

Analysis of Speech and Hearing Cases seen in Camps: A Report

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INTRODUCTION

The prevalence and incidence of communication disorders involving speech, language and hearing needs to be carefully studied. Estimates of prevalence and incidence of these disorders in the general population are few, and probably needs more careful study.

Surveys on speech and hearing disorders in general population show wide discrepancies. Palmer (1963) estimated that 5% of our population are suffering from speech and hearing problems. (Subramanyam and Satyan, 1973). Many investigators have reported different percentage of hearing loss Kapur (1967) -16.3%; Gupta (1965) -35.4%; Bhatia and Mishra (1961) -28% and 30%; Jain (1967) -37%; Kameswaran (1967) 17%; Nikam (1971) reported that 3.9% of school going children have hearing problem. Vishwanath, Nagaraj, Sridhar and Satyan (1971) reported that 18.9% of rural school going children have hearing problem and 3.9% have speech defect. Mehaboob Satyan and Subramanyam (1973), reported 1470 hearing loss cases out of 2571 cases examined in Speech and Hearing Camps. Subramanyam and Satyan in 1973 reported that 1210 cases had hearing loss and 1186 had speech problem out of 2810 cases, examined at dif-

ferent speech and hearing screening camps and exhibitions

The effort to collect census of the disabled population in our country was given up after 1931 census; presumably because, in rural areas (especially) people tend to withhold information in regard to the prevalence of physical disabilities before the census enumerators. According to National Sample Survey Number 220 (covering two rounds, 24th and 28th) the incidence of deafness and delayed speech and language per thousand population is 1.27. But during 1981 census disabled are enumerated as in the pre-1931. But many social workers with experience in the field feel that the actual number would be much higher than what has been indicated through survey. The sample survey has also shown that size of the disabled population in the rural areas is about twice as large as that in urban areas.

Speech and hearing camps are useful for education of public and parents of handicapped regarding early identification and management, prevention, services available at different places and government help and assistance in this field.

Otitis media is the most common cause of conductive disorder in children. Welsh, Welsh and Healy (1983) reported that inter-

mittent hearing impairment due to middle ear disease in the early years of life results in a central auditory disturbance. Even the mild to moderate degree of hearing loss leads to varying degree of abnormality in communicative skills, social integration and educational achievement. Prevention of Otitis media and the likelihood of permanent hearing loss includes control of allergy, acute upper respiratory infections, middle ear infections, by Myringotomy, Eustachian Tube dysfunction by careful by adenoidectomy and follow up to ensure that middle ear infection has subsided.

Noise induced hearing loss and hearing impairment due to Ototoxic drugs can be checked and prevented. Ototoxic drugs should not be used unless absolutely necessary and with thorough understanding of risks involved. In case of Rh incompatibility transfusions are helpful. Parental viral infections such as mumps, measles, rebecca etc., can be prevented by the use of vaccines. Prevention of hereditary deafness in today's world needs effective ways of genetic counselling. The mode of inheritance is the key to consideration of the prevention of hereditary deafness.

Many of the speech and hearing disorders can be rectified or minimised if they are identified at an early age and professional help is sought. Hearing impairment during the critical period of speech development is detrimental to the acquisition of communication skills. Early identification and selection of proper aural amplification plays a significant role in the total and effective rehabilitation of hearing handicapped.

There is a confusion between the use of the terms incidence and prevalence. Incidence refers to the frequency with which a specific disorder occurs within a defined population during a stated period of time. It

represents the frequency of the event. Prevalence, is the proportion of persons in a defined population who, at a specified time, are affected or have been affected by a particular disorder. Prevalence represents the accumulated incidence of new cases during previous years from which deaths from all causes have been subtracted. Prevalence, refers to much like one's current bank balance.

EVALUATION

Hitherto 49 speech and hearing camps had been conducted by the Institute of Speech and Hearing, Bangalore. In many places, camps have been conducted more than one time. This study includes data collected during 1981 to 1983, of 19 such speech and hearing camps held in and around Bangalore city. There was no repetition of camp at a place and cases evaluated were self-referral cases. Data collected from camps before 1981 and after 1983 were not included because of insufficient information.

The camps were conducted with the help of Lions Club (mainly) Rotary Club, local people, and other organizations. Pre-camp publicity was carried out by local agencies through pamphlets, newspapers, AIR, announcement in schools and colleges, projection of slides in cinema theaters, informing to local hospitals and general practitioners. All cases were not tested for all problems. We adopted categorization of cases and it was carried out by our receptionist of the Institute with the help of a Speech Pathologist during registration. After this, depending upon the nature of the problem, cases were channelled to respective departments (ENT, Audiology, Speech, Psychology, Hearing aid trial and counselling). Counselling, further referral and follow up to the Institute

was done at the respective departments only. If a case needs help from more than one department, he was referred to other respective department and was counselled at the last department.

ENT Examination:

It was carried out by two Visiting ENT specialists of the Institute.

Hearing Evaluation:

These evaluations were carried out by Audiologist. Two Portable Audiometers (Arphi M I and EB 90) were used. Testing was conducted in two separate rooms, at reasonably quiet available part of the building. Cases waiting their turn were seated outside the room. Frequencies tested were 500,1000,2000 and 4000Hz. Audiometers were checked for calibration, before taking to camps and biological calibration was done before using. Small children (4 years and above) were conditioned to put marbles in a box, every time tone was heard. Standard audiometric procedures were used for older group.

Speech Evaluation:

It was carried out by two speech pathologist of the Institute. Initially oral and nasal structures were examined for any abnormality. Two passages were selected from a text book in Kannada or English or Telugu or Tamil depending upon the language of the case who was asked to read it. The voice quality, articulation and rhythm were examined for deviation while passage was being read. Picture cards were used to test young children. Each case was asked as to whether he had any previous history of speech disorder, and was asked to describe the problem.

Psychological Evaluation:

Psychological evaluation was carried out by the clinical Psychologist of the Institute.

Bhatia's battery of intelligence testing, SFB and developmental schedules were used to assess the intelligence.

Hearing Aid Trial:

It was carried out by an Audiologist and Speech Pathologist of the Institute. Cases were referred to the Institute, wherever detailed evaluation were needed

RESULT AND DISCUSSION

Analysis of cases, in this study refers to only self referred cases. 2504 people reported with the complaint of Speech and Hearing problem, out of which 2443 cases had Speech and Hearing disorder and 61 people had no defects. 3707 people reported with the complaint of Ear, Nose and Throat difficulties, out of which 3202 had ENT problem and remaining 505 cases had no abnormality. In all, 6211 were screened for various Speech, language, hearing and ENT disorders. Total number of camps conducted was 19. Average of cases examined at a particular camp was 327.

Table 1 shows total number and percentage of various cases with speech hearing disorders. Out of 2504 cases reported, 989 cases had hearing loss without speech and language delay (39.49%), 731 cases had delayed speech and language associated with mental retardation, hearing loss and lack of stimulation (29.21 %). 61 cases had no defects (2.44%) and 653 cases had other speech disorders (26.1%). Prevalence of hearing disorder was more than delayed speech and language. Among other speech disorders, prevalence of stuttering (15.16%) was higher than remaining speech disorders.

Table 2 shows age and sex distribution of cases with speech and hearing disorders. Examination of the Table (2) reveals that

Table 1: Total Number and Percentage of cases with Speech and Hearing Disorders

| Sl. No. | Name of the Disorder | Total | % |
|---------|--|-------|-------|
| 1. | Delayed speech and language, Delayed speech & lang. with other disorders | 731 | 29.21 |
| 2. | Misarticulation | 98 | 3.91 |
| 3. | Stuttering | 380 | 15.16 |
| 4. | Stuttering with hearing loss | 7 | 0.28 |
| 5. | Normal Non fluency | 28 | 1.12 |
| 6. | Cluttering | 16 | 0.64 |
| 7. | Cleft palate | 20 | 0.80 |
| 8. | Puberphonia | 47 | 1.88 |
| 9. | Cerebral palsy | 14 | 0.55 |
| 10. | Aphasia | 14 | 0.55 |
| 11. | Dysarthria | 16 | 0.64 |
| 12. | Stuttering with mental retardation | 4 | 0.16 |
| 13. | Brain damage | 9 | 0.36 |
| 14. | Miscellaneous | 70 | 2.80 |
| 15. | Normal | 61 | 2.44 |
| 16. | Hearing loss | 989 | 39.49 |
| Total | | 2504 | 100% |

males were more than females. There were more cases below 16 years of age, and it was more among males than females.

Table 3 shows total number and percentage of cases with hearing disorders. Prevalence of Sensorineural hearing loss (55.72%) was found to be more than conductive hearing loss (27.40%) and mixed hearing loss (16.68%). Table 5 shows age and sex distribution of cases with hearing disorders. Here too males were more than females. There were more cases above 17 years of age, and males were more than females.

Table 4 shows total number and percentage of cases with delayed speech and language. 77 cases had delayed speech and language only (10.53%). 329 cases had delayed speech and language associated with hearing loss (45%). 213 cases had delayed speech and language associated with mental

Table 2: Age and Sex distribution of cases with Speech and Hearing disorder

| Name of the disorder- | Male | | Female | | | | |
|---|------------|---------------|------------|--------------|-----|-------|-----|
| | Upto 16yrs | 17yrs & above | Upto 16yrs | 7yrs & above | | | |
| 1. Delayed speech and lang., delayed speech & lang. associated with other disorders | 389 | 71 | 252 | 19 | | | |
| <i>i</i> Misarticulation | 57 | 9 | 28 | 4 | | | |
| 3. Stuttering | 221 | 111 | 43 | 5 | | | |
| 4. Stuttering with hearing loss | - | 5 | - | 2 | | | |
| 5. Normal Non Fluency | 17 | | 11 | - | | | |
| 6. Cluttering | 5 | 7 | 2 | 2 | | | |
| 7. Cleft palate | 6 | 1 | 11 | 2 | | | |
| 8. Puberphonia | - | 39 | - | 8 | | | |
| 9. Cerebral palsy | 9 | <i>i</i> | 3 | - | | | |
| 10. Aphasia | - | 11 | - | 3 | | | |
| 11. Dysarthria | 3 | 11 | 1 | 1 | | | |
| 12. Stuttering with mental retardation | - | 3 | - | 1 | | | |
| 13. Brain damage | 4 | 1 | 4 | 0 | | | |
| 14. Hearing loss | 157 | 538 | 101 | 193 | | | |
| 15. Miscellaneous | 17 | 23 | 14 | 16 | | | |
| 16. Normal | 19 | 19 | 13 | 10 | | | |
| Total | | 904 | 1755 | 851 | 483 | [749] | 266 |

Table 3: Total Number of Percentage of Cases with Hearing disorders

| Sl. No. | Name of the Disorder | Total | % |
|---------|----------------------------|-------|--------------|
| 1. | Sensorineural hearing loss | 553 | 55.92 |
| 2. | Mixed hearing loss | 165 | 16.68 |
| 3. | Conductive hearing loss | 271 | 27.40 |
| Total | | 989 | 100% |

retardation (29.14%). Table 6 shows distribution of age and sex of cases with delayed speech and language. Here too

males were more than females. There were more cases below 16 years of age, and males were more than females.

Table 7 shows total number and percentage of cases with Ear, Nose and Throat problems. 1473 cases had CSOM (39.74%), and prevalence of CSOM was higher than any other disorders. No abnormality was detected among 505 cases (13.63%) Table 8 shows age and sex distribution of cases with Ear, Nose and Throat disorders. Males were more than females and also male cases below 16 years were more than females cases.

Table 4: Total Number and Percentage of Cases with Delayed Speech and Language.

| Sl. No. | Name of the Disorder | Total | % |
|---------|--|-------|-------|
| 1. | Delayed speech and language + menial retardation + hearing | 61 | 8.34 |
| 2. | Delayed speech and language + menial retardation | 213 | 29.14 |
| 3. | Delayed speech and language + hearing loss | 329 | 45 |
| 4. | Limited speech and language with hearing loss | 51 | 6.98 |
| 5. | Delayed speech and language | 77 | 10.53 |
| Total | | 731 | 100% |

Table 5: Age and Sex distribution of cases with Hearing Loss.

| Name of the disorder | Male | | Female | |
|----------------------------|------------|---------------|------------|---------------|
| | Upto 16yrs | 17yrs & above | Upto 16yrs | 17yrs & above |
| 1. Sensorineural hearing | 73 | 323 | 35 | 122 |
| 2. Mixed hearing loss | 26 | 81 | 20 | 38 |
| 3. Conductive hearing loss | 58 | 134 | 46 | 33 |
| Total | 157 | 695 | 538 | 193 |

Table 6: Age and Sex distribution of cases with Delayed Speech and Language

| Name of the disorder | Male | | Female | |
|--|------------|---------------|------------|---------------|
| | Upto 16yrs | 17yrs & above | Upto 16yrs | 17yrs & above |
| 1. Delayed speech & lang. | 48 | - | 29 | - |
| 2. Limited speech & lang. with hearing loss | - | 35 | - | 16 |
| 3. Delayed speech & lang. with hearing loss | 194 | - | 135 | - |
| 4. Delayed speech & lang. with mental retardation | 114 | 24 | 73 | 2 |
| 5. Delayed speech & lang. along with mental retardation & hearing loss | 33 | 12 | 15 | 1 |
| Total | 389 | 460 | 71 | 252 |

731 cases had delayed speech and language (29.21%) and 653 cases had other speech and language disorders (26.1%). Only 77 cases had pure delayed speech and language. In all, 1384 cases had speech and language disorder (55.31%) which is higher than hearing loss alone (39.49%). But Syed Mehaboob, Satyan, and Subramanyan (1973), and Mythili (1983) reported higher prevalence of hearing loss than speech disorders. Present study contradicts their findings.

For both speech, hearing and ENT disorders males were more than females. This may be because of the fact that there were more number of males in general population than females, (census of India 1981). Male female ratio for speech disorders was 2.33:1, and 2.36:1 for hearing disorders. Male female ratio for delayed speech and language was 1.70:1. Male female ratio for Ear, Nose and Throat disorder was found to be 1.64:1. Here too male cases predominated female cases. These analyses suggests that males were having more propensity for communicative disorders. The same thing

Table 7: Total Number and Percentage of Cases with Ear, Nose and Throat Problems

| Sl. No | Name of the Disorder | Total | % |
|--------|---|-------|-------|
| 1. | Chronic suppurative otitis media (CSOM) | 1473 | 39.74 |
| 2. | Acute suppurative otitis media (ASOM) | 55 | 1.48 |
| 3. | Suppurative otitis Media (SOM) | 16 | 0.43 |
| 4. | Rhinitis | 311 | 8.39 |
| 5. | Tonsillitis and Adenoids | 211 | 5.69 |
| 6. | Laryngitis | 13 | 0.35 |
| 7. | Pharyngitis | 65 | 1.75 |
| 8. | Sinusitis | 98 | 2.64 |
| 9. | Otomycosis | 8 | 0.22 |
| 10. | Foreign body | 12 | 0.32 |
| 11. | Otosclerosis | 20 | 0.54 |
| 12. | Extrenal otitis | 159 | 4.29 |
| 13. | Upper Respiratory infections | 66 | 1.78 |
| 14. | Wax | 117 | 3.16 |
| 15. | Deflected Nasal Septum | 27 | 0.73 |
| 16. | Nasal allergy | 21 | 0.57 |
| 17. | Tinnitus | 24 | 0.65 |
| 18. | Eustachian Tube Catarrh | 24 | 0.65 |
| 19. | Vocal Cord Palsy | 4 | 0.12 |
| 20. | Ear Ache | 11 | 0.30 |
| 21. | Furunculosis | 5 | 0.13 |
| 22. | Vestibulitis | 3 | 0.08 |
| 23. | Miscellaneous | 459 | 12.38 |
| 24. | No abnormality detected (NAD) | 505 | 13.63 |
| Total | | 3707 | 100% |

had been reported by many Indian investigators (Syed Mehaboob et al, 1973, Ram Mohan Babu and Satyendra Kumar 1972, Mythili 1982) as well as foreign investigators (Stewart, 1981, Stewart et al 1971, Gillespie and Cooper, 1973).

Table 9 shows total general population and distribution of speech, hearing and Ear, Nose and Throat disorders at 19 different places.

Table 8: Age and Sex distribution of cases with Ear, Nose and Throat Disorders

| | Male | | Female | |
|-----------------------------|------------|---------------|------------|---------------|
| | Upto 16yrs | 17yrs & above | Upto 16yrs | 17yrs & above |
| 1. CSOM | 602 | 333 | 390 | 148 |
| 2. ASOM | 20 | 9 | 19 | 7 |
| 3. SOM | 4 | 5 | 5 | 2 |
| 4. Rhinitis | 84 | 113 | 62 | 52 |
| 5. Tonsillitis and Adenoids | 64 | 42 | 76 | 29 |
| 6. Laryngitis | 2 | 8 | - | 3 |
| 7. Pharyngitis | 9 | 39 | 5 | 12 |
| X. Sinusitis | 41 | 25 | 15 | 17 |
| 9. Otomycosis | 1 | 2 | - | - |
| 10. Foreign body | 5 | 1 | 6 | - |
| 11. Otosclerosis | 1 | 17 | - | 2 |
| 12. Extrenal otitis | 25 | 65 | 27 | 42 |
| 13. URI | 10 | 15 | 30 | 11 |
| 14. Wax | 51 | 33 | 20 | 13 |
| 15. DNS | 6 | 19 | 1 | 1 |
| 16. Nasal allergy | 7 | 9 | - | 5 |
| 17. Tinnitus | 2 | 15 | - | 7 |
| 18. ET Catarrh | 14 | 6 | 3 | 1 |
| 19. Vocal Cord Palsy | - | 3 | - | 1 |
| 20. Ear Ache | 3 | 2 | 4 | 2 |
| 21. Furunculosis | - | 1 | 3 | 1 |
| 22. Vestibulitis | 2 | 1 | - | - |
| 23. Miscellaneous | 96 | 186 | 77 | 100 |
| 24. NAD | 131 | 136 | 130 | 68 |
| Total | 1220 | 1085 | 873 | 529 |

CONCLUSIONS

In all, 6211 cases were examined for different speech, language, hearing and ENT disorders. 2443 cases had speech, language and hearing disorders and 566 cases had no abnormal findings.

Prevalence of speech and language disorders (55.27%) was found to be higher than hearing loss alone (39.49%). Males were found to have more disorders of both speech

Table 9: Total Population and Distribution of Speech and Hearing, and Ear, Nose, Throat Disorders At 19 Different Places

| SI. No. | Name of the place | Total population | Speech & Hg problem | ENT Problem |
|---------|-------------------|------------------|---------------------|-------------|
| 1. | Devanahalli | 15,192 | 72 | 125 |
| 2. | Magadi | 17,623 | 77 | 134 |
| 3. | Hoskote | 17,538 | 138 | 154 |
| 4. | Bangarpete | 22,570 | 94 | 170 |
| 5. | Konanakuntc | 3,378 | 35 | 102 |
| 6. | Anekal | 19,267 | 126 | 280 |
| 7. | Krishnarajapura | 7,993 | 70 | 117 |
| 8. | Madivala | 2,550 | 49 | 71 |
| 9. | Nelamangala | 12,574 | 102 | 168 |
| 10. | Chennapalna | 50,725 | 188 | 208 |
| 11. | Hassan | 71,534 | 217 | 347 |
| 12. | Kadur | 19,406 | 176 | 202 |
| 13. | Doddaballapur | 47,168 | 200 | 250 |
| 14. | Tumkur | 1,08,670 | 291 | 343 |
| 15. | YN Hoskole | 7,508 | 106 | 203 |
| 16. | Gowribidanur | 18,738 | 165 | 302 |
| 17. | Chintamani | 39,208 | 162 | 300 |
| 18. | Vijayapura | 17,212 | 122 | 103 |
| 19. | Yelahanka | 16,020 | 144 | 128 |
| Total | | 5,14,874 | 2504 | 3707 |

and hearing, and ENT than females. 39.74% of ENT cases had CSOM. Prevalence of hearing loss and hearing loss with delayed speech and language in general population was found to be 2.56 per thousand, which was more than as reported by National sample Survey (1.27 per thousand population).

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