

HEARING LOSS CASES SEEN AT THE ALL INDIA INSTITUTE OF SPEECH AND HEARING

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The purpose of this paper is to report the distribution of hearing loss cases' seen at the All India Institute of Speech and Hearing in terms of age, sex and type of hearing loss. Rehabilitative measures taken in terms of surgery and hearing aid usage are also included in the report.

For the purpose of analysis the fresh cases registered at the records section only are considered. Re-evaluation cases and therapy cases are not included.

In all, 36982 cases were tested from August 9th, 1965 to March 31st, 1981. Among the cases tested for a period of about 16 years, 55.07 per cent of cases had hearing problem. The present report deals with these cases only. Each case was tested for speech and hearing problems. Out of 55.07 per cent cases 35.04 per cent of the cases had hearing problem only and the remaining 20.03 per cent of the cases had other problems in addition to hearing loss, such as *Delayed Speech, Mental Retardation, No speech, Speech problem, Voice problem, Cleft palate, Atresia and other malformations*. Most of them were *congenitally hard of hearing* with either *Delayed Speech* or *No Speech*.

Information regarding each case was obtained either from the index cards or from the case files where ever complete information from the cards was not available. Age of the cases seen varied from 11 days to 96 years. The date of registration was considered for the analysis of age factor.

Table 1 presents the distribution of hearing loss cases at different age groups.

TABLE 1
Distribution of cases on several age groups

Sl. No.	Age group	No. of cases	Percentage
1.	0-5	652	3.2
2.	5-25	8051	39.53
3.	25-40	5744	28.2
4.	40-60	4265	20.94
5.	60 and above	1653	8.12

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It is clear from the table that more cases are in the age group of 5 to 25 years.

Sex Distribution : The male population of the cases was found to be 67.82 per cent and female 32.18 per cent. There exists a ratio of 2.12:1, between male and female as shown in the Table 2. In all age groups more male cases were seen than the female cases.

TABLE 2
Sex distribution on age groups

Age Group	Male	Female	Percentage	
			M	F
0-5	406	246	1.99	1.21
5-25	5301	2750	26.02	13.51
25-40	3829	1915	18.8	9.4
40-60	2990	1275	14.68	6.26
60 and above	1285	368	6.31	1.81

Provisional diagnosis written in the case files was considered for the analysis of the cases. The cases are analyzed under different categories as follows :

1. *Conductive Hearing Loss* :

In this category cases who were diagnosed as bilateral conductive hearing loss, unilateral conductive hearing loss, conductive high tone hearing loss' one ear conductive loss and in the other ear mild mixed loss, one ear conductive hearing loss with other ear mild sensori-neural hearing loss, are included.

The findings of the analysis of the subcategories of conductive hearing loss cases are given in Table 3.

TABLE 3
Distribution of conduct ive hearing loss cases

SI. No.	Condition	No. of cases	Sex	More in age group	Percentage
1.	Bilateral	4295	M	5-25	21.09
2.	Unilateral	1378	M	5-25	6.77
3.	Cond./High frequency	145	M	25-40	0.71
4.	Cond./Mixed	364	M	25-40	1.79
5.	Cond./SN	115	M	25-40	0.56

Conditions 3, 4, and 5 in Table 3 are found more in the age group 25 to 40 years. Probable reason for this may be that the loss has progressed to the three conditions due to ageing factor or spread of infection if present. 30.92 per cent of the hearing loss population fall under this category.

2. *Sensori Neural Hearing Loss :*

Bilateral sensori-neural hearing loss, unilateral sensori-neural hearing loss. Retro-Cochlear sensori-neural hearing loss, high frequency sensori-neural hearing loss and flat sensori-neural hearing loss in one ear with high frequency sensori neural hearing loss in the other ear are the conditions included in this category, 27.62 per cent of the hearing loss cases are having sensori-neural hearing loss. In all the sub-categories males are more than females. Table 4 gives the analysis of each sub-category of sensori-neural hearing loss cases in detail.

TABLE 4
Distribution of Sensori-Neural hearing loss cases

SI. No.	Condition	No. of cases	Percentage	Sex	More in age-group
1.	Bilateral SN loss	4275	20.99	M	5-25
2.	Unilateral SN loss	547	2.69	M	60 and above
3.	Retro-cochlear SN loss	40	0.19	M	40-60
4.	High frequency SN loss	560	2.75	M	40-60
5.	SN/HF loss	204	1.00	M	40-60

3. *Mixed Hearing Loss:*

Cases diagnosed as bilateral mixed hearing loss, unilateral mixed hearing loss, mixed high frequency hearing loss are considered under this category. In all the sub-conditions more males than females and more cases have been seen in the age group of 40 to 60 years. Totally there were 18.56 per cent mixed hearing loss cases of which 17.28 per cent of the cases had bilateral mixed hearing loss, 0.99 per cent had unilateral mixed hearing loss and 0.29 per cent had mixed high frequency hearing loss.

4. *Normal Hearing:*

In this category there are two types. Certain subjects had suspected hearing loss. But when they were registered for the complaint of hearing loss, on E.N.T. examination and on audiological evaluation they were found to have normal hearing. This constituted 0.5 per cent of the total hearing loss population. More cases have been seen in 5 to 25 years age range. Female to male ratio in this condition is 1:3. This data reveal that males are

of more suspicious nature than are the females. This can also be interpreted in another way. That is the females do not come for check up even if they suspect hearing loss due to social stigma and also probably they did not want to get their hearing loss confirmed.

The second type of normal hearing cases are those who in the first audiological evaluation were found to have slight hearing loss and after E.N.T. treatment such as wax removal/foreign body removal/medicine etc., regained normal hearing and the repeat audiograms revealed normal hearing, 10.28 per cent of the total hearing loss population regained normal hearing after otologic treatment. More males (1:3 ratio between female and male) and more cases were seen in the age range of 5 to 25 years.

5. *Miscellaneous:*

This group includes cases for whom testing is not completed, cases who had not turned up for further evaluations, cases who were advised diagnostic exploratory surgeries, cases who were advised to get report of X-ray or other findings and had not reported, etc. On the whole, for one or other reasons. Diagnosis was not done or required to be confirmed or diagnosis was questioned. 10.96 per cent of the total hearing loss population fall in this category. There were more males and more cases in the age group between 5 to 25 years.

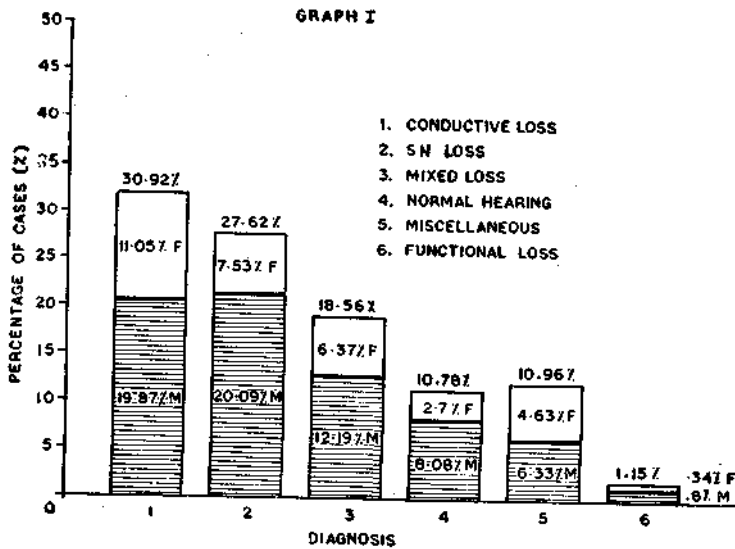
6. *Functional Hearing Loss:*

This category included the cases diagnosed as functional hearing loss, hysterical deafness, functional overlay (where no other diagnosis of hearing loss is given) and cases in whom functional hearing loss is questioned. This constitutes 1.15 per cent of total hearing loss population. There are more males than females and sex ratio is 1.8: 1 between male and female. More cases of functional hearing loss found in the age group of 25 to 40 years.

Graph I and Table 5 illustrate the percentage of different types of hearing loss cases tested at the Institute.

TABLE 5
Percentage of different types of hearing loss cases

SI. No.	Diagnosis	Case percentage
1.	Conductive loss	30.92
2.	SN loss	27.62
3.	Mixed loss	18.56
4.	Normal hearing	10.78
5.	Functional loss	1.15
6.	Miscellaneous	10.96



It is observed from the findings that the conductive loss (bilateral or unilateral) is more common in the age group of 5 to 25 years, when mixed and high frequency or SN loss is in combination with conductive loss, it is seen more in the age range of 25 to 40 years. Except for the congenital hard of hearing with delayed or no speech, all other conditions of sensori neural hearing loss are found more in the age group between 40 to 60 years. Mixed loss is also seen more in this range.

Rehabilitative Measures taken at the Institute

Among the cases tested at the Institute for about a period of 16 years 14.44 per cent have been advised surgery. This includes all types of surgeries concerned with audiological rehabilitation. Out of 14.44 per cent of cases 9.76 per cent of cases have undergone surgery, 4.68 per cent of the cases are recommended/awaited for surgery. Other than this, 2.02 per cent cases are advised exploratory surgeries for diagnostic purposes.

It is already mentioned that 10.28 per cent of the cases who had slight hearing loss restored normal hearing after otological treatment; and that 0.5 per cent of the cases had no problem as such, though they had registered themselves with the complaint of suspected hearing loss. They underwent complete check up and after getting confirmed about their normal hearing sensitivity they were advised to have periodic check up to ensure hearing adequacy.

In the cases where otologic treatment was not possible and where ever cases were not prepared for surgery and wherever hearing aid was found useful cases were recommended hearing aid. Hearing aids have been recommended

to sensori neural hearing loss, mixed hearing loss, conductive/sensori-neural hearing loss and high frequency hearing loss cases.

55.8 percent of the cases were recommended the use of hearing aid. In that only 24.8 per cent of the cases are found to use hearing aid. This includes cases who have got hearing aids issued free of cost through the gift of the Danish government, other charitable organizations and those who have bought hearing aids with our prescriptions. 9.27 per cent of the cases have bought the aids. This analysis is restricted to the cases who have come with the hearing aids after buying, for either demonstration, therapy or re-evaluation or repair purposes. There are chances that some cases who have bought on our recommendations and have not turned up after they bought the hearing aid. So, it is understood that many cases who were recommended hearing aid are not using, either due to poor facility or due to unwillingness to wear the hearing aid.

16.95 per cent of the cases were neither advised surgery nor recommended hearing aid as hearing aid was found to be of little benefit to them. This includes the permanently damaged cases who were asked to study in deaf schools, who were issued handicapped pension certificates and who were advised vocational training, etc.

The results that are obtained are just what observed in the cases tested at the Institute and analyzed. These results cannot be generalized. There may be many people who had problem but who did not report for any reason.

From the cases seen at the Institute certain conclusions are drawn. These are :

I. There are more cases of hearing problem than other problems, (such as Mental Retardation, Stuttering, Cleft Palate, Cerebral Palsy, etc.). This is supported by several earlier findings. Rama Mohan Babu and Satyendra Kumar (1972) found 58.14 per cent of hearing loss cases seen in the analysis of 1000 consecutive cases seen at AIISH. J. Bharath Raj has reported high percentage of hearing loss cases when compared to other problems in his analysis of cases tested at AIISH both for the years '67 to '68 and '68 to '69. M.G. Subrahmaniyan and H. S. Sathyan (1973) also have concluded that the incidence of hearing loss is higher than speech problems from the analysis of cases seen at several Speech and Hearing camps. N. S. Viswanath *et al* (1971) also found a considerably high percentage of hearing problems compared with speech problems on screening a village (Naguvanahalli) population.

II. There are more cases in the age group between 5 to 25 years.

III. There are more males than females affected with hearing problem. This is supported by the findings of Rama Mohan Babu and Satyendra Kumar (1972) who reported a ratio of 2.4:1, and of P. S. Subba Rao and Syed Meha-boob who obtained a ratio of 2: 1 between male and female, whereas the present study obtains a ratio of 2.12 : 1.

IV. More cases are affected with bilateral involvement than unilateral involvement which is again supported by the findings of P. S. Subba Rao and Syed Mehaboob (1970).

V. Comparatively there are more conductive loss cases tested at the Institute. In the analysis of cases of hearing loss tested P. S. Subba Rao and Syed Mehaboob also have concluded the same.

VI. Conductive hearing loss is seen more in younger age levels (5 to 25 years) while mixed and sensori-neural hearing loss is more common in higher age groups.

VII. Approximately only 50 per cent of cases whom we recommend hearing aids use hearing aids.

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