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An assessment of factors causing delays in presenting eye injuries to eye specialists among patients at Neshuro District hospital.

BY

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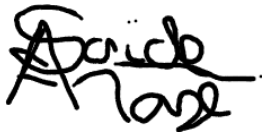
DECLARATION

I Alexander Mavhunduse, B1438721 do hereby declare that this research represents my work and has not been written for me or published by others for any degree program or publications. All the materials used in this study have been fully acknowledged and cited accordingly in the study as will be shown in the reference and appendices at the end of the research study.



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APPROVAL FORM

The undersigned strongly certify that they have read and made recommendations to the Bindura University of Science Education for acceptance of a research project entitled: *An assessment of factors causing delays in presenting eye injuries to eye specialists among patients at Neshuro District hospital.* The project was submitted in partial fulfilment of the requirements of Bachelor of Science Honours Degree in Nursing Science and Education.

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The undersigned certify that the dissertation meets the preparation guidelines as presented in the faculty guide and instruction for typing dissertations.

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This dissertation is suitable for submission to the faculty and was checked for conformity with the faculty guidelines

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I certify that to the best of my knowledge; the required procedures have been followed and the preparation criteria have been met for this dissertation.

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A. MANWERE

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Dedication

I dedicate this work to my family with special mention to my son Sheunesu Alexis for the patience of going periods without his father during the course of my studies. I love you.

ABSTRACT

Globally, eye injuries are a major cause of avoidable acquired blindness especially among young adults. The study sought to find out the causes of delays in presenting eye injuries to eye specialists in patients seen at Neshuro District hospital after twenty-four hours of injury. The study employed mixed methods approach. Eighty participants were selected and data was collected using a questionnaire then presented using tables and narrative data analysis was employed. Participants experiences, practices and beliefs towards eye injuries was gathered and this provided the researcher a deeper understanding of their experiences.

The study revealed that majority of patients, 90% were attended to first by non –ophthalmic trained personnel. Among the sampled patients, 80% presented at a primary health centre within 24 hours of injury but were referred late to eye specialists, while 90% using public or private transport. The majority 85% of patients were referred to eye specialists from the primary health care centres they visited after injury and none of them arrived within 24 hours after injury at Neshuro District hospital.

The researcher concluded that most patients sustaining eye injuries delay accessing specialist eye care due to delayed referral and poor referral systems from primary health care centres increasing risk of complications resulting in poor visual outcomes or eventually complete loss of vision which may be avoidable if eye injuries are treated with the urgency they deserve.

The study recommended decentralisation of eye care services down to primary health care centres for prompt and correct management of eye injuries and early referral to prevent complications and improve visual outcomes. Non- Ophthalmic trained health care workers should be educated on the management of eye injuries to equip them for practice outside specialist eye care settings. Eye injuries should be treated with the same urgency as other cases such as maternity cases and referred by an ambulance to reduce the interval between injury and treatment to achieve better visual outcomes. The public should be educated about various eye conditions including eye injuries via public media. Information, education and communication (IEC) material should be distributed widely in schools, communities, public places, workplaces and all health care institutions to create public awareness. Aggressive health education should be instituted aimed at preventing eye injuries and encouraging early treatment. A recommendation for further studies beyond Neshuro district level was also given

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CHAPTER 1

1.1 Introduction

Eye injuries are a major cause of avoidable acquired blindness globally especially among young adults (Centre for Child Health, 2019). These injuries tend to be more severe in children as they have a prominent globe and immature protective structures of the bony orbit, nose and brow (Centre for Child Health, 2019). Evidence points out that there are often delays in patient presentation and transfer of patients from outlying hospitals and clinics despite their urgent nature resulting in poor visual outcomes (du Toit *et al.,* 2014).

Injuries to the eye can cause severe damage because of the delicate structure of ocular tissues. Such injuries may often cause impaired vision or sometimes total loss of vision, in addition to other incapacities. Traumatic blindness therefore assumes an unusual socio-economic dimension. Worldwide, around 55 million eye injuries take place each year, leading to vision loss in approximately 23 million people, with about 750,000 cases requiring hospital care (The World Health Organization's (WHO) Blindness Data Bank, 2019).

Sub Saharan Africa accounts for about 16 million of those eye injuries and these injuries have their own peculiarities regarding etiology, severity and management there is a high incidence due to limited access to healthcare and unsafe eye care practices. There is also high rural urban disparities with higher incidence in rural set up due to increased exposure to hazards (Jaggernath *et al.*, 2014).

In Zimbabwe, the causes of blindness according to the Zimbabwe National Eye Health Strategy (2014 to 2018) are congenital cataracts, glaucoma, eye trauma, measles and retinoblastoma (Zimbabwe Ministry of Health and Childcare, 2014). Accordingly, the underlying factors include among others limited access to healthcare, lack of trained personnel, poverty and the effects of HIV.

Mwenezi District is situated in the south eastern part of Masvingo Province and according to the 2022 national census, has a total catchment area population of 209327 people (Zimstat, 2022). As a district within Zimbabwe, it has its fair share of eye conditions which precipitate to poor vision and some proceed to cause monocular or bilateral visual loss.

In this chapter, the background of the study, eye injury classifications, causes of eye injuries, management of eye injuries, complications and prevention of eye injuries will be discussed. The statement of the problem, purpose of study , broad and specific objectives, the research question, the significance of the study as well as definitions of terms are also discussed.

1.2 Background of the study

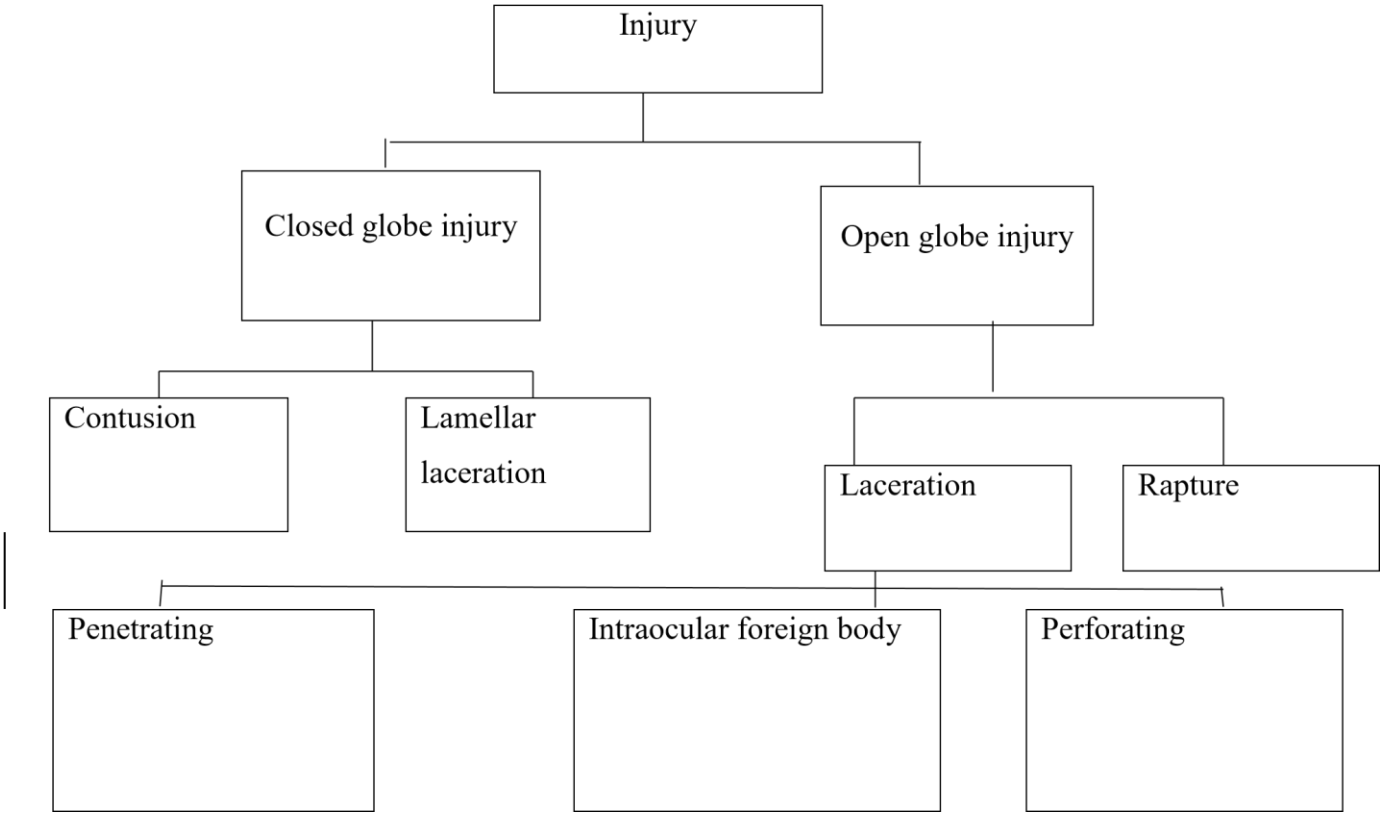
An eye injury is a physical damage that results when a human eye is subjected to energy in amounts exceeding the threshold of physiological tolerance. The energy can be mechanical, chemical, thermal or radiated (W.H.O., 2008).

In this study, eye injuries have been discussed under the following subheadings:

- Classification of eye injuries
- Causes of eye injuries and settings in which they occur
- Management of eye injuries
- Complications of eye injuries
- Prevention of eye injuries

1.2.1 Classification of eye injuries

According to the International Society of Ocular Trauma of the United States Eye Injury Registry, eye injuries are classified using the Birmingham Eye Trauma Terminology (BETT) system as illustrated in the diagram below.



(Merca and Valbuena, 2014)

1.2.1.1 Closed globe injury

This is one in which the eyeball, that is, the sclera and cornea does not have a full thickness wound but there is intraocular damage and includes contusion and lamellar (Khurana, 2007).

1.2.1.2 Open globe injury

This is associated with a full thickness wound of the sclera or cornea or both and includes rupture and laceration of the eye wall (Khurana, 2007). Laceration can be penetrating or perforating with retention of intraocular foreign body.

1.2.2 Causes of eye injuries and settings in which they occur

Domestic eye injuries

Most eye injuries especially in children occur in the home environment and are caused by everyday household objects such as in kitchen. They can be caused by laceration items, furniture and elastic luggage straps as well as household cleaning agents and adhesives (Hoskin, 2014).

Games and sports

Sports related eye injuries including orbital detachment and corneal abrasion are most common in sporting participants, in whom the risk of collision or strikes from balls or bats are common. These include cricket and baseball. Risk of injury is even higher during participation in competitive sports.

Motor vehicle accidents

These are associated with considerable eye injuries due to motor vehicle crashes. They become frequent where people do not clip or buckle on safety belts whereby in head on collision, the person may be thrown out or glass shutters cutting the face of occupants and at times eyes are not spared.

Fireworks injuries

Fireworks are often associated with catastrophic injuries which include burns, collision, and globe ruptures. These are more common during festive season or other funny filled social events where fire crackers lace up the events towards the end.

Work related eye injuries

These include chemical eye injuries. A chemical burn occurs when any type of chemical enters the eye and may cause permanent vision loss if not managed promptly and appropriately. Randleman *et al*. (2009) stated that chemical injuries account for around 7% of work-related eye injuries. They also stated that over 60% of chemical injuries occur in the workplace, 30% at home and 10% as a result of assault (Khodabukus and Tallouzi, 2009). Damage to the cornea may occur while welding or grinding without goggles.

Eye injuries during play

Causative agents of eye injuries in children include sticks, wire, glass, thorns, stones, pens and nails during play. Injuries can both be self-inflicted or inflicted by another playmate(s) and usually occur in the absence of a caregiver (Grieshaber and Steymann, 2005).

1.2.3 Management of eye injuries

a) Corneal abrasions

Corneal foreign bodies can be removed after instillation of adequate topical anesthesia under magnification and with good illumination. Epithelial defects can be visualised using blue light after staining with fluorescein. Eye padding for twenty-four hours after instillation of topical antibiotic ointment enables regeneration of epithelial tissue.

b) Penetrating eye injury

This is an example of open globe injury and it is an emergency requiring urgent referral after application of an eye shield. Patient is given systemic antibiotics and tetanus toxoid while awaiting repair of the wound.

c) Globe rupture

This is a full thickness wound of the eye wall from a blunt injury. Eye is filled with incompressible fluid and the impact causes sufficient pressure to rupture the eye at its weakest point by an inside out mechanism. Rupture is usually at the site of impact or where there is a corneal or scleral weakness. An eye shield is applied and patient referred for surgical exploration and repair.

d) Lid and canalicular lacerations

Simple lacerations require suturing while septic ones require thorough cleaning and systemic antibiotics. Lid margin lacerations and canalicular injuries require specialist attention and should be referred as quickly as possible.

e) Hemorrhage

Bleeding in the eye can take up numerous forms and these are ecchymosis, hyphema or subconjunctival hemorrhage.

Ecchymosis is skin discoloration caused by bleeding underneath the skin like in the eye lids. This is managed conservatively.

Hyphema is layering of red blood cells in the anterior chamber from a bleed. If severe and there is delay in referring the patient, secondary open angle glaucoma or permanent staining of the cornea rendering patient blind. Patient is given Timolol 0.5% to prevent secondary glaucoma. Anterior chamber washout is also indicated.

f) Lens damage

Subluxation or even discoloration may occur. Blunt and perforating eye trauma may result in cataract formation which requires extraction.

g) Orbital injuries

Blow out fractures need urgent specialist attention as these require immediate repair**.**

h) Burns in the eye

Thermal, chemical, radiation and fire as in epileptics can cause burns in the eyes. The mainstay of treatment is to prevent adhesions. Antibiotic ointment is instilled to keep cornea from drying. Profuse eye irrigation with clean water after instilling local anesthetic drops. Irrigation should continue for at least fifteen minutes with patient lying flat, after which examination is done after fluorescein staining to exclude ulceration (Scott, 2011).

I) Corneal foreign bodies

These can be mild to severe foreign bodies. Mild foreign bodies can be as a result of insects lodging in the fornixes of the eye lid. These can be managed by eversion of eye lid and removal of foreign body with a tip of cotton bud dipped in anesthetic solution or by a needle.

Severe foreign bodies are those that enter the cornea and some lodge in the vitreous body. These require removal by pars plana vitrectomy as an emergency. Systemic antibiotics should be initiated to prevent endophthalmitis. Tetanus toxoid is also administered.

j) Retinal detachment

These require surgical management with retinopexy for retinal tears and vitrectomy, internal tamponade and buckling for retinal detachment.

1.2.4 Complications of eye injuries

- Retro bulbar hemorrhage may occur resulting in compression of the optic nerve leading to ischaemia and blindness.
- Endophthalmitis, which is due to direct invasion by microorganisms in penetrating ocular trauma.
- Intraocular hemorrhage can lead to hyphema which may cause secondary open angle glaucoma and corneal staining.
- Retinal hemorrhages and detachment and globe rupture may result from blunt trauma.
- Optic nerve damage may occur usually in association with orbital fractures.
- Opacification of the refractive surface may occur due to corneal ulceration and cataract formation.

1.2.5 Prevention of eye injuries

The use of eye protective devices reduce the number and degree of eye injuries in sports and occupational circles. In the home, potentially hazardous agents should be kept out of reach of children and toys should be user friendly and age apportioned. Children also require close monitoring and supervision at play. Above all, health education promotes awareness to the public on eye protection and what to do in case of an eye injury. This education may include the following:

- Educating children from pre-scholars about objects, events and actions that can cause eye injuries and urge them to avoid such.
- Education of parents especially mothers who are first line care givers at home.

- Creating awareness regarding eye injuries at group level.
- Creating awareness through general public media and social platforms.
- Advocating for policy makers to reinforce and introduce policies which help to prevent eye injuries such as health and safety at work places and even banning use of fire crackers by minors.

1.3 Statement of the problem

Although epidemiological data on ophthalmic trauma is limited, globally, an estimated 55 million people experience eye injuries each year, with 1,6 million developing blindness, 2,3 million developing bilateral low vision and almost 19 million developing unilateral blindness or low vision (W.H.O., 2019).

Mwenezi is a rural district of Zimbabwe in Masvingo province with a population of 209327 people (Zimstat, 2022).

In 2022, a total of 4571 people with various eye conditions were seen in the district out of which 319 (7 %) were eye injuries varying from minor to serious. Mwenezi District as a whole has one ophthalmic nurse stationed at Neshuro District hospital and an Ophthalmologist who visits the district once a year from Morgenster Mission hospital which is about 350 kilometres from the furthest area in the district. Unpublished statistics indicate that middle aged men were mostly affected by eye injuries and a significant number ended up with complications like permanent uni or bilateral visual loss by eye surgical removal (exenteration, enucleation or evisceration). Economically people in Mwenezi rely on commodities brought in from South Africa as most young men ply their trade in the neighboring country. Eye injuries have left some young families broken down as breadwinners are incapacitated and cannot provide for the family. Blind people need a sighted guide to look after them and accordingly this has created dependence syndrome and has led to school drop outs to care for blind parents.

Advanced surgical procedures in the management of complicated eye injuries are very expensive and are only offered either in Harare or Bulawayo of which the majority of the people in Mwenezi cannot afford leading to visual compromise.

Educational campaigns were done to conscientise people on the dangers of eye trauma and consequences of delayed management. Despite the campaigns, complications of eye injuries are on the increase and are linked to delayed interventions.

Reasons for late presentation to eye specialists have not yet been established and have made the researcher to undertake this study.

1.4 Purpose of the study

The purpose of the study was to assess factors causing delays in presenting eye injuries to eye specialists among patients at Neshuro District hospital.

1.5 Objectives of the study

Broad objective-

To determine primary care treatment given to patients and the causes of presenting eye injuries to eye specialists after twenty-four hours of injury by patients seen at Neshuro District hospital Outpatient department in 2024.

Specific Objectives

1. To determine treatment given to patients with eye injuries at primary levels of care before referral to Neshuro District hospital eye unit in 2024.
2. To estimate the mean time interval between injury, referral and presentation at Neshuro District hospital of patients with eye injuries in 2024.
3. To identify causes of delays in presentation of patients with eye injuries to eye specialists in 2024.

1.6 Research questions

Main research question

What are the causes for delays in presenting eye injuries to eye specialists beyond twenty-four hours of injury among patients at Neshuro District hospital?

Specific questions

1. How are eye injuries managed at primary levels of care before referral to Neshuro District hospital?

2. What is the probable time interval between injury and presentation at Neshuro District hospital?

3. What are the causes of patients delaying presentation with eye injuries to eye specialists?

1.7 Significance of the study

Unearthing the treatment given at first level of care and reasons for late presentation, recommendations and readiress would not only benefit the patients but would also improve the economic and social status of the community of Mwenezi District as a whole and also reduce the government's burden on social welfare and responsibilities targeted to people blinded by preventable blindness. Those resources would be redirected towards other developmental projects. The findings and recommendations would also be useful in other parts of the country to reduce chances of avoidable blindness therefore contributing to the global vision of preventing all preventable eye conditions.

1.8 Definition **of terms**

Eye injury

This is a physical damage that results when a human eye is subjected to energy in amounts exceeding the threshold of physiological tolerance. The energy can be mechanical, chemical, thermal or radiated (W.H.O., 2008).

Perforation

This is a through and through injury involving two full thickness lacerations caused by the same object (Tsai *et al.,* 2011).

Hyphema

This is blood in the anterior chamber mostly seen in the context of blunt trauma (Tsai *et al.*, 2011).

Contusion

This involves bruising and swelling which may cause structural changes in the shape of the globe such as angle recession (J.C.E.H., 2015).

Rupture

An injury caused by a blunt object impact which produces an inside-out force that ruptures the eyeball at its weakest point and can result in tissue herniation (J.C.E.H., 2015).

Penetrating eye injury

A single laceration by a sharp object with only one entrance wound (J.C.E.H., 2015).

Conclusion

In conclusion, this chapter presented overall description of eye injuries and circumstances in which they occur. The major worry was not why they occur but why they delay in reporting to hospital as delays have unpleasant outcomes. The statement of the problem was outlined and supported by statistics. Study objectives, questions and justification were also stated.

Chapter 2

LITERATURE REVIEW

2.0 Introduction

Literature review is a process that involves review of relevant literature to gain a broad background or understanding of the information that is available related to a problem (Burns & Groove, 2011). This chapter focuses on the analysis of the work done by other researchers to determine whether the management given at first level of care was prompt and also to determine the possible causes of delays in getting expert eye injury care by injured patients within 24 hours of injury. It also looks at the relevant information pertaining eye injuries, the short comings or pit falls and recommendations made It is therefore against the back drop that the review was done in relation to consequences of late presentation of eye injuries for specialist eye care.

In India, 217 children (all children had one eye injured except one with both eyes injured) were enrolled in a study with age range 4 months to 15 years (mean+/- SD 3.8+/- 2.3 years), Male: female ratio (2.08:1); mean time between injury to treatment (1 day +/-2.12 hours). Out of all, trauma occurred at home (45.65%, n=99), school (31.15%, n=68) and road traffic accidents (RTA) (23.18%, n=50). Most common modes of injury were from wooden stick, road traffic accidents, pencils/pens, broken eye glasses, cricket ball and fire crackers. Injuries were classified as open globe (41.935), adnexal (31.335) and closed globe (26.72 %) (Tejas, *et al.*, 2013).

The researchers concluded that most patients presented with a delay of 24 hours during which substantial damage was done. Thus, emphasizing the need to educate parents and to improve rural health care system to provide better facilities and a better transport system to reduce the duration between injury and treatment.

In rural Nepal, 525 cases of ocular injury were reported during period 1995 through 2000 with a mean age of 28 years. Using census data, the incidence of eye injuries was 0.65 per 1,000 males per year, and 0.38 per 1,000 females per year. The most common injuries were lacerations and blunt trauma, with the majority occurring at home or in the fields. Upon presentation to the clinic, 26.4% of patients had a best corrected visual acuity worse than 20/60 in the injured eye, while 9.6

% had visual acuity worse than 20/400. About 82 % were examined at follow up: 11.2% of patients had visual acuity worse than20/60 and 4.65% had vision worse than 20/400.A poor visual outcome was associated with increased age, care sought at a site other than the eye clinic and severe injury. Approximately 3% of patients were referred for further care at an eye Hospital at the initial visit, 7% had sought additional care in the interim between visits, with this subset representing a more severe spectrum of injuries (Khatry, *et al.*, 2004).

In a study to evaluate the epidemiological characteristics, the etiological factors, the type and severity of injury, visual outcome and prognostic factors of open globe injuries in children aged 16 years and below in Nigeria, 78 children were enrolled and statistically significantly greater number of males (n=51) sustained injury compared to females (n=27; $p<0.05$). The mean age of the study sample was 9.7+/-2.40 years (range, 1 year 2 months to 15 years 18 months). The age group that sustained injury most commonly was 6 years to 10 years. Left eyes were more likely to be affected, accounting for 53 (68%) cases. There were 54 % (n=42) of patients injured at home and 51% (n=400) was injured while playing. The most common injury (67.9% [n=24] eyes) was corneoscleral laceration. Only 30 % (n=23) of patients presented within the first 24 hours of the injury. About 38.5 % (n=30) of patients were visually impaired and 25.6% (n=20) patients were blind on presentation. Visual acuity at last follow up indicated that 39.7% (n=31) of patients were visually impaired and 39.7 %(n=31) were blind **(**Ojabo. *et al.,* 2015).

The findings in the aforementioned research shows that public health efforts towards preventing potential causes of ocular injury at home and at play grounds were made, it however did not look into causes of delays in reporting eye injuries.

Open globe injuries generally have a poor visual outcome. Some studies (Ojabo. *et al.,* 2015) have shown insignificant differences between prompt and delayed surgical interventions. As a result, a study was carried out in South Africa to determine the time lapsed from occurrence of eye injury to the time of surgical intervention and establish whether a delay in treatment affected visual outcomes in patients with open globe injuries.

Out of 249 open globe injuries attended to at Groote Schuur Hospital in South Africa, only 169 of these completed their 3 months follow up. The mean time from injury to surgical treatment was 80.14 hours. The primary procedures were 175 (70.3%) repairs, 61 (24.5%) eviscerations and 13 (5.2%) others. There were no statistically significant differences in outcomes except in the zone 1 group with injury to treatment times of more than 72 hours with most delays occurring while waiting to get into theatre. All zone 1 cases that achieved final visual acuity of 6/5-6/12 were operated within 72 hours ($p=0.022$). Six patients were diagnosed with endophthalmitis at the time of presentation and the risk increased with delays beyond 24 hours.

The mean time from injury to surgical treatment was 3.3 days for all cases (median 2.125 days). Surgical delays exceeding 72 hours were associated with poorer outcomes exclusively in cases of Zone 1 injuries. These corneal injuries usually have better prognoses and thus delays did affect the outcomes in these cases, whereas the more posterior injuries with poorer prognoses were not affected. The need for educating about urgent, early presentation and initiating early prophylactic treatment at primary care level are illustrated (du Toit *et al.*, 2013).

In a study carried out by Kyei *et al*. (2023), ocular trauma especially those presenting as open globe in nature have been seen to produce poor vision outcomes among patients attending a tertiary teaching Hospital in Zimbabwe.

A Hospital-based retrospective cross-sectional study was conducted at Parirenyatwa Group of Hospitals, Sekuru Kaguvi Eye Department in Harare, Zimbabwe, to review medical records of patients with ocular trauma visiting for treatment at the outpatient department between January 2017 and December 2021. Information on patients' demographics, presenting visual acuity, type of ocular trauma, and the number of eyes affected were collected and analysed using descriptive and inferential statistics.

A total of 863 patients (1007 eyes) were identified to have experienced ocular trauma of one kind or another, with the youths (18-35 years) reporting with most cases (331, 38.4%). About 71.2% of patients were classified as having open-globe injuries and of that number, 90% were caused by blunt trauma, while the rest were caused by penetrating, intraocular, and perforating injuries. Patients with open-globe injuries were about 10 times more likely to develop blindness than those with closed-globe injuries after adjusting for age and gender, and this was statistically significant (ARR = 9.65, 95% CI:

5.53-16.84, $p < 0.001$). The prevalence of distance vision impairment due to ocular trauma was 60.1% (95% CI: 56.8%-63.4%), with majority resulting in blindness (22.0%, 95% CI: 19.4%-24.9%).

In conclusion, statistics above shows that there is a high prevalence of open-globe injuries in Zimbabwe with blunt trauma being the most significant cause. This suggests the need to promote and intensify public eye health awareness and sensitisation on safety strategies for the prevention of ocular trauma throughout the country. The researcher concurs with the findings and has observed similar instances at Neshuro Hospital hence the decision to carry out this study.

It therefore can be concluded that detrimental effects of delayed care or care outside of the specialty eye clinic may reflect geographic or economic barriers to care. For optimal visual outcomes, patients who are injured in a rural setting should recognize the injury and seek early care at a specialty eye care facility. Findings from the study suggests that trained non ophthalmologists may be able to clinically manage many eye injuries encountered in rural setting in the “developing`` world, reducing the demand for acute services of ophthalmologists in remote locations of this highly agricultural country.

Chapter 3

Methodology

3.1 Introduction

This chapter describes the methodology that was used to carry out the study. It explains the research setting, the population studied as well as the design employed. The instruments used in data collection, how data was collected and analysed and ethical consideration procedures observed during the study are also outlined in this chapter.

Research methodology refers to specific steps, procedures and strategies used for gathering and analyzing data in a study (Polit and Beck, 2010). Patsika and Chatura (2004) state that research methodology forms an important part of a study which presents an operational framework within which the facts are placed so that their meaning may be seen more clearly.

In this research, there was collection of both numeric and non-numeric data.

3.2. Research design

Burns and Groove (2005) state that a design is a blue print for conducting a study that maximizes control over factors that could interfere with the validity of the findings. Accordingly, the same authors further described that a descriptive study design is crafted to gain more information about characteristics within a particular field of study. It is used to develop a theory, identify problems with current practice, make judgment or determine what others are doing.

A questionnaire was used to collect data with provisions for both quantitative and qualitative data collection sections**.**

3.3. Research setting

The study was conducted at Neshuro District hospital (Outpatient department) Mwenezi district, Masvingo province, Zimbabwe.

3.4. Study population.

A population is the entire aggregation of cases or objects in which a researcher is interested in (Polit and Beck, 2010). In this study, the study population was patients with eye injuries that presented at Neshuro District hospital.

3.5. Target Population.

The target population for this study was all patients with eye injuries in Neshuro District that needed care at healthcare facilities.

3.6. Sampling designs

In research it was not practically possible to study the whole target population of eye injuries hence sampling was done.

Sampling is a process of selecting a portion of the population as a representative of that population

Non-probability sampling method was used on this study as it does not involve randomization of participants. This method provides no ways of estimating the probability that each element will be included in the sample. The results of non-probability method may not exhibit representation of the larger population and its use may not be highly encouraged, but where necessary it can still be used. There are several types of non-probability sampling methods which include convenience, purposive, snowball, quota, self-selection and judgement.The researcher used the purposive sampling technique. It was used because participants were selected based on specific characteristics and criteria and in this instance participants were selected from the population purposively drawn from those patients presenting at Neshuro District hospital with eye injuries.

Sample size calculation

$$n = \frac{Z^2\, p\, q}{d^2}$$

Z = 1.96, the normal value corresponding to the 95% confidence interval

P = 0.07, prevalence from the above study

q = 1-p = 0.93

d = margin of error = desired precision = 0.025

$$n = \frac{1.962\ (0.07 \times 0.93)}{0.025^2} = 204$$

However, due to limitations expounded on later in the study and recommendations made thereto, only 80 patients were enrolled for the study.

3.7. Setting

The study was practically carried out at Neshuro District hospital in Mwenezi district of Masvingo province, Zimbabwe.The policies of the hospital at which the study took place afford for individuals to carryout researches that are beneficial to the community. Culturally, the habitants of Neshuro are welcoming and use both Shona and English for communication. The questionnaires were written in English and translated to Shona. Children who could not read or comprehend where being represented by their parents. The study took 15 days to complete.

3.8. Data collection

Booth *et al.* (2006) defined data as pieces of information that are collected during a study. The researcher used a questionnaire for the study (Appendix A).

A questionnaire is a printed report designed to elicit information that can be obtained through writing responses of the participants. It can be self-administered or interviewer led. To optimize turnover, questionnaires were administered to the participants at the outpatient department and upon completion were handed over before patients left the department. Children below 5 years

were being represented by their parents or caregiver who would have brought the child to hospital. Illeterate patients were being assisted by an Ophthalmic nurse and the researcher where possible.

The questionnaire was used because of the following benefits;

- ✓ It has a higher response rate with complete
- ✓ Can be used for large samples
- ✓ Provides for opportunity for clarification of point Use close ended questions which are less time consuming.
- ✓ Data obtained from closed ended questions is easy to analyse.

3.9. Pilot study

A pilot study is a small-scale study conducted using a small sample of the population but not the same group for the study (Uys and Bassoon, 1998). It is done to test the data collection tool for appropriateness, validity and reliability in order to obtain the desired results. Ten patients who presented to hospital with eye injuries before the actual study were asked to participate in the pilot study. An explanation and instructions were given to them. After obtaining their consent, they were given the questionnaire to answer. To ensure that these patients will not participate in the study, their outpatient cards were coded with a number and this was for ease of reference and identification. The tool was adjusted to be ideal and a feedback was given to the participants.

3.10. Ethical consideration

This refers to the quality of research procedures to be observed with respect to adherence to professional, legal and social obligations of the research participants (Booth *et al,* 2006).

(a) Permission

Permission to carry out the study was obtained from the following responsible authorities

- ✓ Head of department –Health sciences, Bindura University of Science Education.
- ✓ Clearance from the Medical Superintendent Neshuro District hospital.
- ✓ Informed consent from the participants.

(b) Autonomy

This means that the patient has the right to self-determination after having been informed about what the study is all about, who is eligible to participate and that the participation is voluntary. Parents and caregivers of children under the age of 5 years, after getting full explanation stood in for the minors. The researcher ensured that all those participants were willing to participate without cohesion.

(c) Anonymity and confidentiality.

Confidentiality entails that no information provided by the patient will be divulged to anyone (Uys and Basson, 1998). The questionnaire was completed in the eye unit office by participants and those who could not write were assisted by the researcher after obtaining consent and the questionnaire filed in a lockable cabinet.

Participants were fully informed about the purpose of study, composition of eligible participants, measures to ensure confidentiality and participation was voluntary without incentive. They were also informed that all documents would be destroyed by fire at the end of the study. They were given opportunity to ask questions related to the study.

Anonymity means no name, identity number, phone number, finger print or any mark that may identify the patient will appear anywhere on the questionnaire. Ethical clearance was also sought from the Medical Research Council of Zimbabwe

3.11. Inclusion and exclusion criteria.

The inclusion criteria identifies the study population in a consistent, reliable, uniform and objective manner. It is the eligible factors of the study. The exclusion includes factors or characteristics that make the recruited population ineligible for the study.

Only patients that presented at Neshuro District hospital with eye injuries that delayed presentation beyond 24 hours of injury, who were willing to participate both literate and illiterate were enrolled. Minors were being represented by their parents or caregivers. Those unwilling to participate and those with mental health challenges were excluded.

3.12 Summary

This chapter looked at research methodology, research design, research setting, study population, target population, study sample and sampling techniques, inclusion and exclusion criterion. The research instrument used was also discussed, ethical considerations observed as well as the budget used.

CHAPTER 4

Data presentation, analysis and interpretation.

4.1 Introduction

The purpose of the study was to assess factors causing delays in presenting eye injuries to eye specialists among patients at Neshuro District hospital and the study guided by the following objectives;

1. To determine treatment given to patients with eye injuries at primary levels of care before referral to Neshuro District hospital eye unit in 2024.
2. To estimate the meantime interval between injury, presentation at first level of care, referral and presentation at Neshuro District hospital of patients with eye injuries in 2024.
3. To identify causes of delays in presentation of patients with eye injuries to eye specialists in 2024.

The data was collected over 15 days.

This chapter now presents the data in tables.

4.2 Demographic characteristics

The demographic characteristics of patients who participated in the study are as presented in table 2.

Table 2. Demographic characteristics of patients with late eye injury presentation at Neshuro District hospital in 2024.

Variable	**Response**	**N(80)**	**%**
Age	0-5 years	**8**	**10**
	6-10 years	**28**	**35**
	11-15 years	**12**	**15**
	16-20 years	**12**	**15**
	Above 20 years	**20**	**25**
Total		**80**	**100**
Gender	Male	52	65
	Female	28	35
Total		**80**	**100**
Residence	Growth point	44	55
	Rural farming areas/resettlement	36	45
Total		**80**	**100**

Table 2 shows age group 0-5 years 8 (10 %), 6-10 years 28 (35%), 11-15 years (12) 15 %, 16-20 years (12) 15 % and all those above 20 years (20) 25%.

This table revealed that eye injuries occur in all age groups but more cases were reported to 6 -10-year-olds. Also, males 52 (65%) in the study dominated and therefore it was concluded that males are more prone to eye injuries.

The researcher categorised place of residence as growth points to include service centres and rural areas which included resettlements. About 44 (55%) were from growth point and service centres while 36 (45%) were from rural and resettlement areas, appearing that growth point dwellers were more prone to eye injuries than those from the resettlement areas.

4.3 Management of eye injury at primary level of health care.

Treatment given to patients with eye injuries at primary levels of care before referral to Neshuro District hospital eye unit in 2024.

First point of call for patients with late eye injury presentation at Neshuro District hospital in 2024 is summarized in table 3.

Table 3. First point of call for patients with late eye injury presentation at Neshuro District hospital in 2024.

n=80

Variable	**Response**	**N**	**%**
1. After injury, where was first help sought from?	Nearby Clinic	36	45
	Private Surgery	16	20
	District/Mission Hospital	28	35
	Other	0	0
Total		**80**	**100**

Table 3 above shows the different health care facilities at which the patients were seen first after sustaining eye injuries.

None of the enrolled patients reported visiting a traditional healer. The majority 36(45 %) visited a nearby clinic after being injured.

The proportion that reported at a District or mission hospital was 28 (35 %)
Only 16 (20%) were seen at private surgery clinics.

Qualifications of practitioners in attendance at a primary care level of patients with late eye injury presentation at Neshuro District hospital in 2024 are summarized in table 4.

Table 4. Qualification of practitioner in attendance at a primary care level of patients with late eye injury presentation at Neshuro District hospital in 2024.

Variable	**Response**	**N**	**%**
Designation of practitioner in attendance	Primary Care Nurse	24	30
	Registered. General. Nurse.	20	25
	Ophthalmic nurse	8	10
	General medical officer	28	35
	Other	0	0
Total		**80**	**100**

Table 4 above shows the professional qualifications of practitioners who attended to the patients at the primary level of health care;

The majority of patients 24 (30%) were seen by Primary Care Nurses and 20 (25%) by Registered General Nurses.

Only 8 (10%) of the patients were attended to by an Ophthalmic trained cadre while 28 (35%) of the patients were first attended to by General Medical Officer.

In conclusion, this table revealed that majority of patients report eye injuries first at the clinics without Ophthalmic trained nurses and some report to either Clinical officers or General Medical practitioners. The package of care given to patients with eye injuries at primary levels of care before referral to Neshuro District hospital eye unit is summarized in table 5.

Table 5. Package of care given to patients with eye injuries at primary levels of care before referral to Neshuro District hospital eye unit

Variable	**Response**	**N**	**%**
Management received	Analgesics	4	5
	Eye irrigation	4	5
	Foreign body removal	4	5
	Antibiotics	56	70
	Pad and bandage	4	5
	Referred without any treatment given	8	10
		80	**100**

Table 5 above shows the management received by patients at the first health care centre at which they attended-

The majority of patients 56 (70%) received at least an antibiotic .Ocular foreign bodies were removed from 4 (5%) of the patients. Eye irrigation was done on 4 (5%) of the patients. 4(5%) patients were given analgesics only. Only 4(5%) of the patients had eye pads and bandages applied. Of all the enrolled patients 8(10%) were referred without any preliminary intervention.

Package of care also included advice given after initial treatment at primary care level to patients with late eye injury presentation at Neshuro District hospital as summarized in table 6.

Table 6. Advice given after initial treatment at primary care level to patients with late eye injury presentation at Neshuro District hospital in 2024.

Variable	**Response**	**N**	**%**
4. Any advice/further instructions given	Referral to next level of care	68	85
	Go home, review when there is need.	12	15

	Other	0	0
Total		**80**	**100**

Table 6 above shows the referral status of patients who were enrolled for the study

- Most of the patients 68 (85%) were referred from the primary health care centres they visited first to be seen by eye specialists or doctor at Neshuro District hospital.

  12 (15%) of the patients were not referred by the practitioners who attended to them at the primary health care centres but instead decided to go to Neshuro District hospital on their own after their eye problems had failed to resolve with the management they had received.

Nature of injury of patients with late eye injury presentation at Neshuro District hospital as summarized in table 7.

Table 7. Nature of injury of patients with late eye injury presentation at Neshuro District hospital

Variable	**Response**	**N**	**%**
Nature of injury	Penetrating wound	40	50
	Non –penetrating wound	40	50
Total		**80**	**100**

Table 7 above shows the distribution of patients according to the nature of the eye injuries sustained.

- There was an equal distribution between patients penetrating eye injuries and those with non-penetrating eye injuries of 40 (50%).

Place of injury for patients with late eye injury presentation at Neshuro District hospital in 2024 was as summarized in table 8.

Table 8. Place of injury for patients with late eye injury presentation at Neshuro District hospital

Variable	**Response**	**N**	**%**
	Home	52	65
	School	8	10
	At work	8	10
	Others	12	15

Total		**80**	**100**

Table 8 above shows the distribution of patients according to the places where the injuries incurred.

- Most of the eye injuries 52 (65%) occurred in the home environment while 8(10%) of them occurred each at school and at work places.
- 12(15%) occurred in different other places such as road traffic accidents.

Cause of injury for patients with late eye injury presentation at Neshuro District hospital in 2024 were as summarized in table 9.

Table 9. Cause of injury for patients with late eye injury presentation at Neshuro District hospital in 2024.

Variable	**Response**	**N**	**%**
Cause of injury	Road Traffic Accident	4	5
	Vegetative material	32	40
	Metal /glass objects	20	25
	Stones and bricks	12	15
	Others	12	15
Total		**80**	**100**

Table 9 above shows the distribution of patients according to the agent which caused the injury;

- The majority, 32(40%) of the eye injuries were caused by vegetative materials such as sticks, wood and grass.
- Metallic objects such as wire and knives were responsible for 20(25%) of the causes.
- Stone and brick were responsible for 12(15%) of the injuries while 4 (5%) of each were due to chemical contamination, road traffic accidents, plastic and glass objects.

4.4 Interval between eye injury and presentation to Neshuro District hospital.

Interval between injury and presentation to Neshuro District hospital of patients with late eye injury presentation at Neshuro District hospital was as summarized in table 10.

Table 10. Interval between injury and presentation to Neshuro District hospital of patients with late eye injury presentation at Neshuro District hospital

Variables	**Responses**	**N**	**%**
1. Interval between injury and presentation at first level of health care.	Within 24 hours	64	80
	>24	4	5
	>48	4	5
	>72 hours	8	10
Total		**80**	**100**
2. Waiting period before being attended to at first level of healthcare	< 1 hour	56	70
	>1	8	10
	>2	8	10
	>4 hours	8	10
Total		**80**	**100**
3. Interval between referral and arrival at Neshuro District hospital	< 24 hours	0	0
	>24	64	80
	>48	4	5
	Not referred	12	15
Total		**80**	**100**
4. Interval between injury and arrival at Neshuro District hospital	>24	60	75
	>48	0	0
	>72 hours	20	25
Total		**80**	**100**

Table 10 above shows the time that elapsed from the time eye injuries occurred to the time they presented to eye specialists at Neshuro District hospital.

64 (80%) of patients presented to the first level of health care within 24 hours of injury,4 (5%) presented between 24 and 48 hours,4(5%) presented between 48 and 72 hours while 8 (10%) presented more than 72 hours after sustaining an eye injury.

56 (70%) of them were attended within an hour of presentation at primary health care facility, 8 (10%) was attended to within the second hour of waiting, 8 (10%) others were attended to after waiting for a period between two and four hours while the other 8 (10%) were attended to after waiting for more than four hours at the primary health facility.

64 (80%) of patients arrived at Neshuro District hospital eye unit between twenty-four and forty-eight hours post referral and 4(5%) arrived after forty-eight hours. 12 (15%) of them were not referred but just came on their own after realizing that their eyes were not improving in spite of medication given at primary health care facilities they had initially visited. None of them arrived at Neshuro District hospital within 24 hours from time of injury.

The interval between injury and arrival at Neshuro District hospital for 60 (75%) of the patients was between twenty-four and forty-eight hours while for 20 (25%) of them it was more than seventy-two hours. Besides being referred late, another aggravating factor for the delays was financial constraints.

Means of transport used to get to Neshuro District hospital of patients with late eye injury presentation at Neshuro District hospital in 2024 is as summarized in table 11.

Table 11. Means of transport used to get to Neshuro District hospital of patients with late eye injury presentation at Neshuro District hospital in 2024.

Variable	**Response**	**N**	**%**
Means of transport to Neshuro District hospital	Ambulance	8	10
	Private hired	0	0
	Public/Personal	72	90
	Foot	0	0

	Other means	0	0
Total		**80**	**100**

Table 11 above shows the means of transport used by the patients to get to Neshuro District hospital after being referred from primary health care facilities;

- The majority 72 (90%) of the patients used either public or personal vehicle to get to Neshuro District hospital in order to access specialist eye services despite the emergency nature of the injuries. Only 8 (10%) were sent by an ambulance by the virtue that they were referred by nurses who had received in service training on Ophthalmic conditions and had an understanding of the urgency needed to preserve sight.

Summary of major findings

The study revealed that 28(35%) of the patients who presented to eye specialists after twenty-four hours of injury were aged six to ten years with a male preponderance of 52 (65%) of the study sample.

- The majority of the injuries 44 (55%) were from growth points which is semi-rural, mostly along the Masvingo Beitbridge road and Maranda number One.
- Most of the injuries, 52 (65%) occurred in the home environment and 20 (50%) of them were penetrating injuries affecting the cornea and sclera. A sizeable number 32 (40%) of the eye injuries were caused by vegetative materials such as sticks and dry grass stalks including dry maize stalks.
- For all the study participants, the first point of call following eye injuries was a health care centre although with varying presentation times and different treatment regimens.
- The majority of patients 72 (90%) were attended to first by non-ophthalmic trained personnel.
- 64 (80%) of the patients presented at a primary health care facility within twenty-four hours of injury but were referred late to eye specialists using public transport.
- 68 (85%) of patients were referred to eye specialists from the primary health facility they visited after injury although most of them were referred later than 24 hours after injury.

- 64 (80%) of the total patients indicated that financial constraints inhibited early visit to Neshuro District hospital as they needed some time to look for money for both transport and food along the way.
- In conclusion, most of the injuries occurred in growth points and rural areas where transport network is not much of the problem and the researcher is of the opinion that accessing immediate transport to eye specialists within 24 hours should not have been an issue.
- The study revealed that patients sought initial care at primary health care facility first, this shows that the Zimbabwe health referral system is being followed as patients are encouraged to report at nearest health care facility before visiting the secondary level.
- However, in general there is need to intensify health education on importance of immediate eye care to those injured and also in-service training for health care givers at lower levels of care that all eye injuries are taken as emergencies so that they won't be a delay in management and referral.

CHAPTER FIVE

DISCUSSION, IMPLICATIONS, RECOMMENDATIONS, SUMMARY AND CONCLUSION

5.0 Introduction

This chapter will look at the study findings presented in chapter four and give recommendations in order to improve the referral system of patients who sustain eye injuries by all health care practitioners at all levels of care as well as recommending elimination of bad practices in the management of eye injuries. Positive practices in the current management system will also be reinforced.

This research study sought to answer the following research questions;

- How are eye injuries managed at primary levels of care before referral to Neshuro District hospital?
- What is the probable time interval between injury and presentation at Neshuro District hospital?
- What are the causes of patients delaying presentation with eye injuries to eye specialists?

5.1 Discussion of major findings

The findings of this study reveal a concerning trend in differing primary level eye injury care and delays in transferring eye injured patients to eye specialists. According to the American Academy of Ophthalmology (2019) an average of 2 hours is a benchmark referral time but according to the findings of this study, patients were referred at an average time of 46 hours which is far longer than recommended benchmark. The delays may have serious eye implications such as reduced visual acuity increased risk of complications and poorer patient outcome (Bhagat et al., 2018).

The reasons for these delays are dimensional and the study revealed the following reasons, lack of transport to ferry patients immediately to eye clinics, some nurses at primary care level delayed referrals by trying to manage at clinic level and also giving inappropriate eye injury management. This delay was attributed to lack of awareness on the importance of prompt eye injury management

on both health personnel and community. The other unearthed reason for delays was minimal and non-availability of trained ophthalmic nurses and physicians in the rural areas (Mwenezi District Health Human resources database, 2024) positive and commendable action taken by patients was that the the majority of the patients 64 (80%) presented themselves for treatment within 24 hours of injury which is commendable. This is important as successful repair rates with better visual outcomes are high when done within 24 hours from the time of injury (Mayer et al.,2021).

However, despite presenting at the first level of care within 24 hours, 68 (85%) of them who were referred to Neshuro District hospital for eye specialist care arrived at varying periods ranging between 24 and 72 hours. Of these, 12 (15%) were not referred but found their way to the hospital due to unresolved eye problems after initial management at primary care level (Table 10). This was attributed to financial constraints as 64 patients indicated on the questionnaire that it took them some time to find money for transport to Neshuro hospital and also that the majority, 72 (90%) of them were attended to by nonophthalmic trained personnel. These included Primary Care Nurses, General Nurses and General Medical Officers in public and private practice with poor perceptions of complications associated with delayed specialist interventions.

To compound the situation, only 8 (10%) of them were sent by an ambulance (Table11) and the rest used public means of transport in which they had no power of control on their movement schedules. This is in agreement with Sharma *et al.* (2022) in his article 'Rural-Urban disparities in eye trauma; A systematic review' in their study they highlighted the challenges faced by rural populations in accessing timely eye care which include lack of transportation facilities.

The preeminence of male patients in this study as shown by statistics suggests that males are more likely to engage in high risk activities which make them more susceptible to eye injuries and the age group of below 20 years also suggests that eye injuries are a significant public health concern in the age group. As alluded to, financial challenges played its role as unavailability of ambulances at rural health facilities also compounded the referral turnaround times. One participant when asked about his opinion for the causes of delay in getting treatment at any level of care, he said "I failed to get money for transport to Neshuro hospital immediately after I was referred by nurses at the local clinic". This sentiment was echoed in various versions by others 15 (18.5%).

Asked for their opinion on improvement to care,16(20%) suggested that there be ambulances at all health facilities including primary care levels to promptly ferry patients to the next level of care.

This study revealed that adults in general perceive eye injuries as a significant health problem as all patients and care givers 80 (100%) who presented to the health facility indicated that eyes are very important and should be treated with the urgency they deserve. This was extracted from their personal views on the questionnaire. Despite this knowledge it remains paramount that awareness campaigns continue to even promote and improve awareness on preventive measures and timeous medical attention.

Conclusion

Most patients who sustain eye injuries delay accessing specialist care due to delayed and poor referral systems from primary health care centres which increases the risk of complications resulting in poor visual outcomes or eventually complete loss of vision which may be avoidable if eye injuries are treated with the urgency they deserve.

Varied primary care level management and usage of traditional medicines abates poor visual outcomes as indicated in different management given to patients (Table 5).

5.2 Nursing Implications of findings

In dealing with eye injuries, the nurse is expected to professionally and meticulously evaluate the extent of injury, be able to relieve pain, avoid further injury, institute correct basic nursing and medical care and give reassurance to the patient and significant others. The findings of this study revealed that minimal effort was given to expedite transfer of patients to eye specialists as patients were left to look for their own means of transport. Varying treatment regimens given by health care givers also suggests that there was no uniformity in the management of eye injuries hence the need for eye injury treatment protocols in each facility. By attending to these nursing implications, nurses can optimize the visual outcomes on patients

5.3 Recommendations

Basing on the research study findings, the researcher made the following recommendations;

- Decentralisation of eye care services to all levels of health care down to primary health care centres to ensure prompt and correct management of eye injuries and early referral to prevent complications and improve visual outcomes.

- Non-ophthalmic trained health care practitioners at all levels should be educated on the management of eye injuries.
- Basic components of managing eye injuries should be incorporated and emphasised in the training curricular for nurses and doctors to equip them for practice outside specialist eye care settings.
- Eye injuries should be treated with the same urgency given to other emergencies like gynecological (maternity) conditions who are referred by ambulances to reduce time interval between injury and treatment to achieve better visual outcomes.
- In view of the latter, Health services administrators and those who control hospital fleet should be educated on the importance of releasing ambulances to ferry eye injury cases without questions as they do to maternity cases.
- The community should be educated about various eye conditions including eye injuries using the language they understand through public medium like national radio cases, and billboards.
- Information, education and communication (IEC) material should be distributed widely to schools, halls, public places, workplaces and all health institutions in local languages and those understood by all to create public awareness concerning management of eye injuries and availability of eye health facilities in their neighborhoods.
- The researcher recommends another study on a bigger scale preferably for the whole province and which covers both urban and rural set up to have a much wider perspective of eye injuries and how they are managed in Masvingo province.

5.4 Limitations

The researcher encountered a number of limitations during the study including the following;

- The sample size was meant to be 204 participants as calculated however only 80 participants were enrolled and reasons being:

- Time constraints as the researcher is a student and had to collect data during specified times, this resulted in a small sample used, otherwise there are so many eye injuries that are sight threatening that could have been included.
- The research was not funded therefore the researcher resorted to out-of-pocket funding; this also caused the use of a small sample which can hardly be generalized to the entire population.
- The sample was not well balanced as it only captured patients only seen at one referral institute and those who had resources to go to the hospital and it may be assumed that if the study was carried out at a larger scale, there were other patients who went to other eye care centres without going to Neshuro District hospital but with bearing to Mwenezi district catchment area population eye injuries statistics.

In conclusion the researcher confirms that all research questions were answered and the study objectives were met.

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BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE AND ENGINEERING DEPARTMENT
OF HEALTH SCIENCES

APPENDIX A: QUESTIONNAIRE - ENGLISH

Project Title: An assessment of factors causing delays in presenting eye injuries to eye specialists among patients at Neshuro District hospital.

Introduction

Hello, my name is A. Mavhunduse I am a student at Bindura University of Science Education doing Bachelor of Science Nursing (Honours) Nursing Education. The purpose of this study is to determine the causes of delays in presenting eye injuries to eye specialists in patients seen at Neshuro District hospital Outpatient department after twenty-four hours of injury in 2024. The study will be for academic purpose and also making recommendations on the findings in order to resolve late presentation to Hospital by injured eye patients.

You have been selected to participate because you have presented at the facility level during the time of the study. The questionnaire will take about 20 minutes to be completed.

The information that will be gathered in this investigation will be kept private and will be used for research purposes only**.** Your participation is voluntary, and if you decide to participate, you can stop at any time or skip any questions that you do not want to answer. You are free to ask any questions related to this study if in need of clarification.

Do you agree to participate in this study? Yes_____ No _____ (Tick)

Signature_____

Date: _____

Interviewee code _____

Instructions

1. Do not write your name on any part of this form.

2. Answer questions truthfully.

3. Your answers will be kept highly confidential and after the study the form will be destroyed.

4. Show your answers with an 'X` in the appropriate box where provided.

SECTION A: Demographic data

1. Patient's age	Under 5 years	
	5-10 years	
	11-15 years	
	16-20 years	
	Above 20 years	
2. Gender	Male	
	Female	
3. Residence	Village	
	Resettlement	
	Game ranch	

SECTION B: Management of eye injury at primary level of care.

1. After injury, where was first help sought from?	Traditional healer	
	Clinic	
	Private Surgery	
	District/mission Hospital	
	Other (specify)	
2.Designation of practitioner in attendance at primary care centre		
	Primary care nurse R.G.N.	
	Ophthalmic nurse Ophthalmologist	
	Clinical Officer General medical officer	
	Other (specify)	
3. Management received	Traditional medicine	
	Eye irrigation	
	Foreign body removal	
	Antibiotics and or pain killers	
	Pad and bandage	
	Eye shield	
	Suturing	
	Nothing done	
4. Any advice/further instructions given	Referral to next level of care	

	Go home, review when there is need.	
	Other (specify)	
5. Nature of injury	Penetrating wound	
	Non –penetrating wound	

5. Cause of injury …….....

……

SECTION C:

Interval between injury and presentation to Neshuro District hospital.

1. When were you injured? Date……. Time…….

2. Place of injury …….

3. Interval between injury and presentation at first level of care……. hrs. /. …. days.

4. Waiting period before being attended at first health care centre attended……hrs.

5. Interval between referral and arrival at Neshuro District hospital……. hrs.

6. How long did it take you to get to Neshuro District hospital? ..... hrs.

7. How did you get to Neshuro District hospital?

By ambulance ☐

By own /public transport ☐

By foot ☐

Other (specify)……

SECTION D. General comments

1. In your own opinion what could be the reasons if any for the delay in you getting treatment at any level of care.

……
……

……

2. What improvements if any would you recommend for future improvement in efficient service delivery?

……
……

……

3 In your own opinion how do you rate the importance of eyes/vision and give reasons
……
……
…….

4 Any other comments (If any)

……
……
……
……

APPENDIX B (1) CONSENT ENGLISH VERSION

You're Ref.:

Our Ref.: RP/AM/001/24

BINDURA UNIVERSITY OF SCIENCE EDUCATION

P B, 1020

Bindura

All correspondence to be addressed to

Patient consent form (English)

Project Title: An assessment of factors causing delays in presenting eye injuries to eye specialists among patients at Neshuro District hospital.

Principal Investigator: A. Mavhunduse

Co-Investigators: N. Handireketi

Phone Numbers: 0772736431

Name of Healthcare Facility Neshuro District hospital:

District : Mwenezi

Province : Masvingo

Purpose

You are being asked to participate in a study to assess factors causing delays in presenting eye injuries to eye specialists among patients at Neshuro District hospital. The results will be used to determine the level of assistance and also mitigation needed to reduce blindness in Mwenezi district. You have been selected because you are at the hospital during time of the study period. More than 200 willing participants of different age groups with late presentation of eye injuries will be included for the purpose of this study.

Background

Late presentation of eye injuries to specialists is a problem in the proper management of eye injuries as these predisposes to poor visual outcome or even blindness. The need to assess factors causing delays in presenting eye injuries to eye specialists among patients at Neshuro District hospital is intended to improve care. The aim is to cause every injured eye to be seen by an eye specialist within 24 hours of injury. This cuts down tertiary care costs, improve vision outcome and prevent blindness.

Procedures and Duration

If you agree to take part in this study, a questionnaire will be administered to you by the ophthalmic trained nurse during consultation and will take less than 5 minutes.

In the case that you are unable to read/write, then an impartial witness of your choice who will have to be present during the entire informed consent process must append his/her signatures to the informed consent form.

Risks and Discomforts

There are no anticipated risks to you, associated with participating

Benefits And /Or Compensation

There are no direct health benefits to you by participating in this study. The results obtained from this assessment may provide benefits in future if the assessment shows the need for action to promote easy access to eye specialists.

Confidentiality

If you indicate your willingness to participate in this study by signing this document, your responses will not be disclosed to anyone except the eye care specialist who may need to review participants' records. Participant confidentiality will be maintained throughout the study. All participants in this study will be assigned a unique identification number by the research team. The unique identification number will appear on all participant records.

The link of this identification number to individuals will be maintained by the research team and Bindura University of Science Education and will not be disclosed elsewhere. Data sharing between the Bindura University of Science Education and any agency or institution providing support for the analysis, review, reporting and publication of the research findings will include only the investigation identification number and not any personally identifiable information. Any information that is obtained in connection with this assessment that can be identified with you will remain confidential and will be disclosed only with your permission. Such information shall not be used for any other purposes.

In The Event of an Injury

In the unlikely event that you suffer an injury as a direct result of taking part in this research study, you shall be managed according to the Ministry of Health and Child Care procedures.

In the event of injury, contact:
Name: Mr. Alexander Mavhunduse
Contact number: 0772736431
Name: Mr. N Handireketi
Contact Number: 0773841024
Name: Mrs. Manwere
Contact number: 0772447181

Voluntary Participation

You are free to voluntarily refuse participation in the assessment or to withdraw your consent and discontinue participation at any time your own choice without penalty. If you decide not to participate in this study, your decision will not affect your future relations with the Ministry of

Health and Child Care and Bindura University of Science Education, its personnel, and associated facilities.

Additional Elements None.

Offer to answer questions

Before you sign this form, please ask any questions related to this study if you need any clarification. You may take as much time as necessary to think it over. If you have any question in future, please ask:

Mr. Alexander Mavhunduse, Bindura University of Science Education P. Bag 1020 Bindura, Telephone: 0772736431

Authorization

YOU ARE MAKING A DECISION WHETHER OR NOT TO PARTICIPATE IN THIS STUDY. YOUR SIGNATURE INDICATES THAT YOU HAVE READ AND UNDERSTOOD THE INFORMATION PROVIDED ABOVE, HAVE HAD YOUR QUESTIONS ANSWERED.

_____ _____

Name of Participant *(please print)* Date& time

_____ _____

Signature of participant /Legally Authorized Representative Date& time

_____

Relationship to the participant

_____ _____

Signature of Witness *(if required)* Date & time

_____ _____

Signature of Research Staff Date & time

In the event that someone is not able to read or write, an individual chosen by the potential participant should sign below:

I have witnessed the accurate reading of the consent form to the potential participant and the individual has had the opportunity to ask questions. I confirm that the individual has given the informed preliminary consent freely.

_____ _____ **AND** Thumb print of Participant

Name of Witness (please print) Date

_____ _____

Signature of Witness Time

_____

Relationship to the Participant

_____

Signature of Research Staff

YOU WILL BE GIVEN A COPY OF THIS CONSENT FORM TO KEEP.

APPENDIX B (2) SHONA VERSION

BINDURA UNIVERSITY OF
SCIENCE EDUCATION
P BAG 1020
BINDURA

Your ref

Our ref

Patient consent form (SHONA)

Project Title: An assessment of factors causing delays in presenting eye injuries to eye specialists among patients at Neshuro District hospital.

Principal Investigator: A. Mavhunduse

Co-Investigators: N. Handireketi

Phone Numbers: 0772736431

Name of Healthcare Facility Neshuro District hospital:

District : Mwenezi

Province : Masvingo

CHINANGWA/DONZVO

Munokumbirwa kuti mubatsire patsvakurudzo yezvingava zvikonzero zvinoita kuti vanhu vakuvara meso mudunhu re Mwenezi vasawana rubatsiro rwaana mazvikokota vekurapwa kwemaziso pa chipatara chikuru chedunhu Neshuro District hospital mukati mezuva rimwe chii.

Zvichabuda mutsvakurudzo zvichabatsira kuvandudzwa kwekurapwa matambudziko ekukuvara maziso zvinizoderedza huwandu hwekupofomara mudunhu re Mwenezi district. Masarudzwa ne Nyaya yekuti masvika pachipatara nenguva iyo tsvakurudzo yavakuitwa.

Vanhu vangadarika mazana maviri (200) vanozvipira kupinda mutsvakurudzo vane mazera akasiyana vachapindawo pasina kumbunyikidzwa.

NHOROONDO

Kunonokera kurapwa kwemaziso naana mazvikokota vezvemeso kunopa dambudziko rehupofu uye kusanyatsoona zvakanaka, naizvozvo zvakakosha zvikuru kuti ongororo iyi iitwe kuonekwe zvikonzero zvinoita kuti varwere vasakasira kubatsirwa naana mazvikokota vezvirwere zvemeso pa Neshuro District hospital.

Mafambisirwo etsvakurudzo uye nguva ichatorwa

Kana mabvumirana nazvo muchapuwa bepa rine mibvunzo namukoti wezvirwere zvemaziso pamunenge muchirapiwa uye zvinogona kutora nguva isingadariki maminitsi mashanu (5 minutes)'

Kana musingakwanisi kunyora, munobatsirwa nemufakazi akatsiga wamunoda achavapo kusvika mapedzerwa uye naiyewo achaisa runyoro rwebvumirano (signature)

NJODZI

Hapatarisirwi kuva ne njodzi pamuchapinda mutsvakurudzo

ZVIWANIKWA KANA MUBAIRO

Hapana zvinotarisirwa kuti munopuwa semubairo wekupinda mutsvakurudzo zvinobva kubazi rezve utano kana vatsvakurudzi, asi zvichabuda mutsvakurudzo zvichabatsira imi nenharaunda yose mukurapwa kwekukuvara kwemeso kune hunyanzvi uyezve kuvandutsa mafambiro evarwere kusvika kuzvipatara zvikuru zvemaziso.

TSINDIDZO

Kana mabvumirana nekupinda mutsvakurudzo kubudikidza nekuisa runyoro rwenyu pasi pebepa rino (signature) zvese zvamunenge Mataura kana kunyora hazvizoshambadzwi kunaanizvake kunze kwaana mazvikokota vezvirwere zvemeso avo vane chokuita nekurapwa kwenyu

chete.Tsindidzo iyi inoramba iripo musati Matanga .matanga uye kunyange mapedza /Hapana pachabudiswa zita renyu chero papi zvapo pazvinyorwa zvese asi muchapiwa number isina kana chenyu ipapo.

Nhamba iyoyo inochengetwa nevatsvakurudzi chete uye chikoro che Bindura

University nyangwewo nevanozoda kubatsira ne zviwanikwa kuitira kubatsira kurapwa kwemaziso mu Mwenezi .

KANA PAKAITA DAMBUDZIKO REKUKUVARA MURI MUBISHI RETSVAKURUDZO

Hatitarisiri kukuvara kwenyu nekuti nguva yamunotora uye zvamunoita hazvikuvadzi. asi kana zvaiitika muchabatsirwa kurapwa maringe nehuronwa hwe bazi rezveutano hwenyika ye Zimbabwe uye munogona kubata vanotevera kuti mubatsirike nekukasira:

Name: Mr. Alexander Mavhunduse Contact number: 0772736431

Name: Mr. N Handireketi Contact Number: 0773841024

Name: Mrs. Manwere Contact number: 0772447181

KUPINDA MUTSVAKURUDZO PASINA MURIPO

Munekodzero kuramba kupinda mutsvakurudzo iyi pamunodira kana kubuda mavapakati pamunongonzwa pasina kumanikidzwa kana kupokana; Isarudzo yenyu uye kubuda kana kuramba kwenyu hazvikanganisi hukama hwenyu nebazi zve utano nekurerwa kwakanaka kwevana kana nyangwe chikoro che Bindura University, vashandi vacho kana madzisahwira acho nevashandidzani vacho zvakare.

ZVIWEDZERO NENHUMWA

Hapana zvibinge

MIBVUNZO

Musati maisa rupawo rwenyu kana muine mibvunzo bvunzai maringe netsvakurudzo iyi. Zvikada hamusati mava nemibvunzo izvozvi kana mazofunga kana yavapo makasununguka kuzobvunza kumutsvakurudzi anotevera ne nharembozha dzake

Mr. Alexander Mavhunduse, Bindura University of Science Education P. Bag 1020 Bindura, Telephone: 0772736431

CHIBVUMIRANO/CHITENDERANO

MAVAKUNYORA MAFUNGIRO ENYU MAERERANO NETSVAKURUDZO KUTI MUNODA HERE KANA KWETE KUPINDA UYEZVE KUISA RUNYORO RWENYU ZVINORATIDZA KUTI MAVERENGA GWARO RINO.MATSANANGURIRWA ZVIZERE

MUKANZWISISA UYE MABVUNZA MIBVUNZO MUKAPINDURWA ZVAKUGUTSAI

_____ _____

Zita Renyu *(please print)* Date& time

_____ _____

Signature of participant /Legally Authorized Representative Date& time

_____

Relationship to the participant

_____ _____

Signature of Witness *(if required)* Date & time

_____ _____

Signature of Research Staff Date & time

Kana musingakwanisi kunyora mufakazi akavimbika achanyora pasi panotevera.
Ndinifakaza kuti muverengi averenga akanzwisisa gwaro rese akapuwa mukana wekuverenga uye kubvunza mibvunzo uye ndagutsikana kuti munyori anzwisisa zvizere uye arikupa mvumo yake akasununguka pasina kumbunyikidzwa.

_____ _____ **AND** Thumb print of Participant

Zita remufakazi (please print) Date

_____ _____

Signature of Witness Time

_____

Hukama hwenyu

_____

Signature of Research Staff

MUCHAPIWA RIMWE PEPA RECHIBVUMIRANO ICHI (COPY) MOENDA NARO

APPENDIX C Other documents

Neshuro District hospital
Box 27
Neshuro

22 January 2024

The District Medical Officer
Neshuro District hospital

Sir

RE: APPLICATION FOR PERMISSION TO CARRY OUT A RESEARCH STUDY AT NESHURO DISTRICT HOSPITAL OUT PATIENTS' DEPARTMENT.

I am an HBScNE) student at Bindura University of Science Education part 3.2 and do hereby apply for permission to carry out a research study at Neshuro Hospital out patients department in partial fulfillment of the Degree as stated. The topic is: 'An assessment of factors causing delays in presenting eye injuries to eye specialists among patients at Neshuro District hospital`.
All ethical considerations will be put into practice to safe guard participants' integrity and safety. The information obtained will be used for study purposes only.
Thank you

Mavhunduse Alexander

BINDURA UNIVERSITY OF SCIENCE EDUCATION

RELEASE FORM

Name of Student Alexander Mavhunduse

Registration Number B1438721

Dissertation Title An assessment of factors causing delays in presenting eye injuries to eye specialists among patients at Neshuro District hospital.

Year of completion 2024

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Signed……A. Mavhunduse

Date…….

Contact details cell 0772736431/ 0713254804

Email address mavhundusea@gmail.com