

Pattern of eye diseases presents at free outreach in rural community in the Northwestern Nigeria

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Abstract

Background: The lower socioeconomic status and long distance to eye care facility of the rural dwellers in many communities in developing countries accounts for the increase in the number of preventable and avoidable causes of blindness compare to developed countries of the world. It is widely believed that the best option to reduce blindness and visual impairment in these communities is to bring eye care services to their doorsteps in the form of outreach programs this has been practiced successfully in India and other Asian countries. **Aims:** To assess the pattern of eye diseases presenting at a free eye outreach in a rural community of Nigeria. **Materials and Methods:** A retrospective study was carried out on the findings of 3-day outreach programs at Zuru General Hospital, in Zuru Emirate of Kebbi State, Northwestern Nigeria. The following information was extracted from patient's folders: sociodemographics, diagnosis, treatment offered the patient, and distance of the patient house to the eye outreach center. The data were analyzed by SPSS version 18 (2006 Statistical Package for the Social Sciences, Chicago, Illinois, USA). **Results:** There were 458 patients seen at the outreach of which 197 (43%) were males and 261 (57%) were females. More than half of the patients 236 (52%) were 50 years and above, followed by age group of 34–50 years 99 (21.6%). The majority of the patients 128 (27.9%) were homemakers, followed by civil servants 125 (27.2%), and farmers 112 (24.5%). Most of the patients 188 (41%) covered a distance of 3–5 km before reaching the outreach center. The predominant ocular diseases seen were cataract 148 (32.3%), glaucoma 84 (18.3%), and refractive error 82 (17.9%). **Conclusion:** There were more females seen at our free eye outreach and majority of participants were 50 years and above. Cataract, glaucoma, and refractive error were the main reasons why patients presented at the outreach center. Efforts at improving the ocular health of this community should be focused on reducing the burden of cataract, glaucoma, and refractive error.

Key words: Cataract, glaucoma, Kebbi state, ocular health, refractive error

INTRODUCTION

It is generally accepted worldwide that the best option for the reduction of avoidable blindness is to bring eye health

care services to the people in the rural communities in term of outreach program due to the fact that the prevalence of blindness and visual impairment is higher among rural dwellers compared to their urban counterparts.^[1] The World health organization advocates eye outreach program as one of the main means of achieving the vision 2020 target. Lower socioeconomic status and the long distance to the nearest eye care facility are some

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Access this article online

Quick Response Code:



Website:

www.sudanmedicalmonitor.org

DOI:

10.4103/1858-5000.171862

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How to cite this article: Monsudi KF, Saka ES, Azonobi RI. Pattern of eye diseases presents at free outreach in rural community in the Northwestern Nigeria. Sudan Med Monit 2015;10:113-6.

of the reasons that mitigate rural dweller from utilizing available eye care services thereby leading to an increase in the number of preventable blindness in developing countries.^[2] Worldwide eye disease prevalence varies from one geographic location to another, and various factors are responsible including age, sex, occupation, lifestyle, socioeconomic status, hygiene, custom and traditions, etc, Topalov in 1984 reported a high prevalence of infectious eye diseases among the tropical population because of environmental factors such as low humidity, dust, sunlight, and rainfall compare to temperate region of the world.^[3] Previous studies from Ibadan^[4] and Ilesa^[5] in the Southwestern Nigeria reported infective conjunctivitis and allergic conjunctivitis to be the common reason why patient presented at the eye clinic. In Southeastern Nigeria, Nwosu^[6] reported that cataracts (33.3%), refractive error (19.5%), glaucoma (15.5%), and infective keratoconjunctivitis (7%) were the main reason patients presented at the eye clinic. While, Mahmoud *et al.*^[7] reported cataract and glaucoma to be the most common causes of eye diseases seen in the North Central Nigeria.

A study from a semi-rural hospital in France by Cohen *et al.*^[8] in 2000 reported macular degeneration (4%), diabetic retinopathy (16.6%), and cataract (13.3%) to be the most common reasons why patients presented at the clinic.

However, there are few reports of pattern of eye diseases seen in rural outreaches,^[9-13] especially in Northern Nigeria.^[14]

The aim of this study is to ascertain the pattern of eye diseases seen at eye outreach program in a rural community of Kebbi State so as to have baseline information which will help in formulating and planning community-based eye care service for rural dwellers in the state.

MATERIALS AND METHODS

The study was a retrospective review of a 3-day eye care outreach program in a rural General Hospital in Zuru, Zuru local government area of Kebbi State. Zuru town is the headquarter of Zuru local government area of Kebbi State. It has a population of 165,547 people and served by a general hospital with an eye unit, which caters for the town and surrounding villages, six primary health care facilities, and four private clinics. The outreach was organized by the Nigerian Medical Association Kebbi State Branch and sponsored by Kebbi State Subsidy Reinvestment and Empowerment Program and Kebbi State Ministry of Health in the month of March 2013. The following information were retrieved from patient's folders: Sociodemographics, distance of the patient's

house to the Zuru general hospital outreach center in kilometers, diagnosis, and treatment offered to the patients. The eye care team involved in the outreach included three ophthalmologists, three ophthalmic nurses, and an optometrist.

All the patients had their distance and near visual acuities assessed with the (literate/illiterate) Snellen's visual acuity chart and Jaeger near vision chart, respectively, assessed by ophthalmic nurses. The anterior segment of patients' eyes was examined using pen torch and a magnifying loupe where necessary. The posterior segment of the eye was examined using the Keller direct ophthalmoscope and intraocular pressure was measured using the Schwartz tonometer. Those that required dilated fundoscopy were dilated with tropicamide 1% eye drop. Patients that have minor eye problems such as infective conjunctivitis, ocular allergy, and refractive error were treated and/or refracted as necessary and issued glasses, respectively, while patients with major eye problems such as (operable cataract, etc.) were referred to Federal Medical Center eye unit for further management. Ocular examinations were carried out by ophthalmologist and glasses issued by the optometrist.

Statistical analysis

The data were double entered and analyzed using SPSS version 18 (2006 Statistical Package for the Social Sciences, Chicago, Illinois, USA). Simple frequency analysis, means, standard deviation (SD), and percentages were done. Chi-squared test was used to determine the level of statistical significance for categorical variables. The level of significance was set at $P < 0.05$.

Consent and ethical clearance

Ethical clearance for the study was obtained from the Health and Research Ethical Committee of Federal Medical Center, Birnin Kebbi, Kebbi State.

RESULTS

There were 458 patients seen at the outreach of which 197 (43%) were males and 261 (57%) were females. Their ages ranged from 2 to 80 years with a mean age of 40 years ($SD \pm 20.1$). More than half of the patients 236 (52%) were 50 years and above, followed by age group of 34–50 years 99 (21.6%). Table 1 age and sex distribution of the patients. The patients were mainly homemakers, 128 (27.9%) civil servants 125 (27.2%), and farmers 112 (24.5%). Table 2 occupation distribution of the patients. The common ocular problems among the patients include cataract 148 (32.3%), glaucoma 84 (18.3%), and refractive error 82 (17.9%). Table 3 shows ocular problems among the patients. Most of the patients 188 (41%) covered

a distance of 3–5 km before reaching the outreach center. Table 4 patients distance from home to outreach center.

DISCUSSION

In this study, more females (57%) attended the outreach program compared to males (43%). This was similar to previous studies in Nepal^[15,16] but different from those of

rural Ethiopia where there was no sex preponderance and those of other studies in Nepal^[17,18] and Nigeria^[9,14,19] where males were preponderant over females. The disparity in the attendance of outreaches between both sexes may be due to a complex interplay of culture, finance, environment, and social factors. Cataract was the most common eye disease among the outreach participants and responsible for 32.3% of all ocular problems. This is similar to the findings of Adegbehingbe and Majengbasan,^[9] in Southwestern and Mahmoud *et al.*,^[7] and in North Central Nigeria. This clearly shows that cataract is still a major cause of ocular morbidity and visual impairment among these rural dwellers. Priority and concerted effort must be made by all eye health workers in order to reduce the burden of cataract in these communities.

The finding of this outreach showed that glaucoma was the second most common cause of eye disease in the population (18.3%). This is consistent with the findings of Mahmoud *et al.*^[7] in North Central Nigeria and at variance with those of Adegbehingbe and Majengbasan^[9] in Southwestern Nigeria. Glaucoma is largely a painless and an irreversible cause of blindness. The high contribution of glaucoma to the ocular morbidities in this population is worrisome because one-fifth of the population is at risk of blindness due to glaucoma. Regular screening for ocular diseases in this population and prompt referral for treatment may help to reduce the impact of glaucoma blindness in this population.

One out of every six persons (17.9%) seen in this outreach presented with one form of refractive errors or the other and is the third most common form of ocular morbidity seen. In Eastern Nigeria,^[10] refractive error was the second most common eye problem seen while in a rural area of Ethiopia,^[11] refractive errors including presbyopia was the most common ocular problem among the rural dwellers.

Refractive error is an important cause of ocular morbidity worldwide, but its relative importance varies from place to place. These differences may be due to a complex interplay of genetics, race, culture, environment, and differences in research methodologies. Regular screening and prompt correction of refractive errors may improve the ocular health of this rural community.

Ocular allergy is the fourth common eye disease in the outreach participants (16.6%). It is the second most common cause of ocular morbidity in Aba, Eastern Nigeria^[20] (11.5%), and the third common eye problem among rural dwellers in Southwestern Nigeria^[9] (16.4%). In Jimma Town Ethiopia^[21] ocular allergy was the most common eye disease seen (35.6%). Ocular allergy, although a rare cause of blindness has the potential to reduce man hours of the productive labor force and can be of

Table 1: Age and sex distribution of patients

Age (years)	Sex (n %)		Total (n %)
	Male	Female	
0-16	37	28	65 (14.2)
17-33	14	44	58 (12.7)
34-5	32	67	99 (21.6)
>50	114	122	236 (51.5)
Total	197	261	458 (100)

Table 2: Occupational distribution of patients

Occupation	n (%)
Farming	112 (24.5)
Civil servant	125 (27.2)
Homemaker	128 (27.9)
Child	31 (6.8)
Student	56 (12.2)
Unemployed	6 (1.3)
Total	458 (100)

Table 3: Eye diseases seen in the patients

Type	n (%)
Cataract	148 (32.3)
Glaucoma	84 (18.3)
Refractive error	82 (17.9)
Ocular allergy	76 (16.6)
Pterygium	20 (4.4)
Corneal opacity	14 (3.1)
Painful blind eye	8 (1.7)
Infective conjunctivitis	6 (1.3)
Uveitis	4 (0.9)
Nonglaucomatous optic atrophy	4 (0.9)
Strabismus	4 (0.9)
Total	458 (100)

Table 4: Patients distance from home to outreach center

Numbers of patients	Distance covered to reach the outreach (kilometers)	%
188	3-5	41
108	6-8	23.6
92	9-11	20.1
70	≥12	15.3
Total	458	100

economic importance in severe cases. Health education on the availability of care will greatly optimize the ocular health of this community.

Pterygium is not a common eye problem in this community (4.4%). Our finding is similar to that of Tuladhar and Sachin,^[12] in Western Nepal (6%). In general, the prevalence of pterygium is lower in the population when compared to other disease.^[22] In rural communities, most people with pterygium do not present to eye care facilities until the onset of visual symptoms.^[23] This may explain the low occurrence of pterygium in this study.

Corneal opacity was rare among participants in the outreach (3.1%). This is similar with the findings of Tuladhar and Sachin,^[12] in Nepal (2.3%) and at variance with those of Wokoma and Ichenwo,^[13] in Rivers State, Nigeria where a lower occurrence of corneal opacities was reported (0.9%). Most of these opacities may have resulted from keratitis, use of traditional eye medicines and trauma. Although, the incidence of corneal blindness is likely to be low in this population, a great deal of health education is needed to prevent needless blindness due to corneal opacity in this group of people.

Painful blind eye (1.7%), infective conjunctivitis (1.3%), uveitis, optic atrophy, and strabismus (each 0.9%) are rare causes of ocular morbidity in this population. Although rare in this study, conjunctivitis is a common cause of eye disease in Nepal (14.9%).^[15] Tuladhar and Sachin^[12] found strabismus in 0.9% of patients while Wokoma and Ichenwo^[13] recorded optic atrophy in 5.6% of participants. The occurrence of 1.7% of painful blind eye may suggest poor availability of eye care services in the locality. Regular screening and treatment of common eye diseases are needed in this community to improve their ocular health and prevent needless blindness and visual impairment.

CONCLUSION

Cataract, glaucoma, and refractive errors accounted for more than two-third of the ocular problem in this community. Effort aimed at improving the ocular status of this community must give priority attention to these diseases.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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