VITAL & HEALTH STATISTICS

# Eye Care Visits and Use of Eyeglasses or Contact Lenses

## United States, 1979 and 1980

Statistics are presented on the volume and frequency of visits for eye care, place of visit, and type of specialist seen, by age, sex, race, family income, education of head of family, place of residence, and geographic region. These estimates are based on data collected in interviews during 1979. In addition, statistics are presented on the proportion of persons with glasses or contact lenses during 1979 and 1980 by age, sex, race, Hispanic origin, geographic region, place of residence, education of head of family, education of the individual, occupation, and family income. Trends in the use of eyeglasses and contact lenses also are shown starting in fiscal year 1966.

**Data From the National Health Survey**
**Series 10, No. 145**

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Under the legislation establishing the National Health Interview Survey, the Public Health Service is authorized to use, insofar as possible, the services or facilities of other Federal, State, or private agencies.

In accordance with specifications established by the Division of Health Interview Statistics, the Bureau of the Census, under a contractual arrangement, participated in planning the survey and collecting the data.


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The number of persons who made major contributions to the survey design, data collection, and processing procedures resulting in this report are too numerous to mention. However, the author wishes to acknowledge that the writing of this report is only one step, among many other equally important steps, in the overall process leading to the presentation of these data.

# Contents

## Symbols

| | |
|---|---|
| - - - | Data not available |
| . . . | Category not applicable |
| - | Quantity zero |
| 0.0 | Quantity more than zero but less than 0.05 |
| Z | Quantity more than zero but less than 500 where numbers are rounded to thousands |
| * | Figure does not meet standards of reliability or precision (more than 30-percent relative standard error) |
| # | Figure suppressed to comply with confidentiality requirements |

# Eye-Care Visits and Use of Eyeglasses or Contact Lenses

by Gail S. Poe, M.P.H., Division of Health Interview Statistics

## Introduction

National estimates of volume and frequency of eye-care visits and the types of eye-care specialists seen are presented in this report. For the first time since 1964, using the data shown here, a comparison of the volume of eye-care visits by type of specialist for selected population subgroups can be made. Also the data can be used to project the requirements for health professionals in future years.[1] Estimates relating to eye-care visits are based on data collected in 1979 by means of the National Health Interview Survey of a national probability sample of households. The population covered by the survey is the civilian noninstitutionalized population of the United States. An eye-care visit is defined as a visit to a doctor or someone else in which help or advice was received about the eyes. It includes examinations, treatments, surgery, and fitting or adjusting contact lenses. Eye care does not include visits that were only for adjusting eyeglass frames.

Also presented in this report are the use of eyeglasses and contact lenses in 1979 and 1980 and trends in the use of corrective lenses starting in fiscal year 1966. The last time data were published by the National Center for Health Statistics (NCHS) on corrective lenses was for the 1971 National Health Interview Survey (NHIS)[2] and the 1971-72 National Health and Nutrition Examination Survey (NHANES)[3]. For this report, 2 years of NHIS data were combined (1979 and 1980). The combining of these years increased the reliability of estimates because increasing the sample size decreases the sampling error. A comparison between the 2-year average and the statistics for individual years is shown below:

| | *Average 1979 and 1980* | *1979* | *1980* |
|---|---|---|---|
| Population ages 3 years and over . | 207,132,000 | 206,134,000 | 208,132,000 |
| Percent with eyeglasses or contact lenses . . | 51.7 | 51.6 | 51.8 |

Data in this report on use of corrective lenses can be compared to earlier reports from NHIS.[2,4,5] In addition, data in this report can be used with data from the 1977 National Medical Care Expenditure Survey[6] and the 1980 National Medical Care Utilization and Expenditure Survey. The National Ambulatory Medical Care Survey has data on visits to ophthalmologists.[7] NHANES has published reports on data for 1971-72 on the national prevalence estimates of refraction status, refraction potential, and motility defects;[3] visual acuity levels with usual correction, if any, as determined in an ophthalmology examination before dilation;[8] and selected eye conditions, decrease in vision from eye pathology, and related need for medical care.[9]

In addition, based on data from the 1974-75 National Health and Nutrition Examination Augmentation Survey, data were presented on access to refractive care.[10]

# Source and limitations of the data

The information from NHIS, presented in this report, is based on data collected in a continuing nationwide survey conducted by personal interview in the household. A probability sample of households is interviewed each week by trained personnel of the U.S. Bureau of the Census to obtain information about the health and other characteristics of each member of the household in the civilian noninstitutionalized population.

During the 52 weeks in 1979, the sample consisted of approximately 42,000 eligible, occupied households containing about 111,000 persons living at the time of the interview. The total noninterview rate was about 3.9 percent—2.2 percent of which was due to respondent refusal and the remainder was primarily due to an inability to locate an eligible respondent at home after repeated calls. Because of budgetary limitations in 1980, four weeks of data collection were deleted from the fourth quarter sample. The data derived from the remaining weeks were differentially weighted to produce a full quarterly estimate. During the 48 weeks in 1980, the sample consisted of approximately 39,000 households containing about 103,000 persons living at the time of the interview. The total noninterview rate was about 2.9 percent of which 1.8 percent was due to refusals.

The regular NHIS respondent rules are that a person aged 19 years or older or ever married may respond for himself or herself and any other related household member; a person aged 17 or 18 years who has never been married may respond for self only; a related household member must respond for a never married person under age 17; an unrelated person living in a household must be interviewed separately using a separate questionnaire. Information on eye-care visits was obtained for a one-third subsample of respondents in 1979 and, to increase reporting accuracy, a self-respondent rule for adults was used for the eye-care questions. (For children, answers for the eye-care questions were obtained from a related adult household member.)

Because of the use of a more stringent respondent rule relating to eye-care visits than for the basic NHIS questionnaire, there was additional nonresponse to these questions. Of the 36,063 persons in the 1979 one-third subsample, responses were obtained for 35,199 or 97.6 percent.

Tables 1-4 in the detailed tables contain data related to eye-care visits. The population based figures used in computing most of the rates and percents for eye-care visits in this report are found in tables 5-7. Tables 8-17 contain data on use of eyeglasses or contact lenses.

A description of the survey design, methods used in estimation, and general qualifications of the data obtained from this survey are provided in appendix 1. In this report the estimates are subject to sampling error because they are based on a sample of the population. Therefore, particular attention should be paid to the section entitled "Reliability of estimates." Sampling errors for most of the estimates related to eyeglasses or contact lenses are relatively low. Errors due to sampling in the statistics related to eye-care visits are generally bigger because of the much smaller sample size. Where an estimated number or the numerator or denominator of a rate of percentage is small, the sampling error may be high. Charts of relative sampling errors and instructions for their use are presented in appendix 1.

In addition to errors resulting from sampling mentioned above, response error is also a possibility in interview data. Response error occurs when household respondents do not know the requested information, fail to recall accurately events occurring during the reference period, report events that actually happened outside the reference period as having occurred during it, or withhold information. Errors may also be introduced by interviewers, coders, and others during the processing and analysis of the data. To reduce the reporting error for the type of eye-care specialist seen, special procedures were used that required the interviewers to verify the type of speciality. (See appendix II for a description of these procedures.) Interviewers were able to verify specialty in 89 percent of the reported visits. For this report, interviewer-ascertained specialty was used where available and, where not, respondent-reported specialty was used.

It should be noted that age has a large effect on both eye-care visits and use of eyeglasses and contact lenses. Gender also has an effect on use of corrective lenses. Where data are not presented for age and sex-specific groups, some of the observed differences among population subgroups may be due in part to differences in age-sex distributions.

A comparison of the 1980 population estimates based on the 1970 census with the 1980 census estimates revealed an error of closure of 2.1 percent. That is, the 1970-consistent estimate was 2.1 percent less than the number of people counted in 1980. The U.S Bureau of the Census has published revised population estimates for the intercensal years that are consistent with the 1980 census[11]. In general, the rates and percents presented in this report are affected very little because both the numerator and denominator are derived from the survey. Estimates of the number of persons with

a specified characteristic will be affected more if they are for a population group for which the error of closure was relatively large.

Terms used in the survey are defined in appendix III. Appendix IV contains portions of the questionnaire applicable to this report. A complete facsimile of the questionnaire used in 1979 is provided in *Vital and Health Statistics*, Series 10, No. 136[12] and for 1980 in Series 10, No. 139.[13]

In this report, terms such as "similar" and "the same" mean that there was no statistically significant difference between the statistics being compared. Terms relating to differences such as "greater than" or "less than" indicate that differences are statistically significant. A critical value of 1.96 (0.05 level of significance) was used to test comparisons that are discussed. Lack of comment regarding the difference between any two statistics does *not* mean that the difference was tested and found to be not significant.

# Findings

## Eye care

### Frequency of eye-care visits

Respondents were asked how many eye-care visits they made during the past 12 months. Eye care was defined to respondents as visits to a doctor or someone else in which help or advice was received about the eyes. It includes eye examinations, treatments, surgery, and fitting of contact lenses. Eye care does not include visits that were only for adjusting frames.

- Thirty-two percent of persons in the U.S. civilian noninstitutionalized population made at least one eye-care visit during the 12 months prior to interview (table 1). The proportion of persons making at least one eye-care visit was related to every population characteristic investi-

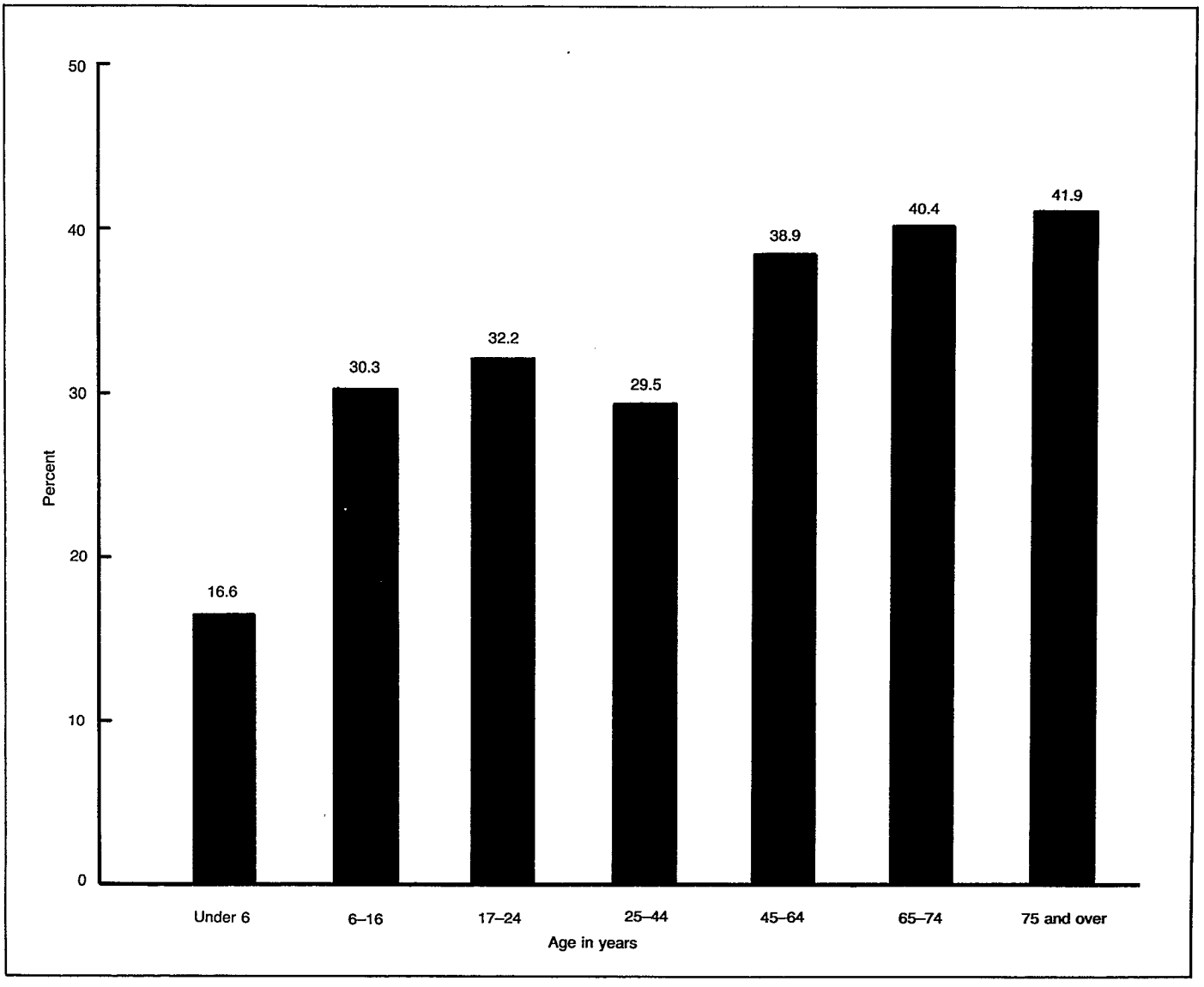


**Figure 1. Percent of persons with 1 or more eye-care visits in the 12 months prior to interview, by age: United States, 1979**

gated—gender, age, race, family income, education of head of family, place of residence, region of country, and family size.

- There was a direct positive relationship between age and having one or more eye-care visits in the 12 months prior to interview (figure 1). Only 30 percent of the persons ages 6-16 years had one or more eye-care visits and 42 percent of the persons 75 years and over had one or more visits. This is consistent with the deterioration of the eyes that accompanies the aging process and the strong positive relationship between the use of eyeglasses and contact lenses and age.
- A higher proportion of females than males had at least one eye-care visit during the year prior to interview.
- A higher proportion of white than black persons had one or more eye-care visits during the 12 months prior to interview.
- Persons with $25,000 or more family income had the highest percent with one or more eye-care visits during the 12 months prior to interview.
- The proportion of persons with one or more eye-care visits, during the year prior to interview, increased with the education of the head of the family.
- A lower proportion of persons living outside a standard metropolitan statistical area (SMSA) than inside an SMSA had one or more visits during the year prior to interview.
- Persons living in the Northeast Region had the highest percent of persons with one or more visits in the 12 months prior to interview (35 percent).
- The percent of persons with one or more visits was lower in larger families.

## Volume of 1979 eye-care visits

Estimates of the number of eye-care visits made during 1979 were based on visits reported as occurring during the 2 weeks ending Sunday night of interview week. For estimates of number of visits per 100 persons with one or more visits during the year prior to interview, the numerator is based on visits reported during the two weeks prior to interview and the denominator is based on visits reported for the 12 months prior to interview.

- 103.6 million visits were made in 1979 to obtain eye care (table 2).
- Despite the fact that a higher proportion of females than males had at least one eye-care visit during the year prior to interview, the rate of eye-care visits was about the same for females as for males. In 1979 there were 47 eye-care visits per 100 males and 49 visits per 100 females (table A).
- The rate of eye-care visits increased with age. The rate for persons 65 years and over (82 visits per 100 persons) was more than twice the rate for persons under 17 years (35 visits per 100 persons).
- The rate of visits for white persons appeared to be larger than for black persons; however, the potential error in the estimates due to interviewing only a sample of households precludes definitely stating that the rate for white persons was higher.
- The rates of visits across income groups were about the same.
- The rates of visits appeared to increase with higher levels of education of head of family; however, the potential error in the estimates due to sampling precludes definitely stating that there was a direct positive relationship between rate of visits and education of head of family.
- Among all persons having at least one visit during the year prior to interview, the rate of visits was 149 per 100 persons. Among persons 65 years and over having at least one visit in the year prior to interview, the rate of visits was 198 per 100 persons.

**Table A. Rate of eye-care visits per 100 persons per year for all persons and persons with at least 1 visit during the year prior to interview, by selected characteristics: United States, 1979**

| *Selected characteristic* | *Rate of visits per 100 persons* | *Rate of visits per 100 persons with at least 1 visit* |
|---|---|---|
| All persons[1] | 48.0 | 149.1 |
| Sex | | |
| Male | 47.2 | 156.2 |
| Female | 48.8 | 143.2 |
| Age | | |
| Under 17 years | 34.8 | 132.9 |
| 17–44 | 44.0 | 141.9 |
| 45–64 | 56.2 | 147.5 |
| 65 years and over | 81.7 | 198.1 |
| Race | | |
| White | 49.9 | 151.4 |
| Black | 33.8 | 122.5 |
| Family income | | |
| Less than $5,000 | 50.5 | 158.7 |
| $5,000–$9,999 | 52.2 | 171.3 |
| $10,000–$14,999 | 47.1 | 156.7 |
| $15,000–$24,999 | 44.9 | 142.9 |
| $25,000 or more | 52.5 | 141.5 |
| Education of head of family | | |
| Less than 12 years | 39.1 | 139.7 |
| 12 years | 48.7 | 148.6 |
| 12 years or more | 52.6 | 152.6 |
| 13 years or more | 56.6 | 157.2 |
| 16 years or more | 58.7 | 155.7 |
| Place of residence | | |
| SMSA | 49.3 | 148.0 |
| Central city | 46.3 | 142.0 |
| Not central city | 51.3 | 152.0 |
| Outside SMSA | 45.4 | 151.7 |
| Region | | |
| Northeast | 56.8 | 161.8 |
| North Central | 46.9 | 140.9 |
| South | 38.0 | 130.8 |
| West | 57.1 | 173.4 |

[1]Includes persons of other races and persons of unknown income and education.

NOTE: Relative standard errors of estimates for this table are found in appendix I.

## Type of specialist seen

Respondents were asked whether the person seen for eye care was an ophthalmologist, an optometrist, an optician, or some other kind of doctor or specialist. Interviewers verified the type of specialty. For definitions of types of specialists see appendix II. The percent of visits to a particular type of specialist was calculated in the following way. Based on visits reported as occurring during the 2 weeks prior

to interview, the denominator was the estimate of eye-care visits to any type of specialist and the numerator was the estimate of eye care visits to the particular type of specialist.

- Forty-three percent of all visits for eye care were made to ophthalmologists, compared with 32 percent to optometrists and 16 percent to medical doctors other than ophthalmologists (table 3).
- In 1979 there were approximately 21,855 active optometrists[14] and 12,619 active ophthalmologists[15] in the United States and possessions. Hence, in 1979 there were more

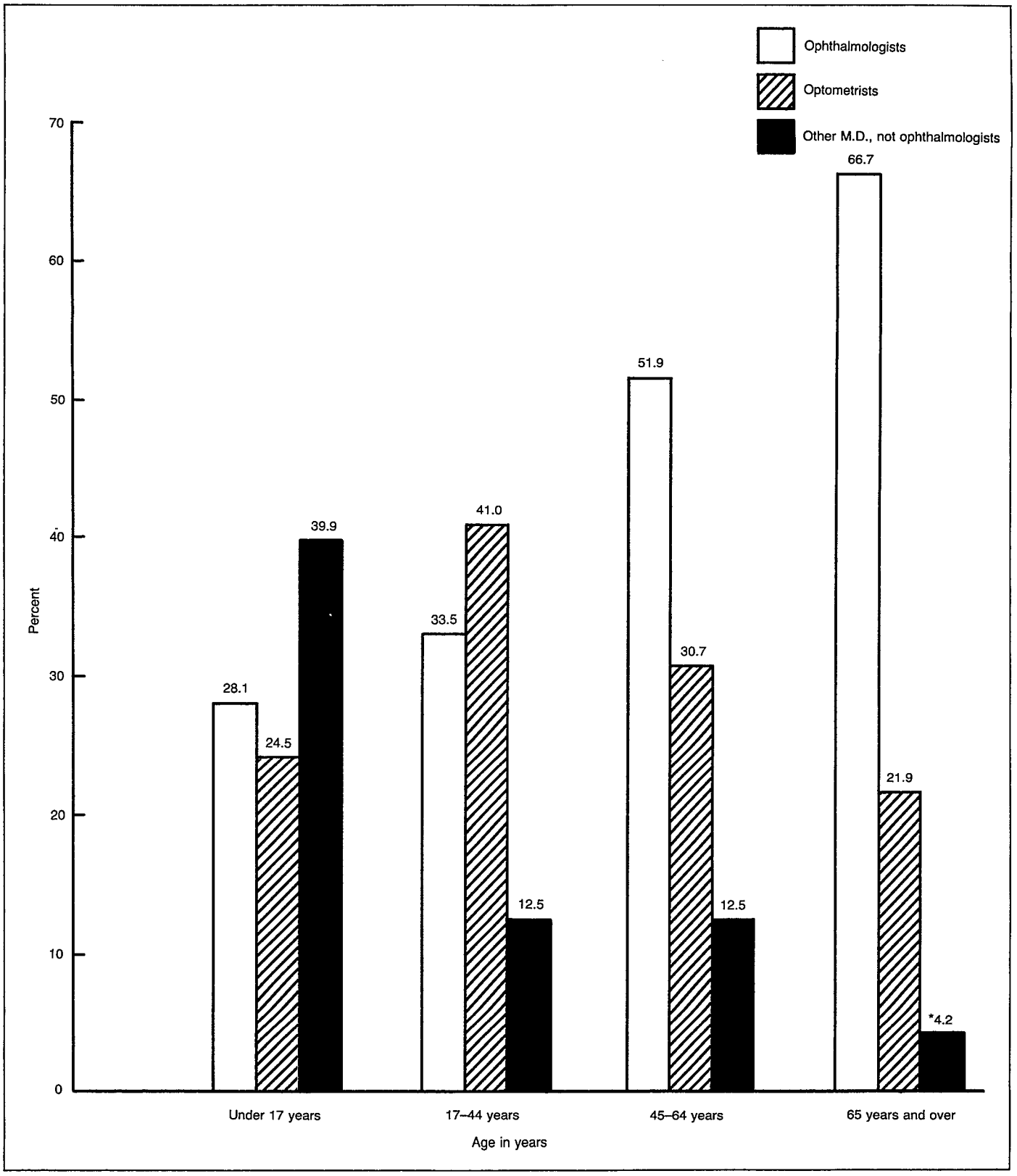


**Figure 2. Percent of eye-care visits, by type of specialist and age: United States, 1979**

than twice as many visits for eye care per ophthalmologist as there were per optometrist.

- The percent of all eye-care visits that were to ophthalmologists increased dramatically with age, but this was not true for other specialties. The percent of visits to ophthalmologists for persons 65 years and over was over twice the percent of visits for persons under 17. For persons 45 years of age and over the highest percent of visits was to an ophthalmologist. The potential error in the survey estimates due to sampling precludes making a definitive statement for children or for persons ages 17-44. However, for children the highest percent of all eye-care visits appears to have been to a medical doctor other than an ophthalmologist. For persons ages 17-44 years the highest percent of visits appears to have been to an optometrist (figure 2).
- The percent of visits to an optometrist for persons living in the North Central Region of the country was twice the percent of visits for persons living in the South Region. This finding is consistent with the fact that the number of optometrists per person was lowest in the South Region. The number of optometrists per 10,000 people was 0.8 in the South Region and 1.3 in the North Central Region (according to the 1980 decennial census).

### Place of visit

For visits reported as occurring during the 2 weeks prior to interview, respondents were asked where the visit took place: a doctor's office, an optical store, or some other place.

- Most (81 percent) eye-care visits occurred in a doctor's office as opposed to another place such as a hospital or an optical store (table 4). Ninety-one percent of ophthalmologist visits occurred in a doctor's office as compared with 77 percent of optometrist visits (table B).
- A higher percent of visits among white persons were in a doctor's office than were visits among black persons.

**Table B. Number and percent of eye-care visits to a doctor's office by type of eye-care specialist: United States, 1979**

| Specialist | Total visits to all places[1] in thousands | Doctor's office | |
|---|---|---|---|
| | | Number in thousands | Percent |
| All specialists | 103,609 | 84,228 | 81.3 |
| Ophthalmologist | 44,556 | 40,442 | 90.8 |
| Optometrist | 32,935 | 25,261 | 76.7 |
| M.D., not ophthalmologist | 16,881 | 14,193 | 84.1 |
| Other and unknown | 14,511 | 6,054 | 41.7 |

[1]Includes unknown place of visit.

## Use of eyeglasses and contact lenses

Household respondents during 1979 and 1980 were asked whether each person in the family, at the present time, wore eyeglasses or contact lenses. Hence, the statistics presented on the use of corrective lenses are average annual estimates for 1979-80 for the U.S. civilian noninstitutionalized population.

- Of the 207.1 million persons ages 3 and over, a total of 107.1 million (51.7 percent) wore either eyeglasses or contact lenses (table 8).
- The wearing of some type of corrective lenses was related to age, gender, race, Hispanic origin, education of head of family, education of individual, geographic region, family income, and occupational status.
- A total of 9.3 million (4.5 percent) persons ages 3 and over wore contact lenses in 1979-80.
- The wearing of contact lenses was also related to age, gender, race, Hispanic origin, education of head of family, education of individual, geographic region, family income, and occupational status.

### Sex and age

- The proportion of persons wearing corrective lenses increased with age with less than 1 percent of persons 3 years of age wearing lenses to 92 percent of persons 75 years and over (table 8).
- The age pattern of persons who used corrective lenses is quite similar for males and females, although the level was higher at all age intervals above age 5 years among females (figure 3).
- The gap between males and females in the percent using corrective lenses was greatest between ages 19-21. Almost 17 percent more females than males ages 19-21 years wore corrective lenses.
- The age curve for both sexes displays two well-defined plateaus. The use of corrective lenses rose rapidly until the midtwenties at which point there was a leveling off until about age 41. After age 40 there was again a steep rise until another leveling off occurred starting in the midfifties.
- The percent of persons wearing contact lenses was highest for the age group 17-24 years (9 percent) and for those 25-44 years (8 percent). For all other age groups examined the percent wearing contact lenses was about 2 percent or lower.
- The proportion of females wearing contact lenses was twice the proportion of males.
- Although the proportion of females ages 6-54 years wearing contact lenses is about double the proportion of males, the proportion for persons ages 55 years and over was about the same for both sexes (2 percent).

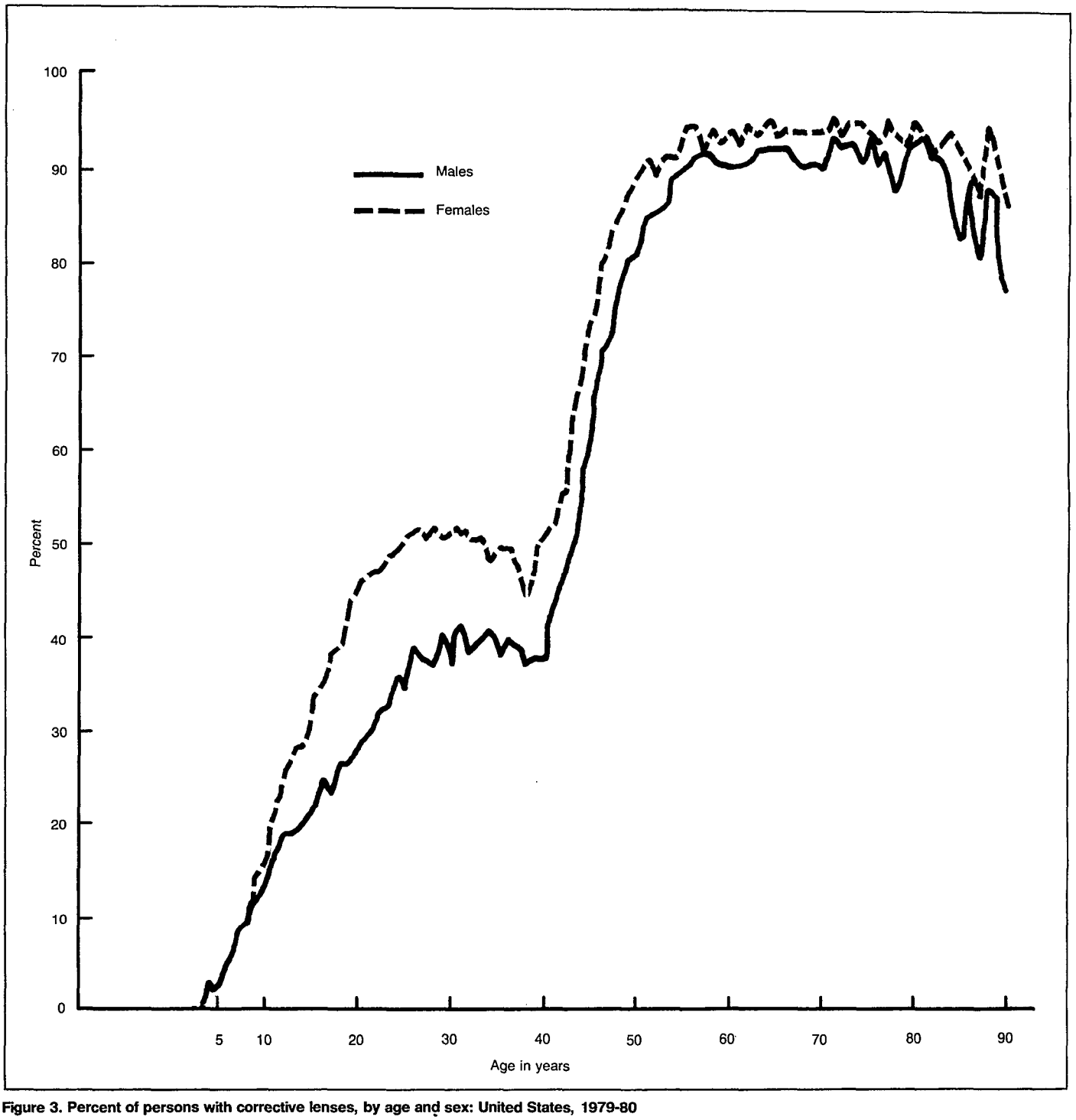


**Figure 3. Percent of persons with corrective lenses, by age and sex: United States, 1979-80**

## Race

In 1979 and 1980 data on race were collected in two ways. Interviewers observed the race according to the categories of white, black, and other; and respondents were asked to select one of the following categories shown on a flashcard as best representing their race:

1. Aleut, Eskimo, or American Indian
2. Asian or Pacific Islander
3. Black
4. White
5. Another group not listed

For 1979, respondents were classified based on the interviewer's observation (even if it disagreed with self-reported race). Starting in 1980, respondents were classified according to their self-reports. Thus, the data on race were collected differently in the 2 years even though they have been combined in this report.

- The proportion of white persons wearing corrective lenses was higher than the proportion of black persons or other races for each age group over age 5 years examined (table 9 and figure 4).

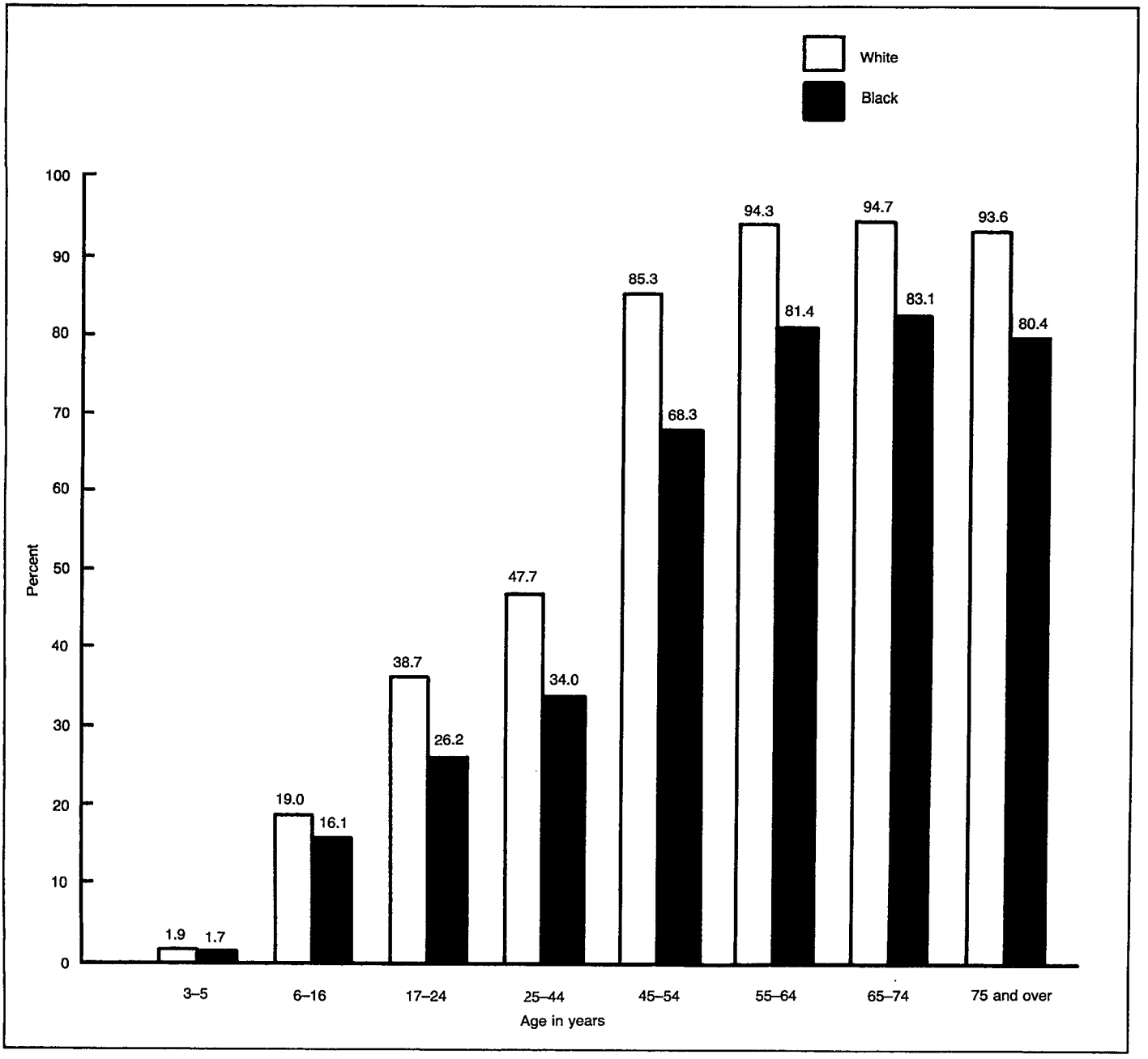


**Figure 4. Percent of persons with corrective lenses, by age and race: United States, 1979-80**

- The proportion of white persons and races other than black wearing contact lenses was about four times the proportion of black persons wearing "contacts."
- About 94 percent of persons with contact lenses were white and about 3 percent were black.

### Hispanic origin

Respondents were asked if they were of Hispanic origin or ancestry.

- The proportion of persons of Hispanic origin wearing corrective lenses was lower than the proportion of persons of non-Hispanic origin for each age group over age 5 years examined (table 10 and figure 5).
- Less than 6 percent of persons ages 17-24 years of Hispanic origin wore contact lenses, compared with over 9 percent of persons the same age of non-Hispanic origin.

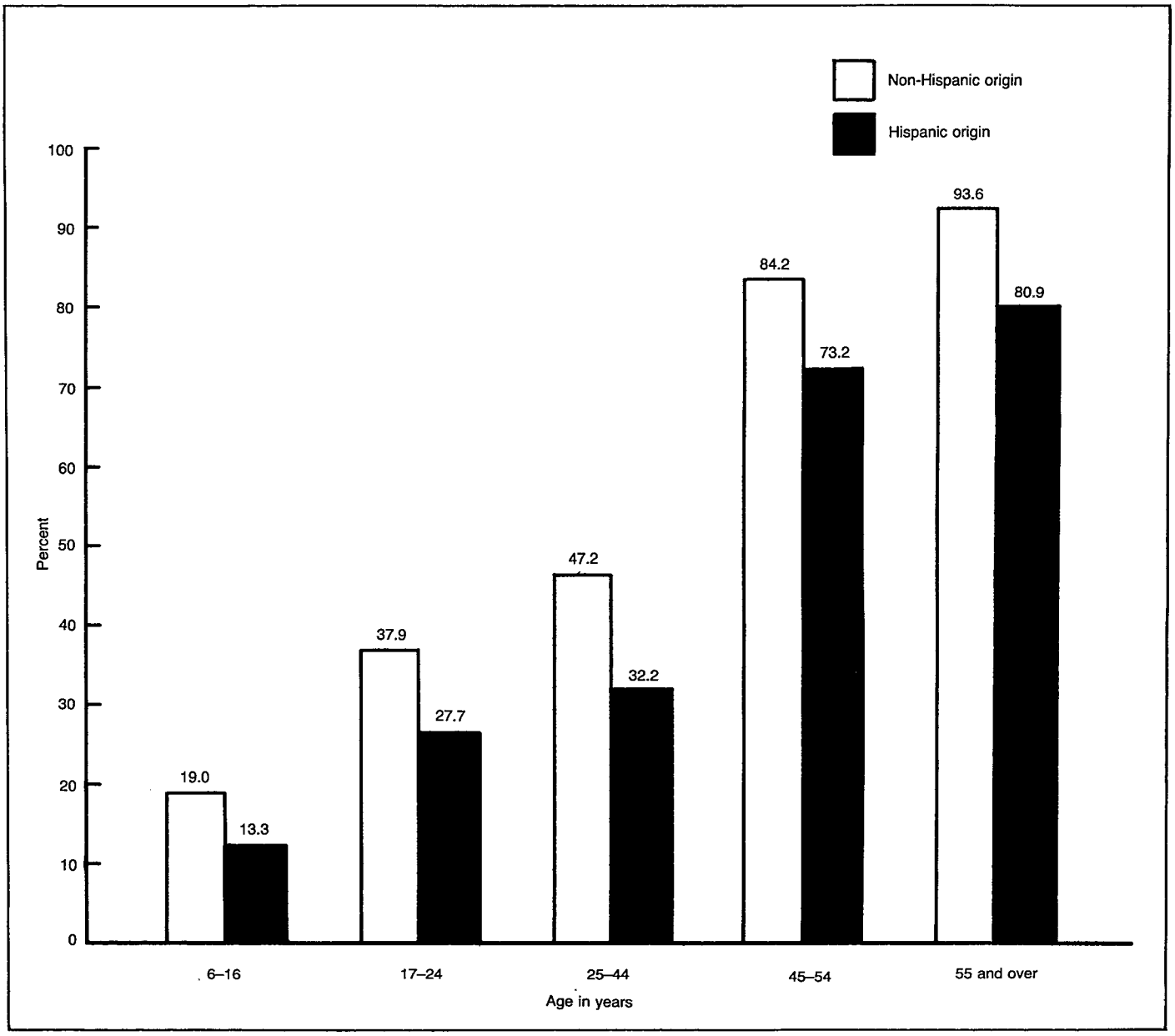


**Figure 5. Percent of persons with corrective lenses, by age and Hispanic origin: United States, 1979-80**

### Education of head of family

At the beginning of the NHIS interview, respondents were asked to identify who the "head" of the household was. For each household member aged 17 years or over the interviewer ascertained the highest grade in regular school completed. A "regular" school was defined as one that advances a person toward an elementary or high school diploma or a college, university, or professional school degree.

- There was a direct positive relationship between education of head of family and use of corrective lenses for each age group [6-74] years examined (table 11 and figure 6). For example, the proportion of persons ages 25-44 years wearing lenses in families whose head had an education of 16 years or more (57 percent) was more than one and a half times the proportion of those wearing lenses in families whose head had an education of less than 12 years (35 percent). About 46 percent of persons ages 17-24 years in families whose head had 16 years or more of education wore corrective lenses, compared with only 26 percent of persons the same ages in families whose head had less than 9 years of education.
- Similarly, for contact lenses there was a direct relationship between education of head of family and use of contact lenses for each age group examined above age 5. The highest rate for contact lenses was for persons aged 17-24 years whose family head had 16 years or more of education (17.5 percent).

### Education of individual

- There was also a direct positive relationship between education of the individual for persons 17 years and

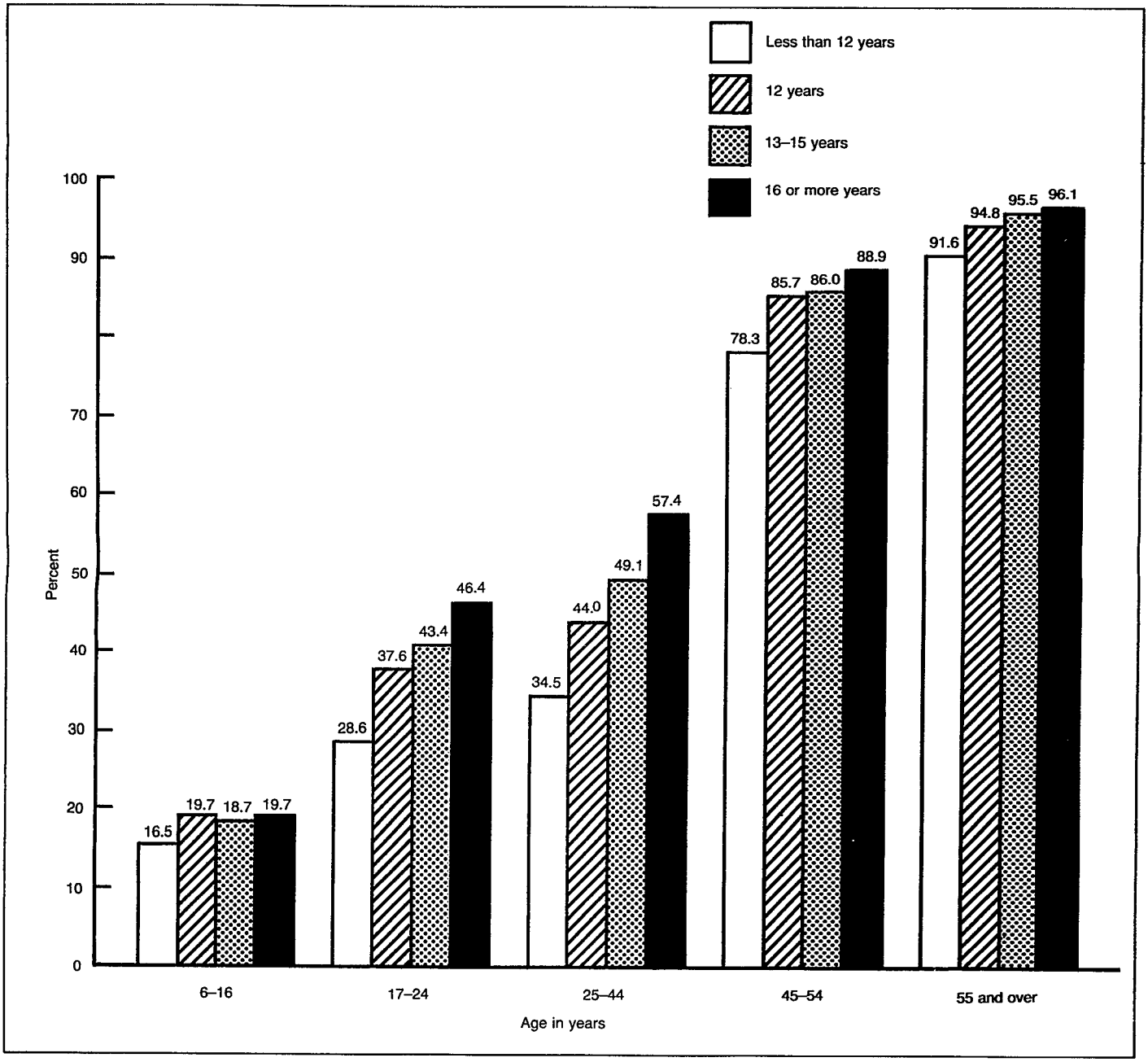


**Figure 6. Percent of persons with corrective lenses, by age and education of head of family: United States, 1979-80**

over and use of corrective lenses for each age group examined. The pattern of the relationship was the same as for education of head of family and use of corrective lenses (table 12).

- The proportion of persons 17-24 years with 16 years or more of education with corrective lenses (57 percent) was more than double the proportion of persons 17-24 with less than 12 years of education wearing lenses (26 percent).
- Similarly there was a direct positive relationship between education of the individual for persons 17-64 years of age and use of contact lenses for each age group examined.
- The highest rate for contact lenses was for persons ages 17-24 years with 16 years or more of education (24 percent). Only 4 percent of persons ages 17-24 years with less than 12 years of education wore contact lenses.
- Ninety-three percent of persons ages 17-44 years wearing contact lenses had 12 years or more of education. (Among all persons aged 17-44 years, 76 percent had 12 years or more of education.)

### Place of residence

Each household is classified as inside a standard metropolitan statistical area (SMSA) or outside an SMSA, and if inside an SMSA whether it is a central city or not.

- The proportions of persons wearing corrective lenses were about the same for persons living in SMSA's as compared with nonmetropolitan areas. However, among persons living in SMSA's, the proportions of persons wearing corrective lenses in the age groups 25-44 and 45-64 years were higher for those living outside the

central city than for those living inside the central city (table 13 and figure 7). (The proportions also appeared higher for persons 17-24 years of age and 65 years of age and over living outside the central city, but potential error due to sampling precludes making a definitive statement that the proportions were higher for persons these ages living outside the central city.)

- The proportion of persons wearing contact lenses was a little higher for persons living in metropolitan areas (4.9 percent) as compared with nonmetropolitan areas (3.6 percent). Within SMSA's a little higher percent of persons living outside the central city wore contact lenses (5.3 percent) than persons living inside central cities did (4.4 percent).

### Geographic region

Each survey household is classified as being in one of four geographic regions: South, Northeast, West, or North Central. (See appendix II for the States falling within each region).

- A smaller proportion of the population living in the South Region (48 percent) reported using corrective lenses in 1979-80 than persons living in the other regions did. The percent for the North Central and Northeast Regions were both about 55; however, comparing the percents for specific age groups indicates some differences between these regions (table 14 and figure 8).
- For each age group above age 16 examined, the estimated percent of persons wearing corrective lenses appeared to be highest for persons living in the North Central Region. (However, the potential error due to sampling precludes definitively stating, for every age-specific group, that there were differences among regions).
- The largest proportion of persons wearing contact lenses within a region for a specific age group was for persons

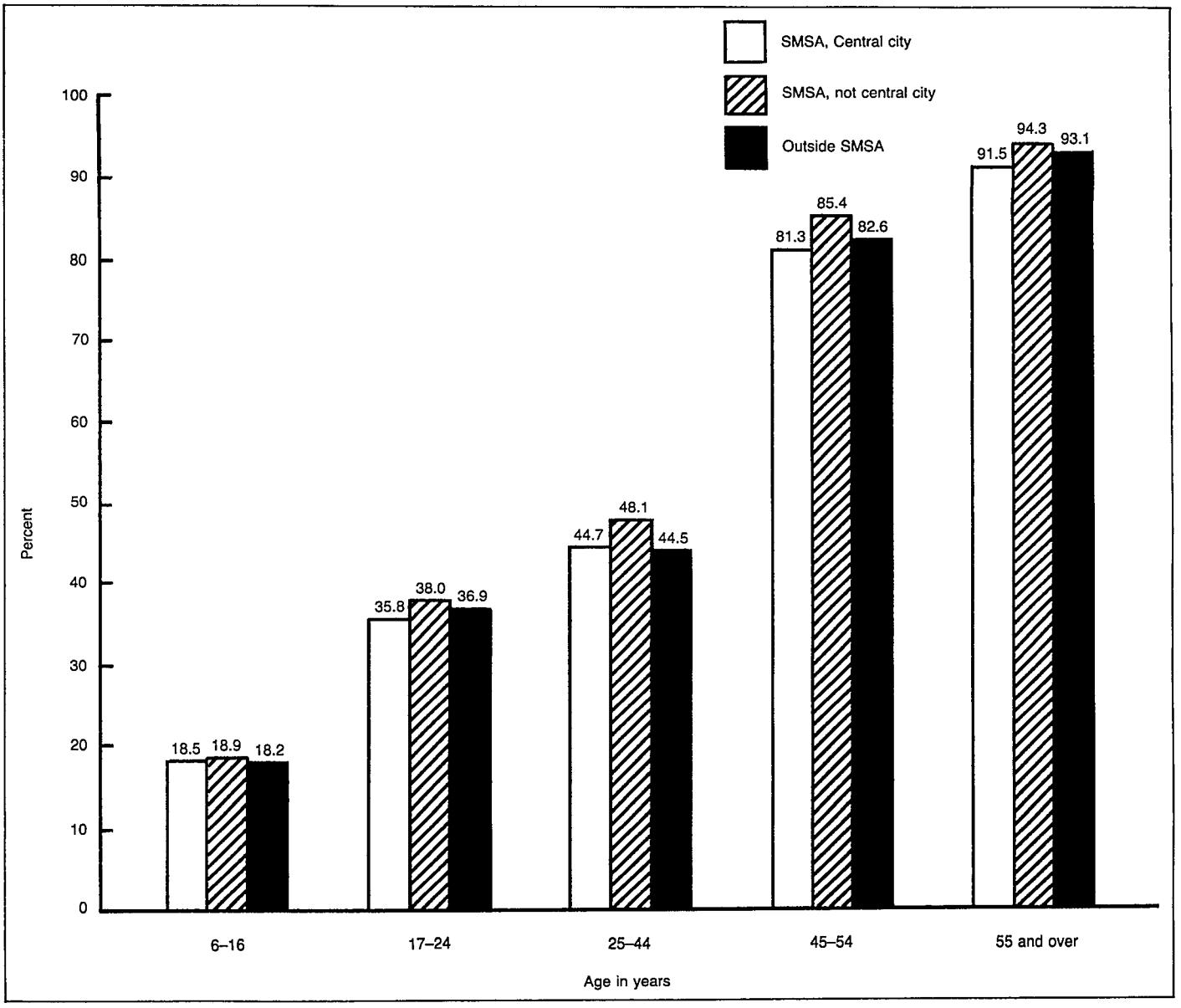


**Figure 7. Percent of persons with corrective lenses, by age and place of residence: United States, 1979-80**

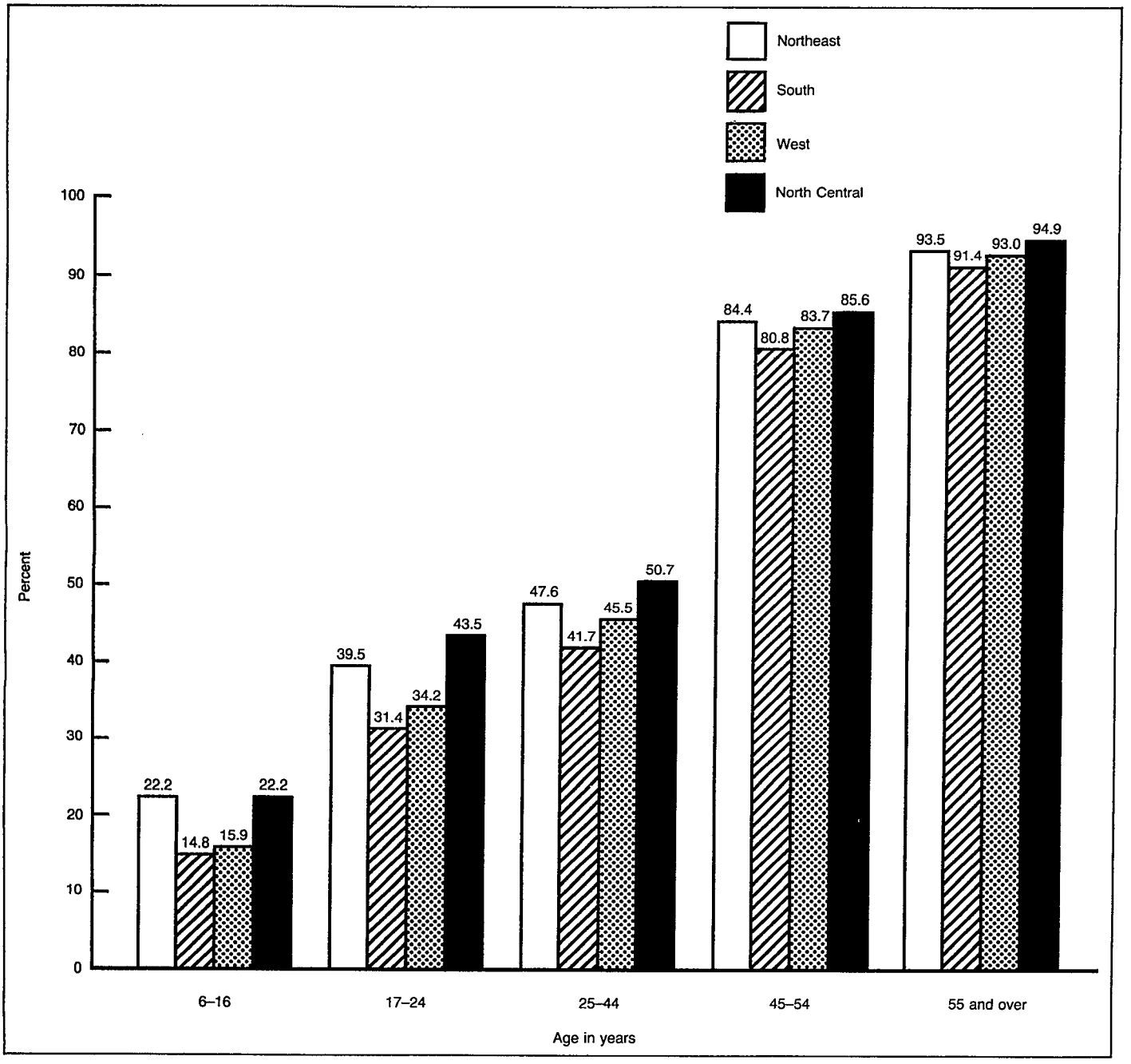


**Figure 8. Percent of persons with corrective lenses, by age and geographic region: United States, 1979-80**

ages 17-24 years in the North Central Region (12.5 percent). The proportion of persons ages 17-24 years in the South Region wearing contact lenses was only 7 percent.

## Family income

Survey respondents were asked for the total combined family income from all sources for the 12 months prior to interview.

- For persons 6-16 and 25-74 years of age there was a decided direct positive relationship between family income and use of corrective lenses (table 15 and figure 9). For example, among persons 25-44 years of age, over half (52 percent) with family incomes of $25,000 or more wore corrective lenses, compared with only 36 percent of those with family incomes of under $5,000.
- There was also a direct positive relationship between the use of contact lenses and family income. For example, the proportion of persons ages 25-44 wearing contact lenses in the $25,000 or more family income group was more than twice the proportion in the under $5,000 annual family income group. However, potential sampling error precludes making a definitive statement that there was a positive relationship for all age-specific groups.
- The highest rate for use of contact lenses for a specific family income group was for ages 17-24 years with a family income of $25,000 or more (11.6 percent).

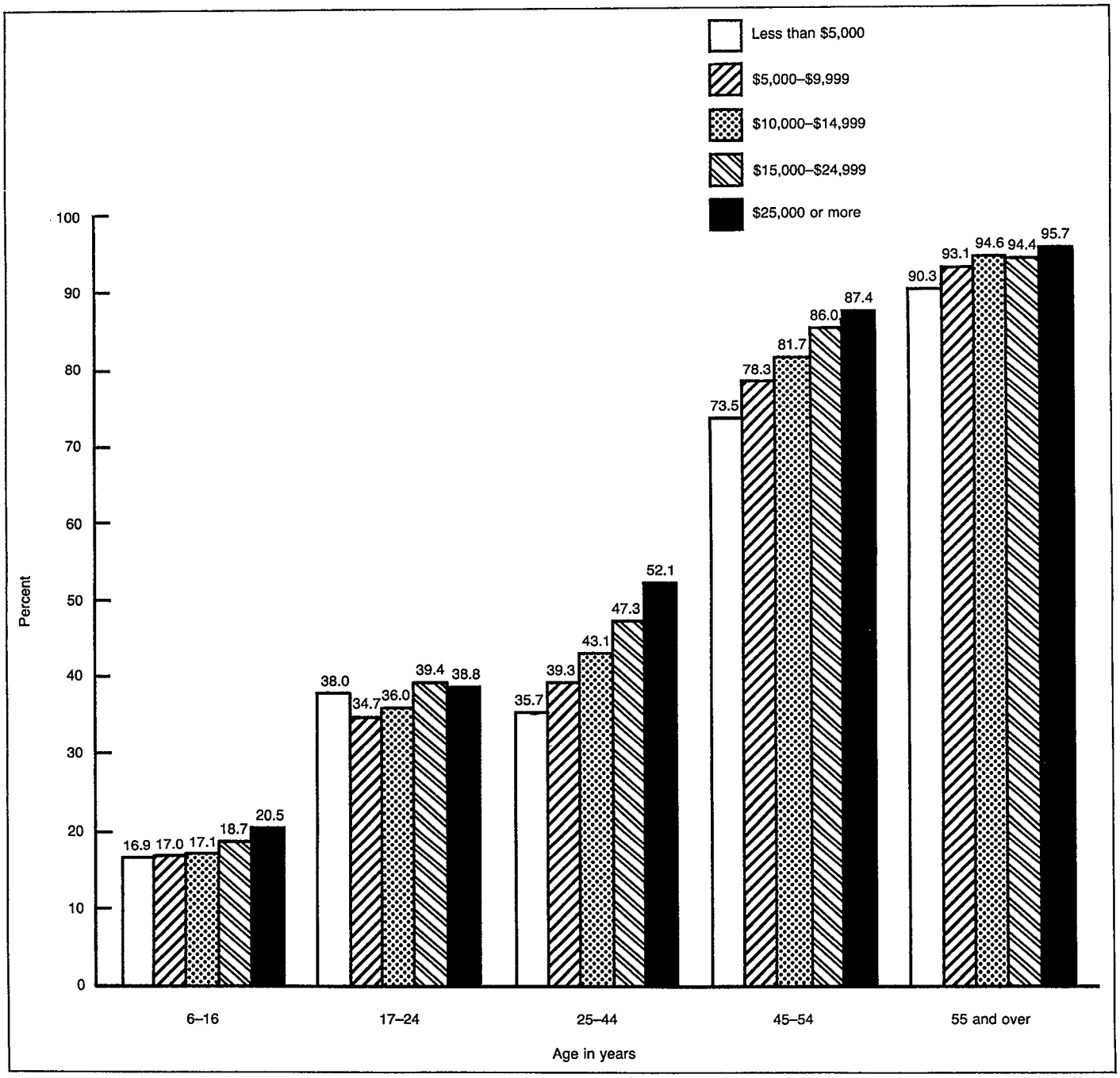


**Figure 9. Percent of persons with corrective lenses, by age and family income: United States, 1979-80**

### Occupational status

Persons 17 years of age and over are classified as being in the labor force if they are currently employed, on layoff from a job, or looking for work. Currently employed persons are classified in one of 11 occupational groups which are, in turn, grouped into four broad categories shown below. (For a more detailed explanation, see appendix II.)

| | |
|---|---|
| Professional, technical, and kindred workers<br>Managers and administrators, except farm<br>Salesworkers<br>Clerical and kindred workers | White-collar workers |
| Craftsmen and kindred workers<br>Operatives, including transport<br>Laborers, except farm | Blue-collar workers |
| Farmers and farm managers<br>Farm laborers and farm foremen | Farm workers |
| Service workers, except private household<br>Private household workers | Service workers |

- Among persons aged 17 years and over in the labor force, 57.4 percent had corrective lenses (table 16).
- For each age group examined 17-64 years the occupational group most likely to have corrective lenses was white collar workers (figure 10).

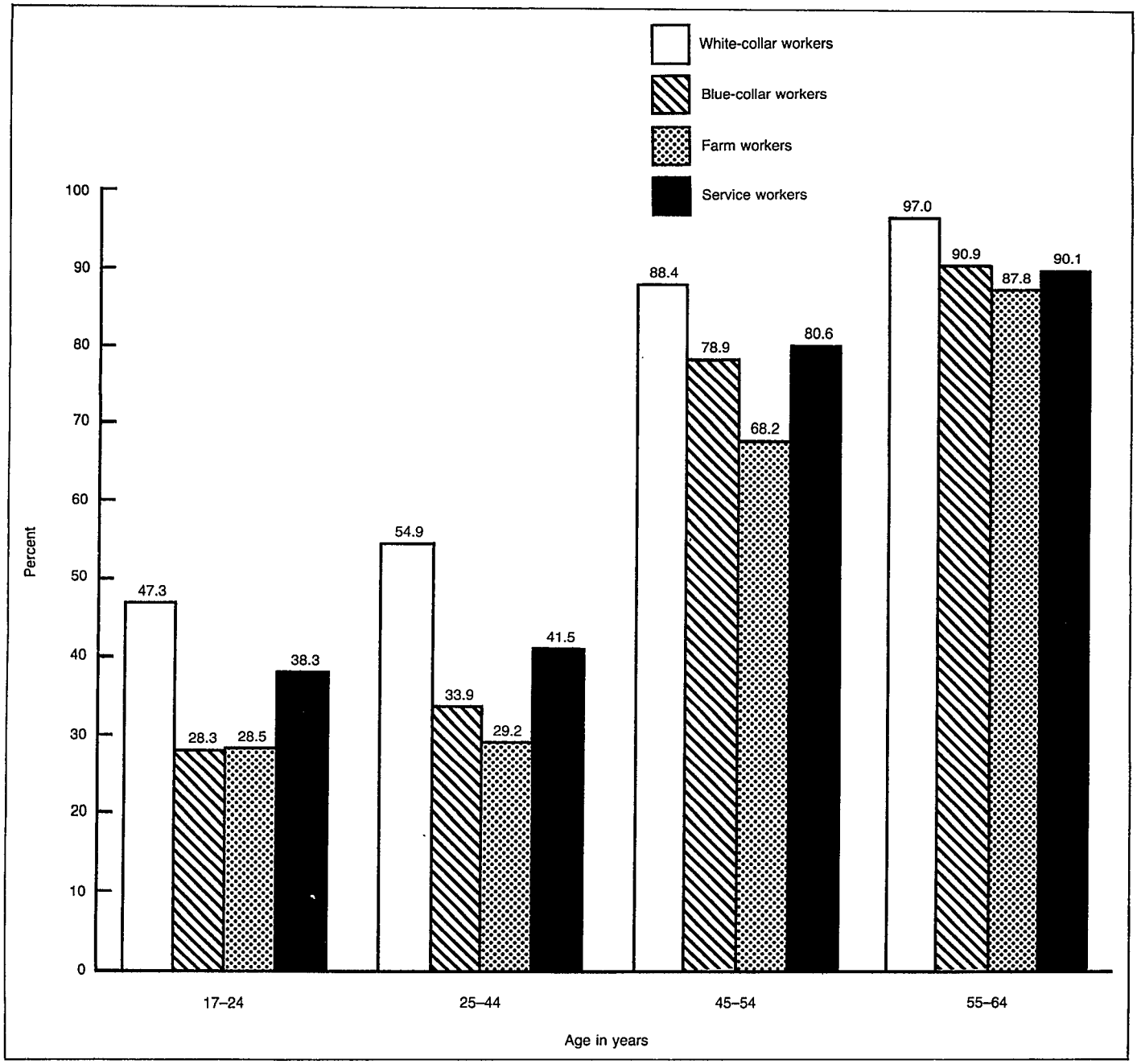


**Figure 10. Percent of persons with corrective lenses, by age and occupational status: United States, 1979-80**

- Laborers, including farm laborers and farm foremen, appeared to be the least likely to have corrective lenses for each age group 25 years and over examined. (However, potential sampling error precludes making a definitive statement that persons in these occupational groups were less likely to have corrective lenses than every other occupational group for each specific age group.)
- In the age group 25-44 years 59 percent of professional, technical, and kindred workers wore corrective lenses, compared with only 28 percent of farm laborers and farm foremen.
- Among persons ages 25-44 years, the proportion of white collar workers wearing contact lenses (12 percent) was almost 4 times the proportion for other types of workers.
- The highest rate for use of contact lenses according to occupation was for persons ages 17-24 in professional, technical, and kindred jobs (20 percent) and clerical and kindred workers (16 percent).

## Trends in the use of corrective lenses

For an examination of trends in the use of corrective lenses, data collected by NCHS by means of NHIS were compared for fiscal year 1966 and calendar years 1971, 1977, 1979, and 1980. (Data for 1979-80 were disaggregated.)

- The proportion of persons wearing either eyeglasses or contact lenses rose between 1965-66 and 1980 from 48.1

percent to 51.8 percent (table 17). To some extent this rise reflects the fact that our population has been "aging" and a higher percent of older persons wear corrective lenses. (If the data are "adjusted" to make the 1965-66 population similar to the 1980 population with respect to the proportion of persons in each age group, the increase in the proportion of persons wearing corrective lenses from 1965-66 to 1980 was only 1 percent.)

- Among children ages 3-16 years, the proportion wearing corrective lenses was about the same in 1965-66 as it was in 1980. However, for persons ages 17-24 years, the proportion wearing corrective lenses has declined from 41.6 percent in 1965-66 to 36.5 percent in 1980. The proportions of persons ages 25-44 years and 45 years and over wearing corrective lenses has increased.
- A very large gap between the proportion of white and black persons wearing corrective lenses remained from 1965-66 through 1980.
- The proportion of persons wearing contact lenses increased almost fivefold between 1965 and 1980.

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# List of detailed tables

## Eye-care visits



## Use of eyeglasses and contact lenses



## Trends in use of eyeglasses and contact lenses

**Table 1. Number of persons in population and percent distribution of persons by number of eye-care visits in the 12 months prior to interview according to selected characteristics: United States, 1979**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Selected characteristic | Population in thousands | Number of visits in the 12 months prior to interview | | | | | |
|---|---|---|---|---|---|---|---|
| | | Total[1] | None | 1 | 2 | 3 or more | 4 or more |
| | | Percent distribution | | | | | |
| **Sex** | | | | | | | |
| Both sexes[2] | 215,723 | 100.0 | 67.7 | 24.9 | 4.4 | 2.8 | 1.6 |
| Male | 104,097 | 100.0 | 69.7 | 23.4 | 4.0 | 2.5 | 1.4 |
| Female | 111,626 | 100.0 | 65.8 | 26.2 | 4.7 | 3.0 | 1.8 |
| **Age** | | | | | | | |
| Under 6 years | 18,663 | 100.0 | 83.2 | 11.7 | 2.4 | 2.5 | 1.8 |
| 6-16 years | 39,587 | 100.0 | 69.4 | 25.0 | 3.7 | 1.6 | 0.9 |
| 17-24 years | 32,003 | 100.0 | 67.5 | 24.0 | 5.0 | 3.2 | 1.7 |
| 25-44 years | 58,670 | 100.0 | 70.3 | 23.0 | 4.2 | 2.3 | 1.2 |
| 45-64 years | 43,457 | 100.0 | 60.8 | 31.5 | 4.5 | 2.9 | 1.8 |
| 65-74 years | 14,929 | 100.0 | 59.3 | 28.5 | 6.4 | 5.5 | 3.2 |
| 75 years and over | 8,414 | 100.0 | 57.8 | 29.0 | 6.8 | 6.1 | 4.0 |
| **Race** | | | | | | | |
| White | 186,376 | 100.0 | 66.9 | 25.5 | 4.5 | 2.9 | 1.7 |
| Black | 25,474 | 100.0 | 72.5 | 21.1 | 3.7 | 2.3 | 1.4 |
| **Family income** | | | | | | | |
| Less than $3,000 | 8,800 | 100.0 | 70.0 | 22.3 | 4.6 | 2.7 | 1.2 |
| $3,000-$4,999 | 12,140 | 100.0 | 66.9 | 23.6 | 4.8 | 4.6 | 2.7 |
| $5,000-$6,999 | 14,257 | 100.0 | 69.3 | 22.9 | 4.7 | 2.9 | 1.6 |
| $7,000-$9,999 | 18,657 | 100.0 | 68.3 | 23.7 | 4.9 | 3.0 | 1.8 |
| $10,000-$14,999 | 34,050 | 100.0 | 70.2 | 22.4 | 4.3 | 3.0 | 1.8 |
| $15,000-$24,999 | 55,586 | 100.0 | 68.8 | 24.1 | 4.1 | 2.6 | 1.5 |
| $25,000 or more | 51,903 | 100.0 | 63.1 | 29.6 | 4.4 | 2.6 | 1.6 |
| **Education of head of family** | | | | | | | |
| Less than 9 years | 36,188 | 100.0 | 72.6 | 20.8 | 3.7 | 2.6 | 1.3 |
| 9-11 years | 32,169 | 100.0 | 70.9 | 22.6 | 3.7 | 2.5 | 1.6 |
| 12 years | 73,992 | 100.0 | 67.2 | 25.6 | 4.3 | 2.6 | 1.4 |
| 13 years or more | 69,817 | 100.0 | 64.0 | 27.3 | 5.1 | 3.3 | 2.0 |
| 13-15 years | 32,551 | 100.0 | 66.0 | 25.3 | 5.1 | 3.3 | 2.1 |
| 16 years or more | 37,266 | 100.0 | 62.3 | 29.1 | 5.1 | 3.3 | 2.0 |
| **Place of residence** | | | | | | | |
| SMSA | 147,499 | 100.0 | 66.6 | 25.5 | 4.5 | 3.0 | 1.8 |
| Central city | 60,459 | 100.0 | 67.3 | 25.1 | 4.5 | 2.7 | 1.7 |
| Not central city | 87,040 | 100.0 | 66.2 | 25.9 | 4.5 | 3.1 | 1.9 |
| Outside SMSA | 68,224 | 100.0 | 69.9 | 23.4 | 4.0 | 2.5 | 1.3 |
| **Region** | | | | | | | |
| Northeast | 47,417 | 100.0 | 64.7 | 27.5 | 4.7 | 2.9 | 1.7 |
| North Central | 57,446 | 100.0 | 66.9 | 25.3 | 4.6 | 2.9 | 1.6 |
| South | 70,881 | 100.0 | 70.5 | 23.3 | 3.5 | 2.3 | 1.3 |
| West | 39,979 | 100.0 | 67.3 | 23.8 | 5.0 | 3.5 | 2.2 |
| **Family size** | | | | | | | |
| Unrelated individual | 23,315 | 100.0 | 60.4 | 29.3 | 5.9 | 4.2 | 2.2 |
| 2 persons | 47,558 | 100.0 | 62.0 | 28.4 | 5.5 | 3.8 | 2.3 |
| 3 persons | 39,521 | 100.0 | 68.0 | 24.7 | 4.3 | 2.7 | 1.6 |
| 4 persons | 47,881 | 100.0 | 70.0 | 23.8 | 3.6 | 2.2 | 1.2 |
| 5-6 persons | 44,330 | 100.0 | 72.2 | 21.9 | 3.6 | 2.0 | 1.3 |
| 7 persons or more | 13,117 | 100.0 | 76.9 | 18.1 | 2.8 | 2.0 | 1.1 |

[1]Includes persons with unknown number of visits.
[2]Includes other races, unknown family income, and unknown education.

NOTES: Relative standard errors of estimates for this table are found in appendix I, figures II and V. For official population estimates for more general use, see U.S. Bureau of the Census reports on the civilian population of the United States, in *Current Population Reports*, Series P-20, P-25, and P-60. SMSA =standard metropolitan statistical area.

**Table 2. Number and percent distribution of eye-care visits by age, according to selected characteristics: United States, 1979**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Selected characteristic | Age | | | | |
|---|---|---|---|---|---|
| | All ages | Under 17 years | 17-44 years | 45-64 years | 65 years and over |
| | Number in thousands | | | | |
| **Sex** | | | | | |
| Both sexes[1] | 103,609 | 20,147 | 39,363 | 25,048 | 19,050 |
| Male | 49,120 | 10,429 | 20,595 | 12,547 | 5,549 |
| Female | 54,489 | 9,718 | 18,769 | 12,501 | 13,501 |
| **Race** | | | | | |
| White | 93,056 | 18,051 | 35,130 | 22,367 | 17,507 |
| Black | 8,477 | *1,370 | 2,997 | 2,568 | *1,542 |
| **Family income** | | | | | |
| Less than $10,000 | 28,219 | 2,829 | 8,875 | 5,906 | 10,610 |
| $10,000—$14,999 | 16,017 | 3,783 | 5,231 | 4,826 | *2,177 |
| $15,000-$24,999 | 24,816 | 5,850 | 11,498 | 5,695 | *1,773 |
| $25,000 or more | 27,049 | 6,683 | 11,926 | 6,814 | *1,626 |
| **Education of head of family** | | | | | |
| Less than 12 years | 26,694 | 2,914 | 6,104 | 9,189 | 8,488 |
| 12 years | 36,044 | 8,487 | 13,916 | 8,150 | 5,491 |
| 12 years or more | 75,574 | 17,233 | 32,802 | 15,714 | 9,825 |
| 13 years or more | 39,530 | 8,747 | 18,886 | 7,564 | 4,333 |
| **Place of residence** | | | | | |
| SMSA | 72,668 | 15,281 | 28,195 | 17,323 | 11,869 |
| Central city | 28,004 | 3,870 | 10,472 | 7,892 | 5,769 |
| Not central city | 44,664 | 11,411 | 17,722 | 9,432 | 6,100 |
| Outside SMSA | 30,941 | 4,866 | 11,169 | 7,725 | 7,181 |
| **Region** | | | | | |
| Northeast | 26,924 | 5,175 | 8,777 | 7,143 | 5,829 |
| North Central | 26,922 | 5,591 | 11,418 | 6,363 | 3,550 |
| South | 26,937 | 4,425 | 9,977 | 7,161 | 5,374 |
| West | 22,826 | 4,957 | 9,191 | 4,381 | 4,298 |
| | Percent distribution | | | | |
| **Sex** | | | | | |
| Both sexes[1] | 100.0 | 19.4 | 38.0 | 24.2 | 18.4 |
| Male | 100.0 | 21.2 | 41.9 | 25.5 | 11.3 |
| Female | 100.0 | 17.8 | 34.4 | 22.9 | 24.8 |
| **Race** | | | | | |
| White | 100.0 | 19.4 | 37.8 | 24.0 | 18.8 |
| Black | 100.0 | *16.2 | 35.4 | 30.3 | *18.2 |
| **Family income** | | | | | |
| Less than $10,000 | 100.0 | 10.0 | 31.5 | 20.9 | 37.6 |
| $10,000-$14,999 | 100.0 | 23.6 | 32.7 | 30.1 | *13.6 |
| $15,000-$24,999 | 100.0 | 23.6 | 46.3 | 22.9 | * 7.1 |
| $25,000 or more | 100.0 | 24.7 | 44.1 | 25.2 | * 6.0 |
| **Education of head of family** | | | | | |
| Less than 12 years | 100.0 | 10.9 | 22.9 | 34.4 | 31.8 |
| 12 years | 100.0 | 23.5 | 38.6 | 22.6 | 15.2 |
| 12 years or more | 100.0 | 22.8 | 43.4 | 20.8 | 13.0 |
| 13 years or more | 100.0 | 22.1 | 47.8 | 19.1 | 11.0 |

See footnotes at end of table.

**Table 2. Number and percent distribution of eye-care visits by age, according to selected characteristics: United States, 1979—Con.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Selected characteristic | Age | | | | |
|---|---|---|---|---|---|
| | All ages | Under 17 years | 17-44 years | 45-64 years | 65 years and over |
| | Percent distribution | | | | |
| **Place of residence** | | | | | |
| SMSA | 100.0 | 21.0 | 38.8 | 23.8 | 16.3 |
| Central city | 100.0 | 13.8 | 37.4 | 28.2 | 20.6 |
| Not central city | 100.0 | 25.5 | 39.7 | 21.1 | 13.7 |
| Outside SMSA | 100.0 | 15.7 | 36.1 | 25.0 | 23.2 |
| **Region** | | | | | |
| Northeast | 100.0 | 19.2 | 32.6 | 26.5 | 21.6 |
| North Central | 100.0 | 20.8 | 42.4 | 23.6 | 13.2 |
| South | 100.0 | 16.4 | 37.0 | 26.6 | 20.0 |
| West | 100.0 | 21.7 | 40.3 | 19.2 | 18.8 |

[1]Includes other races, unknown family income, and unknown education.

NOTE: Relative standard errors of estimates of number of visits for this table are found in appendix I, figure I. Relative standard errors of percents of visits for this table may be approximated by taking the square root of the difference between the square of the relative standard error of the numerator and the square of the relative standard error of the denominator. SMSA = standard metropolitan statistical area.

**Table 3. Number and percent distribution of eye-care visits by type of eye-care specialist, according to selected characteristics: United States, 1979**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Selected characteristic | Type of eye-care specialist | | | | Type of eye-care specialist | | | |
|---|---|---|---|---|---|---|---|---|
| | Total[1] | Ophthalmologist | Optometrist | M.D., not ophthalmologist | Total[1] | Ophthalmologist | Optometrist | M.D., not ophthalmologist |
| | Number in thousands | | | | Percent distribution | | | |
| Sex | | | | | | | | |
| Both sexes[2] | 103,609 | 44,556 | 32,935 | 16,881 | 100.0 | 43.0 | 31.8 | 16.3 |
| Male | 49,120 | 21,619 | 13,229 | 9,241 | 100.0 | 44.0 | 26.9 | 18.8 |
| Female | 54,489 | 22,937 | 19,706 | 7,640 | 100.0 | 42.1 | 36.2 | 14.0 |
| Age | | | | | | | | |
| Under 17 years | 20,147 | 5,661 | 4,934 | 8,034 | 100.0 | 28.1 | 24.5 | 39.9 |
| 17-44 years | 39,363 | 13,186 | 16,142 | 4,912 | 100.0 | 33.5 | 41.0 | 12.5 |
| 45-64 years | 25,048 | 13,009 | 7,681 | 3,132 | 100.0 | 51.9 | 30.7 | 12.5 |
| 65 years and over | 19,050 | 12,700 | 4,178 | *803 | 100.0 | 66.7 | 21.9 | *4.2 |
| Race | | | | | | | | |
| White | 93,056 | 40,922 | 29,504 | 15,043 | 100.0 | 44.0 | 31.7 | 16.2 |
| Black | 8,477 | 3,521 | 2,560 | *1,371 | 100.0 | 41.5 | 30.2 | *16.2 |
| Family income | | | | | | | | |
| Less than $5,000 | 10,573 | 4,604 | 2,788 | *1,687 | 100.0 | 43.5 | 26.4 | *16.0 |
| $5,000-$9,999 | 17,646 | 7,762 | 6,478 | *2,129 | 100.0 | 44.0 | 36.7 | *12.1 |
| $10,000-$14,999 | 16,017 | 7,981 | 3,663 | 2,837 | 100.0 | 49.8 | 22.9 | 17.7 |
| $15,000-$24,999 | 24,816 | 9,381 | 8,643 | 5,035 | 100.0 | 37.8 | 34.8 | 20.3 |
| $25,000 or more | 27,049 | 11,632 | 9,328 | 4,038 | 100.0 | 43.0 | 34.5 | 14.9 |
| Education of head of family | | | | | | | | |
| Less than 12 years | 26,694 | 13,899 | 7,456 | 3,401 | 100.0 | 52.1 | 27.9 | 12.7 |
| 12 years or more | 75,574 | 29,919 | 25,306 | 13,334 | 100.0 | 39.6 | 33.5 | 17.6 |
| 12 years | 36,044 | 13,125 | 12,197 | 6,076 | 100.0 | 36.4 | 33.8 | 16.9 |
| 13-15 years | 17,646 | 6,979 | 6,300 | 2,884 | 100.0 | 39.6 | 35.7 | 16.3 |
| 16 years or more | 21,884 | 9,815 | 6,808 | 4,374 | 100.0 | 44.9 | 31.1 | 20.0 |
| Place of residence | | | | | | | | |
| SMSA | 72,668 | 32,514 | 21,711 | 12,140 | 100.0 | 44.7 | 29.9 | 16.7 |
| Central city | 28,004 | 12,729 | 7,693 | 4,545 | 100.0 | 45.5 | 27.5 | 16.2 |
| Not central city | 44,664 | 19,786 | 14,018 | 7,595 | 100.0 | 44.3 | 31.4 | 17.0 |
| Outside SMSA | 30,941 | 12,042 | 11,224 | 4,741 | 100.0 | 38.9 | 36.3 | 15.3 |
| Region | | | | | | | | |
| Northeast | 26,924 | 12,433 | 9,079 | 3,466 | 100.0 | 46.2 | 33.7 | 12.9 |
| North Central | 26,922 | 10,045 | 11,356 | 2,996 | 100.0 | 37.3 | 42.2 | 11.1 |
| South | 26,937 | 13,146 | 5,357 | 5,425 | 100.0 | 48.8 | 19.9 | 20.1 |
| West | 22,826 | 8,932 | 7,143 | 4,995 | 100.0 | 39.1 | 31.3 | 21.9 |

[1]Includes other specialists and unknown type of specialty.
[2]Includes other races, unknown family income, and unknown education.

NOTE: Relative standard errors of estimates of number of visits for this table are found in appendix I, figure I. The relative standard errors for percents of visits for this table may be approximated by taking the square root of the difference between the square of the relative standard error of the numerator and the square of the relative standard error of the denominator. SMSA =standard metropolitan statistical area.

**Table 4. Number and percent of eye-care visits to a doctor's office, by selected characteristics: United States, 1979**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Selected characteristic | All places[1] of visit in thousands | Doctor's office | |
|---|---|---|---|
| | | Number in thousands | Percent |
| **Sex** | | | |
| Both sexes | 103,609 | 84,228 | 81.3 |
| Male | 49,120 | 39,068 | 79.5 |
| Female | 54,489 | 45,160 | 82.9 |
| **Age** | | | |
| Under 17 years | 20,147 | 17,136 | 85.1 |
| 17-44 years | 39,363 | 29,980 | 76.2 |
| 45-64 years | 25,048 | 20,529 | 82.0 |
| 65 years and over | 19,050 | 16,584 | 87.1 |
| **Race** | | | |
| White | 93,056 | 77,135 | 82.9 |
| Black | 8,477 | 5,530 | 65.2 |
| **Family income** | | | |
| Less than $5,000 | 10,573 | 8,589 | 81.2 |
| $5,000-$9,999 | 17,646 | 14,216 | 80.6 |
| $10,000-$14,999 | 16,017 | 12,850 | 80.2 |
| $15,000-$24,999 | 24,816 | 20,208 | 81.4 |
| $25,000 or more | 27,049 | 22,622 | 83.6 |
| **Education of head of family** | | | |
| Less than 12 years | 26,694 | 22,549 | 84.5 |
| 12 years or more | 75,574 | 60,480 | 80.0 |
| 12 years | 36,044 | 27,713 | 76.9 |
| 13-15 years | 17,646 | 15,013 | 85.1 |
| 16 years or more | 21,884 | 17,754 | 81.1 |
| **Place of residence** | | | |
| SMSA | 72,668 | 57,599 | 79.3 |
| Central city | 28,004 | 22,099 | 78.9 |
| Not central city | 44,664 | 35,499 | 79.5 |
| Outside SMSA | 30,941 | 26,629 | 86.1 |
| **Region** | | | |
| Northeast | 26,924 | 21,768 | 80.8 |
| North Central | 26,922 | 22,259 | 82.7 |
| South | 26,937 | 21,735 | 80.7 |
| West | 22,826 | 18,467 | 80.9 |

[1]Includes unknown place of visit.

NOTE: Relative standard errors of estimates of number of visits for this table are found in appendix I, figure I. The relative standard errors for percents of visits for this table may be approximated by taking the square root of the difference between the square of the relative standard error of the numerator and the square of the relative standard error of the denominator. SMSA =standard metropolitan statistical area.

**Table 5. Population used in obtaining rates relating to eye-care visits shown in this report, by race, education of head of family, sex, age, and family income: United States, 1979**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Sex, age, and family income | All persons[1] | Race | | Education of head of family | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | White | Black | Less than 9 years | 9-12 years | 9-11 years | 12 years | 13 years or more | 13-15 years | 16 years or more |
| | | | | Number of persons in thousands | | | | | | |
| **Both sexes[2]** | | | | | | | | | | |
| All ages | 215,723 | 186,376 | 25,474 | 36,188 | 106,161 | 32,169 | 73,992 | 69,817 | 32,551 | 37,266 |
| Under 6 years | 18,663 | 15,325 | 2,927 | 2,001 | 9,926 | 2,938 | 6,988 | 6,475 | 3,154 | 3,321 |
| 6-16 years | 39,587 | 32,843 | 5,969 | 5,848 | 20,814 | 6,215 | 14,599 | 12,275 | 5,638 | 6,636 |
| 17-24 years | 32,003 | 27,289 | 4,083 | 4,033 | 17,526 | 5,182 | 12,344 | 10,027 | 5,905 | 4,123 |
| 25-44 years | 58,670 | 51,105 | 6,392 | 5,519 | 27,820 | 7,100 | 20,720 | 24,589 | 10,595 | 13,994 |
| 45-64 years | 43,457 | 38,717 | 4,062 | 9,351 | 21,140 | 7,004 | 14,136 | 12,092 | 5,188 | 6,904 |
| 65-74 years | 14,929 | 13,445 | 1,336 | 5,554 | 6,122 | 2,539 | 3,583 | 2,942 | 1,349 | 1,593 |
| 75 years and over | 8,414 | 7,651 | 706 | 3,882 | 2,813 | 1,191 | 1,622 | 1,416 | 722 | 694 |
| **Male** | | | | | | | | | | |
| All ages | 104,097 | 90,390 | 11,832 | 16,964 | 50,907 | 15,292 | 35,615 | 34,424 | 15,834 | 18,590 |
| Under 6 years | 9,580 | 7,897 | 1,484 | 1,000 | 5,120 | 1,521 | 3,599 | 3,329 | 1,592 | 1,737 |
| 6-16 years | 20,134 | 16,738 | 3,006 | 2,958 | 10,654 | 3,148 | 7,505 | 6,140 | 2,749 | 3,391 |
| 17-24 years | 15,603 | 13,436 | 1,849 | 2,098 | 8,500 | 2,555 | 5,944 | 4,764 | 2,858 | 1,906 |
| 25-44 years | 28,390 | 25,063 | 2,791 | 2,547 | 13,157 | 3,247 | 9,910 | 12,327 | 5,307 | 7,019 |
| 45-64 years | 20,773 | 18,598 | 1,849 | 4,225 | 9,998 | 3,311 | 6,687 | 6,121 | 2,535 | 3,586 |
| 65-74 years | 6,494 | 5,843 | 577 | 2,530 | 2,557 | 1,090 | 1,467 | 1,278 | 575 | 702 |
| 75 years and over | 3,122 | 2,815 | 276 | 1,605 | 922 | 418 | 503 | 466 | 217 | 249 |
| **Female** | | | | | | | | | | |
| All ages | 111,626 | 95,986 | 13,642 | 19,224 | 55,254 | 16,877 | 38,376 | 35,393 | 16,717 | 18,676 |
| Under 6 years | 9,083 | 7,428 | 1,443 | 1,002 | 4,806 | 1,417 | 3,389 | 3,147 | 1,563 | 1,584 |
| 6-16 years | 19,453 | 16,105 | 2,963 | 2,890 | 10,160 | 3,067 | 7,093 | 6,134 | 2,889 | 3,245 |
| 17-24 years | 16,400 | 13,853 | 2,234 | 1,935 | 9,026 | 2,626 | 6,400 | 5,263 | 3,046 | 2,217 |
| 25-44 years | 30,280 | 26,042 | 3,601 | 2,972 | 14,663 | 3,853 | 10,811 | 12,263 | 5,288 | 6,975 |
| 45-64 years | 22,684 | 20,119 | 2,212 | 5,126 | 11,143 | 3,693 | 7,449 | 5,971 | 2,653 | 3,318 |
| 65-74 years | 8,435 | 7,603 | 759 | 3,023 | 3,565 | 1,449 | 2,116 | 1,665 | 774 | 891 |
| 75 years and over | 5,291 | 4,836 | 430 | 2,277 | 1,891 | 772 | 1,119 | 950 | 505 | 446 |
| **Family income Less than $10,000** | | | | | | | | | | |
| All ages | 53,854 | 41,745 | 11,193 | 17,352 | 26,869 | 11,443 | 15,425 | 8,787 | 5,931 | 2,855 |
| Under 6 years | 4,858 | 3,315 | 1,425 | 999 | 3,166 | 1,395 | 1,771 | 627 | 447 | 179 |
| 6-16 years | 8,139 | 5,257 | 2,728 | 2,482 | 4,581 | 2,156 | 2,425 | 864 | 650 | 214 |
| 17-24 years | 9,527 | 7,461 | 1,869 | 1,453 | 5,223 | 1,840 | 3,383 | 2,791 | 2,200 | 591 |
| 25-44 years | 9,619 | 7,205 | 2,185 | 1,974 | 5,234 | 2,011 | 3,223 | 2,283 | 1,274 | 1,009 |
| 45-64 years | 8,954 | 7,198 | 1,638 | 3,822 | 4,096 | 1,800 | 2,296 | 891 | 547 | 344 |
| 65-74 years | 7,736 | 6,788 | 874 | 3,768 | 3,047 | 1,458 | 1,590 | 818 | 511 | 307 |
| 75 years and over | 5,020 | 4,521 | 474 | 2,854 | 1,521 | 784 | 737 | 513 | 302 | 212 |
| **$10,000 or more** | | | | | | | | | | |
| All ages | 141,539 | 128,324 | 10,732 | 14,498 | 69,646 | 17,663 | 51,983 | 56,364 | 24,485 | 31,879 |
| Under 6 years | 12,222 | 10,875 | 1,095 | 765 | 5,941 | 1,296 | 4,645 | 5,430 | 2,505 | 2,925 |
| 6-16 years | 27,737 | 24,702 | 2,523 | 2,657 | 14,365 | 3,471 | 10,894 | 10,508 | 4,617 | 5,891 |
| 17-24 years | 19,714 | 17,803 | 1,562 | 2,056 | 10,879 | 2,870 | 8,009 | 6,636 | 3,376 | 3,260 |
| 25-44 years | 44,942 | 40,607 | 3,490 | 2,931 | 20,644 | 4,481 | 16,163 | 21,115 | 8,838 | 12,277 |
| 45-64 years | 29,459 | 27,283 | 1,721 | 4,343 | 14,667 | 4,483 | 10,185 | 10,205 | 4,178 | 6,027 |
| 65-74 years | 5,294 | 5,010 | 241 | 1,180 | 2,279 | 792 | 1,487 | 1,775 | 671 | 1,104 |
| 75 years and over | 2,171 | 2,044 | 100 | 566 | 871 | 272 | 599 | 695 | 299 | 396 |

[1]Includes unknown education and other races.
[2]Includes unknown income.

NOTES: Relative standard errors of estimates for this table are found in appendix I, figure II. For official population estimates for more general use, see U.S. Bureau of the Census reports on the civilian population of the United States, in *Current Population Reports*, Series P-20, P-25, and P-60.

**Table 6. Population used in obtaining rates relating to eye-care visits shown in this report, by place of residence, geographic region, sex, and age: United States, 1979**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Sex and age | All areas | Place of residence | | | | Geographic region | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | SMSA | | | Outside SMSA | Northeast | North Central | South | West |
| | | Total | Central city | Not central city | | | | | |
| | Number of persons in thousands | | | | | | | | |
| **Both sexes** | | | | | | | | | |
| All ages | 215,723 | 147,499 | 60,459 | 87,040 | 68,224 | 47,417 | 57,446 | 70,881 | 39,979 |
| Under 6 years | 18,663 | 12,460 | 5,140 | 7,320 | 6,203 | 3,511 | 5,227 | 6,313 | 3,612 |
| 6-16 years | 39,587 | 26,479 | 10,304 | 16,176 | 13,108 | 8,381 | 10,612 | 13,563 | 7,031 |
| 17-24 years | 32,003 | 22,333 | 9,618 | 12,715 | 9,670 | 6,730 | 8,860 | 10,395 | 6,018 |
| 25-44 years | 58,670 | 41,166 | 16,289 | 24,877 | 17,503 | 12,607 | 15,536 | 19,010 | 11,517 |
| 45-64 years | 43,457 | 30,154 | 12,129 | 18,025 | 13,303 | 10,682 | 11,191 | 13,741 | 7,843 |
| 65-74 years | 14,929 | 9,590 | 4,443 | 5,147 | 5,339 | 3,518 | 3,789 | 5,081 | 2,541 |
| 75 years and over | 8,414 | 5,316 | 2,536 | 2,780 | 3,097 | 1,988 | 2,231 | 2,778 | 1,417 |
| **Male** | | | | | | | | | |
| All ages | 104,097 | 70,823 | 28,498 | 42,326 | 33,273 | 22,653 | 27,720 | 34,280 | 19,444 |
| Under 6 years | 9,580 | 6,418 | 2,664 | 3,754 | 3,161 | 1,747 | 2,689 | 3,334 | 1,811 |
| 6-16 years | 20,134 | 13,337 | 5,116 | 8,222 | 6,797 | 4,234 | 5,322 | 6,978 | 3,600 |
| 17-24 years | 15,603 | 10,783 | 4,603 | 6,179 | 4,820 | 3,292 | 4,366 | 5,077 | 2,867 |
| 25-44 years | 28,390 | 19,794 | 7,755 | 12,039 | 8,596 | 6,045 | 7,595 | 9,107 | 5,643 |
| 45-64 years | 20,773 | 14,488 | 5,665 | 8,823 | 6,285 | 5,012 | 5,388 | 6,546 | 3,828 |
| 65-74 years | 6,494 | 4,092 | 1,832 | 2,260 | 2,402 | 1,567 | 1,606 | 2,168 | 1,154 |
| 75 years and over | 3,122 | 1,910 | 863 | 1,047 | 1,212 | 757 | 754 | 1,071 | 541 |
| **Female** | | | | | | | | | |
| All ages | 111,626 | 76,676 | 31,961 | 44,714 | 34,950 | 24,764 | 29,726 | 36,601 | 20,534 |
| Under 6 years | 9,083 | 6,041 | 2,476 | 3,565 | 3,042 | 1,765 | 2,538 | 2,979 | 1,801 |
| 6-16 years | 19,453 | 13,142 | 5,188 | 7,954 | 6,311 | 4,147 | 5,290 | 6,585 | 3,431 |
| 17-24 years | 16,400 | 11,551 | 5,015 | 6,535 | 4,850 | 3,437 | 4,494 | 5,318 | 3,151 |
| 25-44 years | 30,280 | 21,372 | 8,534 | 12,838 | 8,907 | 6,562 | 7,941 | 9,904 | 5,873 |
| 45-64 years | 22,684 | 15,665 | 6,464 | 9,201 | 7,018 | 5,670 | 5,803 | 7,195 | 4,015 |
| 65-74 years | 8,435 | 5,498 | 2,611 | 2,887 | 2,937 | 1,951 | 2,184 | 2,913 | 1,387 |
| 75 years and over | 5,291 | 3,406 | 1,673 | 1,733 | 1,885 | 1,232 | 1,477 | 1,707 | 876 |

NOTES: Relative standard errors of estimates for this table are found in appendix I, figure II. For official population estimates for more general use, see U.S. Bureau of the Census reports on the civilian population of the United States, in *Current Population Reports*, Series P-20, P-25, and P-60.

**Table 7. Population used in obtaining rates relating to eye-care visits shown in this report, by family income, sex, and age: United States, 1979**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Sex and age | All incomes[1] | Family income: Less than $3,000 | $3,000-$4,999 | $5,000-$6,999 | $7,000-$9,999 | $10,000-$14,999 | $15,000 or more | $15,000-$24,999 | $25,000 or more |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Number of persons in thousands | | | | |
| **Both sexes** | | | | | | | | | |
| All ages | 215,723 | 8,800 | 12,140 | 14,257 | 18,657 | 34,050 | 107,489 | 55,586 | 51,903 |
| Under 6 years | 18,663 | 827 | 1,053 | 1,255 | 1,722 | 3,588 | 8,634 | 5,468 | 3,167 |
| 6-16 years | 39,587 | 1,153 | 1,799 | 2,193 | 2,994 | 6,008 | 21,729 | 11,328 | 10,402 |
| 17-24 years | 32,003 | 2,134 | 1,875 | 2,294 | 3,223 | 5,147 | 14,567 | 7,051 | 7,516 |
| 25-44 years | 58,670 | 1,307 | 1,818 | 2,534 | 3,960 | 9,875 | 35,067 | 18,744 | 16,324 |
| 45-64 years | 43,457 | 1,304 | 1,810 | 2,473 | 3,367 | 6,271 | 23,187 | 10,590 | 12,598 |
| 65-74 years | 14,929 | 1,064 | 2,093 | 2,173 | 2,406 | 2,291 | 3,003 | 1,739 | 1,264 |
| 75 years and over | 8,414 | 1,010 | 1,691 | 1,334 | 984 | 870 | 1,301 | 668 | 633 |
| **Male** | | | | | | | | | |
| All ages | 104,097 | 3,334 | 4,980 | 6,312 | 8,636 | 16,501 | 54,723 | 28,038 | 26,685 |
| Under 6 years | 9,580 | 387 | 557 | 610 | 907 | 1,856 | 4,461 | 2,854 | 1,607 |
| 6-16 years | 20,134 | 594 | 981 | 1,093 | 1,563 | 3,019 | 11,055 | 5,798 | 5,258 |
| 17-24 years | 15,603 | 908 | 855 | 1,086 | 1,494 | 2,470 | 7,325 | 3,317 | 4,008 |
| 25-44 years | 28,390 | 525 | 711 | 1,045 | 1,762 | 4,749 | 17,598 | 9,553 | 8,045 |
| 45-64 years | 20,773 | 427 | 596 | 952 | 1,294 | 2,828 | 12,290 | 5,412 | 6,878 |
| 65-74 years | 6,494 | 291 | 726 | 934 | 1,149 | 1,164 | 1,504 | 842 | 663 |
| 75 years and over | 3,122 | 203 | 553 | 592 | 467 | 415 | 489 | 263 | 226 |
| **Female** | | | | | | | | | |
| All ages | 111,626 | 5,465 | 7,160 | 7,944 | 10,021 | 17,549 | 52,766 | 27,548 | 25,218 |
| Under 6 years | 9,083 | 440 | 496 | 646 | 815 | 1,732 | 4,173 | 2,613 | 1,559 |
| 6-16 years | 19,453 | 559 | 818 | 1,100 | 1,431 | 2,988 | 10,674 | 5,530 | 5,144 |
| 17-24 years | 16,400 | 1,227 | 1,020 | 1,208 | 1,730 | 2,677 | 7,242 | 3,734 | 3,508 |
| 25-44 years | 30,280 | 782 | 1,107 | 1,489 | 2,197 | 5,126 | 17,469 | 9,191 | 8,278 |
| 45-64 years | 22,684 | 877 | 1,214 | 1,521 | 2,073 | 3,443 | 10,897 | 5,178 | 5,719 |
| 65-74 years | 8,435 | 773 | 1,367 | 1,239 | 1,258 | 1,127 | 1,499 | 897 | 602 |
| 75 years and over | 5,291 | 808 | 1,138 | 743 | 517 | 455 | 812 | 405 | 406 |

[1]Includes unknown income.

NOTES: Relative standard errors of estimates for this table are found in appendix I, figure II. For official population estimates for more general use, see U.S. Bureau of the Census reports on the civilian population of the United States, in *Current Population Reports*, Series P-20, P-25, and P-60.

**Table 8. Number of persons in population and percent of persons 3 years of age and over with corrective lenses, by type of lens, sex, and age: United States, 1979-80**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Sex and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| **Both sexes** | | | | |
| All ages, 3 years and over | 207,132 | 51.7 | 47.2 | 4.5 |
| 3-16 years | 48,323 | 15.4 | 14.4 | 1.0 |
| 3-5 years | 9,166 | 1.9 | 1.8 | *0.1 |
| 6-16 years | 39,157 | 18.5 | 17.3 | 1.2 |
| 17-24 years | 32,081 | 37.0 | 27.6 | 9.4 |
| 25-44 years | 59,616 | 46.1 | 38.4 | 7.7 |
| 45 years and over | 67,113 | 89.8 | 87.9 | 1.9 |
| 45-54 years | 22,648 | 83.4 | 81.4 | 2.1 |
| 55-64 years | 20,847 | 93.0 | 91.4 | 1.6 |
| 65 years and over | 23,618 | 93.1 | 91.0 | 2.1 |
| 65-74 years | 15,078 | 93.5 | 91.6 | 1.9 |
| 75 years and over | 8,540 | 92.4 | 90.0 | 2.4 |
| **Male** | | | | |
| All ages, 3 years and over | 99,633 | 46.2 | 43.4 | 2.8 |
| 3-16 years | 24,610 | 13.1 | 12.5 | 0.6 |
| 3-5 years | 4,672 | 1.8 | 1.7 | *0.1 |
| 6-16 years | 19,938 | 15.8 | 15.1 | 0.7 |
| 17-24 years | 15,646 | 29.1 | 23.8 | 5.3 |
| 25-44 years | 28,852 | 40.1 | 35.8 | 4.4 |
| 45 years and over | 30,524 | 87.3 | 85.6 | 1.7 |
| 45-54 years | 10,951 | 79.8 | 78.4 | 1.4 |
| 55-64 years | 9,845 | 91.5 | 90.1 | 1.4 |
| 65 years and over | 9,728 | 91.5 | 89.2 | 2.3 |
| 65-74 years | 6,562 | 92.0 | 89.8 | 2.2 |
| 75 years and over | 3.166 | 90.5 | 88.1 | 2.4 |
| **Female** | | | | |
| All ages, 3 years and over | 107,500 | 56.8 | 50.6 | 6.2 |
| 3-16 years | 23,712 | 17.7 | 16.2 | 1.5 |
| 3-5 years | 4,494 | 2.0 | 1.8 | *0.1 |
| 6-16 years | 19,218 | 21.4 | 19.6 | 1.8 |
| 17-24 years | 16,435 | 44.6 | 31.3 | 13.3 |
| 25-44 years | 30,764 | 51.6 | 40.9 | 10.7 |
| 45 years and over | 36,589 | 91.9 | 89.8 | 2.2 |
| 45-54 years | 11,697 | 86.9 | 84.2 | 2.7 |
| 55-64 years | 11,002 | 94.4 | 92.5 | 1.9 |
| 65 years and over | 13,889 | 94.2 | 92.3 | 1.9 |
| 65-74 years | 8,515 | 94.7 | 93.0 | 1.7 |
| 75 years and over | 5,374 | 93.5 | 91.2 | 2.3 |

[1]Includes persons for whom there was no information on corrective lenses.

NOTES: Relative standard errors of estimates of percents for this table are found in appendix I, figure IV. Relative standard errors of estimates of number of persons for this table are found in appendix I, figure III. For official population estimates for more general use, see U.S. Bureau of the Census reports on the civilian population of the United States, in *Current Population Reports*, Series P-20, P-25, and P-60.

**Table 9. Number of persons in population and percent of persons 3 years of age and over with corrective lenses, by type of lens, race, and age: United States, 1979-80**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Race and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| **All races** | | | | |
| All ages, 3 years and over | 207,132 | 51.7 | 47.2 | 4.5 |
| 3-16 years | 48,323 | 15.4 | 14.4 | 1.0 |
| 3-5 years | 9,166 | 1.9 | 1.8 | *0.1 |
| 6-16 years | 39,157 | 18.5 | 17.3 | 1.2 |
| 17-24 years | 32,081 | 37.0 | 27.6 | 9.4 |
| 25-44 years | 59,616 | 46.1 | 38.4 | 7.7 |
| 45 years and over | 67,113 | 89.8 | 87.9 | 1.9 |
| 45-54 years | 22,648 | 83.4 | 81.4 | 2.1 |
| 55-64 years | 20,847 | 93.0 | 91.4 | 1.6 |
| 65 years and over | 23,618 | 93.1 | 91.0 | 2.1 |
| 65-74 years | 15,078 | 93.5 | 91.6 | 1.9 |
| 75 years and over | 8,540 | 92.4 | 90.0 | 2.4 |
| **White** | | | | |
| All ages, 3 years and over | 179,035 | 53.8 | 48.9 | 4.9 |
| 3-16 years | 39,922 | 15.8 | 14.6 | 1.2 |
| 3-5 years | 7,486 | 1.9 | 1.8 | *0.1 |
| 6-16 years | 32,435 | 19.0 | 17.6 | 1.4 |
| 17-24 years | 27,293 | 38.7 | 28.2 | 10.5 |
| 25-44 years | 51,775 | 47.7 | 39.4 | 8.3 |
| 45 years and over | 60,045 | 91.3 | 89.2 | 2.1 |
| 45-54 years | 19,922 | 85.3 | 83.1 | 2.2 |
| 55-64 years | 18,759 | 94.3 | 92.6 | 1.7 |
| 65 years and over | 21,363 | 94.3 | 92.1 | 2.2 |
| 65-74 years | 13,566 | 94.7 | 92.6 | 2.1 |
| 75 years and over | 7,797 | 93.6 | 91.2 | 2.4 |
| **Black** | | | | |
| All ages, 3 years and over | 24,042 | 37.2 | 36.0 | 1.3 |
| 3-16 years | 7,331 | 13.2 | 13.0 | *0.2 |
| 3-5 years | 1,450 | 1.7 | 1.7 | *0.0 |
| 6-16 years | 5,881 | 16.1 | 15.8 | *0.2 |
| 17-24 years | 4,101 | 26.2 | 24.5 | 1.7 |
| 25-44 years | 6,479 | 34.0 | 31.5 | 2.5 |
| 45 years and over | 6,131 | 76.8 | 75.8 | 0.9 |
| 45-54 years | 2,287 | 68.3 | 67.5 | *0.8 |
| 55-64 years | 1,812 | 81.4 | 80.6 | *0.8 |
| 65 years and over | 2,031 | 82.2 | 81.0 | 1.2 |
| 65-74 years | 1,353 | 83.1 | 82.3 | *0.9 |
| 75 years and over | 678 | 80.4 | 78.6 | *1.9 |
| **Other** | | | | |
| All ages, 3 years and over | 4,056 | 42.1 | 36.8 | 5.3 |
| 3-16 years | 1,070 | 13.6 | 13.1 | *0.6 |
| 3-5 years | 230 | *1.7 | *1.7 | *0.0 |
| 6-16 years | 840 | 16.9 | 16.2 | *0.7 |
| 17-24 years | 686 | 35.1 | 24.1 | 11.1 |
| 25-44 years | 1,362 | 41.6 | 32.9 | 8.7 |
| 45 years and over | 937 | 80.6 | 79.1 | *1.5 |
| 45-54 years | 439 | 79.5 | 77.4 | *2.1 |
| 55-64 years | 275 | 82.5 | 81.5 | *1.1 |
| 65 years and over | 223 | 80.3 | 79.4 | *1.3 |
| 65-74 years | 159 | 82.4 | 81.1 | *1.3 |
| 75 years and over | 65 | 75.4 | 73.8 | *1.5 |

[1]Includes persons for whom there was no information on corrective lenses.

NOTES: Relative standard errors of estimates of percents for this table are found in appendix I, figure IV. Relative standard errors of estimates of number of persons for this table are found in appendix I, figure III. For official population estimates for more general use, see U.S. Bureau of the Census reports on the civilian population of the United States, in *Current Population Reports*, Series P-20, P-25, and P-60.

**Table 10. Number of persons in population and percent of persons 3 years of age and over with corrective lenses, by type of lens, hispanic origin, and age: United States, 1979-80**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Hispanic origin and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| **All origins** | | | | |
| All ages, 3 years and over | 207,132 | 51.7 | 47.2 | 4.5 |
| 3-16 years | 48,323 | 15.4 | 14.4 | 1.0 |
| 3-5 years | 9,166 | 1.9 | 1.8 | *0.1 |
| 6-16 years | 39,157 | 18.5 | 17.3 | 1.2 |
| 17-24 years | 32,081 | 37.0 | 27.6 | 9.4 |
| 25-44 years | 59,616 | 46.1 | 38.4 | 7.7 |
| 45 years and over | 67,113 | 89.8 | 87.9 | 1.9 |
| 45-54 years | 22,648 | 83.4 | 81.4 | 2.1 |
| 55-64 years | 20,847 | 93.0 | 91.4 | 1.6 |
| 65 years and over | 23,618 | 93.1 | 91.0 | 2.1 |
| 65-74 years | 15,078 | 93.5 | 91.6 | 1.9 |
| 75 years and over | 8,540 | 92.4 | 90.0 | 2.4 |
| **Hispanic origin** | | | | |
| All ages, 3 years and over | 13,920 | 34.5 | 31.7 | 2.8 |
| 3-16 years | 4,075 | 10.9 | 10.3 | *0.6 |
| 3-5 years | 877 | *2.1 | *1.9 | *0.1 |
| 6-16 years | 3,197 | 13.3 | 12.7 | 0.7 |
| 17-24 years | 2,676 | 27.7 | 22.2 | 5.5 |
| 25-44 years | 4,264 | 32.2 | 27.9 | 4.3 |
| 45 years and over | 2,905 | 77.4 | 76.0 | 1.4 |
| 45-54 years | 1,316 | 73.2 | 71.6 | *1.6 |
| 55-64 years | 816 | 82.6 | 81.5 | *1.2 |
| 65 years and over | 773 | 79.2 | 77.7 | *1.4 |
| 65-74 years | 503 | 80.7 | 78.9 | *1.6 |
| 75 years and over | 270 | 76.3 | 75.6 | *0.7 |
| **Non-Hispanic origin** | | | | |
| All ages, 3 years and over | 191,271 | 53.1 | 48.5 | 4.7 |
| 3-16 years | 43,227 | 15.8 | 14.7 | 1.1 |
| 3-5 years | 8,117 | 1.8 | 1.7 | *0.1 |
| 6-16 years | 35,110 | 19.0 | 17.7 | 1.3 |
| 17-24 years | 29,200 | 37.9 | 28.2 | 9.7 |
| 25-44 years | 54,983 | 47.2 | 39.3 | 7.9 |
| 45 years and over | 63,861 | 90.5 | 88.5 | 2.0 |
| 45-54 years | 21,205 | 84.2 | 82.1 | 2.1 |
| 55-64 years | 19,930 | 93.5 | 91.8 | 1.7 |
| 65 years and over | 22,725 | 93.7 | 91.5 | 2.1 |
| 65-74 years | 14,510 | 94.0 | 92.1 | 2.0 |
| 75 years and over | 8,215 | 93.0 | 90.7 | 2.4 |

[1]Includes persons for whom there was no information on corrective lenses.
[2]Includes unknown ethnicity.

NOTES: Relative standard errors of estimates of percents for this table are found in appendix I, figure IV. Relative standard errors of estimates of number of persons for this table are found in appendix I, figure III. For official population estimates for more general use, see U.S. Bureau of the Census reports on the civilian population of the United States, in *Current Population Reports*, Series P-20, P-25, and P-60.

**Table 11. Number of persons in population and percent of persons 3 years of age and over with corrective lenses, by type of lens, education of head of family, and age: United States, 1979-80**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Education of head of family and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| **All educational levels[2]** | | | | |
| All ages, 3 years and over | 207,132 | 51.7 | 47.2 | 4.5 |
| 3-16 years | 48,323 | 15.4 | 14.4 | 1.0 |
| 3-5 years | 9,166 | 1.9 | 1.8 | *0.1 |
| 6-16 years | 39,157 | 18.5 | 17.3 | 1.2 |
| 17-24 years | 32,081 | 37.0 | 27.6 | 9.4 |
| 25-44 years | 59,616 | 46.1 | 38.4 | 7.7 |
| 45 years and over | 67,113 | 89.8 | 87.9 | 1.9 |
| 45-54 years | 22,648 | 83.4 | 81.4 | 2.1 |
| 55-64 years | 20,847 | 93.0 | 91.4 | 1.6 |
| 65 years and over | 23,618 | 93.1 | 91.0 | 2.1 |
| 65-74 years | 15,078 | 93.5 | 91.6 | 1.9 |
| 75 years and over | 8,540 | 92.4 | 90.0 | 2.4 |
| **Less than 12 years of education** | | | | |
| All ages, 3 years and over | 65,241 | 53.4 | 51.7 | 1.7 |
| 3-16 years | 14,119 | 13.9 | 13.5 | 0.4 |
| 3-5 years | 2,442 | 1.8 | 1.7 | *0.1 |
| 6-16 years | 11,676 | 16.5 | 16.0 | 0.5 |
| 17-24 years | 9,226 | 28.6 | 24.9 | 3.8 |
| 25-44 years | 12,515 | 34.5 | 32.3 | 2.2 |
| 45 years and over | 29,382 | 88.2 | 86.7 | 1.5 |
| 45-54 years | 7,540 | 78.3 | 77.3 | 1.0 |
| 55-64 years | 8,608 | 90.8 | 89.4 | 1.4 |
| 65 years and over | 13,233 | 92.1 | 90.3 | 1.9 |
| 65-74 years | 8,119 | 92.2 | 90.5 | 1.7 |
| 75 years and over | 5,114 | 92.0 | 89.9 | 2.1 |
| **Less than 9 years of education** | | | | |
| All ages, 3 years and over | 35,008 | 57.6 | 56.2 | 1.4 |
| 3-16 years | 6,599 | 13.3 | 12.8 | 0.5 |
| 3-5 years | 1,029 | 2.2 | 2.1 | *0.1 |
| 6-16 years | 5,570 | 15.4 | 14.8 | *0.6 |
| 17-24 years | 3,936 | 25.8 | 22.7 | 3.0 |
| 25-44 years | 5,546 | 31.3 | 29.7 | 1.6 |
| 45 years and over | 18,928 | 87.3 | 86.0 | 1.3 |
| 45-54 years | 4,092 | 75.9 | 75.0 | *0.9 |
| 55-64 years | 5,268 | 89.1 | 87.9 | 1.3 |
| 65 years and over | 9,568 | 91.2 | 89.6 | 1.6 |
| 65-74 years | 5,635 | 90.9 | 89.7 | 1.2 |
| 75 years and over | 3,933 | 91.5 | 89.5 | 2.0 |
| **12 years or more of education** | | | | |
| All ages, 3 years and over | 138,768 | 51.0 | 45.1 | 5.9 |
| 3-16 years | 33,484 | 16.0 | 14.8 | 1.2 |
| 3-5 years | 6,626 | 1.8 | 1.8 | *0.1 |
| 6-16 years | 26,858 | 19.5 | 18.0 | 1.5 |
| 17-24 years | 22,476 | 40.7 | 28.9 | 11.8 |
| 25-44 years | 46,434 | 49.4 | 40.2 | 9.2 |
| 45 years and over | 36,374 | 91.8 | 89.5 | 2.3 |
| 45-54 years | 14,669 | 86.7 | 84.1 | 2.6 |
| 55-64 years | 11,850 | 95.2 | 93.4 | 1.9 |
| 65 years and over | 9,855 | 95.2 | 92.8 | 2.5 |
| 65-74 years | 6,686 | 95.7 | 93.4 | 2.3 |
| 75 years and over | 3,169 | 94.2 | 91.4 | 2.8 |

See footnotes at end of table.

**Table 11. Number of persons in population and percent of persons 3 years of age and over with corrective lenses, by type of lens, education of head of family, and age: United States, 1979-80—Con.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Education of head of family and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| 12 years of education | | | | |
| All ages, 3 years and over | 70,706 | 49.0 | 45.1 | 3.9 |
| 3-16 years | 17,756 | 16.3 | 15.3 | 1.0 |
| 3-5 years | 3,412 | 1.9 | 1.8 | *0.1 |
| 6-16 years | 14,344 | 19.7 | 18.5 | 1.2 |
| 17-24 years | 12,405 | 37.6 | 28.9 | 8.7 |
| 25-44 years | 20,972 | 44.0 | 38.4 | 5.5 |
| 45 years and over | 19,573 | 91.3 | 89.4 | 1.9 |
| 45-54 years | 7,522 | 85.7 | 83.8 | 1.9 |
| 55-64 years | 6,641 | 94.7 | 93.1 | 1.6 |
| 65 years and over | 5,410 | 94.9 | 92.5 | 2.4 |
| 65-74 years | 3,687 | 95.4 | 92.8 | 2.6 |
| 75 years and over | 1,724 | 94.0 | 91.9 | 2.1 |
| 13 years or more of education | | | | |
| All ages, 3 years and over | 68,062 | 53.2 | 45.2 | 7.9 |
| 3-16 years | 15,728 | 15.7 | 14.1 | 1.5 |
| 3-5 years | 3,214 | 1.8 | 1.7 | *0.1 |
| 6-16 years | 12,514 | 19.2 | 17.3 | 1.9 |
| 17-24 years | 10,071 | 44.6 | 29.0 | 15.6 |
| 25-44 years | 25,463 | 53.8 | 41.6 | 12.2 |
| 45 years and over | 16,801 | 92.4 | 89.6 | 2.8 |
| 45-54 years | 7,147 | 87.7 | 84.3 | 3.4 |
| 55-64 years | 5,209 | 96.0 | 93.7 | 2.2 |
| 65 years and over | 4,444 | 95.7 | 93.1 | 2.5 |
| 65-74 years | 2,999 | 96.2 | 94.3 | 2.0 |
| 75 years and over | 1,445 | 94.5 | 90.8 | 3.7 |
| 13-15 years of education | | | | |
| All ages, 3 years and over | 31,682 | 49.9 | 43.3 | 6.6 |
| 3-16 years | 7,424 | 15.1 | 13.9 | 1.2 |
| 3-5 years | 1,553 | 1.6 | 1.6 | *- |
| 6-16 years | 5,872 | 18.7 | 17.2 | 1.5 |
| 17-24 years | 5,921 | 43.4 | 29.1 | 14.3 |
| 25-44 years | 11,039 | 49.1 | 40.0 | 9.1 |
| 45 years and over | 7,298 | 91.7 | 89.7 | 2.0 |
| 45-54 years | 2,898 | 86.0 | 83.7 | 2.3 |
| 55-64 years | 2,326 | 95.7 | 94.2 | 1.5 |
| 65 years and over | 2,074 | 95.3 | 93.0 | 2.3 |
| 65-74 years | 1,368 | 95.8 | 93.6 | 2.2 |
| 75 years and over | 706 | 94.2 | 91.8 | *2.5 |
| 16 years or more of education | | | | |
| All ages, 3 years and over | 36,380 | 56.0 | 46.9 | 9.1 |
| 3-16 years | 8,304 | 16.1 | 14.3 | 1.8 |
| 3-5 years | 1,661 | 2.0 | 1.8 | *0.2 |
| 6-16 years | 6,643 | 19.7 | 17.4 | 2.2 |
| 17-24 years | 4,149 | 46.4 | 28.9 | 17.5 |
| 25-44 years | 14,424 | 57.4 | 42.8 | 14.5 |
| 45 years and over | 9,503 | 92.9 | 89.5 | 3.4 |
| 45-54 years | 4,250 | 88.9 | 84.8 | 4.2 |
| 55-64 years | 2,883 | 96.1 | 93.3 | 2.8 |
| 65 years and over | 2,370 | 96.0 | 93.2 | 2.7 |
| 65-74 years | 1,631 | 96.6 | 94.8 | 1.8 |
| 75 years and over | 739 | 94.7 | 89.9 | 4.9 |

[1]Includes persons for whom there was no information on corrective lenses.
[2]Includes unknown educational levels.

NOTES: Relative standard errors of estimates of percents for this table are found in appendix I, figure IV. Relative standard errors of estimates of number of persons for this table are found in appendix I, figure III. For official population estimates for more general use, see U.S. Bureau of the Census reports on the civilian population of the United States, in *Current Population Reports*, Series P-20, P-25, and P-60.

**Table 12. Number of persons in population and percent of persons 17 years of age and over with corrective lenses, by type of lens, education of individual, and age: United States, 1979-80**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Education of individual and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| **All educational levels[2]** | | | | |
| All ages, 17 years and over | 158,809 | 62.7 | 57.1 | 5.6 |
| 17-24 years | 32,081 | 37.0 | 27.6 | 9.4 |
| 25-44 years | 59,616 | 46.1 | 38.4 | 7.7 |
| 45 years and over | 67,113 | 89.8 | 87.9 | 1.9 |
| 45-54 years | 22,648 | 83.4 | 81.4 | 2.1 |
| 55-64 years | 20,847 | 93.0 | 91.4 | 1.6 |
| 65 years and over | 23,618 | 93.1 | 91 0 | 2.1 |
| 65-74 years | 15,078 | 93.5 | 91.6 | 1.9 |
| 75 years and over | 8,540 | 92.4 | 90.0 | 2.4 |
| **Less than 12 years of education** | | | | |
| All ages, 17 years and over | 49,148 | 63.4 | 61.5 | 1.9 |
| 17-24 years | 9,559 | 26.4 | 22.5 | 4.0 |
| 25-44 years | 10,931 | 31.6 | 30.3 | 1.3 |
| 45 years and over | 28,658 | 87.9 | 86.4 | 1.5 |
| 45-54 years | 6,991 | 77.1 | 76.2 | 1.0 |
| 55-64 years | 8,110 | 90.4 | 89.1 | 1.3 |
| 65 years and over | 13,557 | 92.0 | 90.2 | 1.8 |
| 65-74 years | 8,118 | 92.1 | 90.6 | 1.6 |
| 75 years and over | 5,439 | 91.8 | 89.6 | 2.2 |
| **Less than 9 years of education** | | | | |
| All ages, 17 years and over | 23,059 | 72.7 | 71.5 | 1.2 |
| 17-24 years | 1,185 | 15.9 | 15.3 | *0.7 |
| 25-44 years | 3,935 | 25.8 | 25.2 | *0.7 |
| 45 years and over | 17,939 | 86.7 | 85.4 | 1.3 |
| 45-54 years | 3,410 | 73.4 | 72.5 | *0.9 |
| 55-64 years | 4,693 | 88.0 | 87.0 | 1.0 |
| 65 years and over | 9,836 | 90.7 | 89.1 | 1.6 |
| 65-74 years | 5,490 | 90.5 | 89.2 | 1.3 |
| 75 years and over | 4,346 | 91.0 | 89.0 | 2.0 |
| **12 years or more of education** | | | | |
| All ages, 17 years and over | 107,114 | 62.7 | 55.4 | 7.4 |
| 17-24 years | 22,084 | 41.9 | 30.0 | 11.9 |
| 25-44 years | 48,008 | 49.6 | 40.4 | 9.2 |
| 45 years and over | 37,021 | 92.2 | 89.8 | 2.3 |
| 45-54 years | 15,246 | 87.1 | 84.5 | 2.6 |
| 55-64 years | 12,342 | 95.6 | 93.7 | 1.9 |
| 65 years and over | 9,433 | 95.9 | 93.4 | 2.5 |
| 65-74 years | 6,661 | 96.1 | 93.7 | 2.4 |
| 75 years and over | 2,772 | 95.4 | 92.6 | 2.8 |
| **12 years of education** | | | | |
| All ages, 17 years and over | 58,984 | 60.4 | 55.4 | 4.9 |
| 17-24 years | 13,254 | 37.1 | 28.9 | 8.2 |
| 25-44 years | 23,885 | 44.5 | 38.7 | 5.8 |
| 45 years and over | 21,845 | 91.8 | 89.8 | 2.0 |
| 45-54 years | 8,791 | 86.5 | 84.5 | 1.9 |
| 55-64 years | 7,615 | 95.2 | 93.6 | 1.5 |
| 65 years and over | 5,439 | 95.6 | 93.1 | 2.5 |
| 65-74 years | 3,858 | 95.7 | 93.1 | 2.6 |
| 75 years and over | 1,581 | 95.3 | 93.0 | 2.3 |

See footnotes at end of table.

**Table 12. Number of persons in population and percent of persons 17 years of age and over with corrective lenses, by type of lens, education of individual, and age: United States, 1979-80—Con.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Education of individual and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| 13 years or more of education | | | | |
| All ages, 17 years and over | 48,130 | 65.6 | 55.3 | 10.3 |
| 17-24 years | 8,830 | 49.1 | 31.8 | 17.3 |
| 25-44 years | 24,123 | 54.6 | 42.2 | 12.5 |
| 45 years and over | 15,176 | 92.7 | 89.8 | 2.9 |
| 45-54 years | 6,455 | 87.9 | 84.4 | 3.5 |
| 55-64 years | 4,728 | 96.3 | 93.8 | 2.5 |
| 65 years and over | 3,994 | 96.4 | 93.8 | 2.6 |
| 65-74 years | 2,803 | 96.7 | 94.5 | 2.1 |
| 75 years and over | 1,191 | 95.6 | 92.1 | 3.5 |
| 13-15 years of education | | | | |
| All ages, 17 years and over | 25,371 | 61.3 | 52.2 | 9.2 |
| 17-24 years | 6,842 | 46.9 | 31.4 | 15.4 |
| 25-44 years | 11,226 | 49.9 | 40.2 | 9.7 |
| 45 years and over | 7,304 | 92.3 | 89.9 | 2.4 |
| 45-54 years | 2,991 | 86.6 | 84.0 | 2.7 |
| 55-64 years | 2,297 | 96.3 | 94.4 | 2.0 |
| 65 years and over | 2,016 | 96.1 | 93.7 | 2.4 |
| 65-74 years | 1,394 | 96.4 | 94.2 | 2.3 |
| 75 years and over | 622 | 95.3 | 92.4 | *2.9 |
| 16 years or more of education | | | | |
| All ages, 17 years and over | 22,758 | 70.4 | 58.8 | 11.7 |
| 17-24 years | 1,988 | 56.6 | 33.0 | 23.6 |
| 25-44 years | 12,898 | 58.7 | 43.8 | 14.9 |
| 45 years and over | 7,872 | 93.1 | 89.7 | 3.4 |
| 45-54 years | 3,464 | 88.9 | 84.8 | 4.1 |
| 55-64 years | 2,431 | 96.2 | 93.3 | 3.0 |
| 65 years and over | 1,978 | 96.7 | 94.0 | 2.7 |
| 65-74 years | 1,409 | 96.9 | 95.0 | 2.1 |
| 75 years and over | 569 | 96.0 | 91.7 | 4.2 |

[1]Includes persons for whom there was no information on corrective lenses.
[2]Includes unknown educational levels.

NOTES: Relative standard errors of estimates of percents for this table are found in appendix I, figure IV. Relative standard errors of estimates of number of persons for this table are found in appendix I, figure III. For official population estimates for more general use, see U.S. Bureau of the Census reports on the civilian population of the United States, in *Current Population Reports*, Series P-20, P-25, and P-60.

**Table 13. Number of persons in population and percent of persons 3 years of age and over with corrective lenses, by type of lens, place of residence, and age: United States, 1979-80**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Place of residence and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| **All places of residence** | | | | |
| All ages, 3 years and over | 207,132 | 51.7 | 47.2 | 4.5 |
| 3-16 years | 48,323 | 15.4 | 14.4 | 1.0 |
| 3-5 years | 9,166 | 1.9 | 1.8 | *0.1 |
| 6-16 years | 39,157 | 18.5 | 17.3 | 1.2 |
| 17-24 years | 32,081 | 37.0 | 27.6 | 9.4 |
| 25-44 years | 59,616 | 46.1 | 38.4 | 7.7 |
| 45 years and over | 67,113 | 89.8 | 87.9 | 1.9 |
| 45-54 years | 22,648 | 83.4 | 81.4 | 2.1 |
| 55-64 years | 20,847 | 93.0 | 91.4 | 1.6 |
| 65 years and over | 23,618 | 93.1 | 91.0 | 2.1 |
| 65-74 years | 15,078 | 93.5 | 91.6 | 1.9 |
| 75 years and over | 8,540 | 92.4 | 90.0 | 2.4 |
| **SMSA** | | | | |
| All ages, 3 years and over | 141,795 | 51.9 | 46.9 | 4.9 |
| 3-16 years | 32,343 | 15.5 | 14.5 | 1.0 |
| 3-5 years | 6,147 | 1.7 | 1.6 | *0.1 |
| 6-16 years | 26,196 | 18.7 | 17.5 | 1.3 |
| 17-24 years | 22,342 | 37.1 | 27.4 | 9.7 |
| 25-44 years | 41,832 | 46.7 | 38.3 | 8.5 |
| 45 years and over | 45,278 | 89.9 | 87.7 | 2.2 |
| 45-54 years | 15,760 | 83.8 | 81.5 | 2.3 |
| 55-64 years | 14,314 | 93.0 | 91.2 | 1.9 |
| 65 years and over | 15,203 | 93.1 | 90.8 | 2.3 |
| 65-74 years | 9,703 | 93.4 | 91.3 | 2.2 |
| 75 years and over | 5,500 | 92.6 | 90.0 | 2.6 |
| **Central city** | | | | |
| All ages, 3 years and over | 57,857 | 51.2 | 46.8 | 4.4 |
| 3-16 years | 12,647 | 15.2 | 14.4 | 0.7 |
| 3-5 years | 2,531 | 1.9 | 1.8 | *0.1 |
| 6-16 years | 10,116 | 18.5 | 17.6 | 0.9 |
| 17-24 years | 9,546 | 35.8 | 26.8 | 9.0 |
| 25-44 years | 16,499 | 44.7 | 37.2 | 7.4 |
| 45 years and over | 19,165 | 88.3 | 86.3 | 2.0 |
| 45-54 years | 6,053 | 81.3 | 79.2 | 2.1 |
| 55-64 years | 5,973 | 91.3 | 89.7 | 1.7 |
| 65 years and over | 7,139 | 91.7 | 89.6 | 2.1 |
| 65-74 years | 4,469 | 92.1 | 90.2 | 1.8 |
| 75 years and over | 2,670 | 91.1 | 88.6 | 2.5 |
| **Not central city** | | | | |
| All ages, 3 years and over | 83,938 | 52.3 | 47.0 | 5.3 |
| 3-16 years | 19,696 | 15.7 | 14.5 | 1.2 |
| 3-5 years | 3,616 | 1.6 | 1.5 | *0.1 |
| 6-16 years | 16,080 | 18.9 | 17.4 | 1.5 |
| 17-24 years | 12,796 | 38.0 | 27.9 | 10.1 |
| 25-44 years | 25,333 | 48.1 | 39.0 | 9.1 |
| 45 years and over | 26,113 | 91.0 | 88.7 | 2.3 |
| 45-54 years | 9,707 | 85.4 | 83.0 | 2.4 |
| 55-64 years | 8,341 | 94.3 | 92.3 | 2.0 |
| 65 years and over | 8,064 | 94.4 | 91.8 | 2.5 |
| 65-74 years | 5,234 | 94.6 | 92.1 | 2.5 |
| 75 years and over | 2,831 | 93.9 | 91.2 | 2.6 |

See footnotes at end of table.

**Table 13. Number of persons in population and percent of persons 3 years of age and over with corrective lenses, by type of lens, place of residence, and age: United States, 1979-80—Con.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Place of residence and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| Outside SMSA | | | | |
| All ages, 3 years and over | 65,337 | 51.3 | 47.7 | 3.6 |
| 3-16 years | 15,980 | 15.1 | 14.2 | 1.0 |
| 3-5 years | 3,019 | 2.2 | 2.1 | *0.1 |
| 6-16 years | 12,960 | 18.2 | 17.0 | 1.2 |
| 17-24 years | 9,738 | 36.9 | 28.1 | 8.8 |
| 25-44 years | 17,784 | 44.5 | 38.7 | 5.8 |
| 45 years and over | 21,835 | 89.8 | 88.3 | 1.5 |
| 45-54 years | 6,887 | 82.6 | 81.1 | 1.5 |
| 55-64 years | 6,533 | 93.0 | 91.8 | 1.1 |
| 65 years and over | 8,415 | 93.1 | 91.4 | 1.7 |
| 65-74 years | 5,375 | 93.6 | 92.1 | 1.5 |
| 75 years and over | 3,040 | 92.1 | 90.2 | 2.0 |

[1]Includes persons for whom there was no information on corrective lenses.

NOTES: Relative standard errors of estimates of percents for this table are found in appendix I, figure IV. Relative standard errors of estimates of number of persons for this table are found in appendix I, figure III. For official population estimates for more general use, see U.S. Bureau of the Census reports on the civilian population of the United States, in *Current Population Reports*, Series P-20, P-25, and P-60. SMSA = standard metropolitan statistical area.

**Table 14. Number of persons in population and percent of persons 3 years of age and over with corrective lenses, by type of lens, geographic region, and age: United States, 1979-80**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Geographic region and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| **All geographic regions** | | | | |
| All ages, 3 years and over | 207,132 | 51.7 | 47.2 | 4.5 |
| 3-16 years | 48,323 | 15.4 | 14.4 | 1.0 |
| 3-5 years | 9,166 | 1.9 | 1.8 | *0.1 |
| 6-16 years | 39,157 | 18.5 | 17.3 | 1.2 |
| 17-24 years | 32,081 | 37.0 | 27.6 | 9.4 |
| 25-44 years | 59,616 | 46.1 | 38.4 | 7.7 |
| 45 years and over | 67,113 | 89.8 | 87.9 | 1.9 |
| 45-54 years | 22,648 | 83.4 | 81.4 | 2.1 |
| 55-64 years | 20,847 | 93.0 | 91.4 | 1.6 |
| 65 years and over | 23,618 | 93.1 | 91.0 | 2.1 |
| 65-74 years | 15,078 | 93.5 | 91.6 | 1.9 |
| 75 years and over | 8,540 | 92.4 | 90.0 | 2.4 |
| **Northeast** | | | | |
| All ages, 3 years and over | 45,953 | 54.9 | 51.0 | 3.9 |
| 3-16 years | 10,239 | 18.7 | 18.0 | 0.8 |
| 3-5 years | 1,791 | 2.5 | 2.5 | *- |
| 6-16 years | 8,448 | 22.2 | 21.3 | 0.9 |
| 17-24 years | 6,695 | 39.5 | 30.7 | 8.8 |
| 25-44 years | 13,002 | 47.6 | 41.0 | 6.6 |
| 45 years and over | 16,017 | 90.5 | 88.7 | 1.8 |
| 45-54 years | 5,314 | 84.4 | 82.4 | 1.9 |
| 55-64 years | 5,130 | 93.1 | 91.6 | 1.5 |
| 65 years and over | 5,574 | 93.8 | 91.9 | 1.8 |
| 65-74 years | 3,566 | 94.2 | 92.5 | 1.7 |
| 75 years and over | 2,008 | 93.0 | 90.9 | 2.1 |
| **North Central** | | | | |
| All ages, 3 years and over | 54,763 | 55.0 | 49.5 | 5.5 |
| 3-16 years | 12,780 | 18.2 | 16.9 | 1.4 |
| 3-5 years | 2,491 | 1.8 | 1.7 | *0.1 |
| 6-16 years | 10,288 | 22.2 | 20.5 | 1.7 |
| 17-24 years | 8,947 | 43.5 | 31.0 | 12.5 |
| 25-44 years | 15,598 | 50.7 | 41.7 | 9.0 |
| 45 years and over | 17,438 | 91.7 | 89.8 | 2.0 |
| 45-54 years | 5,913 | 85.6 | 83.5 | 2.1 |
| 55-64 years | 5,371 | 94.8 | 93.0 | 1.8 |
| 65 years and over | 6,154 | 95.0 | 93.0 | 2.0 |
| 65-74 years | 3,869 | 95.1 | 93.3 | 1.8 |
| 75 years and over | 2,285 | 94.8 | 92.3 | 2.5 |
| **South** | | | | |
| All ages, 3 years and over | 67,916 | 47.8 | 44.1 | 3.7 |
| 3-16 years | 16,445 | 12.3 | 11.4 | 0.9 |
| 3-5 years | 3,071 | 1.8 | 1.6 | *0.1 |
| 6-16 years | 13,374 | 14.8 | 13.7 | 1.1 |
| 17-24 years | 10,448 | 31.4 | 24.3 | 7.1 |
| 25-44 years | 19,302 | 41.7 | 35.4 | 6.3 |
| 45 years and over | 21,721 | 87.8 | 86.0 | 1.8 |
| 45-54 years | 7,299 | 80.8 | 79.0 | 1.8 |
| 55-64 years | 6,601 | 91.1 | 89.6 | 1.5 |
| 65 years and over | 7,821 | 91.6 | 89.5 | 2.1 |
| 65-74 years | 5,036 | 91.9 | 89.8 | 2.0 |
| 75 years and over | 2,785 | 91.1 | 88.9 | 2.2 |

See footnotes at end of table.

**Table 14. Number of persons in population and percent of persons 3 years of age and over with corrective lenses, by type of lens, geographic region, and age: United States, 1979-80—Con.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Geographic region and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| West | | | | |
| All ages, 3 years and over | 38,501 | 50.0 | 44.7 | 5.3 |
| 3-16 years | 8,859 | 13.0 | 12.0 | 1.0 |
| 3-5 years | 1,812 | 1.7 | 1.5 | *0.2 |
| 6-16 years | 7,047 | 15.9 | 14.7 | 1.2 |
| 17-24 years | 5,991 | 34.2 | 24.9 | 9.3 |
| 25-44 years | 11,713 | 45.5 | 36.1 | 9.4 |
| 45 years and over | 11,937 | 89.8 | 87.4 | 2.4 |
| 45-54 years | 4,123 | 83.7 | 81.1 | 2.6 |
| 55-64 years | 3,746 | 93.7 | 91.8 | 1.9 |
| 65 years and over | 4,069 | 92.3 | 89.7 | 2.6 |
| 65-74 years | 2,607 | 93.4 | 91.0 | 2.4 |
| 75 years and over | 1,462 | 90.5 | 87.5 | 2.9 |

[1]Includes persons for whom there was no information on corrective lenses.

NOTES: Relative standard errors of estimates of percents for this table are found in appendix I, figure IV. Relative standard errors of estimates of number of persons for this table are found in appendix I, figure III. For official population estimates for more general use, see U.S. Bureau of the Census reports on the civilian population of the United States, in *Current Population Reports*, Series P-20, P-25, and P-60. SMSA = standard metropolitan statistical area.

**Table 15. Number of persons in population and percent of persons 3 years of age and over with corrective lenses, by type of lens, family income, and age: United States, 1979-80**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Family income and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| All family incomes[2] | | | | |
| All ages, 3 years and over | 207,132 | 51.7 | 47.2 | 4.5 |
| 3-16 years | 48,323 | 15.4 | 14.4 | 1.0 |
| 3-5 years | 9,166 | 1.9 | 1.8 | *0.1 |
| 6-16 years | 39,157 | 18.5 | 17.3 | 1.2 |
| 17-24 years | 32,081 | 37.0 | 27.6 | 9.4 |
| 25-44 years | 59,616 | 46.1 | 38.4 | 7.7 |
| 45 years and over | 67,113 | 89.8 | 87.9 | 1.9 |
| 45-54 years | 22,648 | 83.4 | 81.4 | 2.1 |
| 55-64 years | 20,847 | 93.0 | 91.4 | 1.6 |
| 65 years and over | 23,618 | 93.1 | 91.0 | 2.1 |
| 65-74 years | 15,078 | 93.5 | 91.6 | 1.9 |
| 75 years and over | 8,540 | 92.4 | 90.0 | 2.4 |
| Less than $5,000 | | | | |
| All ages, 3 years and over | 19,616 | 54.7 | 51.1 | 3.6 |
| 3-16 years | 3,764 | 13.4 | 12.9 | 0.6 |
| 3-5 years | 927 | 2.7 | 2.4 | *0.3 |
| 6-16 years | 2,837 | 16.9 | 16.3 | *0.6 |
| 17-24 years | 4,208 | 38.0 | 27.3 | 10.7 |
| 25-44 years | 3,119 | 35.7 | 32.0 | 3.7 |
| 45 years and over | 8,525 | 88.2 | 86.8 | 1.4 |
| 45-54 years | 1,119 | 73.5 | 72.1 | 1.4 |
| 55-64 years | 1,908 | 88.1 | 87.1 | *0.9 |
| 65 years and over | 5,498 | 91.1 | 89.7 | 1.5 |
| 65-74 years | 3,004 | 90.7 | 89.5 | 1.2 |
| 75 years and over | 2,494 | 91.6 | 89.8 | 1.8 |

See footnotes at end of table.

**Table 15. Number of persons in population and percent of persons 3 years of age and over with corrective lenses, by type of lens, family income, and age: United States, 1979-80—Con.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Family income and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| $5,000-$9,999 | | | | |
| All ages, 3 years and over | 30,439 | 54.2 | 51.1 | 3.1 |
| 3-16 years | 6,317 | 14.0 | 13.7 | *0.3 |
| 3-5 years | 1,340 | 2.5 | 2.5 | *0.1 |
| 6-16 years | 4,977 | 17.0 | 16.7 | *0.3 |
| 17-24 years | 5,340 | 34.7 | 27.2 | 7.6 |
| 25-44 years | 6,331 | 39.3 | 34.7 | 4.6 |
| 45 years and over | 12,451 | 90.4 | 88.6 | 1.8 |
| 45-54 years | 2,228 | 78.3 | 77.2 | 1.1 |
| 55-64 years | 3,340 | 92.0 | 90.5 | 1.5 |
| 65 years and over | 6,883 | 93.6 | 91.3 | 2.3 |
| 65-74 years | 4,492 | 93.6 | 91.4 | 2.2 |
| 75 years and over | 2,391 | 93.5 | 91.2 | 2.3 |
| $10,000-$14,999 | | | | |
| All ages, 3 years and over | 31,586 | 49.3 | 45.3 | 4.0 |
| 3-16 years | 7,481 | 13.6 | 12.9 | 0.8 |
| 3-5 years | 1,656 | *1.5 | *1.4 | *0.1 |
| 6-16 years | 5,825 | 17.1 | 16.1 | 1.0 |
| 17-24 years | 5,009 | 36.0 | 27.9 | 8.1 |
| 25-44 years | 9,617 | 43.1 | 36.6 | 6.5 |
| 45 years and over | 9,481 | 90.7 | 88.9 | 1.7 |
| 45-54 years | 2,869 | 81.7 | 80.6 | 1.2 |
| 55-64 years | 3,197 | 93.6 | 92.0 | 1.6 |
| 65 years and over | 3,415 | 95.5 | 93.1 | 2.3 |
| 65-74 years | 2,469 | 96.2 | 94.0 | 2.1 |
| 75 years and over | 946 | 93.7 | 90.9 | 2.7 |
| $15,000-$24,999 | | | | |
| All ages, 3 years and over | 51,687 | 48.7 | 44.0 | 4.7 |
| 3-16 years | 13,463 | 15.4 | 14.5 | 0.9 |
| 3-5 years | 2,615 | 1.5 | 1.4 | *0.1 |
| 6-16 years | 10,848 | 18.7 | 17.6 | 1.1 |
| 17-24 years | 7,009 | 39.4 | 29.8 | 9.6 |
| 25-44 years | 18,344 | 47.3 | 39.5 | 7.8 |
| 45 years and over | 12,870 | 90.7 | 89.1 | 1.6 |
| 45-54 years | 5,594 | 86.0 | 84.3 | 1.6 |
| 55-64 years | 4,665 | 94.4 | 93.1 | 1.3 |
| 65 years and over | 2,611 | 94.3 | 92.1 | 2.1 |
| 65-74 years | 1,879 | 94.8 | 92.8 | 2.1 |
| 75 years and over | 732 | 92.9 | 90.6 | *2.3 |
| $25,000 or more | | | | |
| All ages, 3 years and over | 54,942 | 53.4 | 47.1 | 6.4 |
| 3-16 years | 13,030 | 17.8 | 16.1 | 1.7 |
| 3-5 years | 1,867 | 1.7 | 1.7 | *0.1 |
| 6-16 years | 11,164 | 20.5 | 18.5 | 2.0 |
| 17-24 years | 7,880 | 38.8 | 27.1 | 11.6 |
| 25-44 years | 18,091 | 52.1 | 41.6 | 10.6 |
| 45 years and over | 15,941 | 91.3 | 88.5 | 2.8 |
| 45-54 years | 8,477 | 87.4 | 84.3 | 3.0 |
| 55-64 years | 5,325 | 96.2 | 93.7 | 2.5 |
| 65 years and over | 2,139 | 94.5 | 91.7 | 2.8 |
| 65-74 years | 1,421 | 95.6 | 93.0 | 2.6 |
| 75 years and over | 718 | 92.3 | 89.0 | *3.2 |

[1]Includes persons for whom there was no information on corrective lenses.
[2]Includes unknown income.

NOTES: Relative standard errors of estimates of percents for this table are found in appendix I, figure IV. Relative standard errors of estimates of number of persons for this table are found in appendix I, figure III. For official population estimates for more general use, see U.S. Bureau of the Census reports on the civilian population of the United States, in *Current Population Reports*, Series P-20, P-25, and P-60.

**Table 16. Number of persons in population and percent of persons 17 years of age and over with corrective lenses, by type of lens, occupational status, and age: United States, 1979-80**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Occupational status and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| **All occupational status[2]** | | | | |
| All ages, 17 years and over | 103,859 | 57.4 | 51.0 | 6.5 |
| 17-24 years | 23,842 | 37.8 | 27.9 | 10.0 |
| 25-44 years | 47,768 | 46.2 | 38.4 | 7.8 |
| 45 years and over | 32,250 | 88.6 | 86.7 | 1.9 |
| 45-54 years | 17,016 | 83.9 | 81.8 | 2.1 |
| 55-64 years | 11,771 | 93.8 | 92.2 | 1.6 |
| 65 years and over | 3,463 | 93.7 | 91.8 | 1.9 |
| 65-74 years | 2,887 | 93.9 | 92.2 | 1.7 |
| **Professional, technical and kindred workers** | | | | |
| All ages, 17 years and over | 16,613 | 68.0 | 56.3 | 11.7 |
| 17-24 years | 2,091 | 51.2 | 31.2 | 20.0 |
| 25-44 years | 9,615 | 59.0 | 44.7 | 14.2 |
| 45 years and over | 4,907 | 92.8 | 89.8 | 3.0 |
| 45-54 years | 2,732 | 89.1 | 85.6 | 3.4 |
| 55-64 years | 1,690 | 97.7 | 95.0 | 2.7 |
| 65 years and over | 486 | 96.7 | 94.7 | *2.1 |
| 65-74 years | 413 | 96.6 | 94.7 | *1.9 |
| **Managers and administrators, except farm** | | | | |
| All ages, 17 years and over | 11,680 | 66.4 | 59.8 | 6.5 |
| 17-24 years | 1,016 | 44.0 | 31.8 | 12.2 |
| 25-44 years | 5,915 | 50.4 | 41.2 | 9.2 |
| 45 years and over | 4,750 | 91.0 | 89.1 | 1.9 |
| 45-54 years | 2,553 | 86.9 | 84.5 | 2.4 |
| 55-64 years | 1,746 | 96.3 | 94.9 | 1.4 |
| 65 years and over | 451 | 93.8 | 92.5 | *1.1 |
| 65-74 years | 358 | 94.4 | 93.3 | *1.1 |
| **Sales workers** | | | | |
| All ages, 17 years and over | 6,468 | 61.7 | 54.1 | 7.6 |
| 17-24 years | 1,483 | 40.8 | 28.0 | 12.8 |
| 25-44 years | 2,693 | 47.7 | 38.6 | 9.1 |
| 45 years and over | 2,292 | 91.6 | 89.1 | 2.5 |
| 45-54 years | 1,090 | 86.1 | 83.8 | 2.4 |
| 55-64 years | 833 | 97.4 | 95.1 | 2.3 |
| 65 years and over | 369 | 94.9 | 91.3 | *3.5 |
| 65-74 years | 311 | 94.5 | 91.6 | *2.9 |
| **Clerical and kindred workers** | | | | |
| All ages, 17 years and over | 17,957 | 64.0 | 53.7 | 10.3 |
| 17-24 years | 5,122 | 48.3 | 32.2 | 16.1 |
| 25-44 years | 7,889 | 55.9 | 44.7 | 11.2 |
| 45 years and over | 4,947 | 93.0 | 90.2 | 2.8 |
| 45-54 years | 2,751 | 90.0 | 86.7 | 3.4 |
| 55-64 years | 1,838 | 96.8 | 94.6 | 2.2 |
| 65 years and over | 358 | 96.9 | 95.3 | *1.7 |
| 65-74 years | 302 | 96.7 | 94.7 | *2.0 |
| **Craftsmen and kindred workers** | | | | |
| All ages, 17 years and over | 13,997 | 48.8 | 46.3 | 2.5 |
| 17-24 years | 2,779 | 27.0 | 23.2 | 3.8 |
| 25-44 years | 6,855 | 33.9 | 31.1 | 2.9 |
| 45 years and over | 4,363 | 85.9 | 84.9 | 1.0 |
| 45-54 years | 2,354 | 79.9 | 78.9 | 0.9 |
| 55-64 years | 1,622 | 92.4 | 91.6 | *0.9 |
| 65 years and over | 387 | 94.8 | 93.3 | *1.8 |
| 65-74 years | 321 | 95.6 | 94.1 | *1.6 |

See footnotes at end of table.

**Table 16. Number of persons in population and percent of persons 17 years of age and over with corrective lenses, by type of lens, occupational status, and age: United States, 1979-80—Con.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Occupational status and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| **Operatives, except transport** | | | | |
| All ages, 17 years and over | 11,583 | 48.5 | 46.0 | 2.4 |
| 17-24 years | 3,184 | 30.2 | 25.9 | 4.2 |
| 25-44 years | 5,123 | 35.7 | 33.4 | 2.3 |
| 45 years and over | 3,276 | 86.2 | 85.3 | 0.9 |
| 45-54 years | 1,851 | 81.1 | 80.2 | *0.9 |
| 55-64 years | 1,209 | 92.5 | 91.6 | *0.9 |
| 65 years and over | 217 | 94.0 | 93.1 | *1.4 |
| 65-74 years | 191 | 95.3 | 93.7 | *1.6 |
| **Transport equipment operatives** | | | | |
| All ages, 17 years and over | 3,659 | 45.2 | 43.2 | 2.0 |
| 17-24 years | 774 | 24.9 | 21.2 | 3.7 |
| 25-44 years | 1,802 | 31.5 | 29.5 | 1.9 |
| 45 years and over | 1,083 | 82.6 | 81.6 | *1.0 |
| 45-54 years | 623 | 78.8 | 78.2 | *0.8 |
| 55-64 years | 380 | 86.8 | 85.3 | *1.6 |
| 65 years and over | 80 | 91.2 | 91.2 | *- |
| 65-74 years | 76 | 92.1 | 92.1 | *- |
| **Laborers, except farm** | | | | |
| All ages, 17 years and over | 4,550 | 39.1 | 36.1 | 3.0 |
| 17-24 years | 1,987 | 28.5 | 24.0 | 4.5 |
| 25-44 years | 1,572 | 30.3 | 27.8 | 2.5 |
| 45 years and over | 990 | 74.2 | 73.6 | *0.6 |
| 45-54 years | 512 | 66.8 | 66.2 | *0.6 |
| 55-64 years | 359 | 83.0 | 82.5 | *0.6 |
| 65 years and over | 119 | 79.8 | 78.2 | *0.8 |
| 65-74 years | 102 | 78.4 | 77.5 | *1.0 |
| **Farmers and farm managers** | | | | |
| All ages, 17 years and over | 1,368 | 63.1 | 61.0 | 2.0 |
| 17-24 years | 115 | 31.3 | 27.0 | 4.3 |
| 25-44 years | 425 | 30.6 | 28.2 | *2.4 |
| 45 years and over | 828 | 84.2 | 82.6 | *1.6 |
| 45-54 years | 298 | 73.8 | 72.8 | *1.0 |
| 55-64 years | 303 | 90.4 | 89.1 | *1.3 |
| 65 years and over | 227 | 89.4 | 86.8 | *2.6 |
| 65-74 years | 157 | 89.2 | 87.9 | *1.3 |
| **Farm laborers and farm foremen** | | | | |
| All ages, 17 years and over | 1,017 | 40.3 | 37.2 | 3.0 |
| 17-24 years | 373 | 27.9 | 21.7 | 5.9 |
| 25-44 years | 349 | 27.5 | 26.1 | *1.4 |
| 45 years and over | 295 | 71.2 | 69.8 | *1.4 |
| 45-54 years | 139 | 56.1 | 55.4 | *0.7 |
| 55-64 years | 98 | 80.6 | 79.6 | *1.0 |
| 65 years and over | 58 | 89.7 | 87.9 | *3.4 |
| 65-74 years | 47 | 87.2 | 85.1 | *4.3 |

See footnotes at end of table.

**Table 16. Number of persons in population and percent of persons 17 years of age and over with corrective lenses, by type of lens, occupational status, and age: United States, 1979-80—Con.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Occupational status and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| **Service workers except private households** | | | | |
| All ages, 17 years and over | 12,219 | 53.7 | 48.4 | 5.3 |
| 17-24 years | 3,967 | 38.4 | 28.9 | 9.5 |
| 25-44 years | 4,649 | 41.7 | 36.9 | 4.8 |
| 45 years and over | 3,603 | 85.9 | 84.6 | 1.4 |
| 45-54 years | 1,741 | 80.9 | 79.6 | 1.3 |
| 55-64 years | 1,341 | 90.1 | 88.7 | *1.3 |
| 65 years and over | 521 | 91.9 | 90.2 | *1.7 |
| 65-74 years | 452 | 92.7 | 91.2 | *1.5 |
| **Private household workers** | | | | |
| All ages, 17 years and over | 930 | 64.6 | 61.6 | 3.0 |
| 17-24 years | 179 | 36.3 | 29.6 | *6.7 |
| 25-44 years | 236 | 36.4 | 32.6 | *4.2 |
| 45 years and over | 515 | 87.2 | 86.0 | *1.2 |
| 45-54 years | 171 | 77.2 | 75.4 | *1.8 |
| 55-64 years | 203 | 90.1 | 90.1 | *- |
| 65 years and over | 140 | 95.7 | 94.3 | *2.1 |
| 65-74 years | 119 | 95.8 | 95.0 | *0.8 |
| **White collar workers** | | | | |
| All ages, 17 years and over | 52,719 | 65.5 | 55.9 | 9.6 |
| 17-24 years | 9,712 | 47.3 | 31.3 | 16.0 |
| 25-44 years | 26,112 | 54.9 | 43.3 | 11.7 |
| 45 years and over | 16,895 | 92.2 | 89.6 | 2.6 |
| 45-54 years | 9,125 | 88.4 | 85.4 | 3.0 |
| 55-64 years | 6,106 | 97.0 | 94.9 | 2.1 |
| 65 years and over | 1,664 | 95.6 | 93.5 | 2.0 |
| 65-74 years | 1,382 | 95.7 | 93.8 | 2.0 |
| **Blue collar workers** | | | | |
| All ages, 17 years and over | 33,788 | 47.0 | 44.5 | 2.5 |
| 17-24 years | 8,724 | 28.3 | 24.2 | 4.1 |
| 25-44 years | 15,352 | 33.9 | 31.3 | 2.5 |
| 45 years and over | 9,712 | 84.4 | 83.5 | 0.9 |
| 45-54 years | 5,339 | 78.9 | 78.1 | 0.8 |
| 55-64 years | 3,569 | 90.9 | 90.0 | 0.9 |
| 65 years and over | 803 | 92.2 | 90.8 | *1.4 |
| 65-74 years | 691 | 92.3 | 91.0 | *1.3 |
| **Farm workers** | | | | |
| All ages, 17 years and over | 2,385 | 53.4 | 50.9 | 2.5 |
| 17-24 years | 487 | 28.5 | 23.0 | 5.5 |
| 25-44 years | 774 | 29.2 | 27.3 | *1.9 |
| 45 years and over | 1,124 | 80.7 | 79.2 | *1.5 |
| 45-54 years | 437 | 68.2 | 67.3 | *0.9 |
| 55-64 years | 402 | 87.8 | 86.6 | *1.2 |
| 65 years and over | 285 | 89.5 | 87.0 | *2.8 |
| 65-74 years | 203 | 89.7 | 87.7 | *2.0 |

See footnotes at end of table.

**Table 16. Number of persons in population and percent of persons 17 years of age and over with corrective lenses, by type of lens, occupational status, and age: United States, 1979-80—Con.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Occupational status and age | Number of persons in thousands[1] | Type of lens | | |
|---|---|---|---|---|
| | | Total | Percent with eyeglasses only | Percent with contact lenses, with or without eyeglasses |
| Service workers | | | | |
| All ages, 17 years and over | 13,148 | 54.4 | 49.3 | 5.1 |
| 17-24 years | 4,146 | 38.3 | 29.0 | 9.3 |
| 25-44 years | 4,884 | 41.5 | 36.7 | 4.8 |
| 45 years and over | 4,118 | 86.1 | 84.7 | 1.3 |
| 45-54 years | 1,913 | 80.6 | 79.2 | 1.4 |
| 55-64 years | 1,544 | 90.1 | 88.9 | *1.2 |
| 65 years and over | 661 | 92.9 | 91.1 | *1.8 |
| 65-74 years | 571 | 93.3 | 91.9 | *1.4 |

[1]Includes persons for whom there was no information on corrective lenses.
[2]Includes unknown occupation.

NOTES: Relative standard errors of estimates of percents for this table are found in appendix I, figure IV. Relative standard errors of estimates of number of persons for this table are found in appendix I, figure III. For official population estimates for more general use, see U.S. Bureau of the Census reports on the civilian population of the United States, in *Current Population Reports*, Series P-20, P-25, and P-60.

**Table 17. Percent of persons 3 years of age and over with eyeglasses and contact lenses by selected characteristics: United States, fiscal year 1966 and calendar years 1971, 1977, 1979, and 1980**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II]

| Selected characteristic | July 1965-June 1966 | | 1971 | | 1977 | | 1979 | | 1980 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total with eyeglasses or contact lenses | Contact lenses with or without eyeglasses | Total with eyeglasses or contact lenses | Contact lenses with or without eyeglasses | Total with eyeglasses or contact lenses | Contact lenses with or without eyeglasses | Total with eyeglasses or contact lenses | Contact lenses with or without eyeglasses | Total with eyeglasses or contact lenses | Contact lenses with or without eyeglasses |
| | Percent | | | | | | | | | |
| All persons 3 years and over | 48.1 | 1.0 | 49.2 | 2.1 | 50.9 | 3.5 | 51.6 | 4.3 | 51.8 | 4.8 |
| Age | | | | | | | | | | |
| 3-16 years | 15.0 | 0.3 | 16.6 | 0.6 | 14.3 | 0.8 | 15.0 | 0.9 | 15.7 | 1.1 |
| 17-24 years | 41.6 | 3.7 | 40.7 | 6.6 | 39.2 | 7.7 | 37.5 | 9.2 | 36.5 | 9.6 |
| 25-44 years | 41.9 | 1.3 | 42.1 | 3.0 | 45.3 | 5.8 | 46.2 | 7.1 | 45.9 | 8.2 |
| 45 years and over | 88.0 | 0.3 | 88.3 | 0.7 | 89.5 | 1.5 | 89.7 | 1.9 | 89.9 | 2.0 |
| Sex | | | | | | | | | | |
| Male | 42.8 | 0.6 | 44.2 | 1.2 | 45.7 | 2.0 | 46.2 | 2.6 | 46.2 | 2.9 |
| Female | 53.0 | 1.3 | 53.8 | 2.9 | 55.7 | 4.8 | 56.6 | 5.9 | 57.0 | 6.5 |
| Geographic region | | | | | | | | | | |
| Northeast | 52.5 | 0.9 | 52.7 | 1.6 | 54.1 | 2.8 | 55.3 | 3.6 | 54.5 | 4.2 |
| North Central | 50.6 | 0.9 | 51.6 | 2.5 | 53.2 | 4.3 | 54.7 | 5.2 | 55.4 | 5.9 |
| South | 42.8 | 1.0 | 44.9 | 1.7 | 47.7 | 2.9 | 47.5 | 3.6 | 48.0 | 3.8 |
| West | 47.0 | 1.4 | 48.2 | 2.8 | 49.3 | 4.1 | 49.9 | 5.1 | 50.1 | 5.5 |
| Place of residence | | | | | | | | | | |
| SMSA | 48.7 | 1.2 | 49.7 | 2.3 | 51.0 | 3.8 | 51.8 | 4.7 | 52.0 | 5.2 |
| Outside SMSA | 47.0 | 0.7 | 48.3 | 1.6 | 50.6 | 2.7 | 51.2 | 3.5 | 51.3 | 3.8 |
| Race | | | | | | | | | | |
| White | 50.4 | 1.1 | 51.4 | 2.3 | 52.9 | 3.8 | 53.8 | 4.7 | 53.9 | 5.2 |
| Black | 30.4 | *0.1 | 32.7 | 0.4 | 37.0 | 1.0 | 36.7 | 1.2 | 37.8 | 1.4 |
| Education of head of family | | | | | | | | | | |
| Less than 12 years | 48.6 | 0.4 | 50.5 | 0.8 | 52.7 | 1.4 | 53.2 | 1.7 | 53.6 | 1.8 |
| 12 years or more | 47.5 | 1.6 | 48.4 | 3.0 | 49.9 | 4.6 | 50.9 | 5.6 | 51.1 | 6.2 |

NOTE: Relative standard errors of estimates for this table are found in appendix I, figure VI. SMSA = standard metropolitan statistical area.

# Appendixes

## Contents



### List of appendix figures



### List of appendix tables

# Appendix I
# Technical notes on methods

## Background of this report

This report is one of a series of statistical reports prepared by the National Center for Health Statistics (NCHS). It is based on information collected by NCHS in a continuing nationwide sample of households in the National Health Interview Survey (NHIS).

The National Health Interview Survey utilizes a questionnaire that obtains information on personal and demographic characteristics, illnesses, injuries, impairments, chronic conditions, and other health topics. As data relating to each of these various broad topics are tabulated and analyzed, separate reports are issued that cover one or more of the specific topics.

The population covered by the sample for NHIS is the civilian noninstitutionalized population of the United States living at the time of the interview. The sample does not include members of the Armed Forces or U.S. nationals living in foreign countries. It should also be noted that the estimates shown do not represent a complete measure of any given topic during the specified calendar period because data are not collected in the interview for persons who died during the reference period. For many types of statistics collected in the survey, the reference period covers the 2 weeks prior to the interview week. For such a short period, the contribution by decedents to a total inventory of conditions or services should be very small. However, the contribution by decedents during a long reference period (for example, 1 year) might be sizable, especially for older persons.

## Statistical design of the National Health Interview Survey

### General plan

The sampling plan of the survey follows a multistage probability design that permits a continuous sampling of the civilian noninstitutionalized population of the United States. The sample is designed in such a way that the sample of households interviewed each week is representative of the target population and that weekly samples are additive over time. This feature of the design permits both continuous measurement of characteristics of samples and more detailed analysis of less common characteristics and smaller categories of health-related items. The continuous collection has administrative and operational advantages as well as technical assets because it permits fieldwork to be handled with an experienced, stable staff.

The overall sample was designed so that tabulations can be provided for each of the four major geographic regions and for selected places of residence in the United States.

The first stage of the sample design consists of drawing a sample of 376 primary sampling units (PSU's) from approximately 1,900 geographically defined PSU's. A PSU consists of a county, a small group of contiguous counties, or a standard metropolitan statistical area. The PSU's collectively cover the 50 States and the District of Columbia.

With no loss in general understanding, the remaining stages can be combined and treated in this discussion as an ultimate stage. Within PSU's, then, ultimate stage units called segments are defined in such a manner that each segment contains an expected four households. Three general types of segments are used.

- Area segments that are defined geographically.
- List segments, using 1970 census registers as the frame.
- Permit segments, using update lists of building permits issued in sample PSU's since 1970.

Census address listings were used for all areas of the country where addresses were well defined and could be used to locate housing units. In general the list frame included the larger urban areas of the United States from which about two-thirds of the NHIS sample was selected.

The usual NHIS sample consists of approximately 12,000 segments containing about 50,000 assigned households, of which 9,000 were vacant, demolished, or occupied by persons not in the scope of the survey.

During the 52 weeks in 1979, the sample consisted of approximately 42,000 eligible, occupied households containing about 111,000 persons living at the time of the interview. The total noninterview rate was about 3.9 percent—2.2 percent of which was due to respondent refusal and the remainder was primarily due to an inability to locate an eligible respondent at home after repeated calls. In 1980, because of budgetary limitations, 4 weeks of data collection were deleted from the fourth quarter sample. The data derived from the remaining weeks were differentially weighted to produce a full quarterly estimate. During the 48 weeks in 1980, the sample consisted of approximately 39,000 households containing about 103,000 persons living at the time of the interview. The total noninterview rate for 1980 was about 2.9 percent of which 1.8 percent was due to refusals.

Descriptive material on data collection, field procedures and questionnaire development in the NHIS have been published[16,17] as well as a detailed description of the sample design and a report on the estimation procedure.[18,19]

### Subsampling scheme

A self-respondent rule was used for the 1979 eye-care visit questions to increase the quality of responses. Because the respondent rule required more interviewer callbacks, to reduce survey costs a one-third subsample of respondents was taken for the eye-care questions.

Interviewers were provided three tables (see appendix V for subsampling tables). Each table indicates which household members to select according to the number of persons in the household. During the preparation of interviewer assignments, each questionnaire was stamped according to which of the three tables the interviewer was to use. The assignment of tables was made so that each of the three tables was used a random one-third of the time. Each table was designed so that each person in the target population (that is, all persons interviewed for the core questionnaire) had a 1 in 3 chance of selection.

Because of the more stringent respondent rules used for the one-third subsample for the 1979 eye-care questions, there was additional nonresponse to these questions. Of the 36,063 persons in the 1979 one-third subsample, responses were obtained for 35,199 or 97.6 percent.

### Collection of data

Field operations for the survey are performed by the U.S. Bureau of the Census under specifications established by NCHS. In accordance with these specifications the U.S. Bureau of the Census participates in survey planning, selects the sample, and conducts the field interviewing as an agent of NCHS. The data are coded, edited and tabulated by NCHS.

### Estimating procedures

Because the design of the NHIS is a complex multistage probability sample, it is necessary to use complex procedures in the derivation of estimates. Four basic operations are involved.

1. *Inflation by the reciprocal of the probability of selection*—The probability of selection is the product of the probabilities of selection from each step of selection in the design (PSU, segment, and household). Because a one in three subsample was selected for the 1979 eye-care questions, an additional multiplication factor of 3 was applied to the reciprocal to produce estimates based on these questions.
2. *Nonresponse adjustment*—The estimates are inflated by a multiplication factor that has as its numerator the number of sample households in a given segment and as its denominator the number of households interviewed in that segment.
3. *First-stage ratio adjustment*—Sampling theory indicates that the use of auxiliary information that is highly correlated with the variables being estimated improves the reliability of the estimates. To reduce the variability between PSU's within a region, the estimates are ratio adjusted to the 1970 populations within 12 race-residence classes.
4. *Poststratification by age-sex-race*—The estimates are ratio adjusted within each of 60 age-sex-race cells to an independent estimate of the population of each cell for the survey period. These independent estimates are prepared by the U.S. Bureau of the Census. Both the first-state and poststratified ratio adjustments take the form of multiplication factors applied to the weight of each elementary unit (person, household, condition, and hospitalization). To adjust for the additional nonresponse for the 1979 eye-care questions, the multiplication factors that were used for poststratification by the 60 age-sex-race cells were different for these questions than for the basic NHIS questions.

The effect of the ratio-estimating process is to make the sample more closely representative of the civilian noninstitutionalized population by age, sex, race, and residence, which thereby reduces sampling variance.

As noted, each week's sample represents the population living during that week and characteristics of the population. Consolidation of samples over a time period, for example, a calendar quarter, produces estimates of average characteristics of the U.S. population for the calendar quarter. Similarly, population data for a year are averages of the four quarterly figures.

For prevalence statistics, such as number of persons classified by time interval since last visit, figures are first calculated for each calendar quarter by averaging estimates for all weeks of interviewing in the quarter. Prevalence data for a year are then obtained by averaging the four quarterly figures. Similarly an estimate for 2 years is obtained by averaging eight quarterly figures.

For other types of statistics—namely those measuring the number of occurrences during a specified time period—such as number of visits to a doctor or dentist, a similar computational procedure is used, but the statistics are interpreted differently. For these items, the questionnaire asks for the respondent's experience over the 2 calendar weeks prior to the week of interview. In such instances the estimated quarterly total for the statistic is 6.5 times the average 2-week estimate produced by the 13 successive samples taken during the period. The annual total is the sum of the four quarters. Thus, the experience of persons *interviewed during a year*—experience which actually occurred for each person in a 2-calendar-week interval prior to week of interview—is treated as though it measured the total of such experience *during the year*. Such interpretation leads to no significant bias.

For recent visits to an eye-care provider, respondents were asked to report any visits that occurred since the first of the month that preceded the month in which Monday of the interview week fell. For example, if an interview

NOTE: A list of references follows the text.

was conducted on Thursday, February 1, 1979, the Monday of the interview week was in January so that respondents were asked to report visits since December 1, 1978. This means that the reference period for eye-care visits was anywhere from 4 weeks up to almost 9 weeks. However, estimates in this report are based on visits reported for the 2-calendar-week interval prior to interview week.

When 2 years of data are used, as in this report, the sum of the annual estimates is divided by 2 to obtain an average annual estimate for the statistic.

## General qualifications

### Nonresponse

Data were adjusted for nonresponse by a procedure that imputes to persons in a household who were not interviewed the characteristics of persons in households in the same segment who were interviewed.

### The interview process

The statistics presented in this report are based on replies obtained in interviews with persons in the sample households. Each person 19 years of age and over present at the time of interview was interviewed individually. For children and for adults not present in the home at the time of the interview, the information was obtained from a related household member such as a spouse or the mother of a child.

For the 1979 eye-care visits questions more stringent respondent rules were applied to increase the reliability of reporting. For persons aged 19 years and over interviewers were instructed to obtain responses from the individual about whom the questions were asked. If that person was unavailable after one callback following the initial interview, on the second callback the interviewer was permitted to obtain the information about the individual from another family member aged 19 years or over. For children, responses were obtained for the child from an adult relative.

### Rounding of numbers

The original tabulations on which the data in this report are based show all estimates to the nearest whole unit. All consolidations were made from the original tabulations using the estimates to the nearest unit. In the final published tables, the figures are rounded to the nearest thousand, although these are not necessarily accurate to that detail. Devised statistics such as rates and percent distributions are computed after the estimates on which these are based have been rounded to the nearest thousand.

### Population figures

Some of the published tables include population figures for specified categories. Except for certain overall totals by age, sex, and race, which are adjusted to independent estimates, these figures are based on the sample of households in the NHIS. These are given primarily to provide denominators for rate computation, and for this purpose are more appropriate for use with the accompanying measures of health characteristics than other population data that may be available. With the exception of the overall totals by age, sex, and race mentioned above, the population figures differ from figures (which are derived from different sources) published in reports of the U.S. Bureau of the Census. Official population estimates are presented in U.S. Bureau of the Census reports in Series P-20, P-25, and P-60. Population figures used for this report obtained from the U.S. Bureau of the Census are based on the 1970 Decennial Census adjusted for births, deaths, and migration.

## Reliability of estimates

Since the statistics presented in this report are based on a sample, they will differ somewhat from the figures that would have been obtained if a complete census had been taken using the same schedules, instructions, and interviewing personnel and procedures.

As in any survey, the results are also subject to reporting and processing errors and errors due to nonresponse. To the extent possible, these types of errors were kept to a minimum by methods built into survey procedures.[20] Although it is very difficult to measure the extent of bias in NHIS, a number of studies have been conducted to study this problem. The results have been published in several reports[21-24] The standard errors shown in this report were computed using the balanced half-sample replication procedure.

The standard error is primarily a measure of sampling variability, that is, the variations that might occur by chance because only a sample of the population is surveyed. As calculated for this report, the standard error also reflects part of the variation that arises in the measurement process. It does not include estimates of any biases that might be in the data. The chances are about 68 out of 100 that an estimate from the sample would differ from a complete census by less than the standard error. The chances are about 95 out of 100 that the difference would be less than twice the standard error and about 99 out of 100 that it would be less than 2 1/2 times as large.

### Relative standard error charts

The relative standard error of an estimate is obtained by dividing the standard error of the estimate by the estimate itself and is expressed as a percentage of the estimate. For this report, asterisks are shown for any cell with more than a 30-percent relative standard error. Included in this appendix are charts from which the relative standard errors can be determined for estimates shown in the report. In order to derive relative errors that would be applicable to a wide variety of health statistics and could be prepared at a moderate cost, a number of approximations were required. As a result, the charts provide an estimate of the approximate relative standard error rather than the precise error for any specific aggregate or percentage.

Three classes of statistics for the health survey are identified for purposes of estimating variances.

1. *Narrow range*—This class consists of (1) statistics that estimate a population attribute, for example, the number

NOTE: A list of references follows the text.

of persons in a particular income group, and (2) statistics for which the measure for a single individual during the reference period used in data collection is usually either 0 to 1 and, on occasion, may take on the value 2 or very rarely 3.

2. *Medium range*—This class consists of other statistics for which the measure for a single individual during the reference period used in data collection will rarely lie outside the range 0 to 5.
3. *Wide range*—This class consists of statistics for which the measure for a single individual during the reference period used in data collection can range from 0 to a number in excess of 5, for example, the number of days of bed disability.

In addition to classifying variables according to whether they are narrow-, medium-, or wide-range, statistics in the survey are further classified as to whether they are based on a reference period of 2 weeks, 6 months, or 12 months.

*General rules for determining relative standard errors*—The following rules will enable the reader to determine approximate relative standard errors from the charts for estimates presented in this report. These charts represent standard errors of NHIS data. They should be used in preference to the charts that have appeared in all previous Series 10 publications.

Rule 1. *Estimates of aggregates*: Approximate relative standard errors for estimates of aggregates such as the number of persons with a given characteristic are obtained from figures I, II and III. The number of persons in the total U.S. population or in an age-sex-race class of the total population is adjusted to official U.S. Bureau of the Census figures and is not subject to sampling error.

Rule 2. *Estimates of percentages in a percent distribution*: Relative standard errors for percentages in a percent distribution of a total are obtained from appropriate curves, figures IV, V and VI. For values which do not fall on one of the curves presented in the chart, visual interpolation will provide a satisfactory approximation.

Rule 3. *Estimates of rates where the numerator is a subclass of the denominator*: The rule applies for prevalence rates or where a unit of the numerator occurs, with few exceptions, only once in the year for any one unit in the denominator. For example, in computing the rate of visual impairments per 1,000 population, the numerator consisting of persons with the impairment is a subclass of the denominator, which includes all persons in the population. Such rates if converted to rates per 100 may be treated as though they were percentages and the relative standard errors obtained from the percentage charts for population estimates. Rates per 1,000, or on any other base, must first be converted to rates per 100; then the percentage chart will provide the relative standard error per 100.

Rule 4. *Estimates of rates where the numerator is not a subclass of the denominator*: This rule applies where a unit of the numerator often occurs more than once for any one unit in the denominator. For example, in the computation of the number of persons injured per 100 currently employed persons per year, it is possible that a person in the denominator could have sustained more than one of the injuries included in the numerator. Approximate relative standard errors for rates of this kind may be computed as follows:

a. Where the denominator is the total U.S. population or includes all persons in one or more of the age-sex-race groups of the total population, the relative error of the rate is equivalent to the relative error of the numerator, which can be obtained directly from the appropriate chart.
b. In other cases the relative standard error of the numerator and of the denominator can be obtained from the appropriate curve. Square each of these relative errors, add the resulting values, and extract the square root of the sum. This procedure will result in an upper bound on the relative standard error and will overstate the error to the extent that the correlation between numerator and denominator is greater than zero.

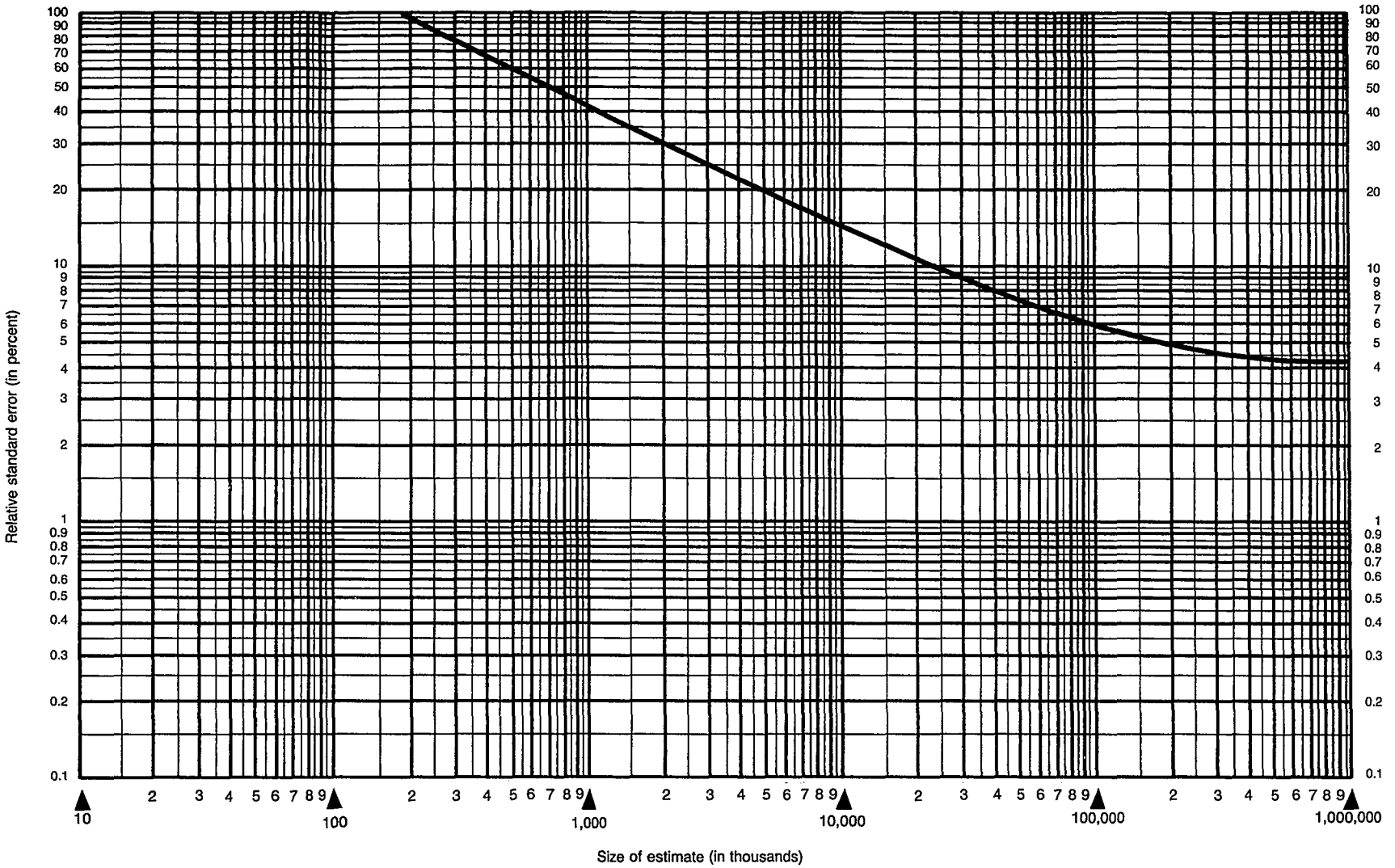
Rule 5. *Estimates of difference between two statistics (mean, rate, total, and so forth)*: The standard error of a difference is approximately the square root of the sum of the squares of each standard error considered separately. A formula for the standard error of a difference,

$$d = X_1 - X_2$$

is

$$\sigma_d = \sqrt{(X_1 V_{X1})^2 + (X_2 V_{X2})^2}$$

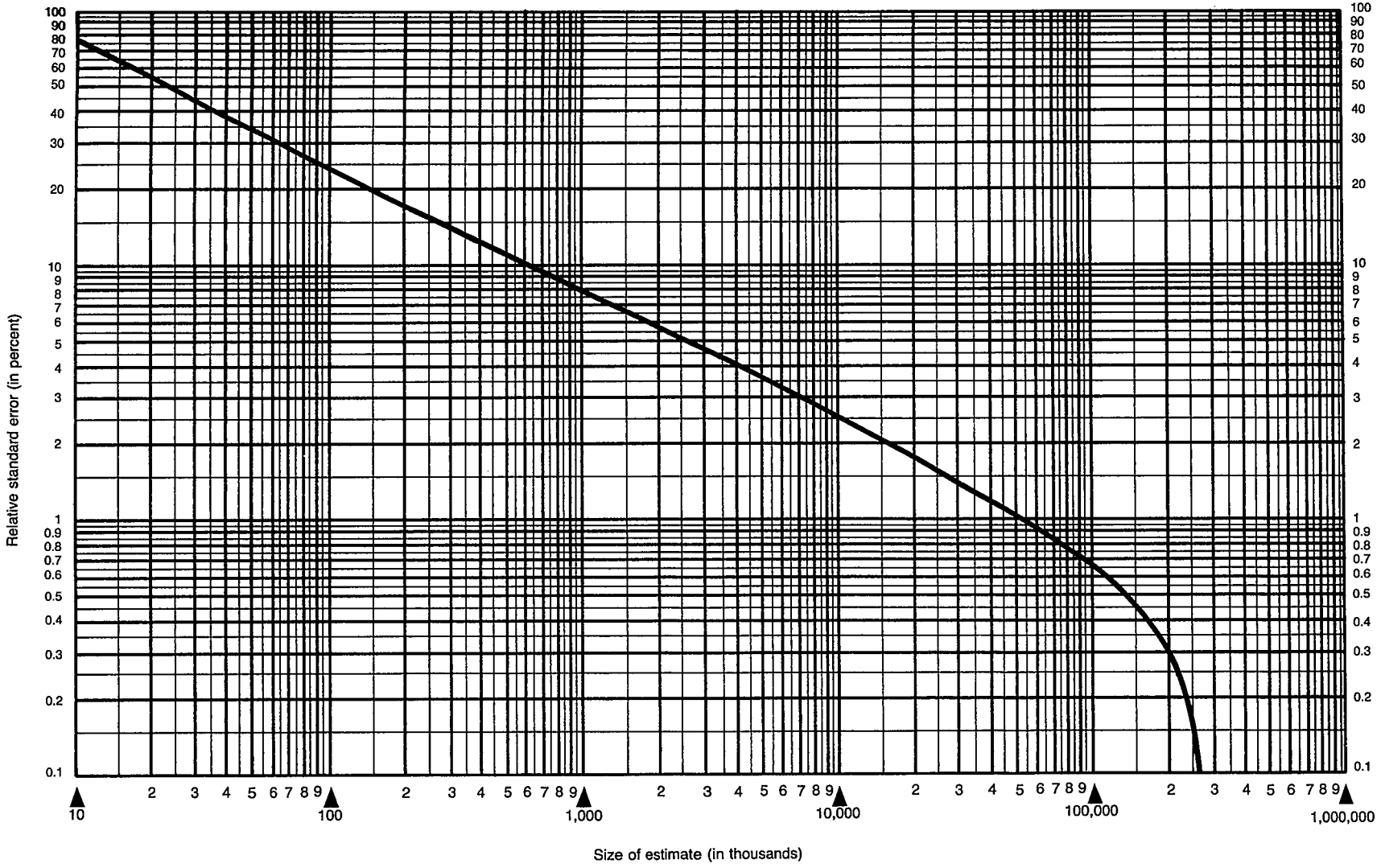
where $X_1$ is the estimate for class 1, $X_2$ is the estimate for class 2, and $V_{x1}$ and $V_{x2}$ are the relative standard errors of $X_1$ and $X_2$, respectively. This formula will represent the actual standard error quite accurately for the difference between separate and uncorrelated characteristics although it is only a rough approximation in most other cases. The relative standard error of each estimate involved in such a difference can be determined by one of the four rules above, whichever is appropriate.




NOTE: The curve related to eye care visits is based on 4 quarters of data collection for a one-third subsample for medium-range estimates of aggregates using a 2-week reference period.

EXAMPLE: An estimate of 10,000,000 eye-care visits (on scale at bottom of chart) has a relative standard error of 14.4 percent (read from scale at left of chart), or a standard error of 1,440,000 (14.4 percent of 10,000,000).

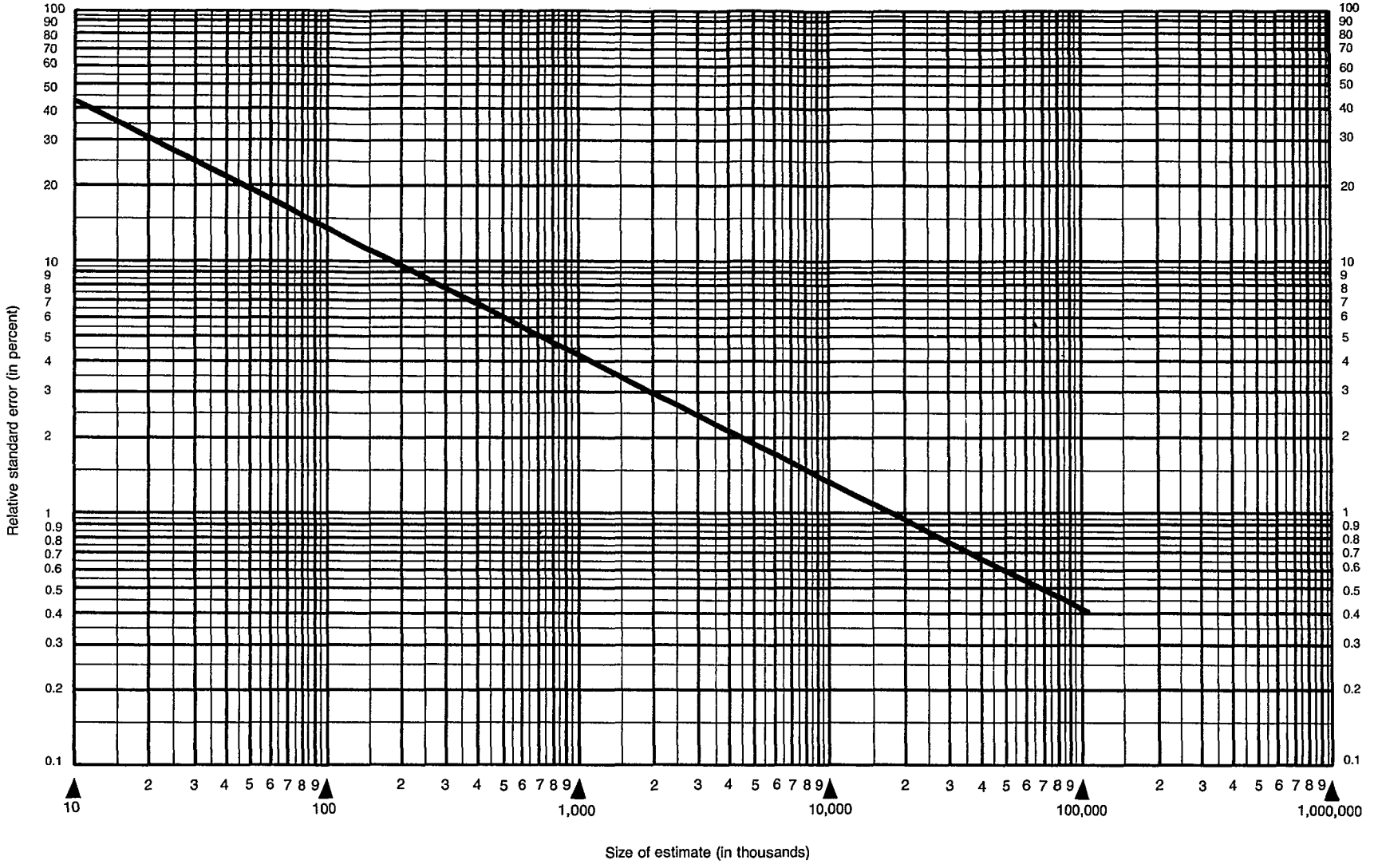
**Figure I. Relative standard errors for number of eye-care visits based on a 2-week reference period for a one-third subsample**




NOTE: The curve related to population characteristics is based on 4 quarters of data collection for a one-third subsample for narrow-range estimates.

EXAMPLE: An estimate of 1,000,000 persons in the Northeast region has a relative standard error of 8.1 percent.

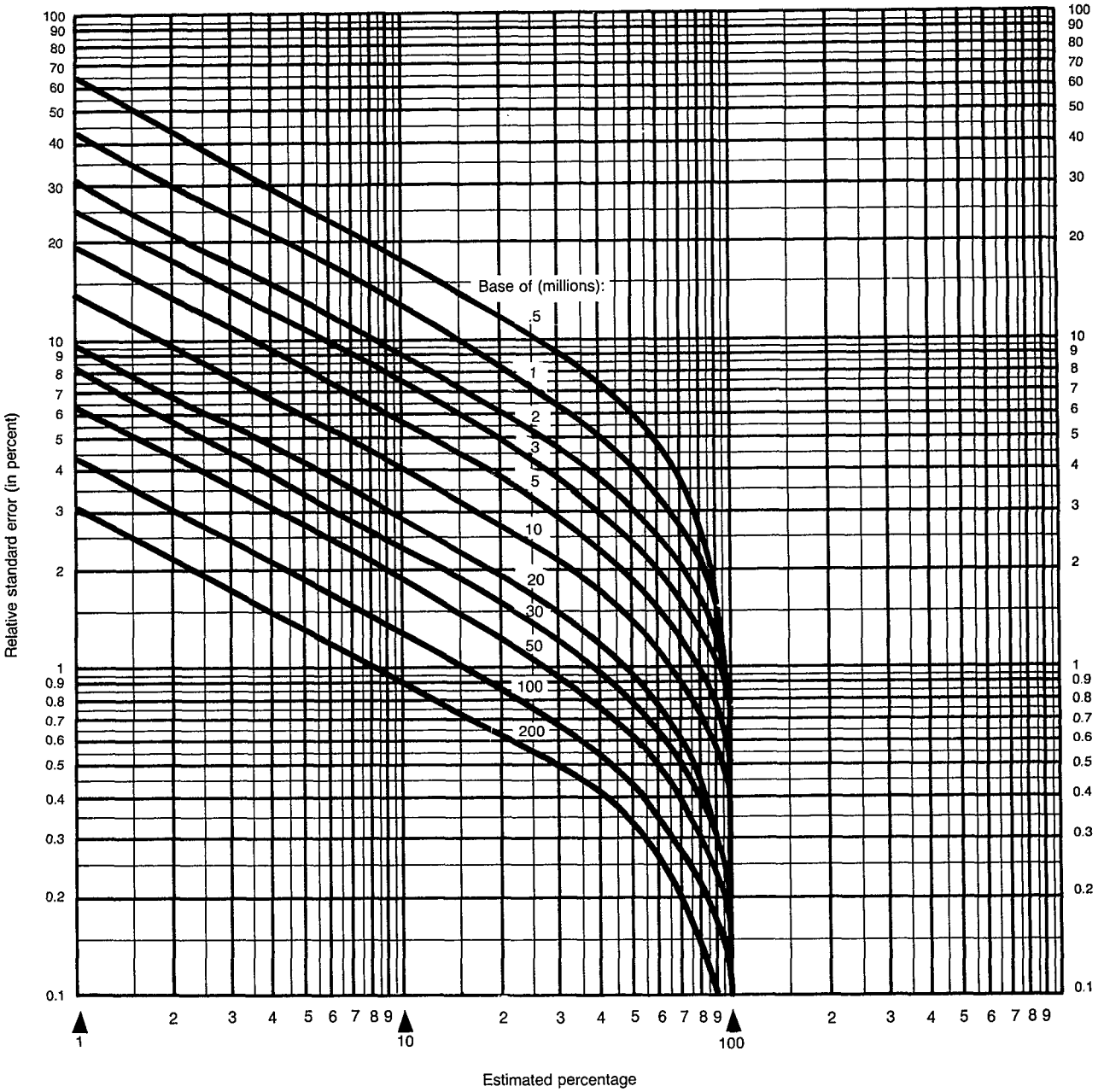
**Figure II. Relative standard errors for population characteristics for a one-third subsample**




NOTE: This curve represents estimates of relative standard errors based on 8 quarters of data collection for narrow range estimates of population characteristics or narrow range estimates of aggregates using a 12-month reference period.

EXAMPLE: An estimate of 10,000,000 persons with annual family income of $15,000 or more, or 10,000,000 persons who were hospitalized one or more times in the past year (on scale at bottom of chart) has a relative standard error of 1.3 percent (read from scale at left side of chart), or a standard error of 130,000 (1.3 percent of 10,000,000).

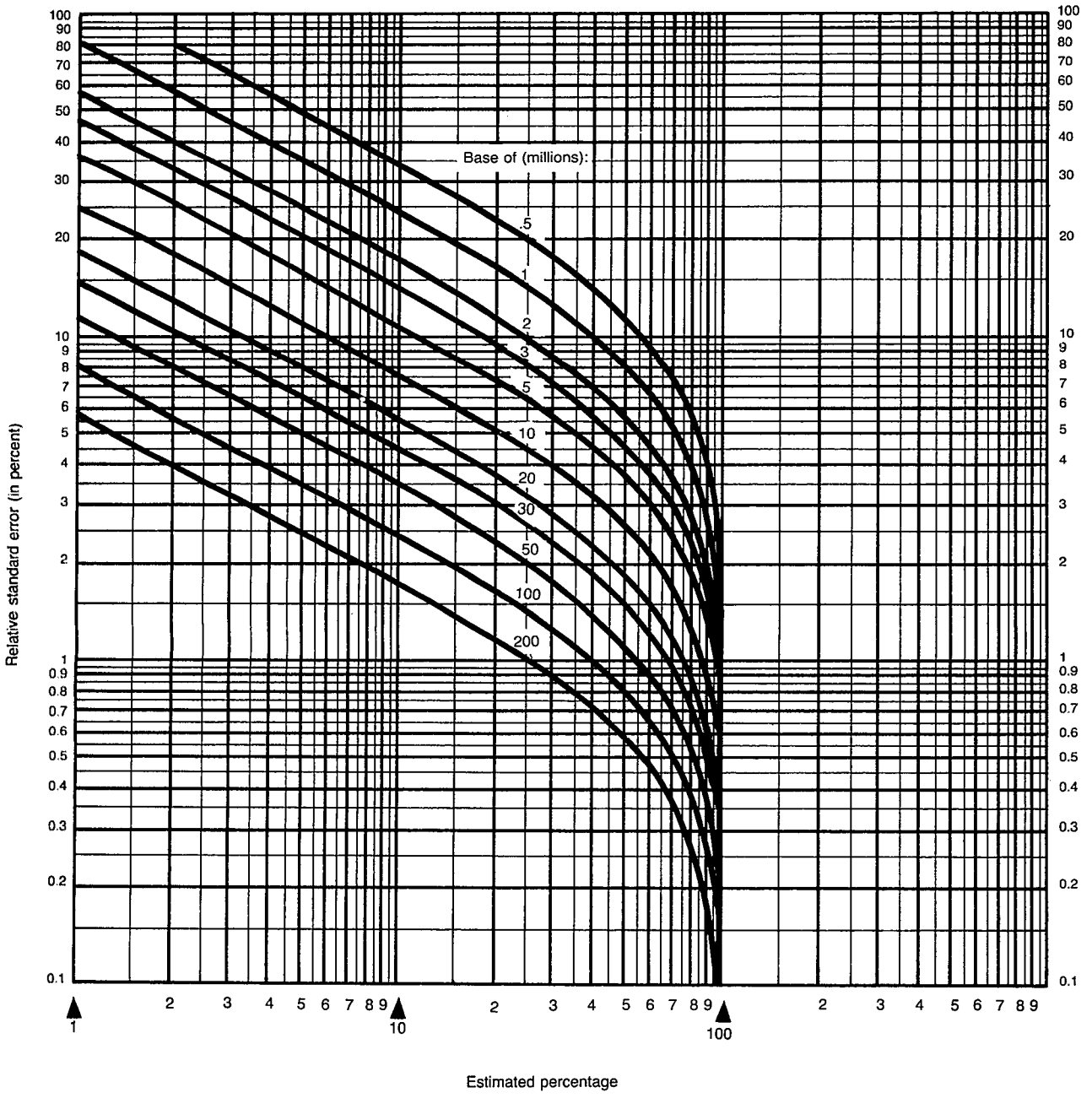
**Figure III. Relative standard errors for population characteristics based on 2 years of data**




NOTE: These curves represent estimates of relative standard errors of percentages of population characteristics based on 8 quarters of data collection for narrow range estimates.

EXAMPLE: An estimate of 20 percent (on scale at bottom of chart) based on an estimate of 10,000,000 has a relative standard error of 2.7 percent (read from the scale at the left side of chart), the point at which the curve for a base of 10,000,000 intersects the vertical line for 20 percent. The standard error in percentage points is equal to 20 percent x 2.7 percent, or 0.54 percentage points.

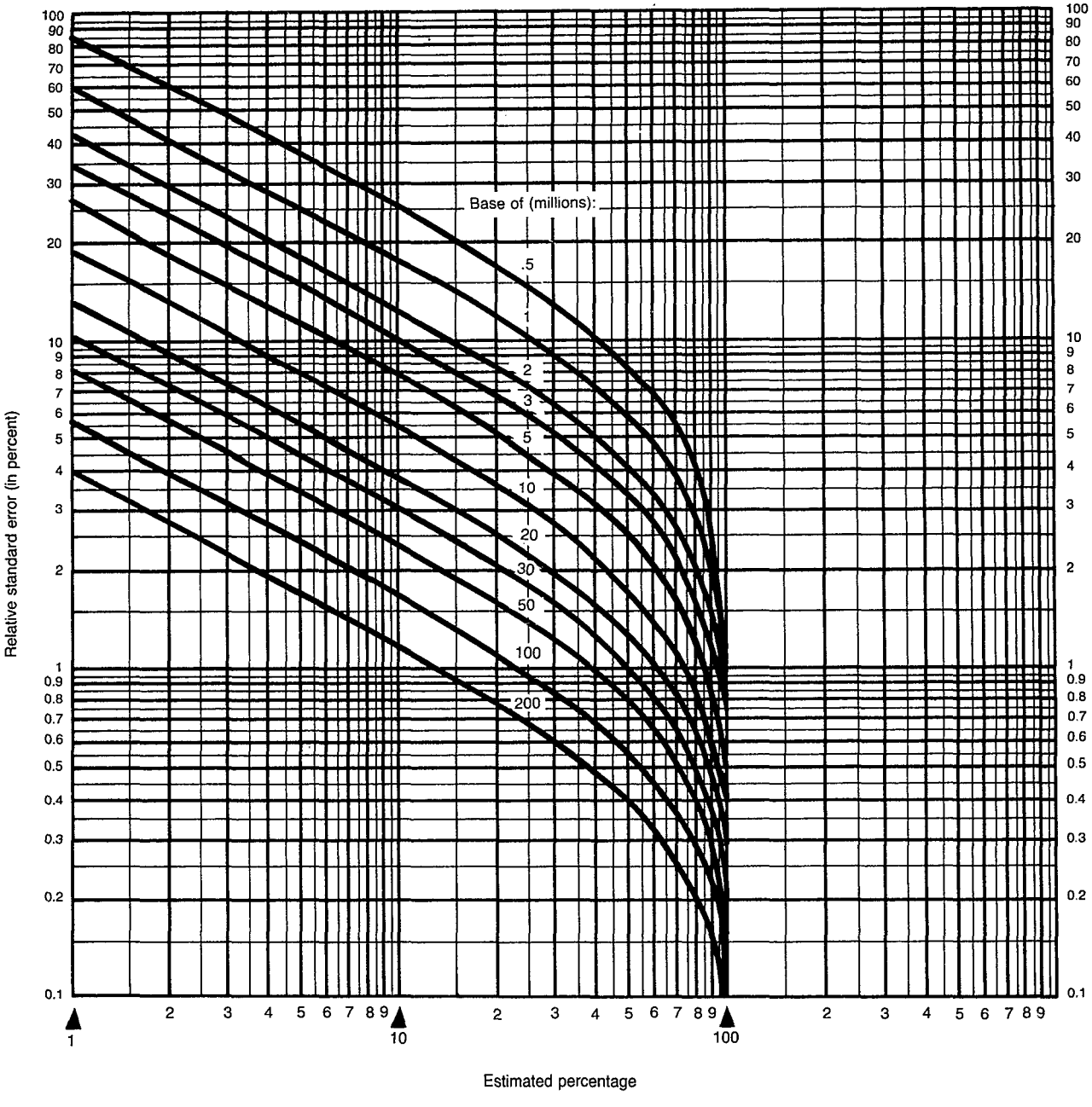
**Figure IV. Relative standard errors of average annual percentages of population characteristics based on 2 years of data (Base of percentage shown on curve in millions)**




NOTE: These curves represent estimates of relative standard errors of percentages of population characteristics based on 4 quarters of data collection for a one-third subsample for narrow range estimates.

EXAMPLE: An estimate of 20 percent (on scale at bottom of chart) based on an estimate of 10,000,000 has a relative standard error of 5.2 percent (read from scale at the left side of chart), the point at which the curve for a base of 10,000,000 intersects the vertical line for 20 percent. The standard error in percentage points is equal to 20 percent x 5.2 percent of 1.0 percentage points.

**Figure V. Relative standard errors of percentages of population characteristics for a one-third subsample (Base of curve shown in millions)**




NOTE: These curves represent estimates of relative standard errors of percentages of population characteristics based on 4 quarters of data collection for narrow range estimates.

EXAMPLE: An estimate of 20 percent (on scale at bottom of chart) based on an estimate of 10,000,000 has a relative standard error of 3.6 percent (read from the scale at the left side of chart), the point at which the curve for a base of 10,000,000 intersects the vertical line for 20 pecent. The standard error in percentage points is equal to 20 pecent x 3.6 percent, or 0.72 percentage points.

**Figure VI. Relative standard errors of percentages of population characteristics based on 1 year of data (Base of percentage shown on curve in millions)**

# Appendix II
# The accuracy of reporting types of eye-care providers

## Introduction

Because results from an earlier NHIS study[4] conducted in 1964 indicated poor accuracy in respondent reporting of types of eye-care specialists (that is, ophthalmologists and optometrists), special procedures were used for the 1979 NHIS data collection on eye-care visits, to increase the accuracy of the results. These procedures included the use of a self-respondent rule and interviewer verification of type of specialist seen for eye care. The use of these procedures resulted in a high level of accuracy of respondent reports of type of eye-care specialist. Following is a brief description of the fiscal year 1964 study procedures and results. Next, the 1979 survey procedures are presented, along with a comparison of respondent-reported and interviewer-verified type of eye-care specialist.

## Fiscal year 1964 study

In the fiscal year 1964 NHIS, an extension of the usual data collection procedure was used as a means of estimating the accuracy with which respondents could identify the types of medical specialists and practitioners consulted by family members. During a 4-week period of the survey year (July 1963–June 1964), respondents who reported use of the services of any of the selected types of medical specialists and practitioners were asked for the names and addresses of those providing the service. By checking this supplementary information with medical directories, listings, and other sources of identification, it was possible to obtain a rough estimate of the reliability of the data on medical specialists' and practitioners' services collected throughout the year.

Approximately 82 percent of the 3,169 specialists and practitioners reported by respondents in this study could be identified in the listing and directories. Identification could not be made when the information the respondent gave did not meet the criteria for a match or when the respondent did not know or refused to give the name and address of the specialist consulted. Of the 82 percent identified specialists, the specialty area of 88 percent were reported correctly by respondents. However, only 69 percent of the ophthalmologists were reported correctly by the respondents and only 71 percent of the optometrists were reported correctly.

## 1979 survey procedures

Because a higher degree of accuracy of specialty was desired for the 1979 data collected on type of specialist seen for eye care, a self-respondent rule was applied for adults in addition to requiring interviewer verification of type of specialist. For persons aged 19 years and over interviewers were instructed to obtain responses from the individual about whom the questions were asked. If that person was unavailable after one callback following the intial interview, on the second callback the interviewer was permitted to obtain the information about the individual from another family member aged 19 years and over. Using these procedures, over 92 percent of the surveyed persons answered entirely for themselves and over 94 percent answered either entirely or partly for themselves.

In order that the interviewer might verify the type of specialist seen, respondents were asked for the name and address of the provider of eye care. Interviewers were instructed to look up the type of specialist seen in local telephone directories after the interview. If the directory was not clear as to the specialty of the eye-care provider, the interviewers were instructed to call the place where the visit occurred and to ask for the specialty. If during the interview a respondent provided written information, such as a bill which indicated the provider's specialty, the interviewer was allowed to accept this information.

The results of the comparison between the respondent's replies as to type of specialist seen and the interviewer's verification are presented in table I. These results indicate a high level of accuracy of respondent reporting of the specialties of ophthalmology and optometry. Excluding unknown respondent answers, ophthamologists were reported accurately by respondents 97 percent of the time and optometrists were reported accurately 98 percent of the time. Medical doctors other than ophthalmologists were reported somewhat less accurately; excluding respondent unknown answers, other medical doctors were reported correctly 79 percent of the time. Respondents reported other medical doctors as specialists other than medical doctors in 15 percent of the cases.

In 11 percent of the cases there was no interviewer verification of the specialty. These cases were the result of such reasons as inadequate respondent information for the interviewers to contact the place where the care was provided.

For estimates in this report relating to type of specialist seen, the interviewer-verified type of specialist was used where known. Where the interviewer did not ascertain the specialty, the respondent-reported type of specialty was used. In only 2 percent of the cases was the specialty unknown for both the respondent's answer and the interviewer's verification.

**Table I. Number and percent distribution of the comparisons of respondent-reported and interviewer-verified eye-care visits, according to type of eye-care specialist**

| Respondent-reported type of specialist | Interviewer-verified type of specialist | | | | | |
|---|---|---|---|---|---|---|
| | Total | Ophthalmologist | Medical doctor other than ophthalmologist | Optometrist | Other | Unknown |
| | Number in thousands | | | | | |
| All specialties[1] | 647 | 251 | 104 | 192 | 27 | 73 |
| Ophthalmologist or oculist | 264 | 233 | 5 | 3 | - | 23 |
| Medical doctor other than ophthalmologist | 93 | 4 | 79 | - | - | 10 |
| Optometrist | 200 | 1 | - | 180 | 3 | 16 |
| Other | 53 | 3 | 16 | 1 | 21 | 12 |
| Unknown | 37 | 10 | 4 | 8 | 3 | 12 |
| | Percent distribution | | | | | |
| All specialties[1] | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Ophthalmologist or oculist | 40.8 | 92.8 | 4.8 | 1.6 | - | 31.5 |
| Medical doctor other than ophthalmologist | 14.4 | 1.6 | 76.0 | - | - | 13.7 |
| Optometrist | 30.9 | 0.4 | - | 93.8 | 11.1 | 21.9 |
| Other | 8.2 | 1.2 | 15.4 | 0.5 | 77.8 | 16.4 |
| Unknown | 5.7 | 4.0 | 3.8 | 4.2 | 11.1 | 16.4 |

[1]Unweighted data based on 2-week recall.

The level of accuracy obtained with the set of interview procedures used to obtain eye-care provider specialty type may not have been achieved if either a proxy respondent rule was used or there had been no interviewer verification. Because the effects of any specific procedure were not experimentally measured, it is not possible to determine whether the high level of accuracy was due to, for example, interviewer verification. Rather, for future such data collection, in the absence of experimentation, it is recommended that the same set of procedures be used.

# Appendix III
# Definitions of certain terms used in this report

## Terms relating to eye-care visits

*Eye-care visit*—An eye-care visit is a visit to a doctor or someone else in which help or advice was received about the eyes. It includes examinations, treatments, surgery, and fitting or adjusting contact lenses. Visits for eye care do not include visits that were only for adjusting frames.

*Ophthalmologists (oculists)*—An ophthalmologist is a physician who specializes in the diagnosis and treatment of all eye diseases and abnormal conditions including refractive errors. They may prescribe drugs, lenses, or other treatment, or perform surgery to remedy these conditions.

*Optometrists*—An optometrist examines the eye and related structures to determine the presence of vision problems, eye disease, or other abnormalities. They prescribe and adapt lenses or other optical aids and may use visual training aids (orthoptics) when indicated to preserve or restore maximum efficiency of vision. They do not prescribe drugs, make definitive diagnosis of or treat eye disease, or perform surgery.

*Opticians (also called dispensing opticians, ophthalmic dispensers, or contact lens technicians)*—Opticians make, fit, supply, and adjust eyeglasses according to prescriptions written by ophthalmologists or optometrists to correct a patient's optical defects. They do not examine eyes or prescribe treatment.

## Demographic terms

*Age*—The age recorded for each person is the age at last birthday. Age is recorded in single years and grouped depending on the purpose of the table.

*Race*—Three racial groupings are used in this report: "white," "black," and "other." "Other" includes Aleut, Eskimo or American Indian, Asian or Pacific Islander, and any other races. Starting in 1980, race characterization is based on the respondent's description of his or her racial background. For years prior to 1980, racial characterization was based on the interviewer's observation of race.

*Income of family or of unrelated individuals*—Each member of a family is classified according to the total income of the family of which he or she is a member. Within the household all persons related to each other by blood, marriage, or adoption constitute a family. Unrelated individuals are classified according to their own incomes.

The income recorded is the total of all income received by members of the family (or by an unrelated individual) in the 12-month period preceding the week of interview. Income from all sources is included, for example, wages, salaries, rents from property, pensions, and help from relatives.

*Head of family*—The head of family is usually the person regarded as the "head" by the members of the group.

*Education of head of family or of unrelated individuals*—Each member of a family is classified according to the education of the head of the family of which he or she is a member. Within the household all persons related to each other by blood, marriage, or adoption constitute a family. Unrelated individuals are classified according to their own education.

The categories of education status show the years of school completed. Only years completed in regular schools, where persons are given a formal education, are included. A "regular" school is one that advances a person toward an elementary or high school diploma or a college, university, or professional school degree. Thus, education in vocational, trade, or business schools outside the regular school system is not counted in determining the highest grade of school completed.

*Family*—Family refers to a group of two persons or more related by blood, marriage, or adoption who are living together in the same household. Although the usual household contains only the primary family, a household can contain secondary families as well as individuals unrelated to the family. A lodger and his or her family who are not related to the head of the household or a resident employee and his wife living in the household are considered a secondary family and not part of the primary family. However, if the son of the head of the household and the son's wife and children are members of the household, this subfamily is treated as part of the primary family.

*Unrelated individuals*—Unrelated individuals are persons who are not living with any relatives. An unrelated individual can be (1) a household head living alone or with nonrelatives, (2) a lodger or resident employee with no relatives in the household, or (3) a resident of a dormitory, lodging house, or other shared-residence facility who has no relative living with him or her.

*Size of family*—Families are classified by the number of members in it as defined above. Those living alone, or in residence with persons not related to them, are designated as "unrelated individuals."

*Geographic region*—For the purpose of classifying the

population by geographic area, the States are grouped into four regions that correspond to those used by the U.S. Bureau of the Census as follows:

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

*Place of residence*—The place of residence of a member of the civilian noninstitutionalized population is classified as inside a standard metropolitan statistical area (SMSA) and central city or not central city or outside an SMSA.

*Standard metropolitan statistical areas*—The definitions and titles of SMSA's are established by the U.S. Office of Management and Budget with the advice of the Federal Committee on Standard Metropolitan Statistical Areas.

The definition of an individual SMSA involves two considerations: first, a city or cities of specified population that constitute the central city and identify the county in which it is located as the central county; second, economic and social relationships with contiguous counties (except in New England) that are metropolitan in character so that the periphery of the specific metropolitan area may be determined. SMSA's are not limited by State boundaries. In New England SMSA's consist of towns and cities, rather than counties. The metropolitan population in this report is based on SMSA's as defined in the 1970 census and does not include any subsequent additions or changes.

*Central cities*—Each SMSA must include at least one central city. The complete title of an SMSA identifies the central city or cities. If only one central city is designated, then it must have 50,000 inhabitants or more. The area title may include, in addition to the largest city, up to two city names on the basis and in the order of the following criteria: (1) the additional city has at least 250,000 inhabitants or (2) the additional city has a population of one-third or more of that of the largest city and a minimum population of 25,000. An exception occurs where two cities have contiguous boundaries and constitute, for economic and social purposes, a single community of at least 50,000, the smaller of which must have a population of at least 15,000.

*Not central city of an SMSA*—This includes all of the SMSA that is not part of the central city itself.

*Not in SMSA*—This includes all other places in the country.

*Occupational status*—Currently employed persons are classified according to occupation. Currently employed persons are persons 17 years of age and over who reported that at any time during the 2-week period covered by the interview they either worked at or had a job or business. Current employment includes paid work as an employee of someone else; self-employment in business, farming, or professional practice; and unpaid work in a family business or farm. Persons who were temporarily absent from a job or business because of a temporary illness, vacation, strike, or bad weather are considered as currently employed if they expected to work as soon as the particular event causing the absence no longer existed.

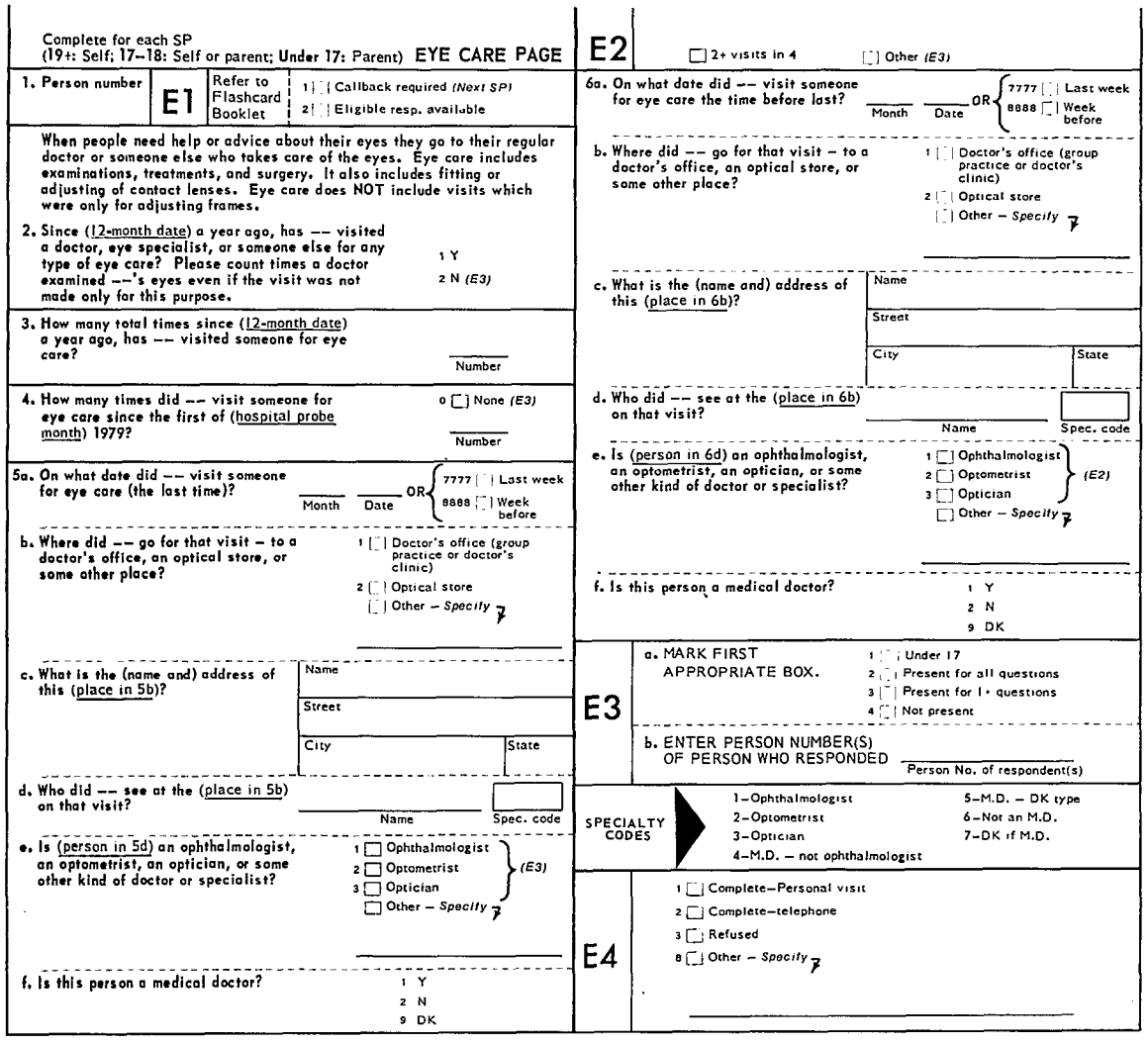
A person's occupation may be defined as his or her principal job or business. For the purposes of the survey, the principal job or business is defined in one of the following ways. If the person worked during the 2-week reference period of the inteview, or had a job or business, the question concerning his or her occupation (or what kind of work he or she was doing) applies to his or her job during that period. If the respondent held more than one job, the question is directed to the one at which he or she spends the most time. For an unemployed person, this question refers to the last full-time civilian job he or she had. A person who has a job to which he or she has not yet reported, and has never had a previous job or business, is classified as a "new worker."

The occupation classes presented in this report and their code numbers as found in the *Classified Index of Occupations and Industries of the U.S. Bureau of the Census* are shown below.

| *Occupation classification* | *Census code* |
|---|---|
| White-collar workers | |
| Professional, technical, and kindred workers | 001-195, N |
| Managers and administrators, except farm | 201-245 |
| Salesworkers | 260-285 |
| Clerical and kindred workers | 301-395, P,Q |
| Blue-collar workers | |
| Craftsmen and kindred workers | 401-580, R,S |
| Operatives, including transport | 601-715, T,U |
| Laborers, except farm | 740-785, V |
| Farm workers | |
| Farm and farm managers | 801-802, W |
| Farm laborers and farm foremen | 821-824 |
| Service workers | |
| Service workers, except private household | 901-965, X,Y |
| Private household workers | 980-984, Z |
| Unknown | 990, 995 |

# Appendix IV
# Questionnaire items relating to eye-care visits and use of eyeglasses and contact lenses

## 1979 Eye-care visits questions



Complete for each SP
(19+: Self; 17–18: Self or parent; Under 17: Parent) EYE CARE PAGE

E1 — Refer to Flashcard Booklet: 1 [ ] Callback required *(Next SP)*; 2 [ ] Eligible resp. available

1. Person number

When people need help or advice about their eyes they go to their regular doctor or someone else who takes care of the eyes. Eye care includes examinations, treatments, and surgery. It also includes fitting or adjusting of contact lenses. Eye care does NOT include visits which were only for adjusting frames.

2. Since (12-month date) a year ago, has -- visited a doctor, eye specialist, or someone else for any type of eye care? Please count times a doctor examined --'s eyes even if the visit was not made only for this purpose. 1 Y; 2 N *(E3)*

3. How many total times since (12-month date) a year ago, has -- visited someone for eye care? ____ Number

4. How many times did -- visit someone for eye care since the first of (hospital probe month) 1979? 0 [ ] None *(E3)*; ____ Number

5a. On what date did -- visit someone for eye care (the last time)? ____ Month ____ Date OR 7777 [ ] Last week; 8888 [ ] Week before

b. Where did -- go for that visit – to a doctor's office, an optical store, or some other place? 1 [ ] Doctor's office (group practice or doctor's clinic); 2 [ ] Optical store; [ ] Other – *Specify* ____

c. What is the (name and) address of this (place in 5b)? Name; Street; City; State

d. Who did -- see at the (place in 5b) on that visit? ____ Name; ____ Spec. code

e. Is (person in 5d) an ophthalmologist, an optometrist, an optician, or some other kind of doctor or specialist? 1 [ ] Ophthalmologist; 2 [ ] Optometrist; 3 [ ] Optician; [ ] Other – *Specify* ____ *(E3)*

f. Is this person a medical doctor? 1 Y; 2 N; 9 DK

E2 — [ ] 2+ visits in 4 [ ] Other *(E3)*

6a. On what date did -- visit someone for eye care the time before last? ____ Month ____ Date OR 7777 [ ] Last week; 8888 [ ] Week before

b. Where did -- go for that visit – to a doctor's office, an optical store, or some other place? 1 [ ] Doctor's office (group practice or doctor's clinic); 2 [ ] Optical store; [ ] Other – *Specify* ____

c. What is the (name and) address of this (place in 6b)? Name; Street; City; State

d. Who did -- see at the (place in 6b) on that visit? ____ Name; ____ Spec. code

e. Is (person in 6d) an ophthalmologist, an optometrist, an optician, or some other kind of doctor or specialist? 1 [ ] Ophthalmologist; 2 [ ] Optometrist; 3 [ ] Optician; [ ] Other – *Specify* ____ *(E2)*

f. Is this person a medical doctor? 1 Y; 2 N; 9 DK

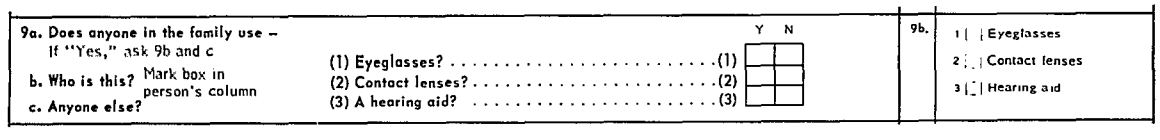
E3
a. MARK FIRST APPROPRIATE BOX. 1 [ ] Under 17; 2 [ ] Present for all questions; 3 [ ] Present for 1+ questions; 4 [ ] Not present

b. ENTER PERSON NUMBER(S) OF PERSON WHO RESPONDED ____ Person No. of respondent(s)

SPECIALTY CODES: 1–Ophthalmologist; 2–Optometrist; 3–Optician; 4–M.D. – not ophthalmologist; 5–M.D. – DK type; 6–Not an M.D.; 7–DK if M.D.

E4 — 1 [ ] Complete–Personal visit; 2 [ ] Complete–telephone; 3 [ ] Refused; 8 [ ] Other – *Specify* ____

## 1979 and 1980 Eyeglasses and contact lenses questions



9a. Does anyone in the family use – If "Yes," ask 9b and c

b. Who is this? Mark box in person's column

c. Anyone else?

| | Y | N |
|---|---|---|
| (1) Eyeglasses? ..... (1) | | |
| (2) Contact lenses? ..... (2) | | |
| (3) A hearing aid? ..... (3) | | |

9b. 1 [ ] Eyeglasses; 2 [ ] Contact lenses; 3 [ ] Hearing aid

# Appendix V
# Tables used for selection of one-third subsample for 1979 questions on eye-care visits

SAMPLE PERSON CARD

PRIV. ACT
SP Card

| CARD J | |
|---|---|
| If the number of household members is – | the following person(s) will be the sample person(s): |
| 1 | – |
| 2 | 1 |
| 3 | 3 |
| 4 | 2 |
| 5 | 1 and 4 |
| 6 | 3 and 6 |
| 7 | 2 and 5 |
| 8 | 1, 4, and 7 |
| 9 | 3, 6, and 9 |
| 10 | 2, 5, and 8 |
| 11 | 1, 4, 7, and 10 |
| 12 | 3, 6, 9, and 12 |
| 13 | 2, 5, 8, and 11 |
| 14 | 1, 4, 7, 10, and 13 |
| 15 | 3, 6, 9, 12, and 15 |

| CARD K | |
|---|---|
| If the number of household members is – | the following person(s) will be the sample person(s): |
| 1 | – |
| 2 | 2 |
| 3 | 1 |
| 4 | 3 |
| 5 | 2 and 5 |
| 6 | 1 and 4 |
| 7 | 3 and 6 |
| 8 | 2, 5, and 8 |
| 9 | 1, 4, and 7 |
| 10 | 3, 6, and 9 |
| 11 | 2, 5, 8, and 11 |
| 12 | 1, 4, 7, and 10 |
| 13 | 3, 6, 9, and 12 |
| 14 | 2, 5, 8, 11, and 14 |
| 15 | 1, 4, 7, 10, and 13 |

| CARD L | |
|---|---|
| If the number of household members is – | the following person(s) will be the sample person(s): |
| 1 | 1 |
| 2 | – |
| 3 | 2 |
| 4 | 1 and 4 |
| 5 | 3 |
| 6 | 2 and 5 |
| 7 | 1, 4, and 7 |
| 8 | 3 and 6 |
| 9 | 2, 5, and 8 |
| 10 | 1, 4, 7, and 10 |
| 11 | 3, 6, and 9 |
| 12 | 2, 5, 8, and 11 |
| 13 | 1, 4, 7, 10, and 13 |
| 14 | 3, 6, 9, and 12 |
| 15 | 2, 5, 8, 11, and 14 |



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