



## Estimates of the number of adults in England, Wales, and Scotland with a hearing loss

Michael A. Akeroyd, Kay Foreman & Jack A. Holman

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## Letter to the Editor

## Estimates of the number of adults in England, Wales, and Scotland with a hearing loss

The recent release of the results of the 2011 Census gives an opportunity to update the population estimates of the number of adults in England, Wales, and Scotland with hearing loss. We took the prevalence data from the National Study of Hearing (Davis (1995) pp.47–49), and multiplied them by the number of adults from the English/Welsh and Scottish censuses. We used a hearing loss of 35 dB or more in the better of the two ears (averaged over 500, 1000, 2000, 4000 Hz), as this was the target value of a recent HTA (Health Technology Assessment) report into screening for hearing loss in older adults (Davis et al, 2007).

The calculations are shown in the accompanying table. The estimate is 3.8 million adults (aged 18–80) with a hearing loss of at least 35 dB in their better ear. This corresponds to 1 in 12 of the population. Repeating the calculation with the 95% confidence intervals gave a range of 2.8 million to 5.3 million. Davis's own calculation, using mid-1994 population values, was 3.4 million

(p.835). The increase over the last two decades is therefore about 12%. The values for hearing loss of at least 25 dB or 40 dB in the better ear are respectively 7.5 million and 2.7 million, corresponding to 1 in 6.1 and 1 in 17.

We have not calculated estimates in the population aged over 80, as the National Study of Hearing did not measure audiograms in anyone aged older than 80. Nevertheless, Davis did provide an estimate of prevalence for 80+ based on earlier estimates (p.822). That value was 81% for a hearing loss of at least 35 dB: when multiplied by the census populations of 2.3 million (England and Wales) and 200 000 (Scotland) for those aged 81 or more, it gives 1.8 million and 160 000 adults respectively.

We caution that all these values can only be estimates, as the audiological data underpinning the prevalences in the UK National Study of Hearing were collected in the 1980s. It is possible that the long-term changes in the UK economy away from heavy

**Table 1.** Summary of calculations of the expected number of adults (aged 18–80) in England & Wales (top half), and Scotland (bottom half) with hearing losses of at least 35 dB in the better ear. Note that the three right-most columns are rounded to the nearest 500.

Age (decades)	Prevalence (%)		Census numbers		Prevalence × census		
	Females	Males	Females	Males	Females	Males	Sum
<i>England &amp; Wales</i>							
18–30	0.6	0.1	4,925,700	4,964,700	29,500	5,000	34,500
31–40	1.2	1.7	3,737,300	3,710,700	45,000	63,000	108,000
41–50	3.7	4.3	4,115,800	4,032,600	152,500	173,500	325,500
51–60	5.3	10.7	3,357,000	3,287,000	178,000	351,500	529,500
61–80	13.3	19.7	3,004,600	2,859,100	399,500	563,000	963,000
71–80	38.8	41.5	2,071,100	1,763,600	803,500	732,000	1,535,500
<b>Total (England &amp; Wales)</b>			<b>21,211,500</b>	<b>20,617,700</b>	<b>1,608,000</b>	<b>1,888,500</b>	<b>3,496,000</b>
<i>Scotland</i>							
18–30	0.6	0.1	464,700	456,300	3,000	500	3,000
31–40	1.2	1.7	341,500	327,600	4,000	5,500	9,500
41–50	3.7	4.3	414,300	393,600	15,500	17,000	32,500
51–60	5.3	10.7	352,600	339,300	18,500	36,500	55,000
61–80	13.3	19.7	300,200	278,700	40,000	55,000	95,000
71–80	38.8	41.5	214,700	169,000	83,500	70,000	153,500
<b>Total (Scotland)</b>			<b>2,088,000</b>	<b>1,964,400</b>	<b>164,000</b>	<b>184,500</b>	<b>348,500</b>
<b>Total (England, Wales, Scotland)</b>			<b>23,299,500</b>	<b>22,582,100</b>	<b>1,772,000</b>	<b>2,072,500</b>	<b>3,844,500</b>

Correspondence: Dr. Michael A. Akeroyd, MRC Institute of Hearing Research (Scottish Section), Glasgow Royal Infirmary, Glasgow, G31 2ER, UK. E-mail: maa@ihr.gla.ac.uk

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industry, as well as the effects of UK and European noise-at-work regulations, have changed the prevalences since. The paucity of recent UK prevalence data for adults aged 80 or more is also a cause of concern. We note that there are substantial differences in the estimates of prevalence across the world, by as much as a factor of 2 (Stevens et al, 2011), and so perhaps our underlying assumption of an across-time stasis in prevalence is questionable. However, the National Study of Hearing remains the best data available in the UK, due to the care taken in the work and the sample size ( $n = 2663$ ), and we therefore believe that the present calculations are at least fairly accurate.

Measurements of prevalence are crucial to measuring the impact on society of hearing loss, and are also fundamental to across-disease comparisons of burden, as for instance in the Global Burden of Disease studies (Vos et al, 2012). The numbers reported in Table 1 highlight both the size of the UK population that is affected by hearing loss and the substantial increase in the last 20 years. They also underpin the importance of ongoing research into understanding hearing loss as well as the continual clinical and technological development of treatments.

Michael A. Akeroyd,  
Kay Foreman & Jack A. Holman  
*MRC Institute of Hearing Research (Scottish Section),  
Glasgow Royal Infirmary, Glasgow, G31 2ER, UK.*

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