

Now Hear This . . .



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Hearing Loss: The Numbers 1.4 Million Adults in Michigan Report Having Hearing Loss

For the year 2003, as part of the Behavioral Risk Factor Surveillance System (BRFSS) five questions on hearing loss were included in the Michigan survey. The BRFSS is a random-digit-dialed telephone survey

of the civilian, non-institutionalized population age \geq 18 years that is administered by states throughout the country. Core questions such as cigarette usage are administered in each state and then states can elect to

Table 1. Hearing Loss, 2003 Michigan BRFSS (% \pm 95% Confidence Interval Limit)

Demographic Characteristics	Hearing Loss ^a	Hearing Loss in One or Both Ears ^b	Used Hearing Aid ^c
Total	19.0 \pm 1.4	18.9 \pm 1.4	2.6 \pm 0.5
Age			
18-44	10.2 \pm 1.8	10.2 \pm 1.8	0.4 \pm 0.4
45-54	21.3 \pm 3.4	21.3 \pm 3.4	0.9 \pm 0.7
55-64	25.7 \pm 3.9	25.5 \pm 3.9	3.0 \pm 1.5
65-74	33.1 \pm 5.1	33.1 \pm 5.1	7.7 \pm 2.7
75+	44.2 \pm 5.3	43.1 \pm 5.3	14.9 \pm 3.7
Gender			
Male	23.2 \pm 2.4	23.2 \pm 2.4	3.0 \pm 0.8
Female	15.1 \pm 1.6	14.9 \pm 1.6	2.2 \pm 0.6
Race			
White	20.5 \pm 1.6	20.3 \pm 1.6	3.0 \pm 0.6
Black	11.7 \pm 4.1	11.7 \pm 4.1	0.4 \pm 0.6*
Education			
Less than high school	23.5 \pm 4.8	23.4 \pm 4.8	4.4 \pm 2.0
High school graduate	20.5 \pm 2.6	20.3 \pm 2.6	2.8 \pm 0.9
Some college	21.0 \pm 2.9	20.9 \pm 2.9	2.0 \pm 0.8
College graduate	13.7 \pm 2.2	13.6 \pm 2.2	2.4 \pm 0.9
Household Income			
< \$20,000	22.0 \pm 3.8	21.9 \pm 3.8	3.2 \pm 1.3
\$20,000—\$34,999	22.2 \pm 3.3	22.1 \pm 3.3	3.9 \pm 1.3
\$35,000—\$49,999	19.7 \pm 3.7	19.6 \pm 3.7	2.2 \pm 1.2
\$50,000+	14.8 \pm 2.1	14.7 \pm 2.1	1.5 \pm 0.7

^aThe proportion who reported that they had deafness or trouble hearing in one or both ears, or that they used a hearing aid now.

^bThe proportion who reported that they had deafness or trouble hearing in one or both ears now.

^cThe proportion who reported that they used a hearing aid now.

*The 95% confidence interval exceeds possible limits.

add modules. Preliminary results of the hearing questions from the 2003 BRFSS survey in Michigan are shown in Table 1. The results in Table 1 are based on the response to the following two questions: “Do you now have deafness or trouble hearing in one or both ears?” and “Do you now use a hearing aid?” Nineteen percent of adults in Michigan indicate they have hearing loss and 2.6% use a hearing aid.

Table 1 shows that hearing loss increases with age, is more common in men than women, more common in whites than blacks, and more common in those with less education and less income.

Applying these percentages to the Michigan adult population, one would estimate that 822,000 men and 574,000 women or approximately 1.4 million adults in Michigan have hearing loss, although only 200,000 of them use hearing aids.

This estimate of hearing loss in the state is much greater than previous estimates of hearing loss in Michigan which were based on the same questions administered in the National Health Interview Survey in the early 1990’s (Ries, 1994). Results from that survey showed that 11% of adults reporting having hearing loss. Hearing loss increased 17% in the 1980’s (Collins, 1997) and how much of the difference between the higher prevalence in Michigan in 2003 of 19% and the lower 11% national estimate from 1990-1991 is secondary to a further increase in rates versus a higher prevalence of hearing loss in Michigan is unknown.

The third question asked was: “How old were you when you first developed deafness or trouble hearing in one or both ears?” The mean/median year of onset is 40 years, with most hearing loss (>75%) beginning at 18 years or older.

Table 2 shows the results of final two questions about hearing loss: “Did a doctor or other medical person ever tell you that your deafness or trouble hearing was related to noise exposure at work?” and “Did you ever tell a doctor or other medical person that your deafness or trouble hearing was related to noise exposure at work?” Among individuals with deafness or trouble hearing, 42% of the men and 12% of the women answered yes to at least one of the two questions about the work-relatedness of their deafness or trouble hearing.

The report of hearing loss related to noise exposure at work decreased in the elderly (> 75 years of age) and college graduates. Income was not related to the prevalence of work-related hearing loss. How much of the decrease in hearing loss attributed to noise in the elderly is secondary to a true decrease versus tendency to attribute hearing loss in the elderly to presbycusis is not known.

Using the percentages in Table 3 one would estimate that approximately 341,000 men, and 77,000 women, approximately 420,000 total, have hearing loss from exposure to noise at work in Michigan. This estimate is appreciably higher than our previous estimate of 86,000 based on national data (Rosenman et al, 2004).

One can question the accuracy of these estimates since they are all self-reports. However, in the field of communication disorders, prevalence statistics based on self-report data are the standard approach. Any concerns about the validity of the results would not explain the higher prevalence in Michigan versus the rest of the country since the questions and methodology to generate these results were similar in both surveys. There is one study of farmers that compared self-reported hearing loss with audiograms and found that self-reports were a useful approximation (Gomez et al, 2001).

The problem of hearing loss from noise exposure at work is large and hearing loss in general even greater. The low use of hearing aids could be due to a number of reasons: hearing loss though prevalent is not that severe; inadequate access to health care personnel who provide hearing aids; and/or resistance to use hearing aids.

Most hearing loss begins in adults. There is active testing for hearing loss in children. More preventive activity is needed to address the problem in adults. Identification of noisy workplaces and implementation of hearing conservation programs in these workplaces is an example of one such activity. The reporting of individuals with hearing loss is one way to identify such workplaces. We receive 1,000-2,000 reports per year of individuals with work-related noise induced hearing loss. Our estimates suggest there is a lot more hearing loss in the Michigan population that is not being reported. Please help. See the various ways you can report work-related noise induced hearing loss cases on the fourth page.

Table 2. Noise Exposure at Work, 2003 Michigan BRFS (% ± 95% Confidence Interval Limit)

Demographic Characteristics	Health Care Professional Ever Told that Respondent's Deafness or Trouble Hearing Due to Noise Exposure at Work ^a	Respondent Ever Told Health Care Professional that Deafness or Trouble Hearing Due to Noise Exposure at Work ^b	Either a Health Care Professional or the Respondent Ever Told Deafness or Trouble Hearing Due to Noise Exposure at Work ^c
Total	25.9 ± 3.9	20.4 ± 3.5	29.9 ± 4.0
Age			
18-44	27.3 ± 9.9	17.8 ± 8.3	30.6 ± 10.2
45-54	27.9 ± 8.5	26.6 ± 8.6	31.5 ± 9.0
55-64	33.2 ± 8.6	26.6 ± 7.9	39.2 ± 8.9
65-74	30.6 ± 9.4	21.6 ± 8.4	33.8 ± 9.4
75+	10.9 ± 5.0	9.6 ± 4.6	15.4 ± 5.7
Gender			
Male	36.4 ± 5.7	27.9 ± 5.3	41.6 ± 5.9
Female	9.8 ± 3.4	9.1 ± 3.4	12.4 ± 3.8
Education			
Less than high school	27.3 ± 10.7	15.7 ± 7.7	30.9 ± 10.9
High school graduate	27.9 ± 6.8	23.1 ± 6.6	33.5 ± 7.2
Some college	29.3 ± 7.4	23.4 ± 6.7	33.4 ± 7.6
College graduate	16.8 ± 6.9	15.3 ± 6.6	18.6 ± 7.1
Household Income			
< \$20,000	26.8 ± 8.7	17.0 ± 6.9	30.2 ± 8.9
\$20,000—\$34,999	22.8 ± 7.5	22.5 ± 7.5	30.7 ± 8.3
\$35,000—\$49,999	26.9 ± 10.4	18.6 ± 8.8	30.8 ± 10.8
\$50,000+	28.0 ± 7.6	23.9 ± 7.3	31.1 ± 7.8
^a Among those who reported having trouble hearing or using a hearing aid, the proportion who reported that a health care professional ever told them that their deafness or trouble hearing was related to noise exposure at work. ^b Among those who reported having trouble hearing or using a hearing aid, the proportion who reported that they ever told a health care professional that their deafness or trouble hearing was related to noise exposure at work. ^c Among those who reported having trouble hearing or using a hearing aid, the proportion who reported either that a health care professional ever told them or that they ever told a health care professional that their deafness or trouble hearing was related to noise exposure at work.			

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Now Hear This...

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In this issue:
Hearing Loss: The Numbers

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**Michigan Law Requires the
Reporting of Known or Suspected
Occupational NIHL**

Reporting can be done by:

Internet

www.chm.msu.edu/ocm

E-Mail

ODREPORT@ht.msu.edu

FAX

517-432-3606

Telephone

1-800-446-7805

Mail

MIOSHA-MTS Division

P.O. Box 30649

Lansing, MI 48909-8149

**Suggested Criteria for Reporting
Occupational NIHL**

1. A history of significant exposure to noise at work; AND
2. A STS of 10 dB or more in either ear at an average of 2000, 3000 & 4000 Hz. And the employee's total hearing level is 25 dB or more at the same three frequencies. OR
3. A fixed loss. * Suggested definitions: a 25 dB or greater loss in either ear at an average of: 500, 1000 & 2000 Hz; or 1000, 2000 & 3000 Hz; or 3000, 4000 & 6000 Hz; or a 15 dB or greater loss in either ear at an average of 3000 & 4000 Hz.

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