Journal of Global Biosciences
ISSN 2320-1355
Volume 9, Number 4, 2020, pp. 7080-7091
Website: www.mutagens.co.in
DOI: www.mutagens.co.in/jgb/vol.09/04/090412.pdf

SCAN ME

Review Paper

PROFILE OF CHILDHOOD OCULAR MORBIDITIES SEEN IN A SOUTHERN NIGERIA RURAL MISSION EYE CENTRE: A THREE YEAR REVIEW

Iyanam Victory Edet[1], Idung Alphonsus Udoh[1], Jombo Henry Effiong[2], Gbanan Dalton Ngutor[3], Udoh Sunday Bassey[1] and Akpanudoh Emem[4]

1 Department of Family Medicine,
Faculty of Clinical Sciences, University of Uyo, Nigeria.
2 Department of Mental Health,
Faculty of Clinical Sciences, University of Uyo, Nigeria.
3 Mercy Eye Centre,
Abak, Akwa Ibom State, Nigeria.
4 Department of Paediatric Surgery,
Faculty of Clinical Sciences, University of Uyo,
Nigeria.

Abstract

Background: Ocular morbidities can negatively impact vision, education, quality of life, socio-economic and sometimes overall development and well-being of a child, especially if not timely detected and treated.

Objective: This study described the prevalence, pattern and distribution of ocular morbidities among children who presented at a rural missionary eye care facility in south south Nigeria.

Methodology: This was a three year review of ocular morbidities profile of children who presented at Mercy Eye Centre, Abak, Akwa Ibom State, Nigeria between January 2017 and December 2019. The case notes of children, 0 – 16 years, seen at the facility during the period under review were carefully sorted out. Their gender, age and diagnoses were extracted, collated and entered into Microsoft excel for analysis.

Results: Out of 720 children who presented at the facility during the period of the study, 363 (50.42%) were male while 357 (49.58%) were female, giving male to female ratio of 1:1. Their age ranged from 1day old to 16 years with mean and standard devation of 9.30± 4.65 years. Most of the children, 32.22%, were teenagers, 13-16 years, while early school age children, 5 – 8 years, had the least presentation, 17.92%. Out of 757 morbidities presented, refractive error, 30.64%, allergic disorders, 25.62%, infections/inflammatory disorders, 11.62%, ocular trauma, 9.90% and juvenile/developmental glaucoma, 4.90%, were the commonest ocular morbidities presented respectively while 1.18% of them were blind. Analysis of the age distribution of the morbidities showed that, refractive error (12.68%) with implication for vision,

affected mostly school age children (9-12 years), allergic disorders (9.11%) with negative impact on quality of life, affected mostly teenagers while congenital disorders affected mostly early childhood (0-4 years) group.

Conclusion: Most of the ocular morbidities seen among the children at the centre during the study period affected mostly school children, have direct impact on vision and are mostly preventable. We recommend early and regular eye screening for children with the aim to timely detect and correct ocular morbidities, so as to optimize children's ocular health. Also health education on eye health with emphasis on paediatric eye health should be incorporated into public health campaign. Moreover, definitive paediatric ocular health policy which is lacking at the national, state and local government levels of most developing countries, should be considered and implemented with the aim of giving priority to child eye health, with the attendant benefits.

Key words: Profile, ocular morbidities, childhood, south-south Nigeria.

INTRODUCTION

The eye and its primary function, vision, contributes significantly to the overall well being; physical, cognitive and social development of a child.[1,2] It has been shown that children obtain significant percentage of their knowledge from visual learning including reading, writing, viewing of diagrams and images, and generally interacting with their environment.[1,2,3] Therefore morbidities of the eye and its adnexae, especially vision threatening morbidities, constitute a source of stress and adversity to the affected child, the family and the society at large.

The importance of childhood ocular morbidities lies in the fact that while lesser percentage of morbidities are congenital, greater percentage are acquired, treatable and reversible through timely screening and detection.[2,4-9]

Several studies however have shown that children, especially in developing countries and rural areas, are affected by preventable and treatable ocular diseases, which sometimes result in avoidable blindness, with negative implication for childhood development.[1,5,10-13] According to the WHO, about 1.5 million children worldwide are blind with about 1 million in Asia, 0.3 million in Africa, 0.1 million in Latin America and 0.1 million in the rest of the world.[14] It is also estimated that every minute a child goes blind in both eyes in a developing country.[15] In Nigeria, while about 75 million of the population belong to 0-15 years, about 75,000 of this group, are blind mostly from preventable ocular morbidity,[15,16,17] with about 60% of the blind children dying within a year of becoming blind.[15]

The distribution of ocular morbidities among children globally vary from region to region and within region, from locality to locality due to racial, geographic, socio-economic and cultural factors.[18] For instance, in the developed countries of UK, USA and Canada, while congenital and hereditary disorders are the commonest ocular pathologies; refractive errors, infections/inflammations, conjunctivitis, corneal scaring and ocular trauma are the commonest morbidities in the developing countries.[11,13,19] Studies done in other parts of the world identified the following ocular morbidities as being the most prevalent in the different countries: refractive error, allergic conjunctivitis and ocular foreign bodies in China,[20] refractive error, conjunctival disorders and strabismus in Palestine,[20] refractive error, conjunctivitis and amblyopia in India,[13] and conjunctivitis, ocular trauma and refractive error in Ethiopia.[18,21] In Nigeria, commonest ocular morbidities indentified in the various zones include allergic disorders, refractive errors and trauma in Enugu, South-east,[22] ocular trauma, conjunctivitis and eye/adnexae infection in Ibadan, South-west,[23] refractive error, vernal conjunctivitis and congenital/developmental disorders in Ilorin, North central,[2] refractive error allergic conjunctivitis and glaucoma in Zaria, North East,[25] and conjunctivitis and refractive error in Sokoto, north west.[2]

Several risk factors are responsible for high prevalence of ocular morbidities among paediatric group especially in developing countries and rural areas. These include low socioeconomic status, ignorance, poor nutrition, biological/genetic factors, inadequate manpower and facilities for eye disease evaluation, limited access to clean drinking water, environmental and geographic factors as well as paucity of data on paediatric ocular morbidities.[12,13,12,26-28] Moreover, it is to be noted that most developing countries do not have clear cut eye health policy for children as part of public health policy at the national, state and local government levels.[8] Most of these factors are modifiable through appropriate interventions at various levels.

Ocular morbidities interfere with a child's development, education, learning, communication, work, health, quality of life, vocation and vision in several ways.[2,11,13,14,16] The prevention of blindness and visual impairment among children constitutes the main component of vision 2020: The right to sight, a global sight-enhancing programme initiated by the WHO and International Agency for the prevention of blindness (WHO/IAPB vision 2020).[29,30]

This study therefore aimed at describing the profile of ocular morbidities among children who presented at a rural missionary eye centre in Southern Nigeria. Findings from this study is conceived to enrich literature pool on paediatric ocular morbidities.

METHODOLOGY:

Study Area: The study was done at Mercy Eye Centre, Abak, Akwa Ibom State, South-South Ngieria. It is a missionary Eye Centre located within Mercy Hospital, Abak, a Secondary Health facility founded and run by Catholic Diocese of Ikot Ekpene. The facility takes care of ocular diseases of adults and children of both gender within Abak and the neighbouring communities. Mercy Eye Centre runs out patient ophthalmology consultation clinics and has standard theatre and admission facilities. There are trained medical personnel including consultant ophthalmologists, ophthalmic nurses, optometrists and opticians. The Eye Centre also has standard laboratory and health information management system facilities and personnel.

Patients and Method: This was a retrospective review of case notes of all children, 0-16 years, who presented at Mercy Eye Centre from January 2017 to December 2019, due to ocular complaints. Their case notes were retrieved and sorted out in a manner that avoids duplication. A data extraction tool was designed to include age, sex and definitive diagnoses. Case notes with well entered data and definitive diagnoses were included while case notes with poorly entered data and no definitive diagnosis were excluded.

Data Analysis: Data obtained from the study were analysed using the statistical package for social sciences (SPSS) version 22.0. Categorical variables were summarized using proportions/percentages and continuous variables using mean and standard deviation. Data were displayed using frequency tables.

Ethical Clearance and Consent:

Approval for the study, both ethical and administrative, was obtained from health research and ethical committee of the state ministry of Health and Mercy Hospital/Mercy Eye Centre respectively. No consent was needed from the minors or their care givers as this was a review of secondary data with no identity.

RESULTS:

A total of 720 children, aged 0-16 years, were seen during the period under review. While 50.12% were male, 49.58% were female, giving male to female ratio of 1:1. Their

age ranged from 1 day to 16 years, with mean and standard deviation of 9.30± 4.65 years.

Table 1 shows the gender and age distribution of the children. Teenage group (13-16 years) had the highest presentation, 32.22%, while early school age group (5-8 years) had the least number of patients, 17.92%.

Table 2 shows the profile of morbidities among the children during the period of the study. Out of 757 morbidities presented, refractive error was the commonest morbidity, 30.65%, followed by allergic disorders (allergic conjunctivitis and vernal keratoconjunctivitis), 25.62%, infections/inflammatory disorders, 11.59% and ocular trauma, 9.91%. Moreover, while 0.66% had unilateral blindness, 0.53 had bilateral blindness. The age distribution of morbidities among the children is shown on table 3. Refractive error, the morbidity with the highest percentage of occurrence, 12.68%, is commonest among the school age children, 9-12 years, followed by teenagers, 13-16 years, 11.49%. Also, allergic disorder, with implication for quality of life, has the highest prevalence, 9.11%, among teenagers, followed by school agers, 9-12 years, 6.34%. Ocular trauma, which is mostly a modifiable risk factor, has the highest prevalence, 3.43%, among school children, 9-12 years, followed by early childhood age group (0-4 years). Blindness has highest prevalence, 0.4%, among early school age children while it is equally distributed among all other age groups.

Table 1: Gender and age distribution among the children.

Characteristics	Frequency (n=720)	Percentage (%)
Gender:		
Male	363	50.42
Female	357	49.58
Age (years):		
0-4	150	20.83
5-8	129	17.92
9-12	209	29.03
13-16	232	32.22

Table 2a: Profile of ocular morbidities among the children

Ocular morbidity	Frequency (n=757)*	Percentage (%)
Congenital ocular disorders	31	4.09
Allergic disorders:		
Conjunctivitis	159	21.00
Vernal Keratoconjunctivitis	35	4.62
Refractive errors	232	30.65
Ocular trauma	75	9.91
Foreign body	10	1.32
Infection/Inflammation:		
Infective conjunctivitis	39	5.15
Keratitis/Corneal ulcer	26	3.43
Iritis	2	0.26
Scleritis/episcleritis	2	0.26
Uveitis/panuveitis	2	0.26
Endophthalmitis	5	0.66
Panophthalmitis	2	0.26
Orbital cellutitis	6	0.79
Style (horlodeum)	2	0.26
Chalozion	2	0.26
Corneal opacity	9	1.19
Juvenile glaucoma	35	4.62
Childhood cataract	26	3.43

Table 2b: Profile of ocular morbidity among children

Ocular morbidity	Frequency (n=757*)	Percentage (%)
Neuropathy:		
Optic neuropathy	2	0.26
Bell's palsy	2	0.26
Abducens neuropathy	2	0.26
Macular dystrophy/degeneration	4	0.53
Oculocutaneous albinism	6	0.79
Conjunctival haemorrhage	4	0.53
Staphyloma	3	0.40
Nystagmus	3	0.40
Strabismus	3	0.40
Amblyopia	4	0.53
Aphakia	3	0.40
Blindness:		
Unilateral	5	0.66
Bilateral	4	0.53
Retinoblastoma	6	0.79
Exophthalmos	2	0.26
Blespherospasm	2	0.26
Retinitis pigmentosa	1	0.13

*some children presented with more than 1 morbidity

Table 3a: Age distribution of morbidity among the children

Ocular Morbidity	Frequency (n=757)				Percentage (%)
	Age (years)				
	0-4(%)	5-8(%)	9-12(%)	13-16(%)	Total (%)
Congenital disorders	21(2.77)	9(1.19)	1(0.13)	-	31(4.09)
Allergic disorders	40(5.28)	37(4.89)	48(6.34)	69(9.11)	194(25.62)
Refractive errors	15(1.98)	34(4.49)	96(12.68)	87(11.49)	232(30.64)
Ocular trauma	20(2.64)	18(2.38)	26(3.43)	11(1.45)	75(9.90)

Foreign body	6(0.79)	3(0.40)	–	1(0.13)	10(1.32)
Infections/Inflamatory disorder	28(3.70)	16(2.11)	24(3.17)	20(2.64)	88(11.62)
Corneal opacity	6(0.79)	1(0.13)	2(0.26)	-	9(1.18)
Juvenile Glaucoma	6(0.79)	3(0.40)	12(1.58)	14(1.85)	35(4.62)
Childhood cataract	2(0.26)	6(0.79)	13(1.72)	5(0.66)	26(3.43)
Neuropathy	1(0.13)	1(0.13)	3(0.40)	1(0.13)	6(1.19)
Macular disorders	-	1(0.13)	1(0.13)	2(0.26)	4(0.52)
Albinism	1(0.13)	4(0.53)	1(0.13)	-	6(0.79)
Conjunctival Haemonhage	-	3(0.40)	1(0.13)	-	4(0.53)
Staphyloma	-	1(0.13)	2(0.26)	-	3(0.30)

Table 3b: Age distribution of morbidity among the children

Ocular morbidity	Frequency (n=757)				Percentage (%)
	Age (years)				
	0-4(%)	5-8(%)	9-12(%)	13-16(%)	Total (%)
Nystagmus	-	1(0.13)	2(0.26)	-	3(0.39)
Strabismus	1(0.13)	2(0.26)	-	-	3(0.39)
Amblyopia	2(0.26)	1(0.13)	-	1(0.13)	4(0.52)
Aphakia	3(0.40)	-	-	-	3(0.40)
Blindness	2(0.26)	3(0.40)	2(0.26)	2(0.26)	9(1.18)
Retinoblastoma	4(0.53)	1(0.13)	1(0.13)	-	6(0.79)
Exophthalmos	2(0.26)	-	-	-	2(0.26)
Blespherospasm	-	2(0.26)	-	1(0.13)	3(0.39)
Retinitis pigmentosa	-	-	-	1(0.13)	1(0.13)

DISCUSSION:

The study has shown high prevalence of ocular morbidities among children attending Mercy Eye Centre, Abak, Southern Nigeria. Most of the children who presented at the facility during the review period were teenagers. This finding is similar to findings from several other studies on paediatric ocular morbidities in other settings.[3,20,25] The implication of this is that with this age group being very crucial in educational, cognitive and psychosocial development and interaction, high prevalence of ocular diseases is a distraction and set back to these developments. It therefore calls for timely and early

screening for ocular problems with the aim of prompt identification and treatment among children.

The pattern of presentation of ocular morbidities among the children in which refractive error, allergic disorders, ocular trauma and infection/inflammatory disorders are the majority of the cases seen, is again similar to findings from other studies on paediatric ocular morbidities, especially in the developing countries. [2,6,9,16,21,31] This again underscores the importance of early eye screening, provision of safe, clean and secure environment for children interaction and upbringing. Children are also to be taught personal and environmental hygiene especially regular hand washing as a means of averting ocular infections.

Finally, most of the ocular morbidities affecting the children in the study are consequences of low socioeconomic status, ignorance, poverty and unclean/unfavourabe environments. Goals 1, 3, 4 and 6 of the UN sustainable development goals, (SDG's) emphasize eradication of poverty, provision of good health and well-being, quality education and clean water.[32] Implementation of these components of sustainable development goals in developing countries and the rural areas will contribute significantly in reducing ocular morbidities among children thereby improving ocular health with the attendant benefits of childhood balanced development.

CONCLUSION:

There is high prevalence of ocular morbidities among children who attended the facility during the period under review. The commonest morbidities seen among the chidren in the eye centre include refractive errors, allergic disorders, ocular trauma and infections/inflammatory disorders. While some of the conditions are preventable, all are detectable and treatable through early and timely screening. We therefore recommend early and regular eye screening service for children population as component of public health policy at the national, state and local levels, with the objective of averting ocular morbidities thereby optimizing children's eye health.

ACKNOWLEDGEMENT:

We profoundly acknowledge and commend the assistance rendered to us by management and staff of Mercy Eye Centre, Abak that led to the success of the study.

CONFLICT OF INTEREST:

We hereby declare that no conflict of interest exists in the study among the authors.

REFERENCES

(1) Chidlren's vision and Eye Health. Prevent Blindness. Available @:http://www. Preventblindness. Accessed on 7/3/2020

(2) Olatunji LK, Oche Mo, Adamu H, Adamu M, Abdulraham LB, Arisegi SA. Causes of ocular morbidity among primary school children in Sokoto metropolis, North Western Nigeria. Borno Med J 2018; 13(1): 1-5

(3) Precision vision: Importance of vision in childhood development. Available @:http:llwww. Precisionvision.com. Accessed on 7/3/2020

(4) Borrel A, Dabideen R, Mekonam Y, Overland L. Child eye health in Africa: The status and the way forward. The African child policy forum. Available @:www.african-childforum.org.Accessed on 14/2/2020.

(5) Obajolomo TS, Ademola-popoola DS, Olatunjl FO. Prevalence and causes of visual impairment among Nigerian children aged 3 to 5 years. Nigeria J Ophthalmol 2019; 27(2): 76-81.

(6) Annamali TT, Veeramani VP. Prevalence of ocular morbidities among children attending ophthalmology OPD in tertiary care hospital, Chennae, Tamil Nadu, India. Trop J Ophthal & Otolaryngol 2019; 4(5): 349-354.

(7) Olusanya BA, Ugahali MO, Ogunleye OT, Bainyeroju AM. Refractive errors among children attending a tertiary eye facility in Ibadan, Nigeria: Highlighting need for school eye health programme. Ann Ibd Pg Med 2019; 17(1): 45-50.

(8) Okpala NE, Umeh RE, Onwabigwe EN. Eye Injuries among primary school children in Enugu, Nigeria: Rural vs Urban. Ophthal Eye Dis 2014; 7: 13-19.

(9) Kemmanu V, Hegede K, Giligar SK, Sohetty BK, McCarty KA, McCarty CA. Prevalence of childhood blindness and ocular morbidity in a rural pediatric population in Southern India: The pavaganda paediatric eye disease study-1. Ophthalmol Epidemol 2016; 23(3): 185-192.

(10) Udim M, Omar R, Feizal V, Kurshid A. Ocular Morbidity among preschool children in urban area of Chitagong in Bangladesh. Int Eye Sci 2017; 17(1): 16-20.

(11)Alibi AS, Aribaba OT, Alabi AO, IIo O, Onakoya AO, Akensola FB. Visual impairment and ocular morbidities among school children in South Western Nigeria. Niger Postgrd Med J 2018; 25(3): 161-171.

(12)Khan IA, Qamrudddim M. Assessment of ocular conditions among paediatric patients. Int J Contemp Med Res 2017; 4(1): 291-293.

(13)Mehta S, Single M, Chawla A, Agarwa A. Pattern of ocular diseases in children attending out patient department of a rural medical college in central India. Int J Scientific Study 2015; 3(6): 57-60.

(14)Ebeigbe JA, Emedike CM. Parents' awareness and perception of children's eye diseases in Nigeria. J Optometry 2017; 10(2): 104-110.

(15)Adio AO, Komolafe RD. The state of pediatric eye care in Nigeria: A situational Review. The Niger Health J 2013; 13(1): 1-5

(16)Oladigbolu K, Chinda D, Abah ER, Anyebe EE. Pattern of eye disease in a university health service clinic in northern Nigeria. Niger J Med 2013; 21(3): 334-337.

(17)Okoye O, Umeh RE, Ezepue FU. Prevalence of eye diseases among school children in a rural south-eastern Nigerian community. Rural Remote Heath 2013; 13(13): 235-237.

(18)Ukponmwan CU. Pattern of ocular morbidity in Nigeria. Asian Pac J Trop Dis 2013; 3(2): 164-166.

(19)Ajaiyeoba AI, Isawumi MA, Adeoye AO, Oluleye TS. Prevalence and causes of eye diseases among students in south-western Nigeira. Ann Afr Med 2006; 514): 197-203.

(20)Ezegwi I, Onwasigwe EN. Pattern of eye disease in children at Abakiliki, Nigeira. Int J Ophthalmol 2005; 5:1128-1130.

(21)Mehari ZA. Pattern of childhood ocular morbidity in rural eye hospital, Central Ethiopia. BMC Ophthalmol 2014; 14:50

(22)Achigbu EO, Oguego NC, Achigbu K. Spectrum of eye disorders seen in a paediatric eye clinic, south eastern Nigeria. Niger J Surg 2017; 23(2): 125-129.

(23)Onakpoya OH, Adeoye AO. Childhood eye disease in south western Nigeria: A tertiary hospital study. Clinics 2009; 64(10): 947-951.

(24)Ayanniyi A, Mahmood AO, Olatunji FO. Causes and prevalence of ocular morbidity among primary school children in Ilorin, Nigeira. Niger J Clin Pract 2010; 13(3): 248-253.

(25) Abah ER, Oladigbolu KK, Samaila E, Gani-Ikilama A. Ocular disorders in children in Zaria children's school. Niger J Clin Pract 2011; 14(4): 473-476.

(26) Adhikari S, Shrestha U, Shrestha MK, Paudyal M, Thapa B. Environmental factors associated with ocular morbidity among children in three ecological regions of Nepal: a phase II Nepal paediatric ocular disease study. Int ophthalmol 2018; 38: 2313-2319.

(27) Adhikari S, Shrestha MK, Shrestha UD. Factors associated with childhood ocular morbidity in three ecological regions of Nepal: Nepal paediatric ocular disease study. BMC Ophthalmol 2014; 14: 125.

(28) Simon Medical foundation. Child Eye Health in Africa. Available @:www.simonmedfoundaion.com Accessed on: 7/3/2020.

(29) WHO. Vision 2020. Prevention of Blindness and visual impairment. Available @:http://www.who lint/partnership. Accessed on: 7/03/2020.

(30) WHO. Vision 2020. The right to sight. Global initiative for the elimination of avaoidable blindness. Active plan 2006-2011. Available @:whoint/blindness/vision.2020% report-pdf.

(31) Roa GN, Sabnam S, Pal S, Rizwan H, Thakur B, Pal A. Prevalence of ocular morbidity among children aged 17 years or younger in the eastern India. Clin Ophthalmol 2018; 12;1645-1652

(32) UNITED NATION: Sustainable Development Goals. Available @:www.Un.org>desa>envision 2030. Accessed on 14/3/2020.