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NATIONAL HEALTH SURVEY

Series 11
Number 31

Hearing Level of Adults

By Education, Income, and Occupation
United States - 1960-1962

Prevalence rates for hearing threshold in the better ear in excess of 15 decibels above and 5 decibels or more below audiometric zero, as determined by pure-tone audiometric tests at frequencies of 500, 1000, 2000, 3000, 4000, and 6000 cycles per second.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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In accordance with specifications established by the National Center for Health Statistics, the Bureau of the Census, under a contractual agreement, participated in the design and selection of the sample, and carried out the first stage of the field interviewing and certain parts of the statistical processing.

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IN THIS REPORT data are contained on hearing thresholds of American adults by education, income, and occupation as determined by pure-tone audiometric testing in a soundproof booth at frequencies of 500 through 6000 cycles per second in the Health Examination Survey of 1960-62. For the survey a probability sample of 7,710 persons was selected to represent the 111 million adults in the civilian, noninstitutional population of the United States, aged 18-79 years. Of these more than 85 percent, 6,672 adults, were examined and tested.

Findings are limited here to those for the "better" ear and principally to trends observable at the extremes of the sensitivity range—those with better than "normal" hearing (thresholds of 5 decibels or more below audiometric zero) and those with presumably some hearing impairment (thresholds of 16 decibels or more above audiometric zero).

In general the findings show that adults with 9 years or more of schooling tended to have better hearing than those with less education and that those in the higher income brackets ($7,000 or more a year) tended to have better hearing than those in the lower income brackets. In relation to occupation, men employed as operatives tended to have better hearing while farmers and farm managers tended to have poorer hearing than men in other occupations. Among employed women, those engaged in clerical or sales work in general had better hearing and those in service occupations had poorer hearing than women in other types of work.

Comparison with available published findings from previous hearing surveys in this country in which socioeconomic data were also obtained is included.

SYMBOLS

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HEARING LEVELS OF ADULTS

BY EDUCATION, INCOME, AND OCCUPATION

Jean Roberts and John Cohrssen, *Division of Health Examination Statistics*

INTRODUCTION

Hearing levels of American adults by education, yearly family income, and occupation, as estimated from findings of the Health Examination Survey in 1960-62, are contained in this report. The Health Examination Survey is the part of the National Health Survey which was developed to secure statistics on the health status of the population of the United States through medical examinations, tests, and measurements on a scientifically selected probability sample of the population. Other methods used in the National Health Survey to obtain data on the health status of the population are the Health Interview Survey in which data are secured through household interview and the Health Record Survey where health-related information is extracted from available hospital and other medical records.

In the first cycle, the Health Examination Survey was designed to determine the prevalence of certain chronic diseases, the status of dental health, auditory and visual acuity levels, and the distribution of certain anthropometric measurements among civilian adults living outside of institutions. During the survey, which extended from October 1959 through December 1962, 6,672 sample persons were examined out of the 7,710 persons 18-79 years of age selected in the nationwide probability sample. Medical and other survey staff performed the standard examination, which lasted about 2 hours, in mobile clinics designed specifically for this purpose. General plans and initial program of the Health Examination Survey, the sample population selected as well as those responding, and the effect of nonresponse on the findings are given in previous publications.[1,2]

HEARING LEVEL MEASUREMENT

In this survey pure tone air-conduction audiometers were used for testing at frequencies of 500, 1000, 2000, 3000, 4000, and 6000 cycles per second. Hearing thresholds were determined monaurally and individually by trained technicians in an acoustically treated booth within the mobile examining center. As used here, hearing threshold or level corresponds to the weakest intensity of a pure tone produced in the audiometer earphone that is just audible to the ear of the examinee.

Within the testing booth, ambient noise was generally attenuated well below the American Standards Association maximum allowable sound pressure level for no masking above audiometric zero. Quality of the test results was further controlled by periodic factory calibration of the audiometers and frequent field checks as described previously.[3]

Hearing thresholds are shown in this report in units of decibel deviation from the 1951 American Standards Association audiometric zero

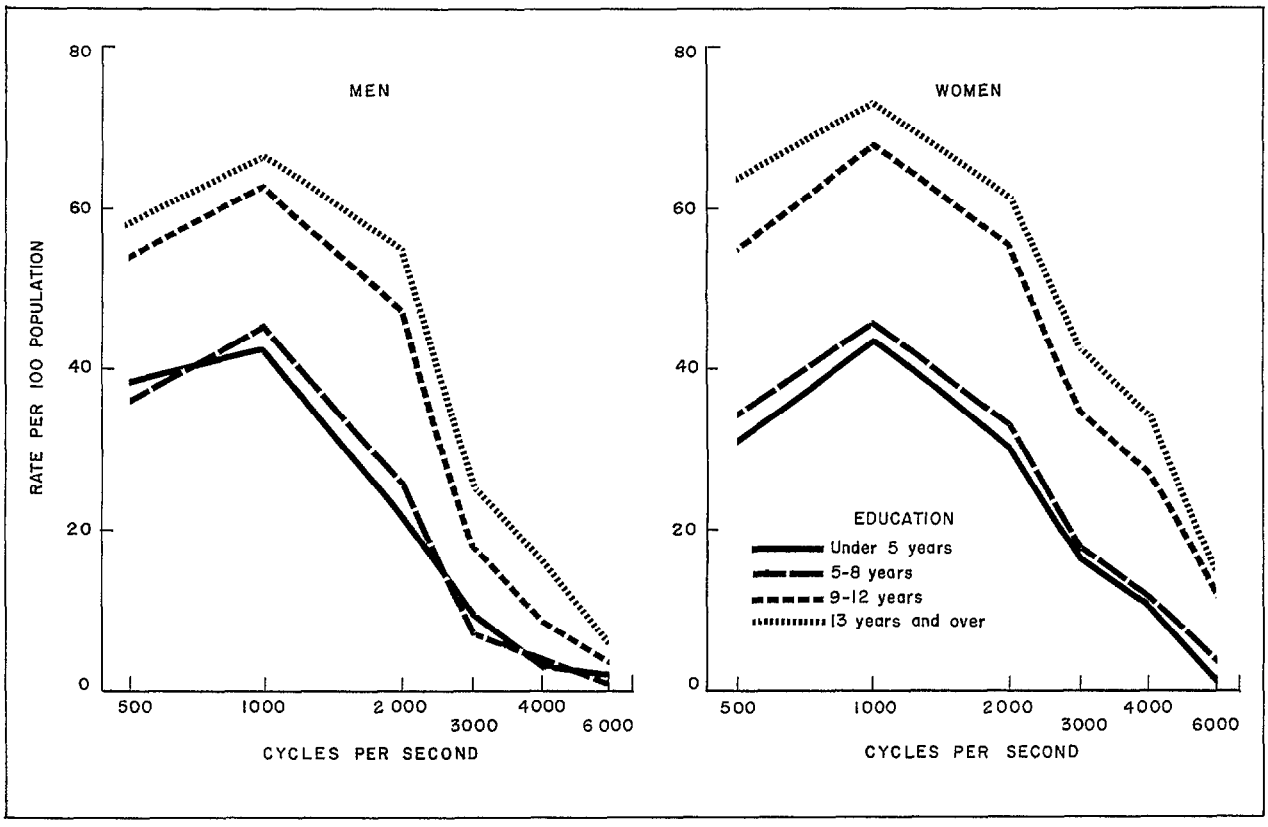

Figure 1. Prevalence rates for adults 18-79 years of age with hearing thresholds 5 decibels or more below audiometric zero, by education and sex.

which, as mentioned earlier,[3] is based on the hearing thresholds determined in a clinical follow-up of the 1935-36 National Health Survey of a group of individuals who were considered to have "normal" hearing.

FINDINGS

For this report as in the previous one presenting audiometric findings among adults,[4] the hearing levels considered are those for the better ear at the extremes of the hearing test range—groups that are large enough to give sufficiently reliable estimates—those for better than "normal" hearing, thresholds 5 decibels or more below audiometric zero, and those for thresholds in excess of 15 decibels above this reference point. The latter group in the 500-2000 cycle range is assumed to be persons with some degree of hearing impairment ranging from difficulty only with faint speech to inability to understand even amplified speech. This grouping follows the proposal of the Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology.[5] For convenience the entire group testing in excess of 15 decibels at any of the test frequencies will be referred to here as having some hearing impairment.

The size of the group with better than "normal" hearing decreased from an estimated 65.9 million or 59 percent at 1000 cycles per second to 7.1 million or 6 percent at 6000 cycles (table 1). For those with thresholds in excess of 15 decibels above audiometric zero the estimated size increased from 5.9 million or 5 percent at 1000 cycles to 48.6 million or 44 percent at 6000 cycles (table 2). Hearing levels generally increased steadily with age from the youngest to the oldest age group throughout the

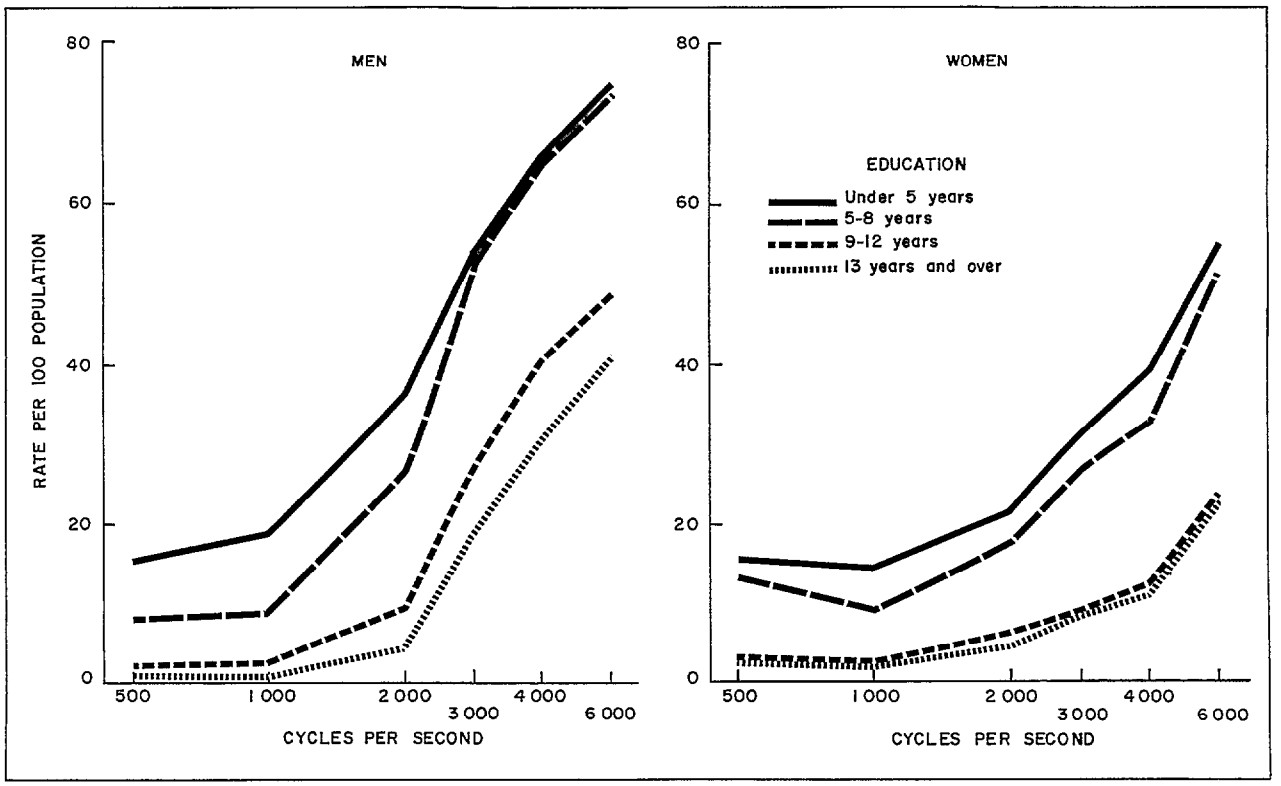

Figure 2. Prevalence rates for adults 18-79 years of age with hearing thresholds 16 decibels or more above audiometric zero, by education and sex.

test range. At the extremes of the acuity range the proportion of those with better than "normal" hearing levels tended to decrease consistently with age, while the proportion considered here to have some degree of hearing impairment increased throughout the age span included in the study.

A description of the socioeconomic factors included in this report is contained in Appendix I. Further information on the general design of the survey, the limitations of the data, and the reliability of the estimates are given in Appendix II.

Education

Hearing levels showed a positive association with education. The proportion of adults with better than "normal" hearing was highest throughout the test frequencies for those with 13 or more years of education and next highest for those with 9-12 years. In the two lower educational groups these rates continued to decrease consistently as educational level decreased for women but not for men (fig. 1).

At the other end of the hearing acuity scale, those with some hearing impairment, the reverse pattern was evident and the relation to educational level more consistent for both men and women than the trend found among adults with better than "normal" hearing (fig. 2).

This positive association of education and hearing levels is consistent with what would be expected since education, as measured here in terms of the number of years of schooling completed, is negatively associated with age. Census data for 1960[6] show that the median number of years completed as well as the proportion with some college education decreases from the group 25-34 years old to those 75-79 years of age.

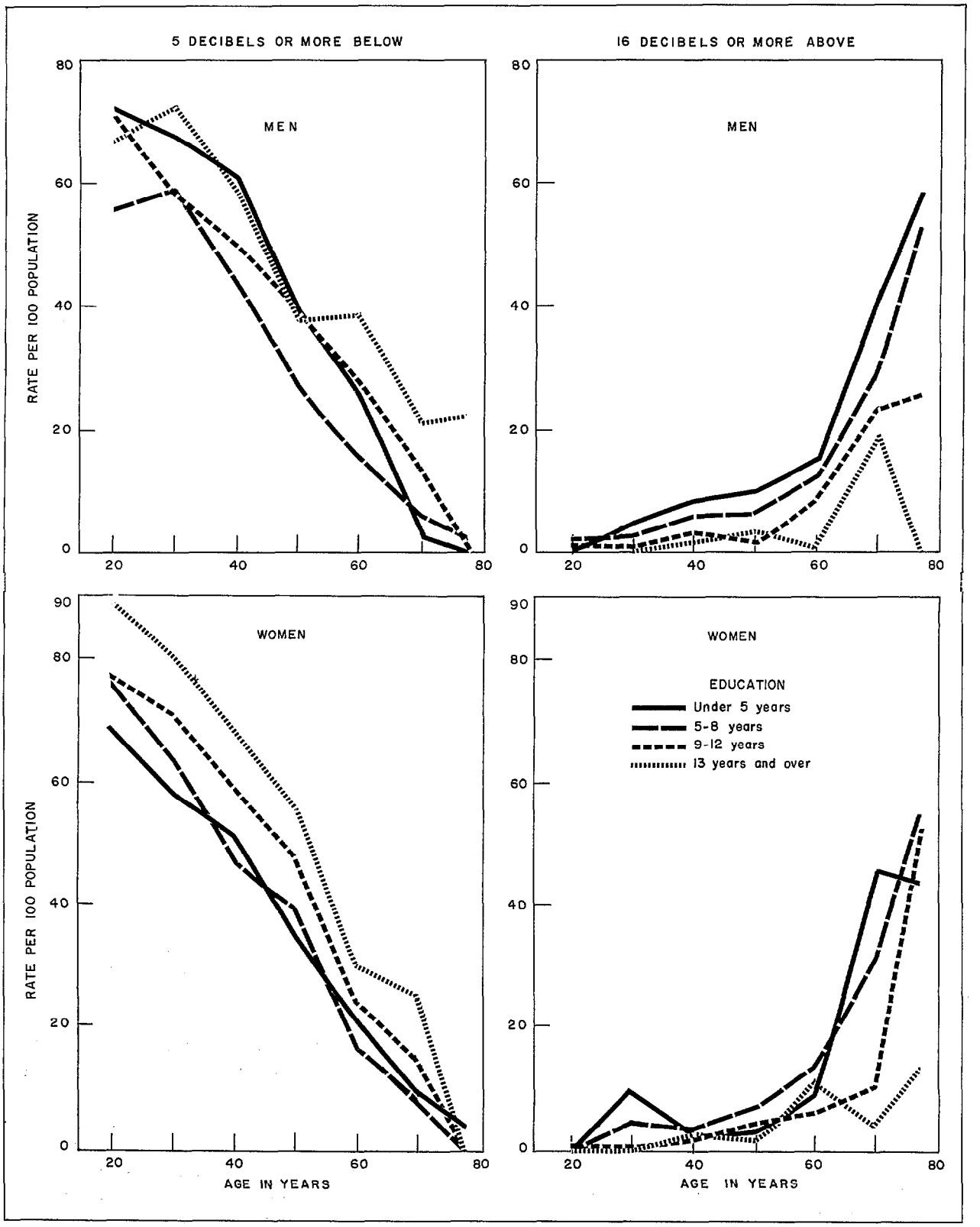

Figure 3.. Prevalence rates for men and women with hearing thresholds 5 decibels or more below and 16 decibels or more above audiometric zero, by education and age.

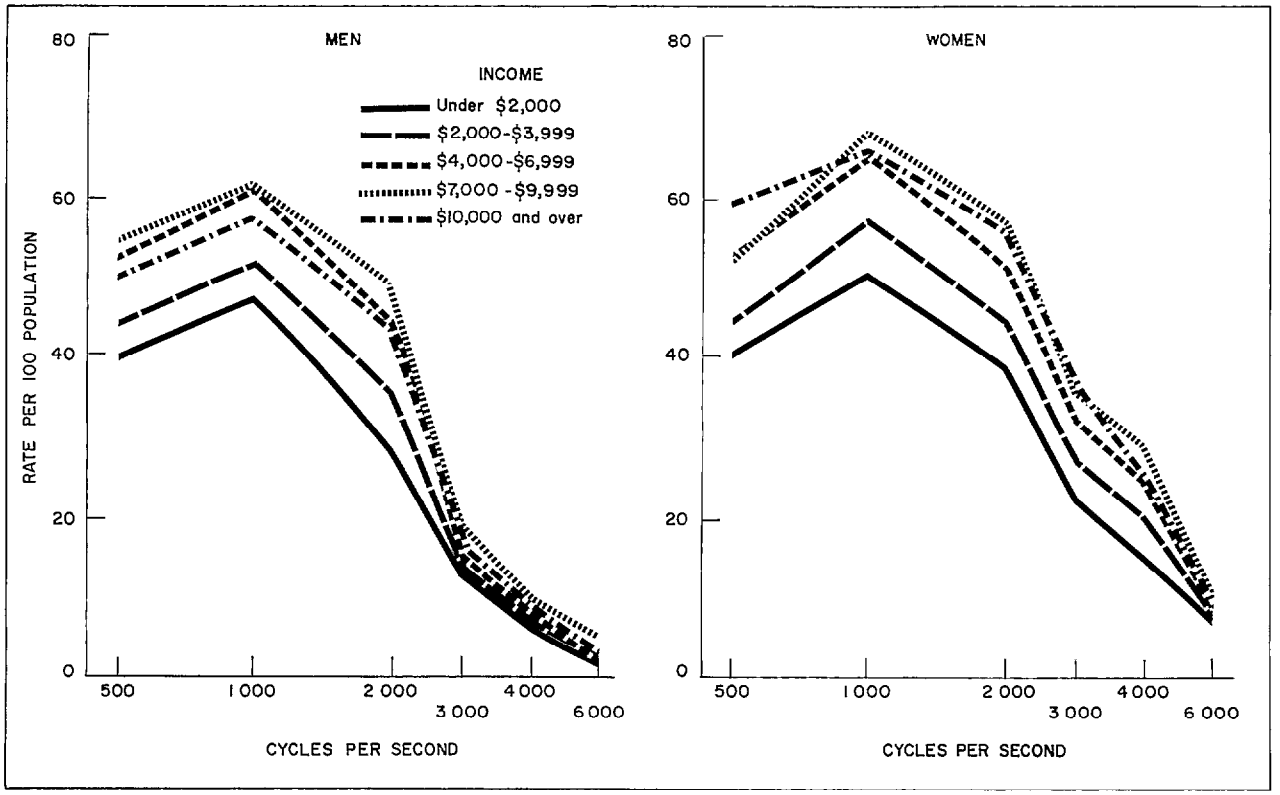

Figure 4. Prevalence rates for adults 18-79 years of age with hearing thresholds 5 decibels or more below audiometric zero, by income and sex.

Among those 18-24 years old the number who have not completed their education is sufficient to bring their general educational level slightly below that for the 25-34 years of age group. By age the positive association of schooling completed with hearing levels is not found consistently. It is more distinct in the younger than the older age groups (fig. 3, tables 3-9).

When the effect of the differences in the age distribution within the various educational levels is removed by applying the age-sex specific rates for each to the total population, the positive association of hearing and education persisted to but not beyond the ninth grade for both men and women at all test frequencies. That is, the proportion with better than "normal" hearing increased with schooling to the ninth grade, then leveled off, while the proportion of persons with some hearing impairment decreased to this point and then remained constant.

Income

Prevalence rates for better than "normal" hearing among adults increased at all frequencies with income up to the $10,000 bracket. With the exception of the rate at 500 cycles, the rates for those in the highest income level fell slightly below those for the group in the $7,000-$9,999 range, with greater differences at frequencies below 3,000 cycles (table 10). This pattern was found among both men and women with few exceptions (fig. 4).

At the opposite end of the hearing acuity scale, prevalence rates for those with some hearing impairment decreased as income increased up to the $10,000 bracket. For adults with incomes of $10,000 or more the rates of impairment generally showed a small increase over those for persons in the $7,000-$9,999 range (fig. 5, table 11). This pattern could be

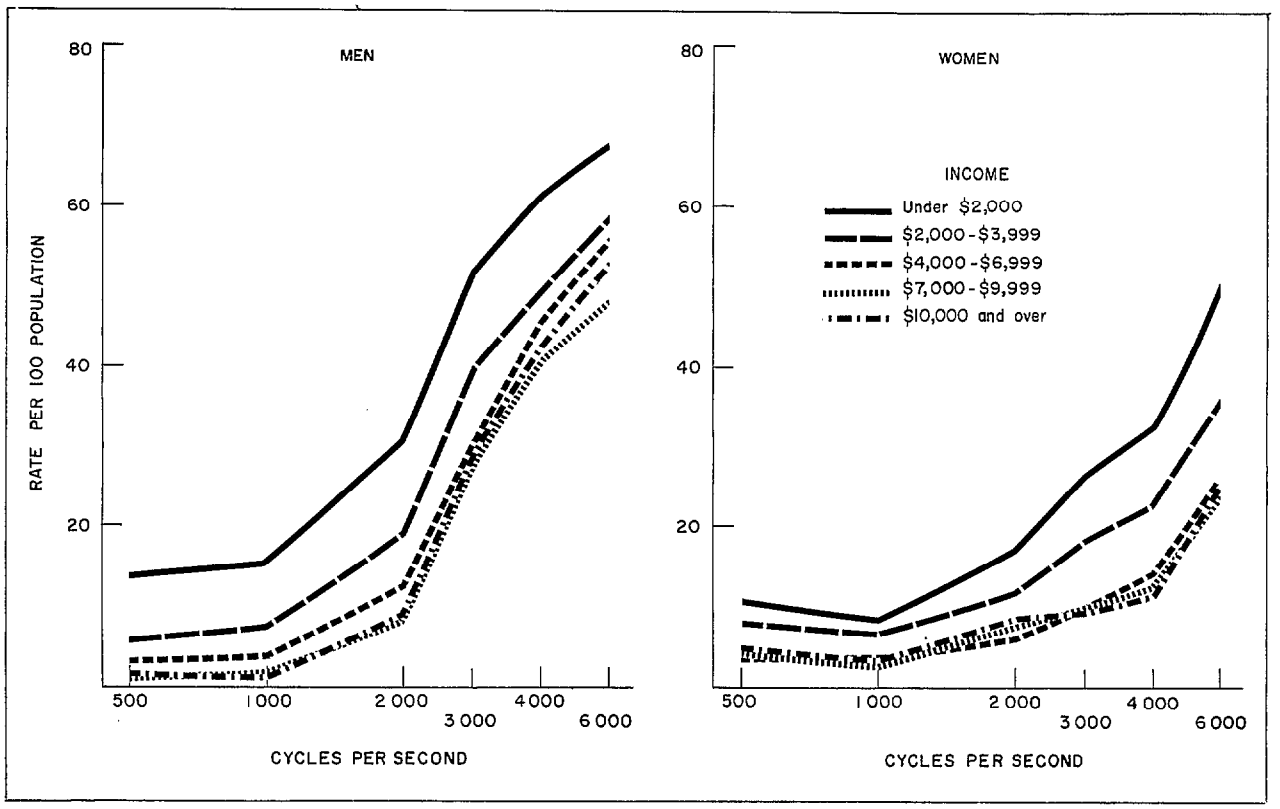

Figure 5. Prevalence rates for adults 18-79 years of age with hearing thresholds 16 decibels or more above audiometric zero, by income and sex.

expected solely on the basis of the age distribution within the various income classes since annual family income is associated with age to the extent that data from the 1960 Census[6] show the median income for persons under 35 years of age to be somewhat lower and for persons over 65 years of age to be substantially lower than that for adults in the middle age range. The proportion of persons with incomes of $10,000 and more was about the same at both extremes of the age range, and both were markedly lower than among those 35-64 years. The proportion under 45 with hearing impairment was lower among those with incomes of $7,000 to $10,000 than it was among those with $10,000 or more, while the proportion 45 and over stayed the same.

Throughout the age range, this pattern of prevalence at the extremes of the hearing acuity range associated with income was not consistent for men or women. However, within each income group the rates for better than "normal" hearing increased with age while those for hearing impairment decreased (fig. 6, tables 12-18). Again, removing the effect of age in the same manner as for education showed a positive association of hearing with income up to the $4,000 to $6,000 bracket. The proportion with better than "normal" hearing increased to that point, then leveled off and decreased slightly among those with incomes of $10,000 or more. The reverse pattern may be seen for those with some hearing impairment.

Occupation

The principal occupation was obtained for 82 percent of the men and 39 percent of the women who were in the labor force full or part-time. Occupation was classified according to standard methods used by the U.S. Bureau of the Census as described in Appendix I. These occupations

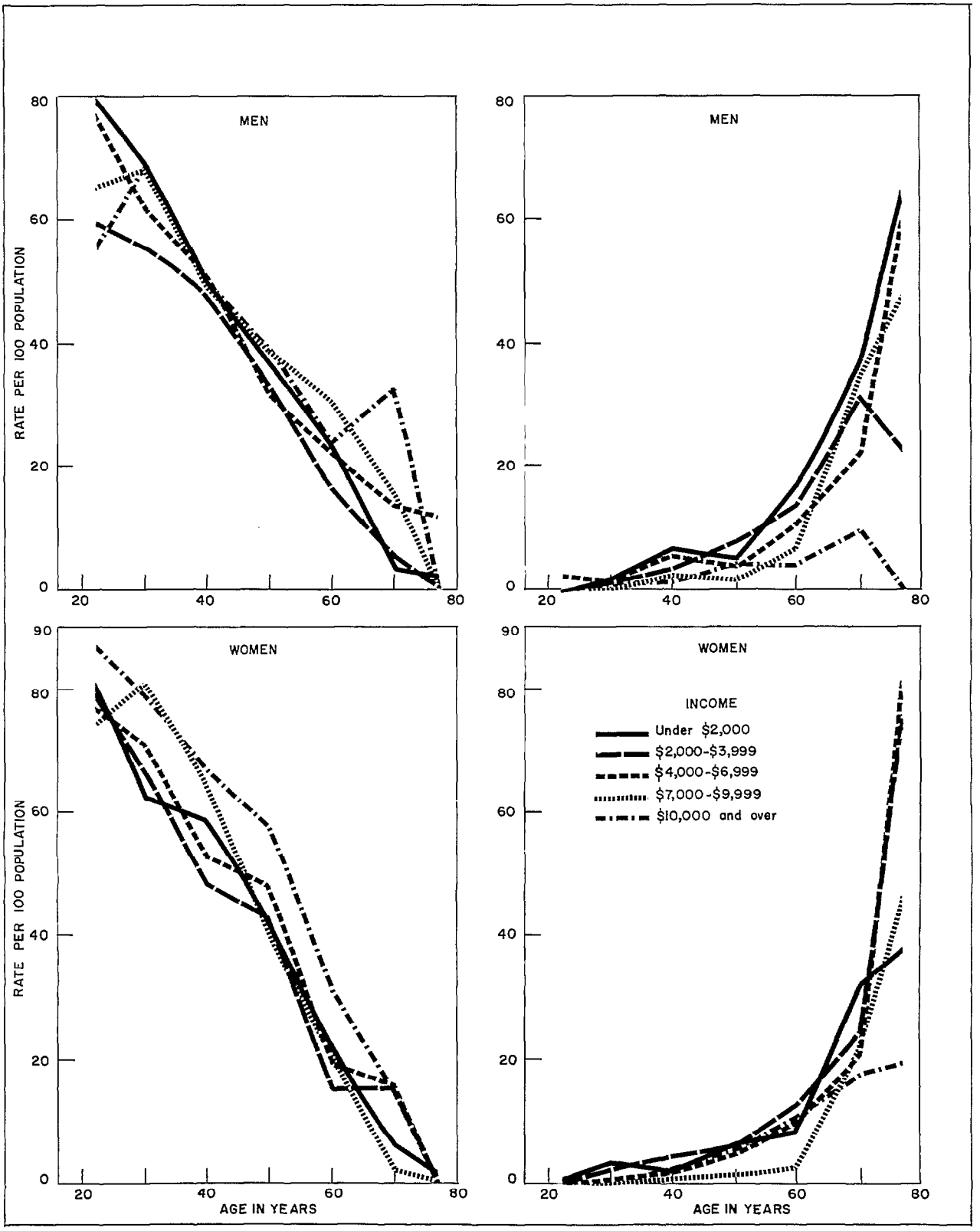

Figure 6. Prevalence rates for men and women with hearing thresholds 5 decibels or more below and 16 decibels or more above audiometric zero, by income and age.

have been combined into seven groups for use in this report: professional-technical-managerial employees; farmers-farm managers; clerical-sales workers; operatives; service workers, including private household employees; and laborers, including farm workers. So few women are employed as farmers, craftsmen-foremen, or laborers that the sample was not large enough to adequately represent them. Consequently these groups have been omitted from the discussion and tables.

The highest prevalence rates for better than "normal" hearing among men tended to be those for laborers and the lowest, those for farmers (table 19).

Hearing impairment was found most frequently among farmers but least often at frequencies of 2000 cycles or less among the professional-technical-managerial group and at 4000 to 6000 cycles for laborers.

For women, better than "normal" hearing was more prevalent among professional-technical-managerial workers at 500 cycles and among clerical-sales personnel from 1,000 cycles and over. Better than "normal" hearing tended to be found least frequently among service employees and operatives. Impaired hearing for women was most frequently found among service employees and least often among clerical-sales workers.

Within each occupational group the prevalence of better than "normal" hearing generally decreased, while hearing impairment increased with age from the youngest to the oldest age group (tables 20-26). Since hearing thresholds are age-associated the differences in age distributions among the various occupational groups need to be considered. Farmers have the largest proportion of persons 45 years of age and over while laborers, operatives, and clerical-sales workers have the lowest proportion in these older age groups, as indicated in the 1960 Census data. Then the influence of age among the various occupational classes is removed by appropriate age-adjustment, the proportion with better than "normal" hearing among men was the highest for operatives and the lowest for farmers. The prevalence of some hearing impairment was highest among farmers and lowest among operatives as shown in table A. Among women better than "normal" hearing was found most frequently among those employed in clerical or sales work and least frequently among those in service occupations. Hearing impairment was found most often among women employed as service workers and least often among those in clerical-sales positions.

DISCUSSION

Hearing levels among specific educational, income, and occupational groups have been determined in a few previous surveys among selected segments of the population. Insofar as the data are comparable, the general pattern of association of hearing with these socioeconomic factors tends to be similar to those found among the U.S. population from the present study.

Glorig et al.[7] from the 1954 Wisconsin State Fair observed at 1000 and 4000 cycles per second poorer hearing for those with less than 9 years education than for those with 9 years or more at each decade from 30 to 69 years. These differences were significant for men but not consistently so for women. This is in general agreement with the findings of the present study among the entire U.S. population 18-74 years of age throughout the test range, except that the differences are not consistently significant for either men or women.

Consistent with findings on income from the present national survey, Beasley[8] in the 1935-36 National Health Survey reported slightly more men in the low income brackets to have impaired hearing than in the higher income levels. However he did not find this among women, in contrast with the present study. Similarly Steinberg[9] and others from the New York and San Francisco World Fairs found evidence that persons of high economic status had better hearing than those of low economic status.

The occupational findings of O'Neill[10] in the Ohio county fairs showed that farming and industrial groups gave more indication of hearing loss than any of the other occupations, consistent with findings for American men in the present study. Comparisons with Glorig's findings from the 1954 Wisconsin State Fair cannot be made because of the differences in the occupational groupings which were used.

Lack of adequate treatment for financial reasons and lowered earning capacity due to impaired hearing are possibly two of the factors

Table A. Actual and age-adjusted prevalence rates by occupation for men and women with hearing thresholds 5 decibels or more below and 16 decibels or more above audiometric zero: United States, 1960-62

Hearing level and occupation	Men		Women	
	Actual	Age-adjusted[1]	Actual	Age-adjusted[1]
	Rate per 100 population			
5 decibels or more below audiometric zero				
Professional, technical, and managerial	52.5	46.5	56.6	53.1
Farmers and farm managers	37.3	36.1	*	*
Clerical and sales workers	55.2	49.1	63.5	58.2
Craftsmen and foremen	43.1	47.7	*	*
Operatives	43.6	52.4	48.6	54.3
Private household and service workers	43.3	45.6	47.0	51.2
Farm and other laborers	57.2	49.4	*	*
16 decibels and more above audiometric zero				
Professional, technical, and managerial	2.0	4.6	2.9	3.8
Farmers and farm managers	10.6	7.4	*	*
Clerical and sales workers	5.7	4.4	2.1	3.0
Craftsmen and foremen	3.6	4.4	*	*
Operatives	5.1	3.2	2.9	3.6
Private household and service workers	6.4	5.0	7.9	4.8
Farm and other laborers	4.1	4.1	*	*

[1]Age-adjusted rates obtained by applying the age-specific rates for each occupational class to the total civilian, noninstitutional population of the United States within each age-sex class.

underlying the negative association of hearing loss and income, and hence, education, since income and education are themselves related. The occupational pattern found here may reflect to some extent the physical demands of the job as well as occupational hazards, such as excessive noise exposure, and industrial accidents.

SUMMARY

Educational, income, and occupational differences in hearing threshold levels for the better ear among adults at tonal frequencies of 500 to 6000 cycles per second are assessed in this report. These estimates for American adults are based on pure-tone air-conduction tests in the Health Examination Survey among a probability sample of the civilian, noninstitutional population of the United States, ages 18-79 years.

In general these findings show:

1. Adults with 9 or more years of schooling tended to have better hearing than those with less education.
2. Those persons in the higher income brackets ($7,000 a year or more) tended to have better hearing than those in the lower income brackets.
3. Men employed as operatives tended to have better hearing while farmers and farm managers tended to have poorer hearing than men in other occupations.
4. Among employed women, those engaged in clerical or sales work in general had better hearing and those in service occupations poorer hearing than women in other types of work.

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DETAILED TABLES

Table 1. Number and prevalence rates of adults 18-79 years of age with hearing levels 5 decibels or more below audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by education and sex: United States, 1960-62

Sex and frequency in cycles per second	Educational level						Educational level					
	Total	Under 5 years	5-8 years	9-12 years	13 or more years	Unknown	Total	Under 5 years	5-8 years	9-12 years	13 or more years	Unknown
	Number of adults in thousands						Rate per 100 population					
Both sexes												
500 cps	54,504	2,543	9,704	29,106	12,381	770	49.1	35.0	35.4	54.4	60.9	30.2
1000 cps	65,857	3,116	12,577	35,036	14,135	993	59.3	42.9	45.9	65.4	69.5	39.1
2000 cps	50,096	1,897	8,057	27,798	11,822	522	45.1	26.1	29.4	51.9	58.1	20.5
3000 cps	26,082	951	3,369	14,662	6,878	222	23.5	13.1	12.3	27.4	33.8	8.8
4000 cps	17,751	492	2,038	10,124	4,990	107	16.0	6.8	7.4	18.9	24.5	4.2
6000 cps	7,132	102	653	4,207	2,131	39	6.4	1.4	2.4	7.8	10.5	1.5
Normal speech[1]	51,983	2,123	8,276	28,800	12,215	569	46.8	29.2	30.2	53.8	60.1	22.4
Men												
500 cps	25,779	1,367	4,965	12,715	6,251	481	48.9	38.9	36.4	54.1	58.4	34.6
1000 cps	30,060	1,488	6,256	14,671	7,102	543	57.0	42.4	45.8	62.4	66.3	39.1
2000 cps	21,650	786	3,541	11,088	5,943	292	41.0	22.4	25.9	47.2	55.5	21.0
3000 cps	8,315	330	953	4,170	2,773	89	15.8	9.4	7.0	17.8	25.9	6.4
4000 cps	4,419	105	472	2,100	1,720	22	8.4	3.0	3.4	8.9	16.1	1.5
6000 cps	1,700	62	120	795	706	17	3.2	1.8	0.9	3.4	6.6	1.2
Normal speech[1]	22,845	1,041	3,697	11,700	6,077	330	43.3	29.6	27.1	49.8	56.7	23.8
Women												
500 cps	28,725	1,176	4,739	16,391	6,130	289	49.2	31.4	34.5	54.5	63.7	25.0
1000 cps	35,797	1,628	6,321	20,365	7,033	450	61.4	43.4	46.0	67.7	73.1	39.1
2000 cps	28,446	1,111	4,516	16,710	5,879	230	48.8	29.6	32.8	55.6	61.1	19.9
3000 cps	17,767	621	2,416	10,492	4,105	133	30.4	16.6	17.6	34.9	42.6	11.5
4000 cps	13,332	387	1,566	8,024	3,270	85	22.8	10.3	11.4	26.7	34.0	7.4
6000 cps	5,432	40	533	3,412	1,425	22	9.3	1.1	3.9	11.3	14.8	1.9
Normal speech[1]	29,138	1,082	4,579	17,100	6,138	239	49.9	28.8	33.3	56.9	63.8	20.7

[1]Average at 500-2000 cycles per second.

Table 2. Number and prevalence rates of adults 18-79 years of age with hearing levels 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by education and sex: United States, 1960-62

Sex and frequency in cycles per second	Educational level						Educational level					
	Total	Under 5 years	5-8 years	9-12 years	13 or more years	Unknown	Total	Under 5 years	5-8 years	9-12 years	13 or more years	Unknown
Both sexes	Number of adults in thousands						Rate per 100 population					
500 cps	6,326	1,121	2,927	1,436	456	386	5.7	15.4	10.7	2.7	2.2	15.2
1000 cps	5,904	1,186	2,476	1,479	399	364	5.3	16.3	9.0	2.8	2.0	14.3
2000 cps	13,962	2,086	6,051	4,133	939	753	12.6	28.7	22.1	7.7	4.6	29.6
3000 cps	26,909	3,063	10,825	9,061	2,799	1,161	24.2	42.2	39.5	16.9	13.8	45.6
4000 cps	36,004	3,771	13,342	13,134	4,319	1,438	32.4	51.9	48.7	24.5	21.2	56.6
6000 cps	48,560	4,669	16,995	18,527	6,607	1,762	43.7	64.3	62.0	34.6	32.5	69.3
Normal speech[1]	8,120	1,499	3,774	1,798	510	539	7.3	20.6	13.8	3.4	2.5	21.2
Men												
500 cps	2,547	539	1,105	520	190	193	4.8	15.3	8.1	2.2	1.8	13.9
1000 cps	2,911	653	1,217	603	203	235	5.5	18.6	8.9	2.6	1.9	16.9
2000 cps	8,143	1,280	3,619	2,260	484	500	15.4	36.4	26.5	9.6	4.5	36.0
3000 cps	18,154	1,893	7,149	6,350	1,958	804	34.4	53.9	52.4	27.0	18.3	57.8
4000 cps	24,850	2,309	8,862	9,435	3,249	995	47.1	65.7	64.9	40.2	30.3	71.6
6000 cps	29,477	2,620	10,002	11,419	4,379	1,057	55.9	74.6	73.3	48.6	40.9	76.1
Normal speech[1]	4,054	776	1,883	837	234	324	7.7	22.1	13.8	3.6	2.2	23.3
Women												
500 cps	3,779	582	1,822	916	266	193	6.5	15.5	13.2	3.0	2.8	16.7
1000 cps	2,993	533	1,259	876	196	129	5.1	14.2	9.2	2.9	2.0	11.2
2000 cps	5,819	806	2,432	1,873	455	253	10.0	21.5	17.7	6.2	4.7	22.0
3000 cps	8,755	1,170	3,676	2,711	841	357	15.0	31.2	26.7	9.0	8.7	30.9
4000 cps	11,154	1,462	4,480	3,699	1,070	443	19.1	39.0	32.6	12.3	11.1	38.4
6000 cps	19,083	2,049	6,993	7,108	2,228	705	32.7	54.6	50.8	23.6	23.1	61.2
Normal speech[1]	4,066	723	1,891	961	276	215	7.0	19.3	13.8	3.2	2.9	18.7

[1]Average at 500-2000 cycles per second.

Table 3. Prevalence rates of adults 18-24 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by education and sex: United States, 1960-62

Sex and frequency in cycles per second	Educational level					
	Total	Under 5 years	5-8 years	9-12 years	13 or more years	Unknown
-5 DECIBELS OR LOWER						
Men	Rate per 100 population					
500 cps	65.8	65.3	51.4	66.7	71.7	33.4
1000 cps	76.5	83.2	73.2	76.3	77.7	100.0
2000 cps	66.8	55.1	58.7	69.5	65.6	33.3
3000 cps	39.4	38.4	31.5	36.8	51.0	33.3
4000 cps	28.9	6.6	20.5	25.5	45.8	-
6000 cps	13.1	-	6.4	12.3	20.7	-
Normal speech[1]	68.3	72.1	55.8	70.8	67.2	66.7
Women						
500 cps	72.7	68.4	76.2	69.8	81.8	43.3
1000 cps	89.1	72.9	87.1	87.9	95.5	100.0
2000 cps	76.7	76.5	63.4	75.5	86.2	100.0
3000 cps	60.2	63.9	43.6	57.4	77.4	43.3
4000 cps	51.7	60.9	38.8	50.7	61.3	-
6000 cps	26.3	8.6	23.3	23.8	38.6	-
Normal speech[1]	79.0	68.4	75.6	77.1	89.0	43.3
+16 DECIBELS OR HIGHER						
Men						
500 cps	1.5	-	2.4	1.1	2.0	-
1000 cps	0.8	-	2.4	0.8	-	-
2000 cps	1.6	-	4.4	1.8	-	-
3000 cps	3.5	7.9	4.4	3.9	1.6	-
4000 cps	7.9	16.8	9.8	8.0	6.0	-
6000 cps	15.7	37.9	24.5	16.3	7.6	-
Normal speech[1]	1.2	-	2.4	1.4	-	-
Women						
500 cps	0.6	-	2.1	0.6	-	-
1000 cps	0.5	-	-	0.8	-	-
2000 cps	0.8	-	2.8	0.9	-	-
3000 cps	1.2	-	2.8	1.5	-	-
4000 cps	1.9	4.5	3.6	2.2	-	-
6000 cps	5.0	8.9	7.4	5.2	1.6	56.7
Normal speech[1]	0.4	-	-	0.6	-	-

[1]Average at 500-2000 cycles per second.

Table 4. Prevalence rates of adults 25-34 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by education and sex: United States, 1960-62

Sex and frequency in cycles per second	Educational level					
	Total	Under 5 years	5-8 years	9-12 years	13 or more years	Unknown
	Rate per 100 population					
-5 DECIBELS OR LOWER						
Men						
500 cps	65.2	60.2	62.6	63.0	69.9	73.3
1000 cps	73.7	70.7	73.8	72.4	77.1	56.2
2000 cps	61.2	63.5	57.7	55.0	72.0	73.0
3000 cps	28.7	47.9	23.5	24.6	36.4	16.6
4000 cps	14.8	20.4	13.7	11.8	20.2	7.1
6000 cps	4.6	18.1	1.2	2.9	7.4	10.4
Normal speech[1]	63.0	67.7	58.9	58.0	72.6	62.0
Women						
500 cps	65.8	53.8	60.7	64.7	74.7	100.0
1000 cps	79.8	64.6	71.2	79.4	90.8	75.2
2000 cps	68.0	61.4	66.7	66.2	77.5	25.7
3000 cps	46.3	37.2	44.3	45.7	51.5	50.5
4000 cps	34.0	37.0	29.2	31.7	43.3	75.2
6000 cps	14.2	2.5	9.3	15.1	17.4	-
Normal speech[1]	71.2	57.8	63.7	71.5	80.0	25.7
+16 DECIBELS OR HIGHER						
Men						
500 cps	1.1	9.6	1.7	0.4	0.4	17.9
1000 cps	1.0	4.7	1.6	0.4	0.4	17.9
2000 cps	3.2	4.7	4.6	4.2	0.6	10.0
3000 cps	12.6	10.2	12.1	16.3	7.2	10.0
4000 cps	24.2	14.0	28.6	26.2	20.5	17.9
6000 cps	32.5	25.5	47.4	33.8	24.8	30.9
Normal speech[1]	1.3	4.7	2.6	0.9	0.4	17.9
Women						
500 cps	1.4	9.6	3.5	1.0	-	-
1000 cps	1.2	1.7	4.5	0.7	-	-
2000 cps	1.2	1.7	3.6	0.8	0.5	-
3000 cps	2.5	10.0	5.8	2.1	-	-
4000 cps	4.3	10.0	8.3	3.7	2.2	-
6000 cps	10.4	16.0	19.7	8.3	8.7	24.8
Normal speech[1]	1.2	9.6	4.5	0.4	-	-

[1]Average at 500-2000 cycles per second.

Table 5. Prevalence rates of adults 35-44 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by education and sex: United States, 1960-62

Sex and frequency in cycles per second	Educational level					
	Total	Under 5 years	5-8 years	9-12 years	13 or more years	Unknown
-5 DECIBELS OR LOWER						
Men	Rate per 100 population					
500 cps	55.8	63.1	51.4	53.7	63.9	49.8
1000 cps	62.7	75.3	58.3	61.5	67.7	67.8
2000 cps	47.5	44.2	42.0	45.5	57.2	46.5
3000 cps	13.9	17.1	10.8	12.4	19.4	15.5
4000 cps	4.7	5.1	3.2	3.2	9.2	5.4
6000 cps	2.0	2.2	2.1	1.0	4.5	-
Normal speech[1]	50.9	60.3	43.8	49.8	58.5	53.1
Women						
500 cps	58.0	53.8	46.0	58.1	70.7	63.3
1000 cps	69.5	70.7	62.6	68.9	77.5	100.0
2000 cps	58.5	54.5	48.1	60.2	64.4	63.3
3000 cps	33.8	33.5	25.1	32.8	47.1	28.1
4000 cps	26.2	17.8	17.4	26.5	37.0	-
6000 cps	9.2	-	5.6	8.7	16.3	36.7
Normal speech[1]	58.0	50.6	46.4	58.8	68.5	63.3
+16 DECIBELS OR HIGHER						
Men						
500 cps	2.0	10.8	1.7	1.7	1.8	4.4
1000 cps	2.8	8.6	1.6	3.4	1.8	4.4
2000 cps	6.7	13.4	9.2	6.7	2.4	24.4
3000 cps	25.5	34.5	30.3	27.0	15.9	40.1
4000 cps	41.1	34.1	44.2	46.1	27.5	49.2
6000 cps	49.3	57.2	50.0	50.4	44.9	53.0
Normal speech[1]	3.7	8.6	5.9	3.3	1.8	4.4
Women						
500 cps	2.4	6.6	5.3	1.5	1.8	-
1000 cps	2.2	2.5	4.1	1.5	2.5	-
2000 cps	3.1	2.5	4.6	2.8	3.0	-
3000 cps	5.5	6.6	8.1	5.4	3.2	-
4000 cps	7.2	8.2	11.3	7.7	1.3	-
6000 cps	18.6	17.5	29.8	16.6	13.5	35.2
Normal speech[1]	2.2	2.5	3.7	1.6	2.5	-

[1]Average at 500-2000 cycles per second.

Table 6. Prevalence rates of adults 45-54 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by education and sex: United States, 1960-62

Sex and frequency in cycles per second	Educational level					
	Total	Under 5 years	5-8 years	9-12 years	13 or more years	Unknown
	Rate per 100 population					
-5 DECIBELS OR LOWER						
Men						
500 cps	43.5	53.1	35.4	47.9	41.0	40.6
1000 cps	51.1	48.9	44.2	55.9	50.2	56.0
2000 cps	32.7	24.8	24.6	37.0	41.8	20.3
3000 cps	7.1	3.6	3.8	8.6	10.5	8.2
4000 cps	2.1	1.0	1.4	2.2	4.4	-
6000 cps	0.5	-	-	0.7	1.4	-
Normal speech[1]	35.0	39.3	26.5	39.2	37.9	24.9
Women						
500 cps	45.5	41.5	39.7	47.4	53.4	35.5
1000 cps	56.9	59.3	51.5	58.9	61.8	45.6
2000 cps	41.8	34.0	32.4	44.6	54.5	34.2
3000 cps	21.4	11.4	14.8	23.8	30.6	15.6
4000 cps	14.3	1.3	8.3	16.5	23.2	15.6
6000 cps	4.4	-	2.1	7.0	2.9	-
Normal speech[1]	45.7	34.6	39.0	47.9	56.0	43.1
+16 DECIBELS OR HIGHER						
Men						
500 cps	2.2	5.7	4.0	0.8	1.2	-
1000 cps	2.9	8.8	4.6	0.8	2.3	5.5
2000 cps	14.6	25.8	16.9	12.2	9.8	23.3
3000 cps	38.3	36.8	46.3	37.7	24.1	40.0
4000 cps	56.1	59.5	63.6	53.4	45.6	67.8
6000 cps	68.4	65.2	78.2	65.0	61.3	69.3
Normal speech[1]	4.0	10.2	6.4	1.6	3.5	5.5
Women						
500 cps	5.0	7.5	8.8	3.4	2.8	-
1000 cps	4.1	2.8	5.8	4.0	1.4	6.8
2000 cps	9.4	13.0	12.3	9.0	4.3	6.8
3000 cps	12.0	16.8	18.0	9.2	6.2	20.0
4000 cps	15.0	26.0	21.0	11.7	10.5	12.6
6000 cps	34.5	44.7	41.2	31.5	27.7	35.7
Normal speech[1]	4.7	2.8	7.2	4.2	1.7	6.8

[1]Average at 500-2000 cycles per second.

Table 7. Prevalence rates of adults 55-64 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by education and sex: United States, 1960-62

Sex and frequency in cycles per second	Educational level					
	Total	Under 5 years	5-8 years	9-12 years	13 or more years	Unknown
	Rate per 100 population					
-5 DECIBELS OR LOWER						
Men						
500 cps	33.2	33.9	28.6	38.2	36.5	29.8
1000 cps	44.3	44.2	38.9	44.6	59.5	37.0
2000 cps	20.1	18.0	13.3	25.5	32.7	7.1
3000 cps	3.5	4.2	-	4.0	11.6	-
4000 cps	1.1	1.1	-	1.5	3.4	-
6000 cps	-	-	-	-	-	-
Normal speech[1]	23.2	25.5	14.8	27.8	38.7	9.0
Women						
500 cps	27.7	26.7	17.8	30.6	45.2	15.7
1000 cps	37.4	36.0	29.8	42.2	44.3	34.8
2000 cps	24.0	24.4	18.1	26.7	30.7	22.1
3000 cps	10.5	10.0	9.1	10.7	12.7	12.4
4000 cps	4.1	3.2	3.3	3.3	8.8	-
6000 cps	0.2	1.6	-	-	-	-
Normal speech[1]	21.9	20.5	16.5	23.6	29.7	26.5
16+ DECIBELS OR HIGHER						
Men						
500 cps	7.1	11.2	8.4	7.0	-	12.6
1000 cps	6.4	14.3	7.0	4.2	-	17.1
2000 cps	28.1	35.6	38.7	21.8	5.8	34.2
3000 cps	59.5	62.5	69.9	52.0	41.9	70.1
4000 cps	75.1	74.0	84.4	72.8	49.8	95.4
6000 cps	84.8	84.1	86.8	87.2	72.0	97.8
Normal speech[1]	10.6	15.4	12.8	9.0	1.2	21.8
Women						
500 cps	10.2	8.0	16.5	5.7	6.7	16.5
1000 cps	6.2	6.6	8.3	4.0	7.1	-
2000 cps	15.9	13.0	19.8	13.8	14.5	11.0
3000 cps	29.1	32.2	34.4	22.7	31.2	22.7
4000 cps	39.7	40.9	42.4	36.9	40.3	34.6
6000 cps	62.5	55.6	67.8	62.0	58.0	51.9
Normal speech[1]	10.1	9.0	13.6	6.3	11.7	11.0

[1]Average at 500-2000 cycles per second.

Table 8. Prevalence rates of adults 65-74 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by education and sex: United States, 1960-62

Sex and frequency in cycles per second	Educational level					
	Total	Under 5 years	5-8 years	9-12 years	13 or more years	Unknown
	Rate per 100 population					
-5 DECIBELS OR LOWER						
Men						
500 cps	20.5	18.8	20.8	22.1	21.9	14.2
1000 cps	25.3	12.2	29.9	29.4	29.3	3.6
2000 cps	7.3	3.4	5.0	14.4	13.5	-
3000 cps	0.2	1.2	-	-	-	-
4000 cps	-	-	-	-	-	-
6000 cps	-	-	-	-	-	-
Normal speech[1]	8.5	2.3	5.9	13.8	21.2	3.6
Women						
500 cps	13.8	9.4	14.1	14.9	24.2	4.2
1000 cps	25.1	22.8	22.0	27.9	38.3	20.6
2000 cps	11.4	2.1	12.3	17.6	15.2	-
3000 cps	2.5	1.1	2.1	4.8	2.9	-
4000 cps	1.1	-	1.2	1.3	2.9	-
6000 cps	-	-	-	-	-	-
Normal speech[1]	11.0	9.0	8.3	14.5	25.2	-
16+ DECIBELS OR HIGHER						
Men						
500 cps	17.9	29.5	16.0	12.8	14.1	24.6
1000 cps	23.6	35.0	22.4	19.4	19.4	21.5
2000 cps	48.8	59.4	48.6	45.5	32.7	65.5
3000 cps	82.2	79.2	88.0	79.3	65.4	88.4
4000 cps	89.6	90.9	93.7	86.5	77.4	88.4
6000 cps	96.2	96.4	98.5	98.3	83.7	96.4
Normal speech[1]	30.5	41.6	30.1	23.8	19.4	47.6
Women						
500 cps	22.1	29.3	25.7	13.2	9.5	32.5
1000 cps	17.7	34.3	17.5	11.8	1.8	21.7
2000 cps	34.8	48.3	36.5	30.6	13.3	36.4
3000 cps	49.9	57.0	57.5	40.9	27.5	47.6
4000 cps	58.6	70.2	66.0	47.9	32.6	59.2
6000 cps	82.0	89.6	85.6	77.3	65.4	81.0
Normal speech[1]	26.4	45.8	31.7	10.8	4.2	32.1

[1]Average at 500-2000 cycles per second.

Table 9. Prevalence rates of adults 75-79 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by education and sex: United States, 1960-62

Sex and frequency in cycles per second	Educational level					
	Total	Under 5 years	5-8 years	9-12 years	13 or more years	Unknown
	Rate per 100 population					
-5 DECIBELS OR LOWER						
Men						
500 cps	10.5	10.6	9.0	-	49.7	7.9
1000 cps	11.6	21.4	10.3	-	22.2	-
2000 cps	2.8	-	2.4	-	27.5	-
3000 cps	-	-	-	-	-	-
4000 cps	-	-	-	-	-	-
6000 cps	-	-	-	-	-	-
Normal speech[1]	2.5	-	2.4	-	22.2	-
Women						
500 cps	7.8	4.0	-	10.3	21.4	25.1
1000 cps	8.6	4.0	7.5	10.3	-	25.1
2000 cps	2.3	13.6	-	-	-	-
3000 cps	1.7	9.6	-	-	-	-
4000 cps	-	-	-	-	-	-
6000 cps	-	-	-	-	-	-
Normal speech[1]	0.7	4.0	-	-	-	-
16+ DECIBELS OR HIGHER						
Men						
500 cps	31.9	30.2	35.8	25.8	-	37.3
1000 cps	35.2	43.1	34.2	25.8	-	55.1
2000 cps	64.6	76.0	65.5	66.6	-	68.1
3000 cps	90.8	93.5	90.8	87.2	72.5	100.0
4000 cps	97.3	100.0	95.2	100.0	100.0	100.0
6000 cps	97.2	100.0	97.6	100.0	72.5	100.0
Normal speech[1]	48.7	58.4	52.5	25.8	-	55.1
Women						
500 cps	37.5	39.9	40.3	39.2	29.9	23.1
1000 cps	35.9	35.7	41.6	40.0	13.1	23.1
2000 cps	55.1	42.5	65.7	56.1	31.9	57.0
3000 cps	67.6	61.9	63.6	75.8	78.6	57.0
4000 cps	81.7	67.2	89.7	81.1	78.6	82.1
6000 cps	96.6	100.0	95.2	94.1	100.0	100.0
Normal speech[1]	47.3	43.9	55.1	52.7	13.1	39.3

[1]Average at 500-2000 cycles per second.

Table 10. Number and prevalence rates of adults 18-79 years of age with hearing levels 5 decibels or more below audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by income and sex: United States, 1960-62

Sex and frequency in cycles per second	Yearly income						
	Total	Under $2,000	$2,000-$3,999	$4,000-$6,999	$7,000-$9,999	$10,000 or more	Unknown
Both sexes	Number of adults in thousands						
500 cps	54,504	6,658	8,842	17,232	9,193	7,842	4,737
1000 cps	65,857	8,116	10,962	20,798	11,169	8,818	5,994
2000 cps	50,096	5,716	8,075	15,709	9,074	7,064	4,458
3000 cps	26,082	3,079	4,327	7,919	4,719	3,738	2,300
4000 cps	17,751	1,930	2,902	5,487	3,375	2,464	1,593
6000 cps	7,132	868	1,231	1,975	1,382	950	726
Normal speech[1]	51,983	5,976	8,232	16,663	9,126	7,460	4,526
Men							
500 cps	25,779	2,782	3,990	8,539	4,784	3,658	2,026
1000 cps	30,060	3,319	4,645	10,064	5,395	4,199	2,438
2000 cps	21,650	2,005	3,175	7,290	4,295	3,143	1,742
3000 cps	8,315	899	1,265	2,559	1,683	1,191	718
4000 cps	4,419	442	657	1,395	871	665	389
6000 cps	1,700	153	272	423	453	257	142
Normal speech[1]	22,845	2,366	3,242	7,780	4,384	3,271	1,802
Women							
500 cps	28,725	3,876	4,852	8,693	4,409	4,184	2,711
1000 cps	35,797	4,797	6,317	10,734	5,774	4,619	3,556
2000 cps	28,446	3,711	4,900	8,419	4,779	3,921	2,716
3000 cps	17,767	2,180	3,062	5,360	3,036	2,547	1,582
4000 cps	13,332	1,488	2,245	4,092	2,504	1,799	1,204
6000 cps	5,432	715	959	1,552	929	693	584
Normal speech[1]	29,138	3,610	4,990	8,883	4,742	4,189	2,724
Both sexes	Rate per 100 population						
500 cps	49.1	40.3	44.2	52.5	53.5	55.0	46.0
1000 cps	59.3	49.1	54.8	63.3	65.0	61.8	58.3
2000 cps	45.1	34.6	40.4	47.8	52.8	49.5	43.3
3000 cps	23.5	18.6	21.6	24.1	27.4	26.2	22.4
4000 cps	16.0	11.7	14.5	16.7	19.6	17.3	15.5
6000 cps	6.4	5.2	6.2	6.0	8.0	6.7	7.1
Normal speech[1]	46.8	36.2	41.2	50.7	53.1	52.3	44.0
Men							
500 cps	48.9	39.9	44.5	52.1	54.7	50.3	46.2
1000 cps	57.0	47.6	51.8	61.4	61.7	57.7	55.6
2000 cps	41.0	28.7	35.4	44.5	49.1	43.2	39.7
3000 cps	15.8	12.9	14.1	15.6	19.2	16.4	16.4
4000 cps	8.4	6.3	7.3	8.5	10.0	9.1	8.9
6000 cps	3.2	2.2	3.0	2.6	5.2	3.5	3.2
Normal speech[1]	43.3	33.9	36.1	47.5	50.1	45.0	41.1
Women							
500 cps	49.2	40.6	44.1	52.8	52.2	59.9	46.0
1000 cps	61.4	50.2	57.4	65.2	68.4	66.1	60.3
2000 cps	48.8	38.6	44.5	51.2	56.6	56.1	46.0
3000 cps	30.4	22.8	27.8	32.6	36.0	36.5	26.8
4000 cps	22.8	15.6	20.4	24.9	29.6	25.8	20.4
6000 cps	9.3	7.5	8.7	9.4	11.0	9.9	9.9
Normal speech[1]	49.9	37.8	45.3	54.0	56.2	60.0	46.2

[1]Average at 500-2000 cycles per second.

Table 11. Number and prevalence rates of adults 18-79 years of age with hearing levels 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by income and sex: United States, 1960-62

Sex and frequency in cycles per second	Yearly income						
	Total	Under $2,000	$2,000-$3,999	$4,000-$6,999	$7,000-$9,999	$10,000 or more	Unknown
Both sexes	Number of adults in thousands						
500 cps	6,326	2,021	1,426	1,230	449	418	782
1000 cps	5,904	1,901	1,395	1,193	377	322	716
2000 cps	13,962	3,800	2,990	2,993	1,334	1,240	1,605
3000 cps	26,909	6,135	5,560	6,533	3,247	2,692	2,742
4000 cps	36,004	7,386	6,915	9,755	4,572	3,871	3,505
6000 cps	48,560	9,469	9,201	13,260	6,196	5,591	4,843
Normal speech[1]	8,120	2,662	1,852	1,582	498	516	1,010
Men							
500 cps	2,547	974	522	588	115	105	243
1000 cps	2,911	1,066	640	610	168	88	339
2000 cps	8,143	2,150	1,679	2,009	719	651	935
3000 cps	18,154	3,616	3,517	4,889	2,426	2,041	1,665
4000 cps	24,850	4,274	4,402	7,431	3,552	3,082	2,109
6000 cps	29,477	4,690	5,244	9,054	4,188	3,811	2,490
Normal speech[1]	4,054	1,374	873	901	261	191	454
Women							
500 cps	3,779	1,047	904	642	334	313	539
1000 cps	2,993	835	755	583	209	234	377
2000 cps	5,819	1,650	1,311	984	615	589	670
3000 cps	8,755	2,519	2,043	1,644	821	651	1,077
4000 cps	11,154	3,112	2,513	2,324	1,020	789	1,396
6000 cps	19,083	4,779	3,957	4,206	2,008	1,780	2,353
Normal speech[1]	4,066	1,288	979	681	237	325	556
Both sexes	Rate per 100 population						
500 cps	5.7	12.2	7.1	3.7	2.6	2.9	7.6
1000 cps	5.3	11.5	7.0	3.6	2.2	2.2	7.0
2000 cps	12.6	23.0	15.0	9.1	7.8	8.7	15.6
3000 cps	24.2	37.1	27.8	19.9	18.9	18.9	26.6
4000 cps	32.4	44.7	34.6	29.7	26.6	27.2	34.1
6000 cps	43.7	57.3	46.0	40.4	36.0	39.2	47.1
Normal speech[1]	7.3	16.1	9.3	4.8	2.9	3.6	9.8
Men							
500 cps	4.8	14.0	5.8	3.6	1.3	1.4	5.5
1000 cps	5.5	15.3	7.1	3.7	1.9	1.2	7.7
2000 cps	15.4	30.8	18.7	12.3	8.2	8.9	21.3
3000 cps	34.2	51.8	39.2	29.8	27.7	28.1	37.9
4000 cps	47.1	61.3	49.0	45.4	40.6	42.4	48.1
6000 cps	55.9	67.2	58.4	55.3	47.9	52.4	56.8
Normal speech[1]	7.7	19.7	9.7	5.5	3.0	2.6	10.3
Women							
500 cps	6.5	11.0	8.2	3.9	4.0	4.5	9.1
1000 cps	5.1	8.7	6.9	3.5	2.5	3.4	6.4
2000 cps	10.0	17.3	11.9	6.0	7.3	8.4	11.4
3000 cps	15.0	26.4	18.6	10.0	9.7	9.3	18.3
4000 cps	19.1	32.6	22.8	14.1	12.1	11.3	23.7
6000 cps	32.7	50.0	35.9	25.6	23.8	25.5	39.9
Normal speech[1]	7.0	13.5	8.9	4.1	2.8	4.7	9.4

[1]Average at 500-2000 cycles per second.

Table 12. Prevalence rates of adults 18-24 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by income and sex: United States, 1960-62

Sex and frequency in cycles per second	Yearly income						
	Total	Under $2,000	$2,000-$3,999	$4,000-$6,999	$7,000-$9,999	$10,000 or more	Unknown
	Rate per 100 population						
-5 DECIBELS OR LOWER							
Men							
500 cps	65.8	78.4	56.8	70.1	62.9	64.0	59.0
1000 cps	6.5	84.1	74.0	79.4	76.1	69.2	70.8
2000 cps	66.8	65.6	64.6	75.0	70.1	53.0	55.6
3000 cps	39.4	37.7	34.3	40.1	45.1	45.4	34.7
4000 cps	28.9	27.8	26.3	26.3	40.0	23.4	34.5
6000 cps	13.1	8.4	16.2	10.8	23.4	10.1	10.2
Normal speech[1]	68.3	79.9	59.6	76.9	65.4	55.5	59.0
Women							
500 cps	72.7	79.4	70.3	72.0	65.7	71.9	77.0
1000 cps	89.1	89.9	86.8	90.4	85.5	92.0	90.6
2000 cps	76.7	76.7	77.6	77.1	71.1	79.9	77.6
3000 cps	60.2	62.5	56.3	59.4	56.7	62.7	69.8
4000 cps	51.7	49.5	49.6	51.1	53.2	47.0	64.0
6000 cps	26.3	28.1	26.4	24.3	26.7	26.8	28.4
Normal speech[1]	79.0	80.1	79.2	77.0	74.3	86.7	83.2
+16 DECIBELS OR HIGHER							
Men							
500 cps	1.5	-	3.6	0.7	-	-	5.2
1000 cps	0.8	-	-	0.7	-	-	5.2
2000 cps	1.6	-	-	3.3	-	-	5.2
3000 cps	3.5	1.3	-	4.6	2.9	5.8	7.7
4000 cps	7.9	5.2	8.8	8.6	4.0	6.3	14.3
6000 cps	15.7	15.4	17.4	18.5	5.1	12.0	21.3
Normal speech[1]	1.2	-	-	2.0	-	-	5.2
Women							
500 cps	0.6	0.9	0.5	-	-	2.8	1.3
1000 cps	0.5	0.9	0.5	0.4	-	-	1.3
2000 cps	0.9	1.9	1.8	-	-	-	1.3
3000 cps	1.2	1.9	3.0	0.4	-	-	1.3
4000 cps	1.9	3.8	1.8	1.6	-	2.6	1.3
6000 cps	5.0	7.7	6.4	5.5	1.4	2.8	1.3
Normal speech[1]	0.4	0.9	0.5	-	-	-	1.3

[1]Average at 500-2000 cycles per second.

Table 13. Prevalence rates of adults 25-34 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by income and sex: United States, 1960-62

Sex and frequency in cycles per second	Yearly income						
	Total	Under $2,000	$2,000-$3,999	$4,000-$6,999	$7,000-$9,999	$10,000 or more	Unknown
	Rate per 100 population						
-5 DECIBELS OR LOWER							
Men							
500 cps	65.2	67.7	60.1	64.7	69.9	66.7	61.7
1000 cps	73.7	73.6	65.8	74.7	75.5	79.5	75.8
2000 cps	61.2	67.4	54.5	59.4	67.5	67.6	52.9
3000 cps	28.7	38.7	25.1	27.0	29.6	35.1	23.9
4000 cps	14.8	19.9	10.1	13.6	15.5	21.3	17.0
6000 cps	4.6	8.0	1.5	3.0	6.2	8.5	7.8
Normal speech[1]	63.0	69.1	55.9	61.2	68.4	69.2	59.4
Women							
500 cps	65.8	60.4	63.4	65.9	70.6	73.9	55.3
1000 cps	79.8	71.1	74.6	79.1	87.0	85.2	81.7
2000 cps	68.0	60.8	65.4	61.4	81.3	77.4	71.8
3000 cps	46.3	40.2	44.9	41.9	62.5	50.9	34.8
4000 cps	34.0	25.9	29.1	32.0	50.8	33.6	25.8
6000 cps	14.2	11.4	13.1	12.6	17.4	15.3	18.2
Normal speech[1]	71.2	62.2	66.5	70.8	81.8	79.5	59.7
+16 DECIBELS OR HIGHER							
Men							
500 cps	1.1	1.6	2.0	1.3	-	-	2.3
1000 cps	1.0	1.6	1.2	0.9	-	1.2	2.3
2000 cps	3.2	1.2	4.2	3.4	1.6	1.2	10.3
3000 cps	12.7	14.2	14.8	11.6	12.5	9.2	16.2
4000 cps	24.2	25.6	25.3	22.9	23.8	26.7	25.0
6000 cps	32.5	38.6	35.4	32.5	31.2	25.7	31.0
Normal speech[1]	1.3	1.6	1.2	1.3	-	1.2	6.3
Women							
500 cps	1.4	3.8	2.8	0.5	0.7	-	4.0
1000 cps	1.2	2.1	2.8	1.2	-	-	0.9
2000 cps	1.2	0.6	3.6	1.1	0.4	-	-
3000 cps	2.5	3.3	6.5	1.6	0.7	-	4.6
4000 cps	4.3	8.5	7.9	3.6	1.3	-	6.8
6000 cps	10.4	18.2	12.1	9.2	6.2	9.2	14.6
Normal speech[1]	1.2	3.8	2.8	0.5	-	-	2.4

[1]Average at 500-2000 cycles per second.

Table 14. Prevalence rates of adults 35-44 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by income and sex: United States, 1960-62

Sex and frequency	Yearly income						
	Total	Under $2,000	$2,000-$3,999	$4,000-$6,999	$7,000-$9,999	$10,000 or more	Unknown
	Rate per 100 population						
-5 DECIBELS OR LOWER							
Men							
500 cps	55.8	56.7	57.2	53.8	52.4	58.6	65.2
1000 cps	62.7	61.5	67.9	63.6	58.2	62.2	65.4
2000 cps	47.5	41.7	45.5	48.2	43.9	49.8	57.9
3000 cps	13.9	18.3	15.9	10.6	13.8	14.1	22.0
4000 cps	4.7	3.5	3.4	5.4	5.3	5.6	-
6000 cps	2.0	1.9	1.5	1.3	2.9	3.6	-
Normal speech[1]	50.9	49.1	48.9	50.7	49.2	50.2	64.3
Women							
500 cps	58.0	58.0	47.1	53.4	61.0	70.2	60.2
1000 cps	69.5	78.5	57.6	67.1	75.8	72.8	68.9
2000 cps	58.5	56.7	49.7	55.6	64.7	61.9	65.8
3000 cps	33.8	29.9	29.5	29.5	35.0	43.6	36.6
4000 cps	26.2	20.1	23.3	22.4	30.3	34.2	24.2
6000 cps	9.3	8.2	8.5	7.0	9.4	12.7	11.6
Normal speech[1]	58.0	58.7	48.3	52.2	64.8	67.0	59.8
+16 DECIBELS OR HIGHER							
Men							
500 cps	2.0	4.6	2.8	3.1	0.8	0.7	-
1000 cps	2.8	4.6	2.8	4.0	2.1	1.3	1.1
2000 cps	6.7	12.0	6.2	7.9	5.4	5.3	4.6
3000 cps	25.5	30.8	26.1	29.0	20.8	21.6	28.3
4000 cps	41.1	31.8	35.0	46.8	40.5	40.1	37.1
6000 cps	49.3	44.8	46.9	53.8	45.5	50.3	43.7
Normal speech[1]	3.6	6.5	3.4	5.7	2.5	1.3	1.1
Women							
500 cps	2.4	1.6	5.6	2.1	0.5	1.6	4.6
1000 cps	2.2	1.6	3.3	2.0	1.1	2.2	3.7
2000 cps	3.1	4.4	4.8	2.8	1.7	3.0	3.7
3000 cps	5.5	7.8	9.8	6.0	4.1	1.9	5.3
4000 cps	7.2	5.8	14.6	9.0	5.5	1.6	5.1
6000 cps	18.6	26.4	19.9	23.2	14.2	11.2	18.3
Normal speech[1]	2.2	1.6	4.8	1.6	0.5	2.2	3.7

[1]Average at 500-2000 cycles per second.

Table 15. Prevalence rates of adults 45-54 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by income and sex: United States, 1960-62

Sex and frequency in cycles per second	Yearly income						
	Total	Under $2,000	$2,000-$3,999	$4,000-$6,999	$7,000-$9,999	$10,000 or more	Unknown
	Rate per 100 population						
-5 DECIBELS OR LOWER							
Men							
500 cps	43.5	37.3	41.7	43.2	47.6	45.5	41.9
1000 cps	51.1	55.4	46.7	50.2	56.8	45.4	55.7
2000 cps	32.7	33.5	31.3	26.7	39.1	34.3	39.9
3000 cps	7.1	4.6	5.4	3.4	12.8	7.5	13.7
4000 cps	2.1	-	4.6	1.0	0.8	5.0	2.4
6000 cps	0.5	-	-	-	1.1	1.1	1.6
Normal speech[1]	35.0	36.5	32.4	31.8	38.2	38.9	34.5
Women							
500 cps	45.5	41.2	44.6	51.2	35.2	54.5	39.8
1000 cps	56.9	55.8	56.0	56.2	52.8	63.4	59.4
2000 cps	41.8	43.6	33.7	45.5	42.6	48.1	33.8
3000 cps	21.4	18.0	18.6	25.4	18.4	26.3	17.9
4000 cps	14.3	10.4	13.5	16.1	14.7	15.2	14.8
6000 cps	4.4	3.9	3.3	3.8	5.6	4.0	7.9
Normal speech[1]	45.7	41.7	42.8	47.9	40.8	57.8	40.9
+16 DECIBELS OR HIGHER							
Men							
500 cps	2.2	4.4	2.7	2.9	0.6	1.9	-
1000 cps	2.9	4.4	6.3	1.9	0.6	1.9	7.1
2000 cps	14.6	10.4	16.2	15.7	11.2	14.3	20.6
3000 cps	38.3	34.2	40.1	39.6	44.9	30.1	37.1
4000 cps	56.1	53.1	51.5	64.6	58.4	48.0	44.9
6000 cps	68.4	51.8	65.5	77.6	70.2	64.0	60.6
Normal speech[1]	4.0	4.4	7.8	3.5	1.4	3.8	6.0
Women							
500 cps	5.0	7.7	8.6	3.2	3.6	5.4	-
1000 cps	4.1	6.2	4.9	3.6	2.5	3.9	3.3
2000 cps	9.4	8.1	13.4	7.0	13.3	8.3	5.1
3000 cps	12.0	14.6	15.8	10.1	10.4	9.2	12.0
4000 cps	15.0	16.4	19.5	13.3	14.2	11.2	15.7
6000 cps	34.5	36.2	44.3	27.6	30.2	34.6	38.5
Normal speech[1]	4.7	6.8	6.1	4.5	1.2	5.3	3.3

[1]Average at 500-2000 cycles per second.

Table 16. Prevalence rates of adults 55-64 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by income and sex: United States, 1960-62

Sex and frequency in cycles per second	Yearly income						
	Total	Under $2,000	$2,000-$3,999	$4,000-$6,999	$7,000-$9,999	$10,000 or more	Unknown
	Rate per 100 population						
-5 DECIBELS OR LOWER							
Men							
500 cps	33.2	32.6	31.4	33.7	42.1	24.4	38.0
1000 cps	44.3	46.8	37.2	42.6	45.4	49.1	47.2
2000 cps	20.1	14.2	11.8	18.4	31.8	24.7	25.8
3000 cps	3.4	5.0	2.8	2.1	2.5	6.3	2.4
4000 cps	1.1	0.6	-	-	-	6.3	-
6000 cps	-	-	-	-	-	-	-
Normal speech[1]	23.2	23.9	16.6	22.3	30.4	23.9	24.3
Women							
500 cps	27.7	28.3	17.4	20.1	34.7	45.3	36.6
1000 cps	37.4	34.4	30.3	32.4	47.1	41.9	48.5
2000 cps	24.0	26.1	18.4	17.9	29.1	38.8	25.9
3000 cps	10.5	11.0	11.5	8.1	11.1	15.3	8.6
4000 cps	4.1	5.2	2.5	4.4	-	7.1	5.0
6000 cps	0.2	0.9	-	-	-	-	-
Normal speech[1]	21.9	21.1	15.0	19.3	20.5	31.2	30.7
+16 DECIBELS OR HIGHER							
Men							
500 cps	7.1	13.1	7.9	5.3	8.2	3.5	4.7
1000 cps	6.4	14.0	8.8	4.9	3.2	-	7.2
2000 cps	28.1	36.6	35.4	27.7	19.4	17.3	30.7
3000 cps	59.5	67.1	65.3	58.9	56.5	51.0	55.8
4000 cps	75.1	86.9	82.2	77.5	67.3	57.1	74.4
6000 cps	84.8	90.1	87.4	89.6	75.1	72.3	91.2
Normal speech[1]	10.6	16.7	13.6	10.3	6.6	3.5	12.3
Women							
500 cps	10.2	8.4	10.1	10.5	5.1	13.5	12.8
1000 cps	6.2	3.5	9.2	5.2	2.3	7.9	7.4
2000 cps	15.9	8.8	17.0	18.3	13.6	18.6	18.2
3000 cps	29.1	22.1	30.3	33.2	28.0	24.5	32.2
4000 cps	39.7	41.7	39.6	42.3	33.4	32.8	42.0
6000 cps	62.5	65.1	64.6	62.1	58.0	49.4	67.6
Normal speech[1]	10.1	8.2	12.6	9.6	2.3	10.9	13.5

[1]Average at 500-2000 cycles per second.

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Table 17. Prevalence rates of adults 65-74 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by income and sex: United States, 1960-62

Sex and frequency in cycles per second	Yearly income						
	Total	Under $2,000	$2,000-$3,999	$4,000-$6,999	$7,000-$9,999	$10,000 or more	Unknown
	Rate per 100 population						
-5 DECIBELS OR LOWER							
Men							
500 cps	20.5	15.9	23.6	20.2	23.9	39.9	6.8
1000 cps	25.3	20.8	25.3	33.0	21.2	42.9	14.1
2000 cps	7.3	3.0	4.5	11.9	8.9	29.9	-
3000 cps	0.2	0.6	-	-	-	-	-
4000 cps	-	-	-	-	-	-	-
6000 cps	-	-	-	-	-	-	-
Normal speech[1]	8.5	3.7	5.2	13.3	15.3	33.0	-
Women							
500 cps	13.9	12.9	17.6	12.1	10.0	11.7	18.3
1000 cps	25.0	18.1	39.4	24.4	28.6	20.3	22.8
2000 cps	11.4	10.0	20.3	5.6	-	15.1	15.6
3000 cps	2.5	1.6	1.9	2.4	-	10.0	4.3
4000 cps	1.1	-	1.6	-	-	10.0	-
6000 cps	-	-	-	-	-	-	-
Normal speech[1]	11.0	6.2	15.6	15.7	2.3	15.1	18.3
+16 DECIBELS OR HIGHER							
Men							
500 cps	17.9	25.2	13.6	20.6	-	3.3	25.8
1000 cps	23.6	29.6	21.3	23.8	28.7	3.3	27.2
2000 cps	48.8	58.9	46.9	39.5	52.7	16.8	64.6
3000 cps	82.2	89.2	86.0	71.0	71.4	64.4	88.3
4000 cps	89.6	93.7	87.9	85.0	82.5	80.8	100.0
6000 cps	96.2	98.7	97.9	93.4	100.0	85.6	96.2
Normal speech[1]	30.5	36.8	31.2	22.4	35.1	9.6	38.0
Women							
500 cps	22.1	21.9	22.7	20.2	21.3	14.5	32.3
1000 cps	17.7	18.6	20.0	16.3	12.6	12.6	21.2
2000 cps	34.8	42.9	30.6	20.8	33.6	46.2	26.9
3000 cps	49.9	61.8	49.0	33.0	46.4	46.2	38.5
4000 cps	58.6	65.6	56.8	52.0	54.8	52.8	54.9
6000 cps	82.0	90.7	72.8	75.5	86.6	78.3	76.5
Normal speech[1]	26.4	32.9	24.7	20.8	23.0	17.5	24.0

[1]Average at 500-2000 cycles per second.

Table 18. Prevalence rates of adults 75-79 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by income and sex: United States, 1960-62

Sex and frequency in cycles per second	Yearly income						
	Total	Under $2,000	$2,000-$3,999	$4,000-$6,999	$7,000-$9,999	$10,000 or more	Unknown
	Rate per 100 population						
-5 DECIBELS OR LOWER							
Men							
500 cps	10.5	12.8	5.8	11.9	-	29.5	-
1000 cps	11.6	8.7	6.1	28.5	52.8	29.5	-
2000 cps	2.8	2.5	5.8	-	-	-	-
3000 cps	-	-	-	-	-	-	-
4000 cps	-	-	-	-	-	-	-
6000 cps	-	-	-	-	-	-	-
Normal speech[1]	2.5	2.5	-	11.9	-	-	-
Women							
500 cps	7.8	10.3	-	18.9	-	24.5	-
1000 cps	8.6	10.3	-	18.9	-	-	13.3
2000 cps	2.3	1.6	-	-	-	-	8.1
3000 cps	1.6	-	-	-	-	-	8.1
4000 cps	-	-	-	-	-	-	-
6000 cps	-	-	-	-	-	-	-
Normal speech[1]	0.7	1.6	-	-	-	-	-
+16 DECIBELS OR HIGHER							
Men							
500 cps	31.9	43.4	18.2	29.0	-	-	21.1
1000 cps	35.2	45.1	22.2	43.4	-	-	21.1
2000 cps	64.7	76.1	51.0	71.4	47.2	-	50.3
3000 cps	90.8	92.6	83.7	100.0	100.0	67.9	100.0
4000 cps	97.3	95.0	100.0	100.0	100.0	100.0	100.0
6000 cps	97.2	97.5	94.2	100.0	100.0	100.0	100.0
Normal speech[1]	48.7	64.7	22.2	59.6	47.2	-	21.1
Women							
500 cps	37.5	37.5	40.9	52.0	77.6	-	30.1
1000 cps	35.9	33.5	52.8	81.1	46.7	-	23.3
2000 cps	55.1	52.7	69.8	81.1	46.7	19.2	57.6
3000 cps	67.6	65.3	85.0	100.0	44.2	43.7	66.3
4000 cps	81.7	87.0	100.0	100.0	44.2	43.7	79.6
6000 cps	96.6	98.3	100.0	100.0	76.5	87.6	100.0
Normal speech[1]	47.3	38.0	76.8	81.1	46.7	19.2	45.4

[1]Average 500-2000 cycles per second.

Table 19. Prevalence rates of adults 18-79 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by occupation and sex: United States, 1960-62

Sex and frequency in cycles per second	Occupation							
	Total	Professional, managerial	Farm	Clerical, sales	Craftsmen	Operatives	Service	Laborers
-5 DECIBELS OR LOWER								
Both sexes	Rate per 100 population							
500 cps	53.3	55.5	45.2	54.9	50.9	52.6	48.2	62.8
1000 cps	64.0	66.2	57.8	70.3	61.9	58.9	57.7	72.4
2000 cps	47.6	52.2	33.1	57.5	40.1	44.1	42.2	48.9
3000 cps	22.8	24.4	9.7	33.0	15.8	18.4	21.2	25.7
4000 cps	14.0	15.8	4.7	22.5	4.7	12.6	13.3	14.7
6000 cps	5.6	5.9	1.6	9.0	1.4	5.3	6.2	6.4
Normal speech[1]	50.2	53.7	37.4	60.2	42.2	45.1	45.6	56.9
Men								
500 cps	53.5	54.9	45.0	52.4	51.9	52.8	50.5	63.3
1000 cps	62.1	63.8	57.3	63.7	62.6	57.2	55.5	73.3
2000 cps	45.1	50.8	32.7	51.8	40.7	44.2	36.2	48.0
3000 cps	17.0	18.6	8.8	21.1	15.7	15.0	13.6	22.9
4000 cps	8.6	10.6	3.9	10.0	4.7	8.8	10.4	12.0
6000 cps	3.3	3.3	1.8	4.6	1.3	4.2	3.7	4.4
Normal speech[1]	47.9	52.5	37.3	55.2	43.1	43.6	43.3	57.2
Women								
500 cps	53.1	56.9	*	56.5	*	51.9	46.9	*
1000 cps	67.6	71.5	*	74.6	*	62.9	59.0	*
2000 cps	52.6	55.2	*	61.2	*	44.1	45.8	*
3000 cps	33.8	37.5	*	40.7	*	26.1	25.8	*
4000 cps	24.5	27.7	*	30.7	*	21.4	15.0	*
6000 cps	10.2	11.8	*	11.9	*	7.8	7.6	*
Normal speech[1]	54.6	56.6	*	63.5	*	48.6	47.0	*
+16 DECIBELS OR HIGHER								
Both sexes								
500 cps	2.8	1.1	4.6	2.6	2.0	3.0	5.6	3.8
1000 cps	2.9	1.4	8.4	2.8	2.5	2.5	4.9	2.9
2000 cps	9.1	6.9	15.9	5.7	13.3	9.0	11.1	10.1
3000 cps	23.0	20.5	44.9	12.6	33.7	25.1	20.8	23.4
4000 cps	33.1	30.7	62.8	19.8	48.7	34.4	28.8	32.5
6000 cps	43.8	42.4	73.7	32.9	57.0	44.1	38.7	42.0
Normal speech[1]	4.2	2.3	10.4	3.6	3.5	4.4	7.4	3.6
Men								
500 cps	2.5	0.6	4.4	3.4	2.1	3.2	3.0	4.1
1000 cps	3.0	1.3	8.6	4.9	2.6	2.7	3.4	3.4
2000 cps	11.2	7.8	16.6	9.8	13.6	11.0	13.2	11.4
3000 cps	30.0	25.2	47.4	23.6	34.6	30.7	32.7	25.7
4000 cps	43.2	37.8	66.1	36.7	49.8	42.0	47.3	36.0
6000 cps	52.5	48.7	75.5	50.2	57.5	50.1	51.9	45.2
Normal speech[1]	4.4	2.0	10.6	5.7	3.6	5.1	6.4	4.1
Women								
500 cps	3.4	2.1	*	2.0	*	2.8	7.2	*
1000 cps	2.6	1.7	*	1.5	*	2.1	5.7	*
2000 cps	5.2	4.8	*	3.0	*	4.4	9.8	*
3000 cps	9.5	9.7	*	5.5	*	12.2	13.8	*
4000 cps	13.6	14.5	*	8.8	*	17.2	17.8	*
6000 cps	27.0	28.0	*	21.6	*	30.6	30.9	*
Normal speech[1]	3.7	2.9	*	2.1	*	2.9	7.9	*

[1]Average at 500-2000 cycles per second.

Table 20. Prevalence rates of adults 18-24 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by occupation and sex: United States, 1960-62

Sex and frequency in cycles per second	Occupation							
	Total	Professional, managerial	Farm	Clerical, sales	Craftsmen	Operatives	Service	Laborers
	Rate per 100 population							
-5 DECIBELS OR LOWER								
Men								
500 cps	66.7	52.1	73.2	70.9	66.3	66.5	67.6	71.8
1000 cps	78.0	85.4	100.0	76.7	85.7	67.4	78.0	83.1
2000 cps	68.7	72.0	40.6	71.9	67.4	69.9	75.7	63.4
3000 cps	38.1	42.5	43.8	35.6	35.5	32.9	56.0	42.2
4000 cps	28.1	30.4	17.0	27.8	18.1	24.2	51.4	35.7
6000 cps	12.4	21.1	-	13.0	1.8	12.6	30.0	11.6
Normal speech[1]	70.5	66.7	73.2	69.4	73.5	66.5	84.1	72.1
Women								
500 cps	72.7	69.2	*	73.3	*	72.1	81.6	*
1000 cps	88.2	90.0	*	91.6	*	81.5	91.0	*
2000 cps	72.6	79.8	*	75.6	*	69.4	69.0	*
3000 cps	57.3	78.6	*	60.3	*	57.5	43.2	*
4000 cps	48.5	57.1	*	53.9	*	45.9	30.6	*
6000 cps	24.6	25.7	*	23.6	*	34.0	18.7	*
Normal speech[1]	78.0	83.1	*	79.2	*	75.3	81.0	*
+16 DECIBELS OR HIGHER								
Men								
500 cps	1.2	-	-	-	5.0	-	-	1.7
1000 cps	0.3	-	-	-	1.8	-	-	-
2000 cps	1.4	-	-	-	3.2	1.9	4.8	-
3000 cps	3.5	2.8	-	1.8	4.8	4.2	4.8	2.3
4000 cps	7.1	-	15.5	5.0	9.9	7.5	7.1	9.0
6000 cps	14.8	5.6	56.2	8.2	31.2	12.7	15.1	10.2
Normal speech[1]	0.9	-	-	-	1.8	1.9	-	-
Women								
500 cps	0.4	-	*	-	*	-	1.8	*
1000 cps	0.4	-	*	-	*	-	1.8	*
2000 cps	1.0	-	*	1.3	*	-	1.8	*
3000 cps	1.0	-	*	1.3	*	-	1.8	*
4000 cps	0.9	4.7	*	-	*	-	1.8	*
6000 cps	3.5	4.7	*	2.5	*	-	7.4	*
Normal speech[1]	0.4	-	*	-	*	-	1.8	*

[1]Average at 500-2000 cycles per second.

Table 21. Prevalence rates of adults 25-34 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by occupation and sex: United States, 1960-62

Sex and frequency in cycles per second	Occupation							
	Total	Professional, managerial	Farm	Clerical, sales	Craftsmen	Operatives	Service	Laborers
	Rate per 100 population							
-5 DECIBELS OR LOWER								
Men								
500 cps	66.8	72.0	63.9	65.9	64.8	60.7	74.7	66.5
1000 cps	75.8	81.2	71.5	81.2	73.2	66.3	78.4	85.6
2000 cps	62.4	72.2	61.4	71.6	57.2	54.5	52.2	65.5
3000 cps	29.5	31.5	33.2	35.2	29.1	23.6	25.8	37.9
4000 cps	14.8	23.0	13.5	13.4	7.9	12.3	15.2	16.5
6000 cps	4.5	2.7	11.8	8.5	4.2	4.4	1.4	7.4
Normal speech[1]	64.6	74.3	57.6	73.9	56.8	56.1	66.1	66.8
Women								
500 cps	63.0	70.0	*	62.0	*	69.2	52.1	*
1000 cps	83.0	94.8	*	88.7	*	83.3	62.5	*
2000 cps	71.4	76.4	*	81.8	*	56.9	60.5	*
3000 cps	50.5	50.1	*	63.3	*	39.4	38.8	*
4000 cps	36.5	37.7	*	48.8	*	38.9	15.3	*
6000 cps	12.4	13.0	*	16.4	*	7.2	8.8	*
Normal speech[1]	70.4	72.5	*	83.7	*	64.7	53.1	*
+16 DECIBELS OR HIGHER								
Men								
500 cps	1.2	-	-	1.5	1.1	1.7	1.6	4.6
1000 cps	1.0	-	-	1.5	1.1	1.5	1.6	2.2
2000 cps	3.4	-	6.0	2.3	5.7	5.1	5.3	2.3
3000 cps	12.7	7.1	21.2	13.1	15.6	14.4	13.1	15.7
4000 cps	24.8	21.0	33.3	16.9	30.0	24.0	27.9	32.6
6000 cps	32.8	25.4	42.4	29.1	34.5	39.1	33.0	38.2
Normal speech[1]	1.5	-	-	1.5	1.1	1.5	5.3	4.6
Women								
500 cps	1.3	-	*	1.3	*	2.7	2.0	*
1000 cps	1.0	-	*	1.3	*	0.9	2.0	*
2000 cps	1.4	1.1	*	1.3	*	2.1	1.9	*
3000 cps	2.0	-	*	2.3	*	2.7	4.0	*
4000 cps	3.5	1.1	*	2.3	*	2.7	10.2	*
6000 cps	9.9	7.3	*	7.6	*	8.1	14.7	*
Normal speech[1]	1.3	-	*	1.3	*	2.7	2.0	*

[1]Average at 500-2000 cycles per second.

Table 22. Prevalence rates of adults 35-44 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by occupation and sex: United States, 1960-62

Sex and frequency in cycles per second	Occupation							
	Total	Professional, managerial	Farm	Clerical, sales	Craftsmen	Operatives	Service	Laborers
	Rate per 100 population							
-5 DECIBELS OR LOWER								
Men								
500 cps	56.8	62.5	65.4	50.1	52.7	50.3	64.0	67.4
1000 cps	63.5	66.1	76.0	63.1	64.6	51.0	65.4	76.3
2000 cps	47.9	52.6	43.1	49.8	45.2	44.8	45.0	48.6
3000 cps	14.0	19.2	10.1	19.9	11.0	5.7	6.5	23.2
4000 cps	4.6	7.4	5.5	4.9	3.1	2.8	5.7	2.3
6000 cps	2.2	4.6	3.2	1.4	0.6	1.8	-	1.8
Normal speech[1]	51.4	56.5	59.0	56.1	48.0	39.2	57.9	58.4
Women								
500 cps	59.8	68.4	*	60.3	*	54.0	56.5	*
1000 cps	71.4	83.5	*	72.6	*	59.4	69.9	*
2000 cps	57.4	64.0	*	58.6	*	41.4	65.2	*
3000 cps	34.0	44.4	*	33.8	*	26.2	31.4	*
4000 cps	26.5	36.5	*	24.4	*	24.8	23.2	*
6000 cps	12.6	21.0	*	10.4	*	7.1	13.1	*
Normal speech[1]	60.2	66.2	*	64.8	*	47.5	60.5	*
+16 DECIBELS OR HIGHER								
Men								
500 cps	2.0	0.4	1.9	4.8	1.9	1.8	-	5.9
1000 cps	3.0	1.6	3.6	4.8	3.6	2.8	-	5.0
2000 cps	6.8	4.4	7.1	8.0	6.2	11.8	-	6.5
3000 cps	25.9	19.7	30.6	24.2	27.2	35.5	16.8	26.5
4000 cps	41.9	34.4	38.0	48.6	46.0	49.4	32.7	33.1
6000 cps	50.0	47.6	47.4	54.7	49.4	53.4	38.2	52.7
Normal speech[1]	3.7	1.4	1.9	6.7	2.9	6.8	-	5.1
Women								
500 cps	1.3	1.7	*	0.9	*	0.8	2.3	*
1000 cps	0.8	1.7	*	0.9	*	-	0.6	*
2000 cps	2.0	1.7	*	2.0	*	1.3	3.0	*
3000 cps	5.2	1.4	*	2.9	*	11.8	7.0	*
4000 cps	7.5	1.4	*	7.1	*	14.3	7.8	*
6000 cps	18.8	8.9	*	18.4	*	34.4	15.3	*
Normal speech[1]	1.0	1.7	*	1.4	*	-	0.6	*

[1]Average at 500-2000 cycles per second.

Table 23. Prevalence rates of adults 45-54 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by occupation and sex: United States, 1960-62

Sex and frequency in cycles per second	Occupation							
	Total	Professional, managerial	Farm	Clerical, sales	Craftsmen	Operatives	Service	Laborers
-5 DECIBELS OR LOWER	Rate per 100 population							
Men								
500 cps	45.0	49.0	39.6	42.0	43.5	41.9	21.5	67.3
1000 cps	53.4	50.9	50.2	46.4	50.8	55.2	43.7	77.8
2000 cps	32.6	38.4	35.3	35.7	25.7	23.9	31.4	46.1
3000 cps	7.0	8.8	2.8	10.7	8.1	4.3	-	9.4
4000 cps	1.8	3.3	4.0	4.4	0.4	1.1	-	-
6000 cps	0.6	0.9	-	2.3	-	0.8	-	-
Normal speech[1]	35.7	41.8	37.0	39.8	26.9	26.8	20.6	62.6
Women								
500 cps	49.0	52.3	*	50.0	*	48.4	43.8	*
1000 cps	59.8	61.7	*	63.3	*	53.8	56.7	*
2000 cps	43.5	41.0	*	52.1	*	43.2	37.2	*
3000 cps	22.7	26.6	*	24.8	*	12.4	22.6	*
4000 cps	15.1	22.2	*	16.1	*	5.6	11.4	*
6000 cps	4.3	7.1	*	4.5	*	-	2.9	*
Normal speech[1]	47.8	50.6	*	53.0	*	43.1	42.6	*
+16 DECIBELS OR HIGHER								
Men								
500 cps	2.1	0.8	2.6	3.2	-	4.4	2.2	4.3
1000 cps	2.6	0.8	7.7	3.2	0.8	2.4	6.0	5.4
2000 cps	15.0	15.5	13.4	9.0	18.0	13.8	14.8	17.2
3000 cps	39.2	30.5	40.3	25.5	48.6	52.6	39.0	26.8
4000 cps	55.7	46.4	70.0	41.5	65.6	69.1	55.1	34.3
6000 cps	68.3	61.6	77.2	73.4	77.0	73.9	55.5	52.4
Normal speech[1]	4.0	1.5	10.2	3.2	2.3	4.7	8.4	6.2
Women								
500 cps	5.6	3.9	*	4.5	*	5.5	10.0	*
1000 cps	4.1	3.4	*	3.9	*	5.0	5.2	*
2000 cps	6.5	6.5	*	3.9	*	9.1	9.4	*
3000 cps	10.0	12.9	*	7.1	*	13.2	10.3	*
4000 cps	13.5	14.9	*	7.8	*	24.9	12.5	*
6000 cps	33.6	40.1	*	30.6	*	38.2	27.2	*
Normal speech[1]	5.0	5.1	*	3.9	*	5.0	7.3	*

[1]Average at 500-2000 cycles per second.

Table 24. Prevalence rates of adults 55-64 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by occupation and sex: United States, 1960-62

Sex and frequency in cycles per second	Occupation							
	Total	Professional, managerial	Farm	Clerical, sales	Craftsmen	Operatives	Service	Laborers
	Rate per 100 population							
-5 DECIBELS OR LOWER								
Men								
500 cps	36.1	29.3	35.1	37.1	40.4	35.0	43.4	39.1
1000 cps	45.4	47.6	56.0	54.9	48.9	33.3	30.7	41.7
2000 cps	20.7	30.4	21.4	34.4	18.8	8.8	3.6	18.7
3000 cps	4.0	7.3	4.9	5.3	3.6	2.6	-	-
4000 cps	1.2	2.6	-	5.3	-	-	-	-
6000 cps	-	-	-	-	-	-	-	-
Normal speech[1]	24.4	26.7	23.2	41.2	24.6	13.6	17.1	25.2
Women								
500 cps	25.5	32.1	*	25.5	*	20.2	23.8	*
1000 cps	38.2	39.7	*	48.7	*	37.5	24.3	*
2000 cps	23.9	31.2	*	29.0	*	18.4	16.7	*
3000 cps	12.4	12.3	*	15.1	*	6.7	6.7	*
4000 cps	0.7	-	*	-	*	-	3.0	*
6000 cps	-	-	*	-	*	-	-	*
Normal speech[1]	21.6	24.3	*	24.5	*	23.5	17.0	*
+16 DECIBELS OR HIGHER								
Men								
500 cps	5.6	2.1	6.8	8.4	1.4	14.6	7.9	4.8
1000 cps	4.8	1.7	8.1	8.4	1.4	12.0	3.7	4.5
2000 cps	25.9	14.4	14.8	27.0	30.9	36.5	36.4	31.4
3000 cps	59.4	57.4	62.4	37.4	63.3	65.5	65.6	59.8
4000 cps	74.4	66.2	81.7	53.3	80.7	79.7	80.8	82.4
6000 cps	84.0	75.2	94.0	74.3	87.9	93.3	87.8	80.5
Normal speech[1]	8.5	4.1	10.2	10.7	5.5	18.1	11.4	6.1
Women								
500 cps	6.2	4.1	*	2.8	*	6.0	11.4	*
1000 cps	5.3	2.4	*	2.1	*	6.0	11.6	*
2000 cps	12.1	10.7	*	10.3	*	6.0	20.7	*
3000 cps	26.3	29.8	*	19.7	*	31.2	28.6	*
4000 cps	40.0	51.3	*	36.0	*	34.7	39.9	*
6000 cps	65.1	68.4	*	63.2	*	68.1	66.0	*
Normal speech[1]	9.2	7.1	*	6.3	*	6.0	18.2	*

[1]Average at 500-2000 cycles per second.

Table 25. Prevalence rates by adults 65-74 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by occupation and sex: United States, 1960-62

Sex and frequency in cycles per second	Occupation							
	Total	Professional, managerial	Farm	Clerical, sales	Craftsmen	Operatives	Service	Laborers
	Rate per 100 population							
-5 DECIBELS OR LOWER								
Men								
500 cps	28.6	34.3	31.4	26.5	23.6	33.6	8.3	44.6
1000 cps	36.0	41.3	33.3	38.1	37.1	33.6	20.1	41.5
2000 cps	13.0	26.8	15.5	18.5	4.3	-	-	-
3000 cps	0.5	-	2.8	-	-	-	-	-
4000 cps	-	-	-	-	-	-	-	-
6000 cps	-	-	-	-	-	-	-	-
Normal speech[1]	14.6	29.1	18.2	18.5	4.3	-	-	6.4
Women								
500 cps	15.0	17.0	*	15.1	*	21.2	10.0	*
1000 cps	44.8	17.0	*	44.6	*	62.4	45.7	*
2000 cps	14.0	17.0	*	15.1	*	12.4	9.0	*
3000 cps	1.3	-	*	-	*	-	2.7	*
4000 cps	-	-	*	-	*	-	-	*
6000 cps	-	-	*	-	*	-	-	*
Normal speech[1]	15.5	17.0	*	15.1	*	12.4	14.7	*
+16 DECIBELS OR HIGHER								
Men								
500 cps	6.1	-	10.0	3.7	10.3	-	9.8	7.0
1000 cps	18.1	10.4	24.6	29.2	20.2	-	18.3	7.0
2000 cps	35.9	22.1	47.5	40.5	50.6	22.4	18.3	32.1
3000 cps	75.6	50.7	79.5	84.7	91.3	85.6	74.2	80.3
4000 cps	86.1	59.6	94.6	88.5	100.0	100.0	100.0	81.2
6000 cps	95.6	85.9	97.2	100.0	100.0	100.0	100.0	93.5
Normal speech[1]	21.3	14.9	31.8	29.2	24.0	-	18.3	7.0
Women								
500 cps	7.5	-	*	-	*	-	15.3	*
1000 cps	7.2	-	*	-	*	-	14.7	*
2000 cps	18.3	24.0	*	-	*	14.8	24.1	*
3000 cps	33.0	32.0	*	-	*	28.0	46.1	*
4000 cps	47.6	32.0	*	40.7	*	53.8	54.0	*
6000 cps	71.8	60.5	*	70.5	*	43.4	86.1	*
Normal speech[1]	13.7	-	*	-	*	9.5	24.0	*

[1]Average at 500-2000 cycles per second.

Table 26. Prevalence rates of adults 75-79 years of age with hearing levels 5 decibels or more below and 16 decibels or more above audiometric zero for the better ear at 500, 1000, 2000, 3000, 4000, and 6000 cycles per second by occupation and sex: United States, 1960-62

Sex and frequency in cycles per second	Occupation							
	Total	Professional, managerial	Farm	Clerical, sales	Craftsmen	Operatives	Service	Laborers
	Rate per 100 population							
-5 DECIBELS OR LOWER								
Men								
500 cps	-	-	-	-	-	-	-	-
1000 cps	48.5	100.0	-	-	55.5	-	-	-
2000 cps	-	-	-	-	-	-	-	-
3000 cps	-	-	-	-	-	-	-	-
4000 cps	-	-	-	-	-	-	-	-
6000 cps	-	-	-	-	-	-	-	-
Normal speech[1]	-	-	-	-	-	-	-	-
Women								
500 cps	-	-	*	-	*	-	-	*
1000 cps	-	-	*	-	*	-	-	*
2000 cps	-	-	*	-	*	-	-	*
3000 cps	-	-	*	-	*	-	-	*
4000 cps	-	-	*	-	*	-	-	*
6000 cps	-	-	*	-	*	-	-	*
Normal speech[1]	-	-	*	-	*	-	-	*
+16 DECIBELS OR HIGHER								
Men								
500 cps	18.7	-	-	-	44.5	-	-	-
1000 cps	-	-	-	-	-	-	-	-
2000 cps	34.3	-	-	-	44.5	-	-	100.0
3000 cps	100.0	100.0	-	-	100.0	-	100.0	100.0
4000 cps	100.0	100.0	-	-	100.0	-	100.0	100.0
6000 cps	100.0	100.0	-	-	100.0	-	100.0	100.0
Normal speech[1]	18.7	-	-	-	44.5	-	-	-
Women								
500 cps	73.1	-	*	100.0	*	-	64.6	*
1000 cps	49.1	-	*	-	*	-	64.6	*
2000 cps	76.0	-	*	-	*	-	100.0	*
3000 cps	73.1	-	*	100.0	*	-	64.6	*
4000 cps	73.1	-	*	100.0	*	-	64.6	*
6000 cps	73.1	-	*	100.0	*	-	64.6	*
Normal speech[1]	49.1	-	*	-	*	-	64.6	*

[1]Average at 500-2000 cycles per second.

APPENDIX I

SOCIOECONOMIC FACTORS

The following are the classifications and definitions used for the socioeconomic factors referred to in this report:

Occupation.—For the purpose of this survey, the "occupation" obtained during the household interview [1] was the principal job or business of the examinee. If the person worked at a job or business during the 2 weeks preceding the interview, the question concerning his occupation (or what kind of work he was doing) applied to his job during that period. If the respondent held more than one job, the question was directed to the one at which he spent the most time. It referred to the one he considered more important when equal time was spent at each job. A person who had not begun work at a new job, was looking for work, or was on layoff from work was questioned about his last full-time civilian job at which he spent 35 or more hours per week and which lasted 2 consecutive weeks or more. A person who had a job to which he had not yet reported and had never had a previous job or business was classified as a "new worker."

The occupation groupings used and the corresponding code following the U.S. Bureau of the Census, 1960 Census of Population, Classified Index of Occupations and Industries, are as follows:

Occupational title	*Census code*
Professional, technical, and managerial	R,000-195,250-285
Farmers and farm managers	N,222
Clerical and sales workers	S,Y,Z,301-395
Craftsmen, foremen, and kindred workers	Q,401-545
Operatives and kindred workers	T,W,601-721
Private household and service workers	P,801-803,810-890
Farm and other laborers (except mine)	U,V,X,901,905, 960-973
Unknown (including new workers)	995 and all other codes

This information was not collected for the first 2 stands of the 42 in the survey. It has been assumed that the prevalence rates of "good" and "poor" hearing, as defined here, within the various occupational groups for those two stands would be similar to those for the remainder of the United States.

Education.—Education was obtained from the examinee in terms of the highest grade of school completed in a regular school where persons are given a formal education. A "regular" school was considered to be one which 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 was not counted in determining the highest grade of school completed.

Income.—Each examinee was classified according to the total income of the family of which he was a member. Within a household all persons related to each other by blood, marriage, or adoption constituted a family. Unrelated individuals were classified according to their own income. The reported income was the total of all income received by members of the family in the 12-month period preceding the week of the interview. Income from all sources was included, e.g., wages, salaries, rents from properties, pensions, help from relatives, and so forth.

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APPENDIX II

STATISTICAL NOTES

The Survey Design

The first cycle of the Health Examination Survey employed a highly stratified multistage probability design in which a sample of the civilian, noninstitutional population of the conterminous United States 18-79 years of age was selected. At the first stage, a sample of 42 primary sampling units (PSU's) was drawn from among the 1,900 geographic units into which the United States was divided. Random selection was controlled within regional and size-of-urban-place strata into which the units were classified. As used here a PSU is a standard metropolitan statistical area or one to three contiguous counties. Later stages result in the random selection of clusters of typically about four persons from a neighborhood within the PSU. The total sample included some 7,700 persons in 29 different States. The detailed structure of the design and the conduct of the survey have been described in previous reports.[1,2]

Reliability

The methodological strength of the survey is derived especially from its use of scientific probability sampling techniques and highly standardized and closely controlled measurement processes. This does not imply that statistics from the survey are exact or without error. Data from the survey are imperfect for three major reasons: (1) results are subject to sampling error, (2) the actual conduct of a survey never agrees perfectly with the design, and (3) the measurement processes themselves are inexact, even though standardized and controlled.

The first-stage evaluation of the survey was reported in reference 2, which dealt principally with an analysis of the faithfulness with which the sampling design was carried out. This study notes that out of the 7,700 sample persons the 6,670 who were examined—a response rate of over 86 percent—gave evidence that they were a highly representative sample of the civilian, noninstitutional population of the United States. Imputation of nonrespondents was accomplished by attributing to nonexamined persons the characteristics of comparable examined persons as described in reference 2. The specific procedure used amounted to inflating the sampling weight for each examined person in order to compensate for sample persons at that stand of the same age-sex group who were not examined.

In addition to those persons who were not examined at all, there were some whose examination was incomplete in one procedure or another. Age, sex, and race were known for every examined person, but for a number of the examinees, one or more of the hearing tests were not available. For each of the 27 examinees not given the hearing test, a respondent of the same age-sex-race group was selected at random and his test results assigned to the nonexamined person.

When only incomplete test results were available (56 persons), a variety of methods were used, depending upon the extent of existing data. If only one ear was tested, it was assumed that the findings for the other ear would have been the same. If partial results were available, the levels reached by the other ear at the particular frequencies were used as the estimates, if they were consistent with the rest of the audiogram for the ear on which the data were missing. Otherwise, projections were made on the parts of the audiogram available.

Sampling and Measurement Error

In the present report, reference has been made to efforts to minimize bias and variability of the measurement techniques. The probability design of the survey makes possible the calculation of sampling errors. Traditionally the role of the sampling error has been the determination of how imprecise the survey results may be because they come from a sample rather than from the measurement of all elements in the universe.

The estimation of sampling errors for a study of the type of the Health Examination Survey is difficult for at least three reasons: (1) measurement error and "pure" sampling error are confounded in the data—it is not easy to find a procedure which will either completely include both or treat one or the other separately, (2) the survey design and estimation procedure are complex and, accordingly, require com-

putationally involved techniques for the calculation of variances, and (3) from the survey come thousands of statistics, many for subclasses of the population for which there are a small number of sample cases. Estimates of sampling error are obtained from the sample data and are themselves subject to sampling error when the number of cases in a cell is small or even occasionally when the number of cases is substantial.

Estimates of approximate sampling variability for selected statistics used in this report are presented in table I. These estimates have been prepared by a replication technique which yields overall variability through observation of variability among random subsamples of the total sample. The method reflects both "pure" sampling variance and a part of the measurement variance.

In accordance with usual practice, the interval estimate for any statistic may be considered the range within one standard error of the tabulated statistic, with 68 percent confidence; or the range within two standard errors of the tabulated statistics, with 95 percent confidence.

Small Numbers

In some tables magnitudes are shown for cells for which the sample size is so small that the sampling error may be several times as great as the statistic itself. Obviously in such instances the statistic has no meaning in itself except to indicate that the true quantity is small. Such numbers, if shown, have been included in the belief that they help to convey an impression of the overall story of the table.

Table I. Standard error, expressed in percentage, for persons with a specified hearing threshold level at 1000 and 4000 cycles per second: United States, 1960-62

Item and age	Both sexes				Men				Women			
	1000 cps		4000 cps		1000 cps		4000 cps		1000 cps		4000 cps	
	-5 dB or less	+16 dB or more	-5 dB or less	+16 dB or more	-5 dB or less	+16 dB or more	-5 dB or less	+16 dB or more	-5 dB or less	+16 dB or more	-5 dB or less	+16 dB or more
	Standard error											
Education												
Less than 5 years	3.2	2.6	1.5	3.0	3.2	2.4	0.8	3.2	5.4	4.4	2.6	5.9
18-24 years	11.0	---	11.9	9.2	15.2	---	11.1	15.2	21.6	---	20.4	5.0
45-54 years	6.5	3.5	1.7	6.5	8.2	3.8	1.1	14.4	7.4	2.0	1.5	9.1
75-79 years	8.1	10.7	---	8.1	18.9	13.6	---	---	4.6	17.4	---	12.4
13 years or more	2.6	0.4	1.5	2.0	3.1	0.7	2.3	3.0	2.6	0.5	2.8	1.4
18-24 years	2.7	---	4.6	1.6	4.3	---	7.9	2.9	2.6	---	6.6	---
45-54 years	4.7	1.4	3.2	4.2	3.3	1.6	2.4	4.0	7.2	1.2	5.4	2.9
Income												
$2,000-$3,999	1.8	0.7	1.3	1.2	2.6	1.1	1.5	1.7	1.8	1.2	2.1	1.6
18-24 years	3.5	0.9	4.3	1.7	6.4	---	6.1	3.7	2.1	0.6	5.0	1.1
45-54 years	4.2	2.0	2.6	3.8	7.6	3.1	2.5	6.4	4.2	1.8	3.0	3.7
75-79 years	4.7	9.4	---	2.3	6.0	10.8	---	---	---	21.3	---	---
$7,000-$9,999	1.8	0.6	1.5	1.2	2.7	1.1	1.3	2.8	2.4	0.7	2.4	2.0
18-24 years	4.3	---	5.9	2.0	4.5	---	7.1	2.4	5.6	---	6.4	---
45-54 years	4.5	1.2	2.2	4.3	4.8	0.6	0.9	5.7	5.1	1.6	3.7	5.7
Occupation												
Professional	2.7	0.3	1.4	1.4	2.9	0.4	1.2	2.1	3.6	0.9	3.0	2.7
Clerical-sales	2.2	0.6	1.6	1.2	3.7	1.9	1.8	2.6	2.0	0.6	2.0	1.4
Operatives	1.7	0.5	1.7	1.7	2.8	0.4	1.3	1.6	3.0	1.0	3.2	3.2
Service	4.2	0.8	1.7	2.5	5.7	1.2	1.8	4.5	4.4	1.2	2.3	2.9

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