

BLINDNESS IN SOUTHERN NIGERIA: A REVIEW OF AVAILABLE DATA

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ABSTRACT

Purpose: To bring up to date, existing knowledge on the prevalence and common causes of blindness in Southern Nigeria.

Source of data: Available publications on blindness in national and international journals, some dissertations of the National Postgraduate Medical College and the internet using MEDLINE.

Data extraction: Data relating to the prevalence and common causes of blindness in southern Nigeria over a 20-year period (1973-2003) was reviewed. All relevant articles, full length and abstracts, were sorted by categories i.e. into global, continental (Africa), Nigeria and then southern and northern Nigeria groupings. Recent information was also obtained on the internet using MEDLINE and the key words "Blindness in Nigeria".

Results: Reviewed information shows that blindness is as much a problem in Southern Nigeria as it is in the rest of the less developed and poor countries of the world; and that the commonest causes of blinding diseases are largely preventable and treatable.

Conclusion: An appreciable depth of data exists on blindness in southern Nigeria. Reviewed information indicate that blindness is as much a problem in southern Nigeria as it is in the rest of the less developed and poor countries of the world, but regrettably, the commonest causes of blinding diseases in this region are largely preventable and treatable.

Key Words: Blindness, Southern Nigeria.

INTRODUCTION

Blindness is often viewed (and rightly so) as a severe or harsh disability. The loss of sight particularly when all the other functions of the body are complete is perceived by many as a cruel fate. As such the burden of blindness is heavier psychologically than physiologically, interlocking with a cascade of social and economic repercussions that are much more overt in the underdeveloped nations of the world. Blindness is unfortunately common. There are today about 180 million people world-wide with visual disability, out of which between 40 and 45 million are blind and cannot walk about unaided¹ and 110 million with low vision². But more unfortunately, the condition is commoner in developing countries where nine out of every 10 of the world's blind live¹ and which are also the worse off in terms of medical advancement and socio-economic development. There are 8.9 million blind people in India, 6.7 million in China and 7.1 million in Africa, together constituting nearly 60% of the global burden³. In many of these countries

comprehensive blindness control programs have been unachievable simply because of lack of epidemiological data and information⁴. Nigeria, Africa's most populous nation, inevitable shares in this burden. It is estimated that about 1% of Nigerians are blind⁵. Available data published by the World Health Organization (WHO) estimates that northern Nigeria has a near three-fold higher prevalence of blindness than the south (1.5%: 0.5%)⁶. However the equal importance of the condition in southern Nigeria cannot be over-emphasized. Cataract, glaucoma, trachoma and onchocerciasis which are important causes of blindness have been associated with risk factors such as the environment, family history, diabetes, hypertension and cigarette smoking;⁷ factors that cut across geographical or political divides.

Background Information Southern Nigeria

The Rivers Niger and Benue are important geographical entities in defining the boundaries between the southern and northern parts of Nigeria amongst other geo-political considerations. Southern Nigeria is made up of 18 out of the 36 States

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and the Federal Capital Territory (Abuja) that comprises Nigeria. There are six States each in the three geopolitical zones that southern Nigeria is divided into namely: south-east, south-west and south-south zones. The vegetation in the south contrasts sharply with the north, except for the forest-savannah found in the transit confluence zone of the rivers Niger and Benue. The ecology is mainly equatorial rainforest and deltaic mangrove swamp, with abundant rainfall most of the year.

The peoples of the south also contrast from the dominantly *Hausa-Fulani* north. There is a greater diversity of cultures and ethnicity in the south, though dominantly featuring the *Yorubas* in the southwest, the *Igbos* in the southeast and over 20 ethnic groups (*Ijaw, Ikwerre, Ekpeye, Ogoni, Urhobo, Itshekiri, Bini, Efik, Ibibio* etc.) in the six states that make up the south-south geopolitical zone. Traditionally, the socio-economic dynamics in the south compares well with the north. Farming is the mainstay in the equally largely rural communities of the south and north of Nigeria but fishing is more prominent in the south, and in addition, there is a lot of oil and gas exploration and exploitation in the south especially the south-south geo-political zone. This paper is an attempt to kindle interest in research, and clinical community intervention on blindness in southern Nigeria by reviewing existing information on the condition.

METHODS

Available publications on the prevalence and common causes of blindness in local and international journals were retrieved. A few dissertations submitted to the National Postgraduate Medical College were also obtained and used for cross-referencing. All relevant articles, full length and abstracts, were sorted by categories i.e. into global, continental (Africa), Nigeria and then southern and northern Nigeria groupings. Recent information was also obtained on the internet using MEDLINE and the key words "Blindness in Nigeria".

RESULTS AND DISCUSSION

Epidemiology

There are today about 180 million people worldwide with visual disability, out of which between 40 and 45 million are blind and cannot walk about unaided¹ and 110 million with low vision². According to the WHO and the Program for the Prevention of Blindness (PBL), India has the highest number of blind people (23.5%), followed by Sub-Saharan Africa (18.8%) and China (17.6%)³. The estimated worldwide prevalence of blindness of 0.7% range from 0.3% in the established market economies and the former socialist economies of

Europe, to 0.6% in China, 1% in India, and 1.4% in Sub-Saharan Africa^{2,3}.

The global prevalence of blindness of 0.7% increases from 0.08% in children to 4.4% in people aged over 60 years³. It is estimated that of the 40-45 million worldwide that cannot walk about without being aided¹, 1.4 million are children⁸. The Nigerian National Program for Prevention of Blindness (NPPB) has reported the median national prevalence of blindness as 1.0%⁵. The World Health Organization's "Available Data on Blindness" gave a prevalence ranging from 0.5% in southern Nigeria to 1.5% in northern Nigeria⁶. In the many studies carried out in Southern Nigeria between 1973 and 2003 on the prevalence and common causes of blindness; the prevalence has ranged from 0.9% in Anambra State⁹ to 2.8% in Rivers State¹⁰ and the common causes of blindness have been cataract, glaucoma, onchocerciasis and ocular trauma. An annotated table (Table 1) of list of abstracts on blindness relevant to southern Nigeria obtained from MEDLINE internet search using the search words "blindness in Nigeria" showed all but two of the community-based studies reported proportions under 2%^{9,11-16}. The exceptions were Adegbehingbe *et al*¹⁷ that found 5.6% amongst septuagenarians, and also Nwosu¹⁸ that found 8.6% in an oncho-endemic community. Also those that were hospital-based studies all reported higher prevalence 3.9%,¹⁹ 18%,²⁰ and 14%²¹. One of the studies also provided evidence that blindness increases with age in southwestern Nigeria¹⁵.

Causes of Blindness

Cataract, trachoma and glaucoma account for more than 70% of the world's blindness²². Cataract is the most important cause of blindness in developing countries, causing 41.8% of global blindness, while other causes such as diabetic retinopathy or macular degeneration is dominant in established market economies³. These three diseases (cataract, trachoma and glaucoma) account for about 74% of those who are blind in India; about 73% in China; about 80% in other countries of Asia and the Pacific Islands and about 75% in Sub-Saharan Africa²². Studies carried out in various parts of Nigeria also follow this trend. In many community-based studies in southern Nigeria, cataract, glaucoma, optic nerve disease and trauma were found to be common causes of blindness^{9, 10, 12, 13, 19}. Similarly, other studies in the same region found the common causes of blindness to be cataract and onchocerciasis²³ and cataract and optic atrophy²⁴. As shown in table 1, cataract and glaucoma feature consistently in virtually all the listed studies. In addition, Olurin²⁵ identified (in Ibadan, a southwestern city) the major causes of blindness to be cataract, chronic simple glaucoma, infective diseases and optic atrophy. Some other

Table 1: Annotated List of Relevant Abstracts Obtained From Internet Search of "Blindness in Nigeria" in MEDLINE.

Author	Blindness (%)		Causes of Blindness (%)	Subjects	Location (State)
	Bilateral	Unilateral			
Patrick-Ferife et al (2005) ¹¹	1.3	-	Cataract (60.0), Posterior segment diseases (11.7), Glaucoma (9.8), Uncorrected aphakia (5.9)	Adults = 40 years	Ozoro (Delta)
Adeoti CO. (2004) ¹²	1.18	-	Cataract (47.4), Uncorrected aphakia (18.4), Glaucoma (15.8), Phthisis Bulbi (5.3)	Community dwellers	Egbedore LGA (Osun)
Oluleye TS. (2004) ¹³	1.47	-	Cataract (57.14)	Adults = 50 years	Abedo, Akinyelo, Ketepé (Oyo)
Nwosu SN. (1998) ¹⁴	1.2	0.8	Glaucoma, Congenital Cataract	Adults 18-49 years	Obafemi Awolowo University Teaching Hospital, Ile-Ife (Osun)
Ezepue UF. (1997) ⁹	0.97	-	Cataract (70.6), Glaucoma (17.7)	Adults	(Anambra)
Fafowora OF(1996) ¹⁵	0.15	-	Cataract, age-related macular degeneration, glaucoma	Rural adults > 60 years	Apana, Etsako West (Edo)
Adeoye A. (1996) ¹⁶	0.9	-	Cataract (48.1), Onchocerciasis (14.8), Glaucoma (11.1), Phthisis Bulbi (7.4), Optic atrophy (7.4)	NA	Akinlalu-Ashipa (Osun)
Adegbehingbe et al (2006) ¹⁷	5.6	-	Cataract (42.3), Glaucoma (32.4), Uncorrected aphakia (9.9)	Adults = 60 years	Ife-Ijesha LGA (Osun)
Nwosu SN. (2000) ¹⁸	8.6	11.6	Cataract	Residents of 3 onchocerciasis endemic villages	(Anambra)
Dawodu et al (2003) ¹⁹	3.9*	6.0	Cataract, Glaucoma, Corneal ulceration/leucoma, Uncorrected aphakia	New clinic patients	Otibhor Okhae Teaching Hospital, Irrua (Edo)
Nwosu SN. (2000) ²⁰	18.0*	26.0	Glaucoma, Cataract, diabetes retinopathy, retinal vein occlusion, age-related macular degeneration	Adult diabetes patients	Nnamdi Azikwe Univ Teaching Hospital, Nnewi (Anambra)
Nwosu SN. (1994) ²¹	14.0*	27.6	Cataract (33.3), Glaucoma (22.2), Macular degeneration (11.0)	New patients	Nnamdi Azikwe Univ Teaching Hospital, Nnewi (Anambra)
Ayanru JO. (1974) ²⁷	-	-	Cataract (33.2), Uveitis (20.4), Glaucoma (17.1), trauma (7.9)	NA	Mid-western State, Nigeria (Edo)
Ugboko et al (2006) ²⁹	-	-	Road Traffic Accident (37.5), Gunshot (34.4)	Trauma patients 5-65 years	
Wagbatsoma and Okojie (2004) ³⁰	-	-	Onchocerciasis (knowledge and attitude study)	Community dwellers	
Akinsola and Ajaiyeoba (2002) ³¹	-	-	Retinal dystrophy, Congenital cataract and Glaucoma	Blind school pupils	Lagos (Lagos)
Ezegwui et al (2003) ⁴⁵	-	-	Cataract, Corneal scarring, Glaucoma	Blind school pupils	South East, Nigeria
Ayanru JO. (1977) ⁴⁶	-	-	Uveitis	Patients with Uveitis	Bendel (Edo)
Fafowora and Osuntokun (1997) ⁴⁷	-	-	Cataract, age-related macular degeneration, glaucoma	Rural adults > 60 years	South West, Nigeria

studies that reported other causes such as onchocerciasis within the south, found these to be alongside cataract²⁶. Another study conducted in Benin, a historical mid-southwestern city and state capital, by Ayanru²⁷ identified the major blinding diseases as cataract, uveitis, chronic simple glaucoma, and trauma.

Cataract

Cataract accounts for about 16 million cases of blindness worldwide and approximately 50% of all cases of blindness in Africa²². Cataract could be congenital, senile or could develop after eye injuries but to a large extent most cataracts are related to the ageing process. This then means that as life expectancy increase, more people will develop cataract and the number of blind will increase. Various studies identified cataract to cause blindness in about 37% to 71% of cases^{9, 10, 16, 23, 24, 28}. All the studies listed in table 1 had cataract on the top of their list of causes of blindness except Ugboko *et al*²⁹ that reported on blindness due to trauma, Wagbatsoma and Okojie³⁰ on blindness due to onchocerciasis and Akinsola *et al*³¹ on blindness due retinal dystrophy.

Glaucoma

Chronic simple glaucoma is the third commonest cause of blindness in the world and is responsible for 5.2 million cases of world blindness²². It is said that persons of African descent are more likely to develop glaucoma and lose sight from it than Caucasians²². Studies done in various parts of the country, confirm that glaucoma is the second commonest cause of blindness accounting for about 18% to 42%^{10, 32-33}. Chronic simple glaucoma is the most common type seen in Nigeria²⁵.

Onchocerciasis

Onchocerciasis, more commonly known as "River Blindness", is a parasitic blinding disease, endemic in 30 African countries including Nigeria, six Latin American countries and Yemen in the Arabian Gulf. About 18 million people are infected with the disease (of whom about 99% live in Africa) and out of these, about 270,000 are blind from ocular complications³⁴. Nigeria is currently the most endemic country in the world,³⁵ with about 7 million people severely infected and about 114,000 blind³⁶. Practically all the states in the country are affected except those states around the Niger delta basin (Rivers, Bayelsa, Delta and Akwa-Ibom), coastal areas and the Lake Chad basin³⁶. The ocular problems resulting from Onchocerciasis are mostly irreversible and include sclerosing keratitis; iritis (which can lead to glaucoma and cataract) chorioretinal damage and optic neuritis leading to optic atrophy³⁷. All these individually or collectively can result in blindness. Chorioretinitis was reported

as the cause of blindness in 2.8%-9.2% of cases in some states in southern Nigeria^{9, 10, 23}.

Ocular Trauma/Phthisis Bulbi

Ocular trauma resulting in corneal opacity or phthisis bulbi is a leading cause of uni-ocular visual loss and the fourth commonest cause of bilateral blindness^{27, 28, 32}. Some studies have shown that eye injuries are commoner in those aged between 0 and 19 years (55%)³⁸, and young adult males aged between 21 and 40 years (28%)³⁸. The commonest reported associated eye injury is assault (28%), followed by injuries at farm (12.7%), domestic injuries (12.7%), hunting accidents (7%) and traumas sustained through motor accidents (9.9%)³⁹. Ocular trauma has also been shown to occur during cultural festivals especially from sticks wielded to frighten off women and children⁴⁰. Essentially, most eye injuries are avoidable.

Avoidable Blindness

Avoidable blindness is one that is either preventable or curable. From this review, over 80% of blindness in Southern Nigeria is due to avoidable causes^{9, 10, 16, 24, 36-38, 41, 42}. All these compare with WHO findings of a worldwide avoidable blindness rate of about 80%²². It can be said that over two-thirds of today's blindness could be avoided, (that is prevented or treated) by utilizing existing knowledge and technology. But incidentally, health issues are accorded less priority by the government of developing nations where the condition is more common and the effects more devastating. Since cataract is the commonest cause of blindness in the world, one would have expected cataract extraction to be available and affordable to most of the people who need it, but this is not true of developing countries where the surgery is beyond the reach of the large majority. The high cost and remoteness of many of the communities to hospitals,⁴² where services may be available, also result in poor uptake of cataract surgery thus contributing to the large number of those who remain blinded by cataract^{13, 43}. Avoidable blindness is a key factor in the high prevalence figures obtained in Nigeria and other third world countries.

Interventions

The World Health Organization (WHO) has always been conscious of the fact that blindness and visual disability is a public health problem. For a long time the magnitude of the problem could not be assessed, and meaningful global prevention activities could not be initiated because of lack of epidemiological data and information². Work in this area dates as far back as 1882 and 1908 when the first prevention of blindness societies were established in London and New York respectively³. However it was not until 1978 when the WHO created the Program for the Prevention of

Blindness (PBL), that genuine efforts were made at preparing a reliable estimate of prevalence of blindness and visual disability worldwide². The Program for the Prevention of Blindness subsequently developed an internationally accepted, simple population-based assessment methodology to measure prevalence of visual loss and its causes. WHO member states have used this to arrive at national estimates of prevalence of blindness and visual disability which forms part of the WHO Global Data Bank on Blindness; a necessary tool for planning interventional action against blindness². To advance the fight against blindness, a Global Initiative for the Elimination of Avoidable Blindness (known as "VISION 2020: The Right to Sight") was launched in 1999 by Anglophone African countries⁴³; this was a product of a worldwide initiative to eliminate avoidable blindness by the year 2020. VISION 2020 aims to revitalize and strengthen existing blindness prevention programs and to create new ones where they are lacking. The objective of the WHO prevention of blindness program is to assist member states to effectively prevent blindness and restore sight when possible. The global target is to ultimately reduce prevalence to less than 0.5% in all countries, or less than 1% in any country³. In response to the resolution approved at the 28th World Health Assembly in Geneva in May 1975 encouraging member States to develop national programs for the prevention of blindness (the basis on which PBL was established in 1978), the Nigerian National Program for Prevention of Blindness (NPPB) was launched in September 1990. The NPPB's objectives were to determine the causes and prevalence of blindness, to reduce the extent and nature of major blinding conditions including restoring sight to the curably blind and to develop eye health manpower at all levels in the short term. It also aims to reduce the prevalence and incidence of avoidable blindness in all states of Nigeria in the long term. In view of the large size of Nigeria, it was recognized early that setting up State committees was essential to deal with the peculiarities of each State and within the resources available to it. The activities of the program in most southern States, is very skeletal though the program has been launched in almost all the States. Over the years in Southern Nigeria, various interventions have been put in place to reduce the burden of blindness but whether these have had any positive impact is still under review. These interventions include eye outreach clinics in rural areas, free cataract surgical eye camps directed at reducing cataract blindness and public enlightenment campaigns through the print and electronic media. In The Gambia, such interventions succeeded in reducing the prevalence of blindness from 0.7% to 0.42% over a 10-year period⁴⁴.

RECOMMENDATIONS

Blindness can be tackled by putting in place a comprehensive eye care program that would incorporate eye care into the Primary Health Care system. PHC by design is health care at the grassroots using affordable, acceptable and appropriate technology against the backdrop of equity and inter-sectoral collaboration. If eye health forms part of Primary Health Care (PHC) and this incorporated into an existing health care program such as the National Program on Immunization (NPI), a lot more people will be reached. Health education is a powerful PHC tool. With it the people could be educated on the harmful effects of such practices as the use of traditional eye medications (TEM) in addition to knowing the basic care of the eyes, and where to seek help in times of injury or when there is eye disease. Wagbatsoma and Okojie³⁰ reported that the attitude of persons not affected by onchocerciasis in Edo State was discriminatory, and infected persons were socially withdrawn. Behaviour change could be affected by appropriate health education. The primary eye care services should be in tandem with existing secondary and tertiary eye care facilities so that those at the grassroots could be easily referred for further management. They should be involved in promoting community-based screening and treatment for conditions such as cataract and glaucoma. There is a dearth of eye health personnel in most states of Nigeria; and it is obvious that the prevention and control of blindness and blinding diseases cannot depend only on them. Different cadre of health workers particularly at PHC level should be integrated into eye care delivery. Skill should be transferred to make them able to recognize and treat common blinding eye diseases and for appropriate referral of more difficult cases. Such trainings should run from time to time, and sponsorship by State and local Governments must be advocated. At the community level, leaders and organized groups should be encouraged to support the treatment of poor patients through sustainable third-party financing schemes such as social health insurance. Pursuance, on a vigorous basis, of programs directed at tackling cataract 'backlogs' either through the provision of cataract outreach services on a continuous basis or intermittent organization of eye camps would also go a long way in reducing the burden of blindness in Southern Nigeria.

CONCLUSION

An appreciable depth of data exists on blindness in southern Nigeria. Reviewed information indicate that blindness is as much a problem in southern Nigeria as it is in the rest of the less developed and poor countries of the world, but regrettably, the commonest causes of blinding diseases in this region are largely

preventable and treatable. The dearth of proven relevant, practical and cost-effective intervention measures in the area remains the bane of global efforts and developing countries in particular to rid the world of this condition. A renewed call for government commitment at the grassroots and community-driven/community-based health actions is being made.

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