a broad range of ages, 1-74 years.[1]

Field data collection operations for the first HANES survey were started in April 1971 and completed in June 1974. Of the 28,043 persons aged 1-74 years who were selected in the national probability sample to represent the 194 million persons in that age group in the civilian noninstitutionalized population, 20,749, or 74 percent, were examined. When adjustments were made for the differential sampling ratios used for the effect of oversampling among the poor, preschool children, women of childbearing age, and the elderly, this corresponds to an effective response rate of 75 percent. There were 13,645 people ages 18-74 years on whom serum cholesterol level determinations were made. Selected from the national probability sample of 19,572, these individuals represented the 128 million of that age group in the population. This is an unadjusted response rate of 70 percent and an effective adjusted response rate of 70 percent. Detailed estimates of the distribution of serum cholesterol levels will be described and analyzed in a forthcoming report in Series 11[2] of *Vital and Health Statistics*. Selected data and findings from that report are presented in tables 1-5 and figures 1-3 of this *Advance Data*.

Serum cholesterol levels have been identified as one of the important multiple risk factors in the development of coronary heart disease. The results of epidemiologic studies based on adult data from longitudinal studies such as the Framingham Heart Study[3] have demonstrated that persons with elevated serum cholesterol values developed coronary heart disease with greater frequency. Serum cholesterol levels of adults aged 18-74 years are presented and analyzed by age, sex, and race because of medical interest in such data. HANES provided cross-sectional data of serum cholesterol levels obtained on different age cohorts representative of the U.S. population. The age trends represented mean levels for successive cohorts of different age groups. The limitation of cross-sectional data are recognized in considering group age changes because they reflect effects of environmental as well as developmental and heredity influences.

All serum cholesterol determinations for HANES were made in the Lipid Standardization Laboratory of the Center for Disease Control (CDC), Public Health Service, Atlanta, Georgia. The analytical method was based on that of Abell et al.,[4], but was modified for a semiautomated production line. The method, described in detail by Eavenson et al.[5] was made possible by the development of a relatively stable Liebermann color reagent and was designed for automatic pipetting units.

The Lipid Laboratory compared the results obtained with this semiautomated method with those obtained from their standardized version.[4] To examine the bias of the semiautomated

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[a]This report prepared by Sidney Abraham, Clifford L. Johnson, and Margaret D. Carrol.

method, data were obtained from pools of sera analyzed by the reference method and by the semiautomated method. In 1972, pools ranging from 134 to 343 mg per 100 ml had an average positive bias of 4.07 percent for the semiautomated method as compared to the standard method; for the 1973-74 period, the corresponding figure was a positive bias of 4.9 percent. The weighted average bias was 4.5 percent. The 1971-1974 data in this report are presented without correction for bias so that they provide population reference standards for determinations made by the semiautomated methodology now in use. However, in the series report, HANES' 1971-1974 serum cholesterol data are corrected for bias when HANES data are compared with Health Examination Survey data of 1960-1962.

## PRINCIPAL FINDINGS

For men, the lowest mean serum cholesterol level occurs in the youngest age group measured, 18-24 years. However, the mean level increases steadily with age until the age group 35-44 years. Then it increases by a small increment to a maximum level of 240.2 mg per 100 ml at the age group 55-64 years, declining slightly to a mean level of 236.2 mg per 100 ml at the oldest age group measured, 65-74 years (table 1, figure 1).

For women, the mean serum cholesterol levels do not parallel those of men in the same

Figure 1. MEAN SERUM CHOLESTEROL LEVELS OF ADULTS BY SEX AND AGE: UNITED STATES, 1971-74

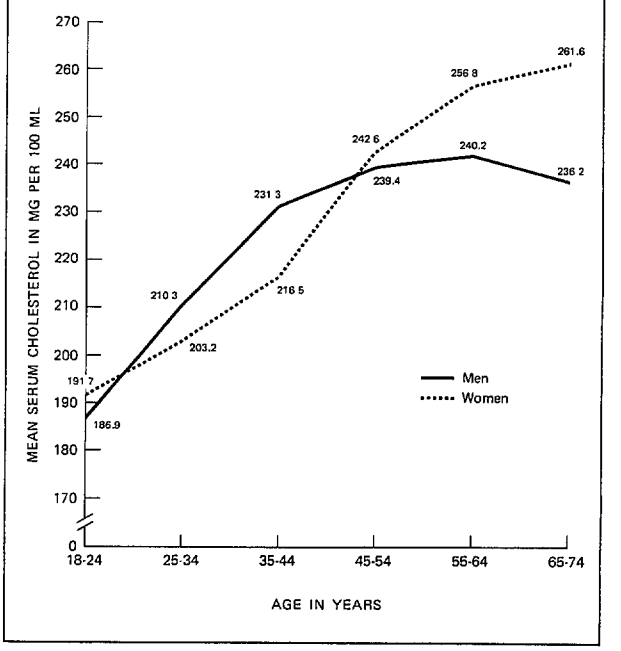


Table 1. Serum cholesterol level of adults 18-74 years by sex and age with mean, standard deviation, and standard error of the mean: United States, 1971-74

| Age | Both sexes | | | Men | | | Women | | |
|---|---|---|---|---|---|---|---|---|---|
| | Mean[1] | Standard deviation | Standard error of the mean | Mean[1] | Standard deviation | Standard error of the mean | Mean[1] | Standard deviation | Standard error of the mean |
| All ages 18-74 years | 223.4 | 51.5 | 0.80 | 221.8 | 49.9 | 1.09 | 224.9 | 52.8 | 0.99 |
| 18-24 years | 189.4 | 39.0 | 1.41 | 186.9 | 36.7 | 1.89 | 191.7 | 41.0 | 1.92 |
| 25-34 years | 206.6 | 43.2 | 1.42 | 210.3 | 44.0 | 2.27 | 203.2 | 42.2 | 1.39 |
| 35-44 years | 223.6 | 45.3 | 1.50 | 231.3 | 45.9 | 2.53 | 216.5 | 43.5 | 1.37 |
| 45-54 years | 241.1 | 49.7 | 1.48 | 239.4 | 47.0 | 2.54 | 242.6 | 52.0 | 2.36 |
| 55-64 years | 248.9 | 50.3 | 2.48 | 240.2 | 51.2 | 3.17 | 256.8 | 48.2 | 2.72 |
| 65-74 years | 250.7 | 54.2 | 1.35 | 236.2 | 53.8 | 2.05 | 261.6 | 51.9 | 1.92 |

[1] Mg per 100 ml.

age groups. The serum cholesterol levels are slightly higher for women than for men in the age group 18-24 years. However, in the older age groups, there is a slight but consistently higher mean serum cholesterol level for men as compared with that for women until the age group 45-54 years. Thereafter the mean levels for men show a plateau effect and a slight decrease, while the mean levels for women continue upward to 256.8 mg per 100 ml at age 55-64 years and to a maximum value of 261.6 mg per 100 ml at the age group 65-74 years (table 1, figure 1).

The standard deviations of the distributions by age and sex are shown in table 1. The variability within each age and sex group increases with age as indicated by the standard deviations. Although the differences are small, men show greater variations around their mean levels at most age groups than women do. The percent distribution of men and women 18-74 years of age falling into each of the 16 groups according to their levels of cholesterol are shown in tables 2 and 3.

Mean serum cholesterol levels for white men are consistently higher than those for Negro men at ages 18-24, 35-44, and 45-54. The differences in mean levels range from 2.3 to 6.8 mg per 100 ml. The same direction is not evident at ages 25-34 and ages 55 years and older, when Negro men have higher mean serum cholesterol levels than those of white men. However, the differences in mean levels are small and range from 1.0 to 4.3 mg per 100 ml (table 4 and figure 2).

The mean serum cholesterol level for white and Negro men generally increases with age. The mean level for white men increases rapidly to the age group 35-44 years. The mean level then continues upward at a slower rate of increase, reaching a peak of 239.9 mg per 100 ml at ages 45-64 years, and declines slightly thereafter. The mean levels for Negro men also increase with age but at a slower rate; they are slightly higher at the older ages and peak at a later age—55-64 years—than those for white men. A slight decline in mean level also occurs in the age group 65-74 years.

Table 4 and figure 3 show that mean serum cholesterol levels for Negro women are consistently higher than those of white women in the age groups under age 65 years. In the oldest age group measured, 65-74 years, the mean levels for white women are slightly higher than those for Negro women, a difference of 2.1 mg per 100 ml. The mean levels for Negro and white women

Table 2. Percent distribution of serum cholesterol levels of men by age: United States, 1971-74

| Serum cholesterol level (mg per 100 ml) | All ages 18-74 years | 18-24 years | 25-34 years | 35-44 years | 45-54 years | 55-64 years | 65-74 years |
|---|---|---|---|---|---|---|---|
| | Percent distribution | | | | | | |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Under 100 | 0.1 | 0.1 | - | - | 0.4 | 0.1 | 0.2 |
| 100-119 | 0.4 | 1.0 | 0.3 | 0.1 | 0.3 | 0.0 | 0.3 |
| 120-139 | 2.1 | 5.6 | 2.8 | 0.8 | 0.3 | 1.3 | 1.2 |
| 140-159 | 5.6 | 16.4 | 5.3 | 2.3 | 3.0 | 1.1 | 2.8 |
| 160-179 | 11.5 | 23.5 | 15.4 | 9.1 | 5.4 | 4.4 | 5.9 |
| 180-199 | 15.6 | 23.1 | 20.6 | 12.9 | 8.3 | 13.6 | 12.3 |
| 200-219 | 16.2 | 13.4 | 19.9 | 18.1 | 16.4 | 12.8 | 17.3 |
| 220-239 | 16.0 | 7.4 | 13.9 | 17.2 | 20.1 | 23.2 | 16.0 |
| 240-259 | 12.0 | 5.5 | 9.8 | 14.3 | 15.7 | 13.8 | 14.8 |
| 260-279 | 8.8 | 2.0 | 5.6 | 11.7 | 11.3 | 12.7 | 12.7 |
| 280-299 | 4.6 | 0.8 | 3.4 | 4.8 | 7.3 | 6.2 | 7.1 |
| 300-319 | 3.3 | 1.0 | 0.9 | 3.3 | 6.5 | 5.3 | 4.3 |
| 320-339 | 1.7 | 0.0 | 0.8 | 3.7 | 1.6 | 2.2 | 2.4 |
| 340-359 | 1.1 | 0.2 | 0.3 | 1.1 | 2.9 | 1.2 | 0.8 |
| 360-379 | 0.3 | - | 0.4 | 0.0 | 0.2 | 0.9 | 0.9 |
| 380 or more | 0.6 | - | 0.6 | 0.6 | 0.3 | 1.2 | 1.0 |

NOTE: Percents may not add to 100.0 due to rounding.

Figure 2. MEAN SERUM CHOLESTEROL LEVELS OF MEN BY AGE AND RACE: UNITED STATES, 1971-74

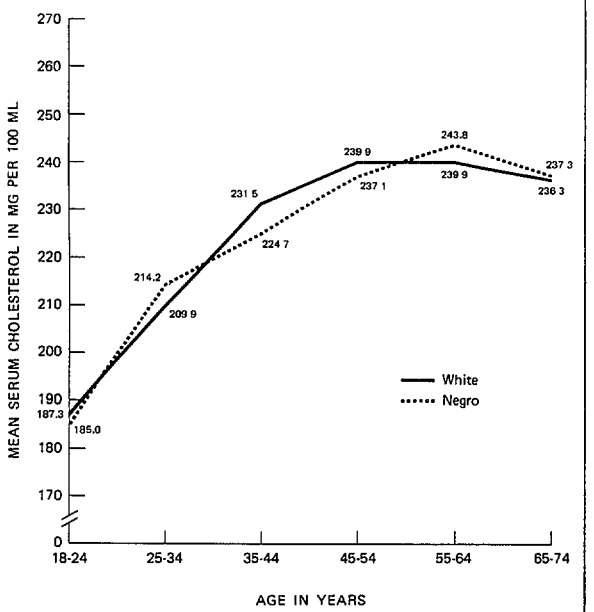


Figure 3. MEAN SERUM CHOLESTEROL LEVELS OF WOMEN BY AGE AND RACE: UNITED STATES, 1971-74

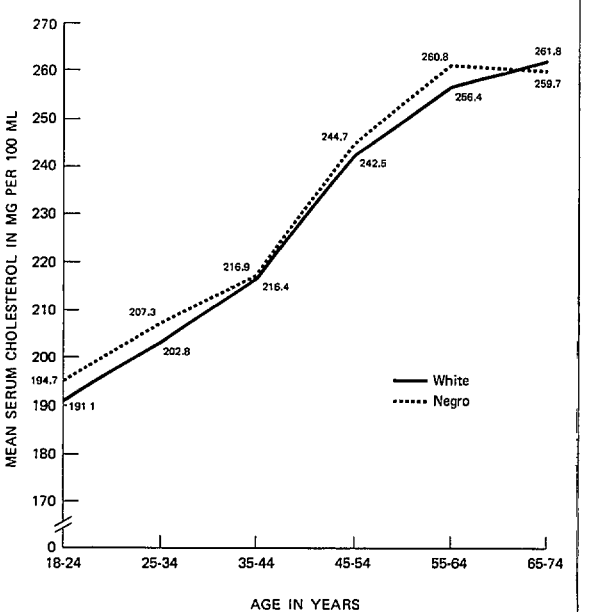


Table 3. Percent distribution of serum cholesterol levels of women by age: United States, 1971-74

| Serum cholesterol level (mg per 100 ml) | All ages 18-74 years | 18-24 years | 25-34 years | 35-44 years | 45-54 years | 55-64 years | 65-74 years |
|---|---|---|---|---|---|---|---|
| | Percent distribution | | | | | | |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Under 100 | 0.1 | 0.3 | 0.3 | 0.1 | - | - | - |
| 100-119 | 0.4 | 1.2 | 0.6 | 0.3 | 0.1 | 0.1 | 0.4 |
| 120-139 | 2.2 | 6.1 | 3.1 | 1.3 | 0.6 | 0.2 | 0.8 |
| 140-159 | 5.8 | 13.6 | 8.1 | 4.9 | 2.6 | 1.0 | 1.6 |
| 160-179 | 10.6 | 21.1 | 16.2 | 11.0 | 5.0 | 2.6 | 2.0 |
| 180-199 | 15.2 | 19.6 | 21.8 | 19.0 | 11.7 | 7.4 | 5.1 |
| 200-219 | 16.2 | 14.9 | 20.6 | 21.5 | 15.4 | 11.8 | 9.1 |
| 220-239 | 14.6 | 11.9 | 12.2 | 16.4 | 18.5 | 14.8 | 14.3 |
| 240-259 | 11.7 | 5.7 | 8.0 | 11.8 | 14.4 | 16.2 | 17.7 |
| 260-279 | 9.1 | 3.2 | 5.4 | 6.3 | 12.0 | 16.8 | 14.7 |
| 280-299 | 5.6 | 0.9 | 1.6 | 3.2 | 8.1 | 10.8 | 13.6 |
| 300-319 | 3.8 | 0.9 | 1.0 | 2.5 | 3.9 | 8.9 | 9.0 |
| 320-339 | 2.2 | 0.4 | 0.4 | 1.0 | 3.3 | 4.4 | 5.4 |
| 340-359 | 1.0 | 0.0 | 0.3 | 0.3 | 1.2 | 2.0 | 3.0 |
| 360-379 | 0.8 | - | 0.1 | 0.1 | 1.7 | 1.9 | 1.8 |
| 380 or more | 0.7 | 0.2 | 0.3 | 0.3 | 1.5 | 1.1 | 1.5 |

NOTE: Percents may not add to 100.0 due to rounding.

increase with age to 55-64 years. Then the mean level for Negro women declines slightly while it continues to rise less rapidly for white women although it slightly exceeds the Negro women's level.

Age not only affects the comparison of mean serum cholesterol levels between races but also the comparison levels between sexes. For example, the mean levels of white and Negro men in the youngest age group measured, 18-24 years, are slightly lower than the mean levels for women of both races at the same age (table 4). Although a crossover occurs in the midthirties, the pattern reverses again after age 45, when the mean levels for women are higher and increase more rapidly than those for men, particularly after age 55.

The distribution of serum cholesterol levels was also used to note the proportion of persons in any race-sex-age group that exceeds the level of 260 mg per 100 ml and more. These measurements were used to estimate the prevalence of elevated serum cholesterol levels. Although there is no statistical information regarding the actual level of serum cholesterol separating "high" from "low" risk individuals, the level of 260 mg per 100 ml has been cited in studies to distinguish "high" from "less high" or "low".

Among men, proportions varied from a low of 4.0 percent in age group 18-24 years to a high of 30.1 percent in age group 45-54 years. The level then declines to about 29 percent at ages 55 and older (table 5).

Among women, the lowest proportion also occurs at the youngest age group measured—18-24 years—with the proportion increasing steadily with age until it reaches a maximum of 49.2 percent at the age group 65-74 years.

At the youngest age group measured, 18-24 years, and at the ages of 45 years and older, there are higher proportions of women with serum cholesterol levels of 260 mg per 100 ml and more than there are of men. This pattern is not evident for age groups 25-34 and 35-44 years when the proportions are higher for males than for females. In the age groups 18-24 and 45-54 years, the differences in proportions between the sexes are small—slightly more than 1.5 percent. These differences are much larger in the ages 55 years and older. Elevated serum cholesterol levels increase with age for women but show a slight decrease for men at ages 55 years and over.

There are higher proportions of white and Negro women with serum cholesterol levels of 260 mg per 100 ml and more than there are of

Table 4. Serum cholesterol levels of adults 18-74 years by race, sex, and age with mean, standard deviation, and standard error of the mean: United States, 1971-74

| Age | White | | | | | | Negro | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Men | | | Women | | | Men | | | Women | | |
| | Mean[1] | Standard deviation | Standard error of the mean | Mean[1] | Standard deviation | Standard error of the mean | Mean[1] | Standard deviation | Standard error of the mean | Mean[1] | Standard deviation | Standard error of the mean |
| All ages 18-74 years..... | 222.2 | 49.7 | 1.09 | 225.1 | 53.0 | 1.02 | 218.9 | 52.7 | 3.41 | 224.0 | 50.5 | 1.78 |
| 18-24 years.. | 187.3 | 37.2 | 2.07 | 191.1 | 41.1 | 2.11 | 185.0 | 32.5 | 3.75 | 194.7 | 38.9 | 3.33 |
| 25-34 years.. | 209.9 | 42.4 | 2.38 | 202.8 | 42.4 | 1.47 | 214.2 | 57.0 | 9.26 | 207.3 | 40.7 | 3.42 |
| 35-44 years.. | 231.5 | 45.5 | 2.49 | 216.4 | 42.8 | 1.56 | 224.7 | 51.7 | 8.56 | 216.9 | 42.2 | 3.25 |
| 45-54 years.. | 239.9 | 47.4 | 2.61 | 242.5 | 52.5 | 2.49 | 237.1 | 42.2 | 5.61 | 244.7 | 46.5 | 6.49 |
| 55-64 years.. | 239.9 | 50.6 | 3.41 | 256.4 | 47.8 | 2.89 | 243.8 | 58.8 | 11.65 | 260.8 | 52.6 | 5.68 |
| 65-74 years.. | 236.3 | 54.3 | 2.40 | 261.8 | 52.3 | 2.02 | 237.3 | 48.4 | 3.40 | 259.7 | 47.7 | 3.78 |

[1]Mg per 100 ml.

men in ages 18-24 and 45 years and older (table 5). This pattern is reversed for the age groups 25-34 and 35-44 years, when the proportions are higher for white and Negro men than for women of both races. In the age group 45-54 years, the differences in proportions between white men and women are 0.6 percent while the differences between Negro men and women are 11.8 percent. The differences are larger in the ages 55 years and older, particularly for white men as compared to white women, 16.8 and 20.5 percent, respectively.

The proportion of white men and women with serum cholesterol levels of 260 mg per 100 ml and more in the youngest age group measured, 18-24 years, are consistently higher than those of their Negro counterparts (table 5). However, the pattern is reversed for the age group 25-44 years, when the proportions of serum cholesterol levels for Negro men and

Table 5. Prevalence rates for serum cholesterol levels of 260 or more among adults 18-74 years by race, sex, and age with standard errors: United States, 1971-74

| Sex and age | Rate per 100 persons[1] | Population estimate in thousands | Standard error of rate | Prevalence rate for serum cholesterol levels of 260 or more[1] | | Standard error of prevalence rate for serum cholesterol levels of 260 or more[1] | |
|---|---|---|---|---|---|---|---|
| | | | | White | Negro | White | Negro |
| Both sexes | | | | Rate per 100 persons | | | |
| All ages 18-74 years | 21.9 | 27,974 | 0.58 | 22.1 | 20.4 | 0.60 | 1.30 |
| 18-24 years | 4.8 | 1,134 | 0.54 | 4.9 | 4.0 | 0.62 | 0.82 |
| 25-34 years | 10.5 | 2,812 | 0.84 | 10.3 | 12.5 | 0.84 | 3.50 |
| 35-44 years | 19.3 | 4,353 | 1.22 | 19.2 | 18.4 | 1.18 | 3.43 |
| 45-54 years | 31.0 | 7,289 | 1.61 | 31.2 | 30.2 | 1.69 | 4.58 |
| 55-64 years | 38.2 | 7,203 | 2.32 | 38.2 | 40.3 | 2.44 | 4.54 |
| 65-74 years | 40.6 | 5,182 | 1.27 | 40.9 | 38.7 | 1.37 | 3.32 |
| Men | | | | | | | |
| All ages 18-74 years | 20.4 | 12,358 | 0.87 | 20.6 | 19.0 | 0.92 | 1.87 |
| 18-24 years | 4.0 | 451 | 0.78 | 4.1 | 2.5 | 0.88 | 1.69 |
| 25-34 years | 12.1 | 1,538 | 1.46 | 11.7 | 14.9 | 1.54 | 5.10 |
| 35-44 years | 25.3 | 2,735 | 2.13 | 24.9 | 25.6 | 2.03 | 7.00 |
| 45-54 years | 30.1 | 3,392 | 2.22 | 30.9 | 24.2 | 2.25 | 5.82 |
| 55-64 years | 29.7 | 2,636 | 2.39 | 29.4 | 34.0 | 2.59 | 10.20 |
| 65-74 years | 29.2 | 1,605 | 1.38 | 29.2 | 30.3 | 1.57 | 3.38 |
| Women | | | | | | | |
| All ages 18-74 years | 23.2 | 15,616 | 0.79 | 23.5 | 21.6 | 0.83 | 1.58 |
| 18-24 years | 5.6 | 683 | 0.87 | 5.6 | 5.3 | 1.05 | 1.48 |
| 25-34 years | 9.1 | 1,275 | 0.97 | 9.0 | 10.4 | 0.98 | 2.87 |
| 35-44 years | 13.7 | 1,618 | 1.19 | 13.7 | 14.1 | 1.22 | 2.71 |
| 45-54 years | 31.8 | 3,897 | 2.08 | 31.5 | 36.0 | 2.19 | 6.81 |
| 55-64 years | 45.9 | 4,567 | 3.04 | 46.2 | 44.6 | 3.19 | 5.67 |
| 65-74 years | 49.2 | 3,577 | 1.81 | 49.7 | 44.9 | 1.90 | 4.29 |

[1] Mg per 100 ml.

women are slightly higher than their white counterparts. Consistent findings are not found in the older age groups. In the age group 45-54 years, white men and Negro women have a higher proportion of elevated serum cholesterol levels than white women and Negro men. In contrast, in the age groups 55-64 and 65-74 years, Negro men and white women have a higher elevated serum cholesterol level than white men and Negro women.

## REFERENCES

[1] National Center for Health Statistics: Plan and operation of the Health and Nutrition Examination Survey, United States, 1971-1973. *Vital and Health Statistics.* Series 1, No. 10a and 10b. DHEW Pub. No. (HSM) 73-1310. Washington. U.S. Government Printing Office, Feb. 1973.

[2] National Center for Health Statistics: Total Serum Cholesterol Level of Adults, 18-74 Years of Age, United States, 1971-1974. *Vital and Health Statistics.* Series 11. Health Resources Administration. To be published.

[3] Gordon, T., and Verter, J.I.: The Framingham Study: An Epidemiological Investigation of Cardiovascular Disease. Section 23. Serum cholesterol, systolic blood pressure and Framingham relative weight as discriminators of cardiovascular disease. Bethesda, Md., National Institutes of Health, 1969.

[4] Abell, L.L., Levy, G.B., Brodie, B.B., and Kendall, F.E.: A Simplified Method for the Estimation of Total Cholesterol in Serum and Demonstration of Its Specificity. *J.Biol. Chem.* 195:357, 1952.

[5] Eavenson, D., Grier, O.T., Cisson, J.G., and Witter, R.F.: A semiautomated procedure for the determination of serum cholesterol using the Abell-Kendall method. *J.Am. Oil Chem. Soc.* 43:652, 1966.

## TECHNICAL NOTES

The sampling plan for the 65 pre-selected examination locations in the Health and Nutrition Examination Survey (HANES) followed a highly stratified multi-stage probability design in which a sample of the civilian, noninstitutionalized population of the conterminous United States, 1-74 years of age, was selected. Successive elements dealt with in the process of sampling were the primary sampling unit, census enumeration district, segment (a cluster of households), household, eligible person, and sample person. The sampling design provided for over-sampling among persons living in poverty areas, preschool children, women of childbearing age, and the elderly.

The serum cholesterol determinations are shown as population estimates, that is, the serum cholesterol findings for each individual have been "weighted" by the reciprocal of the probability of selecting the person. Adjustments were made for persons in the sample who were not examined and for post-stratified ratio. Adjustments were also made so that the final sampling estimates of the population size were brought into closer alignment with the U.S. Bureau of the Census independent estimates for the civilian noninstitutionalized population of the United States as of November 1, 1972, by race, sex, and age.

### SYMBOLS

| | |
|---|---|
| Data not available | --- |
| Category not applicable | ... |
| Quantity zero | - |
| Quantity more than 0 but less than 0.05 | 0.0 |
| Figure does not meet standards of reliability or precision | * |

Previous issues of *Advance Data From Vital and Health Statistics*

No. 1. Blood Pressure of Persons 6-74 Years of Age in the United States (Issued: October 18, 1976)

No. 2. Hypertension: United States, 1974 (Issued: November 8, 1976)

No. 3. Height and Weight of Adults 18-74 Years in the United States (Issued: November 19, 1976)

No. 4. Prevalence of Dermatological Diseases Among Persons 1-74 Years of Age, United States (Issued: January 26, 1977)

No. 5. A Comparison of Levels of Serum Cholesterol of Adults 18-74 Years of Age in the United States in 1960-62 and 1971-74 (Issued: February 22, 1977)

No. 6. Dietary Intake of Persons 1-74 Years of Age in the United States (Issued: March 30, 1977)

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FROM VITAL & HEALTH STATISTICS OF THE NATIONAL CENTER FOR HEALTH STATISTICS
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE | No. 8 July 11, 1977 | Public Health Service • Health Resources Administration

# Total Serum Cholesterol Levels of Children 4-17 Years of Age, United States, 1971-74[a]

Serum cholesterol levels of children 4-17 years of age in this report were obtained as part of the Health and Nutrition Examination Survey (HANES). HANES is a program of the National Center for Health Statistics in which measures of nutritional status are collected for a scientifically designed sample representative of the civilian noninstitutionalized population of the United States in the broad range of ages 1-74 years.[1]

Field data collection operations for the first HANES survey were started in April 1971 and completed in June 1974. Of the 28,043 persons aged 1-74 years who were selected in the national probability sample to represent the 194 million persons in that age in the civilian noninstitutionalized population, 20,749, or 74.0 percent, were examined. When adjustments are made for the differential sampling ratios used for the effect of oversampling among the poor, preschool children, women of childbearing age, and the elderly, this figure corresponds to an effective response rate of 75 percent. Among children 4-17 years of age at interview for whom serum cholesterol determinations were made, there were 5,334 examined out of the probability sample of 6,356 selected to represent the 56 million of this age in the population. This is an unadjusted response rate of 84 percent and an effective adjusted response rate of 84 percent.

Detailed estimates of the distribution of serum cholesterol levels will be described and analyzed in the report "Total Serum Cholesterol Levels of Children 4-17 Years, United States, 1971-1974," *Vital and Health Statistics* Series 11.[2] Selected data and findings from that report are presented here in tables 1-5 and figures 1-4.

## CHOLESTEROL DETERMINATIONS

All serum cholesterol determinations were made in the Lipid Standardization Laboratory of the Center for Disease Control (CDC), Public Health Service, Atlanta, Georgia. The analytical method was based on that of Abell and others[3] but was modified for a semiautomated production line. The method described in detail by Eavenson and others[4] was made possible by the development of a relatively stable Liebermann color reagent and was designed for automatic pipetting units.

The Lipid Laboratory at CDC compared the results obtained with this semiautomated Abell method and those obtained from their standardized version of Abell and others. For examining the bias of the semiautomated method, data were obtained from pools of sera analyzed by the reference method and the semiautomated method. For pools ranging from 134 to 343 mg per 100 ml, there was in 1972 an average positive bias of 4.07 percent for the semiautomated method as compared to the standard method; for the 1971-1974 period the corresponding figure was a positive bias of 4.9 percent. The weighted average bias was 4.5 percent. In this paper the 1971-1974 data are presented without correction for bias so that they provide population reference standards for determinations made by the semiautomated methodology now in use.

[a]This report prepared by Sidney Abraham, Clifford L. Johnson, M.S.P.H., and Margaret D. Carroll, M.S.P.H.

For serum cholesterol measurements, sufficient numbers are available for presenting children in single years of age, from age 4 to 17. All such ages are presented by sex and race. The number of missing serum cholesterol test values was acceptable for children of ages 4 through 17 years. This was not the case for serum cholesterol values for children of ages 1-3 years, which are nevertheless presented, but were not analyzed because of possible bias due to missing values.

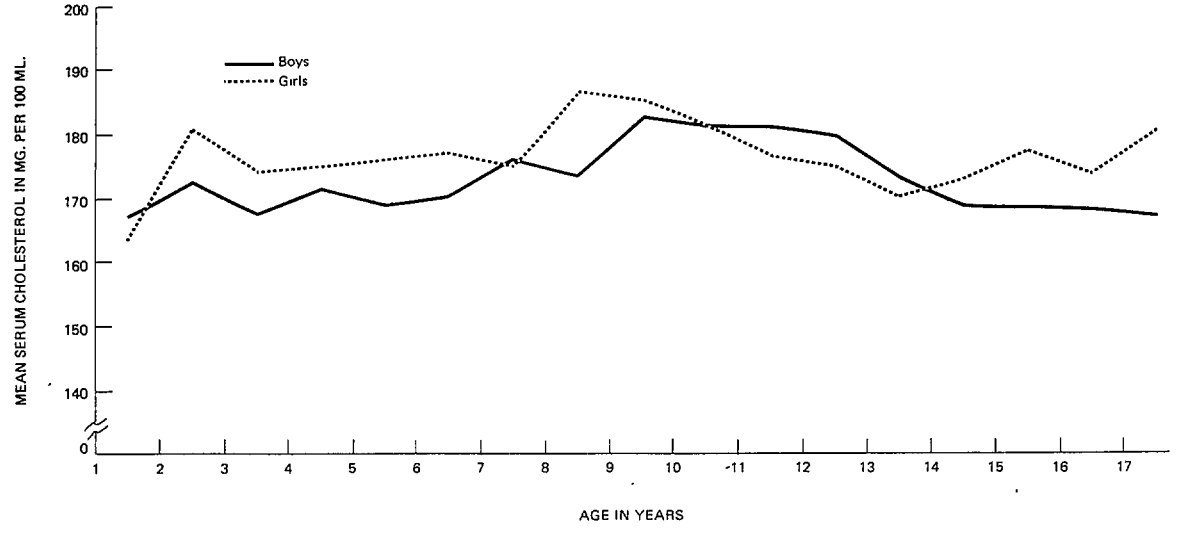
## PRINCIPAL FINDINGS

The mean serum cholesterol level of boys in the younger ages from 4 through 11 years tends to increase with age to a high average value of 181.8 mg per 100 ml at ages 9-11 years. Another pattern in mean values is observed from these ages through 17 years, when the mean values consistently declined to a low mean value of 167.5 mg per 100 ml at age 17 years (table 1, figure 1). Table 1 and figure 1 also show that the mean values of girls were relatively stable at ages 4-7 years, ranging from 174.7 to 177.1 mg per 100 ml with the mean values increasing abruptly to 186.5 mg per 100 ml at age 8. From this age on through age 13 years the mean levels consistently decreased from the peak at age 8 to 170.4 mg per 100 ml at age 13 years, a decrease in mean level of 16.1 mg per 100 ml. This direction is not evident at ages 14 through 17 years, when the mean levels increased irregularly each year from 172.8 mg per 100 ml at age 14 years to 180.6 mg per 100 ml at age 17 years.

Overall, the mean serum cholesterol levels for girls increased from 174.7 mg per 100 ml at age 4 years to 180.6 mg per 100 ml at age 17 years, an increase of 5.9 mg per 100 ml. The decrease in mean levels between similar ages for boys is slightly less, 3.8 mg per 100 ml. Girls in each age group except ages 7, 11, 12, and 13 years, had higher mean serum cholesterol levels than boys in the same age group.

The main serum cholesterol patterns observed previously for the total male population aged 4-17 years were similar to those observed

Figure 1. MEAN SERUM CHOLESTEROL LEVELS OF CHILDREN AGED 1-17 YEARS BY AGE AND SEX: UNITED STATES, 1971-74



for white boys separately (table 2, figure 2). Mean cholesterol levels of white boys were highest at 9-11 years and decreased with age. For Negro boys the peaks in values were at ages 7-12 years, with the exception of a drop in mean value at age 10 years, and then a decline in mean value from 184.1 mg per 100 ml at age 12 years to a low of 161.8 mg per 100 ml at age 14 years. From 14 years on the mean levels increased rapidly to 178.7 mg per 100 ml at age 16 and then declined (table 2 figure 2). At every age except ages 10, 13, and 14 years Negro boys had higher mean serum cholesterol values than white boys.

The age-cholesterol pattern found for girls in the total population was generally found for white and Negro girls separately. The mean serum cholesterol values of white girls increased irregularly from an average value of 173.5 mg per 100 ml at ages 4-5 years to the highest mean value of 183.6 mg per 100 ml at ages 8-9 years and then declined to 168.3 mg per 100 ml at age 13 years. Thereafter with age there was a general increase in mean level to 180.3 mg per 100 ml at age 17 years (table 2 and figure 3).

The mean levels of Negro girls also increased irregularly each year from 177.1 mg per 100 ml at age 4 to a peak of 202.8 mg per 100 ml at age 8. From this highest mean level at age 8 there is a decrease in mean values through age 12 and then a general increase to 194.5 mg per 100 ml at age 15. At ages 16 and 17 years the mean cholesterol levels declined from those at age 15 (table 2 and figure 3). At each age, with the exception of ages 6, 11, and 12 years, Negro girls had a higher mean serum cholesterol levels than white girls.

Both white and Negro girls generally had higher mean cholesterol levels than their male counterparts, particularly Negro girls. In addition, Negro boys and girls had generally higher mean serum levels than their white counterparts.

The proportion of children in HANES whose serum cholesterol levels exceeded any specified

Figure 2. MEAN SERUM CHOLESTEROL LEVELS OF BOYS AGED 1-17 YEARS BY AGE AND RACE: UNITED STATES, 1971-74

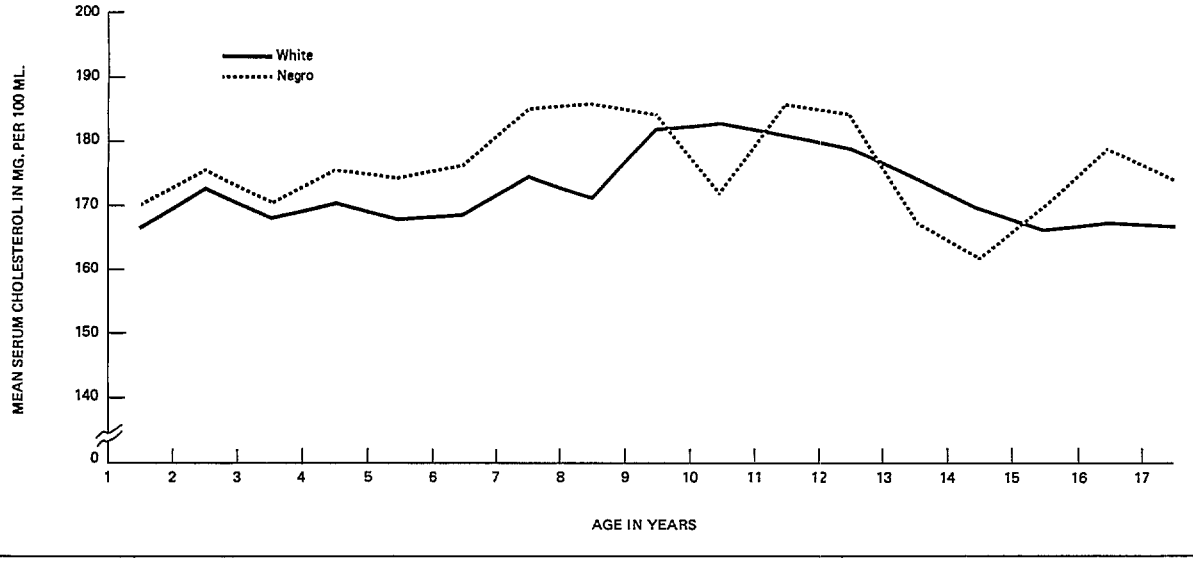
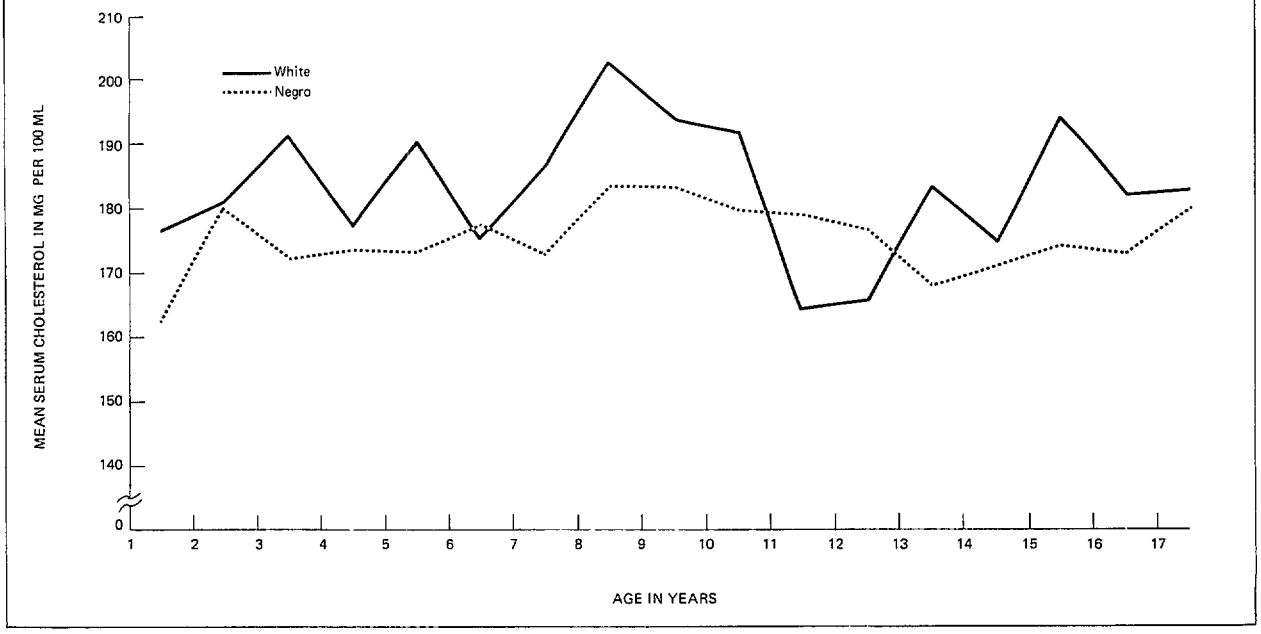


Figure 3. MEAN SERUM CHOLESTEROL LEVELS OF GIRLS AGED 1-17 YEARS BY AGE AND RACE: UNITED STATES, 1971-74




level may be found in table 3 for boys and in table 4 for girls.

The U.S. estimates of serum cholesterol levels of children aged 4-17 can be compared with those reported in HANES for adults of ages 18-74 years. Table 5 shows the mean serum cholesterol levels of children and adults obtained in 1971-1974 by age and sex with the standard deviations of the population distribution. Figure 4 shows the adult mean levels as a continuation of the mean levels of those presented for children of individual ages of 4-17 years.

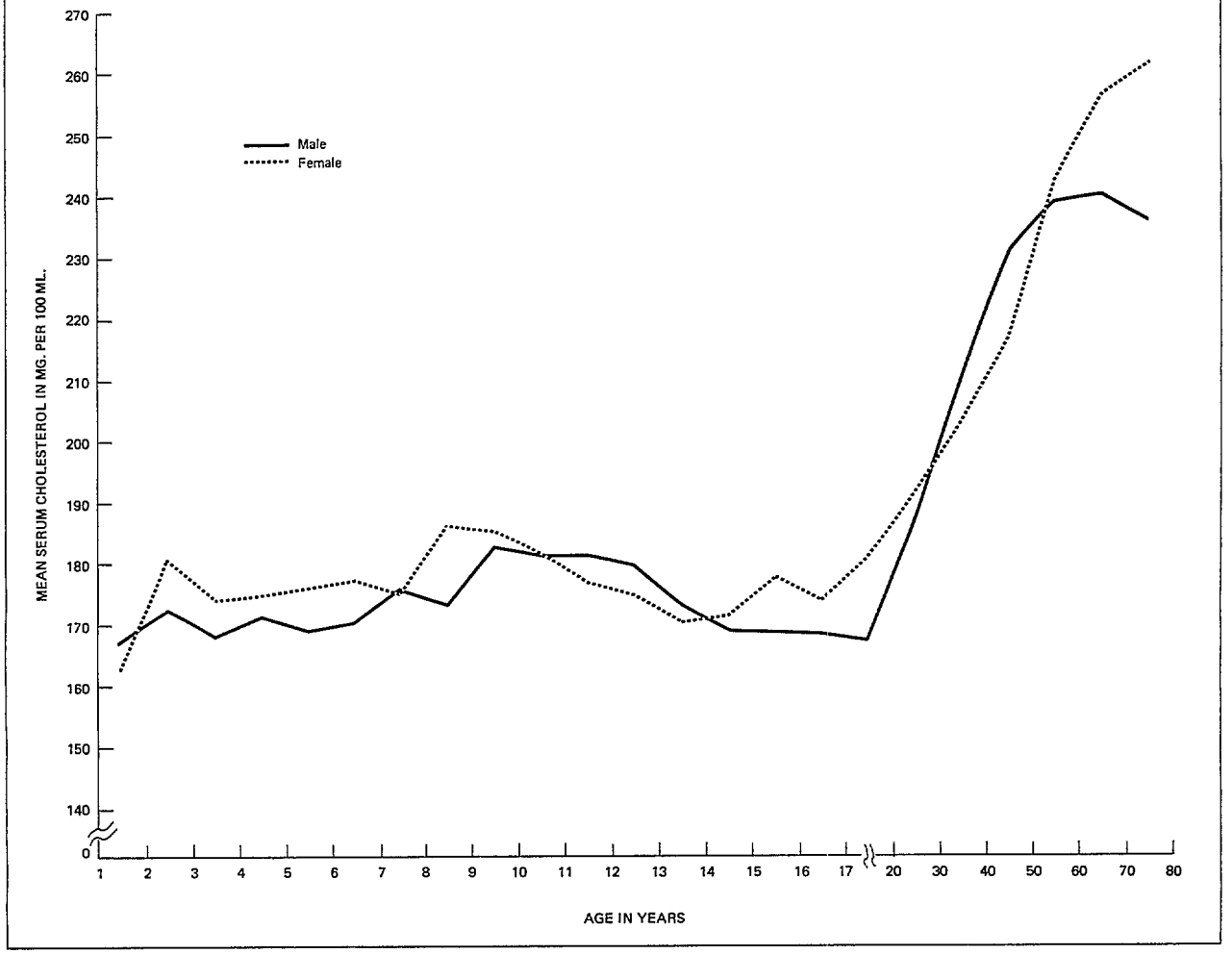
Males show a mean serum level of 167.5 mg per 100 ml at age 17 after a consistent decline from a mean level of 182.5 mg per 100 ml at age 9. The mean levels for adult males in the age group 18-24 is 186.9 mg per 100 ml, an increase of 19.4 mg per 100 ml, or 11.6 percent, from the mean level at age 17. The mean levels for male adults increase rapidly to the age group 35-44 and increase less rapidly in the age groups 45-54 and 55-64 years. A slight decline occurs in the age group 65-74 years.

A similar analysis of the mean level at age 17 for girls with that at ages 18-24 for females also shows a rise in mean levels. The mean level increases to the age group 45-54 years and increases less rapidly in the later age groups. The rise in mean level among men does not start until the early adult ages, 18-24 years, whereas in females the rise begins earlier.

The mean levels for women are higher than those for men in the youngest age group, 18-24 years. The mean levels for women increase less rapidly than those for men in the age groups 25-34 and 35-44 years but increase much more rapidly than men's levels after age 55. The mean levels for women are about the same as those for men in the age group 45-54 years. The mean levels for men peak at ages 55-64 years and then decline, while the mean levels for women continue to rise.

The mean levels in adults are consistently higher than those in children aged 4-17 years. Table 5 shows that the distributions have greater variability in adults than in children of ages 4-17 years.

Figure 4. MEAN SERUM CHOLESTEROL LEVELS OF CHILDREN AGED 1-17 YEARS AND ADULTS AGED 18-74 YEARS BY AGE AND SEX: UNITED STATES, 1971-74




## DISCUSSION AND CONCLUSION

The level of serum cholesterol has been identified as one of the multiple risk factors in the development of coronary heart disease. The results of epidemiological studies based on adult data from longitudinal studies such as the Framingham Heart Study[6] have demonstrated that persons with elevated serum cholesterol values developed coronary heart disease with greater frequency. Similar longitudinal data obtained from adolescents that relate serum cholesterol levels in younger ages to future morbidity or mortality are not available. There is some evidence, however, that atherosclerosis, more frequently manifested by coronary heart disease, may originate in childhood. Holman and others reported finding evidence of atherosclerosis in post mortems of children.[6] Enos and others reported gross evidence of coronary atherosclerosis in 77 percent of American soldiers, average age of 22 years, killed in the Korean War.[7]

Reference data of levels of children 4-17 years of age were presented and analyzed by age,

sex, and race because of the medical interest in such data. There are no such previous data for the general population of ages 4-17 years. Such data as are available are taken from selected segments of the population and special study groups. Such estimates could not be generalized to the U.S. population. HANES, on the other hand, provided cross-sectional data of serum cholesterol levels obtained on different age cohorts representative of the U.S. population. The age trends represented mean levels for successive cohorts of persons of different age groups. The limitation of cross-sectional data are recognized in considering group changes because they reflect effects of environment as well as developmental and hereditary influences.

Girls in most ages had higher mean serum cholesterol levels than boys. By race and sex, white girls generally had higher mean serum cholesterol levels than white boys of comparable ages. Similarly, among Negroes, girls had higher mean levels than boys. For both whites and Negroes, only boys of ages 11 and 12 years had higher mean serum cholesterol levels than girls of comparable age.

At each age group, with few exceptions, Negro boys had higher mean levels than white boys. This pattern is also evident for Negro girls as compared to white girls. The differences in mean levels between white and Negro were greater for girls than for boys. The average differences between the mean levels of whites and Negroes over the 14 ages was 7.1 mg per 100 ml for females and 3.8 mg per 100 ml for males.

The mean serum cholesterol level obtained for males age 17 years is consistent with the finding that serum cholesterol levels rise sharply with age for young men. Similar analysis of the mean cholesterol level for females age 17 years with those of females age 18-24 years shows that the mean values rise less rapidly than those of males. The increase in mean cholesterol levels observed in the data for females between the ages of 16 and 17 years is followed by an increase during the age group 18-24 years and a continued rise in serum cholesterol level among females in the 25-34 and 35-44 age groups, whereas in adult males the rise is not only more rapid but it begins earlier. Not only are the mean serum cholesterol levels higher in adults than in children but also the distributions have greater variability in adults than in children aged 4-17.

## REFERENCES

[1] National Center for Health Statistics: Plan and operation of the Health and Nutrition Examination Survey, United States, 1971-73. *Vital and Health Statistics.* Series 11, Nos. 10a and 10b. DHEW Pub. No. (HSM) 73-1310. Health Serivces and Mental Health Administration. Washington. U.S. Government Printing Office, Feb. 1973.

[2] National Center for Health Statistics: Serum cholesterol levels of children 4-17 years of age, United States, 1971-74. *Vital and Health Statistics.* Series 11. Health Resources Administration, DHEW, Rockville, Md. In preparation.

[3] Abell, L.L.; Levy, G.B.; Brodie, B.B.; and Kendall, F.E.: A simplified method for the estin ation of total cholesterol in serum and demonstration of its specificity. *J. Biochem.* 195:357, 1952.

[4] Eavenson, D.; Grier, O.T.; Cisson, J.G.; and Witter, R.F.: A semiautomated procedure for the determination of serum cholesterol using the Abell-Kendall Method. *J. Am. Chem. Soc.* 43:652, 1966.

[5] Kannell, W.B.; Castelli, W.P.; Gordon, T.; and Mc Namara, P.M.: Serum cholesterol, lipoproteins, and the risk of coronary heart disease. *Ann. Intern. Med.* 74:1-12. 1971.

[6] Holman, R.L.; McGill, H.C.; Strong, J.P.; and Geer, J.C.: The natural history of atherosclerosis: The early aortic lesions as seen in New Orleans in the middle of the 20th century. *Amer. J. Pathol.* 34:209-235, 1958.

[7] Enos, W.J.; Holmes, R.H.; and Beyer, J.: Pathogenesis of coronary heart disease in American soldiers killed in Korea. *JAMA* 158:912-914, 1955.

Table 1. Serum cholesterol levels of children 1-17 years by sex and age with mean, standard deviation, and standard error of mean: United States, 1971-74

| Age | Both sexes | | | Boys | | | Girls | | |
|---|---|---|---|---|---|---|---|---|---|
| | Mean[1] | Standard deviation | Standard error of mean | Mean[1] | Standard deviation | Standard error of mean | Mean[1] | Standard deviation | Standard error of mean |
| 1 year | 165.4 | 34.9 | † | 167.2 | 38.5 | † | 163.2 | 29.6 | † |
| 2 years | 176.6 | 33.7 | † | 172.5 | 36.2 | † | 180.6 | 30.6 | † |
| 3 years | 170.8 | 31.6 | † | 167.7 | 29.3 | † | 174.3 | 33.6 | † |
| 4 years | 172.9 | 30.2 | 2.08 | 171.3 | 28.7 | 1.97 | 174.7 | 31.7 | 3.52 |
| 5 years | 172.6 | 36.2 | 1.84 | 168.9 | 35.8 | 2.66 | 176.0 | 36.1 | 2.80 |
| 6 years | 173.6 | 30.0 | 2.22 | 170.1 | 26.8 | 2.07 | 177.1 | 32.5 | 3.93 |
| 7 years | 175.4 | 30.7 | 2.81 | 175.8 | 28.1 | 4.45 | 175.0 | 33.4 | 2.95 |
| 8 years | 180.0 | 30.1 | 2.21 | 173.4 | 27.6 | 2.63 | 186.5 | 31.2 | 3.14 |
| 9 years | 183.9 | 35.2 | 2.49 | 182.5 | 36.6 | 3.43 | 185.2 | 33.8 | 3.00 |
| 10 years | 181.5 | 32.6 | 2.48 | 181.4 | 25.4 | 2.43 | 181.6 | 38.2 | 4.24 |
| 11 years | 179.2 | 32.8 | 2.74 | 181.4 | 32.4 | 3.16 | 176.8 | 33.0 | 3.49 |
| 12 years | 177.7 | 33.3 | 2.54 | 179.9 | 37.0 | 3.95 | 175.0 | 27.9 | 3.51 |
| 13 years | 171.8 | 37.7 | 2.67 | 173.3 | 40.4 | 4.45 | 170.4 | 35.2 | 3.16 |
| 14 years | 171.0 | 34.7 | 1.83 | 169.1 | 36.8 | 2.80 | 172.8 | 32.4 | 2.82 |
| 15 years | 173.2 | 35.2 | 2.59 | 168.8 | 33.9 | 3.08 | 177.8 | 35.9 | 4.12 |
| 16 years | 171.3 | 32.0 | 1.87 | 168.6 | 29.3 | 2.89 | 174.0 | 34.3 | 3.04 |
| 17 years | 173.3 | 33.7 | 2.64 | 167.5 | 30.9 | 3.18 | 180.6 | 35.7 | 3.44 |

[1]Mg per 100 ml.

†Standard error of mean not included because of possible bias due to missing values.

## SYMBOLS

| | |
|---|---|
| Data not available | --- |
| Category not applicable | ... |
| Quantity zero | - |
| Quantity more than 0 but less than 0.05 | 0.0 |
| Figure does not meet standards of reliability or precision | * |

Table 2. Serum cholesterol levels of white and Negro children 1-17 years by sex and age with mean, standard deviation, and standard error of mean. United States, 1971-74

| Age | White | | | | | | Negro | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Boys | | | Girls | | | Boys | | | Girls | | |
| | Mean[1] | Standard deviation | Standard error of mean | Mean[1] | Standard deviation | Standard error of mean | Mean[1] | Standard deviation | Standard error of mean | Mean[1] | Standard deviation | Standard error of mean |
| 1 year | 166.5 | 40.2 | † | 162.4 | 30.0 | † | 170.5 | 28.2 | † | 176.6 | 19.4 | † |
| 2 years | 172.8 | 36.3 | † | 180.3 | 30.1 | † | 175.6 | 31.5 | † | 181.4 | 33.0 | † |
| 3 years | 168.0 | 29.2 | † | 172.2 | 33.3 | † | 170.6 | 30.0 | † | 192.4 | 29.0 | † |
| 4 years | 170.5 | 28.4 | 2.27 | 173.8 | 32.6 | 3.93 | 175.6 | 30.5 | 5.50 | 177.1 | 25.4 | 5.03 |
| 5 years | 168.0 | 35.7 | 2.69 | 173.2 | 35.6 | 3.35 | 174.3 | 36.2 | 8.84 | 190.3 | 35.9 | 6.46 |
| 6 years | 168.7 | 26.9 | 2.41 | 177.8 | 31.7 | 3.96 | 176.3 | 25.7 | 5.15 | 175.3 | 35.2 | 6.60 |
| 7 years | 174.5 | 27.6 | 4.64 | 172.8 | 32.8 | 3.44 | 185.1 | 29.9 | 6.21 | 186.9 | 34.5 | 6.82 |
| 8 years | 171.5 | 26.8 | 3.15 | 183.6 | 30.5 | 3.35 | 186.0 | 28.5 | 4.97 | 202.8 | 29.7 | 7.52 |
| 9 years | 182.0 | 35.9 | 4.07 | 183.6 | 33.9 | 3.46 | 184.5 | 39.1 | 6.89 | 194.1 | 29.5 | 5.71 |
| 10 years | 182.9 | 25.1 | 2.57 | 179.9 | 39.8 | 4.83 | 172.0 | 26.2 | 5.59 | 192.2 | 25.0 | 5.18 |
| 11 years | 180.8 | 31.7 | 3.49 | 179.0 | 31.3 | 3.34 | 185.7 | 36.9 | 8.04 | 164.6 | 38.7 | 10.29 |
| 12 years | 179.0 | 37.2 | 4.34 | 177.1 | 26.9 | 4.19 | 184.1 | 36.1 | 6.61 | 166.0 | 31.1 | 7.50 |
| 13 years | 174.3 | 40.2 | 5.14 | 168.3 | 35.7 | 3.52 | 167.2 | 41.1 | 7.90 | 183.6 | 28.9 | 5.98 |
| 14 years | 169.6 | 35.8 | 3.17 | 171.4 | 30.8 | 3.03 | 161.8 | 40.7 | 8.66 | 175.1 | 38.0 | 7.58 |
| 15 years | 166.3 | 28.1 | 2.70 | 174.4 | 33.6 | 3.55 | 169.7 | 29.4 | 3.49 | 194.5 | 41.5 | 12.36 |
| 16 years | 167.2 | 28.8 | 3.28 | 173.3 | 34.4 | 3.50 | 178.7 | 30.7 | 5.62 | 182.4 | 31.7 | 8.44 |
| 17 years | 166.9 | 30.8 | 3.61 | 180.3 | 35.8 | 3.93 | 173.8 | 32.2 | 7.92 | 183.3 | 36.3 | 7.10 |

[1] Mg per 100 ml.

†Standard error of mean not included because of possible bias due to missing values.

Table 3. Cumulative percent distribution of serum cholesterol levels of boys aged 1-17 years by age: United States, 1971-74

| Serum cholesterol level (mg/100 ml) | 1 year | 2 years | 3 years | 4 years | 5 years | 6 years | 7 years | 8 years | 9 years | 10 years | 11 years | 12 years | 13 years | 14 years | 15 years | 16 years | 17 years |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cumulative percent distribution | | | | | | | | | | | | | | | | |
| Under 100 | 3.78 | 1.62 | 0.0 | 1.59 | 0.42 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.19 | 0.16 | 0.26 | 0.30 | 0.0 | 0.0 |
| Under 110 | 5.01 | 1.74 | 0.71 | 2.24 | 1.08 | 0.0 | 0.12 | 1.78 | 0.63 | 0.0 | 0.50 | 2.13 | 1.10 | 3.28 | 0.51 | 0.0 | 0.98 |
| Under 120 | 6.72 | 4.59 | 2.39 | 3.30 | 2.87 | 0.67 | 1.42 | 3.14 | 0.63 | 0.45 | 2.40 | 2.13 | 1.37 | 5.14 | 3.21 | 0.16 | 3.32 |
| Under 130 | 12.61 | 6.76 | 7.46 | 6.85 | 11.84 | 3.28 | 3.18 | 6.09 | 2.89 | 2.55 | 9.74 | 3.13 | 7.49 | 10.42 | 7.06 | 2.97 | 8.44 |
| Under 140 | 22.93 | 12.08 | 17.12 | 12.86 | 18.46 | 10.80 | 5.62 | 10.86 | 9.25 | 3.91 | 19.18 | 7.55 | 16.68 | 22.58 | 15.53 | 16.13 | 19.35 |
| Under 150 | 33.45 | 21.21 | 28.11 | 21.55 | 28.63 | 19.88 | 19.61 | 16.22 | 16.35 | 8.75 | 27.94 | 17.01 | 27.93 | 31.83 | 24.64 | 33.46 | 35.20 |
| Under 160 | 43.83 | 35.17 | 41.90 | 31.84 | 43.53 | 38.67 | 28.47 | 28.59 | 27.17 | 18.45 | 36.57 | 27.13 | 42.73 | 43.37 | 40.13 | 43.33 | 45.19 |
| Under 170 | 56.36 | 52.27 | 55.34 | 45.22 | 57.35 | 50.47 | 42.43 | 48.85 | 35.25 | 32.38 | 50.79 | 44.05 | 53.00 | 55.75 | 57.34 | 55.76 | 57.51 |
| Under 180 | 68.71 | 67.00 | 69.01 | 63.60 | 66.71 | 71.91 | 61.58 | 62.10 | 47.67 | 51.60 | 62.00 | 54.15 | 63.45 | 64.09 | 69.08 | 73.14 | 67.01 |
| Under 190 | 77.05 | 77.49 | 79.05 | 79.19 | 74.37 | 81.56 | 71.38 | 74.59 | 62.25 | 64.43 | 70.20 | 67.42 | 74.11 | 77.38 | 82.48 | 78.24 | 76.97 |
| Under 200 | 81.27 | 83.48 | 86.50 | 85.44 | 81.05 | 89.02 | 81.96 | 84.64 | 74.71 | 78.37 | 78.91 | 78.85 | 77.54 | 82.47 | 89.35 | 88.01 | 81.37 |
| Under 210 | 90.07 | 86.53 | 89.72 | 91.78 | 90.26 | 96.14 | 87.04 | 87.96 | 88.51 | 86.03 | 85.24 | 84.75 | 85.15 | 88.09 | 93.75 | 89.63 | 87.63 |
| Under 220 | 91.70 | 93.98 | 94.74 | 95.49 | 93.73 | 97.64 | 91.92 | 94.96 | 92.36 | 92.22 | 93.93 | 89.44 | 91.16 | 91.31 | 94.72 | 91.75 | 95.21 |
| Under 230 | 94.52 | 96.01 | 96.18 | 96.78 | 95.71 | 98.26 | 96.20 | 97.22 | 94.54 | 95.18 | 96.75 | 94.25 | 94.58 | 93.88 | 95.41 | 95.03 | 95.93 |
| Under 240 | 96.76 | 97.06 | 98.72 | 97.69 | 96.69 | 98.62 | 99.71 | 99.37 | 94.75 | 98.08 | 97.72 | 95.89 | 95.64 | 95.39 | 95.80 | 95.70 | 99.07 |
| Under 250 | 97.60 | 97.71 | 99.53 | 99.93 | 97.57 | 98.77 | 99.71 | 99.65 | 94.87 | 99.88 | 98.66 | 96.33 | 97.62 | 97.09 | 97.57 | 99.03 | 100.00 |
| Under 260 | 99.16 | 97.71 | 100.00 | 100.00 | 98.86 | 98.77 | 99.71 | 99.65 | 94.87 | 99.88 | 98.66 | 98.12 | 97.84 | 98.40 | 98.40 | 99.72 | 100.00 |
| Under 270 | 99.16 | 97.82 | 100.00 | 100.00 | 99.53 | 98.77 | 99.81 | 100.00 | 96.40 | 100.00 | 99.35 | 98.25 | 97.84 | 98.51 | 98.40 | 99.72 | 100.00 |
| 270 and over | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Examined children | 133 | 168 | 224 | 304 | 273 | 179 | 164 | 152 | 169 | 184 | 178 | 200 | 174 | 174 | 171 | 169 | 176 |
| Estimated population in thousands | 793 | 1,042 | 1,254 | 1,707 | 1,720 | 1,783 | 1,879 | 1,977 | 2,032 | 2,054 | 2,095 | 2,136 | 2,125 | 2,111 | 2,106 | 2,072 | 2,007 |

Table 4. Cumulative percent distribution of serum cholesterol levels of girls aged 1-17 years by age: United States, 1971-74

| Serum cholesterol level (mg/100 ml) | 1 year | 2 years | 3 years | 4 years | 5 years | 6 years | 7 years | 8 years | 9 years | 10 years | 11 years | 12 years | 13 years | 14 years | 15 years | 16 years | 17 years |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cumulative percent distribution | | | | | | | | | | | | | | | | |
| Under 100 | 2.85 | 0.0 | 1.04 | 1.25 | 0.0 | 2.01 | 0.26 | 0.0 | 0.0 | 2.79 | 1.45 | 0.14 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Under 110 | 3.50 | 0.26 | 1.86 | 1.60 | 1.11 | 2.01 | 0.49 | 1.44 | 0.0 | 2.79 | 1.45 | 0.14 | 1.41 | 0.59 | 0.0 | 0.75 | 0.0 |
| Under 120 | 4.81 | 2.75 | 2.78 | 1.88 | 4.06 | 2.81 | 0.49 | 2.41 | 2.74 | 3.61 | 4.56 | 2.23 | 4.73 | 3.60 | 0.88 | 6.67 | 1.79 |
| Under 130 | 13.59 | 6.57 | 6.63 | 3.63 | 8.91 | 6.83 | 4.25 | 4.22 | 3.59 | 5.61 | 5.94 | 3.27 | 6.84 | 7.12 | 4.50 | 9.17 | 2.59 |
| Under 140 | 23.09 | 6.77 | 14.72 | 14.87 | 15.30 | 14.27 | 15.13 | 6.14 | 4.81 | 7.60 | 10.52 | 6.22 | 13.57 | 10.78 | 13.11 | 12.06 | 8.98 |
| Under 150 | 36.51 | 9.85 | 25.47 | 22.07 | 22.78 | 21.29 | 24.93 | 8.13 | 12.45 | 17.36 | 16.20 | 16.70 | 26.52 | 21.54 | 23.39 | 25.67 | 18.78 |
| Under 160 | 43.07 | 22.65 | 33.31 | 29.18 | 31.75 | 30.68 | 33.87 | 17.11 | 22.78 | 22.70 | 28.63 | 27.11 | 39.92 | 40.09 | 29.99 | 30.62 | 31.19 |
| Under 170 | 49.11 | 36.64 | 46.77 | 47.18 | 44.36 | 38.86 | 44.77 | 28.57 | 33.22 | 33.26 | 45.77 | 50.53 | 53.71 | 52.45 | 42.34 | 46.86 | 42.25 |
| Under 180 | 67.02 | 52.00 | 55.74 | 57.01 | 58.55 | 56.64 | 59.09 | 43.65 | 46.72 | 53.00 | 56.65 | 61.04 | 65.96 | 63.84 | 56.85 | 59.91 | 53.23 |
| Under 190 | 78.29 | 67.05 | 67.66 | 69.84 | 72.97 | 66.73 | 69.96 | 51.06 | 59.22 | 65.25 | 66.60 | 70.37 | 76.58 | 70.37 | 73.16 | 71.40 | 67.13 |
| Under 200 | 91.36 | 74.70 | 81.27 | 77.50 | 79.38 | 72.11 | 79.02 | 69.80 | 68.38 | 75.22 | 76.20 | 78.84 | 85.82 | 81.87 | 77.99 | 80.06 | 75.91 |
| Under 210 | 94.71 | 87.68 | 86.55 | 86.96 | 83.53 | 83.45 | 85.16 | 79.72 | 80.92 | 81.92 | 87.61 | 89.48 | 91.14 | 87.82 | 82.82 | 86.04 | 81.91 |
| Under 220 | 98.27 | 90.68 | 90.40 | 90.89 | 86.37 | 88.71 | 90.91 | 88.61 | 84.18 | 87.88 | 91.31 | 95.07 | 94.67 | 90.86 | 89.53 | 92.37 | 86.77 |
| Under 230 | 99.48 | 93.80 | 94.56 | 96.74 | 93.89 | 95.67 | 91.80 | 91.27 | 88.68 | 93.96 | 92.58 | 97.35 | 97.23 | 94.82 | 93.90 | 94.51 | 90.08 |
| Under 240 | 100.00 | 97.31 | 95.44 | 97.72 | 94.44 | 99.10 | 95.63 | 95.34 | 93.70 | 95.77 | 95.08 | 97.54 | 97.52 | 97.18 | 95.34 | 94.77 | 91.40 |
| Under 250 | 100.00 | 97.31 | 98.95 | 99.62 | 95.43 | 100.00 | 97.81 | 96.91 | 96.67 | 96.84 | 97.88 | 97.54 | 97.73 | 98.38 | 95.34 | 96.81 | 95.26 |
| Under 260 | 100.00 | 97.60 | 99.54 | 99.73 | 95.93 | 100.00 | 97.81 | 98.52 | 97.69 | 97.03 | 97.88 | 99.85 | 98.08 | 98.38 | 95.34 | 99.19 | 95.48 |
| Under 270 | 100.00 | 99.23 | 99.54 | 99.73 | 98.05 | 100.00 | 99.19 | 98.52 | 97.87 | 97.03 | 99.23 | 99.85 | 98.66 | 99.18 | 96.84 | 99.81 | 97.96 |
| 270 and over | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Examined children | 109 | 158 | 204 | 281 | 314 | 176 | 169 | 152 | 171 | 197 | 166 | 177 | 198 | 184 | 171 | 175 | 157 |
| Estimated population in thousands | 757 | 998 | 1,206 | 1,642 | 1,657 | 1,718 | 1,812 | 1,906 | 1,959 | 1,980 | 2,018 | 2,059 | 2,054 | 2,040 | 2,038 | 2,012 | 1,985 |

Table 5. Serum cholesterol levels of persons by sex and age, with number of persons examined, mean, and standard deviation: United States, 1971-74

| Age | Male | | | Female | | |
|---|---|---|---|---|---|---|
| | Number examined | Mean[1] | Standard Deviation | Number examined | Mean[1] | Standard Deviation |
| 15 years | 171 | 168.8 | 33.9 | 171 | 177.8 | 35.9 |
| 16 years | 169 | 168.6 | 29.3 | 175 | 174.0 | 34.3 |
| 17 years | 176 | 167.5 | 30.9 | 157 | 180.6 | 35.7 |
| 18-24 years | 772 | 186.9 | 36.7 | 1,524 | 191.7 | 41.0 |
| 18 years | 124 | 178.6 | 29.2 | 144 | 175.4 | 34.1 |
| 19 years | 135 | 174.4 | 36.4 | 137 | 186.3 | 36.9 |
| 20 years | 104 | 183.1 | 35.7 | 236 | 188.6 | 38.2 |
| 21 years | 112 | 186.2 | 34.4 | 257 | 198.1 | 45.8 |
| 22 years | 107 | 190.7 | 38.3 | 249 | 197.9 | 40.1 |
| 23 years | 94 | 200.5 | 34.1 | 253 | 198.0 | 44.3 |
| 24 years | 96 | 195.4 | 39.6 | 248 | 196.7 | 39.6 |
| 25-34 years | 804 | 210.3 | 44.0 | 1,896 | 203.2 | 42.2 |
| 35-44 years | 665 | 231.3 | 45.9 | 1,663 | 216.5 | 43.5 |
| 45-54 years | 765 | 239.4 | 47.0 | 836 | 242.6 | 52.0 |
| 55-64 years | 597 | 240.2 | 51.2 | 670 | 256.8 | 48.2 |
| 65-74 years | 1,657 | 236.2 | 53.8 | 1,822 | 261.6 | 51.9 |

[1]Mg per 100 ml.

## STATISTICAL NOTES

The sampling plan for the 65 preselected examination locations in the Health and Nutrition Examination Survey followed a highly stratified multistage probability design in which a sample of the civilian noninstitutionalized population of the conterminous United States 1-74 years of age was selected. Successive elements dealt with in the process of sampling were the primary sampling unit, census enumeration district, segment (a cluster of households), household, eligible person, and finally, sample person. The sampling design provided for oversampling among persons living in poverty areas, preschool children, women of childbearing age, and the elderly.

The serum cholesterol determinations are shown as population estimates; that is, the serum cholesterol findings for each individual have been "weighted" by the reciprocal of the probability of selecting the person. An adjustment for persons in the sample who were not examined and poststratified ratio adjustments were also made, and so the final sampling estimates of the population size were brought into closer alignment with the independent U.S. Bureau of the Census estimates for the civilian noninstitutionalized population of the United States as of November 1, 1972, by race, sex, and age.

Previous issues of *Advance Data From Vital and Health Statistics*

No. 1. Blood Pressure of Persons 6-74 Years of Age in the United States (Issued: October 18, 1976)

No. 2. Hypertension: United States, 1974 (Issued: November 8, 1976)

No. 3. Height and Weight of Adults 18-74 Years in the United States (Issued: November 19, 1976)

No. 4. Prevalence of Dermatological Diseases Among Persons 1-74 Years of Age, United States (Issued: January 26, 1977)

No. 5. A Comparison of Levels of Serum Cholesterol of Adults 18-74 Years of Age in the United States in 1960-62 and 1971-74 (Issued: February 22, 1977)

No. 6. Dietary Intake of Persons 1-74 Years of Age in the United States (Issued: March 30, 1977)

No. 7. Total Serum Cholesterol Levels of Adults 18-74 Years of Age, United States, 1971-74 (Issued: May 25, 1977)

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FROM VITAL & HEALTH STATISTICS OF THE NATIONAL CENTER FOR HEALTH STATISTICS
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE | No. 9 August 10, 1977 | Public Health Service • Health Resources Administration

# Wanted and Unwanted Births Reported by Mothers 15-44 Years of Age: United States, 1973[a]

According to the results of a national survey of households conducted in 1973 by the National Center for Health Statistics, one-fifth of all births (13.9 million out of 68.2 million) to mothers 15-44 years would not have occurred if these women had given birth only to those babies they reported as "wanted" at the time of conception. These estimates are based on answers to direct questions about the "wantedness" of each pregnancy that were asked during personal interviews with a sample of women aged 15-44 years who had ever been married or had children of their own living in the household.[b] These women participated in the National Survey of Family Growth which is based on a multistage area-probability sample of households in the conterminous United States. The interviews for Cycle I of the survey were conducted during an 8-month period the midpoint of which was September 13, 1973.

"Wanted" births are pregnancies resulting in at least one live birth that were reported as wanted or probably wanted prior to conception (see Technical Notes for the exact definition of these categories). On the other hand, "unwanted" births are pregnancies resulting in at least one live birth that were reported as not wanted or probably not wanted prior to conception. Pregnancies resulting in at least one live birth that were reported as neither wanted nor unwanted at the time of conception are classified as "undetermined" in these data. Pregnancies that did not result in at least one live birth (i.e., those that ended in miscarriage, stillbirth, or induced abortion) are excluded from this report. Although the word "birth" is used, wantedness is actually defined in relation to the pregnancy leading up to each birth. The questions asked in the interview focused on the time just before the woman became pregnant. This clearly distinguishes her desire for a baby before the pregnancy began from her later feelings toward the child who was born. In particular, it is incorrect to conclude that "unwanted births" are the same as "unwanted children," for many unplanned or undesired pregnancies result in children who are cherished. Because the figures presented are for pregnancies, not for births, multiple births such as twins and triplets have been counted only once since the multiple outcome presumably could not affect the woman's feelings about wantedness of the pregnancy at the time of its conception. It should be noted that the data on wanted and unwanted births presented in this report cannot be compared directly with data reported in previous fertility studies because different definitions of wantedness were used. This report is based on numbers of wanted and unwanted births, rather than on the number of women who have had an unwanted birth. The definition of wantedness is based solely on the woman's responses to questions about *her* feelings and not those of her husband. A later report will make comparisons with previous studies using comparable definitions.

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[a]Prepared by Martha Little Munson, M.S., *Division of Vital Statistics.*

[b]"Children of their own" does not include adopted or foster children, or other children in the household who were not born to the woman interviewed.

## HIGHLIGHTS

Table 1 shows that 4 out of every 5 births were reported by their mothers as wanted. But the 13.1 percent of births that were unwanted and the 7.3 percent of births for which the wantedness was undetermined together constitute 1 out of every 5 births to mothers aged 15-44 years in 1973. The proportion of births reported as unwanted increased with age, starting with about 1 out of every 12 births to mothers 15-24 years and rising to nearly twice that proportion, or 1 out of every 7 births to mothers aged 35 years and over. The differences by race are even more striking—1 in every 10 births to white mothers was reported as unwanted compared with 1 in every 4 births to Negro mothers. Similarly, Negro mothers had twice as many undetermined births in proportion to white mothers, leaving only 7 wanted births to Negro mothers (58.9 percent) for every 10 wanted births to white mothers (83.2 percent).

The proportion of unwanted births increased as parity increased. While women with 3 children reported 1 out of every 10 births as unwanted, women with 5 children reported twice as many unwanted births, and women with 6 children or more reported that 1 out of every 4 births was unwanted. There were no significant differences in wantedness by region or between mothers of Spanish origin and all other mothers. Less education for both the woman and her current husband (if any) was associated with fewer wanted births. There was no significant difference in the proportion of wanted births between mothers in, and those out of, the labor force. However, mothers with family incomes below the poverty level had a strikingly lower proportion of wanted births (66 percent) than mothers with family incomes at least 50 percent above the poverty level (83.6 percent). The difference in the reporting of wanted births between Protestants and Catholics was not statistically significant. But Jewish women reported a significantly larger proportion of wanted births compared with Catholics, Protestants, and those reporting other religions or no religious preference.

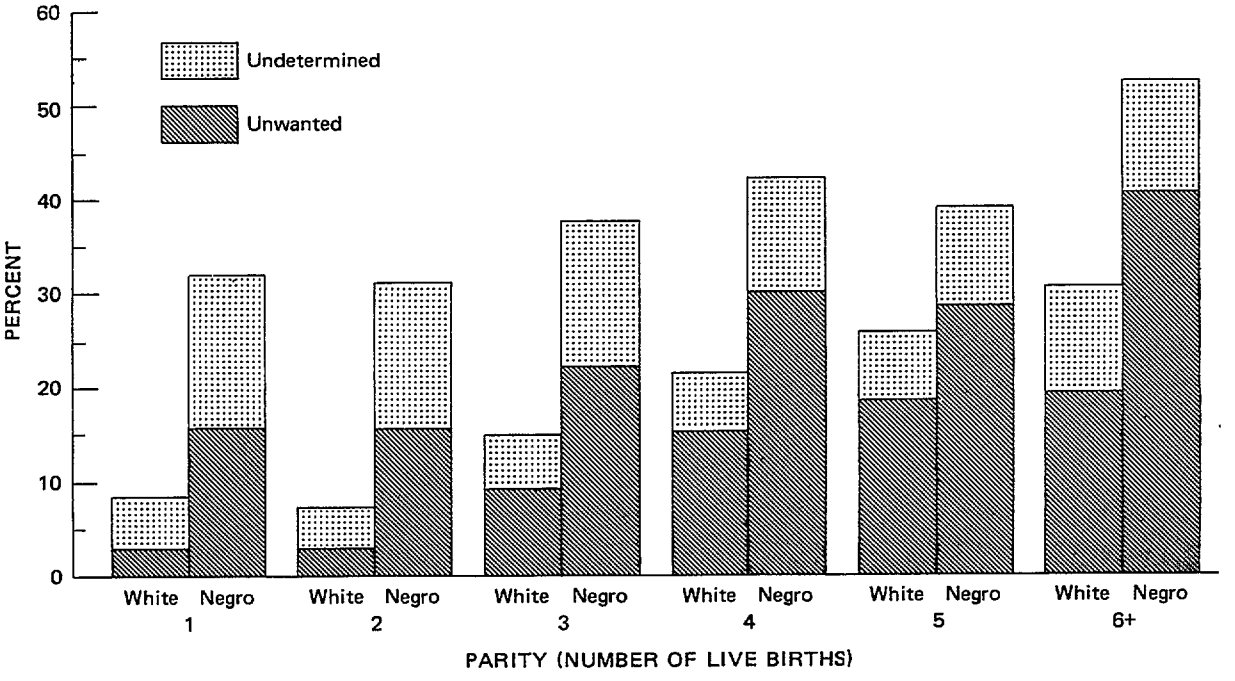
The proportion of unwanted births decreased from 3-in-10 to 1-in-10 as desired family size (an alternative measure of the number of wanted births) increased from 0 to 4, with a slight increase in unwanted births for larger desired family sizes. Among women who had never been married but who had children of their own living in the household,[c] the percentages of births reported as wanted and unwanted were significantly different from those reported by women who had been married at least once; only a little over half of the births to never-married mothers were reported as wanted. Between users and nonusers of contraception, there was no significant difference in the proportions of births reported as wanted or unwanted. But there was a marked difference in these proportions between those who were contraceptively sterilized (either male or female) and those using other methods of family planning. Those using sterilization reported fewer wanted births than those using other methods by 7 to 10 percentage points.

The pattern of wantedness by age and parity varied considerably between white and Negro mothers. Table 1 shows that the difference between the highest and lowest categories of age in the proportions of births reported as not wanted was 7.1 percentage points. Table 2 shows that this difference was almost doubled (to 13.5 percent) for Negro mothers, whereas it was virtually the same (7.2 percent) for white mothers. Looking at the pattern of unwanted births at the lowest and highest parity levels, table 1 shows a difference of 20.7 percentage points for all mothers. When this differential is examined by race, the difference shrinks to 16.3 percent for white mothers and expands to 24.7 percent for Negro mothers. Figure 1 shows the dramatic differences in the proportions of unwanted and undetermined births for white and Negro mothers and is helpful in identifying the specific groups that tend to have the largest proportions of unwanted births in the United States.

The proportions of wanted and unwanted births also differed by the current marital status

[c] Although the National Survey of Family Growth is predominantly a survey of ever-married women, it also includes families consisting of never-married mothers and their child(ren) if they reside in the same household. Hence the term "mother" refers to women who have not just borne a child but raised it as well.

Figure 1. PERCENT OF PREGNANCIES RESULTING IN A LIVE BIRTH, BY WHETHER THEY WERE REPORTED AS UNWANTED OR UNDETERMINED, BY RACE, AND PARITY: NATIONAL SURVEY OF FAMILY GROWTH, 1973




of women. A comparison of tables 1 and 3 shows that the proportion of wanted births was 2.6 percentage points higher for currently married mothers included in the survey. The greatest difference between currently married mothers and mothers of all marital statuses was found among Negro women; there were 5 percentage points more wanted births and 4 percentage points fewer unwanted births among the currently married.

Table 1. Number of mothers and of live births, and percent distribution of births, to mothers 15-44 years of age, by whether wanted, unwanted or undetermined, according to selected characteristics: United States, 1973

| Characteristic | Number of mothers in thousands | Number of births in thousands | Total | Wanted | Unwanted | Undetermined |
|---|---|---|---|---|---|---|
| | | | Percent distribution | | | |
| Total | 25,803 | 68,184 | 100.0 | 79.7 | 13.1 | 7.3 |
| Age group | | | | | | |
| 15-24 years | 4,375 | 6,542 | 100.0 | 81.9 | 8.3 | 9.8 |
| 25-29 years | 5,487 | 11,471 | 100.0 | 83.6 | 10.3 | 6.1 |
| 30-34 years | 5,617 | 15,469 | 100.0 | 80.5 | 12.1 | 7.4 |
| 35-39 years | 5,108 | 16,686 | 100.0 | 76.7 | 15.2 | 8.1 |
| 40-44 years | 5,216 | 18,015 | 100.0 | 78.3 | 15.4 | 6.2 |
| Race | | | | | | |
| White | 22,182 | 57,551 | 100.0 | 83.2 | 10.5 | 6.2 |
| Negro | 3,359 | 9,984 | 100.0 | 58.9 | 27.9 | 13.2 |
| Parity | | | | | | |
| One live birth | 6,297 | 6,297 | 100.0 | 87.7 | *5.1 | 7.2 |
| Two live births | 8,154 | 16,221 | 100.0 | 90.1 | 4.3 | 5.6 |
| Three live births | 5,458 | 16,238 | 100.0 | 83.0 | 10.7 | 6.3 |
| Four live births | 2,812 | 11,088 | 100.0 | 76.6 | 16.6 | 6.9 |
| Five live births | 1,510 | 7,429 | 100.0 | 72.0 | 20.1 | 8.0 |
| Six live births or more | 1,572 | 10,911 | 100.0 | 63.0 | 25.8 | 11.2 |
| Origin | | | | | | |
| Spanish | 1,900 | 5,501 | 100.0 | 76.4 | 13.7 | 10.0 |
| All other | 23,903 | 62,683 | 100.0 | 80.0 | 13.0 | 7.0 |
| Region | | | | | | |
| Northeast | 5,406 | 14,032 | 100.0 | 80.9 | 12.0 | 7.1 |
| North Central | 6,757 | 18,502 | 100.0 | 79.0 | 14.0 | 7.0 |
| South | 8,500 | 21,771 | 100.0 | 79.1 | 13.3 | 7.6 |
| West | 5,139 | 13,880 | 100.0 | 80.3 | 12.6 | 7.2 |
| Woman's education | | | | | | |
| Less than high school | 2,622 | 9,123 | 100.0 | 72.6 | 16.5 | 10.9 |
| High school, 1-3 years | 5,697 | 16,884 | 100.0 | 73.3 | 17.9 | 8.8 |
| High school, 4 years | 12,161 | 29,917 | 100.0 | 82.5 | 11.1 | 6.5 |
| College, 1-3 years | 3,182 | 7,585 | 100.0 | 86.1 | 9.7 | *4.2 |
| College, 4 years or more | 2,140 | 4,675 | 100.0 | 87.9 | 7.4 | *4.8 |
| Husband's education | | | | | | |
| Less than high school | 3,397 | 11,782 | 100.0 | 73.3 | 16.9 | 9.8 |
| High school, 1-3 years | 4,830 | 13,610 | 100.0 | 74.4 | 16.6 | 9.0 |
| High school, 4 years | 8,943 | 22,526 | 100.0 | 82.1 | 11.7 | 6.2 |
| College, 1-3 years | 3,739 | 9,081 | 100.0 | 83.5 | 9.9 | 6.6 |
| College, 4 years or more | 4,123 | 9,787 | 100.0 | 89.2 | 7.7 | *3.2 |

Table 1. Number of mothers and of live births, and percent distribution of births, to mothers 15-44 years of age, by whether wanted, unwanted or undetermined, according to selected characteristics: United States, 1973—Con.

| Characteristic | Number of mothers in thousands | Number of births in thousands | Total | Wanted | Unwanted | Undetermined |
|---|---|---|---|---|---|---|
| | | | Percent distribution | | | |
| **Woman's labor force status** | | | | | | |
| Not in labor force | 15,678 | 42,230 | 100.0 | 80.6 | 12.3 | 7.2 |
| In labor force | 10,125 | 25,954 | 100.0 | 78.2 | 14.4 | 7.4 |
| Working full time | 6,570 | 16,654 | 100.0 | 77.2 | 15.1 | 7.7 |
| Working part time | 2,716 | 7,110 | 100.0 | 81.4 | 12.7 | 5.9 |
| Not working | 838 | 2,190 | 100.0 | 75.5 | *14.5 | *10.0 |
| **Poverty level[1]** | | | | | | |
| Below 100 percent | 3,222 | 10,697 | 100.0 | 66.0 | 21.5 | 12.6 |
| 100-149 percent | 2,596 | 8,211 | 100.0 | 73.8 | 16.6 | 9.6 |
| 150 and above | 19,985 | 49,277 | 100.0 | 83.6 | 10.6 | 5.7 |
| **Religion** | | | | | | |
| Catholic | 7,294 | 20,259 | 100.0 | 81.5 | 11.4 | 7.1 |
| Protestant | 17,028 | 44,684 | 100.0 | 78.7 | 13.9 | 7.4 |
| Jewish | 398 | 898 | 100.0 | 88.7 | *6.6 | *4.7 |
| Other | 343 | 824 | 100.0 | 81.8 | *12.6 | *5.6 |
| None | 739 | 1,520 | 100.0 | 76.5 | *15.4 | *8.1 |
| **Desired family size** | | | | | | |
| No children | 1,337 | 3,562 | 100.0 | 60.9 | 30.9 | *8.1 |
| One child | 989 | 1,928 | 100.0 | 68.6 | 20.4 | *11.0 |
| Two children | 10,880 | 23,361 | 100.0 | 80.4 | 13.0 | 6.5 |
| Three or four children | 10,477 | 29,514 | 100.0 | 82.0 | 10.7 | 7.3 |
| Five or six children | 1,603 | 6,918 | 100.0 | 81.6 | 12.0 | 6.4 |
| Seven children or more | 517 | 2,903 | 100.0 | 75.8 | 13.3 | *10.9 |
| **Fetal losses** | | | | | | |
| No losses | 19,205 | 48,713 | 100.0 | 79.7 | 12.7 | 7.6 |
| One loss | 4,551 | 12,757 | 100.0 | 80.2 | 13.2 | 6.6 |
| Two losses | 1,247 | 4,133 | 100.0 | 77.3 | 16.4 | *6.3 |
| Three losses or more | 800 | 2,581 | 100.0 | 80.2 | 13.8 | *6.0 |
| **Times married** | | | | | | |
| Never married | 771 | 1,399 | 100.0 | 53.4 | 27.9 | *18.7 |
| Once married | 21,493 | 55,980 | 100.0 | 80.9 | 12.1 | 7.1 |
| Twice married or more | 3,539 | 10,806 | 100.0 | 76.9 | 16.4 | 6.7 |
| **Most recent contraceptive use** | | | | | | |
| Nonusers | 2,166 | 5,229 | 100.0 | 79.9 | 10.3 | 9.9 |
| Users | 22,623 | 59,635 | 100.0 | 79.5 | 13.4 | 7.2 |
| Sterilization | 4,821 | 16,574 | 100.0 | 73.5 | 18.5 | 8.0 |
| Pill or IUD | 10,278 | 23,512 | 100.0 | 80.4 | 12.5 | 7.1 |
| Other methods | 7,523 | 19,550 | 100.0 | 83.4 | 10.0 | 6.6 |

[1] "Poverty level" designates the ratio of total family income to poverty level income. See the definitions in the Technical Notes.

Table 2. Number of mothers and of live births, and percent distribution of births, to mothers 15-44 years of age, by whether wanted, unwanted or undetermined, according to age and race, and parity and race: United States, 1973

| Characteristic | Number of mothers in thousands | Number of births in thousands | Total | Wanted | Unwanted | Undetermined |
|---|---|---|---|---|---|---|
| | | | Percent distribution | | | |
| Total | 25,803 | 68,184 | 100.0 | 79.7 | 13.1 | 7.2 |
| AGE AND RACE | | | | | | |
| White | | | | | | |
| 15-24 years | 3,410 | 5,029 | 100.0 | 86.9 | *5.4 | 7.8 |
| 25-29 years | 4,799 | 9,764 | 100.0 | 87.2 | 8.2 | 4.6 |
| 30-34 years | 4,938 | 13,262 | 100.0 | 83.5 | 9.9 | 6.6 |
| 35-39 years | 4,436 | 14,174 | 100.0 | 80.6 | 12.3 | 7.0 |
| 40-44 years | 4,601 | 15,321 | 100.0 | 81.8 | 12.6 | 5.6 |
| Negro | | | | | | |
| 15-24 years | 940 | 1,468 | 100.0 | 64.6 | *18.7 | *16.6 |
| 25-29 years | 632 | 1,579 | 100.0 | 61.9 | *23.6 | *14.5 |
| 30-34 years | 615 | 2,024 | 100.0 | 60.3 | 26.4 | *13.2 |
| 35-39 years | 596 | 2,330 | 100.0 | 52.7 | 32.9 | *14.4 |
| 40-44 years | 576 | 2,583 | 100.0 | 58.2 | 32.2 | *9.5 |
| PARITY AND RACE | | | | | | |
| White | | | | | | |
| One live birth | 5,224 | 5,224 | 100.0 | 91.4 | *3.1 | *5.5 |
| Two live births | 7,257 | 14,441 | 100.0 | 92.5 | 3.0 | 4.4 |
| Three live births | 4,895 | 14,579 | 100.0 | 85.2 | 9.5 | 5.3 |
| Four live births | 2,435 | 9,603 | 100.0 | 78.5 | 15.3 | 6.1 |
| Five live births | 1,261 | 6,213 | 100.0 | 74.1 | 18.6 | 7.3 |
| Six live births or more | 1,111 | 7,491 | 100.0 | 69.6 | 19.5 | 11.0 |
| Negro | | | | | | |
| One child | 1,003 | 1,003 | 100.0 | 68.0 | *15.8 | *16.2 |
| Two children | 809 | 1,604 | 100.0 | 69.1 | *15.7 | *15.2 |
| Three children | 519 | 1,537 | 100.0 | 62.4 | *22.2 | *15.4 |
| Four children | 345 | 1,357 | 100.0 | 61.8 | *26.0 | *12.2 |
| Five children | 229 | 1,120 | 100.0 | 60.9 | *28.4 | *10.8 |
| Six children or more | 453 | 3,363 | 100.0 | 47.8 | 40.5 | 11.7 |

Table 3. Number of mothers and of live births, and percent distribution of births, to currently married mothers 15-44 years of age, by whether wanted, unwanted or undetermined, according to race and parity: United States, 1973

| Characteristic | Number of mothers in thousands | Number of births in thousands | Total | Wanted | Unwanted | Undetermined |
|---|---|---|---|---|---|---|
| | | | Percent distribution | | | |
| Total | 21,816 | 57,524 | 100.0 | 82.3 | 11.2 | 6.6 |
| RACE | | | | | | |
| White | 19,764 | 51,391 | 100.0 | 84.2 | 9.8 | 6.0 |
| Negro | 1,822 | 5,561 | 100.0 | 63.9 | 23.9 | 12.2 |
| Parity | | | | | | |
| One live birth | 5,086 | 5,086 | 100.0 | 92.0 | *2.8 | *5.1 |
| Two live births | 7,107 | 14,146 | 100.0 | 92.1 | 3.1 | 4.8 |
| Three live births | 4,740 | 14,098 | 100.0 | 85.1 | 9.4 | 5.5 |
| Four live births | 2,352 | 9,268 | 100.0 | 78.3 | 15.1 | 6.7 |
| Five live births | 1,277 | 6,287 | 100.0 | 73.9 | 17.9 | 8.1 |
| Six live births or more | 1,254 | 8,637 | 100.0 | 66.2 | 22.9 | 10.9 |

## TECHNICAL NOTES

DESIGN OF THE SURVEY: The National Survey of Family Growth (NSFG), initiated in 1971, is designed to provide data on fertility, family planning, and related aspects of maternal and child health. Field work for Cycle I was carried out by the National Opinion Research Center in 1973 and early 1974 with September 13, 1973, as the midpoint of the interviewing.

A multistage probability sample of women in the noninstitutional population of the conterminous United States was used. Approximately 33,000 households were screened to identify the sample of women who would be eligible for the NSFG; i.e., women between the ages of 15 and 44 years, inclusive, who were currently married or previously married or who had never married but had natural children presently living in the household. In households with more than one eligible woman, a random procedure was used to select only one to be interviewed. Since the interviews were always conducted with the sample person, the term "woman" is used throughout this report as synonymous with sample person. Interviews were completed for 3,856 Negro women and for 5,941 women of other races. A detailed description of the sample design will be presented in a forthcoming report "Sample Design, Estimation Procedures, and Variance Estimation for a National Survey of Family Growth."

The interview was narrowly focused on the respondents' marital and pregnancy histories, on their use of contraception and the planning status of each pregnancy, on the respondents' intentions regarding the number and spacing of future births, on maternity and family planning services, and on a broad range of social and economic characteristics. While the interviews varied greatly in the time required for their completion, they averaged about 70 minutes. Quality control procedures were applied at all stages of the survey. This included a verification of listing completeness with unlisted dwelling units being brought into the sample, a preliminary field review of completed questionnaires for possible missing data or inaccurate administration, a 10-percent sample recheck of all households to be screened in the survey, observation of interviews in the field, and an independent recoding of a 5-percent subsample of completed interviews.

RELIABILITY OF ESTIMATES: Since the statistics presented in this report are based on a sample, they may differ somewhat from the figures that would have been obtained if a complete census had been taken, using the same questionnaires, instructions, interviewing personnel, and field procedures. This chance difference between sample results and a complete count is referred to as "sampling error." In addition, the results are also subject to nonsampling error due to respondent misreporting, data processing mistakes, and nonresponse. It is very difficult, if not impossible, to obtain accurate measures of nonsampling errors. These types of errors were kept to a minimum by the quality control procedures and other methods incorporated into the survey design and administration.

Sampling error, or the extent to which samples may differ by chance from a complete count, is measured by a statistic called the "standard error of estimate." Approximate standard errors for estimated numbers and percentages from this survey are shown in tables I and II for all pregnancies, regardless of their outcome.

The chances are about 68 out of 100 that an estimate from the sample would differ from a

Table I. Approximate standard errors for estimated numbers for pregnancies: 1973 National Survey of Family Growth

| Size of estimate | Relative standard error | Standard error |
|---|---|---|
| 100,000 | 46.4 | 46,000 |
| 250,000 | 29.3 | 73,000 |
| 500,000 | 20.7 | 104,000 |
| 1,000,000 | 14.6 | 146,000 |
| 2,500,000 | 9.2 | 230,000 |
| 5,000,000 | 6.4 | 322,000 |
| 10,000,000 | 4.5 | 445,000 |
| 25,000,000 | 2.6 | 658,000 |
| 50,000,000 | 1.6 | 811,000 |

Table II. Approximate standard errors for estimated percentages expressed in percentage points for pregnancies: 1973 National Survey of Family Growth

| Base of percentage | 2 or 98 | 5 or 95 | 10 or 90 | 20 or 80 | 30 or 70 | 40 or 60 | 50 |
|---|---|---|---|---|---|---|---|
| 700,000 | 2.5 | 3.8 | 5.3 | 7.0 | 8.0 | 8.6 | 8.8 |
| 1,000,000 | 2.1 | 3.2 | 4.4 | 5.9 | 6.7 | 7.2 | 7.3 |
| 3,000,000 | 1.2 | 1.8 | 2.5 | 3.4 | 3.9 | 4.1 | 4.2 |
| 7,000,000 | 0.8 | 1.2 | 1.7 | 2.2 | 2.5 | 2.7 | 2.8 |
| 10,000,000 | 0.6 | 1.0 | 1.4 | 1.9 | 2.1 | 2.3 | 2.3 |
| 30,000,000 | 0.4 | 0.6 | 0.8 | 1.1 | 1.2 | 1.3 | 1.3 |
| 70,000,000 | 0.2 | 0.4 | 0.5 | 0.7 | 0.8 | 0.9 | 0.9 |

complete census by less than the standard error. The chances are about 95 out of 100 that the differences between the sample estimate and a complete count would be less than twice the standard error. The relative standard error is the ratio of the standard error to the statistic being estimated. In this report, numbers and percentages that have a standard error that is more than 25 percent of the estimate itself are considered "unreliable." They are marked with an asterisk to caution the user but may be combined to make other types of comparisons of greater precision.

In this report, terms such as "similar" and "the same" mean that any observed difference between two estimates being compared is not statistically significant. Similarly, terms such as "greater," "less," "larger," "smaller," etc., indicate that the observed differences are statistically significant. The normal deviate test with a .05 level of significance was used to test all comparisons that are discussed in the text. A statistically significant difference is one large enough that in repeated samples of the same size and type as this one, such a large difference would be expected to be found in less than 5 percent of the samples. Lack of comment in the text between any two statistics does *not* mean the difference was tested and found not to be significant.

## DEFINITION OF TERMS

*Wantedness.*—The definition of wantedness is based on direct responses to several questions about each time that a woman has conceived. For a woman who reports that contraceptive use was stopped prior to conception, and for those who report that no contraceptive method was used in the interval preceding conception (which begins with the end of the preceding pregnancy, if applicable), the question on wantedness is phrased as follows: "Was the reason you (were not/stopped) using any method because you, yourself, wanted to become pregnant?" An affirmative response to this question is defined as a "wanted" pregnancy. If the woman answers negatively, she is asked two followup questions which are identical to those asked of all other respondents. These questions are: "At the time you became pregnant (THIS INTERVAL)[d] did you, yourself, actually want to have a(nother) baby at some time?" and "As you recall, is that how you felt *before* you became pregnant, or did you come to feel that way later?" The latter question is rephrased as follows for women who indicated that they did not know or care whether or not they wanted to have a(nother) baby: "It is sometimes difficult to recall these things, but as you look back to *just before* that pregnancy began, would you say you probably

[d]Parentheses indicate that the interviewer chose the appropriate wording for respondent. "THIS INTERVAL" means that the interviewer inserted the name or dates of the child or pregnancy that defined the interval in question.

wanted a(nother) baby some time or probably not?"

A pregnancy is defined as "wanted" if the woman reports that (a) contraception was not used in the interval or was stopped prior to conception *because* the woman wanted to become pregnant, or (b) she wanted to have a(nother) baby at some time and felt that way *before* becoming pregnant, or (c) she reported that she probably wanted a(nother) baby at some time. A pregnancy is defined as "unwanted" if the woman reports that she did not want, or probably did not want to have a(nother) baby at some time and felt that way *before* becoming pregnant. All other pregnancies are termed "undetermined." Table III shows the breakdown by the subcategories of the components of wantedness for pregnancies ending in live births and fetal losses.

*Age.*—In this report, age is classified by the age of the respondent at her last birthday before the date of interview.

*Race.*—Classification by race, based on interviewer observation, was reported as Negro, white, or other. Race refers to the race of the woman interviewed.

*Spanish origin.*—A respondent was classified as being of Spanish origin if she reported her origin or descent as Mexican, Chicano, Mexican American, Puerto Rican, Cuban, or other Spanish.

*Region.*—Region refers to the part of the country where the respondent was living at the time of the survey according to the definition of the U.S. Bureau of the Census.

*Marital Status.*—Persons are classified by marital status as married, widowed, divorced, separated, or never married. Married persons include those who report themselves as married or as informally married, such as living with a partner or common-law spouse. Persons who are temporarily separated for reasons other than marital discord, such as vacation, illness, or Armed Forces, are classified as married. Divorced persons are those whose most recent marriage was legally dissolved and who are free to remarry. The annulled, while having the legal status of never having been married, are classified together with the divorced. The category "separated" includes those who are legally or informally separated from their most recent spouse due to marital discord. The "never mar-

Table III. Percent distribution of subcategories of wantedness by race for all pregnancies regardless of outcome: United States, 1973

| Category of wantedness | Total | Negro | White and other |
|---|---|---|---|
| Total | 100.0 | 100.0 | 100.0 |
| Wanted | | | |
| Contraception stopped or not used | 44.7 | 29.5 | 56.8 |
| Wanted prior to conception | 27.0 | 29.4 | 25.2 |
| Probably wanted prior to conception | 1.0 | 1.1 | 0.9 |
| Unwanted | | | |
| Unwanted prior to conception | 18.6 | 28.3 | 10.9 |
| Probably unwanted prior to conception | 0.3 | 0.4 | 0.2 |
| Undetermined | | | |
| Wanted after conception | 5.9 | 7.0 | 4.9 |
| Unwanted after conception | 2.2 | 3.9 | 0.9 |
| Don't know or care | 0.3 | 0.4 | 0.2 |

ried" include those who have never had a formal marriage and do not consider themselves in any of the preceding categories. However, in the NSFG, single women with children of their own in the household were included.

*Times married.*—The number of times a woman has been married, according to the definition of marital status as offered in the preceding paragraph.

*Education.*—The highest year of regular schooling completed is used to define education for the woman and her current or most recent husband.

*Labor force status.*—A woman is categorized as being in the labor force if she was working full time or part time, had a job but was not at work because of temporary illness, vacation, or a strike, or if she was unemployed, laid off, or looking for work.

*Poverty level.*—The poverty index ratio was calculated by dividing the total family income by the weighted average threshold income of nonfarm residents, head under 65, based on the poverty levels shown in the U.S. Bureau of the Census, *Current Population Reports,* Series P-60, No. 98, "Characteristics of the Low-Income Population, 1973," table A-3. This definition takes into account the sex of the family head and the number of persons in the family. Total family income includes income from all sources for all members of the respondent's family.

*Religion.*—Women were asked whether they were Protestant, Catholic, Jewish, or something else. Protestant includes most of the Christian groups other than Roman Catholic. The "other" category includes non-Christians except those answering "none."

*Parity.*—Parity refers to the number of live births the respondent has had.

*Desired family size.*—The number of children a woman reported that she would have if she could start life over again and have exactly the number of children she wanted.

*Fetal losses.*—The number of pregnancies reported by the respondent ending in miscarriage, stillbirth, or induced abortion.

*Most recent contraceptive use.*—Nonusers are women who have never used a contraceptive method or gave no indication of ever having used a method for the purpose of delaying or preventing a pregnancy. Users are women who have ever used at least one contraceptive method (including sterilization at least partly for contraceptive reasons) for that purpose, and this is the current method for women using contraception at the date of the interview.

EFFECTS OF IMPUTATION: In 477 cases out of 27,198 records of pregnancies, there was no code for determining the wantedness status of the pregnancy concerned. Interviewer's error, coding and keypunching errors or the respondent's nonresponse for a specific item are some possible reasons for this. Thus, for 1.8 percent of all pregnancies, a code for wantedness was imputed on the basis of respondents matched on race, age, pregnancy interval order, and parity, using the "hot deck" procedure for imputations. It is possible to assess the effects of this procedure by comparing the resulting distribution with one including the unknown values as a separate category. The imputed proportions differ from the unimputed proportions by an average of 0.4 percentage points, with the largest difference being in the "wanted" category for Negro women of 0.9 percent.

**SYMBOLS**

| | |
|---|---|
| Data not available | --- |
| Category not applicable | ... |
| Quantity zero | - |
| Quantity more than 0 but less than 0.05 | 0.0 |
| Figure does not meet standards of reliability or precision | * |

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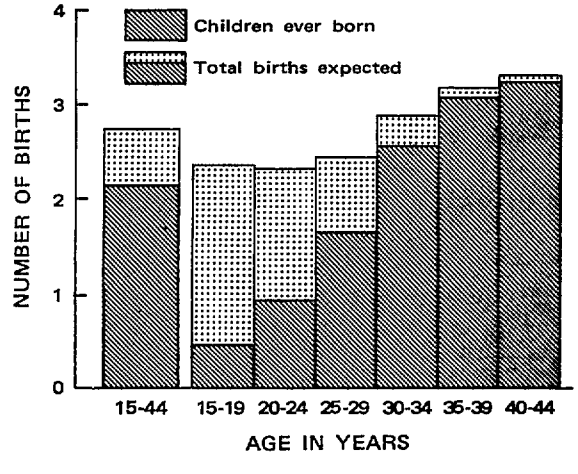
FROM VITAL & HEALTH STATISTICS OF THE NATIONAL CENTER FOR HEALTH STATISTICS
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE | No. 10 August 12, 1977 | Public Health Service • Health Resources Administration

# Expected Size of Completed Family Among Currently Married Women 15-44 Years of Age: United States, 1973[a]

Currently married women aged 40-44, who are near the end of their childbearing period, expect to have an average of 3.3 children. But those aged 20-24, who are beginning their childbearing, expect an average of only 2.3 children. Although the younger women are less sure about their expectations than the older women, the statistics reflect definite age differences in birth expectations. If realized in actual fertility, Figure 1 shows that these differences will result in a significant decline in completed family size.

The expected decline in fertility is found in nearly all subgroups of the population, even though there are different levels of expectations among these subgroups. For instance, the total number of births expected by currently married women decreases as education increases and as age at marriage increases. Also, Negro wives, Catholic wives, wives who participate more in religious activities, wives who are not in the labor force, and wives whose first child was born before marriage, expect more total births than other wives.

Figure 1. Average number of children ever born and total births expected per currently married woman 15-44 years old by age: United States, 1973




These and other findings presented in this report are from Cycle I of the National Survey of Family Growth (NSFG), conducted by the National Center for Health Statistics. The NSFG was designed to provide information about fertility, family planning, and aspects of maternal and child health related to childbearing. Data on these topics were collected by personal interviews with about 9,800 women aged 15-44 years who had ever been married or who had children of their own living in the household. Interviews were conducted between July 1973 and February 1974, centering on September 1973. The statistics in this report refer to currently married women living in the conterminous United States, and are based on interviews with a representative sample of 7,566 such women. Further discussion of the survey design, definition of terms, and sampling variability are in the Technical Notes.

## RANGE OF BIRTH EXPECTATIONS

The number of births that women expect to have may not forecast future births accurately because women may change their minds, they

[a]Prepared by Gordon Scott Bonham, Ph.D., Division of Vital Statistics.

may not be able to have the expected births, or they may unintentionally have more births than expected. The NSFG allowed for some of these uncertainties in interviewing women on expectations. Wives were asked how many additional births they intended to have, if any, and how certain they were of achieving those intentions. Those who expressed uncertainty, about one-third of the total, were asked the minimum and maximum numbers they actually expected to have.

The range of births expected per 1,000 currently married women 15-44 years old is shown in table 1. Overall, women expected to have between 2,653 and 2,985 births per 1,000 women (or 2.7 and 3.0 births each) by the time they finish childbearing. Of these expected births, 2,180 (or 2.2 births each) have already occurred. The difference between minimum and maximum expected births decreases as age increases. Most of this difference is due to the higher proportion of expected births that have already occurred among older women and therefore present no uncertainty. About one-fourth of the minimum births expected by women 15-19 years old have occurred, and this proportion increases to almost 100 percent for women 40-44 years old.

Regardless of the certainty of her intentions, a central number of births was determined for each woman by a procedure described in the Technical Appendix. The central number of births expected by women in the sample population is between the minimum and maximum, although it is slightly closer to the minimum. This number increases with age, except for a statistically insignificant decrease between ages 15-19 and 20-24. The increase is not solely due to events associated with different stages of the life cycle. It also represents diversified birth expectations of different cohorts of women. Those aged 40-44 in 1973 had most of their children during the high fertility period of the 1950's and the early 1960's, often referred to as the "baby boom." However, women in their twenties in 1973 were starting their families during a period of low fertility. The age comparison in table 1 reflects the changes in fertility shown in table A. There is not much difference in the number of total births expected or children ever born by the time of the interview among women aged 30 or over between 1960 and 1973. However, there are dramatic changes for women under age 30. Wives 18-24 years old in 1973 expect to have an average of 0.8 children fewer by the time they complete childbearing than wives 18-24 years old in 1960 or 1965. Wives 25-29 years old in 1973 expect to have 1.0 fewer children than wives of a similar age in either 1960 or 1965. This expectation of smaller families is not unreasonable since they have already had an average of 0.5-0.8 fewer children than the wives of comparable age 8 to 13 years earlier.

## COMPARISON WITH OTHER DATA

Other surveys have collected data on birth expectations, as indicated in table A. Most notably, the U.S. Bureau of the Census asked about birth expectations in the June 1973 Current Population Survey (CPS). A comparison of the NSFG of 1973 with the CPS of 1973 is shown in table B. Except for wives 35-39 years old, the NSFG reports slightly higher birth expectations than the CPS does. While the differences are of demographic significance, they are approximately equal to the standard error of the differences, and thus not statistically significant. The small differences in the two estimates could be due to differences between the surveys in any or all of the following: 1) allowances for uncertainty in birth expectations in the NSFG, 2) characteristics of wives reporting, 3) dates of survey, 4) total content of the interview, or 5) categorization of marital status.

## BIRTHS DESIRED

The number of births that a woman would like (or desire) if she could have just the number she wanted, is shown in table 1. The number of births desired by wives of all ages is approximately equal to the central number of births they expect to have. However, wives under age 30 expect to have fewer births than they would like, while wives age 30 or older expect to have more births than they would like. These differences could be due to differential ability to control fertility, specific temporal conditions or

Table A. Average number of total births expected and children ever born per currently married woman 18-39 years old in selected years by age: United States, 1960-1973

| Total births expected, children ever born and age | 1960[a] | 1965[a] | 1967[b] | 1970[a] | 1971[b] | 1972[b] | 1973[c] |
|---|---|---|---|---|---|---|---|
| Total births expected | | | | | | | |
| 18-24 years old | 3.1 | 3.1 | 2.9 | 2.6 | 2.4 | 2.3 | 2.3 |
| 25-29 years old | 3.4 | 3.4 | 3.0 | 2.8 | 2.6 | 2.5 | 2.4 |
| 30-34 years old | 3.3 | 3.6 | 3.3 | 3.1 | 3.0 | 2.9 | 2.9 |
| 35-39 years old | 3.0 | 3.4 | 3.3 | 3.4 | 3.3 | 3.2 | 3.2 |
| Children ever born | | | | | | | |
| 18-24 years old | 1.4 | 1.5 | 1.2 | 1.1 | 1.0 | 0.9 | 0.9 |
| 25-29 years old | 2.4 | 2.5 | 2.3 | 2.1 | 1.9 | 1.8 | 1.7 |
| 30-34 years old | 2.7 | 3.1 | 3.1 | 2.9 | 2.8 | 2.7 | 2.6 |
| 35-39 years old | 2.7 | 3.2 | 3.2 | 3.3 | 3.2 | 3.2 | 3.1 |

[a]Figures are from the 1960 Growth of American Families Survey and the 1965 and 1970 National Fertility Surveys as reported in U.S. Bureau of the Census, *Current Population Reports*, Series P-20, No. 263 (April 1974), table C.
[b]U.S. Bureau of the Census, *Current Population Reports*, Series P-20, No. 269 (September 1974).
[c]National Survey of Family Growth.

Table B. Number of total births expected per 1,000 currently married women 18-39 years of age for the National Survey of Family Growth and the Current Population Survey: United States, 1973

| Age | National Survey of Family Growth | Current Population Survey |
|---|---|---|
| 18-39 years | 2,674 | 2,639 |
| 18-24 years | 2,320 | 2,262 |
| 25-29 years | 2,445 | 2,387 |
| 30-34 years | 2,879 | 2,804 |
| 35-39 years | 3,183 | 3,234 |

Source: Data for the Current Population Survey is from U.S. Bureau of the Census, *Current Population Reports*, Series P-20, No. 265, "Fertility Expectations of American Women: June 1973," Washington. U.S. Government Printing Office, 1974.

differential interpretations of expected and desired numbers of births. There is less variation by age of women in the number of births they desire than in the number of births they actually expect.

## TIMING OF BIRTHS

Table 2 shows that 78 percent of the total births expected by currently married women 15-44 years old have already occurred. This varies directly by age with wives under age 20 having borne 20 percent of their expected births, while wives age 40-44 have borne 99 percent of their expected births. Wives 15-19 years old expect to have 79 percent of their births by the time they are 20-24, while wives 20-24 years old at the date of the survey had only had 40 percent of their expected births by this same age. Similarly, wives 20-24 years old expected to have 85 percent of their total births by the time they are 25-29 while wives currently 25-29 years old have had 68 percent of their births. These observations suggest at least one of the following: 1) women who marry at younger ages, who predominate among women aged 15-19, have different patterns of childbearing than women who marry at slightly older ages, who are more numerous among women aged 20-24; 2) births among younger women are concentrated within a narrower time period than they were among older women; or 3) younger women do not have realistic expectations of the timing of their future births.

## VARIATIONS IN BIRTH EXPECTATIONS

Table 1 shows that Negro wives at all ages expect to have more total births than do white wives. However, the difference decreases from 1,111 births per 1,000 wives aged 40-44, to 140 births per 1,000 wives aged 15-19. The higher

total birth expectations of Negro wives is due to their already having had more children than white wives.

Table 3 shows that the fertility of wives of Spanish origin or descent is more similar to that of Negro wives than to white wives. Compared with wives of other origins or descents, Spanish wives expect to have almost 25 percent more total births. This is due to their already having more children and expecting more children in the future than wives of other origin.

The greater the education of currently married women, the fewer total births they expect. This pattern is similar for each age group. The timing of births, however, is different for women with different amounts of education. Except for those with 1-3 years of high school, the more educated women expect more births in the future than their less educated counterparts, and have had fewer births in the past.

Wives in the labor force expect fewer total births than wives not in the labor force. Those working full-time expect fewer total births than women working part-time. Women working full-time have also postponed a larger number of births than women either working part-time or who are not in the labor force.

Currently married women whose family income is 150 percent or more of the poverty threshold expect to have fewer total births than women whose family income is less than 150 percent of the poverty threshold. This pattern applies to all ages 20 years or older. There is no difference in birth expectations for women below the poverty threshold and those whose family income is 100-149 percent of the poverty threshold.

Roman Catholic wives expect to have more total births than Protestant wives. Protestant wives, in turn, expect to have more total births than Jewish wives or wives of other or no religious identification. There is no difference in the timing of the births for Catholic, Protestant and Jewish wives because the pattern is apparent in both categories—children ever born and additional births expected. Catholic and Protestant wives who participate more frequently in religious activities expect more total births by the end of their childbearing than do women of the same religious identification who participate less frequently.

The older the woman was at the time of her first marriage, the fewer births she expects by the time she completes her childbearing. The difference between women married at ages 20 to 21 and those married at ages 22-24 years, however, is not statistically significant. The pattern of decreasing numbers of total births expected with increasing age at marriage is observed for most age groups. However, there is also a general pattern of increasing numbers of additional births expected with increasing age at marriage indicating a difference by age of marriage in the timing of childbearing.

The timing of the first birth in relationship to marriage affects the total number of children a woman expects to have. Women who had a premarital birth expect to have 699 more births per 1,000 women than those whose first birth occurred after marriage. Except for women 40-44 years old, there is no difference in the total number of births expected by wives whose first child was born within 8 months of marriage and those whose first child was born 8-14 months after marriage. However, women who waited 15 months or more for the birth of their first child have significantly lower total birth expectations than those having a birth sooner after marriage. Wives with no live births by the survey date expect fewer total births than wives with at least one birth, regardless of its timing.

For all ages, women using contraception expect the same number of total births as women not using contraception. However, women who are using contraception have already borne more children. At ages 30 or older women using contraception expect to have more total births than women not using contraception. Among women who report that they are not using contraception, sterile women have had more births than other women expect to have; sterile women are older than other women not using contraception. Women who were pregnant, post partum, or trying to become pregnant at the date of interview are predominantly in the early years of their childbearing. While they expect about the same number of total births as women not using contraceptives, they have borne fewer children. Women sterilized for contraceptive reasons, or whose husbands have been sterilized, have borne more children than any other group of contracepting or noncontracepting women expect to have.

Table 1. Number of currently married women 15-44 years old, number of children they have borne, minimum, maximum, and central number of births expected, and number of births desired per thousand, by race and age: United States, 1973

| Race and age | Number of wives in thousands | Children ever born | Minimum births expected | Central number of births expected | Maximum births expected | Births desired |
|---|---|---|---|---|---|---|
| All races | | | | | | |
| 15-44 years | 26,646 | 2,180 | 2,653 | 2,783 | 2,985 | 2,753 |
| 15-19 years | 1,028 | 479 | 2,047 | 2,376 | 2,684 | 2,644 |
| 20-24 years | 4,949 | 921 | 2,057 | 2,313 | 2,653 | 2,491 |
| 25-29 years | 6,063 | 1,651 | 2,250 | 2,445 | 2,696 | 2,530 |
| 30-34 years | 5,248 | 2,575 | 2,791 | 2,879 | 3,063 | 2,712 |
| 35-39 years | 4,632 | 3,054 | 3,155 | 3,183 | 3,313 | 3,036 |
| 40-44 years | 4,726 | 3,251 | 3,279 | 3,297 | 3,361 | 3,104 |
| White | | | | | | |
| 15-44 years | 24,249 | 2,139 | 2,607 | 2,737 | 2,933 | 2,749 |
| 15-19 years | 915 | 438 | 2,022 | 2,358 | 2,672 | 2,621 |
| 20-24 years | 4,469 | 875 | 2,025 | 2,283 | 2,612 | 2,484 |
| 25-29 years | 5,579 | 1,614 | 2,208 | 2,406 | 2,651 | 2,523 |
| 30-34 years | 4,768 | 2,523 | 2,737 | 2,821 | 2,998 | 2,688 |
| 35-39 years | 4,199 | 3,041 | 3,130 | 3,157 | 3,281 | 3,049 |
| 40-44 years | 4,320 | 3,172 | 3,198 | 3,215 | 3,276 | 3,119 |
| Negro | | | | | | |
| 15-44 years | 2,081 | 2,712 | 3,198 | 3,326 | 3,610 | 2,759 |
| 15-19 years | 96 | 820 | 2,197 | 2,498 | 2,777 | 2,692 |
| 20-24 years | 451 | 1,365 | 2,336 | 2,575 | 3,024 | 2,540 |
| 25-29 years | 417 | 2,147 | 2,749 | 2,922 | 3,295 | 2,627 |
| 30-34 years | 402 | 3,160 | 3,447 | 3,534 | 3,782 | 2,844 |
| 35-39 years | 347 | 3,513 | 3,671 | 3,714 | 3,933 | 2,909 |
| 40-44 years | 367 | 4,255 | 4,303 | 4,326 | 4,413 | 2,960 |

## SYMBOLS

| | |
|---|---|
| Data not available | --- |
| Category not applicable | ... |
| Quantity zero | - |
| Quantity more than 0 but less than 0.05 | 0.0 |
| Figure does not meet standards of reliability or precision | * |

Table 2. Number of children already born, additional births expected by timing, and percent total of births expected per 1,000 currently married women 15-44 years old, by race and age: United States, 1973

| Race and age | Children already born | Additional births expected | | | Total births expected | Percent total of births expected | | |
|---|---|---|---|---|---|---|---|---|
| | | Within 2 years | Within 5 years | In all future years | | Already occurred | Completed within 2 years | Completed within 5 years |
| All races | | | | | | | | |
| 15-44 years | 2,180 | 153 | 447 | 603 | 2,783 | 78 | 84 | 94 |
| 15-19 years | 479 | 458 | 1,391 | 1,897 | 2,376 | 20 | 39 | 79 |
| 20-24 years | 921 | 283 | 1,049 | 1,392 | 2,313 | 40 | 52 | 85 |
| 25-29 years | 1,651 | 226 | 598 | 794 | 2,445 | 68 | 77 | 92 |
| 30-34 years | 2,575 | 104 | 223 | 304 | 2,879 | 89 | 93 | 97 |
| 35-39 years | 3,054 | 46 | 82 | 130 | 3,183 | 96 | 97 | 99 |
| 40-44 years | 3,251 | 15 | 26 | 47 | 3,297 | 99 | 99 | 99 |
| White | | | | | | | | |
| 15-44 years | 2,139 | 151 | 444 | 599 | 2,737 | 78 | 84 | 94 |
| 15-19 years | 438 | 467 | 1,406 | 1,920 | 2,358 | 19 | 38 | 78 |
| 20-24 years | 875 | 286 | 1,065 | 1,408 | 2,283 | 38 | 51 | 85 |
| 25-29 years | 1,614 | 224 | 594 | 793 | 2,406 | 67 | 76 | 92 |
| 30-34 years | 2,532 | 100 | 207 | 289 | 2,821 | 90 | 93 | 97 |
| 35-39 years | 3,041 | 43 | 76 | 116 | 3,157 | 96 | 98 | 99 |
| 40-44 years | 3,172 | 14 | 23 | 43 | 3,215 | 99 | 99 | 99 |
| Negro | | | | | | | | |
| 15-44 years | 2,712 | 157 | 459 | 613 | 3,326 | 82 | 86 | 95 |
| 15-19 years | 820 | 411 | 1,249 | 1,678 | 2,498 | 33 | 49 | 83 |
| 20-24 years | 1,365 | 255 | 930 | 1,210 | 2,575 | 53 | 63 | 89 |
| 25-29 years | 2,147 | 238 | 600 | 775 | 2,922 | 73 | 82 | 94 |
| 30-34 years | 3,160 | 119 | 310 | 374 | 3,534 | 89 | 93 | 98 |
| 35-39 years | 3,513 | 52 | 77 | 200 | 3,714 | 95 | 96 | 97 |
| 40-44 years | 4,255 | 21 | 41 | 71 | 4,326 | 98 | 99 | 99 |

Table 3. Number of total births expected and children ever born per 1,000 currently married women 15-44 years old by age and by selected characteristics: United States, 1973

| Selected characteristics | Total | Age in years | | | | | |
|---|---|---|---|---|---|---|---|
| | | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 |
| | Total births expected | | | | | | |
| All women | 2,783 | 2,376 | 2,313 | 2,445 | 2,879 | 3,183 | 3,297 |
| **Origin** | | | | | | | |
| Spanish | 3,403 | 2,886 | 2,810 | 3,258 | 3,395 | 3,840 | 3,840 |
| Other | 2,741 | 2,324 | 2,279 | 2,394 | 2,854 | 3,118 | 3,267 |
| **Education** | | | | | | | |
| Less than high school | 3,686 | 2,715 | 3,134 | 3,279 | 3,658 | 3,861 | 4,214 |
| High school: 1-3 years | 3,148 | 2,262 | 2,559 | 2,877 | 3,365 | 3,565 | 3,654 |
| High school: 4 years | 2,669 | 2,393 | 2,276 | 2,380 | 2,839 | 3,065 | 3,023 |
| College: 1-3 years | 2,544 | 2,365 | 2,109 | 2,297 | 2,568 | 2,971 | 3,160 |
| College: 4 years or more | 2,302 | --- | 1,931 | 2,115 | 2,317 | 2,385 | 2,898 |
| **Labor force status** | | | | | | | |
| Not in labor force | 2,942 | 2,397 | 2,479 | 2,634 | 3,032 | 3,348 | 3,480 |
| In labor force | 2,560 | 2,335 | 2,116 | 2,147 | 2,633 | 2,966 | 3,074 |
| Working full-time | 2,511 | 2,398 | 2,132 | 2,128 | 2,519 | 3,028 | 3,021 |
| Working part-time | 2,730 | 2,213 | 2,227 | 2,265 | 2,836 | 2,907 | 3,314 |
| Not working | 2,410 | *1,455 | 1,508 | 1,961 | 2,766 | 2,760 | 2,791 |
| **Poverty level income** | | | | | | | |
| Below poverty income | 3,501 | 2,466 | 2,641 | 3,098 | 3,738 | 4,203 | 4,692 |
| 100-149 percent poverty income | 3,564 | 2,319 | 2,363 | 3,230 | 3,930 | 4,477 | 4,799 |
| 150 percent poverty income or more | 2,645 | 2,366 | 2,273 | 2,332 | 2,719 | 2,960 | 3,080 |
| **Religion and religious participation** | | | | | | | |
| Protestant | 2,710 | 2,246 | 2,260 | 2,402 | 2,798 | 3,088 | 3,198 |
| More frequent | 2,782 | 2,338 | 2,381 | 2,468 | 2,810 | 3,129 | 3,090 |
| Less frequent | 2,644 | 2,182 | 2,195 | 2,341 | 2,787 | 3,034 | 3,324 |
| Roman Catholic | 3,057 | 2,790 | 2,514 | 2,650 | 3,138 | 3,476 | 3,632 |
| More frequent | 3,225 | 2,804 | 2,626 | 2,725 | 3,284 | 3,630 | 3,795 |
| Less frequent | 2,840 | 2,782 | 2,409 | 2,563 | 2,929 | 3,251 | 3,330 |
| Jewish | 2,356 | *3,040 | 1,569 | 2,094 | 2,058 | 2,583 | 2,771 |
| Other or none | 2,257 | 2,020 | 2,117 | 2,002 | 2,553 | 2,680 | 2,586 |
| **Age at first marriage** | | | | | | | |
| Under 18 years | 3,219 | 2,347 | 2,528 | 2,953 | 3,629 | 3,704 | 3,767 |
| 18-19 years | 2,862 | 2,413 | 2,283 | 2,527 | 3,038 | 3,430 | 3,671 |
| 20-21 years | 2,654 | ... | 2,254 | 2,318 | 2,786 | 3,199 | 3,019 |
| 22-24 years | 2,551 | ... | 2,194 | 2,253 | 2,432 | 2,831 | 3,064 |
| 25-29 years | 2,291 | ... | ... | 2,039 | 2,225 | 2,273 | 2,638 |
| 30 or more years | 1,901 | ... | ... | ... | 1,434 | 1,767 | 2,274 |
| **Timing of first birth** | | | | | | | |
| Before marriage | 3,672 | 2,358 | 3,131 | 3,279 | 3,889 | 4,140 | 4,481 |
| After marriage | 2,973 | 2,381 | 2,406 | 2,610 | 2,992 | 3,275 | 3,456 |
| 0-7 months | 3,226 | 2,294 | 2,435 | 2,691 | 3,493 | 4,049 | 4,678 |
| 8-14 months | 3,250 | 2,538 | 2,466 | 2,851 | 3,216 | 3,525 | 3,771 |
| 15 or more months | 2,693 | 2,401 | 2,346 | 2,453 | 2,630 | 2,890 | 3,009 |
| No live births | 1,717 | 2,376 | 2,073 | 1,633 | 1,022 | 654 | 276 |
| **Contraceptive status** | | | | | | | |
| Noncontraceptors | 2,740 | 2,543 | 2,589 | 2,542 | 2,680 | 2,987 | 2,956 |
| Pregnant, post partum, seeking pregnancy | 2,727 | 2,635 | 2,665 | 2,685 | 2,734 | 3,084 | 3,144 |
| Sterile | 2,897 | --- | *409 | 2,118 | 2,520 | 3,152 | 3,044 |
| Other | 2,627 | 2,200 | 2,411 | 2,146 | 2,729 | 2,727 | 2,802 |
| Contraceptors | 2,801 | 2,251 | 2,202 | 2,406 | 2,948 | 3,267 | 3,503 |
| Sterilization | 3,328 | *1,912 | 2,311 | 2,806 | 3,195 | 3,544 | 3,796 |
| Pill, IUD | 2,563 | 2,214 | 2,184 | 2,338 | 2,851 | 3,439 | 3,508 |
| Other methods | 2,752 | 2,450 | 2,233 | 2,307 | 2,839 | 2,859 | 3,257 |

Table 3. Number of total births expected and children ever born per 1,000 currently married women 15-44 years old by age and by selected characteristics: United States, 1973—con.

| Selected characteristics | Total | Age in years | | | | | |
|---|---|---|---|---|---|---|---|
| | | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 |
| | Children ever born | | | | | | |
| All women | 2,180 | 479 | 921 | 1,651 | 2,575 | 3,054 | 3,251 |
| **Origin** | | | | | | | |
| Spanish | 2,641 | *674 | 1,268 | 2,404 | 2,932 | 3,612 | 3,574 |
| Other | 2,149 | 459 | 897 | 1,604 | 2,558 | 2,998 | 3,233 |
| **Education** | | | | | | | |
| Less than high school | 3,210 | 810 | 1,832 | 2,627 | 3,358 | 3,640 | 4,146 |
| High school: 1-3 years | 2,707 | 587 | 1,694 | 2,434 | 3,133 | 3,424 | 3,617 |
| High school: 4 years | 2,072 | 342 | 835 | 1,719 | 2,584 | 2,959 | 2,976 |
| College: 1-3 years | 1,812 | --- | 473 | 1,323 | 2,227 | 2,892 | 3,117 |
| College: 4 years or more | 1,470 | --- | *155 | 730 | 1,770 | 2,220 | 2,855 |
| **Labor force status** | | | | | | | |
| Not in labor force | 2,395 | 557 | 1,207 | 1,985 | 2,767 | 3,197 | 3,421 |
| In labor force | 1,877 | 324 | 580 | 1,124 | 2,267 | 2,865 | 3,042 |
| Working full-time | 1,731 | 282 | 498 | 1,042 | 2,153 | 2,908 | 2,983 |
| Working part-time | 2,239 | *455 | 937 | 1,432 | 2,498 | 2,836 | 3,294 |
| Not working | 1,931 | *89 | *514 | 944 | 2,293 | 2,670 | 2,762 |
| **Poverty level income** | | | | | | | |
| Below poverty income | 2,734 | 579 | 1,150 | 2,101 | 3,488 | 3,975 | 4,557 |
| 100-149 percent poverty income | 3,099 | 791 | 1,410 | 2,732 | 3,765 | 4,388 | 4,733 |
| 150 percent poverty income or more | 2,043 | 407 | 837 | 1,531 | 2,399 | 2,836 | 3,041 |
| **Religion and religious participation** | | | | | | | |
| Protestant | 2,158 | 482 | 928 | 1,670 | 2,548 | 2,993 | 3,169 |
| More frequent | 2,287 | 551 | 959 | 1,747 | 2,546 | 3,040 | 3,041 |
| Less frequent | 2,039 | 434 | 912 | 1,599 | 2,550 | 2,932 | 3,318 |
| Roman Catholic | 2,359 | *471 | 888 | 1,773 | 2,727 | 3,273 | 3,546 |
| More frequent | 2,525 | *283 | 677 | 1,732 | 2,903 | 3,425 | 3,729 |
| Less frequent | 2,144 | *589 | 1,089 | 1,820 | 2,475 | 3,051 | 3,209 |
| Jewish | 1,914 | *540 | *314 | 994 | 2,058 | 2,510 | 2,733 |
| Other or none | 1,467 | *479 | 1,035 | 1,025 | 2,103 | 2,471 | 2,510 |
| **Age at first marriage** | | | | | | | |
| Under 18 years | 2,778 | 687 | 1,653 | 2,603 | 3,462 | 3,628 | 3,750 |
| 18-19 years | 2,266 | *218 | 1,007 | 2,019 | 2,838 | 3,361 | 3,652 |
| 20-21 years | 1,999 | ... | 512 | 1,503 | 2,591 | 3,106 | 2,976 |
| 22-24 years | 1,825 | ... | *279 | 964 | 1,985 | 2,675 | 2,997 |
| 25-29 years | 1,657 | ... | ... | 654 | 1,476 | 1,963 | 2,573 |
| 30 or more years | 1,284 | ... | ... | ... | *333 | 1,108 | 1,950 |
| **Timing of first birth** | | | | | | | |
| Before marriage | 3,186 | 1,123 | 2,218 | 2,695 | 3,441 | 3,957 | 4,468 |
| After marriage | 2,626 | 1,154 | 1,474 | 2,036 | 2,761 | 3,181 | 3,424 |
| 0-7 months | 2,842 | 1,128 | 1,602 | 2,278 | 3,387 | 3,952 | 4,651 |
| 8-14 months | 2,966 | 1,139 | 1,561 | 2,361 | 3,039 | 3,419 | 3,733 |
| 15 or more months | 2,317 | 1,228 | 1,325 | 1,774 | 2,309 | 2,806 | 2,980 |
| No live births | ... | ... | ... | ... | ... | ... | ... |
| **Contraceptive status** | | | | | | | |
| Noncontraceptors | 1,825 | *305 | 824 | 1,223 | 1,985 | 2,628 | 2,839 |
| Pregnant, post partum, seeking pregnancy | 1,056 | 348 | 780 | 1,088 | 1,401 | 1,822 | 1,866 |
| Sterile | 2,897 | --- | *409 | 2,118 | 2,520 | 3,152 | 3,044 |
| Other | 2,166 | *93 | 1,031 | 1,388 | 2,474 | 2,521 | 2,728 |
| Contraceptors | 2,335 | 611 | 960 | 1,820 | 2,779 | 3,236 | 3,498 |
| Sterilization | 3,328 | *1,912 | 2,311 | 2,806 | 3,195 | 3,544 | 3,796 |
| Pill, IUD | 1,832 | 621 | 872 | 1,669 | 2,647 | 3,390 | 3,506 |
| Other methods | 2,322 | *503 | 830 | 1,542 | 2,558 | 2,811 | 3,247 |

## TECHNICAL NOTES

DESIGN OF THE SURVEY: The National Survey of Family Growth (NSFG), initiated in 1971, is designed to provide data on fertility, family planning, and related aspects of maternal and child health. Field work for Cycle I was carried out by the National Opinion Research Center in 1973 and early 1974 with September 13, 1973, as the midpoint of the interviewing.

A multistage probability sample of women in the noninstitutional population of the conterminous United States was used. The sample of women eligible for the NSFG was between the ages of 15 to 44 years, inclusive, were currently married or previously married or were never married but had natural children presently living in the household. A detailed description of the sample design will be presented in a forthcoming report "Sample Design, Estimation Procedures, and Variance Estimation for a National Survey of Family Growth."

RELIABILITY OF ESTIMATES: Since the statistics presented in this report are based on a sample, they may differ somewhat from the figures that would have been obtained if a complete census had been taken, using the same questionnaires, instructions, interviewing personnel, and field procedures. This chance difference between sample results and a complete count is referred to as sampling error. In addition, the results are also subject to nonsampling error due to respondent misreporting, data processing mistakes, and nonresponse. It is very difficult, if not impossible, to obtain accurate measures of nonsampling errors. These types of errors were kept to a minimum by the quality control procedures and other methods incorporated into the survey design and administration.

Sampling error, or the extent to which samples may differ by chance from a complete count, is measured by a statistic called the standard error of estimate. Approximate standard errors for estimated numbers and ratios from this survey are shown in tables I and II.

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 differences between the sample estimate and a complete count would be less than twice the standard error. The relative standard error is the ratio of the standard error to the statistic being estimated. In this report, numbers and percentages which have a standard error that is more than 25 percent of the estimate itself are considered "unreliable." They are marked with an asterisk to caution the user but may be combined to make other types of comparisons of greater precision.

In this report, terms such as "similar" and "the same" mean that any observed difference between two estimates being compared is not statistically significant. Similarly, terms such as

Table I. Approximate standard errors for estimated numbers of white and total women: 1973 National Survey of Family Growth

| Size of estimate | Relative standard error | Standard error |
|---|---|---|
| 50,000 | 30.0 | 15,000 |
| 100,000 | 21.2 | 21,000 |
| 200,000 | 15.0 | 30,000 |
| 500,000 | 9.5 | 47,000 |
| 1,000,000 | 6.7 | 67,000 |
| 2,000,000 | 4.8 | 95,000 |
| 5,000,000 | 3.0 | 151,000 |
| 10,000,000 | 2.2 | 216,000 |
| 20,000,000 | 1.5 | 311,000 |

Table II. Estimated standard errors of the ratio of total births expected per 1,000 women: 1973 National Survey of Family Growth

| Base of ratio | Estimated ratio | | | | |
|---|---|---|---|---|---|
| | 1,000 | 2,000 | 3,000 | 4,000 | 5,000 |
| 20,000 | 232 | 531 | 826 | 1,121 | 1,416 |
| 50,000 | 147 | 336 | 523 | 709 | 896 |
| 100,000 | 104 | 238 | 370 | 502 | 634 |
| 200,000 | 74 | 168 | 262 | 355 | 448 |
| 500,000 | 47 | 107 | 166 | 225 | 284 |
| 1,000,000 | 33 | 76 | 118 | 160 | 202 |
| 2,000,000 | 24 | 54 | 84 | 114 | 144 |
| 5,000,000 | 16 | 35 | 54 | 74 | 93 |
| 10,000,000 | 12 | 26 | 40 | 54 | 68 |
| 20,000,000 | 9 | 20 | 30 | 41 | 51 |

"greater," "less," "larger," "smaller," etc., indicate that the observed differences are statistically significant. The normal deviate test with a 0.5 level of significance was used to test all comparisons. Lack of comment in the text between any two statistics does *not* mean the difference was tested and found not to be significant.

## DEFINITION OF TERMS

*Children ever born.*—The number of children born alive to a woman.

*Additional births expected.*—The number of children a woman expects to give birth to in the future, including current pregnancy, if applicable. Women who were sterile or married to sterile men were classified as expecting zero additional births. Those physically able to have births were asked whether they and their husbands intended to have any babies in the future and, if so, how many. Women who did not know whether they intended any future births, or did not know a particular number they intended to have, were asked for the smallest and largest numbers they expect to have. Women who reported a particular number of children they intended to have were asked how sure they were about having specifically that number. Those uncertain of having that specific number were asked for the maximum and minimum numbers they expect to have.

For each woman, there is a maximum, minimum and central number of additional births expected. If a woman reported a specific number she intended to have, that was considered the central number she expected. If she was sure about it, that was also the minimum and maximum number she expected. For a woman who was not sure of having her intended number, the smallest and largest numbers she expected were her minimum and maximum numbers, respectively. For a woman who did not report any specific number of intended future births, the average of the smallest and the largest numbers expected became her central expected number. In this report, discussion of additional births expected refers to the central number unless specifically identified otherwise. Further discussion of this topic will be given in a forthcoming report in Series 23 of *Vital and Health Statistics.*

*Total births expected.*—The number of children a woman expects to have by the time she completes her childbearing. This number is the sum of the children ever born and the additional births expected. Minimum, maximum and central numbers of total births expected are calculated by using the minimum, maximum and central additional births expected. Unless specified otherwise, references to total births expected refer to the central number.

*Births desired.*—The number of children a woman would have if she could start life all over again and have just the number of children she wanted, knowing other things would have turned out just about the way they did for her and her husband.

*Age.*—The respondent's age at her last birthday before the interview.

*Age at first marriage.*—The woman's age at the time of her first marriage or commonlaw union.

*Contraceptive status.*—Women were classified as "noncontraceptors" if they were pregnant, post partum (last pregnancy terminated less than two months before interview) or they and their husbands were not using contraceptives because she was trying to become pregnant, they or their husbands were sterile for other than contraceptive reasons, or for some other reason. Women were classified as "contraceptors" if they or their husbands had had a sterilizing operation at least partly for contraceptive reasons, if they were using the pill, the IUD, or other methods of contraception.

*Education.*—The highest grade of regular school the woman had completed at the survey date.

*Labor Force Status.*—A woman is categorized as being in the labor force if she was working full-time or part-time, had a job but was not at work because of temporary illness, vacation, or a strike, or if she was unemployed, laid off, or looking for work. A woman is classified as working full-time if she works 35 or more hours a week.

*Marital Status.*—Marital status classifications are married, widowed, divorced, separated, or never married. Married persons include those who reported themselves as married or as informally married, such as living with a partner or commonlaw spouse. This classification includes those who are temporarily separated for reasons other than marital discord such as vacation, illness, or Armed Forces. Persons who are separated legally or informally for reasons of marital discord are classified as separated. All tables in this report are based upon currently married women or others whose marital status at the time of the interview was "married."

*Poverty level.*—The poverty index ratio was calculated by dividing the total family income by the weighted average threshold income of nonfarm residents, head under 65, based on the poverty levels shown in the U.S. Bureau of the Census, *Current Population Reports,* Series P-60, No. 98, "Characteristics of the Low-Income Population, 1973," table A-3. This definition takes into account the sex of the family head and the number of persons in the family. Total family income includes income from all sources for all members of the respondent's family.

*Race.*—Classification by race of the woman interviewed, based on interviewer observation, was reported as Negro, white, or other.

*Religion and religious participation.*—Women were asked whether they were Protestant, Catholic, Jewish or something else. Protestant includes most of the Christian groups other than Roman Catholic. The "other" category includes non-Christian religions and no religion.

Protestant women are classified as having more frequent religious participation if they attend religious services twice a month or more, and having less frequent participation if attendance is once a month or less.

Catholic women are classified as having more frequent religious participation if they receive communion several times a year or more, and less frequent participation if they receive communion once a year or less. Sample reliability makes subclassification of Jewish or "other or none" religious categories by participation impractical.

*Spanish origin.*—A respondent was classified as being of Spanish origin if she reported her origin or descent as Mexican, Chicano, Mexican American, Puerto Rican, Cuban, or other Spanish.

*Timing of first birth.*—The first birth is classified as occurring before or after the first or only marriage. First births occurring after marriage are further classified by the number of months between marriage and the birth.

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DHHS Publication No. (PHS) 89-1860, Series 16, No. 1