

CAUSES OF HEARING IMPAIRMENT IN OUR REGION: A SADAREM PROJECT REPORTM. Prabhakar¹, S. Ramesh², Ch. Narayana Rao³, H. Ramesh⁴**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: The Hearing Impairment is one of the common physical disability in our society along with Visual Impairment, Physically challenged and Mental Impairment. The Government of Andhra Pradesh had launched a programme so called A SOFTWARE FOR ASSESSMENT OF DISABLED FOR ACCESS REHABILITATION AND EMPOWARMENT (SADAREM) project for verification of certificates of physical disability including hearing Impairment in Srikakulam district of Andhra Pradesh. This prospective study reveals number of candidates with medical certificates had attended the ENT OPD with hearing impairment. This study tell us the percentage of various causes of deafness in this region and also compares with the statistics of Gallaudet Research Institute for hearing impairment.

KEYWORDS: Society, Physical disability, Hearing impairment, SADAREM project, Medical certificates.

MATERIALS METHODS: Almost all 10000 candidates with medical certificates of hearing impairment were verified over a period of 5 years 6 months from May 2009 to till date. As per SADAREM project each candidate has an application form which contains part A and part B. The part A contains bio-data of individuals to be filled up by the district rural development authority officials and it is common for all disabilities. The form B has to be filled up by an ENT surgeon and partly by an Audiologist after proper evaluation, which contains degree of disability at different frequencies, type of hearing impairment and also condition of disability whether to issue temporary or permanent certificate.

The candidates is thoroughly examined clinically in the ENT department by taking proper personal, family, drug history, and the history of exposure to loud sounds before evaluation by special investigation such as PTA, Impedance Audiometry, Speech Audiometry, Free Field Audiometry, BERA and OAE. On clinical examination one questionnaire will be given which contain questions to repeat words like AMMA (mother), NANNA (father), AKKA (sister), KUKKA (dog) and so on in regional language. This study also assess the alertness of candidate such as blinking of eyes on sudden clapping behind the candidate and also look for swallowing movements in the neck due to anxiety along with tests for malingering),^(1,2) to rule out malingering.

While performing special investigation like PTA, candidates were assessed by repeated response to same intensity and same frequency at different time and comparing with speech reception threshold. If required, the candidates are referred to higher centers for proper evaluation with sophisticated investigations like BERA, OAE etc.

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OBSERVATION:

1. **The age distribution:** In total no. of candidates of 9550 is as follows,

0-12yrs	627
13-40yrs	3286
41-65yrs	5179
Above 66	458

Table 1

2. **Sex distribution:**

Male	Female
5600	3950

Table 2

3. **Degree of hearing loss:**

Mild (≤ 40 dB in better ear)	Moderate (41dB to 60dB)	Severe (61dB to 70dB)	Profound (71Db to 90dB)	Total (≥ 91 dB)
1684	1579	2632	1879	2176

Table 3

4. Comparison with reported etiology for hearing impairment of Gallaudet research institution US (1994).^(3,4,5,6,7,8,9)

Reported Etiology of Hearing Loss in the Adult Population, United States, 1990-91 (N=19,327,000).

Cause of Hearing Loss	Gallaudet research institution	SADAREM project report
At birth	4.4%	11.8%
Ear infections	12.2%	14.8%
Ear injury	4.9%	1.6%
Noise induced	33.7%	3.2%
Getting older	28.8%	35.7%
Others	16.8%	32.9%
Total	100%	100%

Table 4

DISCUSSION: While clinical evaluation of the candidates in the ENT department we could find those who can repeat Amma as Abba and oohaaa instead of kukka are identified as deaf-mutes. These group of candidate development sign language and lip reading and they are genuine deaf mutes. Where as in the other group so called malingers, they did not respond to words or signs of examiner and also observed swallowing movement in the neck may due to fear and anxiety. Sometimes, some candidates who are labeled as malingers clinically may become genuine deaf-mute after proper evaluation and vice versa can also occur. Less than 40% of hearing disability is the cutoff point to get financial benefit by government. The candidate will get pension (financial benefits) if disability in

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candidates $\geq 40\%$. So we carefully evaluate the borderline individuals. We send the patients to higher center for proper evaluation with BERA.

CONCLUSION: The hearing impairment is one of the common disability in our region (33.4%) along with other disabilities. The Presbycusis is the commonest cause of hearing impairment in our region accounting about 35.7%. The post traumatic deafness is being the least cause of hearing loss. (1.6%). Almost all percentage of causes are on par with Gallaudet research institution except noise induced hearing loss and hereditary/syndromic,⁽¹⁰⁾ causes of deafness. Many of our patients are unaware of hazards of noise pollution and consanguineous marriages which are common in this region.

GOVERNMENT OF ANDHRAPRADESH DISTRICT RURAL DEVELOPMENT AGENCY, SRIKAKULAM		Part-A	Fields with star * mark are mandatory fields
*Disability and Functional need Assessment Proforma for		FILL IN ALL COLUMNS IN CAPITAL LETTER ONLY	Photograph will be captured at the camp centre
<input type="checkbox"/> Locomotor/ OH	<input type="checkbox"/> Mental Retardation		
<input type="checkbox"/> Visual Impairment	<input type="checkbox"/> Mental Illness		
<input type="checkbox"/> Hearing Impairment	<input type="checkbox"/> Multiple Disabilities		
ID Number (17 digits): (Fill the generated ID no. after data entry)		Form No:	
Date of Data Entry: d d m m y y			
1.0 Individual Details:			
* 1.1 Surname:		* Name:	
* 1.2 Age: (in Years)			
* Date of Birth:		* 1.7 Caste:	
* 1.3 Gender:		OC <input type="checkbox"/> Minority <input type="checkbox"/>	
Male <input type="checkbox"/>		SC <input type="checkbox"/> NA <input type="checkbox"/>	
Female <input type="checkbox"/>		ST <input type="checkbox"/>	
* 1.4 Education:		BC <input type="checkbox"/>	
* Illiterate <input type="checkbox"/>		* 1.8 Religion:	
* Below 10th <input type="checkbox"/>		Hindu <input type="checkbox"/>	
* 10th class <input type="checkbox"/>		Muslim <input type="checkbox"/>	
* Intermediate <input type="checkbox"/>		Christian <input type="checkbox"/>	
* Diploma <input type="checkbox"/>		Sikh <input type="checkbox"/>	
* Graduate <input type="checkbox"/>		Jain <input type="checkbox"/>	
* Post graduate <input type="checkbox"/>		Buddhist <input type="checkbox"/>	
* 1.5 Employment:		Others <input type="checkbox"/>	
Govt. <input type="checkbox"/>		* 1.9 Ration card no:	
Private <input type="checkbox"/>		Ration card type:	
Self-Employed <input type="checkbox"/>		White <input type="checkbox"/>	
Un-employed <input type="checkbox"/>		Pink <input type="checkbox"/>	
Wage Employee <input type="checkbox"/>		AAY <input type="checkbox"/>	
* 1.6 Marital Status:		* 2.0 Family Details:	
Married <input type="checkbox"/>		* 2.1 Father/ Mother/ Husband/ Guardian's Name:	
Un-married <input type="checkbox"/>		* Relation with PWD:	
Divorced <input type="checkbox"/>		* Mother <input type="checkbox"/>	
Widow <input type="checkbox"/>		* Father <input type="checkbox"/>	
Widower <input type="checkbox"/>		* Husband <input type="checkbox"/>	
		* Guardian <input type="checkbox"/>	
		* Brother <input type="checkbox"/>	
		* Sister <input type="checkbox"/>	
3. Address:			
* House No:			
* Town/ Village:			
* Habitation/ Ward No:			
* Mandal:			
* Dist:			
* Pin:			
Phone no:			
Email:			
Tick (✓) in 'Yes' if the person with disability has the following and 'No' if does not have			
1.10 BPC card <input type="checkbox"/> Card No:			
1.11 If getting pension, type of pension & ID No.			
Disabled Pension <input type="checkbox"/> Old age Pension <input type="checkbox"/> Widow Pension <input type="checkbox"/>			
Weaver Pension <input type="checkbox"/> Pension Id No:			
1.12 Consanguineous Marriage between parents: Yes <input type="checkbox"/> No <input type="checkbox"/>			
1.13 Identification marks			
* 1:			
* 2:			
Declaration: I here by declare that all particulars stated above are true to the best of my knowledge and belief, and no material information has been cancelled or misstated. I further, state that if any inaccuracy is detected in the application, I shall be liable to forfeiture of any benefits derived and other action as per law.			
* Signature of data collector/section		* Signature of PWD/Parent/Guardian	

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Hearing Impairment Assessment Proforma Part-B																												
* Venue of the Camp:	ID Number (17 Digits): <table border="1" style="width: 100%; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td><td style="width: 5%;"> </td> </tr> </table>																											
* Name of the Medical Authority:	* Address of the Medical Authority:																											
* Name of the Doctor:	* Name of the Doctor:	* Name of the Doctor:																										
* Designation:	* Designation:	* Designation:																										
* Regn. No:	* Regn. No:	* Regn. No:																										
Hearing Impairment a. H-can perform work by hearing / speaking <input type="checkbox"/> Yes <input type="checkbox"/> No	Disability/ Impairment is due to: (Please mention the preliminary screening/ diagnosis of the disability in good hand writing CAPITAL LETTERS only):																											
1.1 Condition of Disability * (Please tick only one in the appropriate box) <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="padding: 2px;">permanent, progressive, not likely to improve</td> <td style="width: 30px; text-align: center;"> </td> </tr> <tr> <td style="padding: 2px;">permanent, non-progressive, not likely to improve</td> <td style="text-align: center;"> </td> </tr> <tr> <td style="padding: 2px;">temporary, non-progressive, likely to improve</td> <td style="text-align: center;"> </td> </tr> </table> * If Condition of disability is temporary non-progressive, likely to improve please specify the period of reassessment (in years): <input type="checkbox"/> 1 yr <input type="checkbox"/> 2 yr <input type="checkbox"/> 3 yr <input type="checkbox"/> 4 yr <input type="checkbox"/> 5 yr	permanent, progressive, not likely to improve		permanent, non-progressive, not likely to improve		temporary, non-progressive, likely to improve		1.2 Cause of Disability: <table style="width: 100%; margin-top: 5px;"> <tr><td>1. Congenital</td><td style="width: 30px; text-align: center;"> </td></tr> <tr><td>2. Hereditary</td><td style="text-align: center;"> </td></tr> <tr><td>3. Birth Injury</td><td style="text-align: center;"> </td></tr> <tr><td>4. Birth Asphyxia</td><td style="text-align: center;"> </td></tr> <tr><td>5. Meningitis</td><td style="text-align: center;"> </td></tr> <tr><td>6. Epilepsy</td><td style="text-align: center;"> </td></tr> <tr><td>7. Disease and Infection</td><td style="text-align: center;"> </td></tr> <tr><td>8. Malnutrition</td><td style="text-align: center;"> </td></tr> <tr><td>9. Accident</td><td style="text-align: center;"> </td></tr> <tr><td>10. Any Other (Specify Below)</td><td style="text-align: center;"> </td></tr> </table>		1. Congenital		2. Hereditary		3. Birth Injury		4. Birth Asphyxia		5. Meningitis		6. Epilepsy		7. Disease and Infection		8. Malnutrition		9. Accident		10. Any Other (Specify Below)	
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Page No: 1/3 Fields with star * mark are mandatory fields																												

Table of reference:		ID Number (17 Digits):				
Category	Type of Impairment	Speech discrimination	DB Level	% age of impairment		
I	Mild hearing Impairment	80 to 100% in better ear	DB 26 to 40 dB in better ear	Less than 40% to 50%		
II (a)	Moderate hearing	50 to 80% in better ear	41 to 60 dB in better ear	40% to 50%		
II (b)	Severe hearing Impairment	40 to 50% in better ear	61 to 70 dB in hearing impairment in better ear	51% to 70%		
III	a) Profound hearing Impairment	Less than 40% in better ear	71 to 90 dB	71% to 100%		
	b) Total deafness	Very Poor discrimination	91 dB & above in better ear to hearing discrimination	100%		
• Pure Tone Audiometry						
• (Please assess the frequencies and write the values in appropriate boxes. DB loss will be calculated by the software)						
Frequency (HZ)	250	500*	1000*	2000*	4000	8000
Right Ear	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Left Ear	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
* Speech Discrimination (Specify Exact Percentage)						
% of speech discrimination in Right Ear				 %	
% of speech discrimination in Left Ear				 %	
Instructions:						
• Please go through the reference table given above and assess the hearing impaired person. Write the assessed values in the boxes provided above.						
• Fields with star * mark are mandatory fields.						
Page No:2/3						

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