

# **Hearing loss in the visually impaired in Sabo community, Ibadan, Nigeria**

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## **ABSTRACT**

### **Background**

It has been observed that having two sensory disabilities such as visual impairment and hearing loss could be extremely incapacitating. The need for early detection of a possible second handicap in the blind especially hearing impairment cannot be over emphasized. Early detection and prompt management of such a case will improve the quality of life of the blind.

### **Objectives**

The objective of this study is to determine the pattern of associated hearing loss in the blind.

### **Methodology**

This was a cross sectional study of 51 blind people living in Sabo area of Ibadan metropolis the capital of Oyo state, Nigeria. Volunteers were subjected to ophthalmic assessment and Otolaryngological examination followed by pure tone audiometry using Audiometer model 20 kamplex at the departments of Ophthalmology and Otorhinolaryngology of University College Hospital, Ibadan. Excluded from the study were all other blind people living in a different locality and those that declined to participate. Data collected were analyzed using SPSS.

## **Result**

Out of the fifty-one blind people recruited into this study, 36 were males and 15 females with a ratio of 2.4: 1. Their ages ranged from 8 months to 90years with a mean of 48.5years and standard deviation of 28.0. Twenty-five (49.0%) of the volunteers were elderly (>60years). The prevalence of hearing loss was 66.76%. The commonest type of hearing loss was sensorineural (68.3%). More than half of the visually impaired elderly also have hearing impairment.

## **Conclusion**

The prevalence of hearing loss among the blind appears to be high. There is the urgent need therefore, to include the blind population in the national ear care programme in order to reduce the menace of dual sensory loss. Caregivers of the blind especially the elderly should be educated on the possibility of an associated hearing loss.

**KEY WORDS:** Hearing, Vision, Elderly

## INTRODUCTION

In humans', vision and hearing, serve as the portal for language development, whether spoken, signed or read.<sup>1</sup> Man depends on them for basic daily life activities. Full interaction is only effective if these senses are optimal, thus they are defining elements of good quality of life. Loss of function may result from varied aetiology ranging from congenital to neoplasm. Impairment or loss of these senses results into a serious handicap with attendant socio-economic implications. Preventive measures aimed at reducing the resulting disabilities through adequate primary health care must be the priority. Unfortunately, in most developing countries, such measures are not followed rigorously and therefore their effects are not felt<sup>2</sup>. World Health Organization (WHO)<sup>3,4</sup> refers to an individual who has a visual acuity in the better eye of  $< 3/60$  as blind. The prevalence of blindness in Nigeria is 1% on average according to the WHO data of 1987<sup>5</sup>. It was documented that the intelligence of the blind population is no different from the non-blind<sup>6</sup>.

Deafness is a hidden handicap<sup>7</sup>. The World Health Organization refers to people with hearing impairment so severe that cannot benefit from amplification as deaf<sup>8</sup>. Language and educational development can be affected by even mild hearing impairment, leading to socio-economic problems for the affected individuals and their families. Despite relative high prevalence of ear pathology especially hearing impairment in the developing

countries, the demands on the available health facilities may be such that detection of hearing impairment takes low priority<sup>9</sup>. Certainly the need to identify a second handicap in the blind especially one that affects a compensatory sense (hearing) requires emphasis. Though otological diseases are not likely to be more prevalent in the blind than general population, degenerative conditions may affect visual and auditory function especially in the elderly and thus may need to be highlighted.

Early philosophers believed that, the blind may compensate with better than normal hearing. Diderot, in 1749 stated that the congenitally blind develop supernormal powers of touch and hearing, which substitute for their loss of vision<sup>10</sup>. John Findlay suspected that, the blind use auditory cues in order to move around in the three dimensional world. This is backed by the fact that the blind use devices to produce echoes from objects, the simplest being tapping of stick<sup>11</sup>.

Hearing assessment of the blind has not attracted much attention of researchers in this part of the world.

This study aimed at determining the pattern of associated hearing loss among blind. The need for regular hearing assessment in the blind in order to detect

those who might be having undetected auditory impairment and to prevent or/and reduce the menace of double handicap was highlighted.

## **METHODOLOGY**

This cross sectional study took place in Sabo community of Ibadan, Oyo State, Nigeria. Ethical clearance was obtained from the joint UI/UCH ethical committee. All blind people living in the study area who consented to participate in the study were recruited. Excluded were blind people living in areas other than the study area and those who declined. Volunteers (the blind) were transported to University college hospital Ibadan where examination and investigations were done due to availability of standard sound treated audiometric booth. Informed consent was obtained from each subject or his or her parents/Guardian before administration of a questionnaire. All had neuro-ophthalmic assessment followed by Otorhinolaryngological examination and pure tone audiometry using Audiometer model 20 kamplex. The questionnaire contains information on demographic variables and symptoms if any. All ear wax seen was removed manually without complications.

The results were presented in both tabular and graphic forms after analysis using SPSS version 11.

## RESULTS

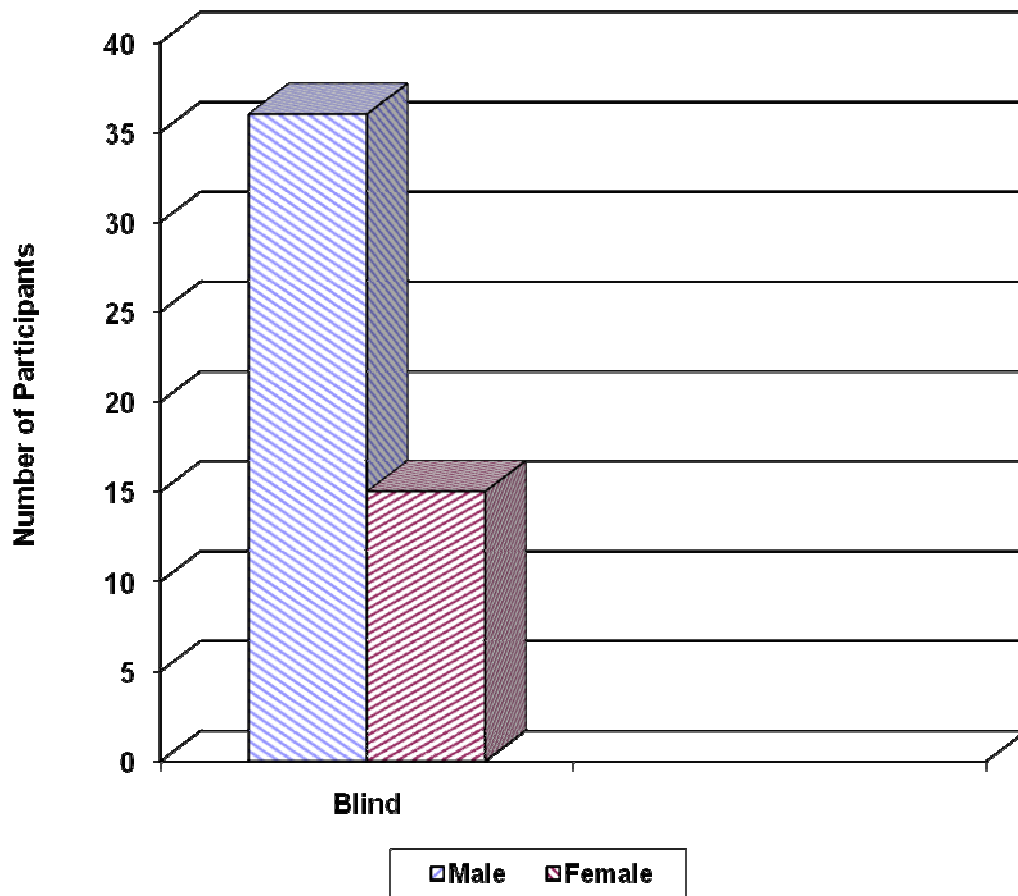
Fifty-one blind people were recruited into this study. There were 36 males and 15 females with a ratio of 2.4: 1. On otoscopy, 15 (14.71%) had cerumen auris. Table I below shows age distribution of participants. Age ranged between 8 months and 90years.

**Table I: Age distribution of the participants**

<b>Age (years)</b>	<b>Blind n(%)</b>
0-10	6(11.8)
11-20	9(17.6)
21-30	2(3.9)
31-40	3(5.9)
41-50	2(3.9)
51-60	4(7.8)
>60	25(49.0)
<b>Total</b>	<b>51(100.0)</b>

Up to 49% of participants were aged 60years and above.

**Figure 1: Gender Distribution of Participants**



The exact ratio of male to female blind in this community is not known, but the low number of female participants in this study may be attributed to the socio-cultural and religious practices of the people.



### Hearing loss based on pure tone audiometry.

Pure tone audiometry was done on 48 of the blind because 3 of them were below 4 years of age. Thirty two (66.67%), had varied degrees of hearing loss.

Table II: Hearing Loss by age groups

<i>Age group (years)</i>	<i>Participants</i>	
	<i>Hearing loss</i>	<i>No Hearing loss</i>
	<i>n(%)</i>	<i>n(%)</i>
0-10	0(0.0)	3(18.8)
11-20	1(3.1)	8(50.0)
21-30	1(3.1)	1(6.3)
31-40	2(6.3)	1(6.3)
41-50	2(6.3)	0(0.0)
51-60	3(9.4)	1(6.3)
>60	23(71.9)	2(12.5)
<b>Total</b>	<b>32(100.0)</b>	<b>16(100.0)</b>

Of the 25 seniors (>60years), 23 had hearing loss.

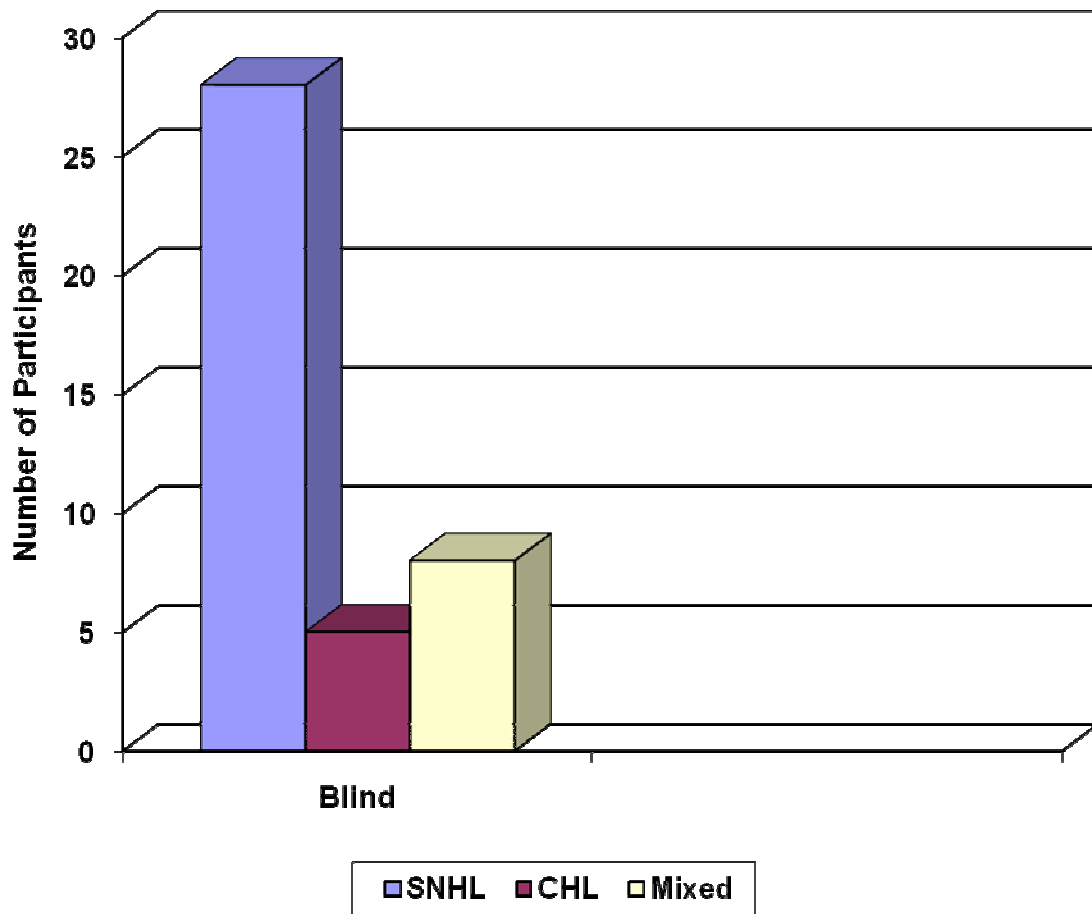
Table III: Severity of hearing impairment.

<i>Degree of hearing loss</i>	<i>Blind n(%)</i>
Normal	16(33.3)
Mild	10(20.8)
Moderate	8(16.7)
Moderate severe	7(14.6)
Severe	6(12.5)
Profound	1(2.1)
<b>Total</b>	<b>48(100.0)</b>

The severity of hearing loss among participants is as shown in table III above.

Classification adopted from Clark<sup>12</sup>. Ten (20.8%) had mild hearing loss. One had profound hearing loss.

**Figure 2: Pattern of Hearing Loss among Participants**



Majority of the participants with hearing impairment had sensorineural hearing loss, The sensorineural hearing losses recorded is mostly sloping high frequency loss with some having dip at 4000Hz and 6000Hz, few have no definite pattern. This may suggest multiplicity of aetiological factors.

## **DISCUSSION**

Blindness and hearing loss are disabilities with often serious handicap and socio-economic implications. Conducting studies on such group of individuals are not without peculiarities. For studies that involve people that need assistance (disabled), it is usually difficult to get volunteers due to some emotional attachment. This may explain why we have such a number (51) participants. Aside of the usual peculiar reluctance of such a group, it was discovered in this study that the blind people in Sabo community of Ibadan belong to different political factions and camps. This political alliance made them to adhere to political leaders' decisions and opinion more than their own.

However, similar studies have been done somewhere else even with smaller number of subjects. McGrath<sup>13</sup> used 5 blind volunteers and 5 non-blind controls in Ireland.

Fifteen (14.71%) of the participants had cerumen auris. This agrees with the finding of Hinchcliffe in Scotland<sup>14</sup>. In a review by Okafor<sup>15</sup> among general population in the Eastern part of Nigeria he had observed that wax in the ear was quite common being the third commonest otological condition.

Sixty seven percent of participants had hearing loss. This figure appears to be high compared to the 1991 estimation of 1,000,000 deaf persons in Nigeria<sup>16</sup>. This may be attributed to sample size and also the participants in this study are at higher risk of developing hearing loss especially the elderly who constitute 49% of the group studied. There is the need therefore to conduct another national survey on the prevalence of deafness with particular attention to the blind, for they are already at risk of developing age related hearing loss. About 72% of those with hearing loss are elderly. This is in concord with the work of Davies<sup>17</sup> on the prevalence of hearing impairment in Great Britain. Klein<sup>18</sup> in 1997 found that the visually impaired elderly is at greater risk than his non blind counterpart to having hearing loss. He also proved that there is clear relationship between age-related macular degeneration and age-related hearing loss. It is true that it takes a moderate hearing loss in a visually impaired to cause a real problem, for the hearing impaired uses the visual cue as a support for his hearing loss while the visually impaired needs the hearing cue to make up too. Apart from the evidence of age related sensorineural hearing loss seen in this study, there are other factors operating such as noise and irritants. This is shown by the pattern of audiograms obtained and the relative high prevalence of mixed hearing loss.

About 21% of the hearing impairment recorded was of mild degree, while 2% was profound. With the findings on severity of hearing loss, it may be said that almost 15% of volunteers were deaf-blind since they have severe degree of combined visual and hearing impairment. Some deaf-blind people are totally deaf and blind, while others have residual hearing and residual vision<sup>19</sup>.

Sensorineural hearing loss was the commonest followed by mixed variety. This is not surprising because age related and noise induced hearing loss is predominantly sensorineural. Mixed hearing loss was seen in about 20% of participants, this suggest multiplicity of aetiologic factors (age, noise, irritants and allergy). The blind in this community indulge in day long road side begging thereby subjecting their ears to noise and throat to irritants of automobile origin.

## **CONCLUSION**

Certainly the need to identify a second handicap in the blind especially one that affects a compensatory sense (hearing) requires emphasis. Though otological diseases are not likely to be more prevalent in the blind than general population, degenerative conditions may affect visual and auditory function especially in the elderly and thus may need to be highlighted. The high incidence of sensorineural hearing loss in the aged may be due to

multiple factors (degenerative process and noise). We recommend that caregivers of the visually impaired elderly be educated on the importance of associated second handicap in such group. Prompt attention and treatment of otological conditions of the visually impaired be given priority in order to reduce the problems of dual sensory loss.

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