

FACTORS AFFECTING CAUSE OF HEARING LOSS AND FOLLOW-UP IN FEMALES

Reg.No.M9222

**AN INDEPENDENT PROJECT SUBMITTED AS PART FULFILMENT FOR THE
FIRST YEAR M. S c. (SPEECH AND HEARING) TO THE UNIVERSITY OF MYSORE.**

**ALL INDIA INSTITUTE OF SPEECH AND HEARING MYSORE .570006
MAY 1993**

To

**Lele Sir and Louisa teacher
for all the values handed
over to me.**

**Vishu, Krishna and Ravi for
thier inspiration, love and**

**Rukku, Kiran and Samhita
for being with me through my
good and bad times.**

CERTIFICATE

This is to certify that the Independent Project entitled : FACTORS AFFECTING CAUSE OF HEARING LOSS AND FOLLOW-UP IN FEMALES is a bonafide work, done in part fulfilment for the first year Degree of Master of Science (speech and Hearing), of the student with Reg.No.9222.

Mysore
May 1993



DIRECTOR

All India Institute
of Speech & Hearing
Mysore - 570 006.

CERTIFICATE

This is to certify that this Independent Project entitled FACTORS AFFECTING CAUSE OF HEARING LOSS AND FOLLOW-UP IN FEMALES has been prepared under my supervision and guidance.

**Mysore
May 1993**


**Dr. (Miss) S. Nikam
GUIDE**

DECLARATION

I hereby declare that this Independent Project entitled **FACTORS AFFECTING CAUSE OF HEARING LOSS AND FOLLOW-UP IN FEMALES** is the result of my own study under the guidance of Dr. (Miss) S. Nikam, Director, All India Institute of Speech and Hearing, Mysore, has not been submitted earlier at any University for any other Diploma or Degree.

Mysore
May 1993

Reg.No.M9222

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INTRODUCTION

Man is bestowed with five senses - vision, audition, smell, touch and taste. All these senses enable us to understand and tackle with our environment. Audition is known to be a distant sense and plays a very important role in man's life. It is a wonderful sense that gives us an entry into the world of communication - communication without hearing is also possible, but most of the communication is carried-out using this sense. Hearing makes us aware of the unlimited capacity to communicate via speech. Loss of hearing - partial or total can prove to be a very big obstacle in the present competitive world. A silent existence in this melodious world can prove to be very despairing.

Both adults and children can have hearing loss. Hearing loss in children is more handicapping than in adults because it disrupts language acquisition. Even a mild loss during these years i.e. upto nine years of age have been known to disrupt language acquisition. If onset occurs later in life the effects seen are less devastating.

Incidence and prevalence of hearing loss in children and geriatrics has been extensively studied. Whereas that during middle ages is not so.

In adults ie. in the middle ages hearing loss can be caused due to number of reasons ranging from infection to trauma. certain well known causes include ototoxicity, otosclerosis, secondary infection following illness noise exposure etc..

Hearing loss among adult female in India generally goes undetected because of number of reasons which include:

- 1) Number of females who depend a lot on hearing to earn their livelihood are very few ie. number of females employed are few, but are now in an increasing trend,
- ii) Preferential treatment is given to Males because they are the bread winners. 80 the problems they encounter are handled first,
- iii) Illiteracy and lack of awareness among females is more.

Evenif the hearing loss is detected the number of cases who report for treatment are few and ones who follow-up the recommondations are fewer still.

The present study alas at finding factors related to Hie cause and follow-up.

Justification for the study:

If the factors affecting cause and follow-up in females is know, then these factors can be sufficiently manipulated so as to enable better mangement of the cause.

REVIEW OF LITERATURE

Surveys of speech and hearing problems in India show wide discrepancies. Palmer (1962) estimated that 6% of general population has communication disorders. Vishwanath et al. (1971) examined 410 children between the ages 5 and 16 and reported that 1.3% of girls had speech problem and 18.49% had hearing problem, Manohar and Jayaram (1973) tested children between ages of 3-16 years. Out of a total of 1454 children tested 747 were females and they found that incidence of speech problem in female is 15.79%. Aithal (1989) examined a total of 6211 individuals during the various camps carried-out in Karnataka. He reported that 2443 females had speech and hearing problems. He further carried-out an age-wise classification and found that of the total 256 females above the age of 17 years, 63 had speech problems and 193 had hearing problems. A further classification of cases with hearing loss revealed that 122 had sensorineural loss, 38 had mixed loss and 33 had conductive loss.

METHODOLOGY

The methodology used for the study is along the following lines:

1. Data: The data collected was from female subjects between the ages of 25 and 40 years who reported to Ail India Institute of Speech and Hearing during the odd months of 1990 and even months of 1991 with speech and hearing problems. They were divided into three groups based on the ages 25-30 years; 30-35 years; 35-40 years.

2. Data collected : The information was collected under following headings:

Case No.	Mother tongue
Date of reporting	Informant
Referral from	Family history
Ago	consanguinity
Place	Prior investigation
Education	Complaint or history
Occupation	Audiological,evaluation and ENT evaluation
Religion	Speech evaluation
	Follow-up.

Results and Discussion

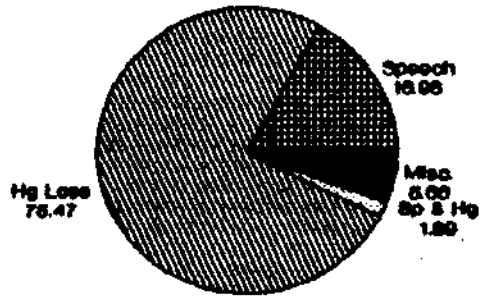
The data collected are hand scored and converted into percentages and results are presented in tables and discussed.

Table-1: Showing distribution of subjects according to their complaint.

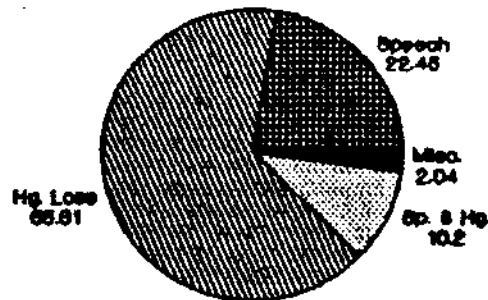
	percentages of ages		
	25-30 yrs.	30-35 yrs.	35-40 yrs.
Speech	16.98	22.45	13.70
Hearing	75.47	65.31	71.23
Speech & Hearing	1.89	10.20	5.48
Miscellaneous	5.66	2.04	9.59

From Table-1, it can be seen that majority of the subjects come with a complaint of hearing problems followed by speech problems. The percentage of subjects who came with speech and hearing problems was minimum.

Distribution of Cases 25 to 30 years



Distribution of Cases 30 to 35 years



Distribution of Cases 35 to 40 years

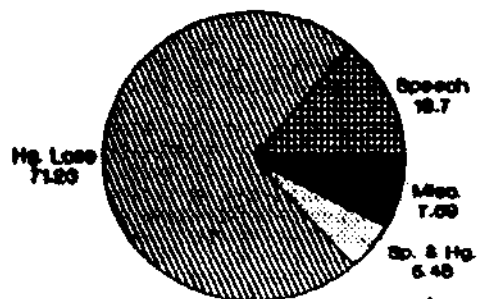


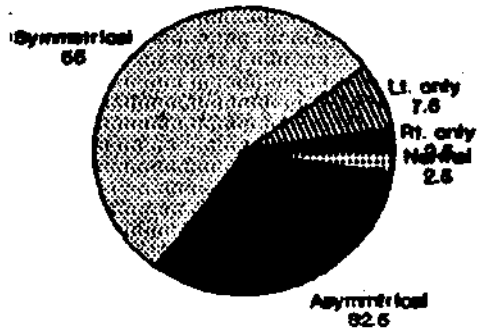
Table-2: Showing distribution of hearing loss.

Hearing loss	Percentage of cases		
	25-30yrs.	30-35 yrs.	35-40 yrs.
Unilateral			
Only right	2.5	9.38	9.62
Only left	7.5	9.38	11.53
Bilateral			
symmetrical	55	56.25	44.23
Asymmetrical	22.5	18.75	25
Normal (With complaint of hearing loss)	2.5	6.24	9.62

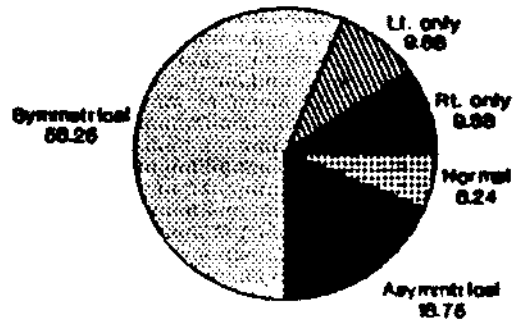
This table shows that a majority of the subjects had a bilateral symmetrical hearing loss. This could be because of compensation by the normal ear in cases with unilateral loss, so the problem does not receive much attention.

Among those subjects who had a unilateral loss, in a Majority of them the deficit was found to be in the left ear.

Distribution of Hearing Loss 25 to 30 years



Distribution of Hearing Loss 30 to 35 years



Distribution of Hearing Loss 35 to 40 years

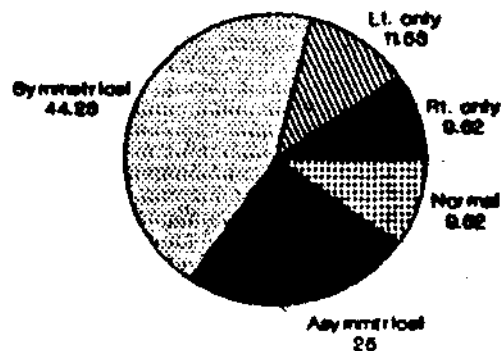
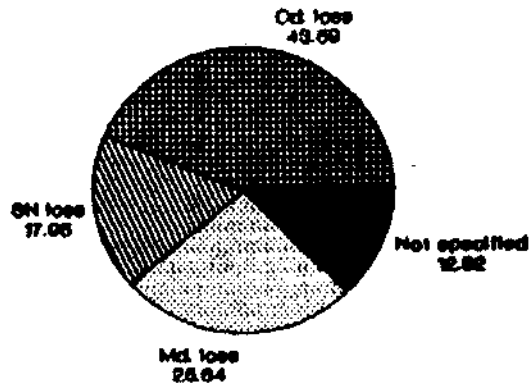


Table3: Showing distribution of type of hearing loss.

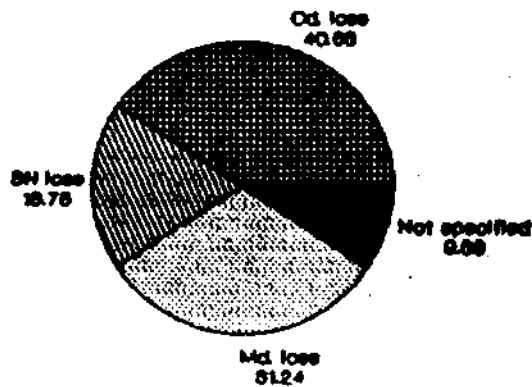
Type of loss	Percentage of cases.		
	25-30 yrs.	30-35 yrs.	35-0 yrs.
Conductive	43.59	40.63	26.92
Sensori-neural	17.95	18.75	25.01
Mixed	25.64	31.24	32.69
Not specified	12.82	9.36	15.38

This table shows that the majority of subjects in the first two groups ie. 25-30 years and 30-35 years had a conductive loss. In the last age group a majority of the cases had a mixed loss. This could be because the presbycusis component comes into play in this age group. The subjects who had a sensori-neural loss were the least in all the three age groups.

Distribution of Type of Hg. loss 25 to 30 years



Distribution of Type of Hg. loss 30 to 35 years



Distribution of Type of Hg. loss 35 to 40 years

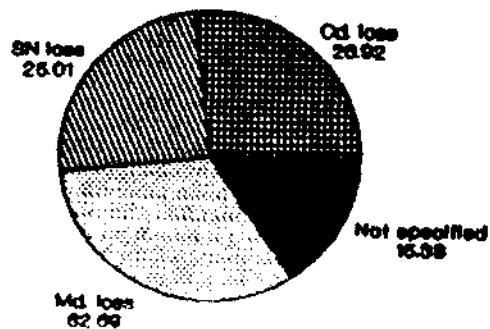


Table 4: Showing Associated History.

Associated history	25-30 yrs	30-35 yrs.	35-40 yrs.
Tinnitus	55	65.62	67.30
vertigo	25	34.37	36.54
Pain	20	34.37	30.77
Headache	22.5	15.62	3.85
Post-partum	12.5	12.5	1.92
Discrimination problem	10	15.62	3.85
Ear discharge	15	25	15.38
Blockage	7.5	3.12	15.38
Trauma	5	9.37	1.92
Nausea	5	3.12	9.61
Medication	0	3.12	0
Congenital	0	34.37	3.85
Illness	0	6.24	7.69

From this table it can be seen that the most frequent associated history is all the age groups was that of tinnitus followed by vertigo.

In the 25-30 year age group, this is followed by headache, pain (in the ear), ear discharge, post-partum.

LIST OF ABBRIVIATION

T = Tinnitus

V = Vertigo

P = Pain

HA = Headache

P_{pm} = Post-partum

DP = Discrimination problem

Ed = Ear discharge

B = Blockage

Tr = Trauma

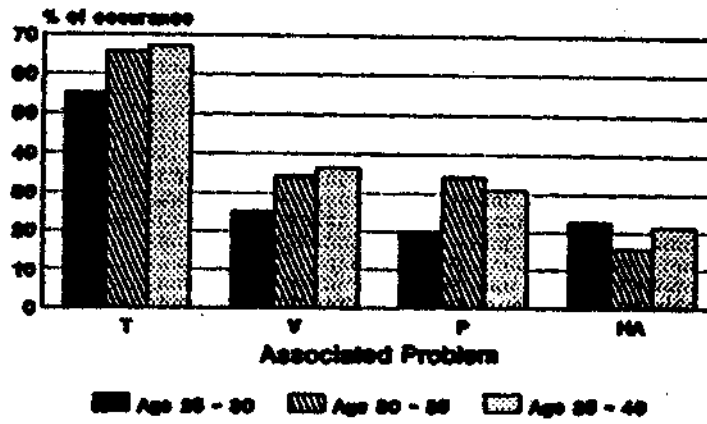
N = Nausea

M = Following medication

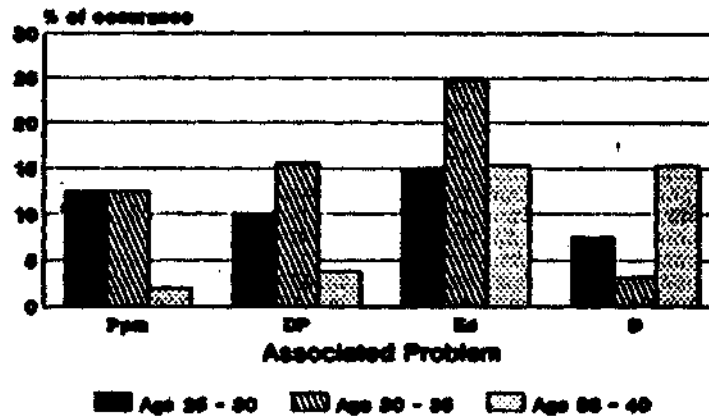
C = Congenital

Il = Following Illness

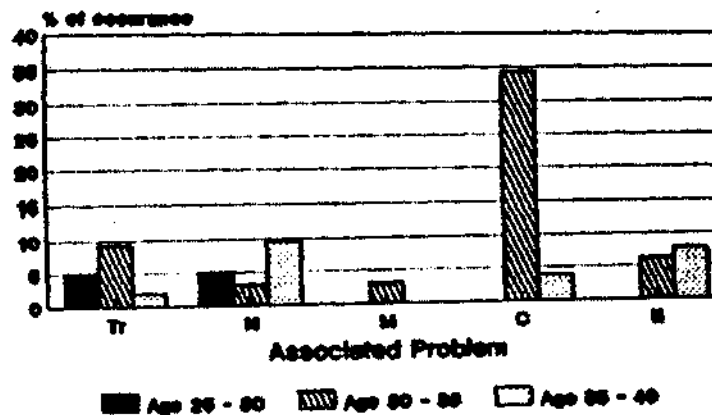
Associated History According to age



Associated History According to age



Associated History According to age



onset, discrimination problem, blockage in the ear, trams to the ear and nausea. History of congenital onset and onset following medication and illness was nil in this age group.

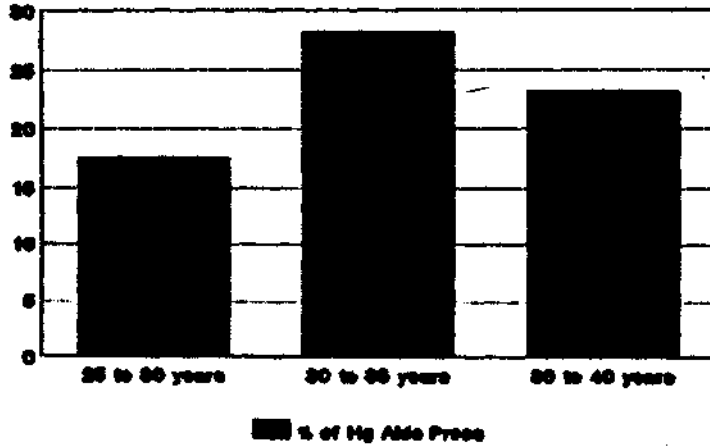
In the 30-35 years age group history of tinnitus and that of vertigo is followed by that of congenital onset, ear discharge, headache, discrimination problem, post-partum onset, trauma, blockage, nausea and onset following medication in a decreasing order.

In the 35-40 year age group history of tinnitus and vertigo is followed by that of pain, ear discharge, blockage, nausea, onset following illness, discrimination problem, headache, congenital onset, post-partum onset and trauma in a decreasing order. History of onset following medication is nil.

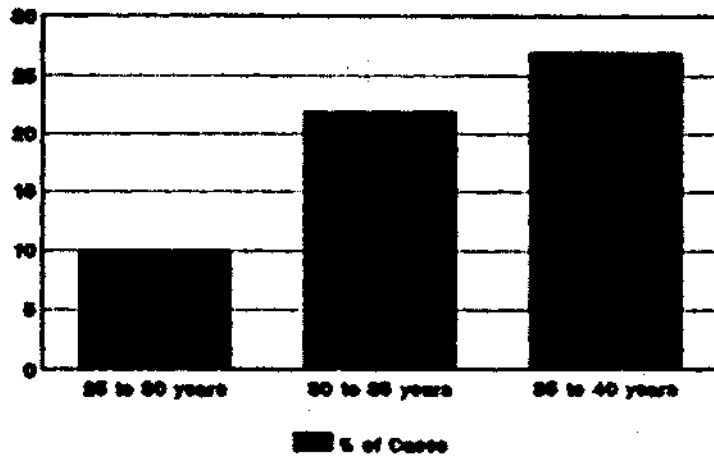
Table 5: Showing distribution of the hearing aids prescribed

	Percentage of cases		
	25-30 yrs.	30-35 yrs.	35-40 yrs.
Hearing aid prescribed	17.5	28.12	23.08

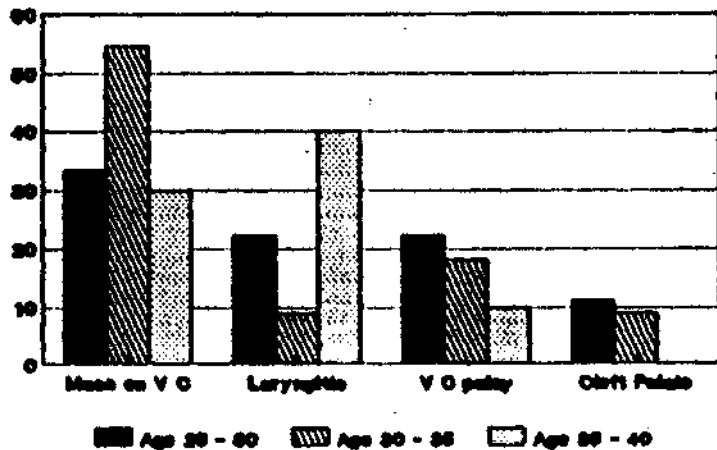
H .A. Prescribed



Follow Up of Cases



Distribution of Speech Problems



This table shows that maximum hearing aids were prescribed to the subjects in the 30-35 year group.

Table-6: Showing distribution of follow-up.

	Percentage of cases		
	25-30 yrs.	30-35 yrs	35-40 yrs.
<i>Follow-up</i>	10	21.87	26.92

This shows that with increasing age the number of subjects who came for a follow-up also increases. A majority of the subjects who come for the follow-up had ear discharge. Very few of them came with other complaints such as increased hearing loss, tinnitus etc. No one came with problems related to the working of the aid.

Table-7: Showing distribution of speech problems according to complaint.

	Percentage of cases		
	25-30 yrs.	30-35 yrs.	35-40 yrs.
Voice change	33.33	72.72	90
Pain	11.11	18.18	40
Aphenia	22.22	18.18	10
Weak voice	22.22	9.09	10
Vocal fatigue	0.0	27.27	10
Misarticulation	11.11	9.09	0
Stuttering	11.11	0	0
Following medication	0.0	27.27	10
Odynophagia	0	0	0

From this table it can be seen that a majority of the subjects in all the three age groups came with complaint of voice change.

In the first age group ie. 25-30 years, it was followed by aphonia, weak voice, pain, misarticulation and stuttering complaint of vocal fatigue, edynophagia *and* onset following Medication was all.

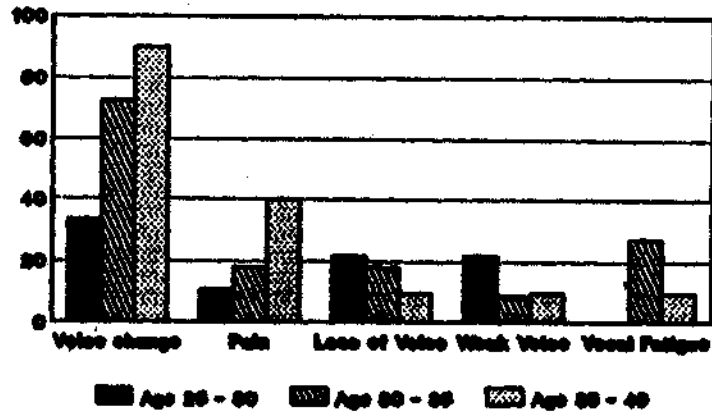
In the second age group 30-35 years complaint of voice change is followed by vocal fatigue, onset following medication, pain (in throat), aphonia, weak voice and misarticulation. Complaint of stuttering and odyphagia were nil.

In the third age group 35-40 year complaint of voice change is followed by that of pain, aphonia, weak voice, vocal fatigue, onset following medication and odyphagia, complaint of misarticulation or stuttering was nil.

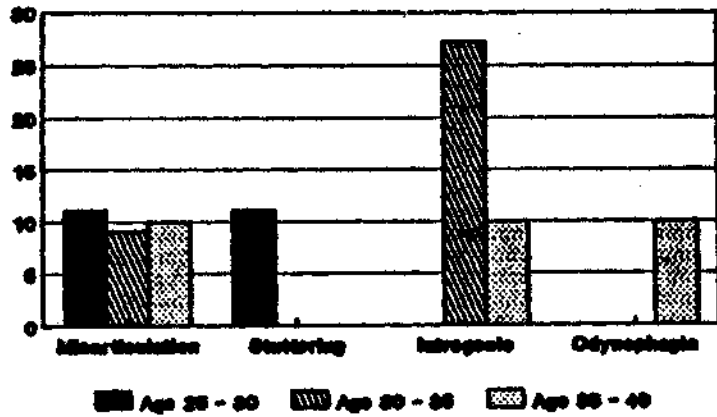
Table-8: Showing distribution of speech problems based on diagnosis.

	Percentage of cases		
	25-30 yrs.	30-35 yrs.	35-40 yrs.
Mass on vocal cords	33.33	54.54	30
Laryngitis	22.22	9.09	40
Vocal cord palsy	22.22	18.18	10
Cleft Palate	11.11	9.09	0

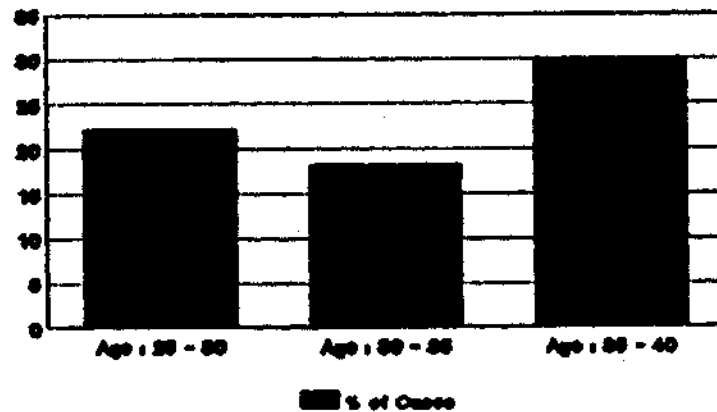
Distribution of Speech Problems Based on Complaint



Distribution of Speech Problems Based on Complaint



Distribution of Speech Problems Follow up



It can be seen that a majority of cases in the first two age group. is 25-30 years and 30-35 years had a mass on vocal cords. This can be attributed to increased vocal abuse in the younger ages. This is followed by laryngitis, *vocal cord palsy and cleft palate* in the youngest age group and vocal palsy, laryngitis and cleft palate in the second. In the third group i.e. 35-40 years the most presenting finding was that of laryngitis followed by mass on vocal cord and vocal palsy. None of the subjects in this group had cleft palate.

Table-9: Showing distribution according to follow-up.

	Percentage of cases		
	25-30 yrs.	30-35 yrs.	35-40 yrs.
Follow-up	22.22	18.18	30

Follow-up has generally been better among subjects with speech problems than those with hearing problems except in the second age group where the reverse is true.

Table -10: showing distribution according to occupation.

	Percentage of cases		
	25-30 yrs.	30-35 yrs.	35-40 yrs.
Housewives	26.42	46.94	56.16
working	9.43	24.49	23.29
Not specified	64.15	28.17	20.55

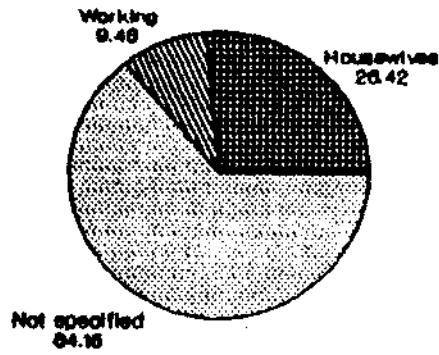
From this table, it can be seen that a majority of the subjects were housewives who sought professional help.

Table--11 Showing distribution according to education.

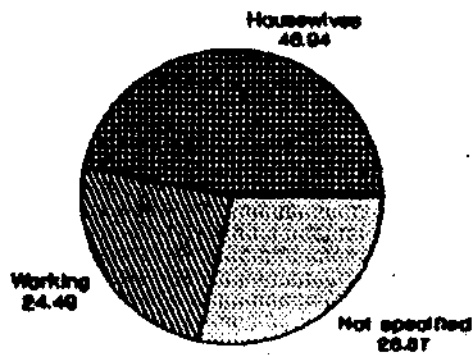
	Percentage of cases		
	25-30 yrs.	30-35 yrs	35-40 yrs.
Educated'	58.49	46.94	56.16
Not educated	41. 5I	53.04	43.84

This shows that majority of the subjects in the first and last group had, had some kind of education, whereas the reverse was true in the middle age group.

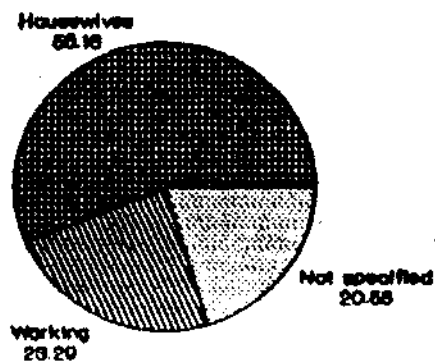
Distribution ; Occupation 25 to 30 years



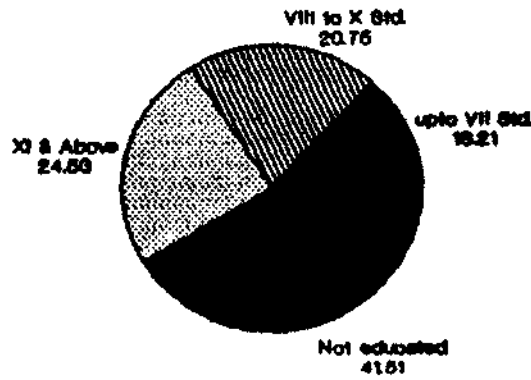
Distribution ; Occupation 30 to 35 years



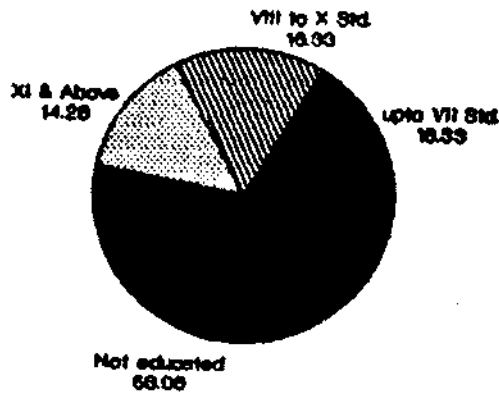
Distribution ; Occupation 35 to 40 years



Distribution ;Education 25 to 30 years



Distribution ;Education 30 to 35 years



Distribution ;Education 35 to 40 years

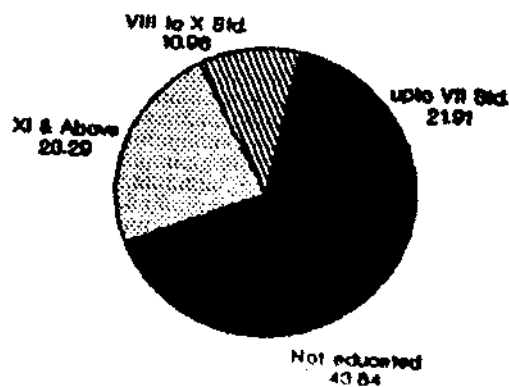


Table-12: Showing distribution of subjects according to informant.

	Percentage of cases		
	25-30 yrs.	30-35 yrs.	35-40 yrs
self	79.24	81.63	82.19
Relative	7.58	16.33	6.35
Parent	7.55	0	2.74
Spouse	5.66	0.0	2.74
Others	0	2.04	5.48

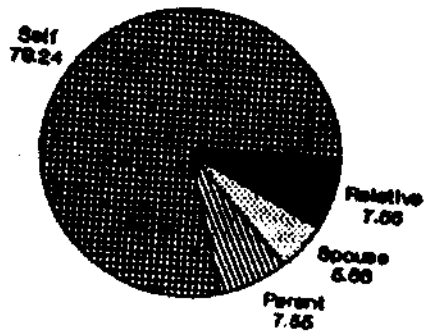
This table shows that a majority of the subjects in all the 3 age groups a self report was given regarding the problem, this percentage also increases with age.

Table-13: Showing distribution according to referral

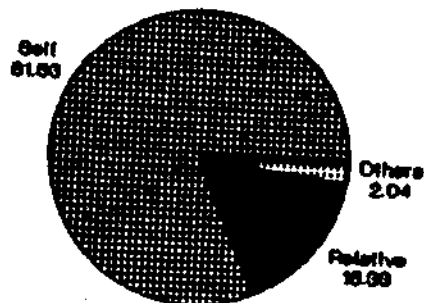
	Percentage of cases		
	25-30 yrs.	30-35 yrs.	35-40 yrs.
Referral	69.81	53.06	36.99
Notspecified	30.19	46.94	63.01

Among the subjects who came with a referral a majority had been referred to the Institute from the Government Hospital. This throws light on the poor awareness regarding the facilities available at the Institute.

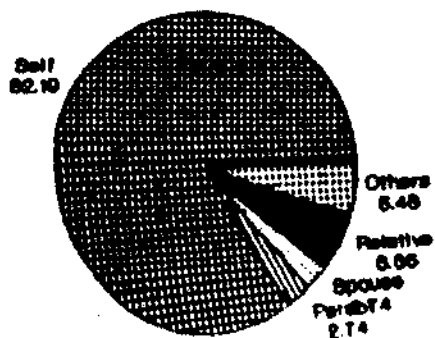
Distribution ;Informant 25 to 30 years



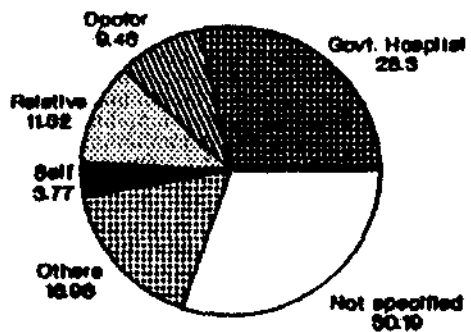
Distribution ;Informant 30 to 35 years



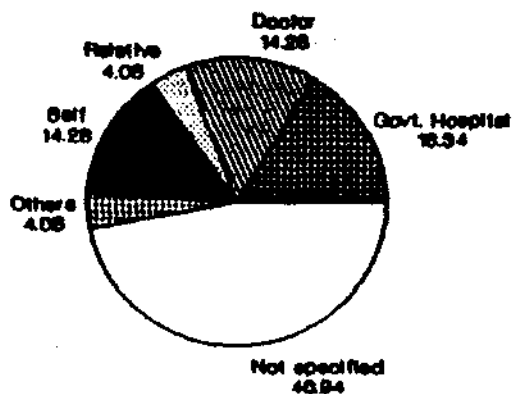
Distribution ;Informant 35 to 40 years



Distribution ;Referral 25 to 30 years



Distribution ;Referral 30 to 35 years



Distribution ;Referral 35 to 40 years

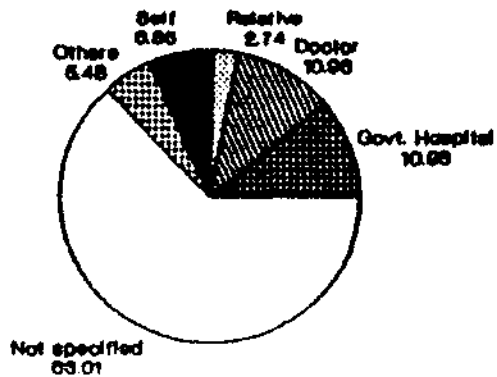


Table-14: Showing distribution according to place.

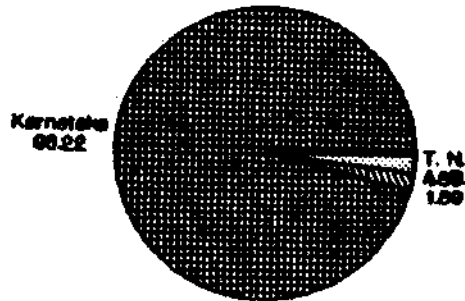
	Percentage of cases		
	25-30 yrs	30-35 yrs.	35-40 yrs
Karnataka	96.22	87.76	95.42
<i>Andhar</i> Pradesh	1.89	6.12	2.74
<i>Tamil</i> Nadu	1.89	0	0
Kerala	0	4.08	2.74
Miscellaneous	0	2.04	0

This table shows that most of the subjects hailed from Karnataka followed by Andhra Pradesh, Kerala and Tamil Nadu. A very negligible number hailed from the other states in India. This was true for all the three age groups.

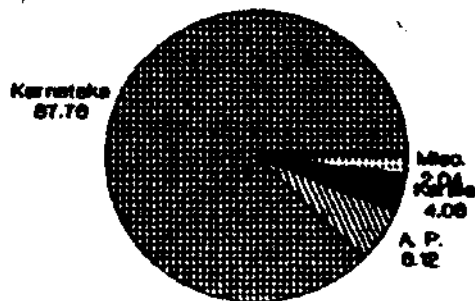
Table-15: Showing distribution of cases according to religion.

	Percentage of cases		
	25-30 yrs.	30-35 yrs.	35-40 yrs.
Hindu	88.02	77.55	76.71
Muslim	15.09	6.12	15.07
Christian	1.89	4.08	6.85
Not specified	0	12.25	1.37

Distribution : Places 25 to 30 years



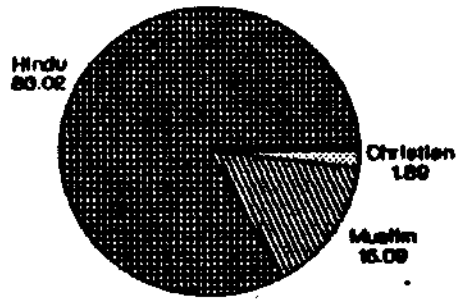
Distribution : Place 30 to 35 years



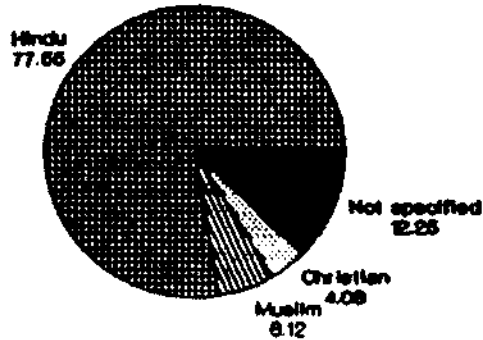
Distribution : Place 35 to 40 years



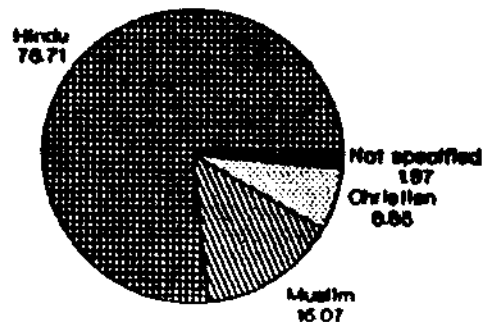
Distribution ;Religion 25 to 30 years



Distribution ;Religion 30 to 35 years



Distribution ;Religion 35 to 40 years



This table shows that a majority of the cases were Hindus followed by Muslims and Christians.

Table-16: Showing distribution according to positive family history.

	Percentage of cases		
	25-30 yrs	30-35 yrs.	35-40 yrs
Positive history	24.53	14.28	13.70

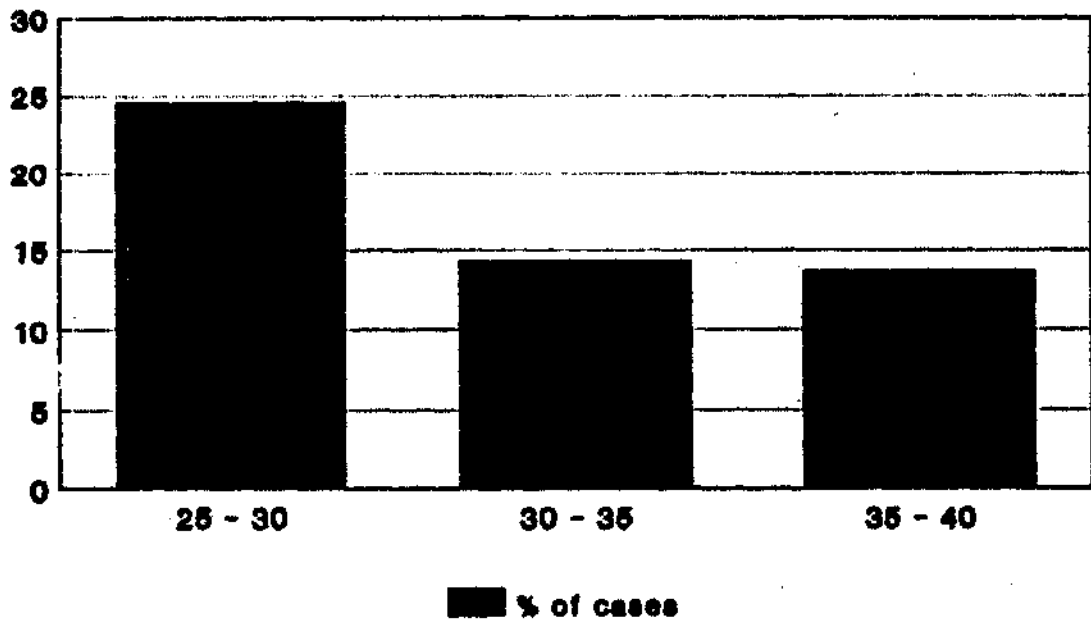
This table shows that a positive family history decreases with age.

Table-17: Showing distribution showing a positive History of consanguinous marriage.

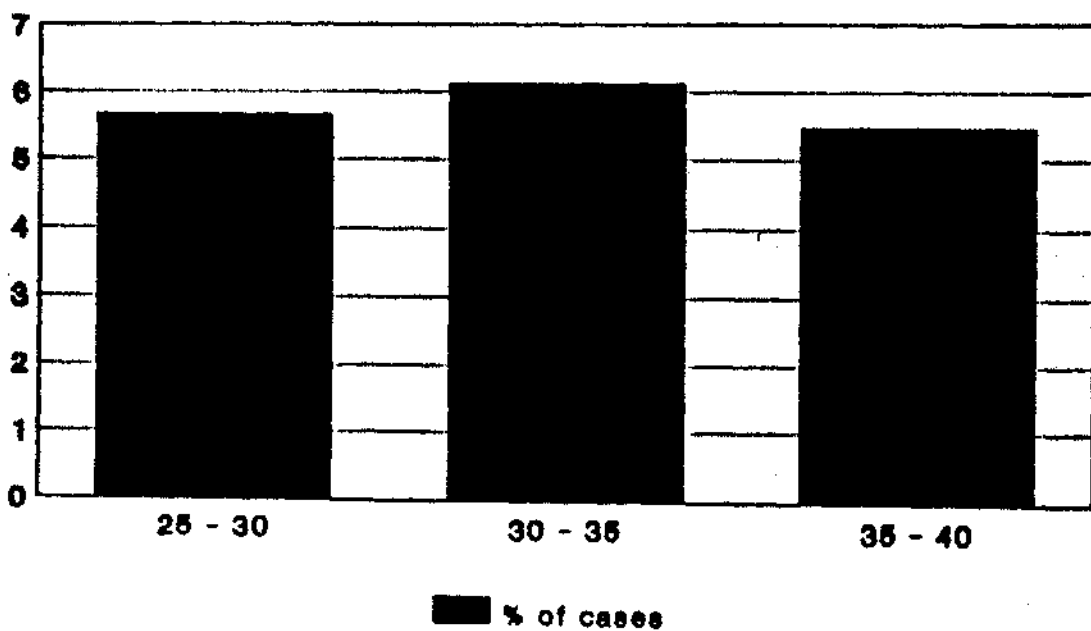
	Percentage of cases		
	25-30 yrs.	30-35 yrs,	35-40 yrs.
Positive history	5.66	6.12	5.98

This table shows that , a positive history of a conanguinous marriage was most in teh 30-35 yrs group..

Distribution : Family History According to age



Distribution : Consanguinity According to age



Summary and Conclusion

The purpose of the present study was to know the factors affecting the cause of hearing loss and follow up among females between ages of 25 and 40 years.

The subjects chosen for the study were those registered and examined at the All India Institute of Speech and Hearing, during the odd months of 1990 and even months of the year 1991. The required information was drawn from the case files. The data collected was presented in a tabular column.

On the basis of the results obtained the following conclusions were drawn:

1. A majority of the subjects came with a complaint of hearing loss.
2. A major proportion of the subjects with hearing loss had bilateral symmetrical loss.
3. A majority of the subjects had a conductive loss.
4. Tinnitus and vertigo were the major associated complaint in all the three groups.
5. Hearing aids were prescribed to a few subjects the maximum being to subjects in the age range of 30-35 years.

6. The percentage of cases who came for follow-up increased with age.
7. Among the subjects who came with speech problems, voice change was the most frequent complaint and mass on the vocal cord was the most frequent associated finding..
8. Among subjects in whom occupation was specified, majority were house wives the percentage of whom increased with age.
9. . A majority of the subjects in the first and last age groups had, had some kind of formal education.
10. Self information was provided by a Majority of the cases in all the three age groups.
11. A Majority of cases had been referred to the Institute and were usually referred from the local Government hospital.
12. A Majority of the subjects who sought help were Hindus and hailed from Karnataka.
13. Incidence of a positive family history decreased with age.

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