

Eye Injuries Among Primary School Children in Enugu, Nigeria: Rural vs Urban

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ABSTRACT: A cross-sectional survey of the prevalence of eye injuries among primary school children in two noncontiguous local government areas of Enugu State of Nigeria was undertaken. One of the local government areas was urban, while the other one was rural. Children who were <15 years in two randomly selected primary schools in the urban area and three randomly selected schools in the rural area were interviewed and examined with Snellen chart, pen torch, head loupe, and direct ophthalmoscope. The findings were recorded using a semi-structured questionnaire and the World Health Organization Programme for Prevention of Blindness (WHO/PBL) eye examination form. Training on visual acuity measurement was done for each of the class teachers. A total of 1,236 children <15 years of age were studied and analyzed. Slightly more females, 652 (52.8%), than males, 584 (47.2%), constituted the sample population giving a female/male ratio of 1.1:1. A total of 98 (7.93%) children had evidence of injury to the eye or its adnexa. Eyelid scar was the commonest (5.34%) followed by eyebrow scar (2.10%). Canthal scar was the next (0.32%). Two girls had monocular blindness from eye trauma (0.16%). One had leucoma, while the other had a dislocated lens. All the monocular blind children of this study were from the urban area. The home was the commonest environment for an eye injury (69.39%) followed by the school (20.41%). The farm was next in frequency (7.14%), especially among boys in the rural area. The church and the road/street constituted the remainder. Regarding persons causing the injury, the child's playmate was the commonest (55.10%) followed by self (27.55%). Parents and guardians were the next (9.18%). These were injuries associated with corporal punishment. Corporal punishment-related eye injury, according to this study, appears to be common in the rural area and affects boys predominantly. Other human intermediary agents that cause an eye injury include passersby (2.04%), RTA (2.04%), siblings (2.04%), and others (1.02%). The primary agents that caused an eye injury were sticks/wood, 29 (29.60%); stone, 21 (21.43%); pieces of metal, 19 (19.39%); fall, 10 (10.20%); fight/fist blow, 9 (9.918%); plastic, 2 (2.04%); fingernails, 2 (2.04%); farm tools/fruits, 2 (2.04%); and RTA, glass, and headbutt, each 1.02%. Farm implements/fruits as well as fingernails appear to be fairly common primary agents that cause an eye injury in the rural Enugu, Nigeria. In terms of prevalence, there was no significant difference between the urban and rural areas. The findings from this study showed a high prevalence of eye injury among primary school children. In terms of treatment, 58.16% of the children with an eye injury had no form of treatment for it. The children from this study with monocular blindness did not receive adequate medical treatment. Treatment of an eye injury, according to this study, was sought from chemists (19.39%), at hospital/health centers (16.33%), at home (3.06%), and from traditional healers (3.06%). The persons who treated an eye injury, as observed from this study, were doctors (14.29%), nurses (4.08%), chemists (17.35%), and traditional healers and fathers (3.06% each). The frequency of noninjury-related diagnosis made in this study was refractive error, 4.85%; allergic conjunctivitis, 1.94%; oculocutaneous albinism, 0.24%; prepapillary vascular loops, 0.40%; and then ptosis, exotropia, sty, corneal opacity, and retinitis pigmentosa, 0.08% each. The annual incidence of an eye injury according to this study was 3.48%. The majority of the causes of an eye injury, as per this study, were preventable. Appropriate promotion of preventive eye care among children may go a long way in reducing the burden of blindness from eye injuries.

KEYWORDS: eye injuries, children

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Introduction

An injury is a damage/trauma to an individual or to an organ/tissue, eg, the eye, caused by the transfer of any form of energy. An eye injury, therefore, includes all damages caused to the eye and its adnexa because of direct contact with fixed or mobile,

blunt or sharp, or hot objects; chemical substances; sources of electrical power; or different types of radiations (ultraviolet rays, x-rays, microwave).¹

Eye injuries are responsible for a large fraction of disabling ocular morbidity that especially affect children <15 years.^{2,3}



The public health importance of such an eye injury is notable.⁴ Globally, approximately 1.6 million people are blind bilaterally owing to ocular trauma, 2.3 million have bilateral low vision, and 19 million have unilateral visual loss (visual acuity less than 6/60).⁵ The incidence of eye trauma appears to have a bimodal trend with peaks in the people aged 15–29 years and those over 70 years.⁶ This appears to coincide with the age of maximal youthful activity and the age of debility, respectively.

The rate of eye injuries varies depending on the population studied.^{7–14} It has already been noted that the number of children with eye injuries^{15–17} is disproportionate. Children constitute about 45% of the Nigerian population with the school age children (6–15 years), who are the focus of this study, representing 25–30% of the population.^{18,19} They are, thus, easily accessible for intervention and early assistance. The causes, costs, and visual outcomes of eye injuries vary according to location.^{5,15,20–23} Overall, the available literature on population-based eye injury studies in Nigeria – its prevalence and pattern – is scanty with a few, if any, referring to the rural areas.^{11–14} The Nigeria national blindness survey (2005–2007) studied children between the ages of 10 and 15 years, and adults more than 40 years of age, excluding the age group of 1–9 years. This excluded a significant population of school children who are at risk of an eye injury. The importance of this study stems from the fact that its primary focus is on eye injuries among primary school pupils (6–15 years).

Aim

The aim of this study was to determine the prevalence, common causes, and patterns of eye injuries among primary school children in Enugu, Nigeria. This study also explored the differences in the patterns of eye injuries between the urban and the rural areas among primary school pupils in order to explore the role of environment in an eye injury and to proffer a solution to the problem.

Objectives

The objectives of this study are as follows:

1. To determine the prevalence and types of eye injuries in primary school children in Enugu State.
2. To identify the common causes of these injuries among primary school children in Enugu State.
3. To determine if there are any environmental differences between the patterns of eye injuries among children in urban and rural areas in Enugu State, Nigeria.
4. To proffer a solution toward the prevention of ocular morbidity and mortality because of eye injuries in primary school children in Nigeria based on the above findings.

Subjects and Method

Study area. Enugu State is one of the states in the eastern part of Nigeria. It lies between 7°E–8°E and 6°N–7°N. It has

a land mass of 7,161 km². The state shares borders with Abia State and Imo State to the south, Ebonyi State to the east, Benue State to the northeast, Kogi State to the northwest, and Anambra State to the west.

Study population. Enugu State has a population of 3,257,298 people (1,624,202 males and 1,633,096 females) according to the 2006 census. More than 70% of these people live in the rural areas of the state. In all, 60–70% of the populations are children less than 17 years. The Igbos are the major ethnic group in the state. The predominant religion in the state is Christianity (90%), but there are a sizable number of traditionalists as well as Muslims, making up about 5% each of the population. The major occupation of the people is farming. However, there are others who engage in trading. The civil servants are in minority.

Enugu East LGA has 59 public primary schools with a total school population of 19,037 (9,004 boys and 10,033 girls) pupils, while Nkanu West has 52 public primary schools with a total school population of 17,849 (8,881 boys and 8,968 girls) pupils.

Study design. This study was designed to determine the prevalence, pattern, and common causes of an eye injury among primary school pupils in Enugu State, Nigeria. It aims to find the environmental influences on an eye injury between the urban and rural areas.

The interview and eye examination was performed by the authors (all ophthalmologists) with assistance from two senior registrars in ophthalmology. All eye injuries were further confirmed by any of the authors.

Inclusion criteria. A school child from a randomly selected school aged between 6 and 15 years.

Exclusion criteria. A school pupil aged below 5 years or 16 years and above.

Although, all the pupils in each randomly selected school were examined, only those within the inclusion criteria were analyzed.

Subject selection. *Sample size.* Sample size was calculated using the formula:

$$n = z^2pq$$

$$d^2$$

$$d = \text{precision (degree of accuracy), } 0.02.$$

$$z = \text{confidence limit of the survey results, } 95\%.$$

Using the average of three studies, the Scotland study²⁴ ($P = 0.22$), the Kaduna study¹¹ ($P = 0.07$), and the pilot study for this work ($P = 0.056$).

$P =$ the proportion of target population with characteristics, 0.115.

$$q = (1 - P) = 0.885.$$

$$\text{The minimum sample size } n = (1.96)^2 (0.115) (0.885)$$

$$0.022$$

$$n = 980 \text{ (minimum sample size for this study).}$$

One local government from the three urban local governments was selected by ballot. Another noncontiguous rural local government area out of the 17 local government areas of the state was randomly selected by ballot. Refractions as well



as major eye abnormalities discovered in the study were not treated in the field of study. Enugu East local government area is urban, while Nkanu West local government area is rural.

Taking an average population of 293 pupils per school (total number of pupils in the two LGAs/number of schools in the two LGAs), ie, 32,553/111, three schools were randomly selected from each LGA by ballot. The first two schools were visited, and all pupils examined. Where the first two schools did not make up to a population of 500, the third school was also added and studied. Attempts were made to examine every child in each of the selected schools even by visiting each school more than once. All the pupils in the selected schools were interviewed and examined.

Ethics

For ethical purposes, this study was carefully explained in English and the local language to all the participants. Only those pupils who gave their voluntary assent were examined. A written consent was obtained from the head teachers of the schools, and from the parent or guardian in any case in which medication or treatment was given. Ethical clearance for the study was obtained from the Ethics Committee of the University of Nigeria Teaching Hospital, Enugu. The research was conducted in accordance with the Declaration of Helsinki.

Results

This study lasted for three months (February 8–April 30, 2010). The total number of subjects (pupils) were 1,263 primary school pupils. In all, 19 pupils were absent from the school for a period of at least two consecutive weeks of repeated visits. Out of the number of pupils who were absent, 11 were said to have changed school and 8 were absent because of unknown reasons. In all, 1,244 pupils were examined. However, eight pupils were more than 15 years of age and were excluded from the study. Therefore, 1,236 pupils qualified for data analysis.

Demographics

Using the recall memory of the pupils only, 229 (36.0%) of the pupils in the urban and 224 (37.3%) of pupils in the rural area admitted to having had at least one episode of an eye injury.

Annual incidence of an eye injury from this study was 3.48% ($43/1,236 \times 100$). In all, 46 teachers and 5 teacher's relations had their eyes examined in this study.

Discussion

This study on the prevalence of an eye injury among 1,236 primary school children in Enugu, Nigeria, showed more females, 652 (52.8%), than males, 584 (47.2%), in the sampled population. Children who admitted to at least one episode of an eye injury by questionnaire were 36.7%. The inference from this was that of a high prevalence of probably minor eye trauma among these children. The annual incidence of 3.48% may not be the true picture as most eye injuries were

not reported either because they were minor or because they were forgotten.

The prevalence of an eye injury among the primary school children obtained in this study was 7.93% (Table 5) but 0.16% when only blinding injuries were considered. There was no significant difference in terms of prevalence of an eye injury between the urban (4.45%) and the rural (3.47%) population studied (P -value 0.68). This differed from the Ilorin¹³ study that showed a prevalence of 0.80%, which may be accounted for by the fact that eyelid scars may not have been part of the eye injury diagnosis in the Ilorin study. However, when only blinding injuries were considered, the prevalence was similar: 0.22% in the Ilorin study and 0.16% in the present study.

This study differed from the Kaduna¹² study, which has an average prevalence of 1.8% and was more than 20 years older; hence, the trend of an eye injury in the primary school pupils in Nigeria may have changed. The annual incidence rate of 3.48% obtained in this study was also high (Table 1). This was significant considering the fact that what may be considered a minor eye injury may have lifelong visual consequences such as retinal detachment and angle recession glaucoma.

A striking similarity between this study and the Ilorin¹³ study was the fact that all the children blind from injury were females. Whereas the Ilorin study was only in the urban area, this study showed that blinding eye trauma was in the urban area only (Table 5). This may imply that eye injuries in the urban areas may be more severe, especially for the girl child, than in the rural areas, or there may be more attendant complications following eye trauma in the urban areas among primary school children. This was also similar to the study in Oman⁹ with the prevalence of visual impairment/blindness 0.19%. Binocular single vision aids depth appreciation; hence, children with monocular blindness or visual impairment as well as a normal child will not have visual appreciation and development.²³ It was difficult to compare this study with most other studies on eye injuries, most probably, because similar studies carried out on this subject were hospital based. However, female preponderance in the urban area was noted here, contrary to many other studies.^{4,24–31} It may be as a result of the larger population of the girl child in school enrollment. The rural setting, however, showed male preponderance. The male preponderance is usually attributable to their being more adventurous and their involvement in risky behaviors/plays.³⁰

Table 1. Time of an eye injury occurrence at the time of the study.

TIME OF INJURY	URBAN		RURAL		TOTAL
	BOYS	GIRLS	BOYS	GIRLS	
<1 YEAR	11	14	11	7	43 (43.88%)
>1 YEAR	11	19	15	10	55 (56.12%)
TOTAL	22	33	26	17	98 (100%)

**Table 2.** Age group distribution of the pupils, urban vs rural.

AGE GROUP	URBAN N = 636 (51%)		RURAL N = 600 (49%)		TOTAL (%) 1236 (100%)
	MALE (%)	FEMALE (%)	MALE (%)	FEMALE (%)	
6–10 years	165 (13.3)	222 (18.0)	196 (15.9)	207 (16.7)	790 (64)
11–15 years	115 (9.3)	134 (10.8)	108 (8.7)	89 (7.2)	446 (36)
TOTAL	280 (22.7)	356 (28.8)	304 (24.6)	296 (24.0)	1236 (100)

In proportion to the population studied (Tables 2–5), the girl child in the urban area appeared to have twice the prevalence of an eye injury (9.27%) when compared with her counterpart in the rural area (5.74%) with *P*-value 0.036. This is statistically significant. This may be because of a relative high exposure of the girls in the city to violence or wild plays in relation to her rural counterpart. Culture and societal expectation of the girl child in the rural setting usually makes her more of a homekeeper, negating wild plays or violence. However, for the boys, there is no significant difference (*P*-value 1.00). The boy child in the rural area is expected to take risks for himself and the society at large making him more prone to injuries.

Considering the environment at the time of injury (Table 6), this study showed the home as the commonest place where eye injuries occurred, constituting 69.39% of places where they occur. This was in keeping with many previous studies^{13,20,21,26,32} where plays at home, usually unsupervised, constituted a risk factor for an eye injury among children. This may possibly be because of the fact that children spend most of their time at home and usually get involved in unsupervised

activities. This finding infers that the activity of any child in the home should be made as safe as possible and most effectively supervised by an adult. Changes in work practice and lifestyle have been noted to affect the rate of eye injuries³³; therefore, parents and guardians should change their attitude toward childcare especially at play.

The school environment as a place of injury was fairly common, constituting 20.4% (Table 6) of the places for an eye injury. This was similar to other studies.^{3,13,32,34} The teachers, therefore, should be made to know the activities in the school (ie, unsupervised plays) that result in an eye injury.

The farm (7.14%) also appeared to be a significant place where eye injuries occur. This was similar to other studies done at India²¹ and Nigeria.³⁰ The significant finding in this study was that the farm was a fairly common place for an eye injury to occur in a boy child in the rural area (Table 6). Farming is the major economic activity in most rural areas in Nigeria, and children are not exempt. A danger of injuring the eye in a farm is the high risk of it being caused by vegetable matter, which consequently predisposes the eye to fungal infection. Fungal infections of the eye are costly and difficult to treat. Children

Table 3. Unaided visual acuity of the pupils' eyes.

VISUAL ACUITY	URBAN (%)	RURAL (%)	TOTAL (%)
Right eye			
6/6–6/9	621 (50.2)	594 (48.1)	1215 (98.3)
6/12–6/18	11 (0.9)	2 (0.2)	13 (1.1)
<6/18–6/60	2 (0.2)	4 (0.3)	6 (0.5)
<6/60–3/60	0 (0.0)	0 (0.0)	0 (0.0)
<3/60–1/60	0 (0.0)	0 (0.0)	0 (0.0)
<1/60–PL	2 (0.2)	0 (0.0)	2 (0.2)
Left eye			
6/6–6/9	624 (50.5)	590 (47.3)	1214 (98.2)
6/12–6/18	6 (0.5)	8 (0.6)	14 (1.1)
<6/18–6/60	3 (0.2)	2 (0.16)	5 (0.4)
<6/60–3/60	0 (0.00)	0 (0.00)	0 (0.00)
<3/60–1/60	0 (0.00)	0 (0.00)	0 (0.00)
<1/60–PL	1 (0.08)	0 (0.00)	1 (0.00)
NPL	2 (0.16)	0 (0.00)	2 (0.16)
TOTAL	636 (51.5)	600 (48.5)	1236 (100)

Table 4. Frequency of noninjury-related diagnosis in the pupils' eyes.

	URBAN		RURAL		TOTAL (%)
	BOYS	GIRLS	BOYS	GIRLS	
Normal	223	285	246	252	1006 (81.4)
Anterior segment					
Refractive error	13	18	14	15	60 (4.85)
Allergic conjunctivitis	8	6	5	5	24 (1.94)
Ptosis	0	1	0	0	1 (0.08)
Oculocutaneous albinism	0	2	1	0	3 (0.24)
Alternating Exotropia	1	0	0	0	1 (0.08)
Stye	1	0	0	0	1 (0.08)
Congenital					
Corneal opacity	0	0	0	1	1 (0.08)
Lid scar? Cause	5	4	4	4	17 (1.38)
Posterior segment					
Retinitis pigmentosa	0	1	0	0	1 (0.08)
Prepapillary vascular loops	3	1	1	0	5 (0.40)

**Table 5.** Frequency of eye injury-related diagnosis.

DIAGNOSIS	URBAN		RURAL		TOTAL (%)
	BOYS (%)	GIRLS (%)	BOYS (%)	GIRLS (%)	
Lid scar	14 (1.13)	21 (1.70)	20 (1.61)	11 (0.89)	66 (5.34)
Brow scar	8 (0.65)	9 (0.73)	6 (0.32)	3 (0.24)	26 (2.10)
Canthal scar	0 (0.00)	1 (0.08)	0 (0.00)	3 (0.24)	4 (0.32)
Leucoma	0 (0.00)	1 (0.08)	0 (0.00)	0 (0.00)	1 (0.08)
Dislocated lens	0 (0.00)	1 (0.08)	0 (0.00)	0 (0.00)	1 (0.08)
Total	22 (1.78)	33 (2.67)	26 (2.10)	17 (1.37)	98 (7.93)

should, therefore, be trained on safe farming practices, especially in relation to eye health. The church, the market, and the road made up the other environments where eye injuries are caused.

Playmates caused more than half (Table 6) of the eye injuries, and approximately one-third of the injuries were self-inflicted. The self-inflicted eye injuries were mainly as a result of falls or plays with objects capable of injuring the child. This was similar to the finding in Finland.³⁵ Child eye health, therefore, needs to be emphasized in the formation of school health curriculum.

Corporal punishment/assault from parents and guardians (Table 6) constituted 9.18% of the causes of injury. This unfortunate method of inflicting injury in this study appeared to be more common in the rural area (Table 6). This was also reported in studies at Gambia³⁶ (25.9%) and Nigeria (24.9–30.3%).^{13,37,38} It is a culture that needs to

be curtailed through public health education, advocacy, and/or legislation. The Child Right Act, which prohibits corporal punishment for children, was adopted in Nigeria in 2003. It belongs to the residual legislative list such that it needs to adapt to the peculiarities of the individual states.

Sticks and stones accounted for 51.03% of the cause of eye injuries, according to this study (Table 7). This also has been reported in some studies.^{21,29} They are commonly available in the environment, but teaching the children how to avoid injuries from them is possible. Toys and explosives did not appear to be important objects of injury in this study as conducted in developed countries.

Farm tools/fruits appear to be objects that cause eye injuries, especially, in the rural area. Farm implements as objects that cause eye injuries, according to this study, were localized to the rural setting and involved only eye injuries in boys. The children in the rural areas should be educated on how to avoid eye injuries from them.

The majority of the children (58.16%) in this study (Table 8) who had an eye injury had received inadequate or no form of treatment. The public should be educated on the appropriate place of treatment when the eye is involved in any injury.

The limitations of this study include the fact that some basic equipment for proper ophthalmologic diagnosis, eg, slit lamp microscope and gonioscope, were not used. These instruments, if used, could have made the study more detailed. It is a cross-sectional survey; thus, some injuries with no permanent consequence could have been missed. Recall memory of the children was also a limitation.

This study shows primary school children to be at increased risk of an eye injury. Preventive measure appears to be the most effective method of curtailing the damage.^{21,32,39–41} Children should be educated not to take unnecessary risks at play and to avoid the use of dangerous objects, eg, stones, sticks, or pieces of metals during play.⁴² The government and the community, in general, should ensure adequate education of the parents, caregivers, and the society on child eye health. This can be instituted via the mass media, schools, organized campaigns, and community-level participation.^{4,29} This education should be initiated by the government at the

Table 6. Environment of injury and persons causing injury in children.

ENVIRONMENT OF INJURY AND PERSONS CAUSING INJURY	URBAN		RURAL		TOTAL (%)
	BOYS	GIRLS	BOYS	GIRLS	
Environment					
Home	13	27	18	10	68 (69.39)
School	6	4	7	3	20 (20.41)
Farm	0	2	1	4	7 (7.14)
Church	2	0	0	0	2 (2.04)
Road/street	1	0	0	0	1 (1.02)
Persons					
Playmate	15	17	14	8	54 (55.10)
Self	5	12	6	4	27 (27.55)
Parents	0	2	2	1	5 (5.10)
Guardian	0	2	1	1	4 (4.08)
Passerby	1	0	0	2	3 (3.06)
RTA	1	0	1	0	2 (2.04)
Sibling	0	0	1	1	2 (2.04)
Others	0	0	1	0	1 (1.02)

Table 7. Frequency of primary agents of an eye injury (percentage of the frequency to those with an eye injury).

AGENTS OF INJURY	URBAN		RURAL		TOTAL (%)
	BOYS (%)	GIRLS (%)	BOYS (%)	GIRLS (%)	
Stick/wood	3 (3.61)	14 (14.29)	7 (7.14)	5 (5.10)	29 (29.60)
Stone	3 (3.61)	6 (6.12)	7 (7.14)	5 (5.10)	21 (21.43)
Pieces of metal	7 (7.14)	9 (9.18)	0 (0.00)	3 (3.61)	19 (19.39)
Fall	3 (3.61)	2 (2.04)	3 (3.61)	2 (2.04)	10 (10.20)
Fist	2 (2.04)	1 (1.02)	4 (4.08)	2 (2.04)	9 (9.18)
Plastic	1 (1.02)	1 (1.02)	0 (0.00)	0 (0.00)	2 (2.04)
Finger nails	0 (0.00)	0 (0.00)	2 (2.04)	0 (0.00)	2 (2.04)
Farm tools/fruits	0 (0.00)	0 (0.00)	2 (2.04)	0 (0.00)	2 (2.04)
RTA	1 (1.02)	0 (0.00)	0 (0.00)	0 (0.00)	1 (1.02)
Glass	1 (1.02)	0 (0.00)	0 (0.00)	0 (0.00)	1 (1.02)
Head butt	0 (0.00)	0 (0.00)	1 (1.02)	0 (0.00)	1 (1.02)
Others	1 (1.02)	0 (0.00)	0 (0.00)	0 (0.00)	1 (1.02)
TOTAL	22 (22.45)	33 (33.67)	26 (26.53)	17 (17.35)	98 (100)

federal level, and then through the state and down to the LGAs. Sustenance and ownership of the school health programs should be by the communities. Whereas there were many health care facilities within the area of this study, few of them were adequately equipped to manage eye injuries. There is, therefore, need to train the existing health workforce within the community to recognize an eye injury early and to make timely referrals as necessary. Early and appropriate treatment should also be emphasized for any child with an eye injury⁴³ as treatment sought from places other than eye clinics or hospital constitute a risk factor for poor visual outcome.^{44,45}

Although this work focused primarily on eye injuries among primary school pupils in Enugu, Nigeria, the percentage of other common ocular morbidities, eg, refractive errors, allergic conjunctivitis, and amblyopia, (Table 8) correlates with other studies among primary school children done in southeastern Nigeria.^{17,19,46}

This study conducted among primary school children aged between 6 and 15 years in two LGAs of Enugu State showed the prevalence of an eye injury to be 7.93%. The commonest environments for an eye injury in children according to this study were home and the school. The playmate, self, and adults (parents and guardians) constituted the most common

Table 8. Frequency of places where treatment was sought and persons who treated an eye injury (percentage to the number of children with an eye injury).

PLACES OF TREATMENT OF EYE INJURY AND PERSONS WHO TREATED EYE INJURY	URBAN		RURAL		TOTAL (%)
	BOYS	GIRLS	BOYS	GIRLS	
Place of treatment					
No treatment	6	22	16	13	57 (58.16)
Chemist	8	4	7	0	19 (19.39)
Hospital/health centre	6	5	3	2	16 (16.33)
Home	1	1	0	1	3 (3.06)
Traditional healer	1	1	0	1	3 (3.06)
Persons who treated eye injury					
No treatment	6	22	16	13	57 (58.16)
Doctor	6	3	3	2	14 (14.29)
Nurse	2	2	0	0	4 (4.08)
Chemist	6	4	7	0	17 (17.35)
Traditional healer	1	1	0	1	3 (3.06)
Father	1	1	0	1	3 (3.06)
Total (%)	22 (22.45)	33(33.67)	26 (26.53)	17(17.35)	98 (100)



intermediary agents of an eye injury. Play either at home or in the school constituted the commonest activity at the time of an eye injury. Sticks and stones at play were the commonest objects that cause eye injuries. Education of the population remains a vital tool in the prevention and appropriate management of an eye injury.

Author Contributions

Conceived and designed the study: NEO. Analyzed the data: NEO, REU, ENO. Contributed to the writing of the manuscript: NEO, REU, ENO. Agree with manuscript results and conclusions: NEO, REU, ENO. Jointly developed the structure and arguments for the paper: NEO, REU, ENO. Made critical revisions and approved final version: NEO, REU, ENO. All authors reviewed and approved of the final manuscript.

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