

UTILIZATION OF EYE CARE SERVICES AMONG STUDENTS ATTENDING SCHOOLS FOR THE HEARING IMPAIRED IN OYO STATE, SOUTH-WEST NIGERIA

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ABSTRACT

Background: Vision screening and detection of ophthalmic disorders in hearing-impaired individuals is important to optimise their visual function and therefore, their quality of life.

Objective: To determine the utilisation of eye care services among students attending schools for the hearing impaired in Oyo State, Nigeria.

Methods: This was a descriptive cross-sectional study conducted among hearing-impaired students aged 11 years and above. Using systematic random sampling, participants were selected from four schools. An interviewer administered semi-structured questionnaire was used to collect socio-demographic data and information on history of eye symptoms and utilisation of eye care services. Data analysis was performed using the IBM SPSS software version 22 and test of association done using chi-square test with level of statistical significance set at p-value <0.05.

Results: A total of 335 students were recruited into the study. Mean age was 17 ± 2.9 years (range 11 - 39 years). Only 147 (43.9%) respondents had utilised eye care services in the past. Some of the reasons given for non-utilisation include financial constraints and lack of an escort to the hospital.

Conclusion: This study has demonstrated that the rate of utilisation of eye care services among the studied population is suboptimal. Therefore, it is essential for government, eye care providers and other stakeholders to design and implement policies and eye care programmes that would improve the uptake of eye care services among hearing-impaired individuals. This will reduce the compounding effect of visual impairment in such individuals.

Keywords: Hearing impaired, Visual impairment, Children, Students, Eye-care utilisation.

INTRODUCTION

The burden of disabling hearing impairment is thought to be greatest in the Asia Pacific, South Asia and sub-Saharan Africa¹. Of the 466 million people thought to have disabling hearing impairment in 2019, approximately 34 million were children².

It is estimated that by 2050, one in every 10 people will have disabling hearing loss². Olusanya *et al.*³ in 2000 reported a prevalence of 13.9% among school entrants in South-West Nigeria. This finding was also similar to a study done by Lasisi *et al.*⁴ among children in a tertiary hospital in Ibadan which also reported a prevalence of 14%. Both studies revealed that respondents with hearing impairment had educationally significant hearing loss at presentation.

Deafness and hearing impairment do have profound effects on individuals, especially when commencing pre-lingually; and result in delayed development of speech, language and cognitive skills in children.

Being hearing impaired does not only affect a child's academic performance, but can also influence his or her overall development and ability to succeed^{5,6}. At any age, disabling hearing impairment has a profound impact on interpersonal communication, psychosocial well-being, quality of life and economic independence and is also a high risk factor for visual problems^{7,8}.

The high rate of ocular pathology in deaf individuals is related to the fact that the retina and cochlear have the same embryonic origin during the sixth and seventh weeks of intrauterine development⁹. Some of the hereditary diseases causing both hearing and visual impairment include Usher's syndrome; which is a recognisable hereditary cause of profound deafness in children¹⁰ and congenital rubella syndrome¹¹. However, preventable diseases like measles and meningitis are also known causes of both deafness and visual impairment in West Africa¹² probably due

to the poor state of health facilities and inadequate health personnel.

Unfortunately, the combination of hearing and visual impairment worsens the overall burden of the sensory impairment. Usually, when one sense organ is impaired, the other sense organs are recruited to compensate for the disability. Thus, hearing-impaired individuals generally compensate by making greater use of their vision than their normal hearing peers. Therefore, even a mild refractive error may reduce the visual cues available to the deaf-mute person.^{13,14}

The utilization of eye care services among deaf and hearing impaired persons is imperative to the promotion of their ocular health as well as the early detection and treatment of ocular diseases in them. Previous studies on the utilisation of care services among the hearing-impaired have reported varying rates. Onakpoya *et al.*¹⁵ found a utilisation rate of 29.5%, while Omolase *et al.*¹⁶ reported a higher utilisation rate of 72.5%; although the later study observed that students who had previously utilised eye care were prompted by ocular complaints.²⁰

Information on the factors associated with utilisation and reasons for non-utilisation of eye care services by hearing-impaired persons would aid the development of policies for adequate planning and provision of comprehensive healthcare services for them. Therefore, the aim of this study was to determine the utilisation of eye care services and its associated factors among students attending schools for the hearing impaired in Oyo state Nigeria.

MATERIALS AND METHODS

This was a descriptive cross-sectional study conducted within schools providing formal education to the hearing-impaired individuals in Oyo State South-West Nigeria between February and March 2016. There are health care facilities in different parts of the state that offer eye-care services. These facilities spanning the 3 levels of health care include 3 tertiary hospitals, 4 missionary eye hospitals, general hospitals and primary healthcare centres.

A total of six schools are established for hearing-impaired individuals in Oyo state, and four of them were selected by simple random sampling technique (balloting). Proportional allocation was used to determine the number of students to be recruited in each of the selected schools. Within the schools, the students were selected from the class registers using systematic random sampling with probability proportion to size. After adjusting for non-response

rate of 10%, a minimum sample size of 335 students was calculated.

Ethical approval was obtained from the Ethical Committee of the Oyo State Ministry of Health. Permission was also obtained from the State Ministry of Education and the principals of the various schools included in the study. In addition, written informed consent was obtained from the parents or guardian of each student. Each student was required to provide verbal consent before enrolment into the study. The study abided by the tenets of the declaration of Helsinki for studies on human subjects.

Information on socio-demographic characteristics of the students including history of previous ocular diseases as well as current or previous visual complaints, ocular and family history and eye care utilization was collected from all participants using an interviewer administered semi-structured questionnaire. Communication with the students was achieved with the assistance of their teachers using sign language.

Data collected was entered and analysed using the IBM SPSS software version 22. Summary statistics are presented using mean, standard deviation, frequency and tables. Tests of association between categorical socio-demographic variables and utilisation of eye care facilities were done using the Chi-square test. Multiple logistic regression was used to test which variables contributed to utilisation of eye care facilities. All hypotheses were tested at 5% level of significance.

RESULTS

A total of 335 students attending schools for the hearing impaired participated in the survey. They had a mean age of 17 ± 2.9 years with a range of 11-39 years, and 195 (58.2%) of them were males (Male to female ratio - 1.4:1). One hundred and forty-eight (44%) of them were aged 18 years and above. Other socio-demographic characteristics are shown in Table 1.

Ocular abnormalities identified in this study included refractive errors (56.1%), allergic conjunctivitis (2.4%), retinitis pigmentosa (0.9%), Wardenburg syndrome (0.6%) and corneal scar (0.3%). The details of the ocular abnormalities in the study population have been documented in a previous report¹⁷.

A total of 195 (58.2%) respondents had eye problems at the time of the study, while 191 (57%) reported that they had eye problems previously with 149 (44.5%) noticing a change in their vision (Table 2). Also, 75 (22.4%) respondents had visual symptoms that were causing difficulty with their routine daily activities. One hundred and forty-three (76.9%) of the respondents

Table 1: Other socio-demographic characteristics of the respondents

Variables	Frequency	Percentage (%)
Who do you live with		
Both parents	214	63.9
Caregiver	62	18.5
Mother alone	59	17.6
Total	335	100.0
Education- both parents		
Secondary school	95	44.0
Tertiary education	76	36.0
Primary school	24	11.2
No formal education	14	6.5
Others	5	2.3
Total	214	100.0
Education-mother alone		
Secondary school	31	52.5
Tertiary education	17	28.8
Primary	7	11.9
No formal education	4	6.8
Total	59	100
Education-caregiver		
Secondary	48	77.4
Tertiary	14	22.6
Total	62	100.0
Occupation-both parents		
Civil servant	83	38.8
Trading	60	28.0
Farming	35	16.4
Others	22	10.3
Driver	14	6.5
Total	214	100.0
Occupation-mother alone		
Trading	34	57.6
Civil servant	11	18.6
Others	10	17.0
Farming	4	6.8
Total	59	100.0
Occupation care giver		
House matron*	57	92.0
Trading	5	8.0
Total	62	100

*For students staying in the boarding house

that did not have eye problems in the past or at the time of the study said they felt a need for routine eye check-up.

A total of 147 (43.9%) respondents had visited an eye-care facility in the past, while the remaining students who had never utilised eye-care services gave various reasons (Table 3).

Ninety-four (43.9%) of the respondents who lived with both parents had utilized eye care facilities compared with 36 (58.1%) of those who lived with a

caregiver and 19 (32.2%) of those who lived with their mothers alone ($p=0.016$). Among those who had eye problems at the time of the study, 124 (63.6%) had utilised eye care facilities; compared with 25 (17.9%) among those who did not have eye problems ($p<0.001$). Also, among those who had eye problems in the past, 137 (71.75%) had utilised eye care facilities; compared with 3 (2.2%) among those who did not have eye problems ($p<0.001$). The associations between the utilization of eye care facilities and socio-demographic characteristics of the respondents are shown in Table 4.

Table 2: Ocular problems by respondents

Variable	What was the problem-past		What is the problem-present	
	Number	Percentage (%)	Number	Percentage (%)
Vision problem	80	39.8	89	44
Watering eyes	60	29.8	50	24.8
Pain in the eyes	49	24.4	60	29.7
Eye injuries	7	3.5	0	0.0
Others	5	2.5	3	1.5
Total	201	100.0	202	100.0

Table 3: Reasons for non-utilisation of eye care services by respondents

Variables	Number	Percentage (%)
If you have eye problem in the past/present, why did you not seek eye care		
No money	32	17.0
Nobody to follow me (No escort)	93	49.5
Did not think the problem was important enough	44	23.4
Did not know where to go	6	3.2
Fear	2	1.1
Was advised that orthodox medicine would not help	1	0.5
Far distance to an eye care center	1	0.5
Total	188	100.0

Table 4: Association between utilization of eye care facilities and socio demographic characteristics of the respondents

Variables	Did not utilize eye-care		Utilized eye-care		Total		X ²	p-value (p<0.05)	
	N	%	N	%	N	%			
Age of respondents	<18 years	138	58	100	42	238	100.0	0.605	0.437
	At least 18 years	50	51.5	47	48.5	97	100.0		
Sex	Male	102	52.3	93	47.7	195	100.0	1.953	0.162
	Female	84	60.0	56	40.0	140	100.0		
Who you live with	Both parents	120	56.1	94	43.9	214	100.0	8.261	0.016*
	Mother alone	40	67.8	19	32.2	59	100.0		
	Caregiver	26	41.9	36	58.1	62	100.0		
Education - Father	No formal	6	42.9	8	57.1	14	100.0	8.106	0.088
	Primary	8	33.3	16	66.7	24	100.0		
	Secondary	58	58.0	42	42.0	100	100.0		
	Tertiary	47	61.0	30	39.0	77	100.0		
	Others	4	80.0	1	20.0	5	100.0		
Education - Mother	No formal	2	50.0	2	50.0	4	100.0	0.758	0.859
	Primary	5	62.5	3	37.5	8	100.0		
	Secondary	19	70.4	8	29.6	27	100.0		
	Tertiary	11	68.8	5	31.2	16	100.0		
	Others	37	67.3	18	32.7	55	100.0		
Education - caregiver	Secondary	19	39.6	29	60.4	48	100.0	1.374	0.241
	Tertiary	7	58.3	5	41.7	12	100.0		
Have you had eye problem in the past	Yes	54	28.3	137	71.7	191	100.0	162.634	<0.001*
	No	131	97.8	3	2.2	134	100.0		
	Not sure	1	10.0	9	90.0	10	100.0		
Do you have eye problem presently	Yes	71	36.4	124	63.6	195	100.0	69.018	<0.001*
	No	115	82.1	25	17.9	140	100.0		

Table 5: Predictors of utilization of eye care services among respondents

Variable		B	OR (95% CI)	P
Who do you live with	Caregiver (ref)		1	
	Mother alone	-1.276	0.279 (0.96, 0.813)	0.019*
	Both parents	-0.673	0.510 (0.211,1.231)	0.156
Have you ever had eye problem in the past	Yes	4.748	115.369 (28.622,465.029)	<0.001*
	No (ref)		1	
Do you have eye problem presently	Yes	0.036	1.037 (0.394,2.728)	0.941
	No (ref)		1	
Sex	Male	0.459	1.583 (0.849,2.952)	0.149
	Female (ref)		1	

B – Regression coefficient, Ref – Reference category, OR – Odds ratio, CI – Confidence interval

Those who lived with both parents were 2 times less likely to use eye care services compared with those who lived with their caregiver (95% confidence interval CI, 0.510 (0.211-1.231; p=0.156). Those living with their mothers were also 3.6 times less likely to use eye care services compared with those who lived with caregivers (95% CI, 0.279 (0.96-0.813; p=0.019).

Male respondents were 1.6 times more likely to utilise eye care services compared with the female respondents (95% CI, 0.849-2.952; p= 0.149). After adjusting for other factors using logistic regression, 'who the respondents live with' and 'history of eye problems' were significantly associated with the utilization of the eye care services. The predictors of utilization of eye care services are presented in Table 5.

DISCUSSION

Despite their predisposition to developing visual impairment as well as their need for optimum vision and routine eye check, the rate of utilisation of the available eye care services in the studied population was found to be low (43.9%). This correlates with reports from a similar study carried out by Onakpoya *et al.*¹⁵ who reported a low utilisation rate of 29.5%. However, Omolase *et al.*¹⁶ reported that 72.5% of students had utilised eye care services possibly due to greater awareness among their study population.

With the effect of visual impairment being directly linked with disabilities caused by incapacitating systemic conditions¹⁸. The main reasons given for non-utilisation of eye care services (no escort, lack of funds, etc.) are a cause for concern in today's world. Therefore, this emphasises the greater need for the provision of comprehensive eye care services for persons with these disabilities and encouraging regular eye check among them. All these can be established in relation to the

universal health coverage scheme where no one should suffer financial hardship for assessing healthcare.

Factors that were found in this study to be significantly associated with eye care utilisation include history of eye problems and who they stay with. Students with ocular problems were found to have utilised eye care services more than those without any ocular problem. The direct association between having ocular complaints and utilisation of eye-care services by hearing-impaired students was also described by Omolase¹⁶ and Onakpoya¹⁵ in their studies. This reiterates the poor health seeking behaviour of the population, while also revealing that parents/caregivers of the students wait till the development of ocular complaints before attempting to utilise eye-care services. This attitude may predispose the hearing impaired to irreversible visual impairment or blindness. Also, students staying with caregivers were also found to have utilised eye-care services more than those who stay with their parents. This may be due to the neglect the children suffer from family members due to their disability, poor socio-economic status, inadequate health facilities and/or lack of awareness.

Low utilisation of eye care services among the hearing impaired may lead to an increase in the burden of ocular diseases and blindness with a consequential worsening of their ocular health status, interpersonal communication and overall quality of life. Therefore, there is a significant need for regular comprehensive ophthalmic assessment of every hearing-impaired child at the point of admission into schools as well as incorporating eye care services into the existing maternal and child services in order to incorporate those that are not in school. In achieving all these, no one should suffer financial hardship while assessing these health services¹⁹.

CONCLUSION

This study has demonstrated that the rate of utilisation of eye care services among the studied population is low. Reasons that were given for not utilising eye care services included lack of an escort, eye problem being considered unimportant and financial constraints. It is essential for eye care providers, government at all levels, and other stakeholders to join efforts towards designing and implementing policies for sustainable eye care programmes which ensure access for all people while providing universal health coverage. Such efforts would optimise the uptake of eye health services by hearing-impaired individuals as well as their quality of life, while also adhering to the tenets of the International Disability Rights law.

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