

## CHAPTER I

### INTRODUCTION

#### 1.1 BACKGROUND

Ocular trauma is a major cause of monocular blindness and visual impairment throughout the world, although little is known about its epidemiology or associated visual outcome in developing countries (Khatry *et al.*, 2004). Unlike other major blinding disorder such as cataract, trachoma or xerophthalmia, where epidemiological studies have contributed significantly to a better understanding of disease patterns, in the case of ocular injuries epidemiological data are scarce for large parts of the world. In fact, eye injuries have been considered a clinical issue, and are mostly addressed within the context of clinical eye care delivery systems including emergency case management (Negrel *et al.*, 1997).

The last update of the Global Data on blindness stated that ‘other causes to consider include ocular trauma, estimated to be responsible for about 500,000 cases of blindness’ (Negrel *et al.*, 1997). In 1992, Thylefors reported that, in developing countries, ocular trauma represents about 5% of all blindness cases. A national population based survey of blindness in Nepal found a blindness prevalence rate of 0.84% and trauma was responsible for 7.9% of monocular blindness. The Nepal Blindness Survey provided a prevalence estimate for the whole population. Among the 39,887 persons examined in the survey, 336 were found to have signs and history of previous eye injury. Prevalence was

estimated at 860/100,000 population. There was a marked increase of prevalence with increasing age. Prevalence rose from 340/100,000 for person under age 10, to 1780/100,000 for persons aged from 55 to 59. This study also demonstrated that 62% of injured persons had signs of eye injury but no visual impairment, 27% were unilaterally blind or severely visually impaired, 8% were bilaterally visually impaired and 3% were blind (Nepal Blindness Survey 1981) (Brilliant *et al.*, 1988).

## 1.2 PROBLEM ANALYSIS

Eye injuries represent a major public health problem and they represent more “the cause of a blind eye rather than the cause of a blind person” (Negrel *et al.*, 1997). There is no evidence to suggest that eye injuries are more severe in developing countries. In fact the reverse may be true. Most eye injuries in developing countries are rural agricultural based unlike the high velocity motor vehicle crashes and sports injuries in the developed world causing serious injury to the globe at the time of impact. Since eye injuries are related to particular occupations or cultural environments, the types and prognosis of injuries seen in developing countries are not similar to those in industrialized countries. In Africa and in many parts of Asia eye injuries present their own patterns, not only in terms of etiology or severity but also in relation to socioeconomic background, reflecting the non-existent or inadequacy of safety measures, the lack of proper eye health facilities to provide adequate case management, the use of traditional medicines, poor education and a lack of awareness amongst manual workers in hazardous occupations (Negrel *et al.*, 1997).

Ocular trauma and corneal ulceration are serious public health problem that are occurring in epidemic proportions in Nepal (Upadhyay *et al.*, 2001). Nepal is an

agricultural country with more than 80% of population working in agro-based sector. Most cases of corneal ulceration are reported to follow minor ocular trauma sustained during agricultural works or in domestic activities. These rural people are vulnerable to eye injuries due to their occupational background and lack of education and awareness about safety measures. They are more reluctant to use traditional medicine on acquiring eye injuries that can lead to further complications and loss of vision.

Ocular injuries account for a substantial proportion of all work related injuries in the industry. Tasks with the highest risk of eye injuries are grinding, welding and hammering. The pattern of work related eye injuries is more common and severe in the developing worlds owing to the lack of basic safety measures and the non-existence of protective devices in the industry. Another important point is the lack of strict legislation from the government to impose safety measures and indifferences of factory owner towards workers safety. Increasing number of eye injuries has been reported in road traffic accident and sport-related activities in developing world (Heihir *et al.*, 1997). The lack of safety measures, inadequacy of protective devices may account for it.

### **1.3 PROBLEM SIGNIFICANCE**

In 1992, Thylefors drew attention to the fact that trauma is often the most important cause of unilateral loss of vision in developing countries and that up to 5% of all bilateral blindness is a direct result of trauma. Even though ocular trauma is a global problem, the burden of blindness from eye injuries falls most heavily on developing countries. South East Asian Region (SEAR) has disproportionate burden of blindness with one quarter of the world population and one third of world blind for 5.6% of the world's land mass. Every minute four person in SEAR region becomes blind. The

number of blind person will increase to 30 million at the current level of intervention. Blind person in the region are among the poorest in the world and among the poorest in the society; most of them are elderly, women and marginalized. Blindness is estimated to cost the countries of this region US\$ 5.5 billion annually in lost of productivity, special education and rehabilitation. Blindness not only causes human suffering, but also is economically devastating and is a cause of many early deaths. Mortality among the blind is one third higher than that among their sighted peers. Preventing blindness is not only about relieving suffering. It is about prolonging life, addressing poverty, empowering woman, and helping the marginalized and weaker section of the society (WHO SEARO source 2001).

Many injuries and their resulting vision loss may be prevented through education about prompt and appropriate care seeking. The time interval of injury and care seeking is very important because immediate and appropriate intervention with modern microsurgical technique in vision threatening emergencies can reduce long term loss of visual acuity, and functional vision salvage rate can be as high as 60 to 70% (Karaman *et al.*, 2004). Despite these facts many injured patients do not seek treatment in time and come to the hospital at the late stage of injury with serious condition. Some of the patients wander around to many places for treatment and receive inadequate and inappropriate medication causing more harm than cure. In order to address these problems of eye injuries it is essential to understand and explore the causes of this treatment-seeking behavior. Understanding the behavior of the injured patients will be useful in developing appropriate measures to combat the vision threatening complications of eye injuries.

#### **1.4 RESEARCH QUESTIONS**

1. What are the treatment-seeking behavior and extent of severity of eye injury patients?
2. What are the socio-demographic characteristics, knowledge/information, and risk perception, source of information and accessibility of eye injury patients?
3. What is the determining factors affecting treatment seeking behavior and extent of severity of eye injury?

#### **1.5 OBJECTIVES**

##### **General Objective**

To determine the extent of severity of eye injury and the factors affecting treatment-seeking behavior of eye injury patients

##### **Specific Objectives**

1. To identify the treatment-seeking behavior and extent of severity of eye injury patient's
2. To describe the socio-demographic characteristics, risk perception, knowledge/information, source of information, and accessibility of eye injury patient
3. To determine the association of treatment-seeking behavior of eye injury patients and extent of severity of eye injury with socio-demographic characteristics, knowledge/ information, risk perception, source of information and accessibility variable

## 1.6 NULL HYPOTHESIS

There are no relationships between treatment seeking behavior of eye injury patients and extent of severity of eye injury with socio-demographic variables and with knowledge, risk perceptions, source of information and access to hospital.

## 1.7 CONCEPTUAL FRAMEWORK OF THE STUDY

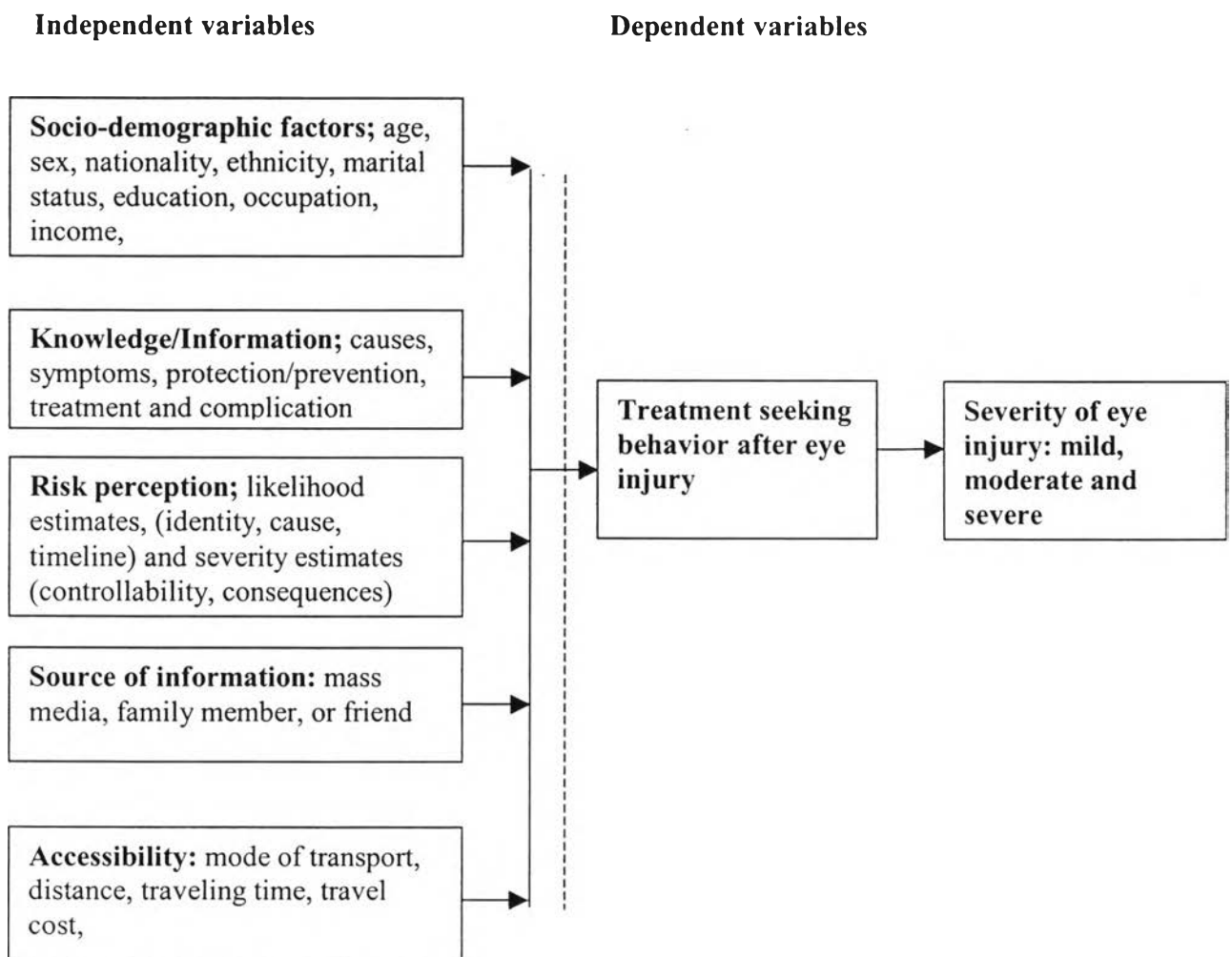


Figure 1.1 Conceptual framework

## 1.8 OPERATIONAL DEFINITIONS

(1) **Socio-demographic characteristics** of eye injury patients include age, sex, nationality, ethnicity, marital status, education, occupation, and income.

(2) **Knowledge/information of eye injury** in this study means that the patient is acquainted with the basic facts about eye injury accumulated in the course of time by study or experience. Information means the collected facts and data about a particular subject that can be communicated to others. Five factors about eye injury were assessed which includes causes, symptoms, protection/prevention, treatment and complication.

(3) **Treatment seeking behavior** in this study means behavior of eye injury patients that encourages them to seek first treatment at any health facilities and time interval for seeking treatment means time taken by patient to visit eye hospital after sustaining injury.

(4) **Risk perception of eye injury** means the patient act or faculty by means of the senses or the mind that is derived from sensory process while a stimulus (eye injury) is present. Perception in this study refers to the perception of patients with eye injury on following components, likelihood estimates (identity, cause, timeline) and severity estimates (controllability, consequences). (Cameron *et al.*, 2003).

(5) **Source of information** includes information about eye injury from media such as TV, radio, and newspaper as well as advice from former patient, family members, and friends or from pharmacy shop/private practitioner.

(6) **Accessibility** in this study means distance between patient's home and hospital, traveling time and traveling cost to travel this distance and mode of transportation used by patients for traveling.

### **(7) Grading of severity of eye injury:**

Clinical features of the injury were categorized as “mild”, “moderate” and “severe”. Mild injuries mean ecchymosis, sub-conjunctival hemorrhage, conjunctival tear, superficial foreign body, and excoriation/abrasion of lid. Moderate injuries mean lid laceration, traumatic cataract, iridodialysis, corneal foreign body, corneal abrasion, and traumatic uveitis. Severe injuries mean corneal ulcer, penetrating foreign body, corneal rupture, iris prolapse, dislocated lens, scleral rupture, corneal bloodstain, macular/retinal damage, traumatic hyphaema, and orbital fracture. For injuries with multiple diagnoses, those with *any* “severe” component were categorized as severe, and those without a severe component were considered “moderate” or “mild”. The grading of severity of eye injuries was modified from the original perspective of the author and a “moderate” feature was added to accommodate all the scope of injuries. Expert consultant ophthalmologist suggestion was sought in this process of modification. (Khatry *et al.*, 2004).

Ocular burns constitute both thermal and chemical burns, which represent potentially blinding ocular injuries. Clinical features of the burns were categorized as “mild”, “moderate” and “severe”. Mild burns mean haziness of cornea, injection of cornea and conjunctiva and normal intraocular pressure of the eye. Moderate burns means corneal opacity, blurring of iris details, minimal ischaemic necrosis of conjunctiva and cornea (partial blanching) and intraocular pressure may be elevated. Severe burn means marked corneal and haze, blurring of pupillary outline, blanching of conjunctiva and sclera (marked whitening of external eye) and intraocular pressure may be elevated.



Table 1.1 Variable Table: Independent variables

Conceptual variable	Operational variable	Measuring scale	Determinant scale	Variable measurement method	
<b>Part1. Socio-demographic information</b>	Age	In year	Interval	Question	
	Gender	-	Nominal	Question	
	Ethnicity	-	Nominal	Question	
	Nationality	-	Nominal	Question	
	Marital status	-	Nominal	Question	
	Education	Years of schooling	Nominal	Question	
	Occupation	-	Nominal	Question	
<b>Part 2. Knowledge (17 statements) Knowledge/information (4 questions)</b>	Income	In Rupees	Interval	Question	
	Cause	Test score 5 score (statements)	Ordinal	Question	
	Symptoms	4 score (statements)	Ordinal	Question	
	Protection/Prevention	10 score (7 statements, 3 questions)	Ordinal	Question	
	Treatment	1 score (statement)	Ordinal	Question	
	Complication	1 score (question)	Ordinal	Question	
	<b>Part 3. Treatment-seeking behavior</b>	First contact to eye care facility	-	Nominal	Question
Time interval		In days	Nominal	Question	
<b>Part 4. Risk perceptions</b>		Test score 9 statements			
	<b>4.1 Likelihood estimates</b>	Identity, cause, timeline	6 statements	Ordinal	Question
	<b>4.2 Severity estimates</b>	Controllability, Consequences	3 statements	Ordinal	Question
<b>Part 5. Source of information</b>	Eye care providers	-	Nominal	Question	
<b>Part 6. Accessibility</b>	Travel time	Hours	Nominal	Question	
	Distance	Km	Nominal	Question	
	Travel cost	Rupees	Nominal	Question	
	Mode of transport	-	Nominal	Question	

**Table 1.2 Eye injury report variable: Dependent variables**

<b>1. Types of eye injury</b>	<b>Grading of severity of eye* injury</b>	<b>Clinical examination</b>
<b>1.1 Closed or Open globe injuries</b>	Mild	Clinical examination
	Moderate	Clinical examination
	Severe	Clinical examination
<b>1.2 Ocular burns (Thermal or Chemical injury)</b>	<b>Grading of severity of eye** injury</b>	
	Mild	Clinical examination
	Moderate	Clinical examination
	Severe	Clinical examination

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\* Khatry *et al.*, (2004)

\*\* Retrieved on December 15, 2005 from [http://www.hc-sc.gc.ca/fnih-spni/pubs/nursing\\_infirm/2000\\_clin-guide/chap\\_01c\\_e.ht...](http://www.hc-sc.gc.ca/fnih-spni/pubs/nursing_infirm/2000_clin-guide/chap_01c_e.ht...)