

## **Flaws And Pitfalls In Speech And Language Acquisition For Hearing Impaired Children In Special Needs Schools**

Wazeer, Z.\*, Nishanthi G.~

\*Department of ENT, Teaching Hospital, Gampola, SriLanka.

~Wickramarachchi Institute of Speech and Hearing, Kandy, Sri Lanka.

### **Abstract**

Intensive speech and language stimulation with adequate amplification improves speech and language communication skills of hearing impaired students in special schools. The dearth of qualified professionals who understand the physiological and psychological aspects of the impairment is a major contributing factor to delay or lack of speech and language acquisition post hearing aid fitting, even when other issues seemingly become resolved.

**Key words:** hearing impairment, communication, hearing aid fitting.

### **INTRODUCTION**

Age appropriate spoken language acquisition for hearing impaired children is considered an achievable goal with early detection and intervention. If the critical period is missed significant increase in expressive vocabulary with appropriate amplification and intensive auditory training have been documented. 1, 5, 6.

### **AIM**

- To assess the level of communication skills among students at the school for the hearing impaired.
- To investigate reasons for failure to acquire speech and language skills post hearing aid fitting.

### **METHOD**

The study was conducted in 5 phases aimed at obtaining the pure tone hearing thresholds assessing speech and language skills of children with pre lingual hearing loss.

**Phase I:** ENT evaluation/ otoscopy to rule out outer and middle ear pathology.

### **Phase II:**

- Pure tone audiometry testing
- Aided audiometry to assess hearing aid benefit

**Phase III:** Speech and language assessment to determine the receptive and expressive language ages and the communication levels of the participants. The test materials used were REEL (Receptive Expressive Emergent Language Test, Bzoch, League & Brown, 2003 and Derbyshire Language Scheme, Knowles & Masidlover, 1982) were used respectively.

**Phase III:** Hearing aid fitting.

**Phase IV:** Auditory training program for special education teachers.

**Phase V:** Follow up after 6 months

### **Participants**

39 participants identified by parents and teachers at the Sahana School for the Deaf, Matale, Sri Lanka participated in the study. Participants had to only satisfy the inclusion criteria of congenital/ pre-lingual hearing loss.

Total	Males	Females	Age Range
39	23	16	8 – 19

**Scoring and Analysis**

The data obtained from speech and language assessment was tabulated and scored. Forced yes/no questions were scored 1 and 0 respectively. Descriptive analysis were used for open ended questions. X<sup>2</sup> test of significance was used to determine the mean and SD of RLA, ELA and communication levels of the participants.

**RESULTS & DISCUSSION**

**1. ENT evaluation and patient history**

revealed the following demographics

Total participants	39
Congenital onset	39
ENT problems	01
Highrisk registers	27
Current hearing aid use	0
Previous hearing aid use	19
Period of HA use	3m-4y

M-months; y-years

Inconsistent hearing aid use was attributed to factors such as equipment repair, unavailability of batteries, being too loud to tolerate or simply not being motivated to use them.

**ii. Pure tone audiometry and hearing aid benefit**

4 participants could not be conditioned for PTA and were referred for an ABR at the Teaching Hospital, Kandy.

2 participants were diagnosed with a moderately severe sensorineural hearing loss in at least one ear. The remaining had severe to profound hearing loss with six belonging to a predominant severe range.

The aided audiogram with unilateral fitting of a four channel digital hearing aid was obtained. Hearing aid benefit was measured based on the values obtained.

22 participants had aided thresholds within the speech banana of the audiogram essential for speech perception indicating good benefit with hearing aids. The remaining failed only satisfactorily.

**ii. Speech Language Assessment**

During the time of the study none of the participants were active hearing aid users, although 11 of the 19 participants who used hearing aids previously reported to have attended speech and language therapy once a month. The duration of therapy ranged from three months to one year.

Predominant of the participants communicated through informal sign language and on an average could sign 2 to 3 words in a sentence as revealed by the Derbyshire Language scheme. The mean RLA was less than 30 months and mean ELA was less than 18 months on REELS. 14 participants relied extensively on lip reading to understand spoken language including the six who were verbal but with a mean ELA of upto 24 months.

It was noted that with the exception of one participant, the maximum range of the ELA exceeded only up to 30 months on REELS indicating considerably inadequate speech and language acquisition even for previous hearing aid users and those in the severe category of hearing loss.

	ECL	RCL	RLA	ELA
Range	1-4 word signs	1-4 word signs	12m – 36m	12 m – 30m
Mean	2-3 word signs	2-3 word signs	24m	18m

M-months

**iv. Hearing aid fitting**

Although only 22 participants were identified as good candidates for hearing aid use, all of them

were unilaterally fitted with 4 channel digital hearing aids until cochlear implantation becomes available. Auditory skills were assessed. The participants (except for one) severely lacked in all domains of auditory skills except auditory awareness during the initial hearing aid fitting session.

#### **v. Auditory training program for special education teachers**

This was conducted by an ENT surgeon, 3 audiologists and speech language pathologists educating them first on hearing aid use, hearing aid troubleshooting and auditory training. The teachers revealed that their methods of teaching mainly focused on teaching the school curriculum in a mode that was easily understood by all students in the school, the mode being sign language. Students were also encouraged to concentrate on lip reading as much as possible, because teachers usually coupled sign language with exaggerated and stressful lip movements for easy comprehension by their students.

Hearing aid use was not a mandatory requirement in the school. Auditory training regardless of a student being a hearing aid user was not employed. Speech and language therapy sessions were not catered for an individual student and conducted by a special educator as a group therapy session. It was also not uncommon to find students with other disabilities such as mental retardation and cerebral palsy in the same classroom.

This apart, when asked how the children were classified into classes, teachers reported that this was solely decided based on the age of the student rather than the language age of the student which is always the most important deciding factor, even for group therapy sessions.

#### **vi. Follow up after 6 months**

A follow of speech and language and auditory skills assessment was carried out after 6 months to document improvements in these domains. It was observed that there was no noticeable changes even in auditory skills.

Although it can be argued neural plasticity can be one of the several factors that result in adequate speech and language acquisition, poor speech and language stimulation in school and home environments still remains the number one interfering factor. Classroom teaching still remains rigid focusing more on curriculum than on improving speech and language skills despite training programs and consistent hearing aid use. Structured sessions for auditory training are not employed as advised especially when special educators still follow a traditional approach to teaching the hearing impaired.

#### **CONCLUSION**

Intensive speech and language stimulation coupled with a long term goal of integrating every student into regular schooling is the key to improving the speech and language communication skills of hearing impaired students in special schools 1,6. The dearth of qualified professionals who understand the physiological and psychological aspects of the impairment is a major contributing factor to delayed or lack of speech and language acquisition post hearing aid fitting, even when other issues seemingly become resolved 4,5,9.

Every child is unique and so are his abilities 3, 5, 10, 11. Strict regulations on the availability of speech language pathologist to customize every child's short term speech and language goals, periodic hearing assessments, bilateral hearing aid use and follow up by a multi-disciplinary team on a regular basis is the best approach possible to integrate every child into regular schooling.

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Corresponding Author,

Dr.ZaffarullahWazeer,

Consultant ENT and Head and Neck Surgeon,

Teaching Hospital,

Gampola, SriLanka.

Email- zwazeer@yahoo.com