

Patterns/Distribution and Correction Uptake of Refractive Errors among Ophthalmic Outpatients of Method Ist General Hospital, Itukmbang (Mghim), Uruan Local Government Area of Akwaibom State, Nigeria

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ABSTRACT

Introduction: The most common cause of visual impairment in the world today is refractive errors (that is uncorrected). The impact on people is so enormous in a community especially with reported issues of restricting some educational and occupational employment opportunities for people. Uncorrected refractive errors are responsible for a high percentage of visual impairment and blindness in the world today.

Aim: To establish the patterns/distribution of refractive errors and correction uptake among patients who visitor use the eye clinic of methodist general hospital, ItukMbang, uruan local government area.

Materials and methods: Health information records of regular patients attending the eye facility who are diagnosed with refractive errors from January 2018 to December 2019 were retrieved. Data analysis was done.

Results: Myopia was 271 (40.2%) and presbyopia only seen in 205 (30.4%), presbyopia existing with refractive errors was seen in 71 (10.2%), astigmatism only in 20 (3%) and hyperopia only in 15 (2%).

Conclusion: The data presented in this study will help in research and planning of intervention programmes in Akwalbom state. Improved vision (a subset of total wellness and healthy living) is an achievable and cost effective objective which will serve as an accelerator for progress on sustainable development goals (SDGs 3 and 4).

Keywords: Presbyopia; Refractive error; Visual impairment; Blindness; SDGs 3 and 4

INTRODUCTION

Refractive error is also known as refraction error and it is a problem with focusing light accurately on the retina due to the shape of the eyes. Examples are myopia, hyperopia or hyper metropia and astigmatism. Refractive errors are corrected with eye glasses, contact lens sensor surgery. Eye glasses are the easiest and safest method of correction.

Refractive error is a very common eye disorder. It occurs when the eye cannot clearly focus the images from the outside world. The result of refractive errors is blurred vision, which is sometimes so severe that it causes visual impairment. The four most common refractive errors are:

- **Myopia (near sightedness):** Difficulty in seeing distant objects clearly,
- **Hyperopia (farsightedness):** Difficulty in seeing close or near objects clearly,
- **Astigmatism:** Distorted vision resulting from an irregularly

curved cornea,

- **Presbyopia:** Which lead to difficulty in reading or seeing at arm's length, it is linked to ageing and occurs almost universally (worldwide).

Refractive errors cannot be prevented but they can be diagnosed by an eye examination and treated with corrective glasses, contact lenses or refractive surgery. If corrected on time and by an optometrist, they do not impede the full development of good visual function. Correction is provided in different forms according to the defect, the age of the person, the requirement in terms of work or activity performed.

WHO estimates that 153 million people worldwide live with visual impairment due to uncorrected refractive error [1]. This figure how ever does not include the people living with uncorrected presbyopia, which is likely to be quite significant, according to some early evidence. WHO, its member states and partners are working to find ways to provide good quality, professionally prescribed, local, affordable corrective refraction

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services to people in need, especially in poor areas with limited eye care services.

The primary symptoms of refractive errors occur when the eye is unable to bend and focus light appropriately on to the retina. Vision may become blurry, hazy, or doubled, causing one to squint and strain the eyes. Other common symptoms include headaches as a result of eye strain or difficulty reading.

Most refractive errors are easily treated by appropriate refractive correction. However, high refractive error in childhood may lead to amblyopia, resulting in permanent vision loss if it is not corrected during childhood either by spectacles, contact lenses, or refractive surgery [2].

It should also be noted that there are no specific remedies that are proven to improve your vision and eye sight naturally without corrective eye wear if you suffer from a stigmatism, hyperopia or myopia, but there are things you can do to maintain eye health and potentially enhance your vision. These include healthy life style choices like eating well, getting enough sleep, exercising regularly, and not smoking. Reducing eye strain and protecting your eyes from exposure to ultra violet (UV-rays) and excessive blue light are also good for eye health [3].

There are many myths out there about ways you can improve your eye sight without glasses or contact lenses. These include things like exercise for your eyes, eating a lot of carrots, and trying to train your eyes without glasses. However, most of these techniques have not been proven effective. The best thing you can do for your eyes is make healthy life choices and see your onto metrists for an eye examination on a regular basis.

Most children learning disabilities are linked to the eyes (vision) problems. This is directly an eye health issue that affects both total well-being and inclusive education. A child with vision problem soften times has are cord low drop in academic performance. Studies have shown that children who developed vision problems had a drop in academic performance. However, necessary intervention especially with simple correction with lenses led to a significant increase in their school work performance [4].

SDG 3 and 4 focuses on health and education, while SDG 3 focus is to ensure healthy lives and promote well-being for all at all ages, SDG 4 is the education goal. It aims to ensure inclusive and equitable quality education and promote life-long living opportunities for all ages.

Uncorrected refractive error is on the increase in AkwaI Bom state. Many children and adult who visit the Methodist general hospital, ItukMbang (a government owned general hospital) eye clinic still finds it difficult to meet their eye care needs probably due socio economic factors (income/cost). The sustainable development goals were adopted by all United Nations member states in 2015 as a universal call to action to end poverty, protect the planet and ensure that people enjoy total wellness, peace and prosperity by 2030. This research work will help to draw government attention to the unmet eye care needs of people especially in urban local government area and environs for a possible intervention.

Definition of terms

Myopia: Also called near or short sightedness refers to the refractive state of the eye where by the images of distant objects are focused in front of their tin a when the accommodation system is relaxed. Uncorrected myopia prevents the individual from seeing distant objects clearly. The current consensus threshold value for myopia is spherical equivalent refractive error ≤ -0.50 Ds and it is criteria used in selecting myopic persons in the study.

Hyperopia: Also known as far sighted ness and it occurs when your eye ball is shorter than normal. The effect is the opposite of myopia. Hyperopia can be associated with several complications/problems like: Crossed eyes; reduced quality of life; eye strain; impaired safety and (v) financial burden. The current consensus threshold value for hyperopia is $+1.25$ D s.

Astigmatism: This occurs when your cornea or lens is curved more steeply in one direction than it is in another. Uncorrected a stigmatism blurs the vision. The consensus an l threshold value for a stigmatism is ≤ -0.50 cyl.

MATERIALS AND METHODS

Study area: Method is general hospital, ItukMbang, Uruan local government area is a government health facility located in the rural area under Uyosenatorial district. The facility has one ophthalmologist, an optometrist and four ophthalmic nurses as fulltime workers.

Study population: All eye patients that visited between January 2018 to December, 2019.

Study design: Descriptive study design using documented records of diagnosis, dispensing and uptake.

Sample size: 306 diagnosed of refractive error within the period understudy were purposively selected.

Sampling technique: Purposive selections of 306 respondents (patients) ensured that those with refractive errors (myopia, hyperopia and astigmatism) were selected and included in the study. The technique involved a multi stage approach where all the 1820 patients were selected; this formed the first sampling frame from which a cluster of 306 cases of refractive errors was purposely selected for the study.

Instrument for data collection: Health information records of all the patients (1820) who visited the eye clinic between January 2018 to December, 2019 were retrieved, isolated in clusters of pathological cases, presbyopia, presbyopia co-existing without her refractive errors and refractive errors only (myopia, hyperopia and astigmatism).

A feedback was made by the researcher through the respective phone numbers in their health in formation records on why the uncorrected patients did not take up spectacle correction.

Data analysis: Ethical consideration: A form a letter was written to the medical superintendent, methodist general hospital, ItukMbang, who authorized the hospital secretary to give ethical clearance for the study.

RESULTS

The findings of the study in their search methodology are here by presented. The findings were presented on the patterns, distribution of refractive errors and uptake of correction

(spectacle prescription). Analysis and interpretation were equally carried out. A total number of 582 patients' records were used (Table 1).

Table 1: Number and sex distribution of patients diagnosed with refractive errors.

	M	F	Freq	%	Corrected	Uncorrected	Reason for uncorrected
Myopia	160	111	271	88.6	71	200	Unaffordability
Hyperopia	10	5	15	4.9	6	9	Unaffordability
Astigmatism	11	9	20	6.5	7	13	Unaffordability
Total	181	125	306	100	84	222	

Myopia had the highest number of patients diagnosed, and also the highest in non uptake of correction (spectacle R_x).

Total number of refractive errors=306

People that got spectacle prescription in the study population were 84 hence, prevalence.

$$=\frac{84}{306} \times 100\% = 27.5\%$$

Those that did not get:

$$=\frac{222}{306} \times 100\% = 72.5\%$$

Total number of people that got myopia spectacle correction from the study population was:

$$\frac{71}{306} \times 100\% = 23.2\%$$

Total number of people that got hyperopic spectacle correction from the study population was:

$$=\frac{6}{306} \times 100\% = 1.9\%$$

Total number of people that got astigmatic spectacle correction from the study population was:

$$=\frac{7}{306} \times 100\% = 2.3\%$$

While the total number that did not uptake myopic correction in the study population was:

$$=\frac{200}{306} \times 100\% = 65.4\%$$

While the total number that did not uptake hyperopic correction in the study population was:

$$=\frac{9}{306} \times 100\% = 2.9\%$$

While the total number that did not uptake astigmatic correction in the study population was:

$$=\frac{13}{306} \times 100\% = 4.2\%$$

Total number (prevalence) of myopic patients in the study population:

$$\frac{271}{306} \times 100\% = 88.6\%$$

Total number (prevalence) of hyperopic patients in the study population:

$$\frac{15}{306} \times 100\% = 4.9\%$$

Total number (prevalence) of astigmatic patients in the study population:

$$\frac{20}{306} \times 100\% = 6.5\%$$

The results shows that 84 (27.5%) of the study population had uptake of refractive errors correction while 222 (72.5%) of the study population did not uptake refractive errors correction at the center (Table 2).

Table 2: Age and gender distribution of patients diagnosed with refractive errors (myopia, hyperopia, astigmatism).

Age range	Myopia			Hyperopia			Astigmatism		
	M	F	Total	M	F	Total	M	F	Total
0-9	10	21	31	1	0	1	3	2	5
10-19	99	50	149	2	3	5	6	1	7
20-29	30	15	45	1	3	4	2	2	4
30-39	10	5	15	3	2	5	1	3	4
40-49	4	6	10	0	0	0	0	0	0
50-59	4	7	11	0	0	0	0	0	0
60-69	2	6	8	0	0	0	0	0	0
70-79	1	1	2	0	0	0	0	0	0
	160	111		7	8		12	8	
Total	271			15			20		

The distribution of refractive errors (myopia, hyperopia and astigmatism) according to age range. Majority of these age groups are young persons within age 0-30, who are still in the primary, post primary and high schools undergoing active learning using their eyes.

DISCUSSION

Having presented and analyzed the data generated from this study in the proceeding section. The findings are here by discussed: The demographic analysis revealed that males (179) had more refractive errors than females (127). Myopia had the highest number of uncorrected refractive errors and correction uptake followed by astigmatism and the lowest was hyperopia.

From the results, there was a link between socio economic factors and the in ability of the people to uptake correction hence, suffered from visual impairment as a resultant implication of lack of money. This result compliments the findings of Fotouhi where in similar research reported that the likelihood of uptake of refractive errors correction is associated with good income/affordability. This scholar went ahead to pine that greater income guarantees uptake of refractive correction; the occupational status of the patients and their parents or guardian shaving refractive errors showed that more than half of these people were unemployed and this may have been the driver behind their inability to get uptake or correction [5].

Myopia occurring as the highest number is a learning vision problem. Lack of uptake means non correction; the results shows a high prevalence of myopia (271) (88.6%). This also agrees with anders on and arm stead where they submitted that academic concerns, which might include issues such as learning difficulties or disabilities, under achievements, lack of attention from teachers, and bullying, affect a number of students throughout their academic careers, from elementary schools to college [6-8].

Therefore, diagnosis of various types of refractive errors at Methodist general hospital, ItukMbang, is not enough; uptake of corrective lenses (glasses) is more important because it meets their needs.

The study shows that most of the inhabitants are poor people and many are unable to get spectacle correction due to socio-economic reasons (income). The study revealed that there are a lot of people in need of spectacle correction but are unable to uptake corrective spectacle prescription due to financial constraints. Improved vision is an achievable and cost effective objective which will serve as an accelerator for progress on sustainable development.

CONCLUSION

The data generated from this study will help in research and planning of interventions programmers in AkwaI Bom state. Implementation of the recommendations stated below will help

to bridge the gap between the well-funded urban refractive errors correction/uptake centers and the struggling people (especially school age persons) in poorer communities especially in urban local government area.

- The cost of eye treatment especially the uptake of refractive error correction (spectacle R) in the rural areas should be subsidized by the government of AkwaI bom state to accommodate those unable to afford the services.
- “Seeing is believing” is a programmer of the Brien Holding vision institute (an international NGO) in partnership with AkwaI Bom state government ministry of health/hospitals management board providing some form of refractive error correction/services to the people of AkwaI Bom state; eye care should be made available and affordable, subsequently, factors that may act as barriers to their use must be identified and addressed.
- More eye clinics should be established in rural communities and optometrists employed to man the clinics. This will be a way of taking service to the grass roots and to the poorest of the poor in other villages across the 31 L.G.A.s of AkwaI bom state.
- The SDGs 3 and 4 are clearly spelt out for good all round health and wellness and quality education, respectively. A school child may look physically healthy but myopic; the inability of such a person to get correction for his/her eye need (especially) refractive error correction affect their quality of life (wellness) and quality of education as they tend to drop lower in class due to this vision challenge.
- Government’s quick intervention to employ more optometrists in the rural areas of AkwaI bom state and ensure affordable or free vision care will help to achieve the SDG (3 and 4) by the year 2030.

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