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Hearing Impairment at a Glance and Guidelines for Teachers

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Abstract

'Hearing impairment' is a general term often used by professionals to describe loss of hearing. The term hearing impairment is a generic term indicating a hearing disability which may range from mild to profound. Hearing impairment is considered the most prevalent impairment worldwide. This paper makes a brief list of causes, not only hereditary but also the classroom causes, leading to hearing impairment. Vocabulary development, idiomatic and grammatical English, or the understanding of abstract ideas is examples of areas which may be delayed due to hearing loss. A significant hearing loss may also lead to a need for specific strategies to address social skills development. In case the child goes unidentified at his home, then the responsibility of their earliest detection invariably falls on the shoulders of school teachers. This research paper presents a checklist that enhances the role of a teacher in their early identification. It also attempts to make suggestions which may enable teachers to ensure inclusion of HI students. It mentions a checklist for assistance to HI and their effective inclusion.

Key words: checklist, inclusion, listening environment, prevalent, tips.

Introduction

Hearing impaired children in its simple meaning stands for those children who are found to suffer from one or other types of hearing impairment. In turn the term hearing impairment here indicates some damage or malformation of hearing mechanism or defects in hearing apparatus. The term hearing impairment is a generic term indicating a hearing disability which may range from mild to profound¹. According to Federal (IDEA) definition, hearing impairment is impairment in hearing, permanent or fluctuating, that adversely affects a Childs educational performance but that is not included under definition of deafness.

Measuring Hearing loss

Hearing loss (HL) is measured in decibels (dB) and is described in general categories. Hearing loss is not measured in percentages. The general hearing loss categories (for adults) used by most hearing professionals are as follows:

_____ Normal hearing (0 to 25 dB HL)

_____ Mild hearing loss (26 to 40 dB HL)

_____ Moderate hearing loss (41 to 70 dB HL)

_____ Severe hearing loss (71 to 90 dB HL)

_____ Profound hearing loss (greater than 91 dB HL)

Types of Hearing loss

A) **Conductive hearing loss** occurs when sound is not conducted efficiently through the ear canal, eardrum, or tiny bones of the middle ear, resulting in a reduction of the loudness of sound that is heard. Conductive losses may result from earwax blocking the ear canal, fluid in the middle ear, middle ear infection, obstructions in the ear canal, perforations (hole) in the eardrum membrane, or disease of any of the three middle ear bones. This person may speak softly because they hear their own voice quite loudly. All conductive hearing losses should be evaluated by an audiologist and a physician to explore medical and surgical options.

B) **Sensorineural hearing loss** is the most common type of hearing loss. More than 90 percent of all hearing aid wearers have sensorineural hearing loss. The most common causes of sensorineural hearing loss are age related changes and noise exposure. A sensorineural hearing loss may also result from disturbance of inner ear circulation, increased inner fluid pressure or from disturbances of nerve transmission. A person with a sensorineural hearing loss may report that they can hear people talking, but they can't understand what they are saying.

C) **Central hearing impairment** occurs when auditory centres of the brain are affected by injury, disease, tumour, hereditary, or unknown causes. Loudness of sound is not necessarily affected, although understanding of speech also thought of as the "clarity" of speech may be affected.

Incidence of Hearing impairment ².

Hearing impairment is considered the most prevalent impairment worldwide. 10% people worldwide have mild or worse hearing impairment. Developing countries are home to about two third of worlds hearing impaired children

According to Hear-it.com (2011)³, Professor Adrian Davis of the British MRC Institute of Hearing Research estimates that the total number of people suffering from hearing loss of more than 25 dB will exceed 700 million worldwide by 2015. Davis's statistics suggest that more than 900 million people worldwide will suffer from hearing loss of more than 25 dB in 2025.

Europe.

It is believed that by 2025, out of 900 million hearing impaired children, 90 million will be Europeans. Incidence of hearing impairment in Europe.

- In Germany frequency may be 1 in 5.
- In Finland, 1 in 7
- In Italy 1 in 6
- In Denmark and Sweden 1 in 10.

In hearing world, France is considered to be the healthiest population where only 7% people suffer from hearing loss.

United States.

ASHA (2011)⁴ indicates that the number of Americans with a hearing loss has evidentially doubled during the past 30 years. Data gleaned from Federal surveys illustrate the following trend of prevalence for individuals aged three years or older: 13.2 million (1971) , 14.2 million (1977), 20.3 million (1991), and 24.2 million (1993) (Ries, 1993; Benson and Morano, 1995). Today's American surveys have estimated the number of hearing-impaired people in North America to be more than 25 million in a total population of 300 million. Specific to the current incidence in the US, Kochkin (2011) offers some facts:

- Above age 60, 3 in 10 are hearing impaired.
- 1 in 6 baby boomers (ages 41-59), or 14.6%, have a hearing problem;
- 1 in 14 Generation Xers (ages 29-40), or 7.4%, already have hearing loss;
- At least 1.4 million children (18 or younger) have hearing problems.

Developing World

The developing countries of the world constitute 80% of worlds population and 2/3 of worlds hearing impaired population. CBM (2011)⁵ estimates that out of the 600 million hearing impaired worldwide, 400 million reside in developing countries. Data posted at Audiology.org (2011; Tucci, Merson and Wilson (2010)⁶ indicate that more than 278 million people have moderate-to-profound hearing loss in both ears, and also present that most people who have hearing loss live in developing countries. As per NSSO survey⁷, there are 291 persons per one lack population who are suffering from severe to profound hearing loss, which includes a large percentage of child between 0-14.

Causes

1. Otitis Media
2. Congenital Causes
3. Acquired Causes:-
 - a. Ear infections (otitis media) s
 - b. Ototoxic (damaging to the auditory system) drugs
 - c. Meningitis(5 percent)
 - d. Measles
 - e. Encephalitis
 - f. Chicken pox
 - g. Influenza
 - h. Mumps
 - i. Head injury

j. Noise exposure

4 .Classroom Causes

- a. In some cases, the cause of hearing impairment may be purely psychological. The child may unconsciously learn hearing loss as a escape from the unpleasant and intolerable situations in classroom.(fans, heating and cooling systems)
- b. The sound pollution and its adverse effects inside classroom may become the generating and participating causes of hearing impairment. (e.g.:-traffic, construction, playground, cafeteria)
- c. Lack of identification of mild hearing loss at early stages by teacher may lead to complete loss of hearing of child.
- d. Poor vocabulary and pronunciation on the part of teacher may become a contributing factor towards hearing loss.
- e. Large and crowdy classroom.
- f. Poor facial expression, inappropriate gestures and body language by teacher.

Hearing Impairment, A Threat to Child Development

"All hearing impairments are serious"(cool and Klein, 2008). The cumulative effect of an undiagnosed hearing loss on children's cognitive, social, and language development is clear. Many hearing impaired child are educationally delayed by as much as three to five years.

- Effect on language development

The most serious and far reaching effect of hearing loss is on early speech and language development. Inadequate auditory input during early development almost leads to serious problems in language acquisition and in speech production. Faulty early language development also may be caused by lack of responsiveness from family and teachers.

- Effect on cognitive development.

Once the typically developing child is beyond the sensorimotor stage, cognitive skills become intertwined with language skills. In turn, language skills, including the ability to communicate thoughts, continue to be inseparably related to adequate hearing. Thus children with hearing impairments often perform less skilfully than hearing children in cognitive activities.

- Effect on social development

Children with hearing impairments often experience some degree of social isolation in a hearing world. They begin to be left out of things, even within the family, at a very early stage. Hearing impairment in itself does not cause abnormal social development. It is poor communication that develops between the child and others that leads to social adjustment difficulties. Reports of impulsivity, aggression, or low esteem often begin during the preschool years. This social immaturity may increase with age as communication demands increase (Martin and Clark, 1996). These children tend to be less mature socially.

Effect on family development.

Having a hearing impaired child can dramatically change the tenor of family life. Both the family members and the child are exposed to countless frustrations, especially in the early stages of learning to communicate with each other. A Childs inability to process the communicative efforts of others accuratively makes it difficult for family members to establish behaviour limits for the child who does not hear well(Steinberg and Knightly, 2002).Supporting the family in adapting to their Childs deafness involves multiple approaches, including behaviour management, family therapy, and the facilitation of family communication (Greengerg and Kusche)

Early Identification and Assessment, Role of Teachers.

The main goal of paper being educational inclusion of hearing impaired children, so it will discuss the role of teacher in their early identification. Although it is the responsibility of parents and members of family to take care of early identification of hearing impairments of their children, yet a number of cases may go unnoticed until their entry in the schools. In such cases, the responsibility of their earliest detection invariably falls on the shoulders of school teachers. Following is the check list which may help teachers to detect hearing impairments among their children:-

- Child making frequent requests for repetition

- Child focussing on the lips of teacher during the course of lecturing
- child yells or screams to express pleasure
- Child demonstrates voice problem or mispronunciation
- Child is reluctant to participate in oral activities
- Child using limited vocabulary?
- Does the child respond to noises or sounds as opposed to words and sentences?
- Child shows delayed language development
- Child displays the tendency to withdraw from his age mates or other people
- Is the child unable to respond when you call him from behind or from the other room and other distant places?
- Does the child answer your questions or respond to the sound stimuli quite irrelevantly?
- Does the child favour one ear for listening purposes?
- Is the child unresponsive or inattentive when spoken to in a normal voice?

Over the past 20 years, a considerable amount of research has been conducted and policies written towards correcting and changing the views and philosophies of how children with disabilities are to be educated. Various organizations worldwide have taken the lead in playing a pivotal role in promoting inclusive education as part of human rights' agenda that advocates the **increase participation of all learners in mainstream schools**. Inclusive education stand for a type of education committed to educate every child to the maximum extent possible in the school and classroom, he or she would otherwise attend. It thus requires support to move towards the child rather than moving the child to the services and believes that the disabled child will benefit from such integration and main streaming in comparison to placing him in some segregation setting for his overall adjustment and progress .Inclusion adapts schools to meet the needs of all children, not having the children make adjustments to meet the requirements of the school. This change in the school system requires a new and different school culture, a culture whereby teachers must change their beliefs, attitudes, and behaviours toward students with differences.

CLASSROOM GUIDLINES FOR TEACHERS, A Roadway to inclusion

The vision of Twelfth plan is that more inclusive growth begins with children. The Twelfth plan represents a new child Rights Paradigm that mandates the fulfilment of children's rights to survival, development, inclusion as a the foundation of human development and as the driver of faster , more inclusive and sustainable growth .This vision of **inclusion** can only and only achieved if teacher shows commitment and sincerity while dealing with exceptional children(Hearing impaired children).The task of any teacher is to ensure that students are accessing the curriculum, are successful, and are inspired to learn. A teacher has to take a few extra steps to ensure a student with hearing loss has access to education thereby achieving the goal of inclusion. They'll benefit by adding flexibility and a willingness to be creative in finding solutions to issues. And, of course, effective communication with the student is key.

Suggestions by Hall, Oyer, & Haas (2001) for teaching hearing-impaired children ⁸:

- Teachers need to be sensitive to the social, academic, and emotional challenges a child with hearing loss has in any given day. Extra energy is required in interpreting information through lip-reading that would otherwise be simply heard by children without a hearing loss. There are extra steps in processing audio information that a hard of hearing student needs to take in order to fully comprehend. The student with a hearing device will use more energy in having to concentrate on sound from a direct source like a teacher while blocking out environmental noise like the humming of lights or air conditioners.
- Teachers need to be sensitive to the reality that there is usually more than one visual thing happening at one time like a teacher talking while expecting students to take notes of the lecture. The main notes could be provided to that student beforehand so that the student can focus on lip reading the lecture.
- If the lecture and discussion format is to be used in the instructional process, then care should be taken for making provision of following :

- a) Use of multisensory approach.
- b) Use of short and clear verbalization.
- c) Repetition of main points with the help of visual presentation or other non-verbal clues for better understanding and comprehension.
- d) Whatever teaching format may be used by teacher for his instruction, he must not forget to follow a preview-teach review cycle to bring out useful results with the hearing impaired children.
- e) Peer tutors make take the responsibility for the preview of the lesson to be delivered by the teacher by pointing out its main points, new vocabulary and other things necessary for its comprehension. Also after the presentation of the lesson ,the student tutor may help his hearing impaired peer by reviewing the delivered material through the help of the additional information, examples, practice and classification as needed in a given situation
- f) Buddy system consists of seeking help from the normal peer sitting next to a non hearing student for clarifying explanations' and directions, drawing attention towards the speakers, telling page numbers of text being read by the teacher or other students, helping in other oral communication activities, making them alert to a variety of audio warning signals like fire alarm, period bells, schools important announcements etc.

Suggestions by K. Eileen Allen and Glynnis E. Cowdery for educational inclusion hearing impaired children⁹.

- a) Sit, kneel, or bend down to the child's level to talk. Look directly at the child
- b) Use clear speech. Talk at a slightly slower pace with careful pronunciation. Use gestures, when appropriate, but avoid over gesturing.
- c) Use brief but complete sentences when child has reached that stage of language development.
- d) Seat the child directly across from the teacher.
- e) Light needs to be on speakers face, not the Childs.
- f) When talking about something in the room, point to it, touch it or hold it up.
- g) Some children with moderate to severe hearing loss make strange noises. They do not hear themselves, but their noises often bother other children. Teacher must find subtle ways to help these children be quite when necessary (perhaps gently putting a finger on the child's lips and on the teachers in an Sssh gesture).
- h) There should be minimal distance between the teacher and the child to facilitate lip-reading.
- i) Ensure there is good lighting to reinforce clear sight of visual aid.
- j) Don't exaggerate pronunciation as this will deter understanding.
- k) Use as much visual information as possible to reinforce auditory information provided.
- l) Keep environmental noise to a minimum.
- m) Teachers should frequently check to see that the listening devices are working properly.

Classroom tips suggested by Joel Beilin, M.Sc. EE (A) Director of Audiology Oticon A/S - Denmark. for teaching hearing impaired child¹⁰:

- Seat the pupil for optimal listening and visual cues within the classroom. Ideally, this should be with the pupil's back to the window, seated one third of the distance of the room from the teacher, not in the front row directly beneath the teacher.
- Be aware of possible misunderstanding - avoid idioms, sarcasm, slang (if you use them, explain).
- Sometimes ask other pupils if they have heard or understood rather than always focusing on the hearing-impaired child.
- Speak in an ordinary tone of voice, without exaggerated lip movements, and at a normal rate of speaking.
- Make sure your lips are clearly visible.

- Make sure that the room does not have bright lights shining directly in the child's face. Back-lighting is ideal.

Media Access Australia: Some tips ¹¹.

1. Use captions

All students benefit from captions and especially those who are Deaf or have hearing impairment. To cater for these students it is important to use only captioned multimedia such as TV, DVDs and online video.

2 Make use of available technology

Many classrooms are now equipped with technologies such as interactive whiteboards (IWBs) and sound field amplification systems. If you have access to these technologies or anything similar, ensure that you've been briefed on how to best use them to complement your teaching.

3 Use visual stimulus

Students who have a hearing impairment require visual clues/ support in their learning to assist their understanding of content. Teachers can use visual stimuli such as providing lesson outlines, main points and any directions on IWB or display boards to help these students.

4 Consider classroom arrangement

There are always variables as to where a student who has a hearing impairment should sit in the classroom. Ensure that these students are in a position where your face are clearly visible, and where the sound of your voice is least obstructed.

5 Keep unnecessary noise to a minimum

Students who have a hearing impairment find it very difficult to concentrate when there is background noise. Blocking out some or all of this noise through closing doors or windows can be a simple and effective measure.

How Listener Friendly is your Classroom?

(Remedial measures)¹²

A good listening environment is crucial to successful classroom learning. Many factors affect the listening environment. Classrooms are typically noisy and reverberant, making listening difficult for pupils with normal hearing as well as those with hearing loss. Since every teacher aspires to make subject matter understandable to everyone. To make his teaching successful, there is the need for regular evaluation of various factors which are supposed to pose a threat to effective teaching learning process of hearing impaired children. Whenever teacher is supposed to teach hearing impaired children, he should pose following questions to himself. If the answer is yes then he should continue. On the other hand if the question is no then he should follow the tips provided.

1. Classroom and outside noise : Yes/No

- Do you feel that your classroom is free from external noise or noise causing agents?

(Traffic, construction, playground, cafeteria, gymnasium etc.)?/

Tip: For such type of children, the schools in general and classrooms in particular should be located in free and calm environment. Classrooms should be located away from traffic and noisy areas. Even simple things like shrubbery just outside the classroom windows can help reduce external noise.

2. Classroom and inside noise : Yes/No

- Do you think your classroom is conducive to teaching learning process free from noise causing agents like fans,cooling system/.....

- Do you think your classroom is properly carpeted?/.....

- Do the windows have curtains?/.....

- Do chairs, desks and tables have rubber stops to cut down on noise?/.....

Tip: Evaluate and monitor internal classroom noises on an ongoing basis. Air conditioners, heating systems, computers, projectors and light fixtures can all contribute to internal background noise, making hearing more difficult. Have equipment serviced regularly to eliminate noise created by malfunction, and look for areas where adjustments can be made to improve classroom acoustics:

- Acoustically-treated low ceilings
- Carpeting
- Well-fitting doors
- Thick curtains, acoustic panelling
- Use of absorptive materials on hard reflective surfaces

(Cork bulletin boards, etc.)

- Windows and doors closed during instruction

3 Listening Skills: Yes /No

- Do you evaluate listening skills and provide programs to strengthen these skills?/.....
- Do you make listening fun?/.....

Tip: Contact the appropriate staff person in your school regarding the availability of pupil observation forms. Use game-like activities that make your pupils want to listen

4. Audibility of voice: Yes/No

- Are you projecting your voice so that you can be heard in the back of the room?/.....

Tip: Teacher should check whether his voice is audible to whole class. Moreover healthy student ratio should be maintained to avoid jumbling in the classrooms. Check with pupils periodically to be certain that they can hear you well. Seating hard-of-hearing pupils near the front of the class should strongly be considered.

5. Language of teacher: Yes/No

- Do you think your language is clear to students?/.....

Tip: Teacher should use clear and age-appropriate vocabulary. Difficult and lengthy words should be avoided. If new words are introduced, explain them. Avoid excessive use of irony, figurative language and idioms.

6. Skill of Communication: Yes No

- Do you ensure that the pupils understand directions, both oral and written?/.....
- Do you use visual aids (video, overheads, etc.)?/.....

Tip: Teacher should ask students regularly regarding their understanding of subject matter taught. Try to bring variety in the classroom by using different types of AV aids, because they call upon their auditory and visual sense. Never use the word assume with hearing impaired children because they are reluctant to express even if they have not understood the topic. Take care not to focus or single out the hearing-impaired pupil too much.

7. Hearing Tactics: Yes/No

- Is there sufficient light in the room to aid oral communication with lip reading?/.....
- Do you try to talk face-to-face with your pupils?/.....

Tip: A pupil with any type of hearing loss should face away from windows to avoid light shining in his/her face. The face of the speaker should be in good light. Speaking face-to-face enables the listener to utilize visual cues such as lip reading and facial expressions. Speak in a normal tone of voice, without exaggerated lip movements.

Conclusion

Nature loves order. No one is inferior or superior. But history is witness to the fact how the so called human being has left no stone unturned in violating and abusing some sections of society especially disabled people now called Special. The disabled people were the victims of abuse, extermination, and exclusion. As a result of initiatives taken by Govt. and various agencies at National and International level, there has been a drastic shift from Exclusion to Inclusion of special children in educational setup. Mere inclusion is not sufficient. Once included, they need to be educated with quality education as per their special need. Successful and effective Inclusion of special children needs inculcation of requisite skills among teachers like identification, evaluation and teaching techniques. Keeping the education of Hearing impaired child into consideration, this paper presents a checklist that helps the teacher in early identification of hearing impaired children. Moreover some suggestions are recommended for ensuring the quality teaching there by achieving the goal 'successful Inclusion of Hearing impaired children'.

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