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Ophthalmic disorders among students of School for the Deaf, Akure

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ABSTRACT

Aim: This study aimed at determining the prevalence and pattern of ophthalmic disorders among students of School for the Deaf, Akure, Ondo State, Nigeria.

Methodology: This is a cross sectional descriptive study was conducted in October, 2011 as part of activities marking the Annual Physicians' week of Nigerian Medical Association (NMA), Ondo State. Ethical clearance was obtained from the Ethical Review Committee of Federal Medical Centre, Owo prior to commencement of this study. The permission of the School Authority was also obtained before the commencement of this study. The respondents were selected by simple random sampling technique. All enrolled participants were interviewed with the aid of the study instrument (questionnaire) by the authors and interpreters (school teachers).

Results: The respondents comprised of 91(56.9%) Males and 69 Females (43.1%). Nearly all the respondents;158(98.8%) were deaf and dumb. Most respondents; 116(72.5%) had ocular examination in the past. Few respondents; 118(73.75%) had ophthalmic disorder. The

commonest ophthalmic disorder was refractive error which was found in 16 respondents (38.1%). Myopia was diagnosed in 9 respondents.

CONCLUSION: Most of the respondents were deaf and dumb. Few respondents had ophthalmic disorder. The commonest ophthalmic disorder was refractive error. Myopia was the most predominant refractive error. There is need for periodic ocular screening and treatment at the School for the Deaf.

Key words: Ophthalmic Disorders, Deaf and Dumb, Nigeria.

INTRODUCTION

Deaf children tend to rely on their visual cues to explore and adapt to their environment. Thus visual impairment in a deaf child is likely to worsen the handicap of the child. There is a strong association between the functions of the eyes and ears (¹). Deafness is a common challenge in West Africa and it is often associated with measles, deafness and meningitis(²). Deafness is a high risk factor for visual problems (^{3,4}). The high rate of ocular pathology in deaf patients is related to the fact that the retina and cochlear have the same embryonic origin during the sixth and seventh weeks of embryonic development (⁵). Oculoauditory syndromes have also been reported(^{6,7}). Genetic and environmental factors may affect both the ear and eye (^{8,9}). The prevalence of ocular abnormalities tend to generally increase with the severity of hearing impairment. As the degree of hearing impairment becomes more pronounced, the compensatory role of the other sense organs becomes more prominent. It had also been observed that rubella syndrome may account for the high prevalence of refractive errors and ocular disorders in

hearing impaired children (¹⁰). A mild refractive error may lead to a reduction in the visual cues available to the deaf child (^{6,11}).

Studies have shown higher prevalence of ophthalmic disorders among deaf children compared with children of the same age group without hearing impairment (⁵).

The prevalence of ophthalmic disorders among hearing children ranges between 17% to 30% (⁸) as opposed to 44% to 65% among deaf children(^{6,12-15}). A review of the literature on ophthalmic disorders carried out in Greece revealed paucity of literature on ophthalmic disorders in deaf children (¹⁶).The situation in Nigeria in this regard is also the same as only few studies have been carried out on ophthalmic disorders in Nigerian deaf children. Screening and detection of ophthalmic disorders in deaf children is of utmost importance (²). Early detection of such abnormalities, diagnosis and treatment would enhance the adjustment of the deaf children. In view of this fact, this study was designed to determine the prevalence and pattern of ophthalmic disorders among students of School for the Deaf, Akure. It is hoped that the findings of this study shall be utilized by policy formulators to evolve strategies to promote the ocular health of deaf students.

Methodology

This is a cross sectional descriptive study conducted in October, 2011 at the School for the Deaf, Akure as part of activities marking the Annual Physicians' week. Ethical clearance was obtained from the Ethical Review Committee of Federal Medical Centre, Owo prior to commencement of this study. The permission of the School Authority was also being obtained before the commencement of this study.

A total number of one hundred and sixty(160) consenting students out of the six hundred and eighty students of the School for the Deaf selected by simple random sampling technique were enrolled in this study. Informed consent was obtained from all the respondents. All enrolled participants were interviewed with the aid of the study instrument (questionnaire) by the authors and interpreters(school teachers).They responded by sign language which was interpreted by the school teachers(interpreters).The authors also learnt the sign language during the process of data collection. The information obtained from the respondents included their bio data and history of previous ocular examination. The visual acuity of the participants was assessed with the aid of kay pictures and Snellen E chart depending on their age. The respondents matched the direction of the arm of the 'E' with their fingers. Detailed ocular examination was carried out on the respondents by the Ophthalmologists with the aid of pen torch and Direct Ophthalmoscope. In cases of poor view of the posterior segment, the pupils were dilated with the aid of 1% tropicamide for dilated funduscopy. Respondents with refractive error were refracted to determine the type and degree of refractive error. Respondents who needed further

examination and treatment were referred to Federal Medical Centre, Owo for further Management. The data obtained was collated and analyzed with the aid of SPSS 15.0.1 statistical soft ware.

RESULTS

One hundred sixty (160) respondents participated in this study. They comprised of 91males(56.9%) and 69 females(43.1%).Their ages ranged between 5 years and 23 years with a mean age of 15.4 years \pm 3.4 years.

Most respondents;142(88.75%) were Christians while the remaining ones;18(11.25%) were Muslims. The ethnicity of the respondents showed that 146(91.3%) were Yorubas, 11(6.9%) were Ibos and the remaining 3(1.9%) were Hausas.

Most respondents; 158(98.75%) were deaf and dumb while the remaining 2(1.25%) were deaf. Nearly all the respondents; 159(99.4%) had congenital deafness while only one (0.6%) had acquired deafness.

The vision of the respondents as detailed in table 1 revealed that only one (0.6%) was blind.

Majority of the respondents; 116(72.5%) had previous ocular examination and the remaining 44(27.5%) did not have previous ocular examination.

Most respondents 156(97.5%) had normal colour vision while colour vision could not be ascertained in the remaining 4(2.5%) due to poor vision and failure of the respondents to respond convincingly to sign language.

Few respondents; 42(26.25%) had ophthalmic disorder while the remaining 118 (73.75%) did not have ophthalmic disorder. Those who had ophthalmic disorder comprised of 27 males (64.3%) and 15 females (35.7%) As detailed in table 2 most respondents with ophthalmic disorder had refractive error; 16(38.1%). Myopia was the commonest refractive error as this was

present in 9 respondents (21.4%). Few; 5(11.9%) had hypermetropia and the remaining 2(4.8%) had astigmatism.

DISCUSSION

There was a preponderance of males in our study population and this is in tandem with the fact that there were more males in the school at the time of this study. Most of our respondents were Christians and this may be related to the fact that Christianity was the predominant religion in the study community. Majority of the participants were Yorubas and this may be due to the fact that the study community is a Yoruba community in South-West Nigeria. Most of the respondents had congenital deafness and this may be a pointer to less prominent role of acquired deafness in this part of the World.

It is quite remarkable that most our respondents had previous ocular examination. This finding is however at variance with that of another Nigerian study by Onakpoya et al which reported that 70.5% of their study population had no previous ocular examination (¹⁷). However previous ocular examination was more common among students with ophthalmic abnormalities (¹⁷). The relatively high rate of uptake of previous ocular examination in our study population is a pointer to the fact that efforts may have been made in the past to appraise their ocular status. However there is need for all concerned to build on this and thereby put in place necessary machinery to promote ocular health of this category of people.

Vision plays a prominent role in the acquisition of skills such as sign language which most deaf and dumb persons rely on. Thus visual impairment in deaf and dumb people could adversely affect their adaptation to the environment. This may make such people unduly irritable thus adversely affecting their interpersonal relationship. Most of our respondents had good vision and this may explain their adjustment to the school environment. Only one of our respondents was

blind. This finding is similar to that of Onakpoya et al (¹⁷) which reported that 2(1.3%) of their study population were blind.

The prevalence of ophthalmic disorders among deaf children tends to vary widely in different population world wide. A study done in Kaduna, Nigeria revealed that 20.9% of the study population had ophthalmic disorder and refractive error was the commonest presentation (¹). The finding of this former study is in keeping with our own as refractive error was the commonest ophthalmic disorder in our study population. However the study by Abah et al (¹) identified hypermetropia as the commonest refractive error in their study population as opposed to our own in which myopia was the commonest refractive error. The finding of Abah et al (¹) is also consistent with a study done in Turkey (⁵) which reported that hypermetropia was the commonest refractive error in the study population. It is worthy of note that only one of our respondents with refractive error had spectacle correction. This brings to fore the urgent need for those affected to have spectacle correction so as to prevent development of amblyopia. Another study done in Benin City revealed that 73.26% of the study population had visual disorder (¹⁸). The females in the study population were affected more than males (¹⁸). This latter finding is consistent with a previous study which reported higher prevalence of females with ophthalmic disorders in school of disabilities (¹⁹). However this finding is at variance with our own as most of the respondents with ophthalmic disorder were males. Studies done in Oregon,

USA (3), Nepal, (19) and Turkey (5) reported prevalence rates of ophthalmic disorders of 48%,23% and 40.4% respectively among deaf children.

Other studies done in India,(20) UK,(21) and Australia (²²) reported prevalence rates of ophthalmic disorders in their study population of 24%,43.6% and 33% respectively. A study done in China reported ocular problems in 35.8% of deaf mute students (²³).

Nearly all the participants had normal colour vision. However this could not be ascertained in very few of them who were yet to fully acquire the language skill and one of them who was blind. The predicament of the deaf-blind in our study population draws attention to the plight of deaf-blind persons in general. The respondents with ectopia lentis were promptly referred to a Cardiologist in view the cardiac defect they had as a result of their underlying Marfans syndrome. Their referral reinforces the need for multidisciplinary approach to the Management of deaf persons most especially in childhood. The need for comprehensive medical examination prior to enrolment in School for the Deaf cannot be overemphasized so as to detect and treat any coexisting anomaly which may be life threatening.

Carrying out institutional based studies in our area of interest may however introduce bias as obviously not all deaf and dumb children attend the School for the Deaf. Thus it is imperative to interpret the findings of the study cautiously so as to avoid generalization. However in spite of the obvious limitation of this study, it is important for eye care providers to pay special attention to ocular abnormalities in deaf children.

CONCLUSION

Majority of the respondents had ocular examination in the past. Most of the respondents were deaf and dumb. Few respondents had ophthalmic disorder. The commonest ophthalmic disorder was refractive error.

Recommendation

- 1) All students enrolled in Schools for the Deaf should undergo comprehensive ocular examination at the point of admission to the School.
- 2) Routine ophthalmic screening and treatment should be carried out periodically in Schools for the Deaf so as to promote the ocular health of the students.
- 3) Recommended glasses should be dispensed free of charge to Students of Schools for the Deaf who are in need so as to prevent amblyopia and also to enhance their adjustment to the environment.
- 4) The Government should ensure adequate electric power supply to Schools for the Deaf most especially in the night so that the students can communicate through sign language without difficulty.

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Table 1: Visual acuity of respondents

Visual acuity	Right eye	Left eye
	Frequency(Percentage%)	Frequency(Percentage%)
<6/18	149(93.1)	146(91.25)
3/60-6/60	8(5)	11(6.9)
<3/60 –PL	1(0.6)	2(1.25)
NPL	2(1.3)	1(0.6)
Total	160(100)	160(100)

Table 2: Ophthalmic disorders among the respondents

Ophthalmic disorder	Frequency	Percentage(%)
Refractive error	16	38.1
Juvenile Glaucoma	7	16.7
Vernal conjunctivitis	4	9.5
Early lens opacity	3	7.1
Ectopia lentis	3	7.1
Pthisis bulbi	2	4.8
Optic atrophy	2	4.8
Uveitis	1	2.4
Pseudophakia	1	2.4
Heterochromia iridis	1	2.4
Retinitis pigmentosa	1	2.4
Keratopathy	1	2.4
Total	42	100