CHAPTER III

METHODOLOGY

3.1 STUDY DESIGN

This cross sectional descriptive study was based on primary data and conducted in eye injury patients attending Shree Rana Ambika Shah Eye hospital, Nepal, during the month of February 2006. Shree Rana-Ambika Shah Eye Hospital lies in Sidharthanagar municipality, in Rupandehi district of Lumbini zone in the Southwestern part of Nepal. The district has total area of 1360 square kilometer with population of 708,419 and the population density of 520.9 per square kilometer. The town has total population of 52,569 (Nepal Population Report 2004). The hospital serves the population of Lumbini zone, which has six districts and the neighboring Indian states of Uttar Pradesh and Bihar. Health insurance system does not exist in Nepal and the patient has to bear the cost of hospital services out of pocket. However, there is provision of poor fund (received from donors) in the hospital that provides services free of cost to the patient who cannot afford the treatment.

3.2 STUDY POPULATION

All adults aged 15 years and above eye injury patients visiting this hospital were the study population. The basis for including adult patients only in this study was that treatment seeking is more a function of adult decision.

3.3 SAMPLE SIZE

Prevalence rate of eye injury = 1.5% (Source: Shree Rana Ambika Eye Hospital)

Therefore, p = 0.015

q = 1- p = 1- 0.015 = 0.985

Maximum acceptable error (e) = 2% = 0.02

z- Value at 5% level of significance = 1.96

Therefore, required sample size (n) (Kothari, C.R. 1990). = $z^2 pq/e^2$

$$= \frac{(1.96)^2 * 0.015 * 0.985}{(0.02)^2}$$

$$= \frac{3.8416 * 0.015 * 0.985}{0.0004}$$

$$= \frac{0.05675}{0.0004}$$

$$= 142$$

Assuming the (10%) non-response rate, the total sample size was

$$= 142 + 14$$

$$= 156$$

The past trend of eye injury showed that the prevalence was 1.5% (Source: Shree Rana Ambika Shah Eye Hospital). Assuming 2% error and at 5% level of significance required sample size was 142. Assuming 10% the non-response rate, the total sample size was 156.

3.3.1 Sampling technique

Past experiences of hospital data suggested that in average 200-eye injury patient visit hospital in a month during winter season. Therefore, all adult patients visiting hospital during working hours (9.00 a.m.-17.00 p.m.) were included in this study.

3.3.2 Inclusion criteria for sample selection

(A) All adults aged 15 years and above visiting hospital with eye injury.

(B) All kinds of eye injury patients visiting the hospital for treatment.

3.3.3 Exclusion criteria

(A) Patients less than 15 years of age.

(B) Patients with multiple injuries who need immediate medical attention.

3.4 RESEARCH INSTRUMENT

The research instrument was face-to-face interview using structured questionnaires; patients were interviewed after undergoing clinical examination. The questionnaires was translated from English to Nepali and Hindi by two independent expert translators, then compared and adjusted to make sure that the original meaning was retained. The questionnaires were divided into six sections as follows.

Part I: Socio-Demographic characteristics

This part of the questionnaires included 8 questions about age, sex, nationality, ethnicity, marital status, education, occupation and monthly income.

Part II: Knowledge/information on eye injury

Five factors about the basic knowledge of the respondents were assessed which includes cause, symptoms, protection/prevention, treatment and complications of eye injury. The knowledge/information section on eye injury was separated into knowledge part and the information part. The knowledge part had 17 statements and one point score was granted for each correct answer. On the basis of median the knowledge was categorized into three levels, low, moderate and high levels. The information part had four questions each carrying one point score for correct answer. On the basis of median the information was categorized into two levels low and high (Dandona *et al.*, 2001).

Part III Treatment-seeking behavior of eye injury patient

There were two questions in this part of the questionnaire, asking the respondent from who did them first seek the treatment and the time interval taken by patient after injury to seek treatment in the eye hospital.

Part IV Risk perceptions regarding eye injury

In this part there were nine sets of statement regarding risk perceptions of eye injury. Each statement carried two point score for correct answer. For the perceptions of patients with eye injury threat; three rating scales was applied with the subjects being asked to respond "yes", "no" and "do not know". On the basis of mean the perception of the respondents was categorized into three levels, low, moderate and high.

Part V: Sources of information about eye injury

This part of the questionnaires included two questions inquiring the sample population, which sources of information lead them to the eye hospital and were they referred to eye hospital by any of the eye care providers.

Part VI: Access to eye hospital

This part of the questionnaires included four questions asking the respondents the distance from home to eye hospital, time required to travel this distance, the cost incurred for this travel and the mode of transportation used by respondent for traveling.

3.5 QUALITY OF RESEARCH INSTRUMENT

3.5.1 Reliability

For reliability of questionnaires, pre test was performed among 20 hospital patients at the study site before doing the actual data collection. The question was rephrased, rearranged and adjusted to the situation so that respondent could understand

the meaning of it. The Cronbach's alpha coefficient for internal consistency was found to be 0.69 points for knowledge/information and risk perceptions part of the questionnaires.

3.5.2 Validity

After investigator developed all possible questions, which was needed for the study consulting with the thesis advisor and two content experts was carried out to ensure the content validity of the developed questionnaires.

3.6 DATA COLLECTION

Structured questionnaire was administered to collect the required information. Three interviewers were involved in this study out of which one was postgraduate MD resident and two were senior ophthalmic assistant. The interviewer was trained about the objective, methodology, and data collection tools. The interviewer was trained to determine the severity grade of eye injury patients according to the study protocol and to correctly fill up the eye injury report form. They were trained on each and every questions of the questionnaire to ensure quality data and to familiarize with the purpose and meaning of the questionnaires. The collected data was crosschecked.

3.7 DATA MANAGEMENT

The investigator with the help of three assistants collected the data. The collected information was entered into SPSS version 11.5. Double data entry was done to ensure integrity and accuracy of the data. The investigator had two data entry assistants to store and manages the data. The assistant was explained about the questionnaire coding and grading system, data storing and analysis system to ensure the accuracy of collected data.

The socio-demographic data was managed in the following way: age category of patients was classified according to previous study (Khatry *et.al.*, 2004). According to the latest census of 2001, Nepal's population was 23,151,423 as of June 2001. The average annual growth rate of population during the last decade (1991-2001) was 2.25% (CBS 2002). The census also revealed that the sex ratio, males per 100 females was 99.8 (49.95% males and 50.05% females). The age structure of Nepalese population shows that more than 39% of its present population is under 15 years of age. Similarly, more than half of the population is in the age group of 15-59. The expectation of life after birth for males was 55 years and for females 53.5 years in 1991. Mortality estimates used in the population projection life expectation of life at birth for the Nepalese has reached 59.7 years (Nepal Population Report 2004). The nationality of the respondents was confirmed by checking any identity card (e.g. citizenship card, voting card, ration card, driving license). In case of children, parents/guardian identity card was checked. The classification of caste/ethnicity, education level was based on Nepal Population Report 2004 (Ministry of Population and Environment 2004). The time interval for treatment seeking was based on median. The distance from home to eye hospital, traveling time, and traveling cost was based on partition value.

3.8 DATA ANALYSIS

The statistics used for data analysis were as follows:

Descriptive statistics:

Frequencies, percentage was used to analyze the socio-demographic data, treatment-seeking behavior, sources of information/referral status regarding eye care facility and eye hospital and access to the eye hospital.

Inferential statistics:

Hypothesis testing was done using Chi-square test to identify association between knowledge/information level and perception level. The knowledge/information section on eye injury was separated into knowledge part with 17 statements and the information part with four questions. Each correct response carried one point score (De Sole *et al.*, 1988). On the basis of median the knowledge was categorized into three levels, low, moderate and high levels. Respondent scoring less than or equal to six was considered as having low level of knowledge, those scoring seven to nine as having medium level of knowledge, and those scoring above ten as having high level of knowledge. On the basis of median the information was categorized into two levels low and high. Respondent scoring less than three was considered as having low level and above three as having high level of information.

There were nine statements to test the perception of the respondents. Each correct response carried two point score. On the basis of mean the perception was categorized into three levels, low, moderate and high. Respondent scoring less than or equal to 14 was considered as having low level of perception, those scoring 15 to 17 as having moderate level of perception and those scoring above 17 as having high level of perception.

3.9 ETHICAL CLEARANCE AND CONSENT

Ethical approval was obtained prior to the study from Nepal Health Research Council according to National Health Research policy guideline. Verbal consent was taken from hospital authority. Verbal consent was taken from each individual respondent before questionnaire administration. Respondent received explanation on full description

of the study including benefits and were fully entitled of confidentiality and voluntary participation.

3.10 LIMITATIONS OF THE STUDY

Following were the limitations of the study

(1) The study was based on hospital visiting respondent only. The study therefore may not represent the total population covered by the hospital.

(2) All the information relied on respondent answer on the relevant question, which sometimes could be subjective.

(3) There were no subjects without eye injury in this study therefore the finding cannot be generalized to the general population. For example the proportion of farmer was highest in this study. This finding did not allow to draw the inference that farmer were at the highest risk group since the occupational distribution of the population was not observed.

(4) Since the sample population was eye injury patients who visited the hospital during winter season and within one-month period they may not represent the seasonal variation.

3.11 APPLICATION/BENEFIT OF THE STUDY

The findings of this study will be useful to all concerned service providers (policy makers, doctors, administrators) to formulate program/policies in order to address the problems of eye injuries. The study will be useful in delivering more awareness and knowledge to the people in the prevention of blindness from ocular injury.